LOCATION DECISIONS OF FAMILY PHYSICIANS IN SASKATCHEWAN: WHAT REALLY MATTERS?

A Thesis Submitted to the College of

Graduate Studies and Research

in Partial Fulfillment of the Requirements

for the Degree of Master of Public Policy

in the School of Public Policy

University of Saskatchewan

Saskatoon

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ABSTRACT

This study examined the location decisions of family physicians in Saskatchewan by determining the factors that influence family physicians' location decisions, and identifying the major themes from the factors. The research employed a rational choice model as a basis to design the methodology and explain how Saskatchewan family physicians make their practice location and re-location decisions. A mixed method approach, including an on-line questionnaire survey and interviews with key health agencies, was used to collect and analyse data. Data from the survey were summarised using summary statistics and cross tabulation. Responses from stakeholder interviews were transcribed and analyzed using interpretive description method. The mixed method approach elicited a rich and detailed description of family physicians' location decisions.

Participants of the study ranked family concern, work-life balance and community influence as the most influential factors of family physicians' location decisions. The fourth factor of locations decisions according the study was compensation. Although compensation was mentioned as a factor, it was recorded as the least influential factor among the participants of this research. Other factors that were identified as having some influence on practice location choices were respect and appreciation, and scope of practice.

To conclude, the study found that location decisions are not only about identifying the major influential factors of practice location choices, but also involve finding a good match between family physicians and potential practice locations and communities. That is, family physicians' preferences must match the characteristics of the potential communities. Based on the conclusion, the study made two policy recommendations regarding the matching between family physicians and communities. The first policy recommendation is strategic matching between family physicians and communities for more efficient and effective recruitment and retention. The second recommendation is providing strategic incentives to ensure access to family physician services for the population in communities that do not meet the requirements of the strategic matching.

ACKNOWLEDGEMENTS

I would like to express my utmost gratitude to my supervisor Dr. Haizhen Mou and co-supervisor Prof. Rose Olfert for their support, guidance and patience throughout this process. I would also like to express my deepest gratitude to Prof. Donna Goodridge. Without their support this thesis would not have been possible. They took me through the process of academic writing, critical and analytical thinking. I acknowledge and appreciate the work of the external examiner Dr. Peter Butt and thesis chair Dr. Daniel Beland.

I am grateful to the study participants. Without their participation and willingness to share their ideas, experiences and opinions, this study wouldn't have been possible. I would also like to thank the Saskatchewan Medical Association, the Physician Recruitment Agency of Saskatchewan, College of Physicians and Surgeons Saskatchewan, College of Medicine Continuing Professional Education, College of Medicine Alumni Office, Saskatoon Health Region and Regina Health Region. In particular I would like to thank Dr. Brian Geller, who served as a link between the family physicians and me.

I would like to thank my parents Dr. and Mrs. Addo Ampofo for their love, advice and support. I cannot forget Ursula Acton who helped to edit the thesis. I am also indebted to my mentor and Assistant Deputy Minister for Corrections and Policing, Tammy Kirkland, Fred Burch and Constance Hourie for their understanding and patience as I strived to balance school and work. Lastly I would like to express my appreciation to Jordan Hunstad for his patience, love and support throughout this period.

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CHAPTER 1
INTRODUCTION

1.1. Background

Family physician is the foundation of the health care system. The first contact of a patient with the health care system usually starts with seeing a family physician. The maintenance of a strong family physician workforce is critical for the accessibility and quality of primary health care.

Recently, issues relating to family physicians have received substantial attention from the mass media, researchers, the public, and policy makers. One reason is that physicians are the core of the health care system in Canada and make up about 13.6% of the total health expenditure (CIHI, 2010). The presence of family physician in rural and small communities is particularly important (Pong and Pitblado, 2005); for example, access to family physicians in a community contributes to the prevention of diseases, improvement in life expectancy, reduction in health disparities, and reduction in infant mortality (McMurchy, 2009).

In spite of the importance of access to family physicians, there has been an uneven distribution of family physicians among the Canadian provinces (Dauphinee, 2006). For example, Saskatchewan is one of the provinces with a relatively lower family physician to population ratio. With only 95 family physicians per 100,000 people in 2010, Saskatchewan falls below the national average of 103 family physicians per 100,000 people (See Table 1.1).

Table 1.1 Number of family physician per 100,000 population by province, Canada, 2006-2010

Year	N.L.	P.E.I.	N.S.	N.B.	Que.	Ont.	Man.	Sask.	Alta.	B.C.	Canada
2006	103	92	120	106	110	84	92	90	103	111	98
2007	107	99	116	99	111	85	91	92	106	109	98
2008	115	101	119	107	113	85	95	93	111	112	101
2009	117	89	116	109	110	90	95	93	113	117	103
2010	119	89	114	109	111	92	98	95	109	118	103

Source: CIHI (2010).

The uneven distribution of family physicians across the ten provinces may be explained by a myriad of reasons including geographic nature of a location, social-economic characteristics of a community, the demand and supply of family physicians, the practice environment, financial incentives and other government policies, family ties, culture, etc (Pope et al., 1998; Szafran et al., 2001; Chan et al., 2005; Goertzen, 2005; Lu et al. 2008; Cameron, 2010).

Over time, interprovincial migration of physicians also contributes to the unbalanced distribution of family physicians across provinces. Figure 1.1 below shows the net gain/loss of family physicians from one province to another, in each province, between 2006 and 2010. From the figure it can be deduced that between 2006 and 2010, Saskatchewan had a consistent negative net migration of family physicians. The highest family physician loss from Saskatchewan was recorded in 2008 and the lowest was in 2010. Unlike Saskatchewan, provinces like Ontario and British Columbia had positive net migration throughout the five-year period while Alberta, Quebec, New Brunswick, and Prince Edward Island did not experience a continuous loss of family physicians.

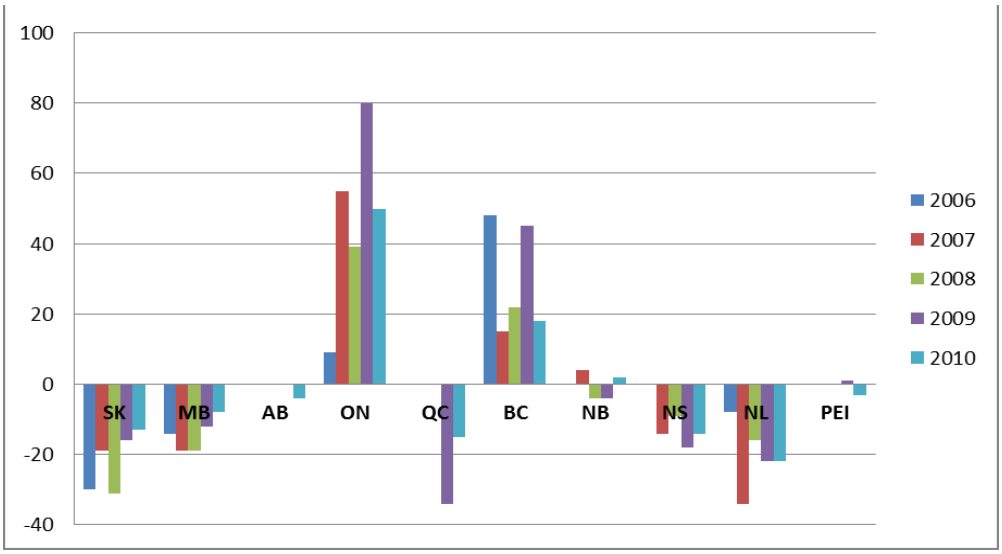

Figure 1.1 Net migration of family physicians between Canadian provinces from 2006 to 2010
Source: CIHI (2010).

In addition to the migration of family physicians between provinces, migration also occurs within each province, particularly between urban and rural communities. Table 1.2 below shows the total number of family physician and the number of family physicians per 100,000 population in each health region in Saskatchewan. The ratios suggest that rural and smaller communities (e.g. Black Lake, Stony Rapids, Meadow Lake, Biggar, Davidson, Outlook, Rosetown, etc.) have lower access to family physicians than urban communities with large populations like Saskatoon and Regina.

Table 1.2 Number of family physicians and the ratio of family physicians to population in Regional Health Authorities in Saskatchewan

Name of Health Region	Total number of family physicians	Family physicians per 100,000 population
Sun Country	37	69
Five Hills	40	75
Cypress	35	81
Regina Qu'Appelle	258	99
Sunrise	39	72
Saskatoon	368	117
Heartland	26	61
Kelsey Trail	27	67
Prince Albert Parkland	81	104
Prairie North	60	84
Mamawetan Churchill River	13	61
Keewatin Yatthé	12	105
Athabasca Health	1	41
Saskatchewan	**997**	**95**
Canada	**35,366**	**103**

Source: CIHI (2010).

Interprovincial and internal migrations of family physicians have contributed to the inadequate access to family physicians for rural populations in Saskatchewan. For example, CBC News reported the loss of family physicians in 22 towns and the resultant insufficient numbers of family physicians to meet the needs of the communities (CBC News, 17 August 2011). A typical situation involves the town of Shellbrook where emergency rooms only operated on weekends because the town had lost three of its six family physicians.

As a solution, many communities have to depend on the recruitment of International Medical Graduates (IMGs). In 2011, 54% of family physicians practicing in Saskatchewan were internationally trained (CIHI, 2011). Recently, the Physician Recruitment Agency of Saskatchewan went on a recruitment mission to India in search of qualified family physicians to fill positions in rural communities (Caulfield, 2012). However, the issue with IMGs is that they often move to urban centres when they attain their full practice license (Buske, 2008), still leaving some communities with insufficient supply of family physicians. Understanding the location choice of family physicians including IMGs becomes an important policy question.

1.2. Research Purpose and Questions

This study examined the location decisions of family physicians in Saskatchewan by answering the following questions;

- What are the key factors that influence family physicians' location decisions?
- What factors attracted family physicians to their current locations of practice?
- What factors are keeping family physicians in their current locations of practice?

This study used a rational choice model as a basis to design the methodology and explain how Saskatchewan family physicians make their practice location decisions. The study employed a mixed-method approach. The quantitative part of the study was a questionnaire survey for family physicians, and the qualitative part of the study involved interviews with representatives of selected health agencies. Data from the survey were summarised using summary statistics and cross tabulation. Responses from stakeholder interviews were transcribed and analyzed using interpretive description method. The mixed method approach elicits a richer and more detailed description of family physicians' location decisions.

1.3. Relevance

Most studies on physician migration in Canada have been quantitative in nature. This study employed both quantitative and qualitative approaches. The intent of using surveys and interviews was to get an in-depth understanding of the issues and factors relevant to family

physicians' location decisions. Unlike other studies of physician migration that were conducted within narrow economic models, this study uses a rational choice model to understand the effects of personal, community, and structural level factors on family physicians' location decisions. The location decision factors identified in this study may serve as a resource for policy making by stakeholder agencies who are interested in family physician recruitment and retention.

1.4. Thesis Outline

This thesis is organized into six chapters. Chapter 1 provides a background to the study. Chapter 2 reviews the relevant literature and materials. Chapter 3 provides an overview of the theoretical framework for the study --- the rational choice theory. Chapter 4 describes the methodology used in the study. Chapter 5 analyzes the collected data and identifies the main themes that may affect family physicians' location decisions. Chapter 6 concludes with a summary of the findings, possible policy interventions, and suggestion for future studies.

CHAPTER 2
LITERATURE REVIEW

The purpose of this chapter is to review the literature and materials relevant to the scope of this research. This chapter is divided into two sections. The first section reviews various theories on labour migration. The second section summarizes past studies' empirical findings about factors that influence family physicians' location decisions.

2.1. Theories of Labour Migration

Migration of skilled workers is a complex phenomenon. Researchers on migration have categorized the factors influencing migration into push and pull factors (Ravenstein, 1889). The push and pull factors form the basis for many migration studies (Dorigo and Tobler, 1983). Push (supply side) factors represent unsatisfactory elements in the location where the individual is currently located, and pull (demand side) factors represent elements elsewhere that appeal to, and attract, the individual (Parkins, 2010). Both factors influence the final decision to either stay or leave. Several theories have since emerged to explain skilled migration, including human capital theory, neoclassical economic theory, structuration theory, and rational choice theory. These theories are explained briefly below.

2.1.1. Human capital theory

Human capital theory is one of the traditional theories of migration. It treats migration as a human capital investment. According to this theory, skilled migration is motivated by the desire to seek better opportunities with regards to employment and compensation that are more appropriate for the individual's skill level and education (Portes, 1976). Based on this theory, family physicians with professional training and transferrable skills expect to yield benefits when they migrate or change locations. Grant and Oertel (1997) have explained migration as "an investment that has an immediate cost but yields a positive expected future return" (p. 164). This theory thus infers that compensations should have strong influence on family physicians' decision to move from one practice location to another. On the other hand, Wolfel (2005) argues that although human capital explains the decision of an individual to move to another location

based on employment opportunities, the process of decision making is, in fact, affected by other factors that are external to the individual.

2.1.2. Neoclassical economic theory

According to the neoclassical economic theory, migration results from decision making that weighs benefit against cost of actions (Todaro, 1997; Carletto et al., 2005; Oberoi and Lin, 2006; Vanasse, Scott, Courteau, and Orzanc, 2009). This theory postulates that after considering expected benefit and cost in origin and potential destination, individuals move to the destination if the expected net return is higher. Thus, assuming that all the other conditions are the same in both locations, location decisions are made based mainly on the wage differences. According to Carletto et al. (2005), potential migrants also assess the probability of success, i.e. whether or not they will be able to stay in the destination location. This theory is similar to the human capital theory in the sense that the focus is on wages and compensation. However, human capital theory also focuses on the skill set of the individual and thus decisions are made based on wages and employment opportunities that recognize the skills of the individual.

2.1.3. Structuration theory

Structuration theory incorporates structural and institutional elements like labour market supply, policies, infrastructure, and networks with family, friends or people etc, on top of individual level factors (Iredale, 2001; Wolfel, 2005). Structural determinants of migration include rules, policies, resources and networks, etc. (Wolfel, 2005). The individual collect the necessary information about the available resources, policies and institutions to inform the final decision. This theory to some extent departs from neoclassical economic and human capital because it goes beyond individual level factors and recognizes the interactions between an individual and the social environment.

2.1.4. Rational choice theory

Unlike neoclassical economic theory and human capital theory, rational choice theory does not focus mainly on wage difference or compensation. It is premised on the idea of the individual being a rational agent who makes decisions that yield profitable results in the future, where profitable results mean not necessarily economic gain. According to this theory, an individual identifies opportunities sufficient to address the needs of his/her household and benefit the number of people affected by the decision (Faist, 2000). This theory has proponents such as Haug (2008) and Elster (2009), both of whom have investigated migration using the rational choice theory. This theory will be explained in more detail in the next chapter.

Goertzen (2005) conducted a study which compared recruitment and retention of family physicians in rural practice to the four-legged kitchen stool. The four factors are personal interest and background, appropriate training, community attributes, and working conditions. In the paper, he mentioned that each leg of a stool is important to provide stability and requires equal attention for the recruitment and retention of physicians in rural communities. While Goertzen (2005) does not discuss rational choice theory, his study supports rational choice theory.

2.2. Factors that Affect Location Choices of Family Physicians in Canada

This section discusses selected literatures that examine factors influencing location choices, recruitment, and retention of family physicians in Canada.

2.2.1. Factors influencing location choices of family physicians

Although literature on family physicians' location choices cover a wide variety of factors, this review will focus on the major factors that emerged repeatedly throughout the literature reviewed. These major factors are work-life balance, workload and on-call schedule, quality of life, compensation and incentives, spousal employment, children's education, community influence, medical education and upbringing.

Szafran et al. (2001) used a cross-sectional survey to examine the factors that influenced family physicians' choices of practice locations in Alberta. The factors identified by the researchers include income, loan repayments, spousal influence, proximity to extended family, type of practice, working hours, community effort to recruit, and medical need in the area. They also found that these factors impact male and female family physicians and rural and urban family physicians differently, and that these differences should be considered in recruitment policies.

Benarroch and Grant (2004) used a multinomial logit model to assess the causes of interprovincial migration of family physicians and specialists in Canada between 1976 and 1992. This study revealed that many physicians chose to move from their previous province of practice to other provinces based on expected real income. Rajbhandary and Basu (2006) also conducted a research on the relationship between income and the decision to leave one province for another. Using McFadden's conditional logit discrete-choice model, they found a positive association between income difference between origin and destination provinces and decisions to move for physicians in Ontario and Saskatchewan. Although their study supports human capital and neoclassical theories, it also found other factors such as working conditions, availability of cultural amenities, etc. influenced location decisions.

Different conclusions are drawn by a quantitative study on location choices of Memorial University of Newfoundland medical graduates from 1973 to 1998 (Mathews et al., 2006). The researchers used data from sources such as class lists and alumni and postgraduate lists. Their study revealed that out of the 1,322 medical graduates, 1,147 (86.8%) were practicing in Canada at the time of the study, and 406 (30.7%) remained in Newfoundland. Rather than what human capital and neoclassical theorists postulate, the study found that factors such as the physician's gender, year of graduation from medical school, and background or upbringing are more likely to contribute to the medical graduates' choices of practice locations than income does.

2.2.2. Factors that influence rural-urban migration

Rural-to-urban migration brings to light issues unique to rural medical practices. Different studies have different definitions for rural and urban. A commonly used definition is the "rural and small town definition" of Statistics Canada: "population outside commuting zone of centres with a population of 10,000 or more" (du Plessis et al., 2001).

Rural communities experience greater net losses of family physicians through internal migration. A study by Mathews and Park (2007) revealed that the physician turnover in rural Canada was estimated to be 18% to 30% annually. The researchers discovered that 18% of British Columbia physicians were in the process of relocating from rural to urban communities at the time of the study; and 52% of Saskatchewan physicians had relocated from rural to urban communities within a period of five years from Fiscal year 1992/93 to fiscal year 1996/97.

Chan et al. (2005) conducted a study to examine factors influencing family physicians to enter rural practice. Participants of this study were rural family physicians who graduated between 1991 and 2000 from a Canadian medical college. Results of the study showed that family physicians who had rural upbringing were more likely than those with urban upbringing to have some interest in rural family practice at the beginning and end of their medical training. However, exposure to rural practise during medical education is more likely to influence an individual's final decision to practice in rural areas than rural upbringing. Similarly, the study by Mathews et al. (2006) identified having rural upbringing and rural residency training as factors influencing the choice of rural medicine.

In a study conducted by Yang (2003), results showed that rural communities continue to experience physician recruitment and retention problems despite the financial incentive programs in place. The study involved 405 rural physicians and 405 urban physicians, and examined factors affecting physicians' settlement in practice locations. Results of the study showed that most urban physicians (71.7%) would not relocate to rural communities. Those who would consider relocating to rural communities wanted an increase of about 35% in income. The study also revealed that 18% of rural physicians were planning on relocating to urban centres to

practice. On-call issues and family reasons such as children's education and spousal employment were also identified as the factors that influenced the respondents' decision to move from rural to urban communities. This implies that financial incentive policies are important but financial incentive policies alone are not enough to recruit and retain physicians in rural communities.

Lu et al. (2008) investigated factors affecting the career choices of family medicine graduates and their intentions to enter rural practice. The researchers conducted one-to-one interviews and focus-groups with 17 male and female second-year family medicine residents. The results showed that, in the long term, the residents or participants were planning to set up urban practices. Factors like workload, lifestyle, family reasons, and lack of community support were cited as reasons for not choosing rural practice locations.

In another study, Mayo and Mathews (2006) conducted interviews with 13 family physicians practicing in rural communities and their spouses to find out how spousal concern and perception of rural community influenced recruitment and retention in those areas. Spouses of family physicians were shown to have considerable influence on physicians' decisions to relocate. The researchers also found workload, community integration, remuneration, and licensure to be related to spousal satisfaction, and family physician recruitment and retention.

In a retention-focused study, Cameron (2010) conducted a qualitative research in four rural Alberta communities to investigate the factors that influenced physicians' decision to remain in their respective communities. The study focused on the role of communities in physician retention. The study involved physicians and their spouses, and the communities. Cameron collected and analyzed data through interviews, observations, and literature. Although the four communities were different in their own respect, most factors identified were common to all: scope of practice, spousal and family support, and active support from the community influenced physicians' decision to remain in these communities (Cameron, 2010, p. ii).

2. 3. Summary

The theories and literature summarized above present multi-factorial reasons for location and relocation decisions of family physicians. These researches inform the choice and

construction of the theoretical framework for this study, which will be discussed in detail in the next chapter.

CHAPTER 3
THEORETICAL FRAMEWORK: THE RATIONAL CHOICE MODEL

The study of family physicians' location and relocation decisions requires consideration for all the factors identified in the previous chapter. The rational choice model as explained in the subsequent paragraphs will form the theoretical framework upon which this study is built. The rational choice model incorporates aspects of neoclassical economic, human capital, structural, and rational choice theories, summarizes the various factors identified in the empirical literature, and thus provides a broad perspective for understanding the location choice of family physicians.

The rational choice model is particularly useful for this study because family physicians are a highly mobile group of professionals who make location decisions throughout their career, often based on a broad set of factors. The model below is based on the models proposed by Haug (2008) and Elster (2009), but with adaptations informed by the findings from literature summarized in the previous chapter.

In this study, the modified rational choice model comprises three phases of location decision-making. This decision making usually starts with identification of desires and definition of professional careers goals. When the individual becomes aware of his/her desires, aspirations, and goals, then, based on their preferences, they assess the total costs and benefits associated with leaving versus staying, and then make a location decision. Figure 3.1 below illustrates the modified rational choice model for this research.

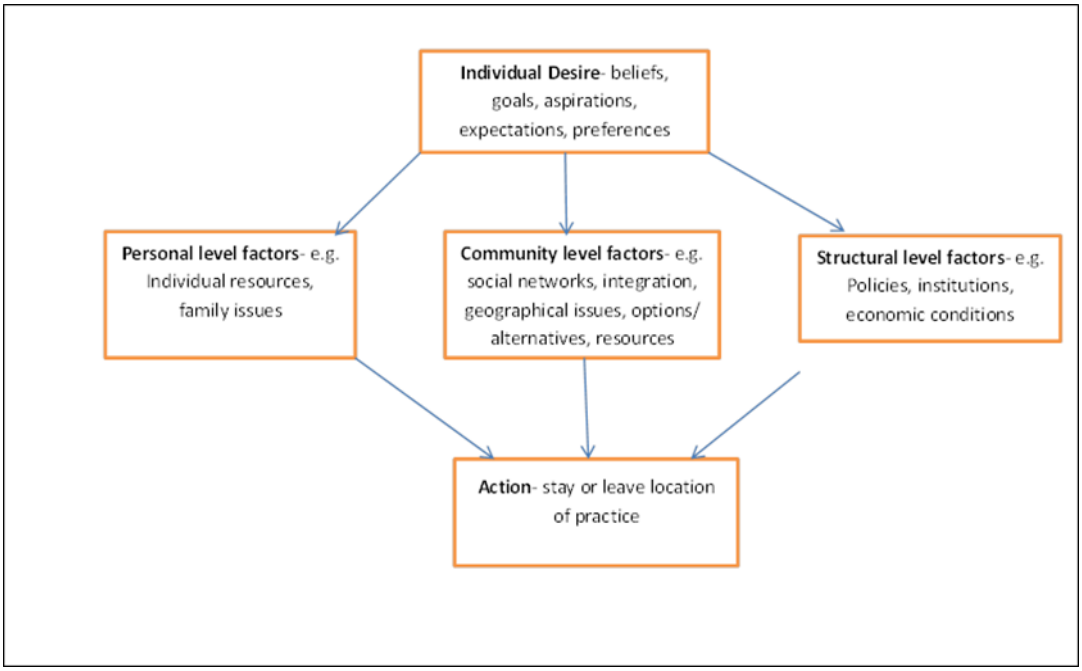

Figure 3.1. The rational choice model

Source: An adaptation of Figure 1 "Standard view of rationality" in Elster (2009) and Figure 1 "Multilevel model of migration decision-making and social networks" in Haug (2008).

Figure 3.1 above shows the stages of the decision-making process and the factors involved for the location decision of the family physicians. It should be noted that the process may vary from one group of family physicians to another depending on practice location, gender, places of medical training, etc., as suggested by the studies discussed in the preceding literature review chapter.

According to the model in Figure 3.1, before making a decision to either stay in or leave a practice location, individuals consider their values, desires, expectations, and personal aspirations such as career goals. These desires and expectations are indirectly shaped by the individual's belief and value system. This phase also includes self-assessment to identify status and personal conditions such as skills, needs, and expectations in terms of the current or the potential location.

The next step includes exploring options and alternatives through gathering of information on the potential location, and the resources, facilities and amenities, incentives, and

opportunities available in both places. Then there is weighing of personal cost and benefits in the current location to that of an alternative location based on three levels of factors: personal level, community level, and structural level. All these three levels of factors interact to impact the location decisions of family physicians. No single level of factor can be the only influential factor in location decisions.

Personal level factors. The literature discussed in the previous sections have stressed personal level factors including wages, compensation, economic benefits for families, the skills of the individual, personal interest, the role of the family, work hours, and continuing medical education (Massey, 1990; Rourke, 1993; Grant and Oertel, 1997; Benarroch and Grant, 2004; Goertzen, 2005; Mayo and Mathews, 2006; Rajbhandary and Basu, 2006; and Vanasse et al., 2009). A family physician compares expected cost and benefit of the household associated with the current location and potential alternative locations by taking into account his or her human capital investment. Based on the result of the comparison, the individual is pulled towards the location with the higher net return.

Community level factors. The community resources offered at both the current and the potential locations would include amenities like schools for the children, jobs for the spouses, seniors' facilities for parents, community groups for spouses and/or parents, and recreation facilities for the family (Pope et al., 1998; Kogo, 2009; Goertzen, 2005; Cameron, 2010).

Structural level factors. In addition to personal and community level factors, structural level factors also influence family physicians' decisions to stay or leave their practice locations. These factors range from local socioeconomic conditions to economic structures at the region, provincial, national and international levels including such things as health facilities, policies for family physicians, migration policies, policies regarding licensing and practicing, etc. (Harrison, 1998).

Finally, an action is taken. A decision is made after careful considerations and consultations with all parties affected by the decision. The final decision making takes into account personal desires and expectations, economic and socio-cultural issues, costs and

benefits, and the structures that exist. This final decision is expected to produce the highest benefit for the family physician and all other individuals affected by the decision.

Although past literature informs this study, it does not situate family physician migration within a comprehensive decision-making framework. Past empirical studies on physician migration have focused on the individual components of the rational choice framework. For instance, some studies have focused on income by using the narrower human capital and neoclassical theories (Grant and Oertel, 1997; Rajbhandary and Basu, 2006). Other researchers have shifted attention to just the family and community (Pope et al., 1998; Mayo and Mathews, 2006; Cameron, 2010), while some studies have found factors such as climate, workload, support from colleagues, location of medical education and medical residency, etc (Benarroch and Grant, 2004; Ryan and Stewart, 2007; Kogo, 2009). The rational choice framework brings together all the factors that have been explored separately by researchers and determines how they jointly impact family physicians location decisions.

In the following chapter, I used the rational choice framework to guide the design of the questionnaire and interviews and the analyses of the data.

CHAPTER 4
DATA COLLECTION AND METHODOLOGY

The study employed a mixed-method research approach. The quantitative part of the study was a questionnaire survey for family physician, and the qualitative part of the study involved interviews with representatives of selected health agencies. Quantitative and qualitative data were collected concurrently and integrated during data analysis.

A mixed-methods approach was chosen for this study to obtain in-depth knowledge and responses to the research questions because neither quantitative nor qualitative research design is self-sufficient to capture a complex subject like physician location decisions (Ivankova and Stick, 2007). While a representative quantitative sample can be used to make broader generalizations, it does not explain why things happen (Vuttanont, 2010). Qualitative research such as interviews and focus groups can fill this gap (Ivankova and Stick, 2007; Vuttanont, 2010). Under a mixed-method approach, the qualitative and quantitative data and findings complement and support each other to help eliminate biases that pertain to a single method (Creswell, 2003). Since mixed-method studies are inclusive, extensive, and complementary, problems relating to validity and reliability were minimized (Burke and Onwuegbuzie, 2004).

Ethical approval for the study was given by the Ethics Board, University of Saskatchewan (see Appendix E). Approval and endorsement was also sought from the Saskatchewan Medical Association before the invitation was sent to all family physicians. In addition, consent was sought from participants, and confidentiality was maintained. Participants for both the survey and the interviews completed consent forms before taking part in the study (see Appendices A and B for details). The study was explained to participants in the invitation letter, and they were given the opportunity to ask questions, decline, or withdraw from the study.

4.1. Participants of the study

4.1.1. Survey participants

Using a cross-sectional online survey, all family physicians that were actively practicing in Saskatchewan were invited to take part in the survey. In order to be eligible for the study, family physicians had to be licensed to practice in Saskatchewan, and be actively practicing in Saskatchewan at the time of the study. The list of actively practicing family physicians was obtained from the College of Physicians and Surgeons, Saskatchewan. The number of eligible participants was 991.

4.1.2. Interview participants.

Using a purposeful sampling approach, nine stakeholder agencies were invited to be part of the study. The stakeholder agencies were selected based on their knowledge, expertise, and the roles they play in family physicians' recruitment and retention in the province. Invitation letters and consent forms were mailed out to all the nine health agencies. However, six agencies were able to take part in the interview. The six stakeholder agencies are Regina Health Region, Saskatoon Health Region, Saskatchewan Medical Association, Physician Recruitment Agency of Saskatchewan, College of Medicine Continuing Professional Education, and the College of Medicine Alumni Office. One key informant, usually an individual in management positions with extensive knowledge about the topic under study, was selected from each of the six remaining stakeholder agencies. Key informants had first-hand information about Saskatchewan family physicians, and thus were able to provide both insight into the problem and recommendations. Key informants were informed about the transcription through the invitation letters and consent forms prior to the data collection.

4.2. Data collection method

4.2.1. Survey data collection procedure

An online questionnaire, with both open and close-ended questions, was designed for the survey. The questionnaire was divided into four parts: general information, education and professional background, migration information, and information on recruitment and retention. The questionnaire (see Appendix C) was designed based on the rational choice framework and the findings of past studies on physician migration. A pilot study was conducted at the Saskatoon East Family Physicians Clinic and with another family physician practicing in Regina.

Family physicians were recruited through the Saskatchewan Medical Association (SMA). A website was created for the study to invite family physicians to take part in the survey. An email explaining the study, and with a link to the website, was sent through the SMA to all family physicians actively practicing in the province. The objectives and nature of the study were explained on the website together with instructions for the participants. Individual family physicians who have interest in being part of the study visited the website for detailed information. Family physicians who took part in the study filled the online questionnaire and consent form, and submitted it electronically.

4.2.2. Interview data collection procedure

The qualitative part of the study consisted of interviews with stakeholder agencies. A semi-structured interview guide (see Appendix D) was used for the key informant interviews. The interview guide, designed based on the guidelines provided by Kumar (1989), was guided by the reviewed literature and past studies on physician migration. Interested representatives completed the consent form and mailed it back to the researcher with the name and contact details of the person who agreed to be interviewed.

Interviews were conducted either by phone or face-to-face according to the preference of the key informant. For all interviews, the times (and locations for face-to-face interviews) were

decided by both the researcher and the key informant. Three face-to-face interviews took place in the offices of the key informants and one face to-face interview was conducted in the graduate student office of the Johnson-Shoyama School of Public Policy. All interviews were audiotaped. Both verbal and non-verbal behaviours, such as gestures, were noted during the interviews.

4.3. Data analysis method

4.3.1. Survey data analysis

Data from the survey were stored, managed, and summarised using SPSS 16.0. Descriptive statistics, cross tabulation and correlation, and chi-squared tests were used. The alpha/ significance level for chi-squared tests was set at 0.05.

4.3.2. Interview data analysis

Data from stakeholder interviews were stored and managed using 'Dict-walk about transfer application', Google docs, and Microsoft Word and Excel. Data were transcribed and analyzed using interpretive description methods. Interviews were transcribed verbatim by the researcher and then were subsequently reviewed by the researcher to ensure that the responses were clear and themes and factors could be identified. Key informants were provided with the opportunity to review the transcript for clarity and verification of accuracy.

4.3.3. Integration of survey and interview results

According to Creswell and Plano (2003), integration of qualitative and quantitative data can be done at any stage of the study. At the data analysis stage of a mixed-method study, integration can be done through transformation or interpretation. Similarly, Jeanty and Hibel (2011) suggest that, in integrating mixed-method data, the qualitative themes can be transformed into quantitative measures, or both quantitative and qualitative results can be interpreted for points of convergence. In this research, integration of survey and interview data occurred at the data analysis stage through interpretation of both quantitative and qualitative results.

Interpretive description method was chosen as the main analysis method for the combined analysis of the quantitative and qualitative data because this method helped to discover common patterns and themes that were observed during data collection and analysis (Thorne, 2008). The choice of this method was intended to dig deep into the factors leading to family physicians' final choice of practice locations. With this method of analysis, the researcher not only described the responses to questions, but also explored to find meanings and explanations with a general understanding of family physicians' decision-making processes. The identified themes were then explained using rational choice framework, to reach a comprehensive understanding of the decision-making process.

Findings from the survey and interviews are discussed in the next chapter. A summary of the study and findings was sent to all family physician participants and to all key informants.

4.4. Limitations of the study

This study was a cross-sectional survey which provided responses from a particular group of family physicians that were available at the time of the study. This research has some limitations including family physician sample size, limited time, and resource constraint.

Conducting multiple interviews with key informants and follow-up interviews with family physicians, after the initial survey data collection, would have yielded better understanding of the research topic. However, due to limited time for the study, the online survey and interviews were conducted simultaneously within a specific short period of time. Since this is a non-funded study, an online survey was used instead of a paper survey. Although the survey targeted all family physicians that were actively practicing in the province, the survey recorded a low response rate. One reason that could be accounted for this low response rate is the fact that only family physicians that had accessible emails, had internet access and were available at the time of the study participated in it. Another reason is, the online survey was conducted between the months of July and August, which is vacation time for most people in Saskatchewan. Thus, it is very likely that most family physicians might have been on summer vacation at the time of the study, resulting in the low response rate.

CHAPTER 5
RESULTS AND ANALYSIS

This chapter presents the results from the survey and interviews. These results represent the perspectives of the family physicians surveyed and key informants interviewed on the issue of location choice of family physicians. The chapter is divided into three parts. The first part provides an overview of the participants in the survey and interviews. The second part of this chapter identifies the major themes and factors that influence the location decisions of family physicians based on data from both the survey and interviews. The chapter concludes by discussing recruitment and retention policy implications. Figure 5.1 shows the stages for the data analysis.

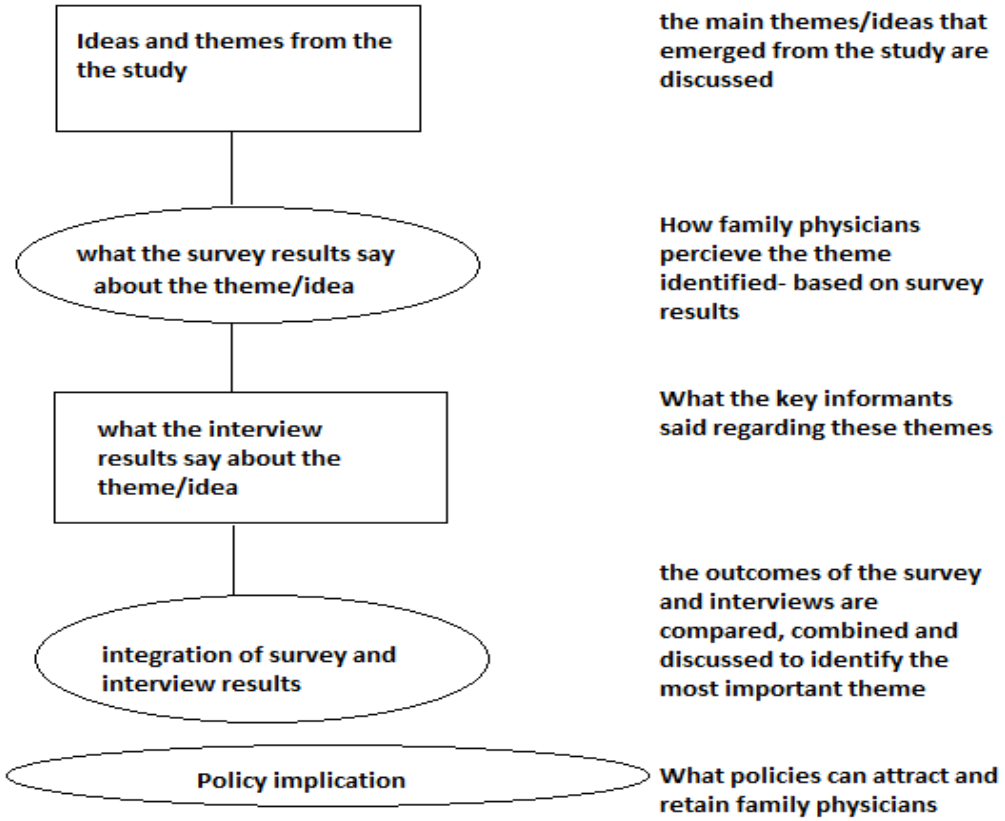

Figure 5.1 Structure of results and analysis.

5.1. Overview of Study Participants

5.1.1. Survey participants

Table 5.1 Basic Information of Survey Participants (family physicians)

Biographic Information	Percentage (%)
Age	
25-35	29.6
35-45	20.4
45-55	31.5
55+	18.5
Total	100
Sex	
Male	48.1
Female	51.9
Total	100
Marital Status	
Married	85.2
Unmarried	13.0
Other	1.9
Total	100
Do you have children?	
Yes	63.0
No	35.2
No answer	1.9
Total	100
Current type of location of practice	
Urban	60
Rural	40
Total	100
Previous practice in rural community	
Yes	56
No	44
Total	100

The study recorded a low response rate of 5.9% for the survey. A total of 54 family physicians participated in the online survey, with majority being female. The majority of participants were between 45 and 55 years of age, practiced mostly in urban centres, were married and had children (see Table 5.1). Majority of participants (53.7%) had practiced as family physicians for over 10 years. Saskatchewan was the first province of practice for 79.6% of participants. 40% of respondents were in rural practice and 44% of respondents were practicing in Saskatoon and Regina at the time of the study (See figure 5.2). Analysis of the current practice location also revealed that a substantial number of family physicians are located

in urban communities with populations of 10,000 or more. A 2011 CIHI survey revealed that majority of family physicians in Saskatchewan were practicing in Saskatoon and Regina Qu'Appelle health regions and 23% of family physicians practice in rural Saskatchewan. Although the number of rural family physicians was low in our sample, there was still over-representation of rural family physicians in this study compared to the general population of family physicians in the province.

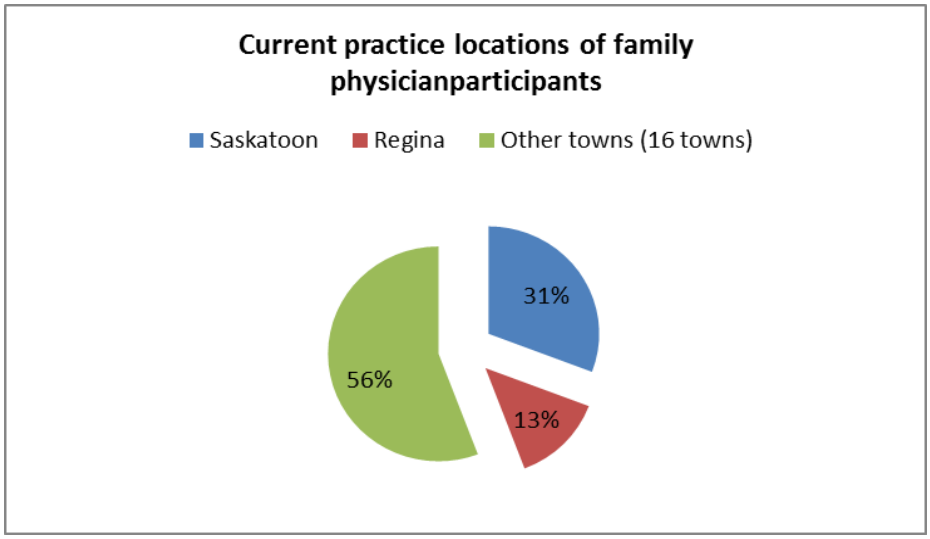

Figure 5.2 Current locations (towns) of practice

While the online survey was inexpensive, fast, and easy to track and follow, there was likelihood that it limited the number and type of people who participate in it. Some of the characteristics of the participants of this research are different from the general population of family physicians in the province. For example, majority of participants of this study were female (51.9%) compared with only 35.6% in the general family physician population (CIHI, 2011).

The causes of possible biases include sampling- the study targeted all family physicians but only those who were accessible at the time of the study took part in it, and procedure for data collection including how questionnaire was administered (email addresses and internet access were very important for participation). Other factors that could have also accounted for the

results include the type of questions and the type of group that answered those questions, the small sample size and the method of analysis.

The study acknowledges that the over-representation of some groups of family physicians and under-representation of other groups may have impacted the findings of the study. This affects the ability to generalise the results to the rest of the family physician population in the province.

5.1.2. Interview participants

For the key informant interviews, the response rate was 66.7% with a total of six participants, three males and three females. Out of these six, three identified that they had medical backgrounds. All six key informants were in management positions in their respective agencies. The selected agencies involved in the interviews will be represented using letters A to F to maintain their confidentiality and anonymity.

5.2. How family physicians make their location decisions: survey and interview results

In the survey, participants were asked to rank the top four factors that they considered to be most influential when making location decisions. The factors were obtained from the responses to an open-ended question asking about the factors that influence general migration of family physicians in the province. Table 5.2 below summarizes the responses into four major themes and lists percentages of the participants who support each theme. Overall, the top three themes chosen by participants were family influence (35.49%), work-life balance (32.26%) and community involvement (19.35%). Another theme, compensation and incentives, was identified as the least influential (12.90%) among the four themes in location decisions. The ranking of the four themes is also supported by the responses from the interviews.

Table 5.2 Major Reasons for Migration among Family Physicians in the Province

Major reasons for migration	Percentage (%)
Family influences:	
Family	9.68
Spousal employment	9.68
Children's education	16.13
Total	35.49
Work–life balance:	
Quality of life	9.68
Workload	9.68
Lifestyle	12.90
Total	32.26
Community influence	19.35
Compensation and incentives	12.90
Total	100

5.2.1. Location decision is more of a family decision than an individual choice

5.2.1.1. Findings from Survey

Table 5.2 shows that family related issues were ranked as the theme that has the greatest (35.49%) impact on location decisions of family physicians. The results show that family physicians tend to be concerned about family in general, spousal employment, and children's education. In another separate question, when participants were asked if their spouses and children influence their choices of practice locations, 83% of them responded 'yes' to the question.

Following the question on general causes of migration, family physicians were asked to provide additional comments regarding the role their families play in their location decisions in an open-ended question. Among the informative comments were "*this type of decision cannot be made in isolation; it is always the family that has the final say*," and "*we share in our decision making and want to live together as a family*." Another family physician stated that they are practicing in their current locations because they want to be closer to their families including parents and long-time friends. Because majority of the survey participants were married (85.2 %) and 63% had children, these results were expected.

The age range of the survey participants showed that most of the participants were below the age of 55 years. This could be interpreted as: most of the participants had children of school going ages, and this may have reflected in percentage of participants who perceived the education of children to be the most important (16.13%).

5.2.1.2. Findings from Interview

In the interviews responses were elicited from key informants on the factors that influence family physicians' location decisions. Similar to the findings obtained in the survey, 'family influence' was mentioned as the most influential factor in making a location decision. This was noted in the comments of key informants. For example, the key informant from agency A said that family physicians make their location decisions

> "*to be closer to the needs that their family has, for most who leave here are leaving for larger metropolitan centres and most are leaving [because] they already have family there that they want to be closer to or the family that is with them is drawing them there so that is the number 1 reason, absolutely family … activity for their family; they are rating those much higher in their decision*".

Agency D's key informant mentioned that the importance of the family in the decision making process is dependent on whether the choice of location is such that "*it's supporting family, what kind of services and employment opportunities … for my family that is my spouse or my kids*." Like past studies, results from the interviews indicate that concern for family is important in the decision making process.

5.2.1.3. Integration of survey and interviews

Both the survey and interviews suggest that location choice of family physicians is a family decision instead of an individual choice. Unlike what human capital and neoclassical theorists posit, for participants of this study, the most considered factor is family and not compensation or wage. The results also suggest that 'family' was not limited to only children and spouses but also meant parents and close friends. Family physicians, like any other group of

people, want to be located in places where they can be close to their children, spouses, aging parents, and childhood friends. The results from the survey and interviews complement and support each other by emphasizing the essential roles of families.

5.2.2. Work-life balance

5.2.2.1. Findings from survey

From Table 5.2 above, it can be observed that work-life balance (workload, quality of life and lifestyle) form the second most important factor in location decisions with 32.26% of family physicians identifying work-life balance as the influential factor in location decisions. This result is intuitive and expected since quality of life, namely satisfaction with the work, satisfaction with the practice location, and being able to balance work and family life, has been shown to be important for physicians' location choices. Workload and on-call schedule have a direct impact on the quality of life (Gurses et al., 2009). This study recorded that 41% of the survey participants were rural family physicians and 13% practiced in a mixture of environments (combination of rural and urban). Because 40% of the participants were involved in rural practice, it is not surprising that most of them voiced out their frustrations with the heavy workload and on-call schedules, which was more prominent in rural practice.

5.2.2.2. Findings from interviews

In the interviews, majority of key informants reported that the major challenge for family physicians was the ability to balance heavy workload and family life to improve the quality of life for themselves and their families. In the interviews, workload and quality of life emerged as the second most influential factors in location decisions. These factors relate to working conditions such as amount of work family physicians have to do and the amount of time they have to spend at work. Heavy workload and frequency of on-call schedules have the tendency to cause a stressful life for family physicians leading to dissatisfaction with the practice location. Heavy workload and being on-call at all times also means being away from family and spending less time with family. From the interviews, agency A's key informant said,

"*The number two reason, we think, relates fairly closely to that [family] and is the concept of work-life balance, so it's about hours of work and call rotations…. Call rotations are probably the biggest issue affecting physicians' relationships with their families because they are on call every second day, even every third day that is very onerous of the time that you have to spend with your family. Family physicians rank life style, type of practice, call rotation, workload much higher*".

This study, like previous studies, recorded that work-life balance has a more significant impact on rural practitioners. Inadequate supply of family physicians in rural practice has been the source of workload burden and burnout, and subsequently leading to tighter on-call schedules and heavier workloads. Agency B's key informant said:

"*There's just not enough doctors in rural areas, the work-life equilibrium is heavily weighted towards work.... Most of the doctors who leave Saskatchewan go to Alberta and British Columbia, and most of them are leaving because they believe they can work less and earn the same amount or more*".

Agency C's key informant explained that

"*call burden is number one…. I think it's just the work-life balance is just so difficult… in rural [practice]*."

5.2.2.3. Integration of survey and interview findings

The survey and interview results show that family physicians would like to live a less stressful life where they can balance the time they spend at work and the time they spend with their families. The decision to stay or leave a practice location is highly dependent on how a family physician is able to balance these two without compromising either of them. For rural family physicians, there is excessive workload resulting in burnout. On average, rural family physicians tend to work longer hours and have higher on-call frequencies partly due to the fewer number of family physicians involved in rural practice. Rural practice therefore tends to affect work-life balance and job satisfaction.

5.2.3. Community involvement

5.2.3.1. Findings from the survey

Table 5.2 shows that the role of the community is important in location decisions of family physicians (19.35%). The importance of community in the choice of a location was mostly for rural family practice. In addition to examining the importance of community-related influences on family physicians' location decision, various community characteristics that are key to the decision-making process were also examined.

Table 5.3 below shows the important community characteristics identified by family physicians. The responses were obtained from an open-ended question in the survey: "Which community characteristics are important to you and/or your family in choosing your location?" The table shows that 43.75% of participants considered the 'nature, infrastructure and amenities in the community' important for their location choice; 25% were influenced by community support and acceptance; and 16.67% considered community safety. Climate in the area was mentioned by 8.33% of participants. The possibility of being isolated in a practice location due to workload or inability to integrate was cited by participants as another important factor in choosing a community (6.25%). In addition to these community characteristics, some participants mentioned that being able to easily commute from their homes to their work locations was also of significant importance to them.

Table 5.3 Community Characteristics that Influence Location Decisions

Community Characteristics	**Percentage (%)**
Nature, infrastructure and amenities	43.75
Community support and acceptance	25
Safety	16.67
Climate	8.33
Isolation	6.25
Total	100

5.2.3.2. Findings from the interviews

When key informants were asked about the role of communities' involvement in recruitment and retention of family physicians, agency B's key informant asserted that "*communities have personalities, so you want to make sure the community's personality and that physician's personality are a match, so we strongly advice people and physicians and communities to do site visits more than once.*"

In terms of community characteristics such as infrastructure, amenities, and recreational assets, agency A's key informant mentioned that "*being in a community that has the amenities to support what you want to do when you are not working*" was important in recruitment and retention.

According to agency D's key informant, workload and community characteristics are closely linked. For communities that have single or individual family physician practice, the workload is usually excessive because the family physician is on-call all the time.

> "*Communities have some role too. If you want a family physician in your community make sure you're attractive for them so that your population supports them so that they are not the only guy in town so that they can take a vacation or sleep in on a Saturday morning*".

It can be deduced from the comment, from Agency D, that such a community does not meet the needs and preferences of the family physician. Thus there seems to be a mismatch between the community's characteristics and the family physician's needs and requirements.

Key informants also revealed that smaller communities present challenges to family physicians by overloading them with a lot of work.

"*I mean, you're on all the time. People are stalking you on the street, people are coming into emergency at all hours even when it's not emergency 'cause they want to see a physician*". [Agency C key informant]

5.2.3.3. Integration of survey and interviews

Both survey and interviews reveal that communities have a very essential role to play in attracting and keeping families physicians, particularly rural communities. Family physicians want to practice in safe communities where they have access to recreational and social amenities, where workload is reasonable and meet their expectations, where they feel comfortable and can 'call home'. The involvement of the community in the recruitment process is essential for long term retention of family physicians in the community because communities have different personalities and characteristics, and these should be matched to the requirements, preferences and expectations of family physicians during recruitment. It is important for family physicians to develop a close bond with communities in which they practice for integration and support.

5.2.4. Compensation and Incentives

5.2.4.1. Findings from the survey

The research revealed that family physicians are attracted to practice locations and remain in these locations when there are competitive compensation and incentive programs. When participant were asked to list the factors that influence their choice of a practice location, 12.90% mentioned compensation and incentives (see Table 5.2). Although compensation was not the most important factor, it was still recognised by family physicians as a factor that has some impact on their decision to stay or leave a practice location. This result is in congruence with findings of other studies.

5.2.4.2. Findings from interviews

The interviews revealed that compensation is not the most important factor that influenced location decisions of family physicians. This may be due to the fact that interview questions were solely on compensation and did not cover incentives. Agency A's key informant said, *"[family physicians] rank money low*," while agency C key informant mentioned that "*I don't think it's a money issue, there's good money to be made in rural.*" Agency E's key informant agreed that compensation is not a major factor in the choice of a practice location:

"M*oney really isn't the whole thing, and government often feels that if they just pour more money into it, but all the provinces are pouring money into it so it isn't gonna help a whole lot.*" Although it was obvious throughout the interviews that compensation was not a major factor, the disparity in payment was mentioned to have an impact on the choice of a practice location:

> "*I believe even the worse-paid doctor is rich and so there is no doctor who doesn't make enough money to make a living and be happy and healthy in our country. The problem there is that we again have too much disparity; that we say some doctors can take this amount and other doctors can take five times as much, and that's the problem*". [Agency F's Key informant]

5.2.4.3. Compensation and location decision: integration of survey and interview results

Unlike the first three factors discussed, discussion on compensation yielded mixed results. On one hand, family physicians were rating compensation and incentives as a location decision factor, while, on the other hand, key informants were of the view that compensation is not as important as it is perceived to be. This was interesting since some of the key informants had family practice backgrounds. This study does not contradict past studies that report that compensation plays an important role. The reality is that, family physicians in Saskatchewan are well compensated relative to family physicians in other provinces and have access to various financial incentives. Another reason is that, compensation is largely equalised across the province so there is not much difference. Thus location decision is not made solely on compensation and incentives. Additionally, within the characteristics of the respondents, other factors were more important than compensation.

5.3. Type of upbringing

This finding is drawn based on the characteristics of the survey participants and was not asked about in the interviews.

Among the survey participants, 46% of them grew up in mostly urban communities, and the remainder grew up in rural (41%) or in a mixture of rural and urban environments (13%) (See Figure 5.3 below).

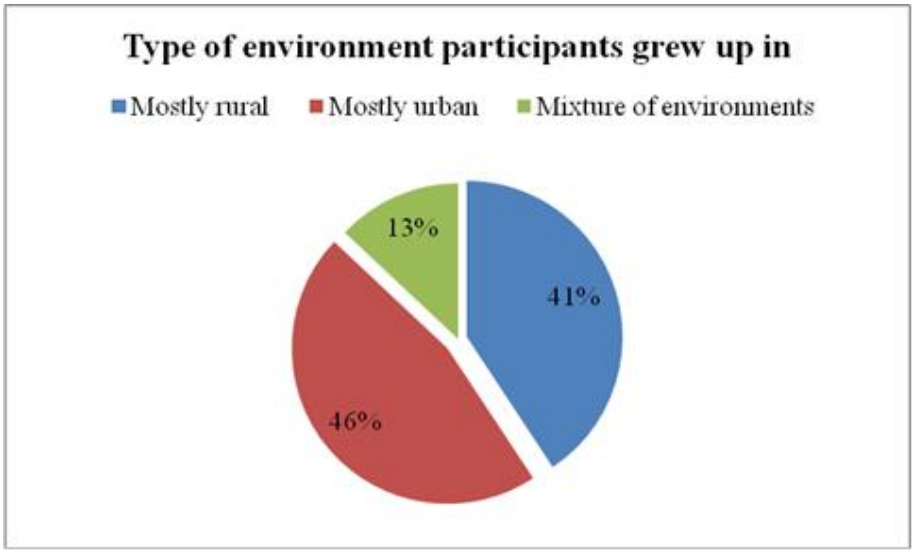

Figure 5.3 Types of environment family physician participants grew up in.

In this study, cross tabulation and Chi-square analysis were conducted to examine the relationship between family physicians' upbringing and their current practice locations (see Table 5.4). The result indicated that the type of upbringing of family physicians influenced their choice of locations, especially for rural practice.

Table 5.4 Cross tabulation of environments participants grew up in and type of their current practice locations

The type of environment participants grew up in before becoming family physicians				
Current practice environment	Mostly rural	Mostly urban	Mixture of environments	Total
Number of participants currently in rural practice	13	6	2	21
Percentage (%) within Number of participants currently in rural practice	61.9%	28.6%	9.5%	100.0%
Number of participants currently in urban practice	8	18	5	31
Percentage (%) within Number of participants currently not in rural practice	40.4%	46.2%	13.5%	100.0%

*Chi square= 6.805; p-value= 0.033

From this table, we can see the numbers and percentage of physicians who grew up in rural/urban environment among the participants who are currently practicing in rural or urban environment. In particular, we can see that the majority (61.9%) of participants who are currently practicing in rural communities grew up in rural communities, while only 28.6% of the rural practitioners have an urban background. In order to calculate the odds of this distribution happening by chance, a chi-square analysis was calculated using SPSS 16.0. From the chi-square analysis, the Pearson chi-square value obtained is 6.805, with a significance level or p-value of 0.033. This means that, according to the chi-square calculation, the probability of this distribution of values occurring by chance is less than 3%. This implies that there is a positive relationship between the current practice location and the type of environment that a family physician grew up in. Family physicians that were raised in rural settings were more likely to practice in rural communities compared to those raised in urban settings.

Table 5.4 confirms that participants' upbringing have an influence on their choices of a practice locations. Although there is a positive relationship between the two variables, the study did not gather enough data for the results to be transferrable to other family physicians in the province.

5.4. Respect and appreciation of family physicians

The survey did not include these topics and the following finding is drawn from the interviews.

In the interviews, a clear perception emerged regarding respect and appreciation of family medicine. According to some key informants, who have previously practiced as family physicians, respect and appreciation for family physicians and their practice are important in attracting more residents to the practice, and also keeping them in family medicine.

Agency E's key informant explained,

"*The issue of respect is very important; there's been apathy towards family physicians. Making them feel like a second-best practice. Some people have been told through residency that they are too good to do family medicine."*

Agency B's key informant had this to say:

"*Family physicians can't have hospital admitting privileges or if they do have hospital admitting privileges there are only five beds in the whole city that family doctors can put patients into. These kinds of things send a very strong message to family physicians that they are not valued and they are not welcome*".

Respect and appreciation for the practice is mostly perceived to result from the relationship between family physicians and medical/health institutions and policies governing medical practice. Another interview revealed that actively practicing family physicians, especially those in rural practice, need to be recognized and appreciated more, and also be given the opportunity to practice the medical knowledge and skills they acquired in school. Thus, respect and appreciation for family physicians also mean respecting that they have the skill set and are well trained to practice to their full ability. Key informant from Agency E mentioned that:

"*Another of the reasons that we left was that the hospital, the things we were able to do in our hospital was going down, down, down. When we first got there we could do deliveries, minor surgeries, we had an operating room. Nowadays that isn't possible, the small rural hospitals don't have strong hold to do that. And so you have become office practice physician. I think support physician skills, encourage them to use them, give them education opportunities where ever they are to make them feel confident in the way that they can practice*".

5.5. Rational location decision

The survey and interview findings highlighted the major factors impacting family physician location decisions, and were mostly consistent with the findings of other studies. These results indicated that family physicians' location decisions are influenced by multiple factors that range from personal level factors to community level factors, and to structural level factors. The family physician makes the most beneficial decision based on the information gathered on the three levels of factors. For example, a family physician would weigh factors such as living close

to family, the availability of schools for their children, the availability of employment for their spouses, and workload/on-call schedule. If there is no balance between these and other factors, then it would make no sense for a family physician to choose a location. Similarly, if a family physician is well compensated but does not feel welcomed or safe in a particular community, he or she may not want to practice in that community. Although a balance of the factors impacts the rational decision, this study also revealed that some factors are central to decision making, and these are family concern, workload and community characteristics.

Additional information from key informants revealed that respect and appreciation, and support also had an impact on family physicians' choice of a practice location. The support for family physicians was categorized into community support, collegial or professional support, and government support. All of these factors impact the quality of life and work-life of family physicians.

The findings of the study also emphasize the interaction between all three levels of factors (particularly the major factors identified) and how they influence location choice of family physicians. For example, a combination of heavy workload, on-call schedules, and practice model influenced family physicians negatively, leading to feelings of remoteness and isolation. Furthermore, this study shows that sustainable location decisions of family physicians require a match between family physicians' preferences (the identified most influential factors) and the characteristics of the communities.

5.6. Factors to consider for recruitment and retention policies

5.6.1. Findings from the survey

Findings of the research also have implications for policies regarding family physicians recruitment and retention. Participants of the survey were asked to rank recruitment and retention factors on a scale of 1 to 7, where 1 was the most important factor and 7 was the least important factor. For each factor, the sum of all percentages was obtained and divided by the number of ranks (which is seven) to reach an average percentage, following equation 5.1. The factors are

then ranked according to the magnitude of the average percentages. The ranking obtained for recruitment is summarised in table 5.5 and retention is shown in table 5.6.

Average percentage of a factor = Sum of percentages for the factor/ number of ranks ---------equation (5.1)

Table 5.5 Ranking of Factors that Attracted Family Physicians to their Current Location

Factors	**Response to the Importance Scale (1-7)**							**Average Percentage**
Importance scale	1	2	3	4	5	6	7	
Quality of life	38	26	10	0	0	3	0	11%
Workload	2	9	22	16	10	0	2	9%
Compensation and incentives	14	24	3	10	5	3	0	8.4%
Career advancement	7	9	5	3	10	5	9	7%
Spousal employment	5	5	7	14	7	5	2	6.4%
Children's education	3	2	16	10	9	2	2	6.2%
Other	26	14	10	12	9	19	22	16%

From the table, it can be observed that most family physicians were attracted to their practice locations for better quality of life (11%). The second most important factor for recruitment was workload (9%), followed by compensation and incentives with an average percentage of 8.4%. Contrary to the results discussed in the previous sections, 'spousal employment' and 'children's education' were the lowest-ranked factors according to the composite rank. This may be surprising since this research and other studies have identified these two factors as the most important factors. One possible reason for this unexpected result may be due to the fact that these two factors were ranked separately instead of being ranked as family concern. If these two composite percentages were to be added up, the sum of the two would rank higher than the other factors.

As mentioned earlier, Table 5.6 below shows the most influential factors keeping family physicians in their practice locations. The results for retention factors are similar to the results obtained for recruitment. The first most important factor was the quality of life with a percentage of 13%. Participants ranked both workload and compensation and incentives as the second most important factor (11%), followed by spousal employment and children's education.

Table 5.6 Ranking of Factors Retaining Family Physicians in their Current Location

Factors	**Response to the Importance Scale (1-7)**							**Average rank**
Importance scale	1	2	3	4	5	6	7	
Quality of life	43	22	9	9	2	3	0	13%
Workload	0	14	26	22	9	5	2	11%
Compensation and incentives	16	26	12	7	9	5	3	11%
Spousal employment	7	10	5	9	9	10	7	8%
Career advancement	7	3	9	9	14	5	10	8%
Children's education	5	7	10	5	9	2	5	6%
Other	21	14	19	19	17	24	24	20%

In order to investigate compensation further, family physicians were asked to choose their preferred method of payment. The intent of this question was to examine the most preferred method of payment that attracted and kept family physicians in their practice locations. The majority (63.0%) of participants chose 'blended payment' as the preferred payment model, while 1.9% chose 'salary only.' The figure below shows the number of family physicians who prefer a specific model of payment.

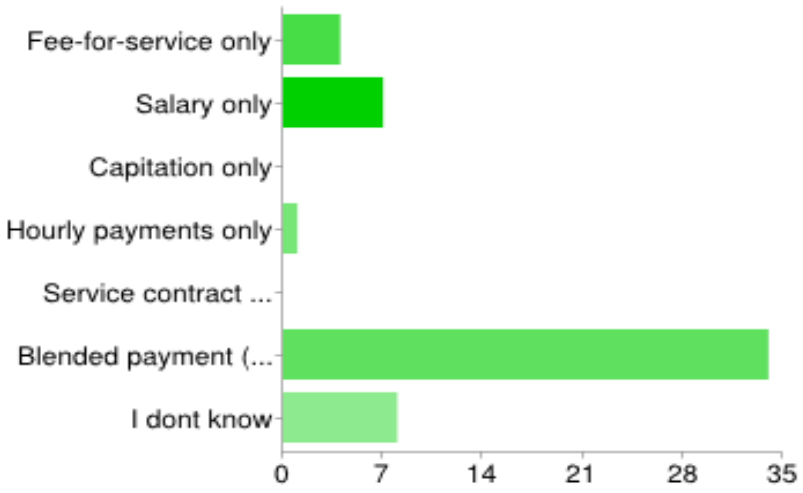

Figure 5.4 Family physicians and their preferred model of payment

The survey went on to ask which mixture of payments would be the preferred blended model. The most preferred blended payment methods include a mixture of fee-for-service and capitation, a mixture of fee-for-service and salary, and a mixture of fee-for-service and hourly payment. These results showed that, no matter the type of mixture, family physicians preferred fee-for-service mixed with another payment method.

Family physicians were also asked to evaluate the various incentive programs available to family physicians in Saskatchewan: the results are displayed in tables 5.7 and 5.8.

Table 5.7 Evaluation of General Incentive Programs

General Incentive Programs	**Percentage %**	
	Very effective or effective	**Not very effective**
SMA retention fund (for extended practice in the province)	62	29
Medical education cost reimbursement	58	29

Table 5.8 Evaluation of Rural Incentive Programs

Rural Incentive Programs	Percentage %	
	Very effective or effective	Not very effective
Rural practice establishment grant	54	22
Rural relief programs	52	24
Rural physicians enhancement training program	50	21
Rural travel fund	43	24
Rural and regional extended leave program	42	24
Special needs loan program	31	36

From tables 5.7 and 5.8, the most effective incentive program was the SMA retention fund (for extended practice in the province). The SMA retention fund was rated 'very effective' by 14% of the respondents and 'effective' by 48% of the respondents. The least effective incentive program is the special needs loan program which is rated 'not very effective.' by 31% of the respondents. Overall, the general incentive programs appeared to be more effective than the rural incentive programs. This could be one of the reasons why most family physicians choose to practice in urban communities.

5.6.2. Findings from the interviews

Key informants identified a number of ways in which the province can improve its recruitment processes.

a) A good match between physicians and communities

Family physicians want to have a sense of belonging in whatever community they choose to practice. The community needs to ensure that family physicians and their families feel welcome, safe and 'at home'. Agency B's key informant mentioned that,

"*even if it's bringing someone from overseas into the community, walk through the community, spend a couple of days there, meet people … So we start to recommend, and say, for sure, you have to match the two. That's what keeps doctors in rural areas, feeling that this community is home and it doesn't matter what you do, how much you pay them if they don't feel comfortable they're not going to stay*".

b) Practice model

In addition to medical training, key informants also suggested that recruitment and retention policies have to address issues relating to work-life balance and the model of practice, particularly for rural practitioners. Some key informants stated that in order to reduce work load, family physicians have to be recruited in groups of four or five for a practice location, mostly for rural practice. Key informant from Agency F explained that

"*The reason they [family physicians] leave rural is because the model of care delivery there is not sustainable. If they [family physicians] are in a group practice with a team support, then they don't leave rural…but the vast majority of our turnovers in rural are from single physician practice or two physician practices where it is impossible to maintain any work life balance and do a good job of the work because of the demand. Unless you can have a group of five as a minimum together it is not sustainable*"

This key informant suggested,

"*unless you can have a group of five as a minimum together, it's not sustainable*".

Agency C's key informant added,

"*There needs to be more opportunities to practice in larger groups so we are not recruiting into one-, two-, and three-physician practices but more into four- and five-person practices so that we can end up with more … and I think that there needs to be on going engagement and dialogue. You can't just hire somebody and leave them there unsupported*".

c) Active support

Key informants mentioned that active support from colleagues, health services management, the government, and the community are instrumental in attracting and keeping

family physicians in the locations where they are mostly needed. "*What physicians need is that sense of security, support of the practice, and the ability to practice what you learn*" [agency E's key informant]. In addition, "*the remoteness of being far away from colleagues, and far away from support is a huge burden*" [agency C's key informant].

Key informants also cited other positive actions and support that contribute to recruitment and retention, and these included the removal of bottlenecks around immigration and license processes; welcoming family physicians and their families and helping them integrate; and, instituting, encouraging, and promoting group practice among family physicians. For example, agency A's key informant mentioned,

> "*The immigration and licensure process takes a very long time. Part of the big chunks of that long time that it takes are around getting a license and getting the appropriate immigration visas and work permit and in both cases we hear from those bodies — from the citizenship and immigration Canada as well as the college of physicians and surgeons — that getting all of the right documents together in the right place at the right time is a real challenge for IMGs*".

Although support has not been the focus of most of the previous researches on physician migration, in this study support for family physicians was clearly an important factor. To this end, some agencies have had support programs for family physicians and their families in order to promote recruitment and retention. For example, agency B's key informant stated,

> "*We are starting to do what we call spousal support groups. We're doing workshops around spousal support and being married to a physician and the challenges that come along with it. We're doing some work with two-physician couples, which are much common now than they ever used to be. We sort of identified the gap; membership has identified the gap in the support for physicians and their families. We do have our member services; we do have what we call the physician help program which provides support — psychological support and counselling support — for physicians and their families. And even financial support for physicians and their families, so if a spouse of a physician identifies that there is an issue — you know, psychological issue or addiction issue — they can pick up the phone and call our*

office and we will look after their need, help them with counsellors. We help them pay for it if they're having trouble paying for it and we follow them right through helping them manage their care all the way through to resolution. So we do that, but that of course depends on the crises developing. We're not doing a lot proactively to prevent the crises in the first place".

d) Medical training

From the interviews, medical training and practice model were the common themes. Key informants mentioned that in order to attract and keep family physicians, the province will have to increase medical students' training and exposure to family medicine across the province. Agency D's participant mentioned that

"I'm sure you've heard that from people that if they do their residency training in Saskatchewan they much more likely to stay and when they finish their residency training".

Key informant from Agency E voiced out that

"*I think the first thing is train them there, train them all over Saskatchewan. Let them see what medicine in Saskatchewan is like*".

Overall, it can be deduced that it is necessary to recruit family physicians into the right communities to increase the probability of them staying longer in those communities. This implies that individual family physicians or groups of family physicians have to be recruited into communities that are able to support them and their families, support the medical practice by having the appropriate infrastructure, and provide them with their preferred work and personal lifestyles

5.6.3. Recruitment and retention policy implication: Integration of survey and interview findings

While similar recruitment and retention questions were asked in the survey and the interviews, the responses obtained were from different perspectives and were complementary. The responses of survey participants were directly related to their family medicine practice and

quality of life. On the other hand, the responses from interview participants focused more on how family practice could be enhanced through improvement in structural factors such as medical training, scope of practice and model of practice. Although the responses came from different perspectives, overall, family physicians and key informants rated factors such as family concerns, work-life balance and community influence as the most influential factors of location decisions and compensation as the least influential factor. Equally important to both groups was the need to match family physicians to the right communities to reduce workload, improve quality of life and work-life balance and to enhance community integration.

CHAPTER 6
CONCLUSION AND POLICY IMPLICATION

Family physician migration within the province and to other provinces has been a cause of policy consideration for health care agencies and government. There is a concern that the migration has contributed to limited access to family physicians for some rural populations in Saskatchewan. For example, the number of family physicians to 100,000 population in the Athabasca Health Region is 41, which is the lowest in the province, while the number of family physicians to 100,000 population in the Saskatoon Health Region is the highest with 117. Even though CIHI data indicate a steady rise in the number of family physicians in Saskatchewan per 100,000 from 2006 to 2010, this number is still among the lowest in Canada. The number of family physicians per 100,000 population in Saskatchewan is 95, while Newfoundland and British Columbia are the highest with 119 and 118 family physicians per 100,000 population respectively. The major challenge for health care agencies and government is ensuring that people in Saskatchewan, especially rural communities, have reasonable access to family physicians. To this end, various attempts have been made to improve the access to family physicians for people in Saskatchewan.

The most common strategies employed by government to improve recruitment and retention of family physicians have been directed at compensation and financial incentive strategies. Although compensation and financial incentives may be effective recruitment strategies and are easy to implement, they are not always cost effective because family physicians often leave the practice location after the incentives expire. Besides using compensation and financial incentives to attract and retain Canadian trained family physicians, Saskatchewan is increasingly recruiting International Medical Graduates to offset the net out-flow of family physicians from Saskatchewan to other provinces, with some success. To increase recruitment efficiency and find more effective strategies to retain family physicians, it is useful to know what attracts family physicians to practice locations and what motivates them to stay in those locations or to migrate. That is the purpose of this study.

6.1. Summary

Using an on-line questionnaire survey and key informant interviews, this research examined factors that influenced family physicians' practice location choices. The top ranked factors identified in the research were: family influence (spousal employment, children's education and living with extended family); work-life balance (workload, on-call issues and quality of life); and community involvement /community influence. Other factors that were identified as having some influence include compensation and incentives, respect and appreciation, and scope of practice.

Although compensation was mentioned as a factor, it was the least influential according to participants in this research. One potential explanation for its low ranking could be that Saskatchewan family physicians are well compensated and compensation does not vary much among them. The majority of Saskatchewan family physicians operate under the same fee-for-service payment structure and therefore, compensation may not be the main driver behind location choices. This research suggests that various factors, other than compensation, have a major influence on family physicians' location decisions. Thus, putting more money towards compensation is not enough and may not always be the most efficient and appropriate use of funds, especially for smaller communities that do not meet the requirements for a viable family medicine practice and family physician preferences.

Overall, participants were attracted to, and remained in, their locations of practice mostly due to quality of life and workload, spousal employment, children's education, and ability to integrate well into a community. It is also clear that family physicians' location choices are impacted by a combination of these factors and not by one factor alone.

The study found that attracting and retaining family physicians to practice locations/ communities may be best seen as a strategic matching process. Matching family physicians with the right community means recruiting family physicians into communities with characteristics consistent with their career goals, preferences and personal life. The community's support for the physician and his/her family in their transition into that community is also important. Finding

the right communities for family physicians based on their preferences and circumstances would increase the probability of them remaining longer in the communities. Finding the right family physician for the community also helps with family physician integration, community support, respect and appreciation. A practical way of improving the match may include having the community recruitment committee coordinate activities for the site visits, as well as providing information to the new family physician regarding accommodation, transportation and amenities. Following a successful recruitment, the community will need to assist and support the new family physician and his/her family with settlement in the community.

The investigation also revealed that in order to increase the probability of long term retention of family physicians, it is important to recruit them into a group practice. This means recruiting a minimum of 4 or 5 family physicians in one location to serve a community or a group of communities. Where a single community is not large enough to offer the required clientele for 4-5 physicians, they would also need access to the surrounding communities for clientele. Co-operation among the communities will be essential. The 'market' size must be sufficient to support the income aspirations of the family physicians. Group practice helps reduce excessive workload, decrease on-call schedules, provides collegial support and a professional network. As has been noted in this study, heavy workload and frequent on-call schedules are among the major factors that impact family physicians' location choices. In Saskatchewan, some communities may be too small and may not have the required client base or may not have the required characteristics to attract the minimal viable group size of 4-5 family physicians. For such communities, health care can still be accessed in other neighbouring communities or larger communities within the same district.

The majority of the survey participants had experience in rural practice and were at the time of the study, practicing in urban communities, mostly Saskatoon and Regina. The response pattern of this research was skewed toward a female perspective because they formed the majority of study participants. However, this study confirms the findings from other studies regarding location decisions and extends existing results by shedding new light on what may constitute more efficient and effective recruitment and retention of family physicians. Strategic recruitment and retention involves using the major factors affecting location decisions to ensure

there is a good match between the physician and the community, and that the community and/or its surrounding area is large enough to support a group of 4-5 family physicians.

6.2. Policy Implications

This research informs two policy recommendations for the recruitment and retention of family physicians in Saskatchewan, especially in rural communities.

The first policy recommendation is strategic matching between family physicians and communities for more efficient and effective recruitment and retention. This means that recruiters have to make sure that new family physicians are strategically matched with the right communities and that communities are matched to the required income levels, work load and preferences of the family physicians and their families. The results of the research indicate that community characteristics are important for recruitment and retention of family physicians. The matching can be done by assessing the characteristics of the communities based on factors identified by the family physicians as the most important to them and their families. In addition, detailed information about the locations should be made available to the family physicians, so they can make informed decisions. As noted in the interviews, communities have personalities and these personalities should be compatible with the family physician's personality and that of his/her family's. Further, the community must have a client base sufficient to support the minimum-size viable practice of 4-5 family physicians such that the quality of life and workload requirements for the family physicians can be met. This consideration of community size and client base may include surrounding communities. Family physician-community matching comprised of linking the community's characteristics to the preferences and expectations of the family physician and his/her family is necessary for long-term success in an environment of government budget constraints.

The second recommendation is providing strategic incentives to ensure access to family physician services for the population in those communities that do not meet the requirements to support the minimally viable group practice of 4-5 family physicians. First, incentives may be provided to encourage co-operation between communities that could jointly provide the required

client base. Second, there may be strategic incentives to improve the attractiveness of a community where the community comes close to meeting the requirements. There could be incentives such as a location/community visitation program, family physician re-allocation allowance, spousal support programs, professional development/ training allowance, mentoring/ supervision and provision of information including information about professional networks/ groups in that community or in neighbouring communities. In addition to these incentive programs, the first 3-6 months of the family physician's stay in a community could be a no-cost probationary or trial period, beyond which the physician and family may receive moving assistance if they conclude that the community is not a match.

6.3. Implications for further research

Although this study provides useful results and suggestions for recruitment and retention of family physicians in Saskatchewan, it has a number of limitations and further studies can strengthen the findings.

First, due to the small sample size of this study, the distinction between rural and urban practice requirements was not fully captured. There is a need for further studies on how the identified factors impact urban and rural family physicians differently.

Second, more detailed studies are required to investigate the recruitment and retention factors for family physicians in individual communities, particularly individual rural communities. Every community is unique, with unique personalities, health needs, and factors that impact family physician recruitment and retention. A one-size fits all approach to recruitment and retention may not be the appropriate way to address the access to family physician issue. This study could also determine, from the family physicians' perspective, more specific community characteristics that impact their professional and personal lives. This will determine the interaction between family physicians and their practice locations. A study of this nature will also highlight the successes, challenges and opportunities for improvement regarding interaction between the family physicians and their respective practice locations and communities. In order to avoid biases in future studies on location decisions, a more

representative sample would be needed; the right question should be asked to the right group of family physicians and the study should be accessible to everyone in the target population.

LIST OF REFERENCES

Benarroch, M., & Grant, H. (2004). The interprovincial migration of Canadian physicians: Does income matter? *Applied Economics*, *36*(20), 2335–2345.

Burke, R. J., & Onwuegbuzie, A. J. (2004). Mixed methods research: A research paradigm whose time has come. *Educational Researcher*, *33*(7), 14–26.

Buske, L. (2008). *Rural Reality: Analyzing Medical Life Outside Canada's Cities*. Canadian Collaborative Centre for Physician Resources Canadian Medical Association, (pp. 1–11). Retrieved from http://www.cma.ca/multimedia/CMA/Content_Images/Policy_Advocacy/Policy_Research/Rural_survey_analysis.pdf

Cameron, P. J. (2008). *Physician Retention in Four Rural Communities in Alberta: A Collective Case Study*. (Doctoral thesis). University of Calgary, Calgary.

Carletto, C., Davis, B., & Stampini, M. (2005), "Familiar Faces, Familiar places: the Role of Family Networks and Previous Experience for Albanian Migrants", *FAO ESA Working Paper* No. 05-03, Rome, 1-37

Canadian Institute for Health Information CIHI. (2010). *Internal Migration of Canada's Health Care Workforce: Summary Report – Update to 2006*. Retrieved from http://secure.cihi.ca/cihiweb/products/migration_sum_2010_e.pdf

Canadian Institute for Health Information CIHI. (2010). *Supply, Distribution and Migration of Canadian Physicians, 2011*. Retrieved from https://secure.cihi.ca/estore/productFamily.htm?pf=PFC1968&lang=en&media=0.

Caulfield, J. (2012). Province hailing physician recruitment mission in India. *Metro News*, p. 3.

Chan, B. T. B., Degani, N., Crichton, T., Pong, R. W, Rourke, J. T., Goertzen, J., & McCready, B. (2005). Factors influencing family physicians to enter rural practice: Does rural or urban background make a difference? *Canadian Family Physician*, *5*, 1247–1252.

Creswell, J. W. (2003). *Research design: Qualitative, quantitative and mixed methods approaches*, (2nd ed.). Thousand Oaks, CA: Sage Publications.

Creswell, J. W., & Plano, C. V. L. (2007). *Designing and conducting mixed methods research*. Thousand Oaks, CA: SAGE Publications.

Dauphinee, W. D. (2006). The circle game: Understanding physician migration patterns within Canada. *Academic Medicine*, *81*(12), S49–S54.

Dorigo, G., & Tobler, W. (1983). Push–Pull Migration Laws. *Annals of the Association of American Geographers*, *73*(1), 1–17.

Du Plessis V., Beshiri R. and Bollman R.D. (2001). Definition of rural. *Rural and Small Town Canada Analysis Bulletin*, *3*(3), 1–17.

Elster, J. (2009). Interpretation and Rational choice. *Occasion: Interdisciplinary Studies in the Humanities*, *1*(1), 1–22. Retrieved from http://occasion.stanford.edu/node/23

Faist, T. (2000). A review of dominant theories of migration. In *The volume and dynamics of international migration and transnational social space* (pp. 1-380). Oxford: Clarendon Press.

Goertzen, J. (2005). The four-legged kitchen stool: Recruitment and retention of rural family physicians. *Canadian Family Physician*, 5, 1181–1183.

Grant H., and Oertel, R. (1997). The supply and migration of Canadian physicians, 1970–1995: Why we should learn to love an immigrant doctor. *Canadian Journal of Regional Science*, *20*(1, 2), 157–168.

Gurses, A. Y., Carayon, P., & Wall, M. (2009). Impact of performance obstacles on intensive care nurses' workload: Perceived quality and safety of care, and quality of working life. *Health Services Research*, *44*, 422–443. Doi:10.1111/j.1475-6773.2008.00934.x

Harrison, M. (1998). Female physicians in Mexico: Migration and mobility in the life course. *Social Science and Medicine*, *47*(4), 455–468.

Haug, S. (2008). Migration networks and migration decision-making. *Journal of Ethnic and Migration Studies*, *34*(4), 585–605.

Iredale, R. (1999). The need to import skilled personnel: Factors favouring and hindering its international mobility. *International Migration*, *37*(1), 89–123.

Ivankova, N. V.,& Stick, S. L. (2007). Students' persistence in a distributed doctoral program in educational leadership in higher education: A mixed methods study. *Research in Higher Education, 48,* 93-136.

Jeanty, G. C., and Hibel, J. (2011). Mixed methods research of adult family care home residents and informal caregivers. *The Qualitative Report, 16*ˆ(3), 635–656. Retrieved from http://www.nova.edu/ssss/QR/QR16-3/jeanty.pdf

Kogo, S. (2009). Migration of African-trained physicians abroad: A case study of Saskatchewan, Canada. (Master's thesis). University of Saskatchewan, Saskatoon.

Kumar, K. (1989). *Conducting key informant interview in developing countries*. Agency for International Development: Program design and evaluation methodology report no. 13, Pp. 1-35.

Loss of rural doctors affecting 22 Saskatchewan Communities. (2011, August 17). *CBC News*. Retrieved from http://www.cbc.ca/news/canada/saskatchewan/story/2011/08/17/sk-town-doctors-1108.html

Lu, D. J., Hakes, J., Bai, M., Tolhurst, H., and Dickinson, J. A. (2008). Rural intentions: Factors affecting the career choices of family medicine graduates. *Canadian Family Physician*, *54*, 1016–1017.

Massey, D. S. (1990). Social structure, household strategies, and the cumulative causation of migration. *Population Index, 56*(1), 3–26.

Mathews M., Rourke, J. T. B., & Park, A. (2006). National and provincial retention of medical graduates of Memorial University of Newfoundland. *Canadian Medical Association Journal*, *175*(4), 357–360.

Mathews, M., & Park, A. D. (2007). Regular doctor, changing doctor, no doctor: Does it make a difference to rural residents? *Rural and Remote Health*, *7*, 1–1.1

Mayo, E. & Mathews, M. (2006). Spousal perspectives on factors influencing recruitment and retention of rural family physicians. *Canadian Journal of Rural Medicine*, *11*(4), 271–276.

McMurchy, D. (2009). *What are the critical attributes and benefits of a high-quality primary healthcare system?* Submitted to the Canadian working group on primary healthcare improvement, Canadian Health Research Foundation. Retrieved from http://www.cfhi-fcass.ca/Libraries/Primary_Healthcare/11498_PHC_McMurchy_ENG_FINAL.sflb.ashx

Oberoi S. S., and Lin, V. (2006). Brain drain of doctors from southern Africa: Brain gain for Australia. *Australian Health Review*, *30*(1), 25–33.

Parkins, N. C. (2010). Push and pull factors of migration. *American Review of Political Economy*, *8*(2), 6–24.

Pong, R. W., & Pitblado, J. R. (2005). *Geographic distribution of physicians in Canada: Beyond how many and where*. Ottawa, Ontario: Canadian Institute for Health Information.

Retrieved from https://secure.cihi.ca/free_products/Geographic_Distribution_of_Physicians_FINAL_e.pdf

Pope, A. S. A., Grams, G. D., Whiteside, C. B. C., & Kazanjian, A. (1998). Retention of rural physicians: Tipping the decision-making scales. *Canadian Journal of Rural Medicine*, *3*(4), 209–216.

Portes, A. (1976). Determinants of the brain drain. *International Migration Review*, *10*(4), 489–508.

Rajbhandary, S., & Basu, K. (2006). Interprovincial migration of physicians in Canada: Where are they moving and why? *Health Policy*, *79*(2), 265–273. Retrieved from http://www.popcouncil.org/pdfs/wp/104.pdf

Ravenstein, E. G. (1889). The laws of migration. *Journal of the Royal Statistical Society*, *52*(2), 241–305.

Rourke, J. T. B. (1993). Politics of rural health care: Recruitment and retention of physicians. *Canadian Medical Association* Journal, *148*, 1281–1288.

Ryan, B.L., and Stewart, M. (2007). Where do family physicians practise after residency training? Flow of physicians from region to region across Canada. *Canadian Family Physician*, *53*(3):479, Pp478:e.1-4, 478.

Saskatchewan Recruitment Agency and Saskatchewan Medical Association (2012). Physician Survey. Retrieved at http://saskdocs.ca/about-us/our-publications/physician-survey-summary

SPSS Inc. Released 2007. *SPSS for Windows*, Version 16.0. Chicago, SPSS Inc.

Szafran O., Crutcher R.A., and Chaytons R.G. (2001). Location of family medicine graduates' practices. What factors influence Albertans' choices? *Canadian Family Physicians*, *47*, 2279-2285.

Thorne, S. (2008). *Interpretive description*. Walnut Creek, CA: Left Coast Press.

Todaro M. P. (1997). Urbanization, unemployment, and migration in Africa: Theory and policy. *Population Council*, *104*, 1–54. Retrieved from http://www.popcouncil.org/pdfs/wp/104.pdf

Vanasse, A., Scott, S., Courteau, J., and Orzanco, M. G. (2009). Canadian family physicians' intentions to migrate: Associated factors. *Canadian Family Physician*, *55(4)*, 397–397.

Vuttanont, U. (2010). “Smart boys” and “sweet girls”- sex education needs in thai teenagers: a mixed-method study. A thesis submitted for the degree of Doctor of Philosophy University College London. Retrieved from http://eprints.ucl.ac.uk/20006/1/20006.pdf

Wolfel, R. L. (2005). Migration in the new world order: Structuration theory and its contribution to explanations of migration. *Geogrpahy Online*, *5*, 1–28. Retrieved from http://www.siue.edu/GEOGRAPHY/ONLINE/Wolfel05.pdf

Yang, J. (2003). Potential urban-to-rural physician migration: The limited role of financial incentive. *Canadian Journal of Rural Medicine*. *8*(2), 101–106.

APPENDIX A

INVITATION LETTER AND CONSENT FORM FOR SURVEY

Dear Doctor,

You are being invited to take part in a Master's thesis research project at the Johnson-Shoyama Graduate School of Public Policy, University of Saskatchewan, on how family physicians make their practice location decisions in Saskatchewan. The questionnaire survey identifies factors that may influence family physicians' location decisions, investigates how these factors may influence various groups of family physicians differently and how government policies may impact the decision making process.

As a study participant

- You are invited to complete a questionnaire that includes questions in relation to your practice and your perception of how family physicians decide on a practice location.

- The survey will take about 10–15 minutes to complete. It can be completed and submitted electronically online.

- Your identity and answers will be kept strictly confidential to the researcher. None of the answers will be attributed to you personally.

If you are interested in taking part in this research please read and sign consent form and then complete the survey here.

CONSENT:

Project Title: Location decisions of family physicians in Saskatchewan

Researcher:

Obeyaa Ampofo-Addo, Master's Candidate, Johnson-Shoyama Graduate school of Public Policy, Graduate student, University of Saskatchewan, 306-881-2860, oba558@mail.usask.ca

Supervisors:

Haizhen Mou, Assistant Professor
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Email: haizhen.mou@usask.ca

Rose Olfert, Professor of Public Policy
Johnson-Shoyaman Graduate School of Public Policy and Agricultural Economics,
Phone: 306-966-4023, Email: rose.olfert@usask.ca

Research question:

What factors influence family physicians' decisions to stay in their practice locations or leave for other locations?

Confidentiality:

Your name will not be used in any part of the study. Any other information you provide in the survey will not be attributed to you personally. Other forms of communication with the researcher such as emails and mails will be kept protected by the researcher, and will not be made available to any third party. Answers provided by participants will be reported using pseudonyms for the analysis, discussion and results. All information will be stored in a locked place by the supervisor and destroyed beyond repair after 5 years.

Questions or Concerns:

For any further questions or concerns, contact the researcher at oba558@mail.usask.ca or 306-881-2860.

This research project has been approved on ethical grounds by the University of Saskatchewan Research Ethics Board. Any questions regarding your rights as a participant may be addressed to that committee through the Research Ethics Office at 306-966-2975. Out of town participants may call toll free at 1-866-966-2975.

* Required

Signature (electronic) or initials *

Date *

mm/dd/yyyy

If you require a signed copy of the consent form, please provide your email address below

By submitting this form/ survey you have indicated that you have read and understood the description of the study provided; you have had an opportunity to ask questions and your questions have been answered. You consent to participate in the research project.

APPENDIX B

INVITATION LETTER AND CONSENT FORM FOR INTERVIEWS

Participant Consent Form for interview

Project Title: Location decisions of family physicians in Saskatchewan

Researcher:

Obeyaa Ampofo-Addo, Master's Candidate, Johnson-Shoyama Graduate school of Public Policy, Graduate student, University of Saskatchewan, 306-881-2860, oba558@mail.usask.ca

Supervisors: [SUPERVISOR'S NAME, DEPARTMENT, PHONE NUMBER, EMAIL]

Haizhen Mou, Assistant Professor

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Email: haizhen.mou@usask.ca

Rose Olfert, Professor of Public Policy

Johnson-Shoyaman Graduate School of Public Policy and Agricultural Economics, Phone: 306-966-4023, Email: rose.olfert@usask.ca

Purpose(s) and Objective(s) of the Research:

This is a mixed methods study which seeks to investigate the major factors that affect family physicians' location decisions. There are three objectives for this study:

i. How do Saskatchewan family physicians make decisions to stay in their practice locations or leave for other locations?
ii. How different or similar is the decision process for the various categories of family physicians?
iii. What is the relationship between existing policies including financial and non-financial incentives and the location decision of family physicians?

The study will be conducted using rational choice model to explain how family physicians make their practice location decisions. Drawing on the rational choice approach, this study will discuss the role of sociological, cultural, economic and other factors in the decision making process concerning practice location of family physicians.

A mixed method approach employing both quantitative and qualitative methods will be used for the study. The quantitative part will deal with data which will be obtained from an online survey completed by family physicians in Saskatchewan. This quantitative study will uncover the general pattern of issues and factors affecting family physicians with respect to their choice of practice location. The qualitative part of the study consisted of interviews with stakeholder agencies of the healthcare system. The purpose of the qualitative study is to support the results of the survey by giving a more comprehensive and thorough details of how physicians arrive at the location decision and the difficult with recruitment and retention of physicians.

A general interview guide will be used to interview participants. The current estimate of participants for the interviews is a total of 10 and one person per stakeholder agencies of the health care system (3 Health regions, Saskatchewan Medical Association, College of Physicians and Surgeons Saskatchewan, Physician Recruitment Agency of Saskatchewan, College of Medicine, the College of Medicine Alumni Office, the Health Quality Council and Client & Family Centred Care Steering Committee).

Procedures:

You are being invited to participate in a personal interview exploring your thoughts concerning physicians' location choice. The interview is expected to take about 1hour and will be audio taped with your consent. The interview includes questions relating to your thoughts, ideas and perceptions on the issues affecting family physicians in their choice of practice location and your role in attracting and keeping family physicians in the province.

Interviews will be face-to-face or via phone depending on your convenience and availability. The interview is expected to start from 9th July- 26th July, 2012. Please respond by emailing the researcher at oba558@mail.usask.ca with your available dates and whether or not you want a

face-to-face or phone interview). After the interview, a transcript will be sent to you either by post or email for your perusal and approval, after which you will mail it back to the researcher. The findings of the study will be made available to you through a final summary of the study.

Your participation in this study is voluntary. You may refuse to participate or refuse to answer any question in the course of the interview. You may also withdraw from the study at any time without any repercussions or penalty.

Potential Risks:

There are no expected or foreseeable risks during your participation in the study. However, during the interview if there is any upsetting or uncomfortable questions you may stop the interview or refuse to answer the questions.

Potential Benefits:

The study will contribute to the literature and policy debate concerning recruitment and retention of family physicians in Saskatchewan. The study will provide a forum for further discussion on the factors that family physicians consider when making decisions on a practice location.

Compensation:

There will be no compensation or payment for research participants involved in this study.

Confidentiality:

Your name will only be used during the interview, but not in the transcript. Any other information such as the name of your agency will not be included in the transcript. Other forms of communication with the researcher such as emails and mails will be kept protected by the researcher, and will not be made available to any third party. Answers and quotes made by participants will be reported as "participant from institution A/B" for the analysis, discussion and results. All information will be stored in a locked place by the supervisor and destroyed beyond repair after 5years.

Right to Withdraw:

Your participation in this study is voluntary. You may refuse to participate or refuse to answer any question in the course of the interview. You may also withdraw from the study at any time without any repercussions or penalty.

Should you wish to withdraw, simply communicate it to the researcher that you no longer wish to participate in the study. You can do this either by in person, by post, by email or by phone. You may decide to withdraw from the study because you are uncomfortable with the questions, or do not agree with the study's objectives. Any additional information that may affect your willingness to be a part of the study will be made available to you as soon as possible. Please note that your right to withdraw data from the study will apply until August, 1st, 2012 (when results have been disseminated, data has been pooled, and analysis is being run on the data). After this date, it is possible that some form of research dissemination will have already occurred and it may not be possible to withdraw your data.

Follow up:

The researcher will send the report on the results of the study to all participants by email and post.

Questions or Concerns:

For any further questions or concerns, contact the researcher at oba558@mail.usask.ca or (306-881-2860)

This research project has been approved on ethical grounds by the University of Saskatchewan Research Ethics Board. Any questions regarding your rights as a participant may be addressed to that committee through the Research Ethics Office at 306-966-2975. Out of town participants may call toll free at 1-866-966-2975.

NOTE: "There are several options for you to consider if you decide to take part in this research. You can choose all, some or none of them. Please put a check mark on the corresponding line(s) that grants me your permission to:"

I grant permission to be audio taped: Yes: ___ No: ___

I wish to remain anonymous: Yes: ___ No: ___

I wish to remain anonymous, but you may refer to me by a pseudonym: Yes: ___ No: ___

The pseudonym I choose for myself is: _____

APPENDIX C

QUESTIONNAIRE FOR FAMILY PHYSICIANS SURVEY

The purpose of the study is to identify the factors influencing family physicians' decision to migrate or stay in Saskatchewan, with special focus on the differences between rural and urban practices.

The time estimated to complete this survey is 15 minutes. All answers will remain confidential. Your effort in responding to the survey is much appreciated.

Please tick (✓) your answer.

For the purposes of this study, rural refers to all places other than Estevan, Moose Jaw, North Battleford, Prince Albert, Regina, Saskatoon, Swift Current, and Yorkton.

GENERAL INFORMATION

1) Sex: Male____ Female____

2) Age: 25-35____ 35-45____ 45-55____ 55+____

3) Marital Status:

Married____ Unmarried____ Common Law____ Other___

4) Do you have children? Yes____ No____

5) How long have you been practicing family medicine?

<1year ____ 2-3years____ 4-5years____ 6-7years____ 8-9years____ 10+years____

6) From the list below, please select the ONE which best describes the kind of environment you grew up before becoming a family physician

Mostly rural____

Mostly urban____

Mixture of environments_____

7) If you grew up in Canada, which province or territory did you spend most of the time?

SK AB BC MB ON QC NB NS PE NL NT YT NU

8) If you grew up outside of Canada, where did you spend most of the time?

Africa____ Asia____ South America____ USA____ Europe____

EDUCATIONAL AND PROFESSIONAL BACKGROUND

9) Did you train as a physician in Saskatchewan? Yes____ No____

If YES, please proceed to question (12) (MIGRATION INFORMATION).

If No, continue to question (10)

10) If you obtained your medical training outside of Saskatchewan but in Canada, which province was it? _____

11) If your medical training was obtained outside Canada, where did you obtain your training?

Africa____ Asia____ South America____ USA____ Europe_____

MIGRATION INFORMATION

12) Is Saskatchewan your first province of practice in Canada? Yes____ No____

If YES, please proceed to question (14); if NO please continue to question (13).

13) If No, in what province did you first practice? _____

14) What is your current practice location (town or city)? _____

15) What attracted you to your current practice location? Please rank the following in order of importance (Where 1=most important, 6=least important).

	Rank (1-7)
Compensation and incentives	
Quality of life	
Spousal employment	
Children's education	
Workload	
Career advancement	
Other (please list)	

16) How long have you practiced in in this location? _____

17) Do you have family currently living with you in your practice location? Yes___ No___

18) If applicable, do your spouse and children influence your decision when choosing location to practice? Yes____ No_____

If Yes please explain

_____

_____

_____

19) What is keeping you in current practice location? Please rank the following in order of importance (Where 1=most important, 6= least important).

	Rank (1-7)
Compensation and incentives	
Quality of life	
Spousal employment	
Children's education	
Workload	
Career advancement	
Other (please list)	

20) Which community characteristics are important to you and/or your family in choosing your location? _____

_____

_____

_____

21) Please describe how your career goals influence your decision to remain in Saskatchewan

_____

_____

_____

22) Have you ever practiced in rural Saskatchewan? Yes____ No_____

(For the purposes of this study, rural refers to all places other than Estevan, Moose Jaw, North Battleford, Prince Albert, Regina, Saskatoon, Swift Current, and Yorkton).

23) If yes, where did you practice? _____

24) How long did you practice in this rural community? _____

25) Currently, are you practicing in a rural area? Yes____ No____

26) Please indicate the percentage of your current time spent at each of the following places?

Rural clinic/ hospital_____ %

Urban hospital_____%

Community medical clinic_____%

Other (please specify) _____%

27) If you were practicing in rural Saskatchewan before, what influenced your decision to switch from rural to urban practice? Please rank the following in order of importance (Where1=most important, 6=least important).

	Rank (1-7)
Compensation and incentives	
Quality of life	
Spousal employment	
Children's education	
Workload	
Career advancement	
Other (please list)	

28) Although there are many factors influencing family physician migration, what would you say is the major reason for migration among family physicians in the province?

_____

_____

_____

29) In your opinion what is the best method of payment for family physicians in the province? Please tick ONLY one of the following.

Fee-for-service only_____

Salary only_____

Capitation only_____

Hourly payments only_____

Service contract only_____

Blended payment (a mixture of the above) ____

I don't know_____

30) If you prefer a blended payment, what type (and percentage) of mixture of payment methods would you want?

	%
Fee-for-service	
Salary	
Capitation	
Hourly payments	
Service contract	
Other (please list)	

EXAMPLE	***%***
Fee-for-service	***50***
Salary	***20***
Capitation	
Hourly payments	***30***
Service contract	
Other (please list)	

RECRUITMENT AND RETENTION

31) Please indicate your assessment of the effectiveness of the following incentive programs.

General incentive programs:

	Very effective	Effective	Not very effective
Medical education cost reimbursement			
SMA retention fund (for extended practice in the province)			
Other (please list)			

Rural incentive programs:

	Very effective	Effective	Not very effective
Rural relief programs			
Special needs loan program			

Rural practice establishment grant			
Rural practice establishment grant (IMGs)			
Rural physicians enhancement training program			
Rural and regional extended leave program			
Rural travel fund			
Family medicine resident bursary - $25,000/year			
Other (please list)			

32) Are there any other government policies that impact your decision when choosing a practice location?

_____

_____

_____

33) What would you suggest as a better incentive program? Please specify.

_____

_____

_____

34) In the short term, what do you think can be done in the province to attract more family physicians to:

a) Urban communities? _____

_____

_____

_____

b) Rural communities? _____

_____

_____

_____

You have answered all my questions! Do you have any other comments?

_____

_____

_____

_____

If you are interested in receiving selected survey results, please provide your email address_____

Thank you for completing this questionnaire. Your opinion is important contribution to our study.

APPENDIX D

INTERVIEW GUIDE FOR STAKEHOLDER AGENCIES

1. What role does your agency/ institution play in increasing the number of physicians in the province through recruitment and retention?
2. Has your agency participated in any strategic policy planning or formulation relating to family physician recruitment and retention in the province? What was the outcome?
3. How was the process of planning such a policy and what kind of resources was needed for this process?
4. What were the challenges you faced in the course of the planning? How were these challenges addressed?
5. To the best of your knowledge, what would you say are the major reasons why family physicians leave their practice locations in Saskatchewan?
6. How do you think the recruitment process of family physicians can be improved in the province?
7. Do you think more could be done to keep physicians here? What do you think the province needs to offer to family physicians in order to keep them in the practice locations in the province?
8. Do you have any other comments or suggestion that will be important for this study?