RECRUITMENT AND RETENTION OF MEDICAL PHYSICIANS IN NORTHERN RURAL COMMUNITIES

by

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ABSTRACT

This project explores specific factors and strategies for the recruitment and retention of medical physicians in rural communities. Important problems and concerns facing Canada are discussed regarding the root causes of mal-distribution with an emphasis on the province of British Columbia. This project explores the role the community, medical schools, provincial governments, and other factors have in recruitment and retention. The goal of this project is to emphasize the growing economic pressure the B.C. healthcare system faces and the increasing demand for recruiting and retaining medical physicians in rural areas. The project should provide insight to the unique and difficult circumstances faced by physicians in rural and remote areas and the causative factors of retention in rural practice; moreover, it will explore potential recruitment and retention strategies.

CONTENTS

ACKNOWLEDGEMENT

Thank you Kris for all your support throughout the entire MBA experience, I couldn't have done it without you.

INTRODUCTION

Canadian healthcare is being challenged by poor distribution of medical physicians and availability of adequate medical care in rural communities. The major forces the healthcare system faces include demographic and economic change, such as cost pressures from changing demographics; growing costs of managing chronic diseases; and the increasingly aging population, which will create an even greater shortage in medical human resources due to the demand the aging population has on the medical system. These forces will add additional strain on the recruitment and retention of physicians in rural areas; this project discusses how and why these strains are occurring. This project first discusses a broad vision of the current status and the future of British Columbia's economy and demography and the implications these have on the healthcare industry. It will describe a specific view of the implications facing the B.C. healthcare industry with a focus on attracting and retaining medical physicians. The project will explore an in-depth look at the causes for the mal-distribution of medical physicians and possible recruitment and retention solutions. Traditionally, the recruitment of physician replacements has been viewed as the responsibility of the current local physicians or the local hospital. Communities are increasingly recognizing that medical care is as important to the infrastructure of their community as schools and roads. The availability of quality healthcare affects everything in a community from economic development to the overall well-being of the population (SRPC, 2014).

Many rural areas have difficulty maintaining an appropriate number of physicians in local practice. Medical physicians provide a wide range of health services in these areas and directly contribute to the health and well-being of rural residents. Understanding why physicians choose to enter or leave rural practice is complex; this study analyzes common trends and characteristics of physicians' reasoning. Some common factors include the level of contentment of the physician's family, career advancement opportunities, community involvement and offerings, isolation from peers, workload, upbringing, and financial incentives. Trends show the further the community is from an urban centre the more difficult the recruitment and retention issue becomes. Rourke (1993) notes, "physicians closest to urban centers reported the greatest satisfaction with their job, hours of work, professional backup, availability of specialists, continuing medical education, spousal job opportunities, cultural opportunities and children's education. As expected, the physicians in the most distant and smallest rural areas reported the least satisfaction." This project analyzes current programs set up to help alleviate some of these issues and suggests recommendations. Ideally, the least costly, most effective methods for retention would be beneficial to all the stakeholders, and of course to provide the maximum heath benefits for Canadians is most important.

This report examines the sustainability of the healthcare system by reviewing statistics from BC Stats, Statistics Canada, data from the B.C. Ministry of Health services, peer reviewed journals, newspaper periodicals, and other government research. Academic Search Premiere and Medline were used to obtain and conduct a literature review pertaining to medical physicians and their motives for entering or leaving rural practice. The literature review sourced consisted of physician surveys and interviews. Key words included in the literature search were: general,

physicians, rural, recruitment, retention, medical, and Canada. Specialists and other healthcare providers were excluded from the research.

'Rural practice' can be defined in many ways; for the purpose of this paper, 'rural' is considered by population density and isolation, as determined from a general exploration of literature. The Rural Practice Subsidiary Agreement (RSA) (appendix B) lists community designations by category, which provides a perspective of the level of remoteness or physician demand. Government incentive programs are designated based on these levels of remoteness.

THE PROBLEM

The shortage of physicians in rural areas of Canada is a persisting and serious issue; we continuously face the challenge of finding effective and efficient ways to increase the amount of physicians to rural communities. The uneven distribution of physicians is likely to become exacerbated as the population ages, and having access to a family physician is a basic need for all Canadians that can be difficult to obtain. Over 95% of Canada's land mass is rural – town populations under 10,000 account for 22.2% of the nation's population yet they are served by only 10.1% of Canada's physicians, and the larger rural and regional centres with populations of 10,000 to 100,000 constitute 15.9% of the nation's population and have only 11.9% of the physician pool (SRPC, 2014). Many of these regions have fewer than two family physicians, with some communities having none. Therefore, in emergencies, people have to be transported to the nearest urban city hospital which is, in some cases, hours away – these rural or remote area dwellers have a higher mortality rate than urban dwellers (C. Health). With fewer physicians and specialists in rural areas, family doctors work longer hours, are obligated to provide a much more comprehensive range of services, and are on-call more often than urban physicians.

British Columbia must maintain a competitive and lucrative business environment for existing residents and to attract population migration to the province. The province needs solid, long-term economic growth to support government healthcare spending as well as the aging population. The ultimate goal is to have a healthcare system that is portable, universal, comprehensive, accessible, and of substantial quality that is equal to or better than the level of services that currently exist. The real threat to the future of British Columbia's healthcare does not come from external factors such as general inflation, population growth, and aging, but rather from forces within, such as increasing utilization, eliminating redundancies and inefficiencies, and inflation on prices specific to the healthcare industry (Berlin, 2010).

British Columbia Demographic Shifts

The age of the actively working population will decline steadily from 65% to 59% by 2035, creating a rise of dependents in B.C. (i.e. people under the age of twenty or over the age of sixty-five). British Columbia will have the highest senior dependency spread in western Canada, with people over eighty being the fastest growing segment in the B.C. population according to BC Stats 2013. British Columbia continues to be an attractive place for retirees in Canada; however, when it comes to working-aged people, inter-provincial migration has been low in recent years and was actually negative in 2012 (Muzyka, 2013). This is largely due to other in-working provinces seeing more economic growth than British Columbia. When looking at BC Stats' population projections, the overall population is expected to grow at 1.2% per year but the population over eighty is growing at a rate of 3.5% annually. Thus, population aging is one of the primary causes of government spending; seniors account for one-third of physician services, almost 50% of acute care services, and 74% of home and community care expenditure (Muzyka, 2013).

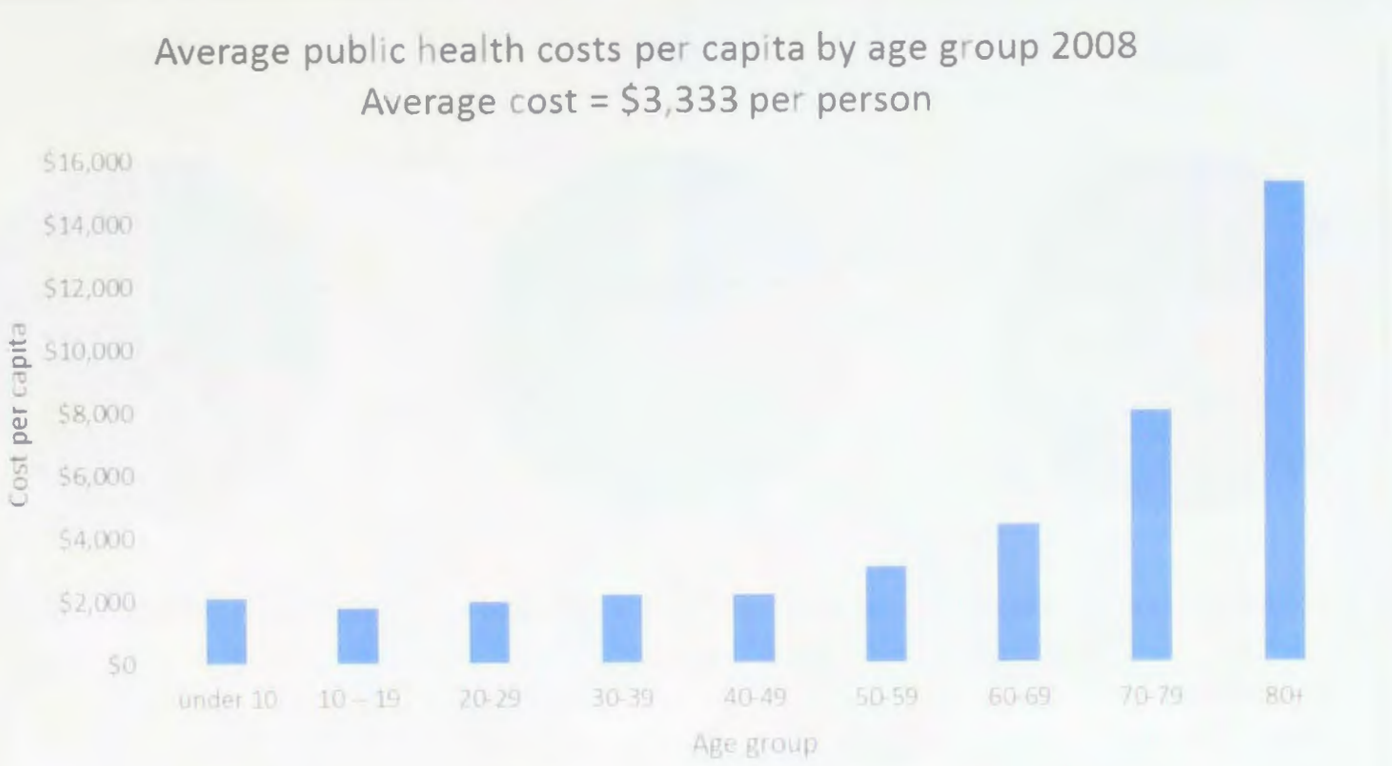

Figure 1, *(BC Stats, 2013)*

The graph above illustrates the dramatic correlation between age and cost per capita per year. In 2008, the average cost of public healthcare per person in B.C. was $3,333, with people over the age of eighty costing $15,137 per year and those over the age of sixty accounting for almost half of the total government health expenditures. By taking BC Stats' population projections and historical mental illness data into consideration, by 2036 it may be possible to have one million new patients diagnosed with the top five chronic conditions across the province: depression, hypertension, osteo-arthritis, diabetes, and asthma.

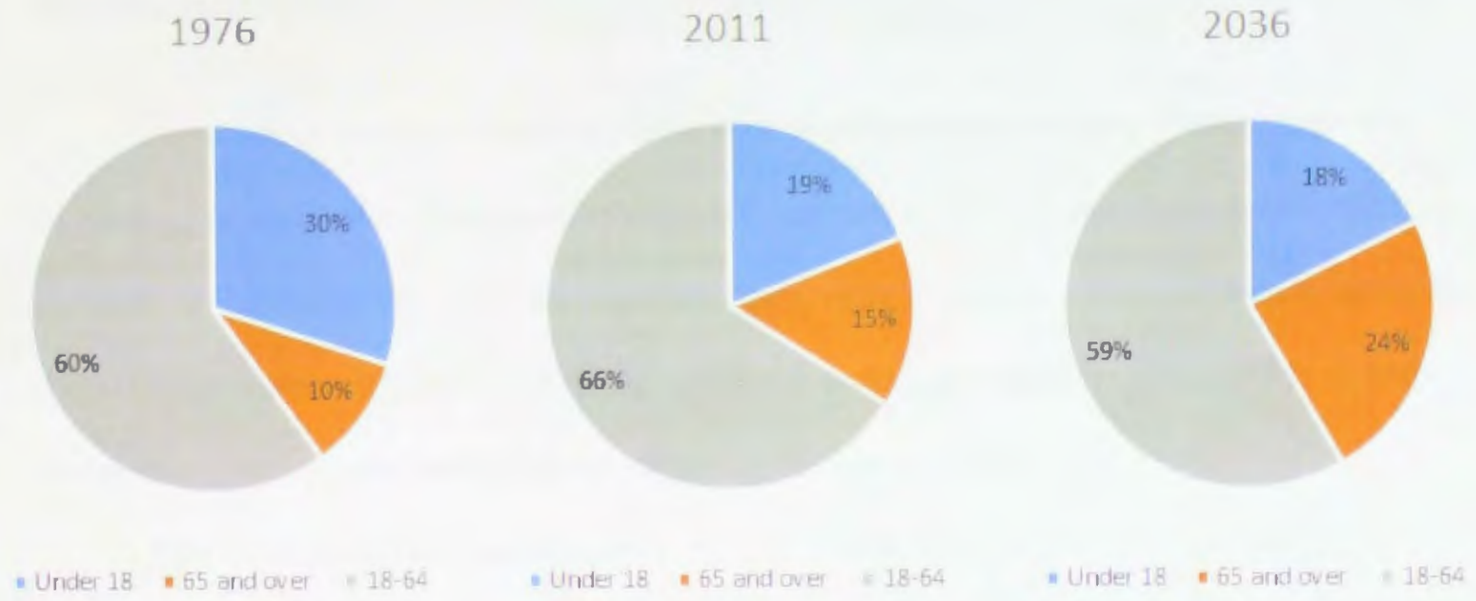

***Figure 2**, (BC Stats, 2013)*

Generation Y (those born in 1980 and onward) will soon constitute a large portion of the working demographic. This generation has different expectations of their work life than the Baby Boomer generation did in that they expect to have greater work and life balance (Giang, 2013). These cultural shifts will have a direct impact on the workplace as younger workers may be less willing to work the long hours of previous generations; not only will the number of workers in the labour force decrease, but they will also expect to work less hours (Ministry of Advanced Education, 2009). The major industry groups that are projected to experience the fastest growth rate are retail trade, healthcare, social assistance, accommodation, manufacturing, and construction (Ministry of Advanced Education, 2009). British Columbia will need to rely on immigrants to meet the future needs of the labour market and the B.C. government views immigrants as an opportunity to bring new skills and innovative ideas to the labour market (Ministry of Advanced Education, 2009).

Healthcare Expenditure

Advances in medical technology have been significant over the past decade. Improved technology in diagnostics, less invasive surgeries, and new drug treatments have made healthcare far more advanced and effective but, simultaneously, more expensive. Having these technologies available has increased the demand for more patients seeking procedures such as MRIs or joint replacement surgeries to justify the cost of having the new equipment.

Provincial healthcare spending grew from $8.8 billion in 2000 to $15.1 billion in 2010, with an average annual growth rate of 5.8% (BCMA, 2013). These healthcare costs are rising faster than the rate of population growth (1.2% per year) and at a faster rate than the economy.

The provincial government's healthcare spending will account for a rapidly increasing share of economic output (Berlin, 2010). With the economy growing at an average of just under 2% per year to $298.6 billion by 2039 and provincial government health spending growing at a rate of 4.5% per year, healthcare spending as a share of B.C.'s real GDP will increase from 8.7% today to 11% by 2019 and 17% by 2039 (BC Stats); it would effectively more than double in fifteen years.

Key Trend Considerations

Compared to Alberta and Saskatchewan, B.C.'s economy will under-perform while still facing an increasing need for healthcare services. This will create additional strain on the economy and may potentially lead to higher taxes, lower spending in other government-funded areas, or increased labour productivity for government workers (Muzyka, 2013).

According to BC Stats' historical data, the number of people in B.C. with chronic diseases is rising. Today, more than 1.3 million people in B.C. have one chronic condition while over 90,000 people have over four, with mental health issues being the most common.

Economic Opportunities and Implications

Over the next decade, B.C. will need increasingly advanced skills and knowledge to drive a growing and more varied economy. As a result of economic growth, employment in British Columbia should grow by an average of 1.8% each year through 2019, creating a total of 450,000 new jobs (WorkBC, 2013). According to *workbc.ca*, the average annual growth rate of employment for general practitioners and family physicians in the North East region is 3.2%, the Cariboo region is 2.7%, and Kootenay region is 2.6%. There is also a need for medical specialists in these areas, with these specialists experiencing similar growth trends.

Another consideration is that as B.C.'s population ages, so do the physicians. As illustrated in the figure below, the retiree population also affects the number of physicians leaving the workforce and, therefore, the need to fill these vacancies in this industry (BC Stats). As an aside, it is important to note that although this paper focuses on physicians, other health professionals will face similar challenges.

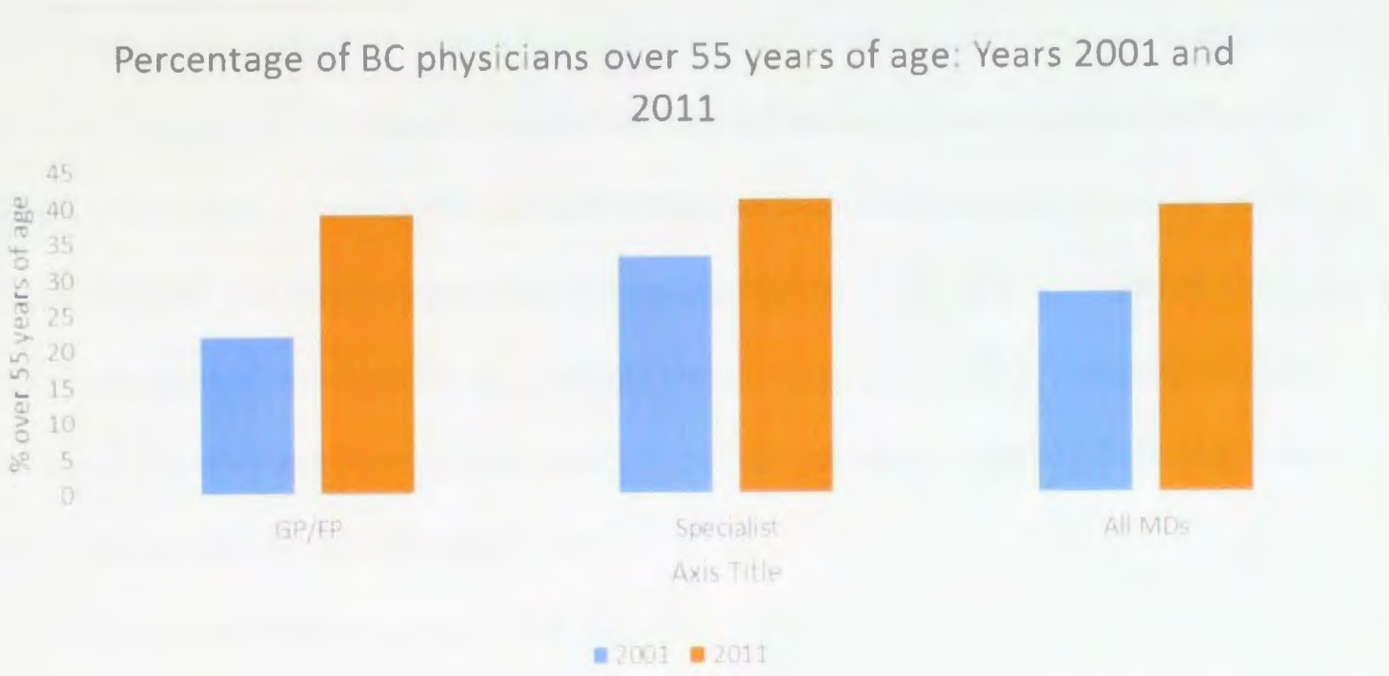

***Figure 3**, (BC Stats, 2013)*

Growth in B.C.'s mining sector is expected to grow 7% from 2012 to 2020 as British Columbia takes advantage of its natural resources. The development of pipelines for oil and natural gas is a potentially promising development for the B.C. economy, but will require a significantly large capital investment and face environmental scrutiny. In fact, all natural resource extraction will require billons of dollars in funding and the development of the infrastructure needed to support such industries. In addition, the B.C. forestry sector is forecasted to strengthen as American home construction rises (Muzyka, 2013).

British Columbia is well positioned to resume growth when the economy turns around. It can capitalize on opportunities such as serving as the Pacific Gateway to Asia and investing in emerging sectors like bio-energy and other green technologies (WorkBC, 2013). The Asia Pacific Gateway is a network of major infrastructure connections stretching across Western Canada and South to the United States. The federal government initiated this investment to encourage trade between the Asian Pacific region and Canada. The Gateway will support the creation of new jobs and increase economic prosperity. During the construction necessary for the Gateway to exist

and to support the population growth that will be a direct result of this opportunity, significantly increased demands for additional medical facilities, infrastructure, and medical staff will be needed. This will be especially true in the Northern regions, where current physician staffing is already stressed. The Gateway may also have a direct effect on the culture of British Columbia itself. Linkages with the Asia Pacific Gateway and the growth of a green economy will also create new business and investment opportunities in the province, including technology and labour market opportunities (WorkBC, 2013).

Japan's healthcare system is ranked among the best in the world according to the World Health Organization (WHO). Canada and Japan both converted relatively early to public healthcare and both have similarly aging populations. Japan is noted by the WHO for having a healthy, long-living population – in fact, Japan enjoys the highest life expectancy in the world. Its healthcare system is relatively inexpensive and covers dental procedures and prescription pharmaceuticals, and it uses less private funding with hospitals being 81.7% publicly funded (Asian Pacific Foundation of Canada, 2008). According to a report by the Asia Pacific Foundation, the management of Japan's hospitals plays a major factor in the efficiencies of its public healthcare system. All of the hospitals in Japan are centrally managed and highly efficient. Will the Asia Pacific Gateway create a closer relationship with Japan, in turn influencing the structure and efficiency of Canada's healthcare system? It is important to acknowledge a deficiency in the Asia Pacific Foundation study: the report does not look into other potential reasons for Japan's healthcare successes such as a genetically-predisposed population to health and longevity, more favourable environmental conditions, or cost per patient.

British Columbia has broadened its trading focus, strengthening ties with Asian countries like Japan, China, Korea, and India. The Asia Pacific Gateway is expected to have a significant

effect on British Columbia's labour market by attracting a skilled and imaginative workforce (WorkBC, 2013). The B.C. government may have to consider implementing more Mandarin and Japanese language courses in schools in order to effectively serve the increased growth of these languages in both the general population and the subsequent need for healthcare workers' fluency to help these individuals (Asian Pacific Foundation of Canada, 2008).

Globalization has been occurring for decades. British Columbia exists in a global labour market where employers compete for talent and people search for employment opportunities around the world, creating pressures on the labour supply (WorkBC, 2013). In the future, the B.C. government may have to reduce the level of care available in order to fill the growing need of physician shortages across the province and look to satisfy shortcomings with the addition of foreign physicians.

It is necessary to ensure that B.C.'s medical facilities and infrastructure have the capacity to accept the rapidly changing demands and technological advancements. For example, Burns Lake is set to receive a new Lakes District Hospital and Health Centre; the project is important for the region as it will provide enhanced patient care services and will support Northern Health by meeting demand projections for healthcare services in the region (Health, 2013). However, according to CBC News Health, Burns Lake could soon be without any doctors at all, putting all residents at an increased risk. Every physician in the community has either resigned or plans to move away from the area in the near future. Physicians from Burns Lake describe the region as a "microcosm of rural communities" with a combination of unique remoteness, a taxing rural practice, plus a combination of new and retiring physicians (CBC News – Health, 2011). There are currently 1,762 people living in Burns Lake and, according to BC Stats' population projections, by 2036 there will be 7,419 people in the area. Thus, Northern Health is actively

trying to recruit doctors to this region, but it is much easier to recruit to a larger, more stable medical community (CBC News – Health, 2011). Many physicians feel overworked and under-compensated for the additional demands put on their time in rural communities. They often face the reality and stress of providing an increased individual level of medical services and the responsibilities that come with this as a result of the lack of trained specialists. At the same time, these physicians are often dealing with the realities of fewer infrastructures, greater isolation, and a lack of colleague support compared to that of larger communities.

In Vancouver, patients have access to several nearby multi-functional hospitals such as St. Paul's, Vancouver General Hospital (VGH), Children's, and Women's. This is not the case throughout the rest of the province. Community-based care is invaluable, but access to more advanced facilities for more critical situations is vital (Sullivan, 2013).

Regional Differences

When designing a sustainable provincial healthcare system, it is necessary to observe the distribution of chronic illnesses among regions in combination with the current and projected demographics for age, sex, and other factors. These factors are the necessary indicators required for developing a functional healthcare system. They also serve to identify areas of weakness and aid in proper resource planning, such as the number of healthcare professionals needed and their training (i.e. specialists versus general practitioners). For example, the Fraser Health Region and Northern Health Region both have a higher prevalence of chronic conditions compared with the provincial averages; these areas may require the attention of specialists or specialized equipment (Fang, Kmetic, & McCarney, 2010).

In British Columbia, healthcare services are managed and delivered by five regional health authorities that govern, plan, and coordinate health services within their corresponding

regions. The five health regions are: Interior Health, Fraser Health, Vancouver Coastal Health, Vancouver Island Health, and Northern Health. Each of the health regions consists of three to four health service areas (Fang, Kmetic, & McCarney, 2010).

Health Inequity

The current regional inequities should also be taken into consideration when planning for health services. Despite the fact that British Columbia is one of the healthiest places in Canada – and the world, for that matter – there is a relatively high number of disadvantaged people in the province when compared to other regions in Canada. British Columbia has the highest poverty rate, particularly child poverty, but even though B.C. has the highest socio-economic disadvantages in the country, it still manages to reflect the best health. This is because the overall data illustrates B.C.'s heath status as a whole, disregarding differences due to regional data or social groups. Aside from a moral responsibility and obligation to serve the entire population, there is also a tremendous cost associated with inequity among British Columbians that costs the B.C. economy $3.8 billion annually (Health Officers Council, 2013). Studies indicate that spending more on healthcare is not the answer for increasing the overall health of the population; instead, developing better social programs, education, and improving the living and working conditions for the less fortunate may be the answer. Improved health enables more people to be employed and thus effectively reduces costs due to lost productivity. The B.C. government should consider initiatives to reduce the existing health inequities; by making the necessary resource allocations to improve this reality, they will make these issues a societal priority.

CAUSATIVE FACTORS

Rural areas are often characterized by isolation, an aspect that can be both limiting and attractive depending on an individual's personality. Besides culture and socio-economic background, some of the common reasons why physicians leave rural practice include work hours, lifestyle, practice location, higher salary, career progression, and work environment (Odom Walker et al, 2010). Medical professionals working in rural areas are faced with various challenges, which will be discussed in five categories: personal, professional, community, personality or background, and education. Below is a graph illustrating factors that are important to physicians in choosing rural practice in relation to their age.

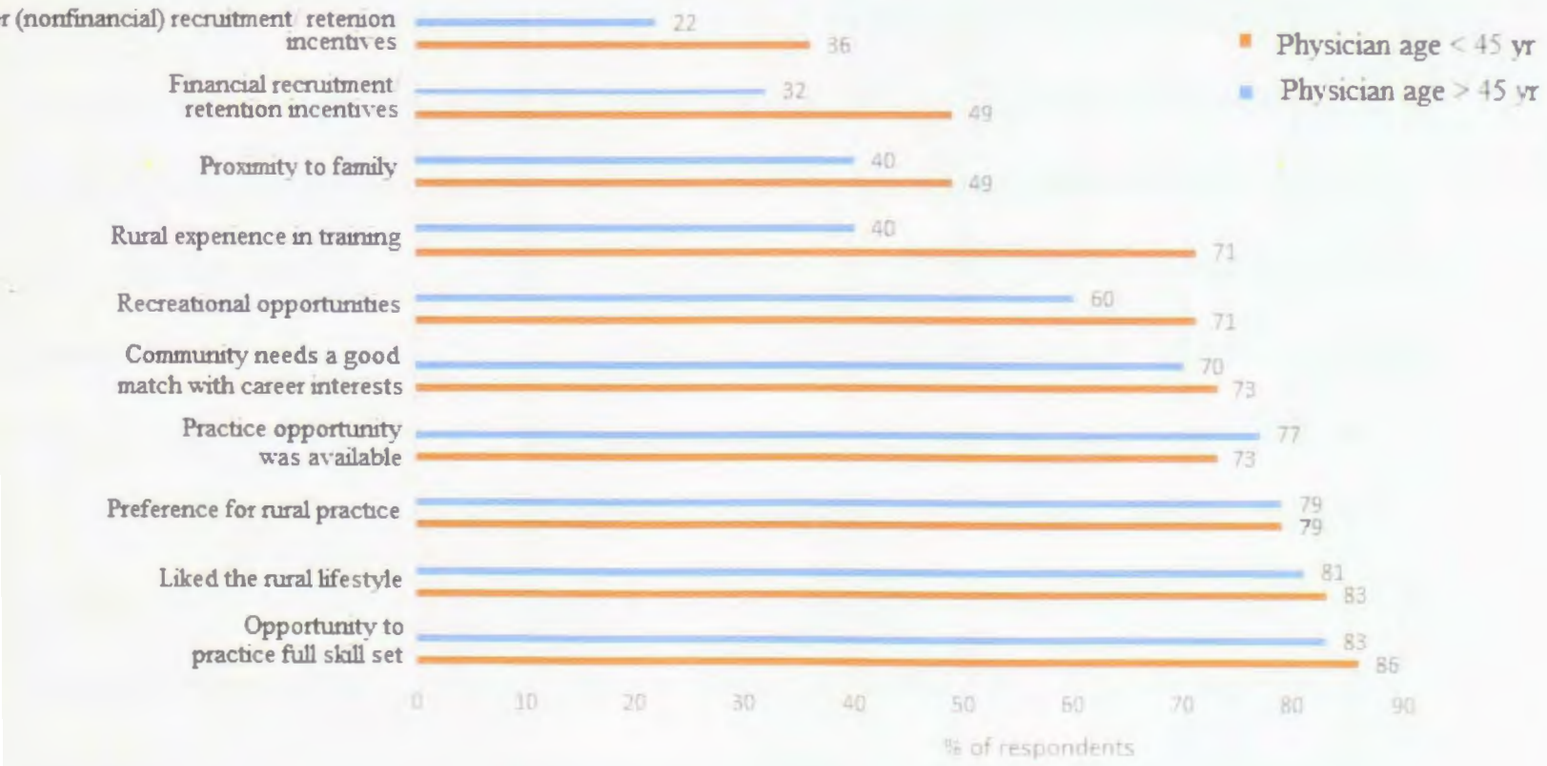

***Figure 4**, (Chauhan, Jong, & Buske, 2010)*

Personal factors

Some personal factors affecting the recruitment and retention of medical physicians to rural areas of Canada include job opportunities for spouse, the education of children, cultural opportunities, recreation, and retirement plans. Previous studies have shown that graduates who

chose urban practice had many reasons for doing so, with family and personal factors being the most frequently mentioned as reasons for deciding on an urban option (Chauhan et al. 2010).

Because of the busy work schedule in a rural environment, integration into the community is a challenge because there are few activities that an urbanized spouse and children could participate in; this can lead to feelings of boredom and loneliness because the spouses or parents who work in medical clinics or hospitals are often extremely busy with their high workload. Therefore, if a spouse is employed, regardless of their field of training, they will be more content and supportive, but a lonely and bored spouse can contribute highly to the relocation of physicians to urban areas where they will be assured of a bustling community with more activities to keep them going. The contentment of medical physicians is influenced by direct personal factors such as influences from spouses and children because if one's family is not happy in a rural setting, then they are less likely to stay (Rourke, 1993). Factors that limit or promote the contentment of a spouse or determine their level of satisfaction and assimilation into the rural community are essential for the retention of physicians in the rural areas of Canada.

Family is very important to many physicians; this includes spouse, children, and other relatives. In one of the studies, a physician of Latino descent admitted that he could not leave his present location because the family was based there. Physicians cite life events like marriage and having children as significant influences for their careers. Despite the typical quiet and serenity offered in rural areas, one is usually some distance from family and friends, and the demanding workload often makes it difficult for physicians to take holiday time (Mayo & Matthews, 2006).

Additionally, personal incentives, like the opportunity for personal growth, matter to physicians. They wish to have opportunities to grow and enhance their lives by developing new skills. Some physicians who wish to go to a different environment and work in particular patient

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settings might also be more willing to stay in rural areas. For instance, in some studies, physicians from non-under-served areas have reported that rural areas provide an opportunity for change and research, while others are motivated by mission-based values like the commitment to serve in such a community, and still others are motivated by their lifestyles and they prefer to get jobs in which the working hours do not interfere with time spent with family or pursuing other interests and hobbies (Odom Walker et al, 2010).

Proposition 1a: The opinion of a physician's spouse and/or family members are essential determinants of whether a physician stays or leaves a rural community.

Proposition 1b: A lack of opportunity for personal growth affects the physician's choice in staying in the community.

Professional Factors

Professional factors include clinical support, opportunities for continued professional development, career motivation, and financial incentives.

i) Clinical support

For many physicians, a supportive work environment is a significant aspect that determines satisfaction in their profession. This element was a noted factor along with having professional co-workers who are cooperative and value the provision of quality services. 'Provider team' is a term used to describe a group of specialists in various fields; for example, mental health, ancillary, and social service providers. Some physicians have reported that their medical colleagues are a major reason for remaining at their current location (Odom Walker et al, 2010).

ii) Opportunities for Continued Professional Development

A major challenge in rural areas is the minimal opportunities to continue with education, which is useful for furthering professional development. Physicians are often required to make annual records of their accrued professional development, which is required the next time they are renewing their registration; this ensures that physicians remain updated on current medical developments. This often has the implication that a physician in a rural area will have to travel long distances for their courses and use their leave days to attend courses. Thus, for physicians in rural areas, keeping up with the course requirements might prove difficult and, at times, impossible. Amid these challenges, it remains a necessary license/revalidation requirement that all physicians must have continued medical education (CME) and continued professional development (CPD) training. Regardless of the hardship involved in accessing this form of training, regulatory bodies insist on it (AHP, 2014).

Previous studies have indicated that the difficulty in obtaining CME and CPD as a result of rural isolation is one of the major reasons why physicians move from rural to urban areas. Generally, a rural physician is expected to play all medical roles found in a small hospital setting, including pediatrics, obstetrics and gynecology, mental specialty, emergency services, and surgery, among others. They are also expected to make nursing home visits, house calls, and much more. This is because these rural areas often have few, if any, specialists (Odom Walker et al, 2010). Therefore, a rural physician must build and maintain a higher and more varied knowledge base and associated technical skills of the various areas and sub-specialties of clinical practice.

Some researchers have reported that compared to urban physicians, rural physicians are in higher need of CME and CPD because they are involved in multiple medical procedures (Toguri, Jong, & Roger, 2012). In addition, they should receive basic training in all clinical skills

and procedures because they are often expected to offer emergency care (e.g. neurological, pediatric/infant, toxicological, and multiple trauma among others) in remote places. In some cases, rural physicians may need to have even further knowledge of local cultural factors such as aboriginal healthcare and herbal medicines. Therefore, the availability of CME and CPD through distance-learning programs is vital for enhancing the professional and technical skills of rural physicians. This helps reduce professional isolation while enabling them to deal with a wider scope of practice. These distance-learning programs ensure that rural physicians become competent in advanced medical areas and are capable of working independently regardless of the availability of modern medical technology or the advice of specialists (UBC Faculty of Medicine, 2014).

iii) Career Motivation

Career incentives include working hours, geography, loan repayment programs, and overall career satisfaction. Salary and benefits are also among the most commonly mentioned career incentives. Working hours that correspond well with one's lifestyle are a high priority. Physicians experience career satisfaction and emotional enrichment when they are able to provide a higher opportunity for comprehensive patient care. Poor career satisfaction is caused by career instability, lack of support, boredom, and exhaustion. Physicians prefer a work schedule that limits burnout, gives them control over their time, and allows them to maintain a healthy work-life balance (Odom Walker et al, 2010).

The number of physicians within a given rural community has an impact on the retention of physicians because rural practice involves an excessive workload, which often forces many physicians to work beyond the regular work schedule. Since a limited number of physicians desire to work in rural areas, it increases the strain on those already working in these

communities – the fewer the colleagues, the greater the workload for each rural physician and the less the time they have for their families and personal lives (Odom Walker et al, 2010).

The excessive workload, lack of professional colleagues and specialists, and lack of accessible training opportunities are some of the professional reasons that push a rural physician to move to an urban area. Licensing requirements are also career motivators; some physicians opt to relocate to rural areas because the licensing requirements there are less strict. (Odom Walker et al, 2010). As communities successfully recruit physicians, the burden on individual physician is reduced, thus enabling better collegial support and after-hours arrangements along with increased opportunity for personal vacation and professional development (Viscomi, Larkin, & Gupta, 2013).

Medical technology is essential in the advancement of the practice of medicine. The latest tools and equipment make a physician's role easier, treatment more efficient, and consequently, the overall quality of care increases. This includes having electronic charting, MRI machines, the ability to offer the latest treatments, and immediate results with innovative software. Due to healthcare budgets, technology is sometimes limited in rural areas, which can influence a physician's choice on practice location.

iv) Financial Incentives

Financial incentives include salary, benefits, loan repayment programs, and compensation. Health benefits, educational support, salary, and retirement funds are significant career motivators, especially for students with higher educational debts (Odom Walker et al, 2010).

The effectiveness of financial incentives on the recruitment and retention of physicians in rural areas has not received considerable degree of research and there is little evidence to support

this relationship. However, medical students in Ontario are drawn to initiatives like the free tuition programs in rural areas; therefore, secondary markers must be used to assess recruitment and retention programs in rural areas (Viscomi, Larkin, & Gupta, 2013). There are also concerns about return of service (ROS) programs in Canada. Physicians who choose rural areas are more likely to stay than those who go on a ROS agreement (Sempowski, 2004). The success of scholarships or bursaries with rural return of service agreements is highly variable, and these agreements mainly impact recruitment rather than retention (Chauhan et al, 2010).

Remuneration is an essential factor because there must be a balance between sufficient supply of physicians and compensation. However, as long as physicians are content in the rural setting, compensation may become less of a determinant of their stay. Nevertheless, compensation is a vital element for those who are not content with the idea of practicing in a rural location. Previous studies have indicated that remuneration alone does not have a significant effect on the retention of physicians in rural areas (Odom Walker et a, 2010l). Other personal and professional factors must be taken into account that may lead to better retention of physicians such as family and education. Multidimensional programs appear to be more successful than those relying on financial incentives alone (Sempowski, 2004). Physicians also desire working close to home where they do not have to commute for hours each day. If the working location is too far from where they have acquired housing, they are more likely to become discouraged and leave the rural area. Generally, the dynamics that influence the retention of physicians in rural communities include: size of the community, healthcare resources, and the proximity to urban centres (Odom Walker et al, 2010).

Proposition 2a: Difficulty in achieving continuing education courses may deter a physician from staying in rural practice.

Proposition 2b: Doctors in rural areas become vulnerable to burnout due to heavy workload and lack of peer support.

Proposition 2c: Physicians may become frustrated in rural settings where medical technology is limited and budgets are underfunded.

Proposition 2d: Financial incentives are a good recruitment strategy but do not prove to be an effective long-term retention strategy.

Community Factors

Studies show that long-term physician retention increases sharply once a community's population exceeds 7000 (Harvey Thommasen, 2000). Harvey Thommasen (2000) states that additional factors that increase physician retention include recreational activities, a more southerly location, decrease in isolation, and higher number of specialists. Appreciation, a feeling of connection, active support, and physical and recreational assets and opportunities were also positively correlated to physician retention (Cameron, Este, & Worthington, 2012). The chart below illustrates the level of importance each factor has based on the results from a previous study. It is important to note that every community is different and every physician will have different values so there is no standardized framework. A common theme noted in the research was that the relationship between the physician and community was relevant to the retention level. Those who disclosed that they felt well prepared both socially and medically for practice in a rural area stayed longer than those who felt unprepared or who were initially unaware of the unique characteristics of rural practice. Those who felt prepared for small town living were over twice as likely as others to remain in a rural area for at least six or more years (AAFP , 2014). A variety of community traits can determine a rural community's ability to attract physicians. These community traits include family values, schools, educational resources, arts and cultural opportunities, religion/specific faith-based resources, personal and professional

opportunities, security, and distance from urban centres, natural environment, and recreational facilities. If a rural community is too far from an urban centre, physicians will be discouraged by the lack of educational, cultural and recreational opportunities (Mayo & Matthews, 2006).

	Community retention factors			
		Community		
Factor	A	B	C	D
Appreciation	X	X	X	X
Reciprocity	X		X	X
Connection	X	X	X	X
Active support	X	X	X	X
Physical and recreational assets	X	X	X	X

***Table 1**, (Cameron et al, 2012)*

Proposition 3a: Larger community size, and increased assets, resources and opportunities, both professionally and personally, increase physician retention in rural areas.

Personality/Background Factors

A rural upbringing (entire childhood or more than ten years spent in rural areas) is positively correlated with retention of physicians in rural locations. If a physician has a rural origin, they are more likely to stay than one with an urban origin (Toguri, Jong, & Roger, 2012). Figure 5 displays an excellent example of pathway to physicians entering and leaving rural practice in relation to training background. Even while in school, students from rural backgrounds are often in favour of rural medicine and are more likely to adopt rural practices after graduation. Studies that have investigated the relationship between student backgrounds and their willingness to work in rural locations have reported that those with rural backgrounds prefer taking internships or practices in rural hospitals. Approximately 90% of students with rural origins prefer remaining and practicing in rural communities and have a positive perspective of

the quality of rural life. Students with a high tolerance with regard to uncertainty also have more interest in rural practice. Other important factors include familiarity, sense of belonging, self-actualization, alternative compensation, and community involvement (Toguri et al, 2012).

Another important factor to mention is that rural physicians tend to randomly encounter their patients more often than urban physicians around the community during the course of everyday life such as the grocery store or events. Being comfortable with this degree of closeness may or may not be part of the family physician's personality and social skill set (AAFP, 2014).

Physicians who practiced in rural communities were more likely to have mission-based values such as a sense of responsibility or moral obligation to a particular community or a defined patient population, and utilize their self-identity, including race, language, and personal or family background as motivators (Odom Walker et al, 2010). Findings also indicate that work hours and lifestyle were important for all physicians but that these factors appeared to play a particularly important role for physicians who had left or considered leaving a rural community. One research study also showed that none of the physicians who trained in a larger urban setting went to work in a rural one; this stresses the importance of training in under-served locations as a predictor of long-term practice in these same settings (Odom Walker et al, 2010). Findings also indicated several personality differences between rural and urban physicians with regard to openness, conscientiousness, and agreeableness. In fact, openness scores declined as geographic isolation increased, and conscientiousness tended to be higher in rural physicians. Overall, Michael Jones et al. (2012). found that openness (rural doctors lower), conscientiousness (rural doctors higher), and agreeableness independently differentiated rural from urban physicians. The practical value of this can be seen by noting that these three personality dimensions taken

together with key demographic characteristics could be considered quite credible for a diagnostic test designed for use in clinical practice (Jones, Humphreys, & Nicholson, 2012).

When students are exposed to positive physicians as role models for rural practice, the recruitment to rural areas will be improved. Although personal origins influence the decision for students to practice in rural areas, those from urban areas can also develop positive interest if they are exposed to rural experiences while in training (Rourke, 1993). Finally, self-identity matters to some physicians, especially those from minority groups who prefer a setting that reminds them of their language, family, culture, geography, and socio-economic background.

Proposition 4a: The more time spent in a rural community setting, the higher the correlation of retention; especially if they have spent a substantial part of their formative years in a remote community.

Proposition 4b: Physicians that work in under-served areas do so largely because of mission-driven values, self-identity, and acceptable work hours and lifestyle.

Education Factors

Community-based medical education is a significant element in Canadian rural clinical schools, especially in Northern Ontario where students are taken through a curriculum that considers the needs of the immediate community. Clerkship programs and the final years of medicine are based in rural or local settings, unlike the conventional model that allocates clerkship programs to large, urban-based institutions. This rural placement exposes students to rural practice and may influence their decision to work there. Experiences during post-graduate training may also influence rural practice. In Canada, graduates can apply for and start specialty training courses directly after school. In choosing internships, research shows that students from rural-based post-graduate training institutions often opt for rural practice (Viscomi et al, 2013).

In rural areas, career counselling for physicians is minimal and the availability of resources is also an issue of concern. Therefore, talented students who wish to pursue advanced training in medicine are limited by the scarcity of resources for higher education. Studies conducted in Canada have also indicated that the attitude of students prior to attending medical school, as it pertains to rural versus urban community living influences their eventual decision to work in rural or urban areas (Viscomi et al, 2013).

A medical school that offers programs of rural elective experiences might help increase the probability of a student practicing in rural areas. This includes offering core and elective rural rotations to promote rural medical practice. When students are placed in rural settings where they interact with physicians, they develop positive experiences towards rural practice. The most likely candidates for rural medical practice are: students originally from rural areas, those exposed to rural elective programs during medical school, those under bonded scholarship contracts to operate in under-served areas for a specified time period post-graduation, those wishing to be generalists with an interest in family medicine, and those who come from communities where doctors are highly esteemed (Viscomi et al, 2013).

Access to continuing medical education and professional development are unique to each physician. Findings from Vernon Curran et al. (2010) indicate that there is strong evidence demonstrating that the CME/CPD needs of rural physicians are unique and that professional isolation and access to CME/CPD are key factors affecting recruitment and retention. Flexibility and a variety of CME/CPD opportunities to accommodate different educational interests and requirements are necessary and must be individualized. Supporting the professional careers of doctors in a region requires the provision of integrated educational programs that focus on specific information and skills (Curran, Rourke, & Snow, 2010).

Previous studies have reported that physicians originating from a rural community are two and a half to three and a half times more likely to be in a rural practice as compared to those who came from urban areas. Training in rural settings, at both the undergraduate and postgraduate levels, has been shown to have a positive association with the decision to practice in a rural community (Chauhan et al, 2010). Also, medical students who are exposed to rural medicine early in their studies or during their residency and clerkship are more likely to develop an appreciation and passion for rural medicine once they graduate (Mayo & Matthews, 2006). However, most of the world's medical schools are situated in large cities. Most medical students are raised in affluent urban areas, learn little about rural healthcare needs, and experience little or no medical learning in the rural context (Rourke, 2010). Many physicians who are raised in a rural community feel the need to give back to their community; therefore, they return home and work diligently in patient care because they want to contribute to the development of their community. By doing so, they create a situation of mutual benefit where rural citizens receive excellent patient care and physicians receive respect and admiration in return.

Medical school faculty also have an influence on where students choose to practice by the manner with which they discuss rural settings in the classroom. Therefore, the medical school faculty should refrain from projecting negative or biased opinions in regards to practicing in rural areas as negative connotations could discourage students who are willing to indulge in rural practice after graduation. Faculty should also include problem-based modules that integrate rural-based issues to help the students understand the actual situation in rural areas (Hancock, Nesbitt, Adler, & Auerswald, 2009).

Proposition 5a: Exposure to rural community medicine through positive didactic education, rural rotations, and rural internships can increase both physician recruitment and retention to underserved communities.

Proposition 5b: A lack of educational and professional resources that may limit a physician's ability to pursue higher education or advanced training can negatively affect the retention of physicians in rural communities.

Proposition 5c: Challenges for physicians to obtain appropriate and applicable rural community CME/CPD in a timely and easily accessible manner can negatively affect the retention of physicians in rural communities.

Proposition 5d: Physicians are likely to choose to practice in a rural or remote community if they have had exposure such a community during their medical training.

Current Retention Programs Offered by the Province of British Columbia

The Joint Standing Committee on rural issues (JSC) funds the Rural Coordination Centre of British Columbia (RCC*bc*) whose interests lie in improving:

(i) Education and training to promote local continuing professional development (CPD) for rural doctors and to create a better understanding of rural healthcare issues.

(ii) Recruitment and retention for a sufficient supply of health professionals in BC and to address arising challenges.

(iii) Particular populations by serving the needs of minority communities and establishing relevant support and best practices.

(iv) Communications by supporting discussions, establishing networks, and communications for rural professionals and the community.

(v) Delivery through development of rural professionals in Canada.

(vi) Evaluation and quality improvement, and rural health services research by assessing rural health service strategies applied by REAP (Rural Education Action Plan) and RCC*bc* and integrating results into health policies (BCMA, 2013).

The JSC, under the Rural Practice Subsidiary Agreement (RSA), advises the British Columbia Medical Association (BCMA) and the government on rural healthcare issues and ensures that physicians are available in rural areas by solving the challenges faced by the physicians in these areas. They do this by addressing the unique and difficult clinical circumstances experienced by rural physicians. The RSA has a list of communities that are eligible for these programs. Communities are categorized by level of remoteness or level of priority. See appendix B for the RSA's communities list. Government rural retention programs include:

(i) Rural Retention Program (RRP) where retention remuneration is given to physicians who work in suitable RSA communities.

(ii) Rural Continuing Medical Education (RCME) which offers CME funding opportunities for physicians to enhance their medical credentials, education, and skills.

(iii) Recruitment Incentive Fund (RIF) offers variable funds to physicians who are recruited to cover available vacancies which are listed in the physician supply plan of the RSA.

(iv) Recruitment Contingency Fund (RCF) is a recruitment fund used in severe cases to assist doctors, health authorities, or communities under the RSA where there

are problems filling a critical vacancy and a qualified recipient must be outside the entitled RSA communities.

Other key programs are the Isolation Allowance Fund (IAF), Rural Emergency Enhancement Fund (REEF), Rural Education Action Plan (REAP), Rural GP Locum Program (RGPLP), Rural Specialist Locum Program (RSLP), Northern and Isolation Travel Assistance Outreach Program (NITAOP), and Specialty Training Bursary Program (BCMA, 2013). Typically preference and allocation of funding is provided to the most isolated or vulnerable communities first.

Some medical school programs recognize the issues facing rural health and have modified their application process. For example, admissions into the Faculty of Medicine at the University of British Columbia (UBC) changed in 2004 with the introduction of the Rural and Remote Sustainability Score (RRSS). Candidates are screened based on their experience in rural, remote, northern, and/or aboriginal communities, and activities relevant to remote northern living. The admissions committee analyzes the candidate's willingness to remain in rural practice upon academic completion, and candidates are asked where their preferred campus site is located: Vancouver Fraser Medical Program (VFMP), Southern Medical Program (SMP), The Island Medical Program (IMP) and the Northern Medical Program (NMP). For each academic year there are a total of 288 seats for incoming medical students with the following breakdown: VFMP with 192 seats and SMP, IMP, and NMP each with 32 of the remaining seats (UBC, 2014).

Telehealth uses videoconferencing and supporting technologies to put patients in touch with health professionals across great distances. It is especially useful in remote areas where patients have to travel far to meet health professionals (eHealth, 2014).

Telehealth reduces the travel burden and distance barrier of rural citizens, and provides greater access to a wide range of specialist advice and services. Telehealth is a convenient, cost effective program that has been implemented in most provinces. For physicians, it can reduce the sense of isolation, improve continuing professional education, and provide an easier form of communication between professionals. The Telehealth program indirectly acts as a retention program by reducing workload on the physicians. In 2008, the Ministry of Health formed a Telehealth Office to facilitate the design and implementation of Telehealth solutions (eHealth, 2014).

The Indigenous Physicians Association of Canada has partnered with the Association of Faculties of Medicine of Canada to increase admissions and support for indigenous students in Canada's medical schools and to develop a First Nations, Inuit, and Métis health competencies curriculum framework (Rourke, 2010).

Proposal 6a: The Joint Standing Committee on rural issues (JSC) offers many attractive incentives for the recruitment and retention of physicians to rural communities.

Proposal 6b: Rural Practice Subsidiary Agreement (RSA) offers many attractive incentives for the recruitment and retention of physicians to rural communities.

Proposal 6c: Modifications to existing University medical school admissions policies that increase the proportion of students admitted to medical programs from a rural background will improve physician recruitment and retention to underserviced communities.

Proposal 6d: Introduction of physician supportive technologies such as Telehealth improves physician recruitment and retention to rural communities.

Proposal 6e: Increased admission and support of indigenous medical students addresses unique cultural needs and improves recruitment and retention of these physicians to regions of greater indigenous population.

MODIFIABLE FACTORS

Although many studies have emphasized the recruitment of rural physicians, retaining them is equally essential. The analysis of physicians' experiences in rural areas should focus on all stages, from the time students start medical school to the time they graduate and become practitioners in rural areas. The main modifiable factors are opportunities for group practice, education, better hospital facilities (improved resources), financial motivators, and realistic working conditions (heavy workload and long on-call hours). Rural areas that are very remote and completely isolated have more challenges (Curran et al, 2004). The location of the hospital, organization, and vision are essential factors that can motivate physicians to work in a given location. Medical schools have a role to play in this, particularly those located in rural campus locations, and often concentrate on encouraging students to practice in those areas and use curricula that are rural-oriented and offer continued rural experiences to their students. Students who attend medical school in rural settings are exposed to rural experiences, hence they are more likely to indulge in rural practice after graduation (Curran et al, 2004).

Modifiable factors for CME and CPD include study leaves, more training opportunities, and basic life support. Financial incentives to attract more rural physicians include reducing hardship, improving housing and travel allowances, paid vacations and education leaves, bonuses for on-call services, etc.

Proposal 7a: Addressing modifiable factors improves recruitment and retention of physicians to rural communities.

RECOMMENDATIONS

Personal

Proposition 1a: The opinion of a physician's spouse and/or family members are essential determinants of whether a physician stays or leaves.

- Employment for a spouse can be important in relation to their level of contentment; Northern Health should take this into consideration when recruiting physicians. Regional hospitals can try to recruit the spouse internally or offer a partnership with a local school to allow the spouse an opportunity to upgrade their skills. This also could help to increase the level of contentment of the spouse by instilling a sense of purpose.
- In order for a community to appropriately allocate funding towards specific facilities or resources, further research to determine the factors which contribute both directly and indirectly to a spouse's level of contentment within a rural community should be investigated.
- Reduction of a physician's work load/hours to ensure a better work-life balance with family.
- Health Authorities and government should consider offering scholarships for physicians' children to provide them the opportunity to attend a reputable school.

Proposition 1b: A lack of opportunity for personal growth affects the physician's choice in staying in the community.

- Further research on understanding the connection between the social and professional environments of a physician and how that affects their personal level of contentment would improve rural recruitment and retention policies.

- Rural medicine postgraduate residency training programs should be encouraged or have incentives provided to those physicians accepting rural positions. This not only will provide physicians with the skills needed for rural practice, but will also promote doctors to enter and stay in rural practice.
- Remote programs should place a stronger emphasis on retention; many remote programs seem to focus more on the formal process of recruitment and less attention to retention.
- Medical schools dedicated to recruiting and retaining medical physicians should place an emphasis on the social skills physicians need to succeed in rural practice in the curriculum. These could include good leadership, adaptability and public speaking skills. Often physicians in rural areas are called on to represent an entire community in regards to health requirements.

Professional

Proposition 2a: Difficulty in achieving continuing education courses may deter a physician from staying in rural practice.

- Access to CME courses is necessary on a professional level, but also is important in allowing physicians to associate and communicate with colleagues to reduce their potential feelings of isolation. Flexible programs should be readily available and easy to access such as workshops, e-learning, Skype video conferences, telephone, and funded learning opportunities.
- BCMA facilitation of continuing medical education conferences specifically for rural areas on site, with topics specific for the issues facing those particular rural regions.

Proposition 2b: Doctors in rural areas are vulnerable to burnout due to heavy workload, long hours, and lack of peer support.

- Clinic administrators should consider modified or reduced work hours and creative means to accommodate other physician lifestyle factors in order to retain a greater number of doctors who have a strong commitment to practice in under-served areas.
- Nurse Practitioners (NPs) are trained in a broad scope of practice. They are health-care professionals who treat the whole person, addressing needs relating to their physical and mental health, gathering their medical history, focusing on how their illness affects their lives and their family, and offering ways for people to lead a healthy life and teaching them how to manage chronic illness (Nurse Practitioners, 2011). NPs are educators and researchers who can be consulted by other health-care team members. Nurse practitioners' are able to diagnose and treat illnesses, order tests, and prescribe medications (Nurse Practitioners, 2011). In areas that are under-served by primary healthcare physicians, NPs scope of practice can be increased to include some increased responsibilities that may currently be reserved solely for the primary physician, alleviating the workload and reducing burnout on physicians. The Health Professions Act should provide guidelines for each community. Duties such as diagnostics, primary care assessments, and prescriptions of routine medicines such as first-line antibiotics can be increased. Further research should be conducted to review the positive or negative effects that an increase of the NP's responsibilities could have on the delivery and effectiveness of healthcare to rural communities. Increasing the scope of practice for other healthcare workers in other disciplines should also be considered. Rural healthcare providers should focus on a team approach, working together with the same end goal of improving public health. Primary care physicians are resistant to recommendations that call for an expanded role of NPs and an increase in their numbers (Ready, 2013). Despite this, it

would be mutually beneficial for both sides within the medical community to come to an agreeable solution before it is legislated in government.

- Implementation of a specific rural nursing program specialty for nurses during their undergraduate university training. Alternatively, post-graduate training with a curriculum focussing on specific rural health issues such as specific healthcare needs more common in rural areas as well as added emergency care etc.
- Physicians should be compensated appropriately for working extended hours and be reimbursed for continuing education, particularly when travel costs are required.

Proposition 2c: Physicians may become frustrated in rural settings where medical technology is limited and budgets are underfunded.

- Local health authorities should work with their respective Member of Legislative Assembly (MLA) to ensure adequate funding to improve the levels of and access to medical technologies.

Proposition 2d: Financial incentives are a good recruitment strategy but do not prove to be an effective long-term retention strategy.

- Physicians who have invested a significant amount of their life in rural communities have a more substantial chance of remaining in rural practice. This is an important factor in retention that re-emphasizes the need for medical schools and postgraduate training programs to work closely with organizations such as the WHO recommendation for socially accountable medical education.
- Recruiters should focus on personality traits and personal background before the use of financial incentives to attract physicians. Physicians who are attracted to the opportunities that rural practice life offer are better candidates for long-term retention. These

opportunities should be emphasized by medical programs and recruiters and may include physician exposure to a larger scope of practice and responsibility, experiencing a more personal relationship with patients and autonomy etc.

- Instead of monetary incentives, the government can assist in the establishment of private practice facilities.

Community

Proposition 3a: Larger community size, increased assets, resources and opportunities, both professionally and personally, increase physician retention in rural areas.

- Hospitals could partner with local recreational facilities including gyms, libraries, movie theaters, pools etc. to provide physicians and their families opportunities for exercise, leisure, and cultural enrichment. This could also foster a sense of belonging to the community, improving the likelihood of long-term retention.

Proposition 4a: Physicians are likely to choose to practice in a rural or remote community if they have had exposure to such a community during their medical training.

- Medical school curriculum should highlight the health needs of under-serviced communities. This curriculum combined with unique and enriching rural clinical placements at various junctures during a physician's medical training may serve to help stimulate the desire to practice in a rural community as they will have experience with and a better understanding of rural communities, their people and their often unique health challenges.

Proposition 4b: The more time spent in a rural community setting, the higher the correlation of retention; especially if they have spent a substantial part of their formative years in a remote community.

- Grade schools in rural areas should include programs in their curriculum that encourage students to pursue a career in medicine.

- Medical schools should revamp their admissions policies to place more weight on a candidate's personal background and preference for living and practicing medicine in a rural community setting when interviewing applicants. Examining humanistic and intrinsic type factors in more detail earlier in the medical education selection process may be an important strategy for identifying physicians who are motivated to practice in underserviced areas (Odom Walker et al, 2010). The recruitment process should include both the assessment of academic achievement and an exploration of deeper student commitment to working with under-served populations and increase the proportion of medical students who come from rural backgrounds.

- Physicians in rural practice should act as mentors to children in the community. Programs should be encouraged for physicians to visit elementary and secondary schools to promote the practice of medicine and how to achieve the goal of becoming a doctor.

Personality/Background

Proposition 4b: Physicians that work in under-served areas do so largely because of mission-driven values, self-identity, and acceptable work hours and lifestyle.

- Studies on the effectiveness of the RRSS and similar screening processes should be conducted to determine the long term effects of recruitment and more importantly the impact they have on long-term retention of physicians in rural communities.

Education

Proposition 5a: Exposure to rural community medicine through positive didactic education, rural rotations, and rural internships can increase both physician recruitment and retention to underserved communities.

- Medical schools should implement mandatory clinical rotations in rural areas during the course of studies.
- Family physicians who practice in remote and less populated areas often may require special training related to rural health issues such as emergency care, leadership skills, mental health and primary surgical care. This training must be readily available to physicians through on site, distance learning or virtual continuing education means to assure physician competency and increase their confidence in their abilities to handle situations with little to no outside assistance.
- Medical schools should develop academic outreach programs to encourage students to participate in rural practice, emphasize the importance of actively recruiting rural students with exposure to or a background in family medicine, facilitate student exposure to positive role models from rural areas, and train students in advanced procedural skills that may be required in a rural setting.

Proposition 5b: A lack of educational and professional resources that may limit a physician's ability to pursue higher education or advanced training can negatively affect the retention of physicians in rural communities.

- Medical schools and hospitals should provide resources for physicians to facilitate continuing medical education and professional development. Creating a comprehensive central database for continuing education programs and opportunities as a primary resource for physicians to assist in their selection and participation in applicable local, distance, or e-learning programs.

Proposition 5c: Challenges for physicians to obtain appropriate and applicable rural community CME/CPD in a timely and easily accessible manner can negatively affect the retention of physicians in rural communities.

- Medical schools should commit to offering flexible CME courses, online and e-learning options to increase accessibility and to reduce feelings of isolation, remoteness and minimize or eliminate travel time.

Proposition 5d: Physicians are likely to choose to practice in a rural or remote community if they have had exposure such a community during their medical training.

- Medical schools should modify their applications process based on personality. Screening processes similar to the Rural and Remote Sustainability Score (RRSS) at UBC can be used to assess personality.

Current Retention Programs

Proposal 6a: The Joint Standing Committee on rural issues (JSC) offers many attractive incentives for the recruitment and retention of physicians to rural communities.

- Medical students from rural areas often face financial and social challenges and should be offered support and assistance for accommodations, tuition fees, and travel expenses etc. to help facilitate their medical education.

Proposal 6b: Rural Practice Subsidiary Agreement (RSA) offers many attractive incentives for the recruitment and retention of physicians to rural communities.

- The main objective of the RSA should be to optimize the health of British Columbians. The allocation and effectiveness of funding should be evaluated in relation to overall health of the citizens and the effectiveness of physician recruitment and retention, particularly in underserviced communities.

- Although some incentives currently exist for physicians who work at a hospital as a government employee, rural private practice incentives should be made available. It is more difficult for a physician with a rural private practice to leave a community than it is for a government employee.

Proposal 6c: Modifications to existing University medical school admissions policies that increase the proportion of students admitted to medical programs from a rural background will improve physician recruitment and retention to underserviced communities.

- Since there is a strong correlation between physicians with rural backgrounds and rural training, medical schools should consider increasing the proportion of students admitted to rural campuses.

Proposal 6d: Introduction of physician supportive technologies such as Telehealth improves physician recruitment and retention in rural communities.

- Further studies should be performed on the utilization of the Telehealth program and the impact it has on assisting rural physicians. Study results on usefulness, effectiveness, and overall efficiency of the system could then be used to make modifications to the program or expand the existing service.

Proposal 6e: Increased admission and support of indigenous medical students addresses unique cultural needs and improves recruitment and retention of these physicians to regions of greater indigenous population.

- Increasing the admittance of aboriginal people into medical schools may serve to encourage these graduating physicians to practice in underserviced rural communities and those of an increased population of indigenous people. Physicians of particular aboriginal ethnicity may be more understanding of cultural differences and unique challenges that face some rural and indigenous populations. This may facilitate a more

mutually beneficial relationship and greater understanding between patient and physician and therefore a more effective and improved delivery of healthcare.

Modifiable Factors

Proposal 7a: Addressing modifiable factors improves recruitment and retention of physicians to rural communities.

- Human resource professionals responsible for recruitment of physicians to rural communities should receive specialized training to enhance the effectiveness of their recruitment and retention processes and strategies. This training should emphasize important aspects such as the particular personality characteristics that are most likely to result in long-term retention of physicians in rural communities and identify those potential physicians that are more likely to embrace rural career development and realize job satisfaction in such an environment.
- Introduce programs to enhance rural physicians' scope of practice. Although it may be difficult to quantify how relative scope of practice is in the role of recruiting and retaining physicians, there is strong evidence that physicians job satisfaction increase with an increased scope of practice.

CONCLUSION

There are several factors influencing significant changes in British Columbia's healthcare system that are undeniable and mounting. The future of healthcare in British Columbia will see the provision of healthcare services to a population dramatically altered from that which currently exists today.

The problem of a shortage of primary healthcare physicians in remote regions and rural communities in Canada will continue to worsen. Retention strategies to increase the number of rural physicians will be of ever-increasing importance. Retention strategies are difficult to measure as retention tends to be a much more complex issue than recruitment. Places and people are unique; therefore, it is impossible to use a one-size-fits-all strategy. Communities, hospitals, schools, and physicians all have a role in the recruitment and retention of physicians. Generally, regardless of income and practice, established physicians may leave rural practice due to lack of peer support, long hours, burnout, lack of spousal support/contentment, insufficient community recreational assets, and lack of appreciation from the community. The relationship between the physician and the community is intimately connected and strongly influences long-term retention.

As the effectiveness of physician retention is difficult to measure, more research is needed to analyze the new programs and strategies. This is especially true when identifying personality traits, spousal contentment, personal motivators, and other traits that are difficult to quantify. With Canada's increasing aging population, the supply of physicians in under-serviced communities is becoming an ever increasing concern. Every community is unique and it is impossible to use only one strategy or rely on any one organization or person to improve rural physician recruitment and retention. Governments, medical associations, communities, hospitals, schools, citizens, and all other stakeholders must come together to create a plan and an environment that will attract and retain physicians long-term in rural communities.

Financial incentives and CME programs have proven to be beneficial in short-term recruitment. However, recruiting physicians who are content with a rural lifestyle, free of financial incentives, results in more satisfied physicians and increases the likelihood of long-term

retention. Physicians who are satisfied with the rural lifestyle tend to have had previous experience in a rural setting and typically have a long-term desire to practice rural medicine. Modification of the medical school admissions process that puts a higher weighting on the applicant's personality, place of origin, background, and personal motivators are more likely to graduate physicians with an improved rate of retention in rural communities. Overall, retention of physicians in rural communities may best be increased through a combination of personality trait selection criteria during medical student admissions and eventual financial incentives for those who choose to practice in rural communities. Financial incentives can prove effective in the initial recruitment process, but do not necessarily translate to long-term retention. Once the number of physicians starts to increase in a community, the level of contentment of physicians also increases. The presence of colleagues allows for a support network and a better work-life balance that results in a better improved levels of personal and professional satisfaction, thus improving long-term retention of physicians.

APPENDIX A

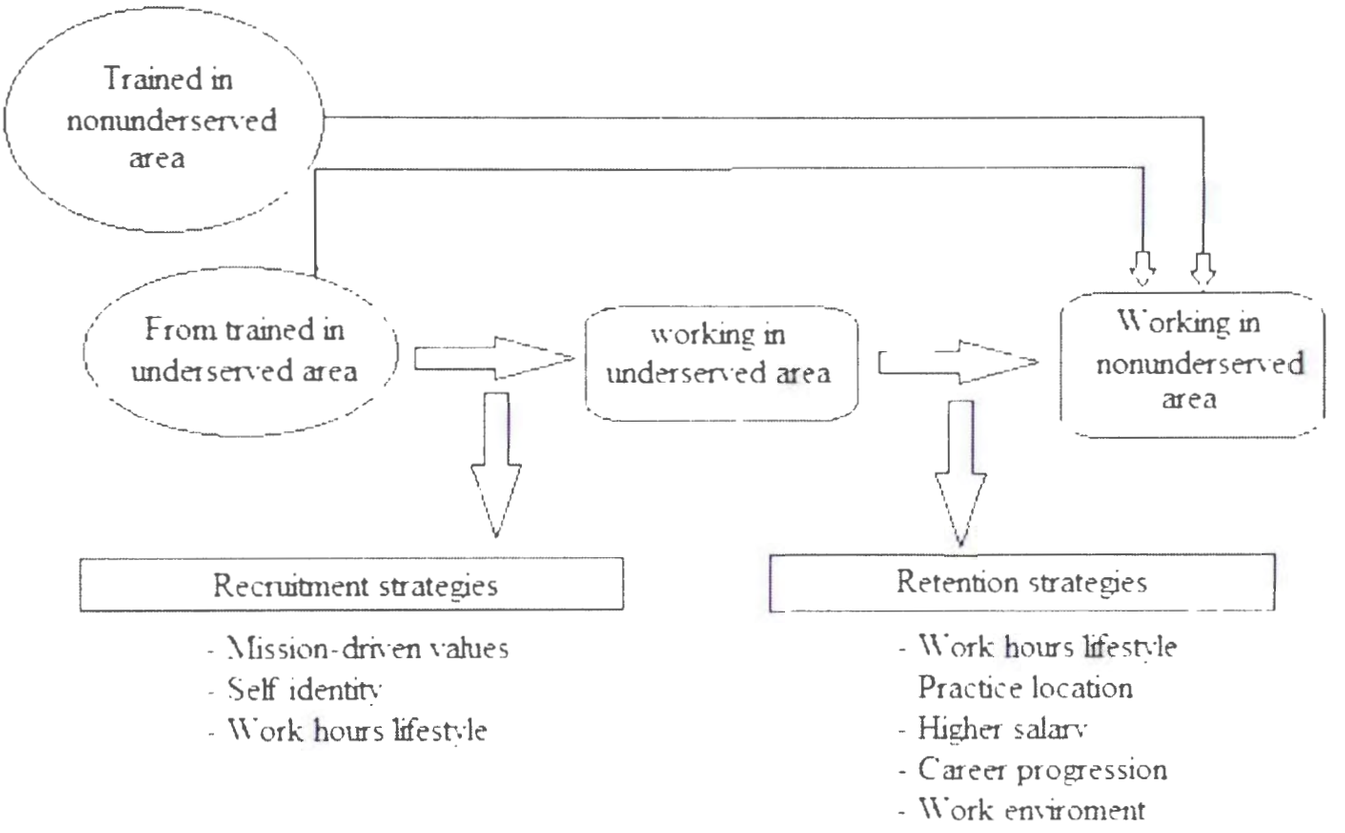

Figure 5, *(Odom Walker et al. 2010)*

APPENDIX B

RSA COMMUNITIES - A, B, C, D			
A			
100 Mile House	Fort St. James	Mackenzie	Sayward
Ahousat	Fort St. John/Taylor	Masset	Seton Portage
Alert Bay	Fort Ware	McBride	Sirdar
Alexis Creek	Fraser Lake	Miocene	Skin Tyee
Anahim Lake	Gold Bridge/Bralorne	Moricetown	Smithers
Ashcroft/Cache Creek	Gold River	Mount Currie	Sointula
Atlin	Golden	Nadleh	Sparwood
Bamfield	Granisle	Nakusp	Spences Bridge
Bella Bella/Waglisla	Greenwood/Midway/Rock Creek	Nee Tahi Buhn	Stellat'en
Bella Coola	Halfway River	Nemaiah Valley	Stewart
Blueberry River	Hartley Bay	New Aiyansh	Tahsis
Blue River	Hazelton	New Denver	Takla Landing
Bridge Lake	Holberg	Ocean Falls	Tatla Lake
Burns Lake	Hornby Island	Port Alice	Tatlayoko Lake
Canal Flats	Hot Springs Cove	Port Clements	Telegraph Creek
Canoe Creek	Houston	Port Hardy	Terrace
Cheslatta	Hudson's Hope	Port McNeill	Tofino/Ucuelet
Chetwynd	Invemere	Port Renfrew	Tsay Keh Dene
Christina Lake/Grand Forks	Kaslo	Port Simpson	Ts'il Kaz Koh (Burns Lake Band)
Clearwater	Kimberley	Prince Rupert	Tumbler Ridge
Clinton	Kincolith	Princeton	Ucluelet
Cortes Island	Kingcome	Quatsino	Valemount
Cranbrook	Kitimat	Queen Charlotte	Vanderhoof
Creston	Kitkatla	Quesnel	Wardner
Dawson Creek	Kitsault	Revelstoke	Wet'suwet'en (Broman Lake)
Dease Lake	Kitwanga	Rivers Inlet	Williams Lake
Doig River	Klemtu	Saik'uz	Winlaw
Edgewood	Kootenay Bay/Riondel	Salmo	Woss
Elkford	Kyuquot	Samahquam	Woyenne (Lake Babine)
Fernie	Lower Post	Savary Island	Zeballos
Fort Nelson	Lytton		

B			
Balfour	Galiano Island	Pender Island	Slocan Park
Barriere	Lillooet	Powell River	Teppella
Big White	Mayne Island	Prince George	Texada Island
Castlegar	Merritt	Saturna Island	Trail/Rossland/Fruitvale
Chase/Scotch Creek	Nelson	Skatin	Wasa
Crescent Valley			
C			
Agassiz / Harrison	Duncan / N. Cowichan	Madeira Park	Salmon Arm/Sicamous
Blind Bay	Enderby	Mill Bay	Saltspring Island
Bowen Island	Gabriola Island	Nitinat	Sechelt/Gibsons
Campbell River	Hope	Oliver/Osoyoos	Shawnigan Lake
Chemainus	Keremeos	Parksville/Qualicum	Sorrento
Cobble Hill	Ladysmith	Pemberton	Squamish
Courtenay/Comox/Cumberland	Lake Cowichan	Port Alberni	Whistler
Denman Island	Logan Lake	Quadra Island	
D			
Armstrong / Spallumcheen	Lumby	Sooke	

(Adapted from Rural Coordination Centre, 2014)

The RSA communities list is based on a point system. Isolation is established on a number of factors including the number of GPs in the community and the distance of the community from a major medical community *(Rural Coordination Centre, 2014).*

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British Columbia Medical Association (BCMA)

Canadian Medical Association (CMA)

Continuing medical education (CME)

Continuing professional development (CPD).

Island Medical Program (IMP)

Joint Standing Committee (JSC)

Northern Medical Program (NMP)

Nurse Practitioner (NP)

Return of Service (ROS)

Rural and Remote Sustainability Score (RRSS)

Rural Coordination Centre of British Columbia (RCCbc)

Rural General Practice Locum Program (RGPLP)

Rural Practice Subsidiary Agreement (RSA).

Southern Medical Program (SMP)

Vancouver Fraser Medical Program (VFMP)

Vancouver General Hospital (VGH)

World Health Organization (WHO)