

The Northern Medical Program – Preliminary Impacts on the Physician Community in Prince George

Final Report

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The CDI at UNBC is interested in two fundamental issues for communities in northern BC: community capacity and community development. By undertaking research, sharing information, and supporting education outreach, the Institute is becoming a vital partner to communities interested in making informed decisions about their own futures.

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Availability

Copies of *The Northern Medical Program – Preliminary Impacts on the Physician Community in Prince George* were distributed to individuals who contributed to the study, the NMP, the Northern Health Authority, The City of Prince George, the Northern Medical Society, the British Columbia Medical Association, the University of Northern British Columbia Weller Library, The College of Physicians and Surgeons of British Columbia, the Prince George Regional Hospital, and the Vancouver Foundation.

Additionally, copies have been posted on the CDI website (<http://www.unbc.ca/cdi>).

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Timeline for the Implementation of the Northern Medical Program

2000:

June Health rally takes place in Prince George and there is a call for a northern medical school.

Aug: UNBC begins to review the development and operations of distributed medical schools in northern and underserved areas.

UBC lobbies the Liberal Party for an increase in medical school seats on the basis of fewer opportunities for BC youth to obtain a medical education compared to other provinces

Dec: BC's Ministry of Health's Action Plan commits \$620,000 to establish the BC Rural and Remote Health Research Institute at UNBC. The Institute will research northern health issues, such as population health, delivery of services, and education of health professionals in the North.

2001:

Jan: MOU signed between UBC and UNBC to jointly develop a distributed medical education program. UNBC begins planning a health sciences degree program.

Feb: UNBC and UBC form the Northern Medical Program (NMP) Strategic Planning Committee (SPC) with representation from the Northern Health Authority (NHA) and Ministry of Advanced Education.

UNBC hosted a NMP planning workshop attended by UBC and UNBC faculty, and 5 international experts.

Inter-university planning committee (IUPC) formed across UBC, UNBC, and UVIC, Ministry of Advanced Education, and the Ministry of Health.

Planning committee co-chaired by Joanna Bates (UBC) and Robin Fisher (UNBC). Seventeen working groups formed across UBC/UNBC on various aspects of developing a program plan.

Mar: UNBC visits communities in the Northern Medical Region to discuss the NMP.

Apr: Ministry of Advanced Education budget allocates funding to support the planning of the NMP.

- May: UBC begins to develop an admissions process for the NMP, including an evaluation of candidate's suitability for the north. UBC Senate Admission Committee reviewed and approved the process in principle.
- June: Principles, Terms of Reference, Goals of the NMP finalized by the NMP Strategic Planning Committee and discussed and approved at the IUPC. Faculty forum at the UBC Faculty of Medicine: UNBC faculty on the Strategic Planning Committee presented with UBC leads on the development of the NMP.
- July: UBC and UNBC host a community forum about the NMP.
- Aug: NMP Planning Committee report tabled at IUPC and accepted by the Ministry of Advanced Education and the Ministry of Health.

2002:

- Feb: Budget approved for the implementation of the NMP.
- Mar: BC Government commits funding to the NMP and commits \$12.5 million to build the medical teaching facility.
- June: UBC appointed senior Associate Dean Undergraduate to lead expansion (Joanna Bates).
- Sep: Dr. George Deagle and Dr. Dave Rutledge become the first appointees to positions (acting assistant deans) at UNBC to develop the NMP. All day retreat at UBC to discuss the NMP
- Dec: Tumbler Ridge contributed \$65,000 to the NMP Trust. Tumbler Ridge was the first of 18 communities to raise \$1 per family per week for a year to support future NMP students.

2003:

- Jan: Minister Colin Hanson appoints a committee of community leaders across different sectors to provide recommendations for the implementation of the NMP.
- May: Duke Energy becomes the first major corporate contributor and invests \$500,000 in the NMP. The UBC Senate approves the NMP admissions process.

Funding boards are selected for the NMP. Representatives from ten communities in northern BC are elected to the first Board of Directors for the NMP Trust.

Dr. David Snadden, Director of Postgraduate General Practice Education and Acting Postgraduate Dean at the University of Dundee in Scotland, accepts a joint appointment as Associate Vice President of Medicine at UNBC and Assistant Dean responsible for the NMP at UBC.

June: Undergraduate Expansion Task Force: Admissions, budget, governance, policies, and buildings.

Curriculum Mapping project completed by Judy Vestrup for the NMP Community Action Plan. This project looked at the physicians in the community and the resource needs of the curriculum and identified gaps. She also reviewed the HR plan of the NHA, and identified methodological issues that led to an updating of the HR plan prior to its submission to the Ministry of Health.

July: Ground breaking for the new Northern Health Sciences Centre. Site preparation by Western Industrial Contractors of Prince George, construction of the building by Wayne Watson Construction of Prince George.

Dr. Dave Snadden arrives as Associate Dean of the NMP.

Aug: Dr. Dave Snadden bikes to Tumbler Ridge to recognize their commitment to the NMP Trust.

Nov: The NMP and UNBC officials visit communities in the north-east to inform and develop community–university collaboration.

Dec: The NMP adds local and international expertise by appointing Dr. Gary Wilson as the new Clerkship Coordinator and Dr. Hanh Kin Huynh as a new faculty member.

NMP Trust has appointed its first officers:

President: Marilyn Davies, Terrace councillor

Vice President: Colin Kinsley, Mayor of Prince George

Secretary: Rose Colledge, Tumbler Ridge councillor

Treasurer: Sharon Cochran, Vice-President Administration & Finance for UNBC.

2004:

- Jan: UBC and UNBC deliver the “prototypical week”. Eight UBC students volunteer a week in Prince George getting all aspects of their training. Lectures are executed through videoconferencing; problem-based learning tutors are recruited; physicians teach clinical skills, and the students spend an afternoon in family physician offices.
- May: Accreditation visit from Liaison Committee on Medical Education / Committee on Accreditation of Canadian Medical Schools. The team met with the NHA, UNBC, and physicians.
- Aug: Students begin classes in Vancouver. The Northern Health Sciences Centre is opened in Prince George.
- Sep: Dr. Kuo Hsing Kuo and Dr. Geoffrey Payne are new faculty appointed to the NMP.
- Nov: Dr. David Snadden delivers the lecture at the first Bob Ewert dinner.
- Dec: Fort St. John doctors contributed \$100,000 to support future NMP students.

NMP Trust involves UNBC and 24 communities in northern BC, with the goal to create an endowment of \$6 million.

2005:

- Jan: Classes at UNBC begin on January 10, 2005 with 25 students in the NMP.
- The high-tech company MTS Allstream Inc. installed about \$1.4 million worth of equipment, to outfit two lecture theatres and various labs with state-of-the-art videoconferencing technology and electronic control systems that enable medical students in Prince George to connect with their peers and professors at the UBC and the University of Victoria. IBM and Cisco have contributed \$197,000 worth of computing infrastructure and support services.
- Feb: Canfor contributed \$300,000 to the NMP Trust (NMPT).
- Apr: CN donated \$300,000 to the NMP Trust.
- EnCana Corporation contributed \$150,000 to the NMP Trust.
- June: BMO Financial Group contributed \$150,000 to the NMP Trust.

Aug: Alcan Inc. announces that they will contribute \$500,000 over seven years to the Northern Medical Program Trust.

Oct: Dr. Snadden visits with physicians in Terrace and Fort St. John to discuss the development of core clinical training for third-year medical students at the clinical facilities around northwestern and northeastern B.C.

2006:

Jan: Second group of NMP students begin classes at UNBC on Monday, January 9.

Mar: RBC contributes \$100,000 to the NMP.

Aug: Burns Lake fulfills pledge to support northern medical education. Burns Lake's contribution to the NMP Trust totals just over \$65,700.

2007:

Apr: The NMP announces it has attracted 6 aboriginal students over the past three years (representing 8% of all NMP students), a vital element in ensuring that the NMP is relevant to rural and northern communities.

May: UNBC secures a \$2 million private pledge to the NMP Trust that is completing the original fundraising program more than one year ahead of schedule.

2008:

May: First cohort of NMP students graduates.

The Northern Medical Program – Preliminary Impacts on the Physician Community in Prince George: Executive Summary

Background

The Northern Medical Program (NMP) is a distributed medical education program operated by the University of British Columbia's (UBC) Faculty of Medicine, and housed at the main campus of the University of Northern British Columbia (UNBC). In August 2004, the NMP admitted its first group of students. The program will celebrate its first graduates in May 2008.

The NMP Impacts Research Group was established to begin identifying and tracking these impacts in areas such as health care, business and the economy, education, and the civic sector. The Group is comprised of multidisciplinary researchers from UNBC and UBC in fields such as Family Medicine, Community Health and Epidemiology, Social Geography, and Community Development.

Research Objectives and Questions

The NMP is expected to have long-term benefits for physician recruitment as medical graduates trained in the north are better equipped and more predisposed to practice in the region. There is also an expectation that the NMP will enhance *retention* as local physicians have more opportunities and incentives to participate in medical education, and stay connected with recent clinical and professional developments. At the same time, the NMP relies on a great deal of participation from local physicians, and we want to learn more about how participation in the NMP affects local practice conditions. ***Our research asks physicians in Prince George about their perceptions of the impacts the NMP has had to date on local physicians' access to support networks, information, and resources. We also want to learn about how participation in the NMP affects the workload and morale of physicians already practicing in Prince George.***

Study Design and Methods

We conducted 25 key informant interviews with physicians and decision makers in Prince George, the majority of whom can speak directly to conditions prior to the establishment of the NMP and who have some level of involvement with the delivery of the program. The interviews were recorded and transcribed, and analyzed using qualitative thematic coding techniques.

Key Findings

- NMP is an important pull factor for many physicians arriving in the past five years.
- Involvement in the NMP an important factor in choosing to remain in Prince George.
- One-third of respondents noted improvements in relations with the local hospital, the health authority, and provincial government.
- Half noted more opportunities for professional interaction outside of daily routines related to the NMP (e.g., mentoring, faculty development, interactions with students).
- A majority noted enhanced opportunities to keep up with latest medical developments.
- There were mixed messages about impacts on morale, with many concerns expressed about stress from added workload associated with the program.
- There was also mixed responses about impacts on “sense of community” amongst local physicians, with some noting a loss of informality between newcomers and more established practitioners.
- Involvement in the NMP was seen to have benefits in terms of job satisfaction, an enhanced sense of connectedness with the profession, and intellectual stimulation, but these benefits were tempered with concerns about added workload stresses.
- Overall, there was a sense that the NMP will ultimately bring stability to the local physician workforce (e.g., attraction of general and specialist physicians).

Conclusion

We recognize that it is still too early to be making any firm conclusions about the impacts of the NMP. It is nevertheless important to begin understanding the ways in which the NMP impacts different aspects of its host communities. Initial studies such as this one serve as a useful baseline for ongoing evaluation and analysis.

The NMP has quickly become a focal point for creating greater cohesion and social capital amongst the local physician community. The program is also serving as a bridge in the creation of wider networks (e.g., health authority, hospital, university sector). The program has already been noted by many local physicians as a recruitment tool for those interested in teaching and mentoring.

At the same time, the operation of NMP relies on the involvement of a substantial number and proportion of local physicians. Our evidence suggests that this involvement may come at a substantial personal and professional cost to the individual physicians involved. ***These costs and pressures need to be understood, monitored, and managed if the NMP is to achieve its long-term objectives.***

Future Research

We will continue to measure and monitor the impacts of the NMP on local physician communities as part of wider efforts by the NMP Impacts Research Group to understand the community dynamics of a distributed medical education program. *Our goals are to use exploratory qualitative studies to identify quantitative indicators that can be tracked over time, and to develop protocol for extending our impacts research to other communities that will have increasing contact with the NMP in the coming years.* Finally, we will be actively pursuing collaborations with researchers in other jurisdictions in Canada and beyond where distributed medical education models have been implemented.

Northern Medical Program Impacts Research Group:

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The Northern Medical Program – Preliminary Impacts on the Physician Community in Prince George

1.0 Project Description

BC has a shortage of physicians, particularly in rural and remote areas. A decade ago, this issue came to a head in northern BC. Medical staffing shortages had taken their toll and physicians across northern BC (i.e. Vanderhoof, Burns Lake, Fraser Lake, Fort St. James, Mackenzie, Houston, Chetwynd, 100 Mile House) began resigning their hospital privileges in protest of resource constraints for both delivery health care and continuing education (McLellan 1998; Porter 1998). In 2000, surgeons in Prince George threatened to resign their hospital privileges in protest of the medical staffing shortage. At this point, Williams Lake had already stopped delivering babies and G.R. Baker Hospital in Quesnel had closed its intensive-care unit (McAlpine 2000). In June of 2000, approximately 7,000 northern BC residents gathered at the Prince George Multiplex in protest of their region's physician shortage (Snadden, 2005). The rally was also attended by leading policy makers, community leaders, academics, and physicians. A call to train "physicians in the north, for the north" resulted in a dialogue between UNBC and UBC about the feasibility of medical training in northern BC (Snadden, 2005, p. 230). The hope was not only to train and recruit more doctors, but also to provide more professional opportunities to those already practicing in the region. New training programs would compliment UBC's family practitioner residency program in Prince George that was established in 1993 (Trick 19 January 2001).

The provincial government, the Faculty of Medicine at UBC, and many other stakeholders made investments of financial and human capital to deliver medical education programs in traditionally underserved areas as a means to address these medical shortages. Six months after the Prince George rally, an agreement was reached to create a distributed model of medical education between UBC, UNBC, and the University of Victoria¹ (Snadden, 2005). By August 2004, the Northern Medical Program (NMP) had admitted its first students (Trick 23 January 2003). In September 2006, the north end of the paediatrics ward at the Prince George Regional Hospital was upgraded to provide a work area for students from the Northern Medical Program and doctors with the UBC residency program (Trick 15 September 2006). This first cohort of the NMP will be graduating in 2008.

Now that the NMP is in place, it is time to understand some of its effects. It is vital that we begin learning now from physicians who have been practicing in Prince George since before the NMP's creation in order to better understand any impacts on the local practice environment. Early information gathering is also critical as a foundation for monitoring its impacts over the longer term and this exploratory project will provide valuable

¹ The Island Medical Program (IMP) is also an expansion of UBC's Faculty of Medicine MD Undergraduate Program. The IMP is being established on Vancouver Island in collaboration with the University of Victoria and the Vancouver Island Health Authority. For more information visit <http://imp.uvic.ca/index.php>.

baseline information for future studies. The primary objective of this research project is to understand how the NMP has impacted the practice environment for physicians in Prince George, including such things as the conditions known to influence physician recruitment, retention, and professional support. We are also interested in physicians' level of involvement with the NMP, their impressions of the benefits and costs of this involvement, if applicable, and their plans for future involvement with any aspect of the program.

This is an exploratory, qualitative study using face-to-face interviews and asks physicians about their impressions and experiences in the critical early phases of the NMP. The research team set out to interview physicians with at least 4 years of practice in Prince George to learn about their impressions and experiences of working conditions before and since the establishment of the NMP. Table 1 illustrates the project timeline.

Table 1. Project Timeline

September 2005 - March 2006	<ul style="list-style-type: none"> • Project application developed • Funding confirmed
February – April 2007	<ul style="list-style-type: none"> • Relevant literature gathered • Draft interview guide developed and approved by project investigators
May 2007	<ul style="list-style-type: none"> • UNBC Research Ethics Board process completed • Research team established • Pilot testing of interview guide • Editing and finalization of interview guide content • Selection of potential participants • Recruitment of participants begins (first mail-out of invitations to participate)
June – September 2007	<ul style="list-style-type: none"> • Invitation follow-up <ul style="list-style-type: none"> ○ Follow-up phone calls and faxes to potential participants ○ Scheduling of interviews • Second mail-out of invitations to participate and follow-up (August) • Conduct interviews • Compile field notes • Transcribe interviews • Draft interview summaries • Transcripts mailed to participants for review and approval • Edit and finalize transcripts as requested by participants • Final transcripts sent to participants
October 2007	<ul style="list-style-type: none"> • Finalize interview summaries • Analysis of interview content
November 2007	<ul style="list-style-type: none"> • Complete project draft report
December 2007	<ul style="list-style-type: none"> • Complete project final report

The findings of this research will serve as the basis for ongoing assessment of the impacts of the NMP. This foundation should allow future researchers to measure impacts on recruitment, retention, and professional support over the long term and in different centres across northern BC. Understanding more about the impact of the NMP in its host community is an important starting point in determining the broader role of distributed

medical programs in reducing disparities in health outcomes and health care access and promoting better professional working environments for physicians in rural and remote practice.

The goal of this project is to provide researchers, policy makers, health care planners, and community groups with information relevant to addressing the barriers to recruitment and retention in underserved areas. This research will benefit governments considering similar types of distributed medical education initiatives, and inform educational initiatives in allied health professions (for example nursing, occupational therapy, and pharmacy) that face similar challenges of recruitment and retention.

2.0 Literature Review

Since the early 1980s, the health care system has experienced a series of stresses associated with restructuring, downsizing, and closures (Browne n.d.; Hanlon and Halseth 2005; Ministerial Advisory Council on Rural Health 2002). These pressures are compounded as physicians or specialists leave to practice in a working environment that has more resources and support. This literature review explores health care restructuring, as well as issues related to recruitment and retention of health care providers. First, we begin by reviewing how provision of health care services in Canada has changed. This is followed by a discussion about the challenges and implications associated with these changes. Thereafter, the concepts of social cohesion and social capital are examined as they provide a foundation for building capacity and retention within the medical community. In addition to reviewing factors that impact physician retention, the report also considers educational, financial, and regulatory incentives used in recruitment and retention strategies.

Restructuring of Health Care Services in Canada

In Canada, there have been three distinct periods of service provision in smaller localities (Halseth *et al.* 2003). Prior to World War II, many smaller places were isolated with few services provided by the state. This meant that services varied from place to place. Between 1950 and 1980, the government's role in health care service delivery was expanded by providing funding and following principles of 'universality'. Since the 1980s, however, there has been a retrenchment of federal and provincial government funding for health care and a movement towards urban-based models of efficiency that are not suited to rural and small town realities (Blacksell *et al.* 1988; Halseth and Williams 1999; Hanlon and Rosenberg 1998; Windley 1983). These government policies were aimed at reducing government expenditures and high delivery costs for rural health care services over large distances and low population densities (Deavers and Brown 1980; Furuseth 1998; Struthers 1994). This stems from government concerns over the capacity of the economy, pressure to reduce public sector spending, a declining production base, and health sector inflation which leads to scarce health resources.

In the context of northern BC, these restructuring changes were delayed until the late 1980s due to growth and expansion in many resource-based sectors (Northern and Rural Health Task Force 1995). To cope with physician shortages, the doctor-of-the-day program began running at the Prince George Regional Hospital for patients without family doctors in November 1999 (Trick 25 November 1999). In terms of administrative restructuring, the Northern Interior Health Unit and two other health authorities in the region were consolidated to form the Northern Health Authority in 2001 (Prince George Citizen 14 December 2001). Even with the amalgamation of these authorities and the accompanying economies of scale, the NHA was confronted with strained financial resources (Trick 1 March 2002). This was accompanied shortly after by bed reductions throughout northern BC (Prince George Citizen 24 April 2002).

These pressures have been offset somewhat by new agreements that have provided additional financial resources. In October 2000, doctors with the Northern Medical Society ratified a deal obtaining \$10 million annually for the recruitment and retention of physicians (Strickland 2000). In February 2003, a new rural subsidy agreement was reached with the provincial government, resulting in more financial resources to obtain locums in northern BC (Trick 18 February 2003). New infrastructure has also been obtained, such as the installation of a new MRI scanner in 2004 (Trick 23 October 2004), and the recent opening of a new maternity and neonatal unit at the Prince George Regional Hospital (Trick 12 June 2007).

Health Care Service Challenges

Service restructuring has impacted the accessibility and availability of both general and specialized health care professionals. As services have been regionalized to adhere to cost efficient urban-based models (Halseth and Ryser 2006), the quality and availability of health care in smaller communities has been affected depending on their location and relationship with other larger or smaller communities (Joseph and Bantock 1984). For example, specialized services are particularly absent in rural and small town places where demand levels are rarely justified (Northern and Rural Health Task Force 1995; Struthers 1994; Wilson *et al.* 2005). Instead, these communities maintain general health care services. Smaller places also tend to have a limited availability of emergency care treatment (Joseph and Bantock 1984). General practitioners (GPs) often diagnose patients with reduced access to newer technology (Wilson *et al.* 2005). At the same time, rural health care providers cope with fewer resources and increased demands for services due to an aging population (Campbell 2000; Hanlon and Halseth 2005; Robinson 1990). Resources, both human and financial, are controlled by distant political powers (Delaney 1995). Support for physicians can also be limited as on-call doctors can be more than one-hundred kilometers away (MacLeod *et al.* 1998). There are also difficulties attracting locums for vacation and educational relief (Thommasen *et al.* 2001). Professional opportunities for leadership and developing a sense of community are further weighed against long work hours and limited colleague support (Northern and Rural Health Task Force 1995). When combined, such issues can contribute to physician burnout.

Despite the unique context of practicing medicine in smaller places, there have been increasing calls for standardization and specialization of health care professionals. This has been partly reflected in training professionals in highly specialized fields rather than as generalists. There has been very limited training for rural work (Northern and Rural Health Task Force 1995). Without a general service model suited to rural and small town places, fewer services are provided (Struthers 1994).

These challenges have profound implications for both attracting and retaining medical staff, as well as for community sustainability. Thus far, health care restructuring has led to reduced accessibility and availability of services in smaller localities (MacLeod *et al.* 1998; Halseth and Ryser 2006). The retrenchment of these services has been particularly difficult on the elderly and the poor who are unable to travel to access more specialized

health care services in distant regional centres (Liu *et al.* 2001; Hanlon *et al.* 2007; Robinson 1990; Rosenberg 1990). There are mounting travel costs that may include fuel or flight costs, accommodations, meals, child care, and lost wages. Physical access to health care is further inhibited by harsh climate conditions and inadequate public transportation (Blacksell *et al.* 1988; Hayslip *et al.* 1980; MacLeod *et al.* 1988). The consequence is that family and friends from smaller places are unable to visit hospitalized patients (Northern and Rural Health Task Force 1995). Furthermore, there are discharge considerations that are different for rural patients as a result of distance barriers. They must consider the availability of home support services and family responsibilities that are available to them. In response to limited resources, medical staff in smaller places are exploring new ways to attract and retain health care professionals and develop capacity for providing health care services.

Social Cohesion, Social Capital, Human Capital, and Health Care Services

Identifying how social networks and collective action are used to build capacity and trust within and between individuals and groups helps to illustrate how these processes can impact the medical community's ability to respond to health care demands. This section first examines how the concepts of social capital, social cohesion, human capital, and community are defined in the literature, followed by a discussion of how these concepts contribute to health care capacity.

Social Capital and Social Cohesion

Social capital is described as forms of social participation (i.e. the networks, norms, and trust) that facilitate cooperation between individuals and groups to achieve common objectives (Coleman 1988; Keast *et al.* 2004; Mohan and Mohan 2002; Schuller 2001; Wall *et al.* 1998). This foundation of trust and prior relationships is a resource deployed to accomplish things for these individuals or groups (Bruce and Halseth 2001, 5).

Social capital can be generated and grown until it is drawn upon (Bruce and Halseth 2001, 5), but relationships must be maintained in order for social capital to endure. The size (number of members) and density (level cohesion) of a network may impact the spread of knowledge and maintenance of social capital. In a dense network each individual is directly connected to other individual (people all know one another), and in a sparse network there are more indirect connections (people do not know everyone else in the group) (West *et al.* 1999 citing Burt 1991). Dense networks are considered more efficient at diffusing information than sparse networks, but not necessarily at acquiring new information and resources given their members' tendency to have fewer ties to diverse social groups and the informal information sharing that accompanies such ties (West *et al.* 1999).

Social capital comes in one of two basic forms: bonding and bridging (Putnam 2001). Bonding social capital refers to the ties that bind the members of a particular network, and is effective for bolstering reciprocity and mobilizing solidarity. This could include the common bonds that exist between members of a club, society, or team. Bridging

social capital refers to the conditions under which the benefits of a particular network extend to non-members, and provide linkages to external resources and information.

Social capital is both a consequence and producer of social cohesion (Schuller 2001). Reimer (2002, 13) defines social cohesion as “the extent to which people respond collectively to achieve their valued outcomes and to deal with the economic, social, political, or environmental stresses (positive or negative) that affect them”. Where social capital can be regarded as a product, social cohesion is a process (Sullivan 2002). As such, social cohesion is realized through the development of relationships and social interaction. It can take many forms, from formal workplace meetings to informal opportunities for exchanges in public places.

Community

While collective or community action is important for social cohesion, there are many definitions of community. Communities have been defined by the dominant type of land use (Gill and Everitt 1993; Gouvernement du Québec 2001), as well as by the types of relationships that exist between a group of people. For example, a place-based community is “defined by the imposition of boundaries (jurisdictional, administrative, or otherwise) designed to enclose some part of a local area” (Halseth 1998, 44). Tonnie’s concept of *gemeinschaft* has been used to define community by a close network of social systems where interaction is important (Cloke 1994, 537). Similarly, an interest-based community refers to “the social and spatial framework within which individuals experience and conduct most of their day-to-day activities... bound by a shared sense of belonging, and [how] the group defines a distinctive identity for its members” (Halseth 1998, 43). In this report, we use an interest-based definition of community to explore interactions amongst those responsible for organizing and delivering physician services.

Social Capital and Human Capital

Examining the linkages between social capital and human capital is also relevant as networks provide an important medium for sharing knowledge. Human capital refers to the knowledge, skills, competencies, and attributes of individuals which facilitate the creation of personal, social, and economic well-being (Côté 2001). An increase in knowledge, skills, and competencies implies increased adaptability to a variety of situations. In medically underserved areas, for example, physicians need to have a broad knowledge base to compensate for the diminished opportunities to consult with specialists in the immediate vicinity.

Human capital also includes “the knowledge and skill that is tacit and inter-personal in nature, such as the knowledge and information shared at work between colleagues” (Côté 2001, 30). As such, human capital and social capital are mutually reinforcing (Côté 2001) and are important antecedents of performance in professional service organizations (Pennings *et al.* 1998). The cooperation and trust encompassing social capital between colleagues, therefore, are vital to enabling the flow of information within social networks. Such information may not be accessible elsewhere given its unspoken quality, and may

include, for instance, knowledge about professional etiquette that is unique to a specific workplace.

Côté (2001) further argues that human capital includes motivation, moral behaviour, and attitudes. As such, human capital is closely intertwined with building social capital because the nature of networks and interactions one chooses to partake in, including their level of involvement, depend upon their motives for, and attitudes towards participating. For this research, participating in the social network embodied in the Northern Medical Program may depend on a physician's attitudes and/or knowledge of how involvement will impact their professional quality of life. In the next section, the role of social cohesion and social capital in managing health care service demands are reviewed.

Relationship Between Social Capital, Social Cohesion, and Health Care Services

Interest in the social networks of health care providers has been growing given the increasing pressures on health care systems to be more cost-effective (West *et al.* 1999). Hoelscher *et al.* (2005) demonstrated that medical groups with higher levels of social capital retain a sustained competitive economic advantage over groups with lower levels of social capital. This advantage stems from improved organizational performance due to increased communication and reliability of employees' actions, strong network ties, and the development of individual intellectual or human capital (Hoelscher *et al.* 2005).

Social capital within medical groups also serves as a coping mechanism. In their analysis of Taiwan's SARS crisis, Chang *et al.* (2006) revealed that medical groups with higher levels of trust (social capital) were less likely to experience emotional exhaustion and job tension. These positive relationships not only pay dividends during times of stress, but also during normal circumstances as staff are coping with on-going concerns.

Professional support and knowledge sharing are also enhanced through social capital. In studying how GPs, internists, and pediatricians adopted the use of tetracycline, Coleman *et al.* (1966) found that a physician's position in a network was a more important determinant of the length of time taken to prescribe a new drug than individual characteristics such as the physicians' age and number of journal subscriptions (West *et al.* 1999 citing Coleman *et al.* 1966). In the case of Taiwan's SARS crisis, higher levels of social interaction produced more opportunities for medical professionals to gain SARS information and knowledge, and to access medical resources (Chang *et al.* 2006). Likewise, a study (Gopee 2002) exploring nurses' perceptions of lifelong learning reveals the importance of informal opportunities to initiate and continue professional learning. These factors include informal teaching, learning through work-based contacts with other healthcare professionals, and support from non-healthcare related individuals such as family and friends. West *et al.* (1999) examined hierarchies and cliques in health care networks. They concluded that the colleagues with whom physicians and nurses consulted, coupled with their position in the organizational hierarchy, are important determinants of social networks, and should be considered when devising knowledge sharing strategies. Nurses, for example, tended to form sparse networks and share information freely with people they did not know very well, whereas the clinical directors

of medicine in this study comprised a more tightly-knit group where each person knew and shared information with one another.

Research by Joyce *et al.* (2003) revealed the critical role that support networks and face-to-face contacts amongst rural GPs play in daily job activities. Most notably, their data suggest that retention of medical professionals is influenced by their satisfaction with colleague interaction. Likewise, Hollins *et al.* (2000, 231) observed that “trust and ‘knowing the person you are talking to’ are important elements of effective and satisfactory communication” between GPs and specialists. The timeliness and efficiency of referrals and patient care is also influenced by the quality of this communication and, as such, good working relationships foster better access to specialist support for GPs (Hollins *et al.* 2000). Marshall’s (1999, 38) analysis of collaboration between GPs and specialists in the United Kingdom also revealed that “[a]n effective working relationship influences professional morale and development, (and) effective and appropriate use of resources”, and found a good level of mutual respect and understanding between GPs and specialists. These interactions and their inherent qualities — knowledge sharing, professional support, trust, knowing one’s colleagues, and having a sense of mutual respect and understanding with them — are important for developing a sense of belonging within a group. When individuals see that their colleagues’ objectives are in accordance with their own, a sense of teamwork and working towards a common goal are instilled. Moreover, as noted by West *et al.* (1999, 635), “[f]or many individuals, membership of a solidary group is central to their identity and sense of belonging. In other words, members are dependent on their membership for many commodities for which there is no obvious alternative source”. This links back to the notion that certain objectives may not be achievable in the absence of social capital.

The building of social capital can be impeded by barriers which make it difficult for individuals to participate in socially cohesive activities. Individual participation may be limited by a lack of human or financial resources, or because they are unwilling to engage in various interactions due to burnout or stress (Sullivan 2002). Burnout entails emotional exhaustion, depersonalization, and a reduced sense of accomplishment, and can often be associated with individuals who do ‘people-work’ of some kind (Maslach and Jackson 1981, 99). These challenges are important to acknowledge as health care practitioners face considerable demands in medically under-serviced areas.

For many physicians, the challenges of rural practice result in little time left to spend with families or to enjoy the advantages of rural life (Campbell 2000). Moreover, individuals who are accustomed to the conveniences of urban life may not be willing or able to live in an area with fewer amenities, cultural opportunities, social events, and educational opportunities. The challenges faced by rural physicians, however, often overshadow a level of fulfillment and job satisfaction that rural practice can instill given the rural physician’s requisite self-reliance in the face of human and other resource shortages in such areas (Campbell 2000). Accordingly, many factors are at play in a physician’s decision to enter and stay in rural practice. The following section explores recruitment and retention strategies that target these factors.

Factors and Strategies for Building the Physician Labour Force and Developing Human Capital within Medicine

Factors influencing rural physician recruitment and retention

Several factors influence recruitment and retention of rural physicians. Evidence on rural upbringing as a predictor for retention in rural practice is mixed. Some research shows that rural upbringing does not predict continued practice in a rural area (Rabinowitz *et al.* 1999a), while other studies reveal that rural upbringing is an important retention factor (Easterbrook *et al.* 1999; Magnus and Tollan 1993).

Residency placements are influential in a physician's decision to practice in a location upon completing their training. Research shows that those who participate in residency placements with rural family medicine experiences are more likely to choose rural practice as a career (Curran and Rourke 2004, citing Costa *et al.* 1996; Gray *et al.* 1994; Norris and Norris 1988; Strasser 1992). These physicians are likely to be well-acquainted with the community that they have been practicing and living in, and will have built professional and personal relationships.

Job satisfaction is an important retention factor for physicians. On-call responsibilities, workload, continuing medical education opportunities, income, and other aspects of the practice environment can contribute to professional satisfaction (BCMA 1998; Jones *et al.* 2004; Kazanjian *et al.* 1991). Research by Lavanchy *et al.* (2004) revealed predictors of job satisfaction including on-call shifts, personal accomplishment, and a lack of emotional exhaustion. Other factors identified include patient care, relationships with colleagues (Bovier and Perneger 2003; Ramsbottom-Lucier *et al.* 1995), relationships with staff, and status (Konrad *et al.* 1999). Relationships with colleagues and staff can be influenced by the nature of and opportunities for interactions, which may include both professionally and non-professionally oriented activities. Staff meetings, informal coffee breaks, and weekend social activities for example, all provide bonding opportunities amongst colleagues, and consequently assist in building social capital. These in turn give rise to cooperation and other teamwork characteristics which can impact professional satisfaction.

Personal and family reasons, such as physicians' mental health, spousal satisfaction, and opportunities for children also play a role in retaining physicians in rural areas (Kazanjian 1991; Thommasen *et al.* 2001). Cutchin *et al.* (1994) found that relief coverage and quality of life, including recreational opportunities, to be strong influences on retention. In the next sections, strategies that target many of these determinants of recruitment and retention of physicians in rural areas are explored.

Educational strategies

Despite the critical role that education can play in the recruitment of rural doctors, a 2000 study of rural health research and training in Canada found that just one-third of the 24 medical programs studied offer courses pertaining to rural health (Minore *et al.* 2001).

Medical schools with a rural focus provide opportunities for students to develop competency in skills needed in rural settings, such as those for primary care, at the undergraduate and postgraduate levels (Rabinowitz and Paynter 2000; Wilson *et al.* 2005).

Rural placements are a key component of medical schools that have a rural focus component (Chaytors and Spooner 1998; Curran and Rourke 2004; Dunbabin and Levitt 2003; Lawson *et al.* 2000; Rabinowitz *et al.* 1999b) and research shows that rural placement is an effective rural physician recruitment strategy (Nichols *et al.* 2004; Wilkinson *et al.* 2004). Mentoring younger colleagues in rural places is also a common training strategy (Wilson *et al.* 2005). Mentoring provides opportunities for professional interactions, and as previous dialogue has illustrated, such socially cohesive interactions are important for building trust and instilling a sense of cooperation and belonging, especially for the physician in training who may not yet be well-acquainted with the medical community. The early relationship building that mentoring affords is, therefore, important in creating and maintaining social capital benefits such as collaboration and knowledge sharing in the medical community over the longer term.

Selective medical school admissions processes that target students with rural roots and/or who are likely to practice in rural areas are also characteristic of medical schools with a rural focus. Among these include the University of British Columbia (Snadden 2005; Wilson *et al.* 2005), the Northern Ontario School of Medicine (NOSM) (NOSM n.d.), the University of Illinois (Stearns *et al.* 2000), Thomas Jefferson University in Pennsylvania (Rabinowitz *et al.* 2001; Rabinowitz *et al.* 1999a; Rabinowitz and Paynter 2000), Michigan State University (Brazenau *et al.* 1990), and Tromsø Medical School in Norway (Magnus and Tollan 1993).

Financial incentives

Medical student debt load and other financial burdens impacting professional and personal quality of life give rise to financial incentives in rural recruitment and retention. Incentives include mandatory return-of-service (ROS) bursaries, financial bonuses, fee premiums, alternate payment plans, on-call remuneration (BCMA Rural Issues Committee 1998), financial support for locum coverage, assistance with practice establishment costs, paid vacation time, financial support for continued medical education, and other incentives (Barer and Stoddart 1999). Ontario's Underserved Area Program (UAP) includes the Free Tuition Program (Sempowski 2004), and Alberta's Rural Physician Action Plan (RPAP) offers student awards and bursaries and recruitment and retention grants for practicing physicians (The Alberta Rural Physician Action Plan 2007). Such incentives are also available in other countries facing physician shortages. Dunbabin and Levitt (2003) describe the return-of-service scholarships awarded to undergraduates prepared to spend two weeks per year for four years in the same rural Australian community, allowing them to develop personal links in that community. Sempowski's (2004) reveals that ROS incentives have achieved their primary goal of short-term recruitment but have been less successful with long-term retention. Multi-faceted programs that consider not only financial needs but also areas such as a professional

support provided by hospitals and communities are more destined to succeed (Rabinowitz *et al.* 1999b), given that they target other job satisfaction factors as well. This is a prudent tactic given the influence that professional support and collegial interaction can have on physician retention.

Government and regulatory strategies

Regulatory decisions that support both patient centered practice and provider mobility are recommended to address physician recruitment and retention (Task Force Two 2006). Core strategies include working towards standardizing licensure of physicians (including international medical graduates) in every province and territory; developing a regulatory framework for interprofessional collaborative practice that incorporates continual risk management, quality assurance, and quality improvement; and ensuring the availability of adequate liability protection and a clear accountability framework for every provider in a collaborative care setting (Task Force Two 2006). Governments provide funding support to help medical schools develop programs they might otherwise be unable to afford (Curran *et al.* 2004).

Closing Comment

There is a significant body of research on the factors and strategies surrounding the training, recruitment, and retention of rural physicians, including the role that medical education plays. Although analyses that focus on the existence and/or creation of social cohesion and social capital within the medical labour force are comparatively scarce, evidence suggests that social networks are important to physicians for managing workloads, fostering an improved sense of belonging, and accessing professional support. Further examination of the role that medical schools play in the creation of social capital and social cohesion within the medical community, and whether the recruitment and retention of rural physicians is a spin-off of that dynamic, is needed.

3.0 Methodology

This section of the report covers key issues concerning the methodology used in this study. A more detailed description of the methodology is provided in the Methodology Report.

Research Ethics

Because this is a university based research team, we are bound by standard protocol which identifies that all research conducted with people be sent to UNBC's Research Ethics Board for review and approval. Key to ethics review is that participants are advised of the purposes of the study, that their participation is voluntary, and that the research shall protect their confidentiality and anonymity. These points are described in detail in the methodology report.

Selection of Interview Participants

Physicians were selected for interviewing based on their ability to describe such characteristics as the extent of professional interactions and collaborations, opportunities for continued medical education, opportunities to work together to manage workload and other challenges, and involvement with the NMP.

First Sample

We consulted the on-line physician directory of the BC College of Physicians and Surgeons (https://www.cpsbc.ca/cps/physician_directory) and the local phone book to comprise a list of names and contact information of all Prince George physicians at the time of the study (n=186). From this list, purposive sampling targeted 44 potential participants who were known to have some level of involvement with the NMP. Of these 44, a total of 21 interviews were conducted from the first sample (Table 2).

Table 2. Interview Response Rate

	General practitioners / specialists / opinion leaders, some NMP involvement (N=44)		General practitioners, no NMP involvement, (N=15)	
	<u># of participants</u>	<u>% of sample</u>	<u># of participants</u>	<u>% of sample</u>
Agreed & participated	21	47.7%	4	26%
Agreed but were not able to participate	3	6.8%	1	6.6%
Declined invitation	13	29.5%	7	46.6%
No response	7	15.9%	3*	20%
Total	44		15	

* Two non-responders could not be reached for a follow-up call because their publicly available contact information was outdated.

Source: Northern Medical Program Impact Study 2007

Second Sample

A second sample (N=15) was drawn later in the field season in order to get the perspective of general practitioners who were not directly involved with the NMP. General practitioners who do not hold a clinical faculty position with the NMP were identified with the assistance of NMP administrative staff.

Drawing the second sample was challenging because most physicians in Prince George are either directly or indirectly involved with the NMP. As a result, a total of 4 interviews were conducted in the second round (Table 2).

Contacting Potential Participants and Interview Scheduling

Potential participants were initially contacted through a study information package containing:

- 1) a cover letter from the NMP inviting them to participate
- 2) a one page project description
- 3) the informed consent form (see Methodology Report)
- 4) the interview guide (see Methodology Report)

Interview Methodology

The data for this project were collected between May 22nd and September 11th, 2007. Interviews were conducted at a location convenient for the participant. Prior to each interview, participants signed a consent form to affirm they understood the intent and use of the research, as well as the voluntary nature of the interview. Interviews lasted between thirty and sixty minutes each, and were audio recorded and transcribed.

Description of the Interview Guide

The interview guide included mainly open-ended questions, but also included some close-ended questions in the form of checklists. The open-ended nature of the questions encouraged participants to express and explain various aspects of their practice environment both before (“where applicable”) and since the implementation of the NMP. The interview guide is attached in Appendix B of the Methodology Report.

The first part of the interview asked about the participant’s background, the second part asked about factors of recruitment and retention, the next parts explored various aspects of the practice environment in Prince George during the pre- and post-implementation of the NMP. The next section examined pressure points and stresses in physicians’ professional life, while the final section investigated participants’ level of involvement with the NMP, including the role(s) they play, why they became involved, as well as any positive and negative aspects of being involved.

Method of Analysis

Qualitative analysis involved identifying, coding, and categorizing the patterns and themes from the data (Hycner 1999; Patton 1990). Responses were also compared with previous literature to improve the validity, and provide a wider generalizability, of the research (Eisenhardt 1995). Once patterns and themes were identified and categorized, responses were tallied in order to generate descriptive statistics.

While interview data for this report gives totals for respondent answers to questions, the analysis also includes a set of ‘evaluative variables’ that may point out differences from the ‘overall’ pattern of responses. The evaluative variables include new physicians and specialists (practiced in Prince George for less than five years); long-time physicians and specialists (practiced in Prince George for at least ten years); physicians and specialists who come from small towns (less than 20,000 people); physicians and specialists who were recruited from the international community; and physicians and specialists who are not involved with the Northern Medical Program.

Limitations of the Study

The exploratory interview methodology provides insight into practice environment conditions for Prince George physicians before and since the implementation of the NMP. The main limitation of the study is that the NMP has only been fully operational

for a few years and its full effects on the professional quality of life of physicians in the community may not be fully experienced for several years. A second challenge concerns selecting a 'sample' of physicians according to the gradient of involvement in the program that exists throughout the physician population. That is, some physicians were directly involved with the NMP, others participated on a more informal basis, and some were not involved at all. Third, the interview was also designed to take approximately one hour but, in many instances, had to be condensed to approximately thirty minutes given participants' time constraints. This limited the amount of detail that was collected.

4.0 Results

This part of the report summarizes key themes running through each section of questions from the physician interviews. As noted earlier, aspects of social cohesion (interaction) and social capital (trust and networks) can develop important sources of support that provide a foundation for recruitment and retention of medical staff. However, little is understood about the impact that a medical program can have on a physician's access to support networks, information, and resources. To explore these impacts, this study examines changes in social cohesion and social capital amongst the physician community in Prince George both before and after the development of the Northern Medical Program (NMP). It also explores additional pressures that impact physician workloads and morale that may ultimately influence their decision to remain in the community. The data tables for this discussion are found in Appendix C of the Methodology Report.

Background

The Background section of the report provides a profile of the twenty-five participants. They are mostly experienced physicians who have been practicing in excess of ten years. Of interest, almost 30% of participants have come to practice in Prince George within the last five years. Most of these newcomers have been practicing for more than ten years. There is a fairly even distribution of new physicians in Prince George who are originally either from B.C. or international places. At roughly 50% of the sample, international physicians are disproportionately represented when compared to the physician population of BC. When considered in the context of traditionally underserved communities of northern BC, however, the level of representation from this group is not unusual. To obtain a temporary license, foreign trained doctors are required to be posted in underserved communities as they work towards their full licensure (Health Match BC 2006).

Work-Related and Other Pull-Factors

Although there has been some research on factors influencing general practitioner / specialist choices to practice in rural areas, the literature is silent about how physicians are recruited. Almost all of the physicians in our sample came to Prince George for employment-related reasons (90.0%). Many of these physicians, however, did not feel that they were recruited through a formal process. Instead, they discovered opportunities to practice in Prince George either through brief working stints as locums or residents, or through informal networks, such as family, friends, interns, and former classmates. Those who were formally recruited had been contacted by colleagues or a professional group. Such comments reinforce the importance of practice experiences during a GP's education (Curran and Rourke 2004). These responses also reveal the importance of the development and maintenance of networks as a foundation for informal and formal recruitment processes.

When participants were asked to describe work-related ‘pull-factors’ that made it appealing for them to come to Prince George, key factors included job satisfaction, flexibility, along with support networks. Being able to practice a broader set of skills than might be expected in larger urban settings, for example, speaks to the importance that physicians place on developing and maintaining their human capital; an aspect that fails to be recognized by specialized or urban-based training models. A number of physicians discussed the importance of a supportive, collegial medical community, which speaks to the importance of social cohesion and social capital to recruitment efforts.

When considering nuances in responses across different types of participants, almost all of the physicians who have practiced in Prince George for less than five years identified the NMP, the presence of support networks, and job satisfaction / flexibility as reasons for coming. Job satisfaction and flexibility were also important factors, attracting half of the participants from the international community.

A number of non-work related ‘pull-factors’ further illustrates the key role that social cohesion and social capital can play in creating an attractive environment for physicians. Several participants emphasized different features of small town living (compared to metropolitan areas), such as nearby recreational opportunities afforded by the natural environment, a more relaxed pace of lifestyle, a good place to raise a family, the presence of familiar social networks, and affordable living. Many commented that there is also a sufficient range of service amenities offered in a medium-sized city. Almost all of the participants who had been practicing in Prince George for more than ten years identified recreational and social opportunities as key non-work-related pull factors.

To follow up, participants were asked to identify reasons why they remained in Prince George. Again, job satisfaction was instrumental. This was accomplished by ensuring that doctors had the flexibility to practice a broader range of skills that enabled them to gain experience. Physicians also highlighted the importance of a sense of belonging that is critical for establishing a foundation for social cohesion. This sense of belonging is supported by a collegial medical community in which there is little competition or fighting for work. A number of physicians also recollected that being involved with the NMP is an important reason why they have stayed in Prince George.

In terms of non-work related reasons, community assets in Prince George help to foster a sense of community. The size of the city helps to create a welcoming and more relaxed pace of living. The convenience and close proximity of services, recreational, and social opportunities creates venues for social interaction to establish bonds and relationships. For the majority of participants who have practiced locally for more than ten years, community assets were a key reason why they have remained in Prince George.

Developing Human and Social Capital Amongst the Physician Community

Despite previous efforts to examine the role of professional support in physician satisfaction, there is an absence of work examining how the development of a medical school impacts support networks and access to information. This section begins by

exploring changes in professional support both before and after the creation of the NMP. Changes in opportunities for professional and social interaction are also described as they provide a foundation for establishing networks and trust that will be critical in daily job activities. It is anticipated that such networks will also play a role in physician access to opportunities to learn about developments in research and practice. Furthermore, we explore how support networks, resources, and workloads have impacted social cohesion and social capital by examining changes in morale, cooperation, trust, and a sense of community.

Changes in Professional Support

Physicians were asked to describe the kinds of professional support networks that were available to them before and after the creation of the NMP. Before the NMP was developed, physicians relied upon a series of informal and formal support networks. The importance of social cohesion is demonstrated as informal interactions with colleagues, such as other physicians and specialists, were critical for sharing information, obtaining advice and offering support. These informal interactions are critical for building social capital (trust) as people learn who they can turn to when needed. Informal interaction also helps to develop skills and expertise (human capital) as medical staff learn through on-the-job activities such as exchanging information and advice. In terms of formal networks, physicians turned to several organizations, such as the Northern Medical Society (NMS) and the B.C. Medical Association (BCMA). Through membership, such organizations can develop bonding forms of social capital as individuals belonging to a particular network can mobilize their solidarity and reciprocity relationships. Through membership, such organizations also develop social cohesion as members congregate around a sense of shared values and a sense of belonging. Prior to the creation of the NMP, few physicians identified problems associated with their networks. For some, lack of time and movements of physicians and specialists out of the community resulted in limited access to networks. Concerns expressed about professional support networks were most provided by participants recruited from the international community.

After the NMP was created, just over one-third of physicians felt that their professional support networks had improved. By comparison, almost half of the participants felt that there had been no change in their networks, while just over 10% felt that there had been a decline. Positive changes to support networks were attributed to improvements in relations and resources linked to the NMP, the hospital administration, the Northern Health Authority, and the provincial government.

Improvements in professional networks produced broad impacts on the operations and delivery of health care. First, professional networks improved as additional personnel were attracted to the medical community. These ranged from specialists and physicians to professional support specifically linked to the operations of the NMP. Staff roles were more clearly defined, which helped to facilitate more efficient communication for coordinating the delivery of health care services. Support programs, such as Physician Wellness, have also become more formalized and active. The development of the NMP

also led to closer cooperation between the medical community and the University of Northern British Columbia (UNBC) and the University of British Columbia (UBC).

At the same time, however, there are persistent human resource challenges. Some participants felt that there is still limited specialist support for general practitioners (GPs) and fewer nursing staff. The result is that the remaining medical staff must assume a greater workload, which may lead to exhaustion and burnout. These long-term human resource issues are accompanied by on-going 'bureaucratic' challenges that impact operations. As the bureaucracy surrounding health care delivery expands with new administrative and teaching demands, a lack of coherency emerges that may lead to a lack of understanding among physicians about how the system is supposed to operate.

Finally, some concerns were expressed about the potential undermining of the 'small town' environment that had been instrumental in attracting and retaining physicians in Prince George. As the medical community has grown, face-to-face contact has declined. In contrast to the supportive, collegial medical community that has been valued by many participants, there is a perception that time will be needed to develop trust with the newly arriving colleagues. Most of the problems expressed about professional networks came from participants who were recruited internationally; which is a concern given the importance of international recruitment in Prince George. Similarly, almost all of those not involved with the NMP had expressed concerns with professional networks, such as limited human resources and operational problems. Continued efforts will be needed to sustain and expand opportunities for interaction to nurture and support professional networks.

Professional Support for Managing Workloads

Physicians were asked to describe the types of professional support available to manage workloads before the NMP was established. Most of these sources of support were developed through routine social interaction (social cohesion) and networks that established trust (social capital). In addition to medical office assistants and locums, physicians relied upon interaction to access other formal sources of support with specialists through referrals, on-call medical staff, and various health care departments (psychiatry and paramedical) to manage their workloads. Through their networks, doctors also relied upon their colleagues for sharing advice informally, obtaining relief when needed, and even sharing their practice or specific cases. These results reinforce the importance of developing and maintaining social cohesion and social capital within the medical community. Most of the participants recruited internationally described formal sources of support that were utilized to help manage workloads.

A number of physicians also identified limitations regarding professional support before the NMP was developed. Concerns stemmed from limited access to locums, physicians, and specialists to provide relief, on-call support, and timely referrals for patients indicate a lack of capacity to respond to service delivery expectations.

After the NMP had been established in 2004, new stresses emerged through added roles in the NMP and expanded bureaucratic processes. For example, workloads increased due to teaching and mentoring commitments with the NMP. Administration tasks formerly completed solely by department leaders became decentralized and distributed across medical staff. These stresses are coupled with persistent human resource issues that pose limitations on the ability of the physician community to balance their workload. These challenges range from long-term difficulties obtaining locums to a lack of specialists, nursing staff, and support staff to assist with daily activities. Almost all of the participants recruited internationally expressed concerns about available professional support for managing workloads. Similarly, most of the participants who have worked in excess of ten years in the community talked about daily operational challenges.

By comparison, instances in which participants discussed positive changes in professional support were less frequent. Some felt that improvements in the availability of human resources helped to balance workloads. Successes in recruiting have attracted more specialists and surgeons. Some felt that the NMP was a useful tool to attract doctors and specialists who are interested in a broader range of work experiences. While some physicians previously expressed concerns about an increased workload associated with teaching, it was also identified that the NMP staff have provided assistance to manage this workload through IT and other support. The NMP staff have also distributed materials for teaching. Again, routine interaction, cooperation, and networks may be leading to improved operations that have helped the medical community to manage heavy workloads. Examples include improved collaboration with the hospital administration and the sharing of workloads amongst specialists.

Opportunities for Professional Interaction

In response to increased workloads and service demands, relationships and routine social interaction have provided a foundation to develop social cohesion and build networks that can help the physician community respond collectively to stresses. On-the-job activities and medical organizations provide focal points for physicians to engage in routine social interaction (Potapchuk et al. 1997). Networks that emerge from these social interactions can generate trust (social capital) that can be mobilized to help communities cope with stressful events (Lowndes 2004).

When participants were asked to describe opportunities for professional interaction, most of the key opportunities were connected to work. Prominent opportunities included participation in committees and meetings, educational opportunities through practice-based groups, formal social events related to work, and on-the-job activities. Many of these opportunities draw upon established relationships to form networks that are then mobilized to address common issues. Most of those who used on-the-job activities and informal social opportunities for professional interaction had been recruited from the international community or had been practicing in Prince George for at least ten years.

Following the creation of the NMP, about 48% of participants felt that there were more opportunities for professional interactions outside of their daily routines. This compares

to about 43% of participants who did not notice any change, and about 5% who felt there were fewer opportunities for professional interaction. As expected, new opportunities for professional interaction were created through the NMP. Examples include interacting with students and academics, teaching, mentoring, and faculty development. These interactions have led to the creation of new networks that have been mobilized to engage in joint problem-solving and education, which are critical aspects of building human capital. In addition to the NMP, continuing medical education, such as organized rounds and professional groups, have provided other focal points for professional interaction. Of interest, most of the participants who have been practicing in Prince George for five years or less had noticed more opportunities for professional interaction that were linked to the NMP.

Very few felt that their options had become more limited. There was a perception that physicians do not have the predictable schedule to interact and participate with students. Some physicians also lack time to pursue opportunities for professional interaction. For others, the extent to which they engaged in professional interaction depended upon their stage in the life cycle.

Social Opportunities to Interact with Colleagues

In addition to professional duties, routine social opportunities can provide other points for developing relationships. Prior to the launch of the NMP, recreation opportunities, such as skiing or golf, were prominent venues for social interaction with colleagues outside of daily routines. As noted earlier, recreation is an important reason why physicians chose and remain in Prince George. This speaks to the important role that recreation plays to enhance quality of life. Informal social opportunities, such as dinner with colleagues or interaction in the doctors' lounge, provide venues to develop relationships and explore common values that can provide a basis for building a sense of community. Similarly, formal social opportunities, such as the Jasper retreat or Northern Doctors' Day, are driven by efforts to facilitate the development of relationships and networks that reinforce a supportive, collegial physician community that has been instrumental to attracting and retaining staff. Most of the participants who noted the role of recreational activities and formal social events were recruited from the international community.

Since 2004, many participants identified new formal and informal social activities associated with the NMP. These ranged from social events to engage with new students to informal conversations at the UNBC campus. In addition to NMP-related social activities, organizations such as the NMS and the BCMA have sponsored lectures and development sessions that also build social cohesion by facilitating interaction amongst physicians. Almost all of the participants who have been practicing for five years or less in Prince George identified more formal social activities as opportunities to engage with their colleagues.

In contrast, a number of barriers were noted to limit the ability of physicians to engage in social activities. Some of these barriers ranged from a lack of time to a preference to separate their social or personal life from their professional careers. Notably, older

doctors did not feel that they were able to interact with younger doctors due to a generation gap or due to younger doctors who preferred to spend more time with their families. Furthermore, while some felt that there were limited social activities, others felt that activities were not advertised. Of concern, a generation gap between physicians and students or young doctors was identified as impacting social interaction.

Opportunities to Learn about the Latest Developments in Practice

Through interaction and the use of networks, social cohesion and social capital can help to build skills and expertise (human capital). When participants were asked to identify local opportunities to keep up with the latest developments in their practice before the NMP was established, most had utilized formal educational opportunities and on-the-job learning. Formal educational opportunities, such as continuing medical education, provide venues for building social cohesion amongst the medical community as physicians come together not only to learn about new developments, but also to establish and build relationships that will last beyond the completion of these educational activities. Similarly, physicians have used their relationships and networks to support on-the-job learning opportunities. For example, colleagues have been cooperating to learn from each other by discussing cases, teaching each other skills, or sharing information through group rounds. Such forms of participation and cooperation for mutual benefit build social capital. Of interest, the majority of participants who were recruited internationally had drawn upon continuing medical education and on-the-job learning. Similarly, most of the long-time practicing participants had discussed on-the-job learning opportunities.

After 2004, 60% of the participants noticed more opportunities to keep up with the latest developments in their practice, compared to 32% of participants who noticed no change and 4% who felt that there were fewer opportunities to learn about new developments in health care. On a positive note, prominent changes were identified with continuing medical education and technology. For example, an increase in continuing medical education activities and the formalization of more organized rounds is an indication of the more routine interaction that is being facilitated within the physician community. By comparison, some felt that technology, such as the Internet, has become easier to access. It is being used not only to obtain up-to-date medical information, but also to provide support for managing workloads as there was easier access to laboratory and x-ray results, as well as patient records. Technology, such as videoconferencing and teleconferencing, has also helped to bridge networks when needed. The role of NMP-supported information technologies is important as the geographic isolation of Prince George tends to limit educational opportunities, particularly in more specialized fields of medicine.

Most of the participants practicing for five years or less in Prince George, as well as those recruited internationally, felt that there have been more opportunities to keep up with the latest developments in practice. Also of interest, all of the participants not involved with the NMP felt there were more opportunities to keep up with the latest developments.

Access to Information Locally

The extent to which information is easily accessible may impact the development of human capital. Prior to the start of the NMP, three-quarters of respondents felt that it was relatively easy to access and obtain information locally on the latest developments in research and practice. In terms of technology, Internet-based tools to support information sharing and decision-making, such as Up-to-Date and electronic medical records, improved the efficiency of operations within and between medical offices. Again, informal interaction through corridor consultations and on-going interaction amongst colleagues has helped to facilitate the sharing of information within the medical community. At the same time, however, some felt that it was difficult to access information or educational opportunities. For example, cadavers were not yet available for certain forms of continuing medical education. There were also a limited number of specialists to support and participate in educational activities.

Since 2004, the NMP has had some positive spin-offs that impacted the ease of accessing information on the latest medical research and developments. Participants have accessed inter-library loans and received support from the UNBC health sciences librarian. Access to academia has improved with the NMP, and there have been more opportunities to meet with international practice leaders. Cadavers are now available for courses, and there have been more faculty development information sessions oriented towards teaching. The NMP staff have also been working to ease workloads and improve access to information by sending out materials for teaching and supporting the medical community with IT support and photocopying.

In addition to the NMP, information has become easier to access through libraries at the Prince George Regional Hospital, UNBC, and UBC. Compared to the pre-NMP era, more physicians discussed the use of technology-related tools, such as electronic medical records, to facilitate efficient sharing of information about patients. Again, there has been a more regular and greater availability of continuing medical education opportunities.

Almost all of the participants not involved in the NMP, as well as a majority of participants who have practiced locally for more than ten years, felt that it was easier to access and obtain information related to the latest research developments or practice. By comparison, those who reported difficulty accessing information and educational opportunities came from smaller communities before moving to Prince George.

Sense of Morale before the NMP

Changes in working environments that impact morale and trust can ultimately influence a physician's decision to remain in the community. Subsequently, participants were asked to describe changes in morale, cooperation, trust, and sense of community both before and after the NMP was established. Before the NMP began, half of the physicians we interviewed felt that morale was good, while the other half felt that morale was low or mixed at best. On a positive level, good morale was supported by a sense of cooperation

and limited divisions amongst the medical community. In contrast, low morale stemmed from persistent challenges linked to human resource problems, operational challenges, and strained relationships with health care partners. Concerns expressed about human resources, such as a decline in GPs and problems retaining specialists, can be ameliorated by recruitment and retention strategies that draw upon assets afforded in a supportive medical community and “non-metropolitan setting”. Operational problems associated with high workloads and strained relationships (i.e. between the medical community, hospital administration, regional health authority, and provincial government) can also be ameliorated by building social cohesion and social capital. Most of the participants who described low morale conditions had practiced in Prince George for at least ten years.

Despite the development of the NMP, there has been mixed feelings about changes in the morale of the physician community. While 37% of respondents felt that there has been an increase in morale, 46% felt that there has been a decline. It is important to note, however, that some of those who felt that overall morale had declined talked about both positive and negative changes over the last few years. The remaining respondents felt that there had been either no change, or could not decide if the changes overall had improved or declined. At issue are additional burdens created by the NMP. Examples include stress associated with new or additional teaching loads, more time required to train undergraduate students compared to residents, and the impact of teaching on response times and waiting lists for patients. Eventually, these stresses can lead to physician burnout. In terms of human resources, the NMP has also experienced difficulty recruiting physicians for teaching or mentoring students. These problems are compounded by a sense that there is a lack of hospital resources to fulfill their educational role within the NMP. At the same time, there are persisting problems associated with the overall operations of the health care system. Examples include bed closures, long waiting lists, lack of physicians, and lack of resources. The majority of participants recruited from the international community, as well as those not involved with the NMP, expressed concerns about operational challenges that have impacted morale.

On a positive level, morale within the physician community has improved due to the stabilization of human resources, enhanced emotional support, and better cooperation within the medical community. There is a perception that human resources have stabilized due to an increase in specialists, such as orthopaedics, general surgeons, pediatrics, and gynaecologists. For some, the NMP has been a useful recruiting tool for attracting physicians and specialists who are interested in teaching. The NMP has also enhanced emotional support and a sense of well-being within the medical community. Doctors feel valued due to their direct involvement in creating or participating in the NMP as teachers or mentors. This has created a strong sense of ownership over the NMP. They enjoy coming to work and being around ‘keen’ medical students who boost morale. Improvements in interaction and cooperation, which are important component of social cohesion and social capital, have also boosted morale as the medical community has worked with community and provincial partners to establish the NMP. Enhanced cooperation and the deployment of new approaches and technology within the Prince George Regional Hospital and the Northern Health Authority (NHA) have also improved

operations. As operations within the health care system have improved, stress has been alleviated, resulting in a more positive morale. Most of the participants who come from small communities identified an improvement in morale that was linked to the stabilization of human resources.

Sense of Cooperation

Prior to the creation of the NMP, participants generally felt that there was a good sense of cooperation amongst the local physician community. This stemmed from good working relationships between GPs and specialists, as well as the general presence of a small, supportive collegial medical community. In terms of coping with workloads, the use of networks with colleagues to exchange favours, as well as the high participation at meetings, demonstrates the importance of mobilizing social capital in order to help alleviate pressures. In response to the 'crisis' in the health care system, the mobilization of networks and cooperation contributed to the success of the rally at the Prince George Multiplex in 2000. Furthermore, cooperation between the medical community, the hospital administration, the NHA, UNBC and UBC, the provincial government, and numerous communities around northern BC. was instrumental to obtaining resources to support stability with the health care system and to develop the NMP. In other words, the mobilization of social capital was critical to facilitate change.

After the NMP was developed, most of the participants (64%) felt that there has been no change in the sense of cooperation. However, the nature of cooperation has shifted from that of rallying for support and resources to the delivery of a medical program. In terms of health care operations, cooperation between public health and the physician community has improved, and there has been a more collaborative approach with hospital administration. This shift highlights the difference between collaboration to protest working conditions and collaboration to deliver a program or service. In this sense, the presence of the NMP may well have sustained the level of cooperation present a decade ago.

Problems associated with inadequate cooperation continue to be linked to persistent problems within the health care system. For example, a lack of beds and operating room time means that doctors are often unable to help. Meanwhile, new 'growing pains' are emerging with an expanding medical community. In a larger medical setting, some physicians felt that it is easier for doctors to be anonymous. While some felt that there is less need to cooperate in a larger medical community, others were unclear about the individual roles of new staff. In response, information and communication support, as well as continuing to provide venues for interaction with new physicians, specialists, and support staff, will be important to provide a foundation for establishing relationships that can lead to cooperation in the future. Through a series of professional and social events, the NMS and the NMP have provided some positive opportunities to cope with these challenges.

Across the different groups involved in this study, most participants practicing in Prince George for five years or less had noticed improved cooperation. By comparison, most of

the participants who have practiced in Prince George for more than ten years felt that there had been no change, while most of the concerns expressed about cooperation issues stemmed from participants recruited from the international community.

Sense of Trust

In the pre-NMP period, there were many positive comments about the sense of trust within the Prince George physician community. Participants felt that their colleagues were dependable, and trusted their capabilities. They could turn to their colleagues for advice and support in managing workloads. These reveal a repeated series of interactions in which relationships were tested through mutual reciprocity. Confidence in capability and a general sense of dependability helped to solidify reciprocity and trust that can then be mobilized when needed. Furthermore, some participants talked about the absence of competition and high volume of work that provided the foundation and motivation for cooperation. Of interest, most participants who were recruited internationally, who had worked locally at least ten years, as well as those who were not involved in the NMP later on, felt that there was a positive sense of trust during the pre-NMP period.

While participants felt that there was trust with colleagues in day-to-day activities, there was less trust with administration or policy. In particular, this was expressed with the Ministry of Health, the Northern Interior Regional Health Board, the BCMA, and the hospital administration, and seemed to stem from feelings of being isolated and ignored.

Surprisingly, nearly three-quarters felt that there has been no overall change in the sense of trust since the NMP has been created. However, the NMP has provided new opportunities to develop trust. Participants talked about how relationships with UNBC and the development of the NMP are symbols of trust resulting from cooperation and accomplishments that involved academics, physicians, administration, government, and communities across northern B.C. With the development of the NMP, physicians no longer feel isolated or ignored. Trust has also changed as a result of improved working relationships with the hospital administration, government, the NHA, NMP staff at UNBC, and staff at UBC.

Finally, there are new issues emerging that may impact the level of trust may be emerging. As new physicians and specialists are recruited to Prince George, there is a perception that incoming doctors are under surveillance. It will take time and experience to develop levels of trust amongst new colleagues. Concerns about changes in trust were expressed by those recruited internationally, as well as by those who were new to the medical community.

Sense of Community

Prior to the creation of the NMP, participants felt that there was a positive sense of community amongst physicians. This was achieved through a sense of common goals, social interaction, and cooperation - all key components of social cohesion and social capital. Some participants felt bound together by coping with common problems in an

isolated setting. Through interaction in the workplace or social activities, there was a sense that everyone knew everyone else. This indicates the critical role that relationships can have in creating a sense of community. It is these relationships and the common stresses within the medical community that fostered cooperation. Further, the sense of responsibility that physicians felt for each other is an important indicator of the bonds that were being formed.

Following the development of the NMP, there are mixed perceptions about how the sense of community has changed. While 39% felt there has been an increase in the sense of community, about 22% believe that this has declined. About one-third of participants felt that there has either been no change or mixed changes in the sense of community. As indicated in earlier discussions about cooperation and trust, the NMP has provided an additional venue to develop a sense of community through interaction and cooperation. Against the backdrop of needing time to establish relationships, there is a perception that medical students have acted as a bridge between medical departments and disciplines.

Important components of social cohesion revolve around concepts of inclusion and exclusion. Following the development of the NMP, many physicians felt that NMP staff had consulted them before moving forward with initiatives. This enabled physicians to feel that they were included in decision-making processes that affected their workloads. Furthermore, participation in the development and on-going operations of the NMP has resulted in a sense of ownership that affirms local physicians' commitment to the program. The stabilization of human resources has also enabled relationships to develop over time.

On the other hand, for some participants, change in personnel appears to have disrupted the sense of community. There is a sense that physicians are personally familiar with a smaller proportion of their colleagues. Fewer physicians are spending time in the doctor's lounge. Meanwhile, there are challenges interacting with new individuals due to competing schedules. Almost all of the concerns expressed about the sense of community were provided by those recruited internationally.

Perceived Benefits of the NMP

Finally, participants were asked to identify perceived benefits of the NMP for their professional practice. In their responses, it became clear that many of these benefits have contributed to the development of social cohesion, social capital, and human capital. First, participants believe that the NMP has functioned as a recruitment tool for attracting new doctors and specialists; thereby assisting to stabilize human resource shortages. In terms of building and maintaining skills and expertise (human capital), doctors were motivated to keep up-to-date with the latest developments in practice. Social interaction has led to the transfer of knowledge as there has been a mutual or reciprocal act of learning between physicians and students. Participation in the NMP has also improved physician job satisfaction, which is a critical factor to both quality of life and physician retention. Physicians enjoy the diversity that teaching or mentoring brings to their duties.

In the future, physicians hope that the NMP will lead to a greater recruitment and retention of physicians, as well as a long-term decline in workloads.

By contrast, some participants felt that there have been negative consequences to participating in the NMP. These concerns are largely associated with time constraints and the impact that teaching or mentoring has on a physician's workload. It is anticipated that, as more physicians are recruited to practice in Prince George and participate in the NMP, these consequences can be alleviated. There are also concerns about the impacts that teaching has on patient waiting lists, as mentoring students can slow specialists down and reduce the number of patients that are seen each day. At the same time, as the number of students increase, it becomes more difficult to teach in areas such as emergency. Most of the concerns expressed about perceived benefits of the NMP came from those who were new to the local medical community.

Pressure Points and Stress

As indicated in previous research, pressures associated with the work place can impact job satisfaction and the retention of health care professionals (Campbell 2000; Joseph and Bantock 1984; Maslach and Jackson 1981; Northern and Rural Health Task Force 1995). In this section, stresses that impact job satisfaction are identified, including pressures associated with expectations within the physician community. This is followed by a discussion about how the NMP is alleviating or adding pressure to the professional quality of life of participants.

Stresses that Impact Professional Quality of Life

When participants were asked to identify stresses that impact their professional quality of life, prominent issues raised included pressures associated with workloads, pressures associated with patients, challenges with organizational operations, and a lack of human resources. Stresses associated with workloads were mostly linked to heavy patient loads, paper work, and long work hours. These stresses were compounded by a working environment in which physicians are constantly multi-tasking, running late, or being pulled in multiple directions. Key concerns associated with patients included complaints about wait times, as well as difficulty with demanding or rude patients, particularly in the emergency room. In terms of organizational operations, problems associated with long wait lists are compounded by limited access to operating room time. As well, there are challenges associated with monitoring patients who are waiting to see specialists. The fee for service method of payment proves to be inadequate for patients with complex or chronic conditions. As health care services are being re-organized, there were also concerns linked to a lack of understanding about how restructured departments are working, as well as limited understanding about who to contact for various departmental roles. There was little variation in these expressions of workload, regardless of the evaluative variables we employed (i.e., length of time in Prince George, level of involvement with the NMP, location of training).

Professional Pressures / Expectations within the Medical Community

As physicians are working to cope with stresses that impact their professional quality of life, we wanted to explore if they experienced any additional pressures or expectations from within the medical community. Pressures associated with workloads outweighed any other concerns expressed by participants. Notably, there were pressures to accept new patients and to work longer hours. There were also pressures to participate in committees or other professional organizations, as well as to engage in continuing medical education and research activities. Again, these concerns were widespread and common with little variation across physician characteristics.

The Role of the NMP to Assist in Alleviating Professional Pressures

When participants were asked whether the NMP is assisting to alleviate these professional pressures, there was generally a very positive response. While there have been persistent pressures with human resources, participants anticipate that the NMP will bring stability to the number of practicing physicians and specialists. There is a perception that the NMP has influenced recruitment and retention of physicians interested in teaching. In the future, it is hoped that new graduates will add to the local physician base. The NMP has also helped to build social cohesion and social capital as some physicians talked about the expansion of networks. For example, the NMP has facilitated opportunities to meet and interact with other colleagues and students. Physicians have also developed linkages with mentors with which they can discuss job stresses. Human capital (skills and expertise) has been developed and maintained as teaching encourages physicians to keep up-to-date with the latest developments in the practice of medicine. There have also been improvements in continuing medical education. However, some felt that the professional pressures were not relevant to the NMP, such as problems associated with organizational operations within the health care system.

Additional Pressures Created by the NMP that Impact Future Practice

While the NMP is helping to alleviate some pressures for local physicians, it has also become clear that the NMP has created new pressures that impact their practice. A consistent message from participants concerns the impact the NMP is having on workloads. Involvement in the NMP not only expands their workload, but it also impinges on their time for other duties. Some physicians have received requests to teach more frequently. As a result, some physicians are experiencing burnout as they are unable to obtain a break from teaching or mentoring duties. These pressures are compounded by difficulties recruiting doctors to teach a growing population of students.

Meanwhile, concerns were raised about how teaching and mentoring has impacted physician practices. Teaching and mentoring increases the time required to complete each patient visit, resulting in physicians seeing fewer patients each day and longer waitlists. There is also a perception that the Prince George Regional Hospital lacks specialists, such as in neurosurgery or thoracic surgery, to complete rotational rounds and offer a breadth of clinical experiences for students. Building upon the existing residency program created in the early 1990s by UBC, the NMP has brought more specialty

residents to Prince George as part of the Vancouver UBC rotations. In addition, the NMP has also been facilitating the start of a family medicine residency program in Fort St. John / Dawson Creek. The same is expected to be begin in Terrace in 2009. These are positive developments since physicians are more likely to practice where they complete their residency (Curran and Rourke 2004). Again, the majority of participants who have practice for five or less years in Prince George, as well as most of those recruited internationally, talked about added pressures associated with workloads and the NMP.

Involvement in the Northern Medical Program

In this final section, participants were asked to describe how or if they were involved with the NMP, as well as reasons why they decided to become involved. This information will be useful to help NMP staff develop future recruitment strategies for teaching and mentoring positions.

In terms of involvement, 84% of participants were involved in the NMP through research, teaching, mentoring, management, and administration. In fact, for most, the teaching and mentoring that has comprised the bulk of their additional workload. Those who are not involved expressed an interest in teaching in the future. Reasons that have impeded their involvement to date include time constraints, immigration restrictions that prevent them from teaching at the university, and uncertainty about what is required to be involved in specific roles.

When physicians involved in the NMP were asked why they chose to participate, many had expressed an interest in teaching and student development. This fits with earlier statements where some physicians chose to locate and remain in Prince George due to the impact that teaching would have on diversifying their job experience and satisfaction. Others became involved because they were simply asked to participate. Reasons such as giving back to the medical community and supporting a community driven initiative also indicate the connectedness and reciprocal motivation that is driving the development of social cohesion and social capital in the medical community.

Participants were also asked to describe the positive aspects to being involved with the NMP. Again, many participants enjoyed teaching not just for its impact on student development, but also because it forces physicians to keep up-to-date with the latest developments. They also feel that there is a reciprocal benefit to being involved through mutual learning between students and teachers. Participants have also obtained personal satisfaction through their involvement, an important factor in both retention and professional quality of life. Furthermore, some participants have benefited from social interaction and new networks established with colleagues through their participation in the NMP.

In the future, the NMP will need to address some key problems that impact physician involvement. Notably, when physicians discussed negative aspects about participating in the NMP, a series of operational constraints were highlighted. Examples included time pressures, being able to see fewer patients due to extended time required for teaching, and

an expanded workload. As indicated earlier, doctors already feel stretched and pulled in multiple directions. A critical aspect to recruiting physicians into the NMP in the future will be to minimize these negative consequences. For those not involved with the NMP, the 'perception' was that students slow doctors down, fewer patients can be seen, and the resulting longer waiting lists were associated with negative aspects to NMP involvement.

Conclusion

This study explored how relationships formed between participants and the Northern Medical Program helped to create conditions for more successful recruitment and retention of physicians in Prince George. The NMP became a focal point to foster social cohesion and social capital in order to work towards addressing many pressures affecting professional satisfaction. Physicians and specialists became united with the local community to hold the rally at the Prince George Multiplex in 2000 to address resource issues. The previous loss of doctors (and friends) had impacted both the workload and how work was conducted. As specialists left, patients were being sent away for procedures that should have been met in a regional hospital.

These pressures and efforts brought the medical community together to address common goals and problems. Developing the NMP was viewed as one way to solve long-term human resource issues, as well as addressing resource and infrastructure problems since the hospital and UNBC would have to be upgraded to accommodate the NMP program.

Many NMP and non-NMP events, such as the Bob Ewert Memorial dinner and the Jasper retreat, are fostering interaction and a sense of community amongst doctors, the NMP staff, and students. People have developed a sense of ownerships over the NMP. A vested interest to see the NMP succeed obviously encourages participation in program activities. Engaging in the NMP has also broadened networks and learning opportunities for doctors. There are more opportunities for continuing medical education, rounds covering different specialties, and on-the-job learning with students and other colleagues. Doctors who are teaching are bound together by a common understanding about the workload pressures associated with teaching.

The enhanced cooperation that was required amongst UBC, UNBC, NHA, the hospital administration, the government, and the medical community has improved trust over time as people delivered on their promises. Furthermore, people are willing to make changes and be flexible to accommodate the NMP needs. This is driven by an inherent desire to see the NMP succeed. A variety of specialists and physicians were recruited to make the NMP work. With less fluctuation and stability amongst the medical community over time, networks can become more stabilized.

Despite a number of positive impacts, the NMP creates additional pressures or challenges that make doctors reluctant to participate, or to continue to participate, in future NMP activities. There are problems associated with additional workloads as some physicians are now teaching both residents and undergraduate students. Moreover, the same people are being asked to teach or mentor students each year, which may lead to physician

burnout. Facilitating breaks from NMP duties will be important to ensure long-term commitment and participation in the program. There is also a lack of infrastructure, such as access to office space and equipment, to support a physician's ability to teach or mentor NMP students.

However, there are many factors impacting social cohesion and social capital amongst the medical community that lay outside of the NMP. As the medical community grows, there is less interaction amongst physicians. Some are only communicating or interacting with others in their area of specialty. There are generation gaps between younger and older doctors that impact the frequency and quality of interactions. Trust and a sense of community are impacted by a lack of familiarity. While some physicians have family commitments, others prefer to establish a balance or separation from the work and personal lives. As a result, there is a perception that fewer physicians know each other. In the past, with low staff numbers, physicians had to work together across many disciplines. Specialists were training other physicians to undertake certain procedures and include them in the operating room. There are also persisting human resource pressures in specialized areas that impact physician workload and frustration.

An important question concerns the contribution of the NMP to the recruitment and retention of medical staff. Thus far, recruitment and retention have been more impacted by factors associated with job satisfaction and quality of life. Physicians came to Prince George because they could practice a wider variety of medicine and be part of a collegial, supportive medical community. They have easier access to recreational opportunities in nearby natural surroundings. They like the convenience and affordability of a middle-sized community. This reinforces the idea of a 'smaller town' advantage that is available outside of metropolitan settings, and that had led to such positive connotations in the pre-NMP physician environment. This also reinforces the need to recognize local assets that impact quality of life, and to develop a comprehensive recruitment and retention strategy that goes beyond financial incentives by investing in social cohesion (interaction) and social capital (networks and trust).

The expansion of the residency program will be important for the NMP, as the location of the residency will determine where doctors decide to stay as they establish relationships and become familiar with organization dynamics.

The NMP has also been used as a recruitment tool to attract physicians interested in teaching. Its success is apparent as physicians who have migrated to Prince George during the last five years have partly done so in order to benefit or be involved with the NMP. The NMP has played an important role in diversifying job roles that has improved job satisfaction. Physicians hope that they are training students who will replace them during retirement or who may become their practice partner in the future. If students are retained in the North, there is hope that the workload can be reduced.

While it may be too soon to understand the full impacts of how the NMP will alleviate human resource pressures, participant responses indicate that the NMP has had a limited positive impact on alleviating pressures experienced by physicians in Prince George.

Many of these pressures, such as limited access to time in the operating room or lack of beds, are beyond the scope of the NMP. It is important to remember that the NMP is just one piece of a comprehensive strategy that will be required to alleviate health care pressures. As such, it is too early to assess whether early impressions about the NMP will be lasting ones. The NMP has thus far complimented important aspects of the physician environment and added new opportunities, although it has also added new workload pressures. Supporting the development and maintenance of social cohesion and social capital amongst the physician community will be important to sustain the collegial networks that are critical for coping with on-going pressures. Finally, it is important that we continue to monitor the impact of the NMP on the local physician community as students graduate and pursue residency and employment opportunities in Prince George and throughout northern BC.

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