RURAL PHYSICIAN RECRUITMENT AND RETENTION IN BRITISH COLUMBIA

by

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B. A., Western Washington University, 1988

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Arts and Social Sciences

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Abstract

The goal of this research project is to examine rural physician recruitment and retention incentives in British Columbia, and determine their level of effectiveness using the experiences of other provinces for comparative purposes.

The examination begins with a discussion of the origins of the rural physician shortage and summary of policy recommendations that emanate from national and BC studies. The methodology includes an examination and critique of the most common techniques of measuring physician coverage, and addresses how limitations in measurement influence recruitment policy. A closer look at the rural recruitment programs in Ontario and Newfoundland provide a historical perspective not yet available in BC.

Field interviews with rural physicians from interior and northern BC provides perspective on current incentives, and complements lessons learned from the literature to provide the basis for policy recommendations to improve rural recruitment and retention.

Keywords: British Columbia; incentives; physician; health policy; recruitment; retention; rural medical care

Subject Terms: delivery of health care – British Columbia; medical care – British Columbia; rural health – British Columbia; rural health services – British Columbia; rural health services – Canada
Executive Summary

Examining the dilemma of rural physician recruitment and retention in British Columbia is the primary goal of this project. A brief history of the origins of physician shortages in Canada can be traced to policies created to reduce the perceived “over-population” of physicians in the 1980s and the emphasis on “expenditure control” in the 1990s.

The challenges of rural medicine and recruitment are reviewed both in narrative form and statistically, in terms of day-to-day responsibilities, funding, number of physicians, average tenure, and other statistical categories across the five health service delivery regions of BC. The suggestions and proposals by various medical organizations and committees (e.g., Society of Rural Physicians of Canada, British Columbia Medical Association, UBC School of Medicine, etc.) illustrate the variety of solutions suggested to improve rural physician recruitment and retention.

The important yet often overlooked issue of how to measure physician coverage is discussed in detail, with a critique of the most common measures used in assessing physician coverage: physician-to-population ratios, Gini indexes (and Lorenz curves), and Location Quotients. Reviewing additional factors in measurement of physician coverage will demonstrate the potential for distortion in determining the medical needs of a community or region. These include using Full-time Equivalency (FTE) compared to the number of physicians (head counts), and the deceptively complex issue of defining “rural” before beginning to formulate policy. No less than six common definitions of “rural” illustrate the potential for confusion and inconsistency from the initial phase of determining the target of recruitment policy. Alternative methods of measuring physician coverage include access modelling (target level of access to services is identified based on age-sex-adjusted utilization rates in previous years for a region) and increased flexibility (using more measures to determine the definition) in designating an area as “isolated” or “rural”. A fundamental necessity for consistent measurement is a reliable and universal formula for counting physicians (illustrated by the significant differences between the Southam Medical Database and National Physician Database methods).

For comparative purposes, I review and analyze the recent history of rural physician recruitment strategies in Ontario and Newfoundland. Both provinces have a significantly longer
history of incentives compared to the more recent programs in BC. The analysis includes primary programs in both provinces, such as the Underserviced Area Program (UAP) in Ontario and Northern Family Medicine Education Program in Newfoundland, among others. Two case studies focus on a regional rural centre (Thunder Bay, Ontario) and a rural medical school (Memorial University of Newfoundland, in St. John’s), due to their similarity (and possible precursors) to the rural regional centre of Prince George, and rural medical school at UNBC, respectively. A statistical review of their influence on overall rural physician recruitment and retention is discussed, including the complexity in actual determination of whether each program is making a difference. This complexity is frequently acknowledged, but with few proposed solutions, throughout the literature.

The recent and current incentives within BC are reviewed, including education-based programs such as the Northern Medical Program (NMP) at UNBC in Prince George. The current list of BC incentives, based on the BC Ministry of Health and fully defined in Table 11, includes:

- Rural Retention Program
- Isolation Allowance Fund
- Northern & Isolation Travel Assistance Outreach Program
- Rural GP Locum Program
- Rural Education Action Plan
- Speciality Training Bursary
- Rural Continuing Medical Education
- Recruitment Incentive Fund
- Recruitment Contingency Fund

The results of the field research (interviews with rural physicians, and those involved with the recruitment process) reflect the necessity and limitation of financial incentives, lack of locum support, and sense of isolation from both colleagues and regional medical facilities. The challenges of rural medicine are truly a “double-edged sword”, as they demand versatility while potentially overwhelming some physicians with responsibility as the “only game in town”.

The project concludes with a recommended prioritization and adjustment of the current package of incentives offered in BC, based on both the literature review and field interviews. The most viable incentive package should include financial incentives, but balance them with rural-based medical education and an organized support network to improve coordination and
communication among rural physicians and specialists. In formulating recruitment and retention policy, multiple measures (i.e., avoid over-reliance on “blanket” measures such as population-physician ratios) should be utilized in order to achieve a more accurate assessment of which communities and regions are truly medically “underserved”.

Dedication

This project is dedicated to my beloved wife, Joyce, for her constant moral support, patience, and love that has given me the strength to face each day.
Acknowledgements

I would like to thank my supervisor, Dr. Nancy Olewiler, for her valuable time, feedback, and guidance in completing this project, regardless of my department affiliation. I also wish to thank the other committee members: Dr. Olena Hankivsky, Dr. Marina Morrow, and Dr. Aslam Anis, for volunteering their time to be a part of this project. Finally, a special “thank you” to all of those that took time out of their very busy day to agree to be interviewed for the field research portion of this project. Without their kindness, completion would have been impossible.
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1 Introduction

1.1 Physician shortage from a Canadian perspective

Although approximately 22% of Canadians live in rural areas (defined as communities of less than 10,000 people), they are served by only 17% of the family physicians, and less than 3% of all specialists (Pong, Buske & Nagarajan 2005). The federal and provincial governments are aware of the physician shortage, as evidenced by numerous incentives, regulations, and policies designed to increase the number of physicians who practice in rural areas. This project includes a literature review of some of these policy initiatives across Canada with the goal of interpreting the results and anticipating the potential impacts of similar policies in BC. The latter part of the project includes both the praise and concerns regarding existing incentives, as told by rural physicians in field interviews conducted in both the interior and northern regions of BC. This first-hand feedback provides additional guidelines for the recommendations that conclude this report.

1.2 Unique challenges in British Columbia

Although British Columbia has had the highest ranking among provinces and territories in terms of the number of family physicians per capita since 1991, the rural physician shortage remains critical in the northern and remote areas of the province (Barer, Stoddart 1999). On the one hand, providing incentives to locate in rural areas presents the same benefits and limitations in BC as in most other rural areas of Canada, particularly the shortcomings of financial incentives. On the other hand, there are additional factors unique to BC that need to be examined, to see their impact on rural physician recruitment and retention.

A characteristic unique to BC is the combination of both geographic isolation of many of its rural areas and desirable climate of its primary urban centres (Lower Mainland and Southern Vancouver Island) in relation to the rest of the province (which is predominantly rural). According to BC Statistics, of the 4.3 million residents in BC, 85% live in urban areas (towns of 10,000 or more), with about 75% of the total BC population being in the Vancouver/Victoria region. Along with Ontario, this percentage of urban residents is the highest in Canada, based on
the 2001 census. The lopsided nature of this distribution presents further challenges in providing health care delivery in rural areas that are more isolated than many comparable communities in other provinces.

Vancouver and Victoria represent the most temperate year-round climate in Canada. Not surprisingly, this is a significant factor in the consistent growth rate that continuously attracts people from not only the rest of Canada, but from within BC, as well. Most cities will have some “pull” effect due to more job opportunities, cultural activities, proximity of family and friends, etc. In the case of British Columbia, however, the added “pull” of temperate weather and significant economic growth poses as an additional obstacle to rural BC communities needing medical services, and creates barriers to public policy initiatives. Offsetting the strong appeal of Vancouver and Victoria has been, on the most part, a losing battle, particularly with physicians and medical students that have an urban (or suburban) background. Urban areas usually serve as a “magnet” to doctors because of the readily available amenities, technology, proximity to other medical professionals, and lifestyle variety that are often lacking in rural and remote regions of Canada.

One of the controversial and inconsistent aspects of determining policy on this issue is accurately measuring physician coverage, and the needs of each region and community. The existing methodology heavily relies on physician-population ratios that are often deceptive in representing the level of health service in a region. When combined with other problematic measurement techniques, major obstacles arise in obtaining reliable data during policy formation. The scale and consequences of flawed methodology is a key component of this project. Field research in rural BC attempts to survey which rural physician recruitment policies have the best chance of success. The policies evaluated are: financial incentives, scholarships, rural medical schools, and immigration policy towards foreign doctors. The foundation for policy recommendations result from merging lessons learned from the past with the experiences of rural physicians, patients, and policy makers. The goal of this research is to add depth and understanding to a complex problem, and provide a more consolidated and research-based list of policy alternatives for the future of rural health care delivery in British Columbia.
2 Recent trends in the Canadian Physician Workforce

2.1 The 1990s: the beginning of the physician shortage

The beginning of the physician shortage developed due to the perceived “overpopulation” of physicians in the 1980s, resulting in pronounced policy changes to reduce the number of physicians in the 1990s. These policies reduced the number of physicians by reducing medical school enrolment during the 1990s, as well as restricting international medical graduates’ (IMG’s) immigration to Canada. This shift in the physician supply occurred throughout the nation, not only in rural areas. The reduced physician supply likely increased the incentive for relocation to urban areas, where there were relatively greater opportunities. Furthermore, additional retirement incentives (buyout packages, mandatory retirement) encouraged many existing physicians to leave the workforce relatively early (Chan 2002).

Just as importantly, some indirect policies also had a profound effect on physician supply, with the most significant being the expenditure control policies of the 1990s that reduced or eliminated many programs “across the board”. These cutbacks resulted in changes such as the elimination of rotating internships, increase the ratio of specialists to family medicine residency positions, and reduced opportunities for physicians to return to postgraduate training (Chan 2002). An aging and growing population exacerbated the impacts of the physician shortage. By the year 2000, the physician-population ratio in Canada was the same as in 1987 (Chan 2002).

2.2 Rural Health in the new millennium

The changes in policy during the 1990s have changed the landscape of health care delivery throughout Canada, but rural Canada has suffered the most change and is encountering a greater sense of urgency in accessing family physicians and specialists. According to the Society of Rural Physicians of Canada (SRPC), rural Canada needs 1175 additional family physicians to bring the population-to-physician ratio to the level of the rest of Canada (Pong, Buske & Nagarajan 2005). There is also a lack of representation of rural in Canadian medical schools,
where only about 11% of medical students are from rural areas, in comparison to 22% of the entire population being rural (Pong, Buske & Nagarajan 2005).

2.2.1 Recruitment Challenges in Rural Areas

There are many reasons why the rural physician ratio consistently lags behind the urban ratio. The most distinctive difference in rural medicine is the broader range of responsibilities required, since there are a distinct lack of specialists in rural areas (Pong, Buske & Nagarajan 2005). Rural family physicians are much more likely to provide comprehensive services such as in-patient hospital care, work in emergency departments, and visit patients in nursing homes. Combining this range of responsibilities with a larger number of patients, the end-result is a heavier workload for rural physicians compared to their urban counterparts (Pong, Buske & Nagarajan 2005). According to the SRPC physician survey, 61% of rural physicians performed emergency medicine, compared to only 24% of urban physicians. Of the 35 types of activities listed on the SRPC questionnaire, 32 of them had a greater percentage of rural family physicians selecting them as part of their responsibility, compared to urban physicians.

The SRPC physician survey also indicated that the vast majority of rural physicians (83%) are required to perform on-call work, considered one of the most stressful components of practicing medicine. In contrast, 69% of urban physicians reported being on-call regularly. This discrepancy is an additional burden to the “overload” of patients per physician that already exists in rural areas. These numbers reflect that, on the most part, rural physicians have a greater workload, more responsibility, and wider range of services expected of them in their day-to-day operations. The increased burden of the rural workload must be considered in addition to the lifestyle (or personal) aspects of rural re-location, such as: professional isolation, lack of spousal employment opportunities, limited educational and extracurricular opportunities for children, limited recreational and cultural opportunities (particularly for ethnic and racial minorities), and overall distance from extended family and friends (Evans, Barer 2001).

Within British Columbia, the association between “rural physician” and “work overload” remains consistent with the national trends discussed above. According to a British Columbia Medical Association (BCMA) survey, rural physicians reported a significantly lower average (than their urban colleagues) on job satisfaction scores that included questions regarding lab and diagnostic services, appropriate procedural skills training, and access to medical specialists (Thommasen 2001). After collecting and analyzing survey results among the rural health regions of British Columbia (i.e. outside of the lower mainland and southern Vancouver Island), the
collective conclusions were that low long-term physician retention rates are linked to variables associated with increased workload. The primary causes of increased workload were low specialist-to-family physician ratios and low physician-to-population ratios. Consequently, low physician-to-population ratios are consistently associated with low job satisfaction, physician burnout, and ultimately the decision to relocate to urban communities (Thommasen 2001). Below is a map of the health authorities in BC (Figure 1), and tables (1-5) summarizing the trends in physician coverage throughout British Columbia, both by population size and by health region:

Figure 1  Map of Health Authorities in British Columbia
Table 1  Physician Length of Stay in British Columbia

<table>
<thead>
<tr>
<th>Population</th>
<th># of communities</th>
<th># of physicians</th>
<th>Mean stay (years)</th>
</tr>
</thead>
<tbody>
<tr>
<td>&lt;3500</td>
<td>25</td>
<td>288</td>
<td>4.0</td>
</tr>
<tr>
<td>3500-6999</td>
<td>18</td>
<td>348</td>
<td>4.5</td>
</tr>
<tr>
<td>7000-10999</td>
<td>11</td>
<td>237</td>
<td>6.7</td>
</tr>
<tr>
<td>11000-19999</td>
<td>17</td>
<td>686</td>
<td>7.0</td>
</tr>
<tr>
<td>20000-30000</td>
<td>7</td>
<td>420</td>
<td>6.9</td>
</tr>
</tbody>
</table>

Source: BCMA Medical Journal, Volume 42, Number 6 (August 2000)

Table 2  Physician Full Time Equivalent (FTE) per 10,000 population in British Columbia, by Health Region (2001)

<table>
<thead>
<tr>
<th>Region (Health Authority)</th>
<th>Geographic size (km²)</th>
<th>Total Population</th>
<th>Per Capita Expenditures (on each patient)</th>
<th>Physician FTE’s Per 10,000 population</th>
</tr>
</thead>
<tbody>
<tr>
<td>Fraser</td>
<td>15,830</td>
<td>1,396,032</td>
<td>$159</td>
<td>7.3</td>
</tr>
<tr>
<td>Vancouver Coastal</td>
<td>58,560</td>
<td>1,026,313</td>
<td>$157</td>
<td>9.7</td>
</tr>
<tr>
<td>Vancouver Island</td>
<td>56,069</td>
<td>695,367</td>
<td>$169</td>
<td>9.3</td>
</tr>
<tr>
<td>Interior</td>
<td>200,000</td>
<td>684,412</td>
<td>$166</td>
<td>8.8</td>
</tr>
<tr>
<td>Northern</td>
<td>600,000</td>
<td>299,455</td>
<td>$196</td>
<td>9.4</td>
</tr>
</tbody>
</table>
Table 3  Physicians (and Specialists) per 10,000 population in British Columbia, by Health Region (2000-2004)

<table>
<thead>
<tr>
<th>Region (Health Authority)</th>
<th>2000</th>
<th>2001</th>
<th>2002</th>
<th>2003</th>
<th>2004</th>
</tr>
</thead>
<tbody>
<tr>
<td>(British Columbia)</td>
<td>10.7</td>
<td>10.8</td>
<td>11.0</td>
<td>11.1</td>
<td>10.8</td>
</tr>
<tr>
<td></td>
<td>(8.9)</td>
<td>(8.9)</td>
<td>(9.0)</td>
<td>(9.0)</td>
<td>(8.8)</td>
</tr>
<tr>
<td>Fraser</td>
<td>7.8</td>
<td>7.7</td>
<td>8.1</td>
<td>8.2</td>
<td>7.9</td>
</tr>
<tr>
<td></td>
<td>(5.2)</td>
<td>(5.2)</td>
<td>(5.1)</td>
<td>(5.2)</td>
<td>(5.1)</td>
</tr>
<tr>
<td>Vancouver Coastal</td>
<td>12.6</td>
<td>12.7</td>
<td>12.6</td>
<td>12.7</td>
<td>12.4</td>
</tr>
<tr>
<td></td>
<td>(13.1)</td>
<td>(13.1)</td>
<td>(13.3)</td>
<td>(12.8)</td>
<td>(12.6)</td>
</tr>
<tr>
<td>Vancouver Island</td>
<td>(N/A)</td>
<td>12.0</td>
<td>12.3</td>
<td>12.7</td>
<td>12.8</td>
</tr>
<tr>
<td></td>
<td>(7.9)</td>
<td>(8.2)</td>
<td>(8.2)</td>
<td>(8.0)</td>
<td></td>
</tr>
<tr>
<td>Interior</td>
<td>10.5</td>
<td>11.1</td>
<td>11.4</td>
<td>11.2</td>
<td>11.0</td>
</tr>
<tr>
<td></td>
<td>(5.2)</td>
<td>(5.1)</td>
<td>(5.0)</td>
<td>(5.0)</td>
<td>(4.9)</td>
</tr>
<tr>
<td>Northern</td>
<td>10.7</td>
<td>11.0</td>
<td>11.8</td>
<td>11.4</td>
<td>10.9</td>
</tr>
<tr>
<td></td>
<td>(3.3)</td>
<td>(3.2)</td>
<td>(3.2)</td>
<td>(3.2)</td>
<td>(3.1)</td>
</tr>
</tbody>
</table>

Source: CIHI (2007)

Table 4  Number of Physicians in British Columbia (2005) and percentage change (from 1996-2005), by Health Region

<table>
<thead>
<tr>
<th>Region (Health Authority)</th>
<th>Number of physicians (including specialists)</th>
<th>Percentage change (1996 to 2005)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Source: Centre for Health Services and Policy Research-UBC (2005)
<table>
<thead>
<tr>
<th>Region (Health Authority)</th>
<th>Number of physicians (including specialists)</th>
<th>Percentage change (1996 to 2005)</th>
</tr>
</thead>
<tbody>
<tr>
<td><em>(British Columbia)</em></td>
<td>8,558</td>
<td>+14%</td>
</tr>
<tr>
<td>Fraser</td>
<td>2,043</td>
<td>+20%</td>
</tr>
<tr>
<td>Vancouver Coastal</td>
<td>3,113</td>
<td>+4%</td>
</tr>
<tr>
<td>Vancouver Island</td>
<td>1,689</td>
<td>+21%</td>
</tr>
<tr>
<td>Interior</td>
<td>1,278</td>
<td>+21%</td>
</tr>
<tr>
<td>Northern</td>
<td>435</td>
<td>+13%</td>
</tr>
</tbody>
</table>

*Source: Centre for Health Services and Policy Research-UBC (2005)*

Table 5  Total Population and Physicians per 10,000 population ratio percentage change (from 1996-2005) in British Columbia, by Health Service Delivery Area

<table>
<thead>
<tr>
<th>Region (Health Service Delivery Area)</th>
<th>2005 Population (% change from 1996)</th>
<th>2005 Ratio of Physicians per 10,000 (% change from 1996)</th>
</tr>
</thead>
<tbody>
<tr>
<td><em>(British Columbia)</em></td>
<td>4,196,383 (+8%)</td>
<td>10.5 (-1%)</td>
</tr>
<tr>
<td>Fraser</td>
<td>1,440,827 (+14%)</td>
<td>7.7 (-2%)</td>
</tr>
<tr>
<td>Vancouver Coastal</td>
<td>1,036,970 (+8%)</td>
<td>13.0 (-14%)</td>
</tr>
<tr>
<td>Vancouver Island</td>
<td>710,580 (+4%)</td>
<td>12.8 (+13%)</td>
</tr>
</tbody>
</table>
Table 1 illustrates the lower average tenure of physicians in smaller towns, particularly in towns of less than 7000 people, where the average tenure drops from 6.7 to 4.5 years. Table 2 divides BC by region, and statistically reflects a higher per capita expenditure and similar FTE-per-10,000 population rate for physicians in the predominantly rural Interior and Northern regions compared to the rest of BC. Table 3 highlights the trends in physician and specialist coverage in BC from 2000-2004, implying that the primarily urban Fraser region has the lowest ratio of GP coverage, while the rural Northern region has the lowest ratio of specialists within the province. Table 4 focuses on the number of physicians in each region over a 10-year period, reflecting a double-digit percentage increase (+14%) across the province. Only the Vancouver Coastal region did not have a double-digit increase within this timeframe, yet both the Interior (+21%) and Northern (+13%) regions increased their physician supply significantly. Table 5 lists the overall change in physicians-per-10,000 ratio in a 10-year span, in comparison to the overall population growth in the same timeframe. The Interior and Northern regions had an above-average increase in their physician-population ratio (only Vancouver Island had a higher increase) while experiencing below-average population growth, in comparison to the provincial averages (+8% population growth and -1% change in physician-population ratio). On the surface, these statistics do not seem to indicate any major problems or shortages in the most rural regions of BC, comparatively speaking. Is the physician shortage a fallacy, or simply hidden within these statistics?

The data in Tables 1-5 may represent the common statistical representation of physician coverage used in policy assessment, but also illustrates the inherent limitations. As indicated in
the literature, “the problem with identifying an area as overserviced or underserviced by comparing the population-to-physician ratio with an optimal ratio is that nobody seems to know how to objectively set an optimal ratio that accurately reflects local medical needs” (Pong, Plitbado 2002). In formulating policy, no single target measure is all-inclusive, resulting in the need for multiple measures as a guideline for setting policy goals. Population-physician ratios do not take into account the unique needs of different communities that have different demographics (e.g., concentration of Aboriginal peoples in the northern region), geography, and proximity (or degree of isolation) to other communities. Among the regions of BC, the Northern and Interior regions are largest geographically speaking (see Figure 1 above), but otherwise have only one urban “centre” of more than 50,000 people. The Vancouver Coastal and Vancouver Island regions are similar size geographically, but the inclusion of the city of Vancouver within Vancouver Coastal explains the comparatively larger population size (see Table 2 above). The Fraser region is by far the smallest geographically, but consists of the largest population (and consequently, the highest density) because of the inclusion of most Vancouver suburban towns and exclusion of significant rural space.

Population distribution is only one example of the variance among different regions of BC. On a smaller scale, the degree of isolation and availability of physicians among different communities varies considerably, even when the population size and/or distance to a regional centre are similar between two towns. Table 6 illustrates this complexity, with examples of similar sized towns from each of the five regions of BC:

Table 6 Number of physicians among a sample of towns with population under 10,000 in British Columbia (by region)

<table>
<thead>
<tr>
<th>Region/Town</th>
<th>Population (2006)</th>
<th>(Regional centre)/ Distance (km)</th>
<th># of physicians</th>
</tr>
</thead>
<tbody>
<tr>
<td>Fraser/Abbotsford</td>
<td></td>
<td>(Abbotsford)</td>
<td></td>
</tr>
<tr>
<td>Hope</td>
<td>6667</td>
<td>87</td>
<td>13</td>
</tr>
<tr>
<td>Kent</td>
<td>5756</td>
<td>59</td>
<td>0</td>
</tr>
<tr>
<td>Vancouver Coastal</td>
<td></td>
<td>(Vancouver)</td>
<td></td>
</tr>
<tr>
<td>Gibsons</td>
<td>4458</td>
<td>47</td>
<td>12</td>
</tr>
<tr>
<td>Region/Town</td>
<td>Population (2006)</td>
<td>Distance (km)</td>
<td># of physicians</td>
</tr>
<tr>
<td>------------</td>
<td>------------------</td>
<td>--------------</td>
<td>-----------------</td>
</tr>
<tr>
<td>Sechelt</td>
<td>9224</td>
<td>69</td>
<td>23</td>
</tr>
<tr>
<td><strong>Vancouver Island</strong> (Victoria)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Port Hardy</td>
<td>4585</td>
<td>498</td>
<td>5</td>
</tr>
<tr>
<td>Qualicum Beach</td>
<td>8899</td>
<td>158</td>
<td>12</td>
</tr>
<tr>
<td><strong>Interior</strong> (Kelowna)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Fernie</td>
<td>5168</td>
<td>625</td>
<td>12</td>
</tr>
<tr>
<td>Peachland</td>
<td>5369</td>
<td>26</td>
<td>1</td>
</tr>
<tr>
<td><strong>Northern</strong> (Prince George)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Mackenzie</td>
<td>5452</td>
<td>185</td>
<td>4</td>
</tr>
<tr>
<td>Fort Nelson</td>
<td>4871</td>
<td>812</td>
<td>2</td>
</tr>
</tbody>
</table>

*Source: BC Stats, College of Physicians & Surgeons of British Columbia*

The only accurate generalization resulting from a profile of small communities in BC is that each one has different degrees of isolation, health care needs, and accessibility to a physician. This reality makes the measurement of current health care delivery, and the subsequent prediction of future needs, more complicated when establishing the basis for rural physician recruitment policies. Because there is no “ideal” measure, in the next chapter an in-depth evaluation of the frequently used measures of physician coverage will further illustrate methodological obstacles. The dilemma lies not only in providing physician coverage, but also in determining which regions and communities are most in need.

### 2.2.2 Beyond Canada’s borders

According to the literature and research conducted outside of Canada, the problem of physician shortages exists in many other economically developed nations (defined as a member of the Organization for Economic Co-operation and Development [OECD], for this scenario). In an OECD report on physician density among 21 member nations conducted in 2000, Canada
ranked 17th (approximately 21 physicians per 10,000 people), but was comparable to other nations such as the United Kingdom (20 per 10,000), New Zealand (22), Australia (24), and the United States (26) (Danon-Hersch, Paccaud 2005). These figures represent the overall ratios (not specifically rural), but some of the literature does indicate specific rural shortages among these OECD nations.

Our neighbour to the south, the United States, is experiencing a “...decline in the supply of generalist physicians in smaller rural communities, despite a growing physician surplus (in urban areas)”. In terms of solutions, the authors suggest “...current market forces can be expected to do little about the problem”, and predict that “only universal health insurance would draw providers into many of these (rural) areas...and until then locally targeted financial-incentive programs are needed to improve the imbalance” (Rivo, Kindig 1996). Although the U.S. and Canada may share some of the rural physician recruitment issues, a direct comparison of incentives would be misleading since the U.S. is a privatized medical system that relies heavily on “free market” principles (i.e., private medical providers moving into markets where there is demand and opportunity for profit). The predominantly public, universal health care system in Canada does not have the political nor moral option of ignoring those in underserved areas, compared to the U.S. system which leaves over 40 million of its citizens (many of whom are in rural, underserved areas) uninsured. This gap also may skew the estimations for medical service demand, as poor, isolated communities may need medical coverage, but cannot afford it and therefore fail to attract private facilities, making physician incentives a moot point.

A nation that more closely resembles Canada, both in terms of its medical delivery system and its geographic vastness is Australia. With a public/private mix of health service delivery, along with vast regions of remote (and Aboriginal) communities throughout the “outback” region of the continent, Australia is also faced with the dilemma of attracting physicians to rural areas. Australia has also attempted a variety of incentive strategies, with an emphasis on recruitment rather than retention (using financial grants as the primary tool). Similar to Canada, financial incentives have produced mixed results: a modest improvement in the recruitment rate usually countered by disappointing retention rates. As an attempt to improve rural physician retention, a survey of rural Australian general practitioners provides some insight into potential oversights in domestic policy, where “good on-call arrangements were overwhelmingly the most significant factor for all rural and remote regions, regardless of respondent age, sex, or practice location” (Humphreys et al. 2002). As the “first comprehensive Australian study identifying the importance of factors influencing how long rural physicians are likely to stay in their communities”, the conclusion was that “...the key workforce problem for
rural doctors is inability to get time away for recreational leave and family considerations, and for emergency relief” (Humphreys et al. 2002). The survey did acknowledge financial incentives as a component of rural recruitment and retention, but that only by taking steps to reduce physician workload would the retention rates likely improve. This result implies that reinforcement of the workforce, using tools such as locum provisions, are an important component to retention policy. According to the Australian Department of Health website, from 1996 to 2006 the number of rural physicians increased (ranging from 17% to 81%) at a higher rate than urban areas (-6 to 8%). To evaluate the specific reasons for these changes are beyond the Canadian focus of this project, but the diversification of incentives to include lifestyle (in addition to the financial) components are attributed some of the credit for this improvement, based on the literature and medical associations such as the Rural Doctors Association of Australia (RDAA).

2.3 Existing proposals and recommendations

2.3.1 Task Force of the Society of Rural Physicians of Canada

Many studies have analyzed and scrutinized the challenge of rural physician recruitment in Canada. As mentioned earlier, the common approach to the problem has been via financial incentives, but this method has proven to be both narrow and short-term (Canadian Policy Research Network 2005). Long-term solutions are lacking partially because of an absence of long-term monitoring and evaluation of rural recruitment strategies. There is an inherent reluctance by many decision-makers to attempt new policy approaches, which in turn discourages in-depth research to understand the problem (Canadian Policy Research Network 2005).

One of the more specialized organizations to analyze this issue is the Society of Rural Physicians of Canada (SRPC). Although a relatively new organization, founded in 1992, they have a direct interest and knowledge of the rural physician shortage issue. From 2002-2005, the SRPC formed a national task force to investigate the reasons for the rural physician shortage throughout Canada, with an emphasis on explaining (and attempting to solve) the lack of rural students in Canadian medical schools. Among their findings were that most medical students had parents who were highly educated professionals from urban areas (Rourke 2005). Furthermore, there was a distinct lack of rural physicians on the admission committees of Canadian medical schools, presenting another obstacle to applicants with rural backgrounds (Rourke 2005). Many rural schools also lack access to career counselling and offer less advanced science classes in comparison to urban schools, posing an additional disadvantage to rural students (Curran et al. 2004). These trends are the basis for several education-related strategies within the overall plan to
improve rural physician recruitment and retention, with the belief that coordinating physician human resources planning with physician education will result in a more coherent and complete resolution (Canadian Policy Research Network 2005). Below, in Figure 2, is a summary of the education-based recommendations of the SRPC:

Figure 2  Society of Rural Physicians of Canada Recommendations

<table>
<thead>
<tr>
<th>Strategies to increase the enrolment of students of rural origin in medical school</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>1. Educational Initiatives:</strong></td>
</tr>
<tr>
<td><strong>Objectives</strong></td>
</tr>
<tr>
<td>• To increase the number of rural high school graduates who go on to university programs with an interest in medicine as a possible career</td>
</tr>
<tr>
<td>• To increase the number of university students of rural origin who are interested in a medical career and are able to meet the entrance requirements for medical school</td>
</tr>
<tr>
<td><strong>Recommended Strategies</strong></td>
</tr>
<tr>
<td><strong>High School</strong></td>
</tr>
<tr>
<td>a) Establish university-high school outreach programs for rural students and guidance counsellors that involve medical students and local physicians</td>
</tr>
<tr>
<td>b) Provide university-high school educational opportunities for rural students to attend science and health-related summer programs</td>
</tr>
<tr>
<td><strong>University</strong></td>
</tr>
<tr>
<td>a) Introduce rural components into health sciences courses and programs. Establish counselling and support systems for rural students</td>
</tr>
<tr>
<td>b) Establish pre-med clubs and mentoring systems for rural students</td>
</tr>
<tr>
<td>c) Provide pre-med summer school programs for rural students</td>
</tr>
<tr>
<td>d) Provide information on and assistance with preparing medical school applications</td>
</tr>
<tr>
<td><strong>2. Funding Support:</strong></td>
</tr>
<tr>
<td><strong>Objective</strong></td>
</tr>
<tr>
<td>• To reduce financial barriers to enrolment in and completion of medical school</td>
</tr>
</tbody>
</table>
Recommended Strategies

a) Provide funding for rural education initiatives  
b) Establish major scholarships  
c) Offer medical school tuition relief  
d) Award financial need-based bursaries

3. Changes to admissions process:

Objective

- To admit a fair and equitable number of students of rural origin to medical school

Recommended Strategies

a) Include rural physicians and rural community members on admissions policy and process committees  
b) Include rural physicians and rural community members as interviewers  
c) Ensure that students of rural origin are not disadvantaged by the admissions process  
d) Apply a rural adjustment factor to grade point averages and MCAT scores  
e) Set targets for rural enrolment


These recommendations may be viewed as being proactive rather than reactive to the rural physician shortage. Rather than luring urban-based physicians into rural areas with more money and incentives, or hoping that a few weeks of rural exposure during medical school will persuade students to desire a rural practice, the principle behind the education-based approach is that accessibility of medical school to rural students will provide long-term reinforcement of the rural physician labour force. In addition, role models at the university level are a critical component to rural student recruitment, translating into a policy of aggressive recruitment of rural-based faculty members to offset any potential “urban bias” that exists in medical schools across Canada (Rourke 1999). Although achieving a new balance of urban and rural perspective in medical schools is a long-term process, changes in the perception of rural health delivery must begin early in the career of a medical student (Curran, Rourke 2004). Exposure to the unique challenges of rural medicine, including interaction with rural physicians during residency, helps prepare residents for a small-town practice and lifestyle. At the minimum, they are provided the
opportunity to determine if such a lifestyle is suitable for them sooner rather than later, before further investment is made by the provincial government (incentives) and the resident (time and relocation) once they become a physician. A medical faculty that includes some rural-based members and actual rural working experience provides an added dimension to their perspective and their skills, as well as increasing the odds of admission for rural-based students (Rourke 2005).

These recommendations are based on national trends and statistics, so there is likely some level of applicability to British Columbia. However, the question remains to what extent does an emphasis on rural health education improve the situation within our province. Although the formation of the rural medical school in BC\(^1\) is too recent to determine this yet, an evaluation of recommendations within BC will provide a measure of comparison of policy priorities to those at the national level.

\[2.3.2 \text{ British Columbia Recommendations} \]

Many of the current British Columbia rural incentives\(^2\) are based on the recommendations of the British Columbia Medical Association (BCMA) Rural Issue Committee in a physician survey and report issued back in 1998 (BCMA Rural Issue Committee 1998). At that time, all rural physicians eligible for the Northern and Isolation Allowance (approximately 400) received surveys to monitor factors in determining physician practice location, satisfaction, and frustration. In addition, the study obtains feedback regarding their perspective on the effectiveness of the existing programs at the time, some of which still exist today. Although the highest ranked “source of job satisfaction” among BC rural physicians was the “challenge of varied practice”, the highest-ranked source of frustration was “availability of locum coverage” (BCMA Rural Issue Committee 1998). Also, 25% of rural physicians intended on relocating their practice, compared to only 4% of urban physicians. Finally, the survey reflected the lack of awareness of existing provincial rural incentives, as only about 53% were aware of the Northern and Isolation Travel Allowance (NITA) (BCMA Rural Issue Committee 1998). The conclusions and recommendations from this survey were rather straightforward: that only a “comprehensive package of incentives” would be the ideal solution to successfully recruit and retain rural physicians in BC (BCMA Rural Issue Committee 1998).

\(\text{\textsuperscript{1}}\) Known as the Northern Medical Program (NMP), described in Section 5.3
\(\text{\textsuperscript{2}}\) See Table 11, Section 5.2
A more recent survey of rural physicians was conducted and reported in 2006 by the UBC-based Rural Education Action Plan (REAP). This evaluation focused on the obstacles to accessing continuing professional development (CPD) and continuing medical education (CME) for rural physicians, which ties into the consistent reporting of lack of free time as a significant barrier to rural recruitment and retention (Thommasen, Berkowitz & Grzybowski 2000). Based on the response of approximately 450 physicians (307 family physicians, 141 specialists), Figure 3 summarizes the recommendations of the committee:

Figure 3  Rural physician needs for improved professional development and education

<table>
<thead>
<tr>
<th>Priorities in Continuing Professional Development (CPD) and Continuing Medical Education (CME) of rural physicians</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Establish and nurture linkages between rural practitioners and specialists in their referral area to ensure CPD is responsive to the needs of a rural audience.</td>
</tr>
<tr>
<td>2. Offer more interactive, small group CPD sessions; increase the time allotted for questions and feedback.</td>
</tr>
<tr>
<td>3. Increase awareness of rural needs to urban specialists teaching rural CPD.</td>
</tr>
<tr>
<td>4. Encourage more rural specialists to teach CPD with adequate financial compensation and/or CPD credits.</td>
</tr>
<tr>
<td>5. If not currently available in Rural Service Agreement (RSA) communities, promote access to high speed internet and make available decision support tools such as “UpToDate” (online resource to answer general medical questions, for physicians), PDA programs, and videoconferencing capability.</td>
</tr>
<tr>
<td>6. Provide support for training physicians in the use of technology-enabled CPD, particularly basic computer skills and PDA use.</td>
</tr>
</tbody>
</table>

*Source: UBC School of Medicine (Rural Education Action Plan, 2006)*

The need for communication and interaction between rural and urban physicians is the recurring theme of Figure 3 above, reflected in statements such as increasing both “small group sessions” and “awareness of rural needs to urban specialists”. The plan emphasizes the importance of the role of technology in reducing professional isolation, as it mentions both high-speed internet and videoconferencing as tools to assist in professional development of geographically isolated medical professionals. Basic computer and PDA skills are also included, for any physicians that may be lagging behind in technological knowledge. Financial incentives are part of this package, to recruit physicians to be teachers for their rural colleagues. Included is the possibility of obtaining career development (CPD) credits of their own, to provide an education-based incentive.
for both teachers and attendees. In this scenario, all who attend receive “official” acknowledgement of the time donated and knowledge gained for each class or program.

Overall, the report acknowledged that the survey and recommendations are a “starting point”, and that further in-depth analysis of specific professional development and education needs of rural physicians in areas such as chronic disease management, interprofessional education, and occupational health (Lindley, Bluman & et al 2006). A comparative study between rural and urban career development needs was also listed as a potential future research project, in order to improve and customize rural physician development (Lindley, Bluman & et al 2006).

Research in the area of rural physician recruitment and retention specifically in British Columbia, in spite of the recommendations discussed above, still leaves room for expansion and development in the area of incentive (and overall policy) analysis. This is especially important considering the long list (but relatively limited range) of incentives currently offered in BC\(^3\), and the amount of money ($3.2 million alone for the Rural Education Action Plan, from 2007-10, according to BCMA) being spent on them.

In comparison to these provincial reports, a review of large-scale analyses regarding this subject by Health Canada, the Romanow Commission, and the Kirby Commission will provide additional perspective through the eyes of high-profile decision-makers at the national level. Although these reports are national in scope, they are likely to have significant influence in policy approval and implementation.

### 2.3.3 Additional national perspectives: proposals of Health Canada, Romanow, and Kirby

The year 2002 was both a promising and eventful one in terms of health policy ideas and proposals to address the wide array of challenges of health care delivery in Canada. There were three primary reports: Rural Health in Rural Hands (Health Canada), the Kirby Commission Panel Report, and finally the Romanow Commission Report (aka Commission on the Future of Health Care in Canada). All three addressed the issue of rural health disparities and inequalities within Canada, but varied in the extent of their respective proposed solutions.

Health Canada’s “Rural Health in Rural Hands” listed several recommendations to address rural health issues, with an emphasis on developing a national rural health human resources strategy that is consistent among the provinces, and developed by the Minister of

\(^3\) See Table II, Section 5.2
Health (Health Canada 2002). The report addressed post-secondary rural health training and education (“...identify academic and field training opportunities and barriers to rural health...and improve post-secondary health education opportunities”), working conditions for rural health care providers (“...maximize distance education and continuing professional development...”), and the centralization of both policy development and implementation in the form of “rural health innovation centres” (Health Canada 2002). The report stated that one of the keys of national coordination of rural health policy was via the use of health technology, namely ‘telehealth’ and high-speed internet, as a means to improve both clinical procedures and assist in distance education and career development among health professionals (Health Canada 2002). The emphasis on integration, consistency, and coordination among rural communities, health workers, and policy makers resulted in a wide-scale, coherent list of recommendations that seemed to provide a reasonably comprehensive “blueprint” for policy development on a national scale (Nagarajan 2004).

The Romanow Commission Report (2002) also addressed rural health care delivery. The report dedicated an entire chapter to rural health, and illustrated the health disparities between urban and rural areas of Canada based on health outcome measures such as life expectancy at birth, infant mortality rates, and chronic disease deaths (Romanow 2002). The report does an especially thorough job of illustrating the situation of rural patients, and critiquing the policies that have been attempted in the past as “urban approaches (mis)applied to rural communities”, “focusing on symptoms rather than causes”, and also a “lack of consensus on what ‘adequate’ access includes” (Romanow 2002). In light of these past misjudgements, the report based recommendations on the premise that “no single strategy is appropriate to all communities”, since rural communities are as distinct and unique as urban ones (Romanow 2002). The rural-specific policy recommendations of the Romanow Commission are as follows (Figure 4):

Figure 4 Romanow Commission Rural Health Recommendations

<table>
<thead>
<tr>
<th>Recommendation 30:</th>
</tr>
</thead>
<tbody>
<tr>
<td>The Rural and Remote Access Fund should be used to attract and retain health care providers.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Recommendation 31:</th>
</tr>
</thead>
<tbody>
<tr>
<td>A portion of the Rural and Remote Access Fund should be used to support innovative ways of expanding rural experiences for physicians, nurses, and other health care providers as</td>
</tr>
</tbody>
</table>
Recommendation 32:
The Rural and Remote Access Fund should be used to support the expansion of telehealth approaches.

Recommendation 33:
The Rural and Remote Access Fund should be used to support innovative ways of delivering health care services to smaller communities and to improve the health of people in those communities.

*Source: Commission on the Future of Health Care in Canada (Romanow Commission, 2002)*

Within these recommendations, the “Rural and Remote Access Fund” refers to proposed funding of $1.5 billion to improve rural health, although the allocations do not specifically spell out funding for each proposal (Nagarajan 2004). The official recommendations above are rather vague by design, as the report states that “…provinces and territories should decide which approaches are most appropriate for their communities, including the short-term option of using financial incentives to attract doctors and nurses to rural and remote communities” (Romanow 2002).

The Romanow report serves as an in-depth assessment of the existing problems in rural communities, and intended to provide the financial resources and collaboration (at a national level) to improve rural health care delivery, but stopped short of specific solutions as an acknowledgement of the diversity among Canada’s rural and remote communities. As a result, it also did not address specific solutions to rural physician recruitment and retention, other than suggesting an increase in the exposure of medical students to rural areas and coordinating the ideas and research of all levels of government, regional health authorities, and health care providers (Romanow 2002).

Also released in the Fall of 2002, the Kirby Panel report was another comprehensive attempt at addressing health care delivery issues on a national scale, and served to raise awareness of problems and suggest improvements. However, in the area of physician recruitment and retention, the proposed recommendations are also vague. Similar to the Romanow report, there is acknowledgement that the federal government must “...play a much stronger role than it has to date in coordinating efforts to deal with health human resources shortages…” (Kirby 2002). Furthermore, the report states “…the only long-term solution to the human resources crisis
remains the development of a national strategy that focuses on training enough physicians to meet the country’s needs…” (Kirby 2002). More importantly, there are few specific recommendations for rural physician recruitment and retention issues, other than mentioning rural physicians as one of the “under-represented groups” in Canada that would benefit from improved collaboration among government and medical organizations (Kirby 2002). This proposed collaboration recommends establishing “The National Coordinating Committee for Health Human Resources”, where part of its responsibility would be to “…recommend strategies to increase the supply of health professionals from under-represented groups, and in under-serviced regions…” (Nagarajan 2004). This recommendation echoes the theme of recruiting medical students with a rural background, and emphasizing medical education in rural areas. These recommendations also fall short of providing any type of budget guidelines, and therefore serve more as a starting point to developing policy, rather than a potential solution.

Although both the Kirby and Romanow reports acknowledge the rural physician shortage in Canada, their reports raise the awareness of the problems rather than provide concrete proposals to resolve them. Although there are no simple solutions to the rural physician shortage, the common thread among the recommendations was improved coordination among all levels of government (and medical organizations), and the need to include more rural-based medical students and medical schools in the Canadian system. Has this been the case in British Columbia, and if so have the revised policies improved both rural physician recruitment and health care delivery? The goal of the forthcoming field research will be to address this question. Before analysis of actual field data, a look at the deceptively complex issue of data collection and analysis methodology follows.
3 Methodology: More than just a measurement

3.1 Defining “rural” and “distance measure”: more than meets the eye

3.1.1 “Rural” is in the eye of the beholder

The term “rural” describes areas distant from the urban cores, but beyond that, there is a surprising amount of inconsistency in defining what is “rural”. The only consistency is the lack of a standard definition of “rural” in policy and research. Statistics Canada has several definitions, usually based on the census. Below, in Table 7, is a summary of the variable classifications of “rural”:

Table 7 Rural Definitions, according to Statistics Canada

<table>
<thead>
<tr>
<th>1. Census rural area:</th>
<th>individuals living outside places of 1,000 people or more OR outside places with densities of 400 or more people per square kilometer</th>
</tr>
</thead>
<tbody>
<tr>
<td>2. Rural and small town (RST):</td>
<td>individuals living in towns or municipalities outside the commuting zone of larger urban centres (population of 10,000 or more). These individuals may be disaggregated into 4 sub-groups based on the size of the commuting flow and the degree of influence of a larger urban centre (called metropolitan influence zone [MIZ])</td>
</tr>
<tr>
<td>3. Organization of Economic Co-operation and Development (OECD) rural communities:</td>
<td>individuals in communities with less than 150 persons per square kilometre. This includes the individuals living in the countryside, towns, and small cities (inside and outside the commuting zone of larger urban centres)</td>
</tr>
</tbody>
</table>
4. Organization of Economic Co-operation and Development (OECD) predominantly rural regions:
- individuals living in census divisions with more than 50 percent of the population living in OECD rural communities. This includes all census divisions without a major city.

5. Non-metropolitan regions (Beale Code Approach):
- individuals living outside metropolitan regions with urban centres of 50,000 or more population.

6. Rural postal codes:
- individuals with a “0” as the second character in their postal code.

Source: Public Health Agency of Canada (2002)

The additional dilemma of having variable definitions of “rural” is that the choice of definition will likely affect the number of people affected by policy, the demographic profile of a “rural” population sample, and finally the specific health-related characteristics and proximity to medical services among those considered “rural” residents (Public Health Agency of Canada 2002).

From the perspective of physicians, there are also multiple definitions of “rural”, depending on who is asked. On the one hand, the Canadian Medical Association typically defines rural areas as those with a population of 10,000 people or less (Pong, Plitbado 2001). On the other hand, the degree of “rurality” is not only a measure of the number of people, but also by functional factors such as: the degree to which specialists are available, frequency of on-call duties, distance between physicians, proximity and availability of locums, etc. (Chan, Barer 2000).

Just as there are no magical formulas to measure physician coverage, there are also no convenient “one size fits all” approaches to defining “rural”. Perhaps the search for an all-inclusive definition is not feasible, and instead the definition of “rural” is dependent on the type of research project at hand (Pong, Plitbado 2001). When forming and comparing rural physician recruitment policies, defining “rural” is an obligation in order to accurately monitor and compare results across regions, as well as across Canada. Instead of viewing the definition of “rurality” as a given, consistency and clarity of results are likely to improve when it is viewed as a variable that requires definition.
Among the many choices of defining “rural”, a preferred definition is needed for field research purposes and sake of consistency. There are alternate definitions more specific to health care delivery, such as the definition by the Society of Rural Physicians of Canada (SRPC) which includes the distance to the nearest physicians, specialists, and hospitals (Pong, Plitbado 2001). However, using such specific methods present limitations in comparability to other regions that do not record such detailed measures, resulting in “standardization” as being a factor in defining “rurality” (Public Health Agency of Canada 2002). In addition, as will be discussed in the next section, measuring the average distance from patient to physician is not always as straightforward as it would seem. Therefore, the most “balanced” definition of a “rural” area would be a combination of a standardized definition that takes into consideration population density and town size (e.g., the Statistics Canada definition, listed as #1 in Table 7), along with a less “standard” but more health-specific measure such as the SRPC definition described above, increasing the comparability options between regions.

3.1.2 Distance Measure: A viable alternative?

Due to the inherent vagueness of “rurality”, one alternative utilized by some health care delivery researchers and analysts is the “distance measure” concept: measuring the medical workforce presence and quantity in an area based on the straight-line distance between the locations of the general population and the nearest physician or hospital (Pong, Plitbado 2005). Many see this approach as being a more realistic representation of health care access from the patient’s perspective, particularly in remote areas where the combination of distance and geographical barriers represent major oversights by statistics or general definitions.

Some researchers have utilized both physician-to-population ratios and average distance between population and physicians, arguing that they are complementary to each other. The ratios are broad indicators of supply and demand, while the average distance reflects the variances in potential access (Pong, Plitbado 2001). The distance measure provides researchers with a complementary monitor of health access, but has some limitations that prevent consideration as a stand-alone measure of physician coverage.

The primary dilemma, or inconsistency, regarding the distance measure is whether the preferable method of calculation be a “straight-line” measure between patient and physician, or a “road” measure that accounts for indirect ground routes to the nearest physician office or hospital. Although the straight-line measure is easy to measure, and adjustable to serve future distance concepts (such as telehealth), the level of accuracy is sometimes questionable in areas with
physical barriers such as mountain ranges and lakes (of obvious importance in rural areas within BC). In the event of an emergency, the actual travel time is the most crucial factor for someone in a remote area, often not reflected when using the “straight line” model (Pong, Plitbado 2001).

With the “road” measure, although the time measures may be closer to “reality”, as environmental variables are included, there is the problem of obtaining accurate measures in rural areas of a province. GIS technology to measure roads has improved, but still not complete in all areas (Pong, Plitbado 2001). Eventually, with the continued progress of GIS technology, perhaps all roads will be measurable, and the capability to measure distance and accessibility from any “Point A to Point B” will become a reality. Until then, however, in some cases the straight-line measure serves as a consistent comparison tool among rural communities, even if its measure of accessibility has limitations.

3.2 Physician-to-population ratio: common but controversial

In surveying the wide range of statistics, surveys, and analysis of the many incentive programs across Canada, a consistent trend is the unit of measurement of physician coverage: use of the physician-to-population ratio. At first glance, this may seem like a reasonable measure, considering that it takes into account both population density and the number of physicians, and therefore (presumably) adjusts for both urban and rural areas. However, experts point out that these ratios do not take into consideration differences in physician productivity, mobility of both physicians and patients, substitution by other providers, and finally the medical needs of the population (Laurent 2002).

One may ask: if the physician-to-population ratio has significant limitations, then why is it the most commonly used method of physician distribution measurement. The primary reason is its simplicity and minimal data requirements, and because it is easy to understand (Pong, Plitbado 2001). This “simplicity” is potentially misleading, since the geographic area used as the measure unit is typically artificial (e.g. postal code, health region, census division, etc.), and therefore not necessarily a reflection of health care delivery and consumption patterns (Pong, Plitbado 2001). Interpretation of the actual ratio is also not failsafe, as variations could be due to more complex factors, such as overservicing in high supply areas, rather than underservicing in “low” supply regions (Chan, Barer 2000). There is also always the chance that there are portions of the population that are in a “well-serviced” area, but still have difficulty accessing physicians (ethnic minorities, homeless, etc.), and therefore should be considered “underserviced” but are not (Chan, Barer 2000).
Fundamental assumptions also are commonplace using physician-to-population ratios, such as the belief that all health care utilization and delivery takes place within the defined (and "artificial") geographical area, which is not realistic in most cases as both patients and physicians are often mobile (Pong, Plitbado 2001). Adjusting some variables, such as the size of the region or area, would likely cause other measurement problems. For instance, a smaller region would enable a more specific measurement, but the lower population could increase random error in terms of physician supply, and also reduce the relevance of physician supply since an especially small community is more likely to seek care in a neighbouring region (Pong, Plitbado 2002).

Regional variations for more specialized procedures, such as cardiac surgery or cancer treatment, may actually need to be centralized to maintain high volumes and good outcomes, resulting in a need to measure variations of utilization based on patient location, rather than physician (or specialist) location (Chan, Barer 2000). Even the basic measure of counting physicians has variation and inconsistencies, depending on the database utilized. For example, the Southam Medical Database includes head counts of physicians, but no details regarding activity level. On the other hand, the National Physician Database contains billing data that allows calculation of a full-time equivalent (FTE) measure, but not all physicians charge based on a fee-for-service structure (Chan, Barer 2000).

Hospital closures in rural BC provide another example of how dependence on solely the physician-population ratio masks important health care trends in rural areas. The 2002 announcement of three closures in the BC interior (Kimberley, New Denver, and Enderby) resulted in the layoff or relocation of hundreds of health care workers. If the physicians do not leave the region, physician-population ratios remain constant, but the reduction of health care services, hospital beds, emergency treatment access, and other medical consequences of a hospital closure represent real losses in health care services. Ratios also do not capture other variables, such as the number of patients visiting each physician (i.e., physician workload and productivity), large increases in hours physicians work as a result of closures, and population (or physician) migration. Good policy design requires analysis of comprehensive data, not dependence on one number.

The dilemma of using the physician-to-population ratio is that in spite of the limitations summarized above, it has become a standard unit of measuring physician coverage. This should not be justification to continue to use it as the primary definition of physician distribution, but at the same time it would be problematic to entirely abandon it considering many current policies.
are based on some variation of this ratio. The next step is to consider alternative measures that represent a variation, but not a total departure, from the physician-to-population ratio.

3.3 Summary of alternative measures (physician coverage)

3.3.1 Gini Index (and Lorenz curve)

According to many researchers, the Gini Index represents an alternative measure of physician distribution, while still incorporating the overall population of a region. For example, Health Canada utilizes the Gini index, referring to it as a measure that more accurately determines “how equitably physicians are distributed spatially” (Laurent 2002). The principle of the Gini index is to compare the proportion of physicians to the proportion of the population in the same area, with higher values indicating more “inequality” (i.e. physicians not distributed equally), and the value of “0” representing perfectly equitable distribution (Laurent 2002).

However, some researchers point out that because the Gini index is based on the principle of population in proportion to the number of physicians, it represents the relationship of the same two geographic distributions as the physician-to-population ratio, and therefore is susceptible to some of the same limitations as the ratios are (Pong, Plitbado 2002). The relationship between “perfect distribution” and actual measures of the Gini index may be graphed (see Figure 5 below) as what is known as a Lorenz curve, where the perfect distribution is represented as a straight, diagonal line. The actual values of the Gini index are represented as a curve, where the greater the distance between the straight line and the curve, the greater the inequality (or “maldistribution”) of physician coverage. The $x$-axis represents the Gini index value of the general population, while the $y$-axis represents the Gini index value of the physicians within the same region:
Figure 5  Lorenz Curve example

![Lorenz Curve example diagram](image)

*Source: CIHI (2005)*

The Gini index provides a statistical measure that is more concise in value than a ratio, which is convenient for comparison and analysis, but is based on similar principles, and therefore presents similar shortcomings, to the physician-to-population ratio.

### 3.3.2 Location Quotient

Another measure that is a variation of the physician-to-population ratio, but encompasses specific values, is known as the location quotient (LQ). This measure provides the advantage of a standard value to which different regions may be considered “underserviced” ($LQ < 1$) or “overserviced” ($LQ > 1$), with “ideal” physician coverage represented when $LQ = 1$ (Pong, Plitbado 2002). Based on a comparison of all geographic regions, the $LQ$ provides a level of consistency regardless of the number of regions desired for comparison. The $LQ$ measures level of coverage against an “absolute standard value”, while the Gini index is a measure of “equality” of physician coverage among different regions. Both differentiate from a pure physician-to-population ratio, which only compares regions to each other without any true guideline of what is “acceptable” to begin with. The formula for the Location Quotient illustrates the close relationship with the physician-to-population ratio, as follows:
\[
\text{LQ} = \frac{P_i}{\text{pop}_i} / \left( \frac{P_{\text{tot}}}{\text{pop}_{\text{tot}}} \right) \quad \text{where:} \quad \text{LQ} = \text{location quotient for region } i
\]

\[
P_i = \text{number of physicians in region } i
\]

\[
\text{pop}_i = \text{population of region } i
\]

\[
P_{\text{tot}} = \text{total number of physicians in all regions}
\]

\[
\text{pop}_{\text{tot}} = \text{total population in all regions}
\]

Translating the formula above, the physician-population ratio for a specific region is divided by the physician-population ratio for all regions, resulting in the LQ value (Anderson, Rosenberg 1990). The result is a common denominator that accounts for the ratio of the entire region within each calculation, to provide a basis for comparison. The first “half” of the equation \( \left( \frac{P_i}{\text{pop}_i} \right) \) represents the original physician-population ratio value, which does not consider surrounding regions when calculated separate from the LQ formula.

### 3.3.3 Full-Time Equivalent (FTE)

Rather than counting physicians on a per-person basis, it has become increasingly common to measure physician resource availability using the Full-time Equivalency (FTE) approach. The FTE method is utilized by research authorities such as the National Physician Database (NPDB), and entails calculating available physician workforce based on total annual payments compared to defined FTE payment benchmarks (Pong, Plitbado 2005). The perceived advantage to this method is the measurement of actual production (in the form of patients treated), rather than simple headcounts that may not account for part-time physicians, variances among physicians’ workload, etc. The equivalent of “1” FTE is when the physician’s total payments are between the total payment values at the 40\(^{th}\) and 60\(^{th}\) percentiles for the physician’s province-specific medical speciality group, rather than based on number of hours worked (Pong, Plitbado 2005).

Experience has revealed that although the FTE method is a closer measure of “reality” than pure headcounts, there are still shortcomings that persist. The most significant disadvantage, based on the experiences of numerous medical organizations, is that the FTE method is dependent
on a fee-for-service payment system (Pong, Plitbado 2002). Within a region, if any family physicians or specialists were paid based on a salary and/or incentives (i.e. non fee-for-service, including clinics), then their production and contribution to medical treatment in the region was not included in the FTE estimates (Pong, Plitbado 2002). In addition, the measure does not reflect important details, such as whether a physician is working extra hours to meet patient demand, or having to turn away patients in what may be an underserviced area.

The FTE measure does provide opportunity for elaboration and expansion, depending on interpretation. More specifically, data may be examined based on the number of FTE physicians established in a region (actual production of services within a region, regardless of the origin of the patients), or based on FTE physicians available in a region (regardless of where the physicians are established). In terms of patient consumption, the volume of medical services consumed by the population is convertible into FTE physician estimates, providing a framework for the medical needs of a region (Pong, Plitbado 2001). The FTE method is not all-inclusive as a measure, but considered more dependable when compared to using headcounts to estimate physician coverage (Pong, Plitbado 2002).

The lack of a “comprehensive” measure of physician coverage is a testament to the complexity of health care delivery assessment, contrary to the straightforward principle of providing enough physicians to meet the needs of regions that contain the lowest density of people. The complexity does not end at physician coverage measurement, as will be discussed in the next section.

3.4 From counting to forecasting: PRET (Physician Resource Planning Template)

In addition to measuring current physician coverage, policy-makers and the medical community face the challenge of forecasting the demand of physician services. The Canadian Medical Association developed a physician workforce projection tool in the mid-1990s to deal with this issue. Known as the Physician Resource Planning Template (PRET), this spreadsheet-based tool utilizes broad categories of variables to determine the projected size of the available pool of physicians in Canada (Chan 2003). The database is updated annually, based on attrition figures, and are categorized based on age, sex, and specialty (Pong, Buske & Nagarajan 2005). This tool also allows planners to alter scenarios to test both best-case and worst-case assumptions about the future of health care delivery.
Although PRET is a helpful tool that offers some flexibility in physician workforce forecasting, it does have limitations. For one, even though some variables may be included in the projection model, some cannot. For instance, the impact of the removal of a medical school tuition scholarship program on the rural workforce in an area cannot be included or measured in the PRET model, since the impact will essentially be a “delayed reaction”, rather than an immediate one (Pong, Buske & Nagarajan 2005).

In addition, the PRET projection model can forecast the number of physicians based on either headcounts or FTEs, but the characteristics of their practice are limited to strict definitions (i.e., cannot predict how many family physicians will also provide some specialty services), which could significantly alter the outcome model (Chan 2003). Also incorporated into this model is the aforementioned limitation of measuring physician coverage by using population-to-physician ratios or population-to-FTE ratios. Nonetheless, PRET gives both the medical community and policy-makers a tool that provides a general forecast of the physician workforce outlook for up to 20 years in the future. As measures are improved and elaborated, the utility of a projection tool such as PRET will likely also improve.

3.5 The future of methodology in policy assessment

With the numerous measures of health care delivery and physician coverage available, the question arises as to which measures should be included in the goals of physician recruitment policy. Although there is no single measure that will address all of the shortcomings that exist with current measures, some are more proficient than others.

One such method is access modelling, which identifies a target level of access to services based on age-sex-adjusted utilization rates in previous years for a region (Chan, Barer 2000). This model provides an estimation of current service demands, at a more customized level than “blanket” measures such as population-physician ratios. Just as importantly, this model accounts for variations in patient usage (or “consumption”) and establishes an estimate of “reasonable workload” for each physician and specialist, based on the historical average services per physician in an area (Chan, Barer 2000). The age-sex adjustment helps account for any demographic changes in a region, adding a dimension of customization that is not available with all-encompassing ratios. The monitoring of service demands is based on having an expert panel identify the key services and procedures most frequently used, then determining the minimum acceptable level of access to each. Comparisons between the current level of access and the pre-defined standards are then completed (McKendry 1999). The drawback to this method is the data
intensive nature of monitoring health service demands and delivery for each physician, clinic, and hospital in every community. In the long-term, the substantial time and money invested does have the potential to produce a more accurate and thorough portrayal of the medical needs of a community.

Another component to effective measurement is flexibility, which in terms of measurement of physician coverage would be the ability to assign different degrees of “isolation” or “rurality” to add another dimension of customization to identification of underserviced areas (Public Health Agency of Canada 2002). Density (of population) and “real” distance (to the nearest physician) are the basic ingredients to any such scale of “rurality”, but additional factors such as distance to other areas of “population threshold” (e.g., distance to nearest regional hospital, or town with at least 5,000 people) could factor into the basic variables for physician coverage. The most profound advantage to such a method is the separation and designation of two towns with a similar population size that have significant differences in proximity to other towns or small cities.

An additional revision in policy assessment is a relatively simple one: establishing a consistent method of counting physicians. Of the two major databases in Canada, the Southam Medical Database utilizes head counts of physicians without accounting for activity level, while the National Physician Database is dependent on fee-for-service billing to establish FTE data on physicians (Chan, Barer 2000). The fee-for-service model is already problematic in rural areas due to its dependence on a high volume of patients. Revising policy to phase out the fee-for-service payment system in rural areas would in turn distort the physician data, based on the National Physician Database definition (Pong, Plitbado 2002).

Therefore, an important starting point is to improve the measures used for policy assessment. Perfect standardization and comparison may be impossible, but improvement in the balance between measures that provide an “overview” with specific ones that reflect the uniqueness and needs at the community level should be the first step in the process of rural policy assessment.
4 Rural recruitment policies in Canada

4.1 Financial Incentives: Is money the primary motivation?

There are three primary methods of physician payment: fee for service, capitation (i.e., payment per patient per unit time for total care), and salary (Canadian Policy Research Network 2005). Most Canadian physicians receive payment on a fee for service basis. In theory, this form of payment rewards productivity, although critics claim it encourages physicians to perform a high volume of services while discouraging those not remunerated. Most of the large-scale rural financial incentive programs use the fee for service reimbursement method (Evans, Barer 2001). From the physician’s perspective, those that handle cases that are more complex are “shortchanged” in comparison to those that have a higher volume of “simple” cases. There are critics of the salary system as well. Some argue that salaried positions lack the flexibility to compensate when patient numbers increase significantly, and reduce accessibility from the patient’s perspective.

Financial incentives have been the cornerstone of rural physician recruitment policies in Canada. Numerous methods of financial reward have been implemented and/or suggested, such as: subsidized incomes, special grants or bonuses, travel allowances, fee schedules based on degree of isolation, etc. (Health Canada 2002). In Table 8 below are three examples of incentive programs, and their outcomes:

Table 8 Examples of financial and education incentive programs

<table>
<thead>
<tr>
<th>Program</th>
<th>Incentive method</th>
<th>Positive outcomes</th>
<th>Disappointments</th>
</tr>
</thead>
<tbody>
<tr>
<td>Underserviced Area Program (Ontario)</td>
<td>Primarily financial (some education)</td>
<td>Steady increase of physicians in program</td>
<td>Average tenure has been below expectations, highest turnover rate still in rural areas, inconsistent retention rates, overlapping of incentives causing competition among underserved areas</td>
</tr>
</tbody>
</table>
4.1.1 Incentive program assessment: Ontario

Of all the provinces in Canada, Ontario has the longest history of rural physician recruitment incentives, beginning with the Northern Incentive Grants in 1969 (Tepper et al. 2006). By having a record of accomplishment of almost 40 years and several incentive programs, Ontario provides a reference point in assessing recruitment and retention policy. It is therefore ironic that some researchers cite the extensive and overlapping nature of the incentive programs as making individual program assessment more difficult (Tepper et al. 2006). It is not surprising to find that it is the same researchers that recommend the overall approach of Ontario be more integrated, and less replicated.

Because there is not a consistent standard of measure for physician coverage and health care delivery, drawing conclusions from the existing programs (in Ontario, or other provinces) is especially problematic. Even the designation of whether an area has a physician “shortage” (inadequate number of physicians) or is “underserved” (disparity in physicians when compared to other areas) is subject to both the aforementioned methodological issues, as well as the complexity of determining which (if any) incentive programs are influencing which outcomes (Blythe, Baumann 2006).

Despite the complexity of measuring physician coverage, an analytic measure used by some researchers to monitor the Ontario incentive programs is the calculation of the physician

<table>
<thead>
<tr>
<th>Program</th>
<th>Incentive method</th>
<th>Positive outcomes</th>
<th>Disappointments</th>
</tr>
</thead>
<tbody>
<tr>
<td>Northwest Ontario Medical Program</td>
<td>Education</td>
<td>Recruitment rates were higher for students who participated in the program</td>
<td>Participants with an urban background continued to have a below-average recruitment and retention rate; only modest improvements in overall physician-population ratio</td>
</tr>
<tr>
<td>Northern Family Medicine Education Program (Newfoundland)</td>
<td>Education</td>
<td>Positive qualitative feedback from students, medical community; significant number of Newfoundland physicians from program</td>
<td>Overall loss of physicians to other provinces continues, including rural physicians (overall population loss provides a partial, but not complete explanation)</td>
</tr>
</tbody>
</table>
turnover rate in local communities. The major limitation of this measure is that it does not
determine whether a community has a "shortage" or is "underserved" to begin with, but
calculating the turnover rate does provide a measure of effectiveness for incentives already
distributed to current rural and remote area physicians (Tepper et al. 2006).

Otherwise, the majority of program assessments involve the aforementioned mainstream
measures such as population-to-physician ratio, location quotient, and Gini index. One study
noted that changes in the location quotient scores were a result of population change rather than
the number of physicians, illustrating a similar disadvantage as using the population-to-physician
ratio (Anderson, Rosenberg 1990). The same study presented the issue of whether to interpret
"unchanged" physician totals as being an indication of unsuccessful incentives, or as an
indication of maintaining the status quo, which may have declined without the incentives. Still
other studies conclude that the Ontario programs have been unsuccessful, based on use of the
Gini index measure over the span of several years (Kralj 2001). Defining how much change is
"significant" is somewhat subjective. Nonetheless, if the utilization of different measures
(location quotient, Gini index, turnover ratio, etc.) illustrates similar trends, then receptiveness to
alternative methods of measurement may supersede those that depend on a population-to-
physician ratio.

4.1.2 Underserviced Area Program (UAP)

In 1969 was the introduction of the initial rural physician recruitment initiative, the
Underserviced Area Program (UAP). The primary incentive of the initial program consisted of
grants up to $40,000 over four years for a physician to establish a practice in a designated
undersupplied area in Northern Ontario (Kralj 2001). In addition, 23 remote nursing stations (in
communities unable to support a physician) and a physician outreach program (additional
payment to physicians who regularly visit the nursing stations and remote medical clinics) were
also part of the initial program (Tepper et al. 2006). The breakdown of both the physician-to-
population ratio (1:962 in 1971 to 1:708 in 1986) and location quotient (.765 in 1971 to .791 in
1986) reflect modest improvement for the first 15 years of UAP, although the literature is
"consistently inconsistent" in assessing whether this improvement may be attributed to the UAP
or mere coincidence (Anderson, Rosenberg 1990). In addition, there is an education component
that includes bursaries and preceptorships to medical students that was temporarily discontinued
(from 1974-1978) due to only a 50% completion rate of the post-graduate service obligation in
rural areas (Anderson, Rosenberg 1990). Numerous other incentive suggestions have been
mentioned, and sometimes implemented, ranging from fee schedule increases based on breadth of practice and skills required, to a “rurality index” that structures compensation based on different degrees of isolation or “rurality” (Pong, Russell 2003).

As of 2005, the ratios in the north for general physicians were worse (1:1008) than in 1986, but better than the current ratio of Ontario as a whole (1:1179). In contrast, the ratio for specialists was by far the highest in the north (1:1662) compared to any other region of Ontario, including the overall provincial average (1:1078) (OPHRDC, 2005). The dilemma of measuring incentive policy effectiveness made more complex by choice of comparison: is improvement measured by comparison to the past or among other regions in the present. The statistics above demonstrate that “improvement” may be dependent on the measure used, and the basis for comparison.

Alternative measures of the effectiveness of UAP (and the numerous subsequent incentives implemented since 1969) have also reflected mixed results. Using the Gini Index (lower value=more even distribution of physicians) from the time frame of 1993 to 1998, northwest Ontario reflected a decrease in the Gini Index value of -1.35% for all physicians, but within this figure was an increase of +0.76% for family physicians (slightly less equal distribution). The improvement was specifically due to the distribution of specialists (-4.28% change), and ranked among the lowest scores throughout the province. In comparison to the entire province, the Gini Index scores for northwest Ontario were among the highest for family physicians, yet lowest for specialists (Kralj 2001). This implies that the distribution of general physicians in this region is not sufficient, while for specialists there is reasonable distribution in comparison to the rest of the province.

Other evaluations of the UAP program also reflect minimal improvement in the distribution ratios of physicians in Northern Ontario, despite the multifaceted financial incentives offered (Sempowski 2004). Based on physician ratios, no significant improvement was determined in comparing before and after the implementation of the UAP. The total number of rural physicians in Ontario slightly increased, but so had the totals throughout the province (Sempowski 2004). As of 2002, Ontario still had the third highest ratio of rural residents per family physician, at 1458 to 1 (Pong, Buske & Nagarajan 2005). Furthermore, recipients of rural financial incentives often will buy their way out of the service commitment, resulting in only short-term retention among those who do actually participate in such programs (Evans, Barer 2001). Additional critiques of the UAP include the “watered down” definition of an “underserviced area” (which includes areas of southern Ontario), and the lack of coordination
which has led to some incentive programs (and communities) competing against each other (Barer, Wood & Schneider 1999). Although there is some consensus that “mixing and matching” the payment methods of fee for service, capitation, and salary is the basis for fair and consistent reimbursement in the medical world, there is no such agreement (nor evidence) regarding rural physician financial incentives.

The overriding theme of much of the research on this topic suggests that, as noted earlier, rural incentives need to be more than just financial in nature: physicians from rural backgrounds are more likely to make long-term commitments to a rural practice (Pong, Russell 2003). Furthermore, the number of both family physician and specialist vacancies in rural northern Ontario almost doubled from 1996 to 2002, well within the timeframe of numerous financial incentives for rural relocation (Pong, Russell 2003). Their response has been a greater emphasis on the recruitment of students with a rural background, and greater exposure to rural areas for medical students, highlighted by the construction of the Northern Ontario Medical School (NOMS) (Pong, Russell 2003). Although it is too early to have conclusive results of the effectiveness of this project, the evidence and experience of many other nations with similar problems reflect the improved probability that rural-based medical schools that encourage the admission of rural-background students will have more success in graduating physicians that will establish themselves in rural areas (Rourke 2002).

4.1.3 Case Study: Thunder Bay, Ontario

The Northern Ontario region provides an opportunity to examine a relatively remote region that has been under the influence of numerous rural incentive policies for over 35 years. Geographically, there is some resemblance between Northern Ontario and Northern British Columbia, in the sense that it is isolated and detached from the population centre in the southern area of the province. Furthermore, the city of Thunder Bay represents the population centre of northern Ontario not unlike the role of Prince George within northern British Columbia, including being the base for the rural medical school program within the province. Both Thunder Bay and Prince George are about 700 kilometres from the nearest major metropolitan centre, and over 500 kilometres from the nearest town of 50,000 or more. These geographic similarities provide the basis for Thunder Bay as a comparative model to evaluate whether the long history of rural physician recruitment incentives in Ontario serve as a model for policies in British Columbia.

In terms of policy assessment, both Ontario and British Columbia currently have an extensive range of rural physician recruitment and retention incentives, with the primary
difference being that Ontario implemented most of their policies many years before BC, in most cases. Evaluation of the experiences of Ontario, and in particular the Thunder Bay region, provides some insight and lessons learned that may be helpful in assessing viable BC policy options later.

From the middle of the 20th century to the mid-1980's, the Thunder Bay region of Ontario showed improvement (i.e. reduction) in the physician-population ratio, ranging from 1:1159 in 1956 to 1:708 in 1986 (Anderson, Rosenberg 1990). In reference to the aforementioned methodology issues that plague measurement of physician coverage, the alternate measure of location quotient reflects a different trend in the same region, decreasing in value (i.e. “less” equal physician distribution) from .838 in 1956 to .791 in 1986 (Anderson, Rosenberg 1990). Although this is not a dramatic change, it is inconsistent with the perceived improvement reflected in the physician-to-population ratio trends.

Another measure of coverage, the number of full-time equivalent physicians (rather than headcounts) per 10,000 people, is an alternate method of measuring physician coverage that seems to tell a different story in the case of northwest Ontario. From the time period of 1993 to 2002, in northern Ontario the FTEs per 10,000 population ratio increased 4.9% (13.1% in Thunder Bay), and the actual number of general physicians per 10,000 increased 12.4% (27.9% in Thunder Bay). In comparison, both of these ratios decreased for Ontario as a whole: -4.2% for general physicians per 10,000, and -3.7% for FTEs per 10,000 (Chan, Schultz 2005). One factor to be included within these measures was an overall decrease in patient inflow within northwest Ontario (-3.8%) and Thunder Bay (-1.0%), in comparison to an increase in the Toronto area (+11.7%) (Chan, Schultz 2005). Although the “per 10,000” factors in population migration to some extent, it cannot account for other variables such as changes in demographics, economics, standard of living, and other health determinants which a shifting population may influence in both the short and long term. Exactly how much population migration explains changes in the population-to-physician ratio remains a source of debate, substantiating the need for additional measures of physician coverage and health care delivery.

An additional measure used to reflect retention, rather than recruitment, of physicians has been the “turnover ratio”, where the value of 0 equals no change and 100 equals complete turnover of physicians. Based on this criteria, from the period of 1993-2001 the northern region of Ontario (and rural areas in general) had the highest turnover rate for both general physicians and specialists within the province (turnover index score average for both categories=10.5), although there was a slight decrease when comparing the period of 1993-1996 (11) to 1997-2001.
The same measure for general physicians “large northern centres”, which includes Thunder Bay, was somewhat lower (7.5 average) than the rest of the rural north, but still higher than the urban centre average of 5.5. This same trend was reflected across the board for specialists, further illustrating the pattern and problem of lower population density translating into a higher physician (and specialist) turnover rate (Tepper et al. 2006). These trends were prior to the official opening of the Northern Ontario School of Medicine in Thunder Bay (Lakehead University) and Sudbury (Laurentian University), however (Rourke 2002). This new medical school aspires to improve both the recruitment and retention of rural physicians by integrating the rural lifestyle and unique challenges of rural medicine not addressed by financial incentives. On the other hand, there have been previous (albeit less complete) medical education programs in Ontario focusing on rural practice, such as the Northwestern Ontario Family Medicine (NOFM) training program created in 1991, Northern Academic Health Sciences Network in 1996, and the Rural and Northern Clerkship program since 2000 (Tepper et al. 2006).

### 4.2 Education-related Incentives: A better long-term answer?

There is the frequent perception that financial incentives are stopgap measures to the deeply rooted problem of rural physician recruitment. Attention has shifted to medical education incentives and scholarships to increase the number of rural physicians. A growing body of evidence in Canada, the United States, and Australia suggests that medical training programs located in rural areas with a special focus on rural medicine are more likely to produce rural medical practitioners (Pong, Russell 2003). Rather than luring urban-educated (or urban background) physicians and medical students by offering more money for a relatively short-term (2-5 years, generally) commitment, rural medical education offers an individual to become acclimated to the overall rural lifestyle. Although the rural lifestyle is not for everyone, the expectation is that the comfort level increases when his or her educational experience is within this environment. According to a medical student survey, there is a shortage of rural medical students in Canadian medical schools, accounting for only 11% of all students whereas the overall Canadian population is about 22% rural (Kwong, Challa, Irfan, et al 2005). Furthermore, rural students tend to be older, and from families of lower socioeconomic status than their urban counterparts (Kwong, Challa, Irfan, et al 2005). Based on a previous survey, the urban domination of medical schools has remained consistent, as 8.4% of Canadian medical students were of a rural background in the 1965/66 academic year (Dhalla et al. 2002).
Because rural medicine is more than just a career choice, but also a lifestyle choice, the education-related incentives are most effective when initiated at the pre-medical school level, and are inclusive of students who already have a rural background (Pong, Russell 2003). More specifically, studies indicate that medical students with a rural background are four times more likely to practice medicine in rural areas after graduation, and should be a recruitment target during the medical school selection process (Curran, Rourke 2004). Endorsing this recruitment strategy are organizations such as the Society of Rural Physicians of Canada (SRPC) and College of Family Physicians of Canada (CFPC). Recommendations also include a coordinated action plan to begin recruitment at the primary and secondary school level in rural, remote, and northern communities (Pong, Russell 2003). Ideas such as high school visits by rural physicians and medical students, university-based health science fairs, and work-study or summer student placements in rural hospitals are among the suggestions that may pique interest in rural youths and teenagers (Pong, Russell 2003).

4.2.1 Northern Ontario Medical Program (NOMP)

Another rural recruitment program that provides additional insight into the benefits of rural medical education is the Northwestern Ontario Medical Program (NOMP), established in 1972 as a partnership between the Thunder Bay and Northwestern Ontario medical societies and McMaster University in Hamilton, with financial support from the Ontario Ministry of Health (McCready 2004). The primary purpose of this program is to provide rural exposure to medical students via clinical rotations (for both undergraduate medical students and postgraduate residents). In the 25-year period from 1972-1997, among a total of 2335 students that completed the program, only 6.6% who participated only as undergraduates eventually established practice in Northwestern Ontario. On the other hand, 21.5% of postgraduates and 26.8% of those who participated as both undergraduates and postgraduates established their medical practice in Northwestern Ontario (McCready 2004). Although these percentages still represent a minority among NOMP students, overall these students were over 7 times more likely to set up their practice in Northwestern Ontario than non-NOMP medical students (McCready 2004).

In a more recent study, based on data from 1993-2001, the turnover rate of physicians in rural areas was almost double that of their urban counterparts (Tepper et al. 2006). Because of the many incentive programs in Ontario, this study was unable to isolate the influence of NOMP, but the overall trend of graduates of rural-based programs in Ontario has been a short-term stay (i.e., 4 years or less) in a rural community after graduation to fulfil their commitment (and avoid urban
“disincentives”) (Tepper et al. 2006). This trend led to the conclusion that “Northern Ontario is better at the recruitment of young physicians than it is at achieving long-term retention” (Tepper et al. 2006).

4.2.2 Newfoundland/Labrador

According to Statistics Canada, Newfoundland/Labrador has one of the higher percentages of rural residents in Canada (approximately 40%), so it is not surprising that the province has been proactive in its rural physician recruitment policy. The MedQuest program at Memorial University Medical School in St. John’s has been introducing high school students to rural medicine since 1990, and has received a generally positive response from both students and the medical community (Central Region Steering Committee for the Strategic Social Plan 2003). The same positive response, according to student surveys, has come from an expansion of medical student training to Goose Bay, Labrador (Northern Family Medicine Education program, or NorFam), also facilitated by Memorial University and offering a rural medical school experience (Jong, Beach 1997).

For existing physicians in Newfoundland, there have been a variety of programs involving physician recruitment and retention, as well as continuing medical education (Central Region Steering Committee for the Strategic Social Plan 2003). According to a recent report by the provincial government, the overall medical workforce statistics are “generally stable” and “meet system requirements” (Newfoundland/Labrador Department of Health 2004/2005). Nonetheless, noted in this report were the goals of the provincial government “action plan” as being to “complete a project to develop best practice standards for provincial physician recruitment and retention (funded by Health Canada)” (Newfoundland/Labrador Department of Health 2004/2005). Specific statistics within this report were inclusive of specialists and health professionals, but not general or family physicians. The evaluation within the report of these statistics was also quite vague, as indicated by the statement that “although national or other benchmarks for vacancy and turnover rates are few or non-existent, anecdotal and other evidence suggests that most of the figures shown are within acceptable limits” (Newfoundland/Labrador Department of Health 2004/2005). Conclusive evidence regarding the provincial programs may be elusive, but the corresponding program assessments seem to be inordinately vague in nature.
4.2.3 Case Study: Newfoundland (Memorial University)

Beginning in 1967, Memorial University of Newfoundland (MUN) in St. John’s established a medical school as a means to reduce the reliance on medical schools outside the province for physicians. Because Newfoundland is similarly isolated (in terms of distance to major urban areas) as northern BC or northern Ontario, and has the highest percentage of “rural” residents of any province, Memorial University serves as a noteworthy case study to evaluate results of rural education programs. Consistent with the rural character of Newfoundland, Memorial University has the highest percentage of rural background students of any Canadian medical school (Kwong, Challa, Irfan, et al 2005). An additional factor is the precedence of over 30 years of graduates from the Memorial University program, along with about 15 years from the affiliated Northern Family Medicine Education program (NorFam) in Labrador. Such graduate information is currently unavailable in British Columbia and Ontario due to the recent (2005) opening of rural medical schools in both provinces, with the first graduates not being until 2008.

The most comprehensive study on the Memorial University program was completed in 2004, where 1322 MUN graduates over a 25-year span (1973 to 1998) were tracked using the Southam Medical Database to determine the location of their existing practice (as of 2004) (Mathews, Rourke & Park 2006). The number and percentage of graduates working within Newfoundland, and within Canada represented the outcomes. Final tabulation demonstrated that 86.8% of MUN graduates were still working in Canada, and 30.7% (of all graduates) were practising within Newfoundland (Mathews, Rourke & Park 2006). The implications for health care delivery within the province were: of all physicians practising in Newfoundland, 52.6% were MUN graduates. Although the MUN medical program only produces about 60 graduates per year, over half of Newfoundland’s physicians are a result of their program (CIHI 2006). Furthermore, MUN graduates originally from Newfoundland (and with a rural background) were more likely to stay in the province (Mathews, Rourke & Park 2006).

In 1990, Memorial University developed a program to reach out to rural high school youths within Newfoundland, known as MedQuest. Viewed by many as an innovative and proactive tool for rural medical student recruitment, this program serves as a natural extension of the medical school by providing an early introduction to pique interest in the program among rural-based teenagers who, in the long term, are more likely to remain in rural areas after graduation (Barer, Wood & Schneider 1999). A survey of these students in 2003 resulted in 82.3% indicating that the program influenced their career choice, and 81.6% claiming the
program broadened their knowledge of careers in health professions (Central Region Steering Committee for the Strategic Social Plan 2003).

In 1992, the rural emphasis on medical education at Memorial University in St. John’s extended to Goose Bay, Labrador, in the form of the Northern Family Medicine Education program (NorFam), a 28-week program for MUN residents interested in rural medicine (Jong, Beach 1997). A survey five years after the program began (1997) showed a high percentage (91%) of graduates practising in rural areas (Jong, Beach 1997). In addition, 67% of the graduates evaluated NorFam as preparing them “very well” for a family practice in a rural area, although only 25% reported as practising within rural/remote Newfoundland and Labrador (Central Region Steering Committee for the Strategic Social Plan 2003). Within Newfoundland, the feedback from NorFam continues to be positive, as it has been referred to as a “successful teaching model” to the point that some interviews with physicians revealed “physician recruitment and retention was not considered a priority concern” (Tucker 2001).

Although the surveys (qualitative) and statements mentioned are noteworthy, comparative quantitative data will provide an alternative assessment of Memorial University’s rural medical education programs. Based on the standard (although flawed) method of physician-population ratios, statistics reflect a relatively steady rate of physicians per 10,000 people in Newfoundland from 2000-2005, ranging from 17.6 physicians/specialists per 10,000 in 2000 to 19.3 in 2005 (the overall rate in Canada was 19.0) (CIHI, 2007). However, when examining the net gain/loss of physicians in Newfoundland, the numbers tell a somewhat different story. In the same timeframe from 2000-2005, Newfoundland posted a net loss in physicians every year, ranging from -50 in 2000 to -28 in 2005 (CMA, 2006). This trend of net losses actually dates as far back as 1987, with the “best” year being a net of -17 physicians in 1989 (CMA, 2006). Below, in Table 9, is a summary of both the ratios (including for all of Canada) and net loss/gain of physicians at the provincial level for Newfoundland, British Columbia, and Ontario in recent years:
Table 9  Physicians (GP’s & specialists combined) per 10,000 population (and net migration of physicians)

<table>
<thead>
<tr>
<th></th>
<th>2000</th>
<th>2001</th>
<th>2002</th>
<th>2003</th>
<th>2004</th>
<th>2005</th>
</tr>
</thead>
<tbody>
<tr>
<td>Canada</td>
<td>18.8</td>
<td>18.8</td>
<td>18.9</td>
<td>18.7</td>
<td>18.9</td>
<td>19.0</td>
</tr>
<tr>
<td>Newfoundland</td>
<td>17.6</td>
<td>18.1</td>
<td>17.9</td>
<td>18.8</td>
<td>19.2</td>
<td>19.3</td>
</tr>
<tr>
<td></td>
<td>(-50)</td>
<td>(-40)</td>
<td>(-46)</td>
<td>(-30)</td>
<td>(-28)</td>
<td>(-28)</td>
</tr>
<tr>
<td>British Columbia</td>
<td>19.6</td>
<td>19.7</td>
<td>20.0</td>
<td>20.1</td>
<td>19.6</td>
<td>19.9</td>
</tr>
<tr>
<td></td>
<td>(+52)</td>
<td>(+91)</td>
<td>(+58)</td>
<td>(+83)</td>
<td>(+29)</td>
<td>(+125)</td>
</tr>
<tr>
<td>Ontario</td>
<td>18.0</td>
<td>17.9</td>
<td>17.9</td>
<td>17.7</td>
<td>17.7</td>
<td>17.6</td>
</tr>
<tr>
<td></td>
<td>(+120)</td>
<td>(+87)</td>
<td>(+2)</td>
<td>(+61)</td>
<td>(+27)</td>
<td>(-38)</td>
</tr>
</tbody>
</table>


Another source of physician information, from the Society of Rural Physicians of Canada (SRPC), isolates the number of rural physicians in each province based on Canadian Medical Association (CMA) data. Table 10 below summarizes the total number of rural physicians from 1996 to 2005 (recorded approximately every other year), using the CMA definition of “rural” as areas outside of urban areas over 10,000 population:

Table 10  Number of rural physicians (GP’s only) by region and year

<table>
<thead>
<tr>
<th></th>
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<th></th>
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<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Canada</td>
<td>4758</td>
<td>4775</td>
<td>4979</td>
<td>5242</td>
<td>5163</td>
</tr>
<tr>
<td>Newfoundland</td>
<td>309</td>
<td>254</td>
<td>268</td>
<td>303</td>
<td>284</td>
</tr>
<tr>
<td>British Columbia</td>
<td>534</td>
<td>567</td>
<td>582</td>
<td>639</td>
<td>640</td>
</tr>
<tr>
<td>Ontario</td>
<td>1051</td>
<td>1022</td>
<td>1016</td>
<td>1088</td>
<td>1027</td>
</tr>
</tbody>
</table>

Source: SRPC (2005)
Isolating these rural physician numbers also reflect an overall decrease in Newfoundland (and Ontario), so whether using ratios or totals, these statistics present a challenge to the notion that the recruitment and incentive programs at Memorial University are as successful as implied by policy-makers and decision-makers within Newfoundland. There is no clear-cut success or failure based on this data, as one could argue that (in Table 9) Newfoundland’s physician per 100,000 population ratio did improve from 2000 (176) to 2005 (193), rising from below to slightly above the national average in the process, although this statistic is inclusive of both urban and rural areas. Specific to rural areas, the net loss of rural physicians from 1996 to 2005 (Table 10) poses as a cause for concern, especially when compared to the overall increase in rural physicians across Canada: only Newfoundland and Ontario had a decrease in the number of rural physicians in this timeframe, including the other Atlantic Provinces (SRPC, 2005). An overall decrease in population in Newfoundland is a potential partial explanation, with census counts reflecting an overall net migration out of the province at -7% from 1996-2001 (Statistics Canada, 2006). British Columbia showed an increase in both the number of rural physicians and overall population (+ 4.9%) during the same timeframe. On the other hand, the population in Ontario increased (+ 6.1%) while experiencing the decrease in rural physicians, which somewhat diminishes the association of population migration and rural physician totals.

As is the case with Ontario, the outcomes in Newfoundland are inconclusive, depending on the interpretation of different measures of physician coverage that are standardized but imperfect and incomplete. Some data (particularly qualitative, from the MUN programs) show positive results, while other sources (primarily quantitative, from across the province) reveal improving ratios contrasted with a continued net loss of physicians and medical students to other provinces. Positive feedback from medical student surveys serve as encouraging evidence of the design and execution of an education program, but do not necessarily serve as evidence of improvement in rural physician retention.

The conflicting and inconclusive quantitative data may be a reflection of the difficulty in conducting a comprehensive assessment of physician recruitment and retention policy, as well as the overstated “success” of such programs by their creators and administrators. The primary consistency throughout the literature regarding recruitment policy assessment is ambiguity: statements proclaiming the need for “further research”, and the determination that “not a single approach will serve all research or planning purposes” (Pong, Plitbado 2001). A second trend is the suggestion that policies, incentives, and their assessment be “multi-faceted” and “multi-
dimensional”. With no single “correct” measure of physician distribution yet developed, inclusion and continued refinement of different measures which address the “complex interrelationships between physician availability, utilization, and health status” are recommended (Pong, Plitbado 2002). Historical data within a province may be incomplete without including comparative data to other provinces (and regions) with similar characteristics. Over-reliance on standard measures such as the population-physician ratios may be one-dimensional, but are included since they are the standard measure throughout most statistical assessments of physician distribution.

With the experiences and various measures of policy assessment in Ontario and Newfoundland as the background and basis for comparison, a first-hand investigation and evaluation of British Columbia rural recruitment and retention policies is the next step in the research project. Utilizing the standardized measures of population-per-physician ratio, physicians per 10,000 (or 100,000) population, the Gini Index, and physician turnover ratio will provide the quantitative dimension of this localized research. Interviewing current physicians, as well as regional health authority employees involved in recruitment in rural BC, will serve as the qualitative portion and aspire to obtain a balanced assessment of policy options for the future of our province.

4.3 Immigration Policy: An indirect but overlapping influence

An overriding influence on physician placement and recruitment is Canadian immigration policy regarding international medical graduates (IMGs). Because of the frequent “disconnect” in policy between immigration requirements and provincial medical certification (and examination) standards, many IMGs immigrate to Canada only to find they are unable to obtain a license to practice. The “backlog of an unknown number of IMGs, currently residing within Canada…who are not able to upgrade their skills, or are unable to seek remediation due to lack of an integrated system for the process of verifying existing credentials” is worthy of further investigation (Dauphinee 2005). Most do not take their skills examination until they land in Canada, and often find that there is limited opportunity to access additional training because of limited public funding (Dauphinee 2005). The Kirby report4 addressed this “loophole” in 2002. Their specific recommendation was that the “federal government work with the provinces to establish national standards for the evaluation of international medical graduates, and provide ongoing funding to implement an accelerated program for the licensing of qualified IMGs and their integration into the Canadian health care delivery system” (Kirby 2002). This proposal remains no more than a

4 See Section 2.3.3 for additional information on Kirby report
recommendation, although discussion on the issue lingers among the provincial and federal government. A noteworthy counterpoint to this issue, from a rural-based perspective, is the court case decision (Waldman vs. British Columbia⁵, 1996) that prohibits the province from enforcing mandatory relocation (or fee schedule penalties) of physicians to underserved (primarily rural) areas. The eligibility of existing IMGs in Canada may improve the overall physician supply, but not necessarily the rural supply, since they have no legal obligation to locate in rural areas. Although the number of foreign-certified physicians in Canada prohibited from practising is a significant untapped resource that requires attention, it is not a focus of this project since it is a national problem not specific to rural areas.

The obstacles presented to IMGs actually began in the late 1970s, due to the perception that there was an over-abundance of physicians in Canada. This led to cutbacks in Canadian medical school enrolment through the late 1990s, as well as shifting the immigration status of IMGs from preferred to restricted (Dauphinee 2003). The reduction of a significant source of physicians affects underserviced areas, including rural Canada. As noted in Figure 6 below, IMGs that establish themselves in rural areas largely come because of specific employment offers made before they immigrate. Foreign-trained doctors can obtain a work permit (light-coloured portion of each bar in Figure 6), if employers are willing to undertake a complicated process (Dauphinee 2005). In contrast, the majority of IMGs that do not have arranged employment (dark-coloured portion of each bar in Figure 6) will typically gravitate to the large cities for the long-term, often to be near relatives and friends from their homeland (and sometimes will be sponsored by family) (Dauphinee 2005). Within Ontario, for example, the percentage of general physicians foreign-trained and practising in a rural area or northern large towns was approximately 13%, compared to representing 22% of all physicians in urban centres (Tepper et al. 2006). Divided by province, the bars on the graph illustrate a consistent pattern of a larger percentage of arranged employment (light-coloured) where there are a higher percentage of rural areas. Without pre-arranged employment, their presence is more likely to be in urban areas. A more “elastic” immigration policy that includes a pre-migration assessment and specialized education may improve IMG assimilation, and increase their overall presence in Canada (Dauphinee 2005). For rural Canada, however, the same retention issues are likely to arise with IMGs as with native-born physicians, presuming the recognition of foreign credentials: gravitation towards urban areas.

⁵ See Section 5.1 for complete ramifications of Waldman vs. British Columbia
In addition to the legal obstacles presented to IMGs in Canada, there are ethical issues to consider when “importing” physicians. The migration of physicians out of an underdeveloped or developing nation into a developed nation such as Canada may cause greater hardship in the nation of origin, as the presence of medical professionals may likely determine life or death (particularly where civil war, an economic crisis, drought, or other domestic strife exists). A specific example is the relatively high percentage of physicians migrating from South Africa to Canada. This trend became significant enough a few years ago to warrant the high commissioner of South Africa to appeal to Canada’s ministers of health to refrain from targeting their country for physician (and other health professional) recruitment. Canada acknowledged the request, and declined to open an examination centre in South Africa (Dauphinee 2005).

Figure 6 Landed immigrants in Canada (with a medical background) with/without arranged employment

![Graph showing landed immigrants in Canada with/without arranged employment.](image)

Source: CIHI, Scott’s Medical Database (2001)
5  Physician Recruitment Policy in British Columbia

5.1  A brief history

The recent history of rural physician initiatives in BC dates back to 1978, with the beginning of the “Northern and Isolation Allowance” program. This incentive still exists (with some modifications) today. The basis of the incentive was financial, with a fee-for-service bonus for physicians in remote areas that was proportional to their distance from the nearest hospital (BCMA 2004).

In the early 1980s, a “Subsidized Income Program” provided physicians with bonuses that guaranteed a minimum level of income, incorporating a salary structure rather than the typical fee-for-service model of payment (Barer, Wood & Schneider 1999). This enabled some remote communities to employ physicians, although overall this method was not seen to be cost-effective (i.e. not all communities were in need of a full-time physician year round). This resulted in the termination of the program in 1994, as one of the casualties of the provincial budget cutbacks.

An additional program was established in the early 1980s that provided a variation of reimbursement for physicians paid by a means other than fees-for-service: the Alternative Payments Branch (APB) of the BC Ministry of Health (Government of British Columbia April 2006). The APB paid subsidies to fee-for-service physicians willing to practice in rural communities. The $125 million budget of this program was available to regional health authorities that contracted to physicians willing to provide services in rural and remote communities. More specifically, a health authority may negotiate non-fee-based service agreements with physicians, and then submit claims to APB (Barer, Wood & Schneider 1999). Only six communities were using this program upon termination in 1995 (Barer, Wood & Schneider 1999).

In the mid-1990s, the Ministry of Health established the Northern and Rural Locum program, providing locum services to remote communities. This program allows temporary relief for rural physicians so they may take a vacation, utilize educational opportunities, etc. The locum physicians receive a guaranteed daily income, plus travel expenses and a monthly retainer (Barer,
Wood & Schneider 1999). In addition, the Central Physician Recruitment Assistance Program was established in 1996, operated by the Health Employers Association of BC (HEABC), in order to assist rural communities in the recruitment of both permanent and locum physicians. However, the rural-urban dilemma that plagues physician placement also often applies to those willing and able to fill in as locums. More specifically, the locum opportunities in urban areas are usually preferred, as opposed to establishing new rural practices or accepting rural locum assignments (Barer, Stoddart 1999).

The most controversial policy that British Columbia has implemented in the recent past was the Interim Physician Supply Measure (IPSM) in 1994, later established as the Permanent Physician Supply Measure (PPSM) in 1996 (Government of British Columbia April 2006). The basis for this program was financial incentives, with a specific fee schedule based on the location of a newly established practice, in contrast to providing bonuses or guaranteed salaries to physicians that volunteered to relocate to rural and remote areas. In order for a new physician to qualify for the full “100%” fee schedule, they were required to set up in an underserved (rural or remote) area of the province. The closer a physician located to an urban (or less isolated) area, the lower their fee schedule would be, with the minimum being at 50% of the full fee schedule (Government of British Columbia April 2006). In order to incorporate some level of seniority within the program, a “point” system was established where new physicians would earn 20 points per year outside of the underserved (100% fee schedule) areas, so that after 5 years of service they became eligible for the 100% fee schedule regardless of their geographic location (Barer, Wood & Schneider 1999). However, the PPSM program turned out to be short-lived, as three physicians filed a legal petition against the BC Medical Services Commission (Waldman vs. British Columbia, 1996) claiming that the PPSM program violated various rights and conditions within the Canada Health Act (“provinces must provide reasonable compensation for all insured health services”). Alleged violation of the Canadian Charter of Rights and Freedoms was also part of the petition (“right to mobility, life, liberty, security of person, and equality”) (Barer, Wood & Schneider 1999). The physicians won the case, and the PPSM program came to an abrupt end. The effectiveness of the program was questionable even before the legal challenge, considering many physicians had to choose their practice location based on the PPSM guidelines instead opted for locum opportunities, in order to receive full pay (plus the aforementioned bonuses and incentives for rural locums).
5.2 Current incentives and programs

In the present, as was the case in the recent past, British Columbia continues to have an extensive list of incentive programs to encourage rural physician recruitment and relocation (Table 11), as well as a multidimensional point system to “measure” isolation (Table 12):

Table 11 Current rural incentive programs in British Columbia

<table>
<thead>
<tr>
<th>PROGRAM</th>
<th>DETAILS</th>
</tr>
</thead>
<tbody>
<tr>
<td>Rural Retention Program</td>
<td>• Annual retention premiums are paid to physicians working in eligible Rural Subsidiary Agreement (RSA) communities</td>
</tr>
<tr>
<td></td>
<td>• 30% of the isolation points assessed are paid as a flat fee, 70% of the isolation points assessed are paid as a fee premium, physicians compensated other than FFS will receive an equivalent payment of the isolation points assessed</td>
</tr>
<tr>
<td></td>
<td>• Premium totals are based on a community’s number of isolation points</td>
</tr>
<tr>
<td>Isolation Allowance Fund</td>
<td>• An isolation allowance fund is available for physicians providing necessary medical services in eligible RSA communities with fewer than four physicians, no hospital and who do not receive on call, call-back, or Doctor of the Day payments</td>
</tr>
<tr>
<td>Northern &amp; Isolation Travel Assistance Outreach Program</td>
<td>• Provides travel assistance to approved physicians visiting rural and isolated communities to provide medical services</td>
</tr>
<tr>
<td></td>
<td>• Provides a travel time honorarium for approved visits by specialists and family medicine physicians</td>
</tr>
<tr>
<td>Rural GP Locum Program</td>
<td>• Supports and enables rural general practitioners to have periods of leave from their practices for continuing medical education, vacation, and health needs</td>
</tr>
<tr>
<td>PROGRAM</td>
<td>DETAILS</td>
</tr>
<tr>
<td>---------------------------------------------</td>
<td>----------------------------------------------------------------------------------------------------------------------------------------</td>
</tr>
</tbody>
</table>
| Rural Education Action Plan                 | - Supports and facilitates training needs of physicians and students in rural practice  
                                          |   - Funds the Advanced Skills Program for rural physicians  
                                          |   - Supports training opportunities for urban physicians wanting to take rural locum opportunities                                               |
| Specialty Training Bursary                  | - Provides funding for residents in exchange for a commitment to practice in an eligible RSA community                                                                                   |
| Rural Continuing Medical Education          | - Provides rural physicians with enhanced CME funding up to $5,200/year  
                                          |   - Funding per physician is determined by the level of isolation and the length of service in that community                                      |
| Recruitment Incentive Fund                  | - Funding for physicians recruited to fill current or pending vacancies  
                                          |   - Physicians are eligible for up to $10,000                                                                                           |
| Recruitment Contingency Fund                | - Additional funding to assist communities, health authorities or physician groups where the difficulty in filling a vacancy is, or is expected to be, especially severe and where the failure to fill the vacancy in a timely manner will negatively impact the delivery of care |
Table 12  British Columbia Medical Isolation Point Rating System

<table>
<thead>
<tr>
<th>Medical Isolation and Living Factors</th>
<th>Points</th>
<th>Max Points</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Number of designated Specialties</strong> (General Surgery, Orthopaedics, Paediatrics, Internal Medicine, Obstetrics/Gynecology, Anaesthesia, Psychiatry, and Radiology) <strong>within 70km:</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>0 specialties within 70km</td>
<td>60</td>
<td></td>
</tr>
<tr>
<td>1 specialty within 70km</td>
<td>50</td>
<td></td>
</tr>
<tr>
<td>2</td>
<td>40</td>
<td></td>
</tr>
<tr>
<td>3</td>
<td>20</td>
<td></td>
</tr>
<tr>
<td>4+</td>
<td>0</td>
<td>60</td>
</tr>
<tr>
<td><strong>Number of General Practitioners within 35 km:</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Over 20 practitioners within 35 km</td>
<td>0</td>
<td></td>
</tr>
<tr>
<td>11-20</td>
<td>20</td>
<td></td>
</tr>
<tr>
<td>4-10</td>
<td>40</td>
<td></td>
</tr>
<tr>
<td>0-3</td>
<td>60</td>
<td>60</td>
</tr>
<tr>
<td><strong>Community Size (if larger community within 35km, then larger population is considered):</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>30,000+</td>
<td>0</td>
<td></td>
</tr>
<tr>
<td>10,000-30,000</td>
<td>10</td>
<td></td>
</tr>
<tr>
<td>5,000-9,999</td>
<td>15</td>
<td></td>
</tr>
<tr>
<td>&lt;5,000</td>
<td>25</td>
<td>25</td>
</tr>
<tr>
<td><strong>Distance from Major Medical Community (Kamloops, Kelowna, Nanaimo, Vancouver, Victoria, Abbotsford, Prince George):</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>First 70km road distance</td>
<td>4</td>
<td></td>
</tr>
<tr>
<td>Each 35km over 70km</td>
<td>2</td>
<td></td>
</tr>
<tr>
<td>To maximum of...</td>
<td>30</td>
<td>30</td>
</tr>
<tr>
<td><strong>Degrees of Latitude:</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Communities between 52-53 latitude</td>
<td>20</td>
<td></td>
</tr>
<tr>
<td>Communities above 53 latitude</td>
<td>30</td>
<td>30</td>
</tr>
</tbody>
</table>
### Medical Isolation and Living Factors

<table>
<thead>
<tr>
<th>Specialist Centre:</th>
<th>Points</th>
<th>Max Points</th>
</tr>
</thead>
<tbody>
<tr>
<td>3 or 4 designated specialties in physician supply plans</td>
<td>30</td>
<td></td>
</tr>
<tr>
<td>5-7 designated specialties in physician supply plans</td>
<td>50</td>
<td></td>
</tr>
<tr>
<td>8 designated specialties and more than one specialist in each specialty as set out in the physician supply plan</td>
<td>60</td>
<td>60</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Location Arc:</th>
<th>Points</th>
</tr>
</thead>
<tbody>
<tr>
<td>Communities in Arc A (within 100 km air distance from Vancouver)</td>
<td>0.10</td>
</tr>
<tr>
<td>Communities in Arc B (100-300 km air distance from Vancouver)</td>
<td>0.15</td>
</tr>
<tr>
<td>Communities in Arc C (300-750 km)</td>
<td>0.20</td>
</tr>
<tr>
<td>Communities in Arc D (over 750 km)</td>
<td>0.25</td>
</tr>
</tbody>
</table>

Source: British Columbia Ministry of Health, 2004

Although current BC policies seem to cover the fundamental categories of other rural recruitment attempts throughout Canada (financial, educational, and market-based incentives), the mixed results of these policies also mirror the general experience of the rest of Canada in addressing the rural physician shortage (Evans, Barer 2001). For example, most provinces (including BC) which provide return-of-service-tied grants and loans to medical students who commit to rural service after graduation experience a high rate of "buyouts" by the student, thereby escaping their rural service commitment (Barer, Wood & Schneider 1999).

### 5.3 Competitive bidding: does it matter?

By nature, financial incentives often pose the dilemma of whether to "out-bid" another region or province for rural physicians. The interview with the regional health authority in BC (Section 6.1.1) suggested that, in BC, there is reasonable effort made to remain consistent among the health regions, to avoid a "vacuum" effect in areas that may not be able to offer as enticing of an incentive package as other underserved areas. This approach is more financially prudent. On the other hand, those who disagree with this approach may argue that if all incentives are similar across a region or province, then they are less likely to relocate to the most remote or the poorest communities, creating inequities even though the financial spending is uniform throughout the area. The goal of the incentive is to add physicians (or at least fill vacancies) in underserved areas, but similar incentives may unknowingly become a "push" towards the larger regional
centres and less-isolated communities, particularly if other variables (such as cost of living, lifestyle, etc.) do not vary considerably. In other words, candidates offered similar financial incentives regardless of how “rural” the area is might ignore the degree of medical necessity in the remote and isolated communities.

This competition and potential “bidding war” still happens at the provincial level, although the incentive packages are relatively similar across Canada, with lifestyle and quality-of-life variables being a more considerable “push” or “pull” factor than moderate differences in rural incentives. Nonetheless, because BC is the neighbour to the wealthiest province in Canada (Alberta), there is a need to remain conscious of whether that wealth is translating into a migration of physicians eastward, potentially offsetting the comprehensive set of incentives that now exists here. Table 13 summarizes the Rural Physician Action Program (RPAP) for comparative purposes to BC (Table 11). To examine the migration trends between BC and Alberta, Table 14 illustrates the number of physicians, residents, and specialists that have migrated between the two provinces, from 2001-2005. Table 15 provides a comparison of the population-physician ratios ranging from 1998 to 2005, as an alternative (albeit flawed, as mentioned in Section 3) method of comparing physician coverage in each province.

Table 13  Current rural incentive programs in Alberta (Rural Physician Action Program)

<table>
<thead>
<tr>
<th>PROGRAM</th>
<th>DESCRIPTION</th>
</tr>
</thead>
<tbody>
<tr>
<td>Enrichment Program</td>
<td>• Honorarium of $76,000 per year (12 month maximum, prorated for length of training)</td>
</tr>
<tr>
<td></td>
<td>• Classes at University of Alberta, University of Calgary</td>
</tr>
<tr>
<td>Rural Medical Student Bursary</td>
<td>• Medical school tuition for qualifying medical student with rural background (minimum 5 of their last 7 years before school in a “rural” area of Alberta)</td>
</tr>
<tr>
<td></td>
<td>• 5 year return in service agreement in rural Alberta after graduation</td>
</tr>
<tr>
<td>Rural Medical School Award</td>
<td>• $5,000 per academic year, per student</td>
</tr>
<tr>
<td>PROGRAM</td>
<td>DESCRIPTION</td>
</tr>
<tr>
<td>---------------------------------</td>
<td>---------------------------------------------------------------------------------------------------------------------------------------------</td>
</tr>
</tbody>
</table>
| Recruitment Expense Program     | • Reimburse rural RHA's up to $3000 per interviewed recruit for interview expenses  
                                  | • Honorarium to newly recruited rural physician of $1500 per week ($6000 maximum) during completion of licensure requirements (and $500-1250 per week to RHA, $5000 maximum) |
| Recruitment and Retention Grant | $10,000 per community (limit of every 3 years) for short-term recruitment projects                                                          |
| GEMS (General Emergency Medicine Skills) | Self-study multi-media training program (primarily online)                                             |
| Physician Locum Services         | • Relief for communities with 4 or less physicians (maximum of 4 weeks per year, per physician)                                            |
|                                 | • Weekend relief (limit emergency shifts to no more than 1 of every 4 weekends)                                                              |
|                                 | • Seniors enhancement (physicians >54 years, >9 years in AB, and in community of <16 physicians have option to reduce or eliminate weekend hospital calls) |
| Royal College Re-entry position | One position per year in speciality training program                                                                                       |
| SEARCH Program                  | Training program to assist health professionals (including physicians) in conducting research on “priority” health projects affecting their community |

(Swift Efficient Application of Research in Community Health)
Table 14  Migration of active Physicians (including Specialists and Residents) Between Alberta and British Columbia, 2001-2005

<table>
<thead>
<tr>
<th></th>
<th>2001</th>
<th>2002</th>
<th>2003</th>
<th>2004</th>
<th>2005</th>
<th>Cumulative Gain /Loss, 2001-2005</th>
</tr>
</thead>
<tbody>
<tr>
<td>British Columbia</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>(net practising physicians, from all provinces)</td>
<td>+125</td>
<td>+103</td>
<td>+86</td>
<td>+26</td>
<td>+125</td>
<td>+465</td>
</tr>
<tr>
<td>(number of physicians moved to Alberta, net practising physicians between BC &amp; AB)</td>
<td>37 (+29)</td>
<td>45 (+6)</td>
<td>38 (+20)</td>
<td>35 (Even)</td>
<td>24 (+36)</td>
<td>179 (+91)</td>
</tr>
<tr>
<td>Total Population (million)</td>
<td>3.907</td>
<td>4.115</td>
<td>4.155</td>
<td>4.203</td>
<td>4.257</td>
<td>+.350 (+350,000)</td>
</tr>
<tr>
<td>Alberta</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>(net practising physicians, from all provinces)</td>
<td>+46</td>
<td>+117</td>
<td>+35</td>
<td>+37</td>
<td>+30</td>
<td>+265</td>
</tr>
<tr>
<td>(number of physicians moved to BC, net practising physicians between AB &amp; BC)</td>
<td>66 (-29)</td>
<td>51 (-6)</td>
<td>58 (-20)</td>
<td>35 (Even)</td>
<td>60 (-36)</td>
<td>270 (-91)</td>
</tr>
<tr>
<td>Total Population (million)</td>
<td>2.974</td>
<td>3.116</td>
<td>3.161</td>
<td>3.207</td>
<td>3.277</td>
<td>+.303 (+303,000)</td>
</tr>
</tbody>
</table>
Table 15  Physician Distribution ratios in Alberta and British Columbia for 1998, 2002, 2005

<table>
<thead>
<tr>
<th></th>
<th>1998</th>
<th>2002</th>
<th>2005</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>British Columbia</strong> &lt;br&gt; (population per General Physician [GP], overall)</td>
<td>940</td>
<td>914</td>
<td>904</td>
</tr>
<tr>
<td><strong>British Columbia</strong> &lt;br&gt; (population per GP, rural areas only)</td>
<td>1017</td>
<td>843</td>
<td>842</td>
</tr>
<tr>
<td><strong>Alberta</strong> &lt;br&gt; (population per General Physician [GP], overall)</td>
<td>1167</td>
<td>1036</td>
<td>983</td>
</tr>
<tr>
<td><strong>Alberta</strong> &lt;br&gt; (population per GP, rural areas only)</td>
<td>1459</td>
<td>1264</td>
<td>1217</td>
</tr>
</tbody>
</table>


The trends reflected in Table 14 are reflective of the growth in both provinces, as both have consistently increased their overall medical staff to keep up with the westward migration of Canadians. As reflected in Table 13, Alberta also offers a comprehensive rural incentive plan (Rural Physician Action Plan) that includes financial incentives and rural exposure during medical school and residency (Wilson, Woodhead-Lyons & Moores 1998). However, in comparison to BC, there seems to be more emphasis on continued medical education (Enrichment Program, GEMS, and SEARCH in Table 13), and less on isolation “bonuses” for current physicians. The recruitment incentives (Recruitment Expense Program, Recruitment and Retention Grant) are competitive, but the number of medical student scholarships (10 maximum

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6 Because this measure is population per physician (not vice versa), a lower value is desirable
per year of the Rural Medical Student Bursary, 2 per medical school of the Rural Medical School Award) is low compared to the Northern Medical Program in BC (about 25 students per year). Most conspicuous in its absence from the Alberta program are bonus financial payments to existing (and established) physicians. Instead, Alberta bases its physician pay scale (and associated incentives) on the current Alberta Medical Association (AMA) agreement (valid from April 1, 2006-March 31, 2008). There is significant allowance for a “retention benefit” ($47 million), but the scale is entirely based on years of service in Alberta, regardless of whether the area is urban or rural. A “clinical stabilization initiative” ($57 million) does focus on the northern regions of the province, but has not defined “under-serviced area” yet (AMA, 2007)7. In BC, the point system (Table 12) that determines the degree of “isolation” is a major factor in the incentive and bonus eligibility for rural physicians (i.e., higher score=higher degree of “isolation”).

These tables indicate that BC has remained competitive for the last few years, based on migration of physicians, specialists, and residents to and from Alberta. Comprehensive research to explain this outcome would constitute another project altogether, but these results do imply that the financial incentives offered by BC seem to be comprehensive when compared to Alberta. Perhaps Alberta’s presence has been an additional motivator for the BC government to expand the incentive program, although fulfilling the needs of its residents is still primary.

Remaining “competitive”, whether it be on the local or provincial level, is another factor in rural recruitment that is a part of the financial aspect of an incentive package, but as with other financial incentives there also needs to be educational and lifestyle factors taken into account. Although Alberta may offer higher financial incentives, this does not ensure candidates will be attracted from other provinces with less money to offer. Money may be of some help in attaining recruitment goals, but is not a panacea, either. A straightforward “bidding war” would not only be financially unfeasible for most small communities, but also likely only a short-term benefit in recruitment that may not translate to long-term retention. If the financial incentives are competitive (i.e., within market range but not necessarily the “highest bid”), then ideally the other aspects of the incentive package will be the deciding factor. Up-front money may draw attention, but everyday lifestyle and working conditions are what will ultimately determine whether the physician is there to stay.

7 As of April 2007, the AMA indicates in its tentative agreement that the provincial framework will be finalized by June 2007. It also indicates that “not all physicians” and “not all towns and cities” will qualify, but does not yet indicate the criteria to determine eligibility.
5.4 The Northern Medical Program: a new hope for rural communities?

Within BC, the numbers verify that the lower the population of a community, the lower the average stay of physicians (Thommasen 2000). In light of this ongoing problem of rural physician recruitment and retention, the Northern Medical Program (NMP) is a rural medical education program that intends to increase the level of familiarity and comfort with rural practice among medical students. To some extent mirroring the Northern Ontario Rural Medical School in terms of province-wide coordination and collaboration among three universities (Rourke 2002), the NMP hopes to address a few shortcomings that plague rural physician coverage in BC.

Figure 7 Northern Medical Program outline

<table>
<thead>
<tr>
<th>Location</th>
<th>Year</th>
<th>Phase</th>
<th>Number of Weeks</th>
<th>Course</th>
<th>% Day per week</th>
</tr>
</thead>
<tbody>
<tr>
<td>Vancouver Fraser</td>
<td>1</td>
<td>I</td>
<td>Orientation</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Island Medical Program</td>
<td>2</td>
<td>II-1</td>
<td>Principles of Human Biology [14]</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Host Defenses and Infections [5]</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Cardiovascular [5]</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Pulmonary [5]</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>FERGU [5]</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Musculoskeletal [4]</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Blood and Lymphatics [2]</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>GI [4]</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Endocrine and Metabolism [5]</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Integument [1]</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Brain and Behaviour [9]</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Reproduction [4]</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Growth and Development [5]</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>3</td>
<td>III</td>
<td>Rural Practice: 4 to 8 week Practicum in Rural Communities</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>4</td>
<td>IV</td>
<td>Clerkships (Internal Medicine, Surgery, Paediatrics, Obstetrics and Gynaecology, Psychiatry, Emergency Medicine, Anaesthesia, Dermatology, Ophthalmology, Orthopedics)</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>V</td>
<td>Advanced Clerkships (Electives and Selectives)</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>VI</td>
<td>Effective Learning Skills for Medical Practice (weekly themes: Pharmacology &amp; Therapeutics, Health Care &amp; Epidemiology, Health Care Policy, Ethics, Law, Advanced Communication Skills, Palliative Care)</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Source: UBC Faculty of Medicine (2006)
Goals include raising the profile of primary care teaching, admitting a higher percentage of rural applicants, exposing all medical students to rural medicine, and expanding postgraduate rural residency training programs by incorporating the mentorship of students by experienced family physicians (Wilson, Kelly & Thommasen 2005). Figure 7 illustrates the NMP program, which only incorporates a minimum of 2 years (out of 4) in rural BC.

Although the results of rural medical education in both Ontario and BC are not yet available nor conclusive, there has been significant support (morally and financially) from the existing community of rural physicians (Wilson, Kelly & Thommasen 2005). On the other hand, preliminary feedback (and commentary) of some physicians has brought about warnings that monitoring of the actual experience of the students within these programs should be both thorough and careful, to ensure there are no real or perceived barriers to this “new frontier” of rural physician recruitment (Spencer, Spencer 2006). A potential drawback for rural communities is the possibility that many medical students may choose to become specialists (for a variety of professional and financial reasons), rather than general (family) physicians. Specialists are also in demand in many rural areas, but lack the versatility of general physicians. Often, it is not economically viable for specialists to relocate to rural or remote areas, depending on their specialty and the community they are serving. Maintaining a minimum representation of students in the general physician category (particularly via scholarship allocation) is a potential partial solution to this issue, although (as with location) each person has the right to choose their own career path once within the program.

The NMP program design is not unlike other medical school programs (urban or rural), but the presence of rural based physicians in the faculty and exposure to rural medicine during residency are components that advocates believe will distinguish the program from the standard urban medical school experience (and curriculum). From the perspective of a rural physician or specialist, a rural medical school such as the NMP provides an opportunity to teach, and to pass down their unique experiences that otherwise may be lost among the “standard” classroom-based material presented to students. Providing rural residency opportunities after graduation are a crucial component to both the learning experience of the student (resident), as well as the teaching experience of established physicians or specialists. Currently the rural practicum within the NMP program is 4-8 weeks, with the third and fourth years being the “clinical” stage of the program (Figure 7). Further exposure to rural medicine, and genuine opportunities for mentorship, are important elements to the residency (postgraduate medical training) period that
also could potentially improve retention rates among existing rural physicians and specialists who
participate as mentors.

In the next section, discussion of first-hand feedback from rural physicians, and others
involved in the recruitment process within BC, will provide a more direct perspective on the
current state of rural physician incentives and recruitment policy in our province.
6  The state of affairs in rural BC: discussions in the field

6.1 Goals and obstacles of field interviews

The goal of the field research portion of this project was to obtain first-hand feedback from rural physicians who face the unique challenges of rural practice every day, and determine whether any of the BC rural incentives were a factor in their relocation. Because the majority of the literature emphasizes quantitative measures in assessing this topic, interviews were the focus of the field research, to fill some of the qualitative gaps. Direct communication with physicians and recruitment specialists adds depth that statistics cannot usually provide. Insight into the unique characteristics of the issue within BC was another goal of the interviews, better described with words than numbers. Physicians targeted for interviews in rural BC were either references from staff members of medical organizations, or active as committee members for rural medical organizations (such as the Society of Rural Physicians of Canada). Another research goal was to interview regional recruitment specialists (particularly from the rural health regions of BC), since they also have plenty of direct exposure to the current incentive packages, and most likely would have opinions on whether they have helped or hindered their respective recruitment goals. A third group intended to be included in interviews were both faculty and some students from the Northern Medical Program (NMP) at UNBC in Prince George, in order to obtain feedback on the program, and hear the perspectives among the students of their exposure to rural medicine, so far.

After approximately two months of contacting prospective subjects for interviews, a total of four BC physicians were interviewed (from the southern and southeast interior, and the north), along with a regional health authority employee from a primarily rural area of BC. Each physician had at least a few years (usually more) of experience in rural areas. There were not any interviews at the NMP, due to a lack of available faculty that were involved with recruitment, and the time constraints of recruiting medical students in the middle of a semester. The result is an adequate perspective of the everyday life of a rural physician, with some idea of the recruitment

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8 See Appendices A & B for questions asked (interview dates, etc., listed after Bibliography)
9 The Associate Dean noted that, due to the heavy workload of NMP students, scheduling interviews or a focus group would be logistically improbable
process, but an absence of the perspectives of current medical students in a rural-based program. It is also impossible to measure or monitor the post-graduate rural retention rates of the NMP yet, since their first graduates will not be until 2008. The only substitute for this perspective was to ask the current physicians about whether their background and education were rural or urban-based.

### 6.1.1 Discussions at regional health authorities

Deciphering what works and what doesn’t in attracting rural physicians is not only a challenge for academics and scholars writing journal articles, but also for those directly involved with the recruitment process. Illustration of this point was the discussion with an employee of a rural health authority in BC who is involved in a project to centralize physician recruitment efforts, and works directly with recruitment specialists throughout the province. When asked about what the biggest challenge was in recruiting physicians to rural areas, the response was there is essentially no “advantage” that one rural area has over another, since the regional offices try not to “out-compete” each other for candidates. Although there is no official coordination of strategies, there is an effort to maintain consistency in the incentives offered among different regions within BC. This is in contrast to some other provinces, such as Alberta, where “regions and cities often compete against each other, and try to outbid each other”. A recruitment specialist at another health region did acknowledge there is some competition within BC, as they are “competing for the same physicians”, but felt the combination of current incentives and establishment of the Northern Medical Program will reduce recruitment obstacles substantially.

A sometimes over-looked factor, according to some recruiters, that may discourage younger medical school graduates is the cost of start-up for a practice, particularly in rural areas. Although the real estate costs are typically less than in urban areas, the major investment of purchasing property and a building is inherently a long-term commitment that some may not want to make if they are unsure whether both themselves and their family will want to live in a remote community for the long-term. As a result, many new rural (and urban) physicians “prefer the walk-in clinic”, which requires minimal capital investment.

Although the limitations of financial incentives are a consistent theme in the literature, some do still believe that they are a necessity in any incentive package offered. Concern was expressed that although no “magic dollar amount” exists to attract physicians, if the amounts were reduced, the community would lose (or fail to attract) physicians to other regions offering a
more enticing incentive package. This affirmation of financial incentives still included the acknowledgement that money may help “get them there, but will not necessarily keep them there”.

6.1.2 Discussions with rural physicians

Measuring the lure of BC incentives offered to rural physicians is a challenge for the same reason that monitoring the success of the Northern Medical Program (NMP) at UNBC: both are too new to have definitive results. Just as the NMP will not graduate its first class until 2008, the current array of BC rural incentives are primarily only a few years old (or newer). Some physicians interviewed relocated to BC prior to this new wave of incentives, but that did not prevent them from sharing both their own and their colleague’s perspectives. One physician practising in the interior stated that, if the incentives were offered at the time he relocated to BC (from the prairies) a few years ago, it would not have provided extra motivation since “$10,000 is not going to make a huge difference” in the overall financial picture. He also made the point that any benefits to the “rural lifestyle” are offset by the larger workload and higher sense of responsibility (exacerbated by the lack of available locum coverage on short notice) compared to physicians in urban areas. He believed that the receptiveness to the wide variety of challenges of a rural practice, along with level of comfort with rural living, are more realistic sources of motivation than financial incentives.

This physician had a mixed reaction when asked about which incentives seemed to be most appealing and/or effective, based on stories heard in the field among his colleagues. In his opinion, the continuing medical education (CME) program receives widespread support, and represents an overdue fulfilment of the needs of isolated physicians. Reimbursement and coordination of telephonic consultations with specialists was also mentioned as an improved method for providing support to GP’s who lack the luxury of a nearby specialist.

On the other hand, some negative aspects to the incentives and regulations were mentioned (in the same interview), namely the cap on the number of patients (where the fee schedule diminishes, eventually to zero dollars, once a quota is reached) and the insufficient locum coverage. There is a close relationship between these two shortcomings, according to the physician interviewed, since if one physician covers for another’s absence, eventually they are not receiving any payment for patients beyond the maximum quota. Although it was stated that money isn’t the primary concern, it was also stated that working for “free” when trying to help out a colleague’s patients is inequitable and a major disincentive (“leaves the physician ’high ’
Locum coverage is the only significant tool that provides the rural physician with a break from the very demanding workload, so shortcomings in this particular area are likely to accelerate the “burnout factor” for both the physician and his/her family. Because most rural physicians already have a full allotment of patients, to temporarily shuffle them to another rural physician is often impossible, and therefore not a viable option to locum coverage.

Some other rural physicians have a more pronounced endorsement for rural incentives. A physician from the north stated that, although there were no incentives when he relocated to the north over a decade ago, there has been a marked improvement in recruitment, retention, and CME opportunities during his tenure. The array of incentives across BC has had a “watered down” effect among competing (eligible) regions and communities, but the physician believes there would not be any stability in rural areas without them. Put another way, it is favourable to compete for candidates genuinely interested in rural areas, than to compete for urban-based candidates who are more likely to become “disinterested” with rural life after a few years (or less).

Just as this physician spoke positively of existing incentives, he also spoke unfavourably of “disincentives” that previously existed in BC (e.g., lower fee schedules for “overserviced” areas, revoked with the Waldman case decision a few years ago), as they punished those (financially) practising where they wanted to reside. Attempting to attract a physician to a region with incentives is less coercive than “pushing” them out of areas with disincentives.

Regarding rural medical schools, a local family practice residency program in the north has retained over 50% of its graduates in rural areas, according to the northern physician, which gives additional reason for optimism in anticipating the outcomes for the Northern Medical Program (NMP) at UNBC in Prince George. He also stated that, in his opinion, “the closer to graduation a med student is, the better chance they will remain in the same area to establish themselves”. This perspective is the basis for most rural medical schools, such as the NMP.

Another northern physician agreed with the sentiment that financial incentives are an important component of rural physician recruitment, particularly when a wealthy, neighbouring province (Alberta) tends to offer even higher cash and housing incentives. Nonetheless, they mentioned other variables such as lifestyle, workload, and overall responsibility of an isolated physician in a small town as the most important keys to both recruitment and long-term retention. The physician stated that many simply do not want to “stick their neck out” in an isolated town, where critical decisions are often solely on the shoulders of the family physician. This responsibility is especially daunting for a recent graduate still establishing themselves in the
medical field. One error in judgement could result in "court time rather than patient time". Although the wide range of procedures and challenges is valuable experience for a young physician, the long hours and extra responsibility for each patient is a recipe for "burn-out", in the view of a physician who himself worked in isolated towns for many years. In comparison, to work in an urban area often allows young physicians not only less working hours (particularly in clinics), but also proximity to other physicians and specialists able to provide a valuable "second opinion" in both urgent and non-urgent circumstances. The physician acknowledged that the additional attraction to the "global" activities and "limelight" of the city is difficult to compete with, regardless of the amount of money offered by rural areas.

How, then, can rural areas attract physicians if money is not always enough? This particular physician believes, not unlike the family physician from interior BC mentioned earlier, that improved locum availability and regional support from the larger "centres" of rural regions (e.g., Kelowna, Kamloops, Prince George) would be as valuable as any cash offered to candidates. If a physician in a remote area does not need to waste valuable time finding a bed for their patient (i.e., allocated space for small-town emergencies), and has a back-up physician or available locum to reduce their overall workload, then the reduction of stress and responsibility for both physician and patient would provide a value beyond only dollars.

This same northern physician is also optimistic about the Northern Medical Program (NMP) at UNBC, believing that once graduates are produced (in 2008) the recruitment "challenges" will be reduced considerably, consistent with the view of the other physicians interviewed. Retaining a graduate from a rural medical school is a more realistic possibility than attempting to lure physicians from urban areas, according to those interviewed. Nonetheless, the issue of "backup" for remote physicians still needs to be addressed in the long-term, as they tend to have an even stronger influence on long-term retention than on short-term recruitment (but still affect both, based on the opinions of those interviewed). Some especially remote communities (e.g., Fort St. John) simply cannot find physicians, regardless of the incentives offered, so perhaps reducing the sense of "remoteness" with improved access to neighbouring physicians, locums, and regional facilities is the only way to compete with larger communities. Communication is particularly important to a younger physician, so having access to a "voice of experience" can often be as meaningful as providing access to a regional medical facility or specialist for their patient. In some cases, this communication may actually help prevent unnecessary transfer of patients, and in most cases confirm a sense of urgency as needed. Therefore, the sense of "isolation" is not only a challenge in fulfilling the needs of rural patients and recruiting rural
physicians, but also an important piece of the puzzle that, in the view of the physicians interviewed, is too often underestimated in the current package of rural physician incentives.

A discussion with a physician from southeastern BC (Kootenay region) revealed more mixed reactions to the current package of rural incentives. Although the interviewee relocated to rural BC well before implementation of the incentives, many colleagues relocated to the Kootenay region (most being from an urban/suburban area) due in large part to the incentive packages available. Nonetheless, although the incentives have helped with recruitment, they have not stabilized retention rates (“many leave after a year or so”). This high turnover rate, in turn, only adds stress and hours to those physicians who do remain in the area, as both fellow physicians and other medical staff (nurses, assistants, etc.) tend to stay only on a short-term basis. The issue of support and reinforcement of medical infrastructure was also mentioned as an ongoing challenge, stating that the “recruitment of physicians is sometimes offset by lack of reinforcement of services, facilities, and equipment”. This echoes some of the statements of other rural physicians, implying that the sense of isolation is somewhat overlooked within the existing package of incentives. Attracting physicians is only part of the challenge, with the issue of retention profoundly affected by any shortcomings in the daily needs of a rural physician, including communication with and availability of colleagues, access to modern equipment and facilities, and the range of responsibilities for each patient. All of these factors contribute to “isolation”, not just the geographical distance to the nearest colleague.

This physician also held a high degree of optimism regarding the Northern Medical Program at UNBC, believing that it will not only improve the rural physician supply, but also “improve the understanding and appreciation for the challenges of rural practice” among all members of the medical community. This belief stems from the requirement that all BC medical students have at least some rural exposure (including during their residency), whether they are within the NMP or not. From her own perspective, the “variety” and “challenge” of being a rural physician is the foremost reason why remaining in the Kootenay region of BC is her preference.

6.2 Summarizing field interview responses

Upon completion of the interviews, which consisted of a few rural physicians and the regional health authority employee, there were a few notable trends in the responses from the field. The overall feedback on the most predominant method of recruitment, financial incentives, was generally positive as a complementary part of a package (i.e., a necessary component), but there was also a consensus that they are only one piece of the needed puzzle. The opinions on
which other “pieces” are needed was somewhat mixed, but improved locum coverage combined with improved communication and access with neighbouring colleagues and facilities was mentioned regularly by most physicians. Some sense of isolation is an unpleasant fact in small communities, but this does not necessarily mean having rural communities as individual, disconnected “silos” of health care delivery. As mentioned in particular by one physician, a combination of inexperience and isolation is often enough to “scare away” many young physicians, regardless of the financial lures that may be offered. At the same time, most agreed that an absence of financial incentives would undermine any other incentives or improvements for a rural medical practice.

In terms of rural medical school programs, the results are incomplete since the first graduates of the Northern Medical Program (NMP) at UNBC will not be produced until 2008, and the unsuccessful attempts to interview faculty and/or students of the program for this project. The opinions of those interviewed indicate a high degree of optimism for this program, both from physicians with a rural and an urban background. They shared the belief of the majority of literature, suggesting that increased rural exposure during training and residency will only benefit recruitment and retention for the long-term. As with financial incentives, though, rural medical school is only a part of the solution, considering there are currently only 24 spaces available at the NMP (out of a total of 224 spaces at the UBC Faculty of Medicine).

One final trend among those interviewed that was not predominant in the literature was a sincere appreciation for their experience as a rural physician. None seemed to have any regrets, and whether they were from an urban or rural background, they described their experience primarily as professionally challenging and rewarding, even if there were sacrifices such as long hours, heavy responsibility, and limited opportunities for family. Not one indicated any desire to relocate to a large urban area. Some preferred a regional centre to a small town, but still valued their experiences as the “only game in town”, with their range of knowledge constantly expanding. The acknowledgement of potential “burnout” was consistent. However, the consensus was that although the rural experience is not for everyone, more would seriously consider it if some conditions were met. Some examples mentioned were: the opportunity to develop familiarity with the lifestyle and workload (an existing rural background, or rural medical school); having adequate support and minimizing professional isolation (locum coverage, improved communication with colleagues, access to regional facilities); and, retaining competitive financial incentives both in terms of income and credit (particularly to offset start-up costs for young physicians, as “pioneers” in a community).
7 Formulating Policy Options

7.1 Prioritizing options

In choosing the policy options, the primary goal in all cases is to attract and retain physicians in rural areas. These options, at least in principle, are to some extent a part of the existing incentive packages utilized in both BC and other provinces. The purpose of prioritizing options is to present the most viable and feasible alternatives, while still acknowledging important strengths and weaknesses of each.

As has been illustrated by the literature, determining specific targets to measure the success of incentives is not always clear. As discussed in Section 3, there is an inherent limitation to relying on physician-population ratios, as they portray a vague idea but not a specific measure of physician coverage in a region. Physician-population ratios are of some use when monitoring a large area experiencing a major population “boom”, but not when measuring the needs of a small, remote community.

Policy option alternatives include the unconditional prerequisite that the determination of which communities are “underserved” be based on customized, multiple measures that accurately reflect the demographic and geographical uniqueness that exists throughout our province. In terms of health care delivery at the community level, more specific measures may be a greater challenge to collect, but would ultimately provide a more complete picture of local health care accessibility. Examples are real (by road, not air, using imperfect but improving GIS technology) distance measures to the nearest physician, physician usage rates for each community (using the “access modelling” method\(^\text{10}\)), proximity to the nearest emergency facility or clinic, and driving time to the nearest town with a physician and/or specialist. Recruitment and retention goals should be based on measures such as number physician FTE’s, average tenure, average length of time to fill a physician vacancy, annual turnover rate, and retention rate of BC medical school graduates (see Table 16). These measures provide more detail about physician retention, and contain the multi-faceted dimension needed to decipher medical needs at both regional and community levels. The extra effort and cost required to collect this data is likely to be a wise

\(^{10}\) See Section 3.5 for description of Access Modelling
investment, as a more accurate portrayal of the status quo will increase the opportunity for improvement and revision of existing incentives. The formation of community focus groups that include patients, physicians, and other medical professionals to help gather this knowledge would increase the likelihood of developing a more complete policy, while reducing the possibility of oversight or overkill.

Additional aspects of the customization of medical needs at the community level are cultural and ethnic considerations, particularly among Aboriginal communities throughout BC. Community focus groups that represent the Aboriginal population are essential, due to the unique challenges and a unique culture that others may not understand, prohibiting adequate health care delivery in these communities. The assessment of Aboriginal medical needs begins with representation in the focus groups, but is most likely to improve with increased representation among physicians (and other health professionals). Inclusion in focus groups will address short-term needs, but improved participation on the "supply-side" of health care (using education-based incentives, particularly scholarships) is an example of a crucial long-term strategy for addressing the significant and unique medical needs of Aboriginal communities.

Convenient but vague measures such as population-physician ratios are likely to continue to mislead. Those who do not encounter the challenges of rural life on a daily basis may view the entire issue of rural physician recruitment and retention through a permanently distorted lens. This type of large-scale distortion can result in neglect, despite the large financial investments and good intentions. As stated in the literature: "...these ratios are too often computed with little critical evaluation of what they actually mean in terms of geography...without this critical evaluation, health care plans and policies designed to deal with rural health care delivery problems may be poorly conceived" (Pong, Plitbado 2001). The policy implications of using misleading measures are multi-faceted. One example is continued negligence of remote communities that are more isolated in real terms (driving distance) than measured terms (air distance). Another is the oversight of small communities that have a higher demand for medical services due to their demographics (e.g., higher percentage of seniors, more blue-collar workers, higher rate of poverty or unemployment, etc.). The potential problems of relying on "blanket" measures are not solely limited to isolated communities: some "fringe" communities could be "crowded out" by an increase in demand of medical services by a neighbouring larger town, resulting in the siphoning of its physician supply. In each of these scenarios, a population-physician ratio would not reflect these intricacies of physician demand. The contributions of other

See Section 8.1 for implementation of community focus groups
health care professionals (e.g., nurse practitioners, registered nurses, etc) are another oversight of using physician ratios. Although the focus of this project is on physicians, the aforementioned community focus groups that are integral to needs based policy assessment must include the full range of health care professionals, as they represent the vital links in health service delivery that complete the circle of diagnosis and treatment.

With the accumulated information and feedback from both the literature and field interviews, **Financial Incentives, Locum Provision, Consultation Network, and Education-based recruitment** are the policy options selected as being the most viable. **Financial incentives** are defined as monetary bonuses or income paid to physicians for relocating in a rural area. **Locum provision** are commitments to provide a readily available pool of backup physicians to allow full-time rural physicians time off for continuing education, professional development, and general time-off from their usual duties. **Consultation networks** are coordinated systems of communication and consultation among rural physicians and specialists, whether via phone, the internet, or the transport of patients in emergencies. Finally, **education-based recruitment** is the availability of a rural-based medical school program, to include scholarships (or other incentives, such as return of service agreements after graduation), to medical students from both urban and rural backgrounds. Characteristics of each option are highlighted, categorized as **Policy mechanisms, Relationship to existing practice, Actors/stakeholders, Cost (and payer), and Timeline**. **Policy mechanisms** are the basic steps needed for implementation of each option. **Relationship to existing practice** compares the proposals to existing policy, to acknowledge overlap and similarities. **Actors/stakeholders** represent organizations that will be an integral part of the policy and subsequent implementation. **Cost (and payer)** categorizes the most significant costs of each option, and the organization most likely to be financially responsible. Finally, **Timeline** provides an estimate of how long before outcomes are realized, categorized as **Short-term (< 6 months), Medium-term (≈ 6 months to 2 years), or Long-term (> 2 years)**.

**7.1.1 Option 1: Financial Incentives**

**Policy Mechanisms:**

- Establish equal availability among rural communities, with maximum dollar amount based on isolation point score (higher score=higher maximum)
- Controls to ensure physicians with seniority in program receive higher amount of incentive bonuses (e.g., minimum percentage) than new physicians in same region
✓ Phase out fee-for-service (FFS) pay scale in rural communities, in favour of incentive bonuses and additional salary based on location, length of service in area, scope of practice, etc.

**Relationship to Existing Practice:**

✓ Rural Retention Program: 30% of isolation points paid as a flat fee, 70% as a FFS premium
✓ No current adjustment for seniority within incentive programs

**Actors/Stakeholders:**

✓ **Provincial Government (Ministry of Health):** Primary financier of health care delivery, and related costs such as physician incentives
✓ **British Columbia Medical Association (BCMA):** Approval of fee schedules and incentives necessary, ensuring fairness and support among physicians
✓ **Regional Health Authorities:** Provide local and customized recommendations for financial distribution, among rural communities. Better equipped to identify areas where financial incentives would be most effective.

**Cost (and payer):**

✓ Bonuses and additional salary of physicians ([Ministry of Health]
✓ Recruitment advertising and operations ([Health Match BC, BC Government]
✓ Travel and relocation expenses for new recruits ([BC Government]
✓ Related financial tools, such as tax credits, reduced rate loan for housing, etc. (**BC Government**)

**Timeline:**

✓ **Short-term to Medium-term:** Upon approval of budget, serves as an “up-front” incentive easy to implement, once qualification criteria is standardized. Also more likely to appeal to recent medical school graduates who are in need of higher income to pay off school loans, start a family, buy first home, etc.

### 7.1.2 Option 2: Locum Provision

**Policy Mechanisms:**

✓ Adjust locum pay scale and travel expenses based on isolation point score of community (higher score=higher maximum), but not to exceed that of host physicians
✓ Establish locum pool availability list based on multiple criteria, such as: location, duration of assignment, advanced and/or immediate availability for assignment, regular and emergency duties, etc.
✓ Annual limit on physician leave separated into “regular” and “emergency” pools. This division would allow physicians more time for urgent personal “emergencies” without sacrificing as much of their designated vacation time.
✓ Introduce a rural locum exemption from the existing patient maximum limit (or “cap”) per physician, as this policy discourages or prohibits full-time physicians from volunteering for the locum pool
Relationship to Existing Practice:

✓ Current Rural GP Locum Program based on coverage in communities with 7 or fewer physicians (no scale based on isolation point score)
✓ Current Locum pool based on medical speciality only
✓ Annual limit is currently 28 days per year, with no designation for “emergency” leave

Actors/Stakeholders:

✓ British Columbia Medical Association (BCMA): Approval required for conditions, criteria, etc.
✓ College of Physicians & Surgeons of British Columbia: Self-regulate adherence of physicians to locum guidelines
✓ Provincial Government (Ministry of Health): Budgeting approval of locum incentives, coordination among regions
✓ Regional Health Authorities: Coordination of locum coverage at community level

Cost (and payer):

✓ Additional incentives to increase overall locum supply, and availability to remote regions (BC Government)
✓ Improved staffing to coordinate and track locum pool in each region (BC Government, Regional Health Authorities)
✓ Improved, new technology to help with coordination, tracking of available locums and upcoming vacancies (BC Government, Regional Health Authorities)

Timeline:

✓ Short-term to Long-term: Locum pool already exists (short-term). Improvement of staffing, coordination, and overall physician supply throughout the province is a multi-stage, medium to long-term project.

7.1.3 Option 3: Consultation Network

Policy Mechanisms:

✓ Coordination and organization of contact network (phone and e-mail) among rural and remote physician offices, to provide isolated physicians with accessibility to more experienced physicians and specialists
✓ Establish list (with assigned contact person or physician) of emergency facilities within region of each physician office, for rural physicians to use in emergency situations
✓ Prioritized list of remote physicians for each regional emergency facility (to assigned contact person), based on isolation score of community where physician is located, in the event that space available is inadequate for all requests. Overall prioritization still would include the existing hospital triage system, based on medical need.
✓ Upgrade in technology (telecommunications, high-speed internet access, customized medical software, etc.) to improve communication and accessibility among rural physicians, to include enhancement of online rural health network. Hardware upgrades would include both new equipment, and distribution of extra (used) equipment to physician offices in need.

**Relationship to Existing Practice:**

✓ Current online communication network primarily limited to electronic medical records\textsuperscript{12}, not for general consultation purposes. Possibility exists to add consultation services to existing medical records website.

**Actors/Stakeholders:**

✓ British Columbia Medical Association (BCMA): Share financial costs of technology upgrade. Enhance coordination and "contact lists" among its membership, improved opportunity for exchange of evidence-based medicine information.

✓ Provincial Government (Ministry of Health): Additional budget allocation for upgrade in technology for offices in need, and set-up of centralized consultation network (or augmentation of existing electronic medical record network)

✓ Regional Health Authorities: Local organization and coordination of physicians, specialists, emergency facilities, and resources, to include regional contact network and physician/facility contact lists

**Cost (and payer):**

✓ Addition of computers, internet access to physician offices in need (BCMA, BC Government)

✓ Maintenance and expansion of centralized website for communication and consultation among BC physicians (BCMA, BC Government)

✓ Update database and contact information regularly, based on physician turnover or reassignment (BCMA)

**Timeline:**

✓ *Short-term to Long-term*: Formation of contact lists (including phone) based on BCMA membership list, as is integration for offices already with computer and internet access (*short-term*). Maintenance of database is essential and time-consuming (*medium-term*). Budget approval and distribution of new (and used) equipment for offices currently lacking technology is a multiple-stage implementation project (*long-term*), particularly in remote areas.

7.1.4 Option 4: Education-based recruitment

**Policy Mechanisms:**

✓ Rural-based medicine (and rural residency assignment) a component of each medical school program

\textsuperscript{12} Electronic Medical Summary project completed Phase 3, Province-wide availability, as of March 2006 (website: www.e-ms.ca)
✓ Regional rural-based medical school, with scholarships targeting students with rural background and/or interest in rural medicine (return-of-service requirement after graduation)

✓ Rural faculty representation on admission committees (and in program) of each medical school in province

✓ Mentor network (among established rural physicians and specialists) for both rural medical students and residents, also to serve as a resource for recruitment of CME instructors

✓ Rural residency assignments to include specialty medicine, with existing specialists (teachers) providing mentorship to students

✓ Coordination of rural-based physicians and rural medical school alumni to participate in medical school recruitment programs (e.g., high-school “career fairs”, summer seminars, etc.).

**Relationship to Existing Practice:**

✓ Current education-based program exists, with both the Rural Education Action Plan (REAP) and Northern Medical Program (NMP). Continued support and expansion of both programs needed, particularly after first graduating class in 2008 (NMP).

✓ Expansion to include incentives that extend into residency period (and coordination with CaRMS, Canadian Resident Matching Service), to ensure rural commitment beyond medical school graduation

**Actors/Stakeholders:**

✓ **Provincial Government (Ministry of Health):** Provided funding for the rural-based education incentives, and coordinated the rural-based program that includes UBC (Vancouver), University of Victoria, and UNBC (Prince George). Responsible for funding the construction of the Northern Medical School at UNBC, and the likely financier of future maintenance and expansion.

✓ **British Columbia Medical Association (BCMA):** An integral part of planning the rural-based curriculum, to include feedback from existing rural members

✓ **Interprofessional Rural Program of BC (IRPBC):** Provides rural assignments for current students in health professional programs, increasing participation and interest in rural-based programs and assignments

✓ **Health Match BC (BC Government):** Likely to benefit from larger pool of rural medical school graduates, to complement current recruitment efforts outside of BC (and Canada)

✓ **Canadian Resident Matching Service (CaRMS):** Coordinate placement of residents based on coordinated guidelines of BC rural incentives, scholarships, and return-of-service commitments during medical school

**Cost (and payer):**

✓ Financial scholarships and bursaries to recruit candidates to rural medical programs (BC Government)
Continuous investment to maintain and update rural medical school program, add faculty, and maintain consistency among existing medical schools (BC Government)

Financial assistance to coordinate and increase rural residency assignments (BC Government, Regional Health Authorities)

Ongoing coordination and implementation of rural medical student recruitment fairs, seminars, and general marketing (BCMA, Regional Health Authorities, IRPBC, Health Match BC)

Timeline:

- Long-term: A significant investment in time and resources that takes years before bearing post-residency graduates, but produces young physicians more likely to remain in rural BC for the “long term”, once graduated. Because BC has already established a rural medical school, and coordinated rural components among three universities, the timeline for producing rural physicians is medium-term to long-term. Continued development and maintenance of education-based recruitment remains long-term, however.

7.2 Criteria and Measures of Rural Physician Recruitment

In order to prioritize policy alternatives, the standards (or criteria) used for determining the best alternatives are necessary, along with the measures for each. Table 16 is a summary of the criteria and their measures, based on the research conducted for this project:

Table 16 Criteria & Measures for policy assessment

<table>
<thead>
<tr>
<th>CRITERION</th>
<th>DEFINITION</th>
<th>MEASURES</th>
</tr>
</thead>
<tbody>
<tr>
<td>Effectiveness</td>
<td>Improvement in number of physicians recruited to rural areas, and in average length of tenure in rural communities</td>
<td>Number of physician FTE’s per year within community or region</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Average tenure (years) of each physician within community or region</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Average length of time (weeks) to fill a physician vacancy</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Annual Turnover rate (Number of physicians lost divided by physicians added)</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Number of BC medical school graduates who stay in province</td>
</tr>
</tbody>
</table>
Of the criteria listed above, recruitment (first phase of effectiveness) is the basis for success in policy development and implementation, as the overall supply of physicians in rural areas is the fundamental problem, with issues of cost and feasibility only relevant once a significant number of physicians decide to participate in the program. Once physicians are recruited, then the sustainability of the program (cost, political feasibility), capacity to retain the recruits (second phase of effectiveness, average tenure), and consistent health care delivery (outcome of policy implementation) will determine the long-term success of the program.

The measures utilized for each criterion primarily originate in the literature reviewed, with some aspects (particularly cost and political feasibility) influenced by the provincial government (and academic) reports from Ontario and Newfoundland. As documented in Section 3, methods of measurement are often controversial and unclear. The choices of measurement in Table 16 provide a comprehensive assortment of qualitative and quantitative outcomes, while...

<table>
<thead>
<tr>
<th>CRITERION</th>
<th>DEFINITION</th>
<th>MEASURES</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cost of incentives</td>
<td>Financial expense of implementing incentive program</td>
<td>Income paid per physician (including salary, relocation expense reimbursement, and all other rural incentive bonuses)</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Amount spent on locum coverage, and to maintain locum pool</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Amount spent for travel to continuing medical education (CME) and continuing professional development (CPD) events</td>
</tr>
<tr>
<td>Political Feasibility</td>
<td>Level of support from provincial and municipal government, medical associations (CMA, BCMA, SRPC, etc.), and health care delivery organizations (hospitals, RHA’s, etc.)</td>
<td>Approval from government policy and decision makers</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Endorsement from medical associations and health care delivery organization administrators</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Acceptance from rural communities</td>
</tr>
</tbody>
</table>
avoiding the overused and often misleading physician-population ratio. The goal is to prioritize accuracy and clarity, while still maintaining pertinence.

7.3 Policy Option Summary

Using the criteria outlined in Table 16, the assessment of each policy option is included in Table 17 (next page). Each factor is “graded” (Low, Medium, or High) based on a value scale as follows:

<table>
<thead>
<tr>
<th>TOTAL</th>
<th>Individual Value (not weighted)</th>
</tr>
</thead>
<tbody>
<tr>
<td>3+</td>
<td>High</td>
</tr>
<tr>
<td>2</td>
<td>Medium to High</td>
</tr>
<tr>
<td>1</td>
<td>Medium</td>
</tr>
<tr>
<td>0</td>
<td>Low to Medium</td>
</tr>
<tr>
<td>-1 (or less)</td>
<td>Low</td>
</tr>
</tbody>
</table>

Assignment of a positive (+) or negative (-) is based on the extent to which each criterion is fulfilled, with the sum of all factors within each column resulting in the net total (and grade) for each option and criterion (e.g., Financial Incentives score “low”, -4, for effectiveness). The total value at the bottom of each column is the summarized (i.e., accumulation of all criteria) score for each policy option, weighted only for number of factors, since each column is not equal in number of factors to consider. The formula to calculate this weighted total is:

\[
\text{Total Net Value of factors (per column)} = \frac{\text{Total Net Value of factors (per column)}}{\text{Total # of factors (per column)}}
\]

This value serves as an overall assessment (positive or negative) of each policy option, accounting for variations in the total number of factors considered. For the criterion cost of incentives, note that a “low” (or negative) value is indicative of a poor cost-benefit ranking (less desirable), and consequently a “high” (or positive) value represents good cost-benefit results (more desirable). Some factors are direct references from the literature, with the author and year indicated. All other factors (sans reference) are a result of the collation of research for this project.
<table>
<thead>
<tr>
<th>CRITERION</th>
<th>Financial incentives</th>
<th>Locum provision</th>
<th>Consultation network</th>
<th>Education-based recruitment</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Effectiveness</strong></td>
<td>Low (-4)</td>
<td>Medium to High (+2)</td>
<td>High (+5)</td>
<td>High (+3)</td>
</tr>
<tr>
<td>+ Attractive to young physicians with medical school loan debts, and/or physicians seeking greater income</td>
<td>+ Reduces overall workload for full-time physicians</td>
<td>+ Clinical and social support reduces physician’s sense of isolation and liability</td>
<td>+ More likely to improve long-term retention, due to early exposure to rural environment (Romanow, 2002)</td>
<td></td>
</tr>
<tr>
<td>- Tend to be short-term, may help with recruitment but rarely with retention</td>
<td>+ Allows more opportunity to pursue education (CME) and professional development (CPD)</td>
<td>+ Increased opportunity for “on-the-job” learning for young physicians</td>
<td>+ More likely to recruit physicians who sincerely want to live in a rural area, based on their choice of a rural medical school</td>
<td></td>
</tr>
<tr>
<td>- Regularly listed below lifestyle and workload factors in surveys of physicians (Barer, Stoddart, 1999)</td>
<td>+ Minimize interruptions in healthcare delivery (i.e., “backlog” of patients)</td>
<td>+ Improved access to specialists and technology, in emergency situations</td>
<td>+ Increase awareness and preparedness of differences between rural and urban medicine (Curran, Bornstein, Jong, 2004)</td>
<td></td>
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<tr>
<td>- Payment for on-call time sometimes encourages “monopolizing” of a community, resulting in more difficulty recruiting additional physicians (Barer, Stoddart, 1999)</td>
<td>- Unlikely to address “on-call” demands, which is often a source of burnout (Barer, Stoddart, 1999)</td>
<td>- Reduces physician stress due to work overload or complicated medical situations</td>
<td>+ Medical schools lacking rural scholarships rarely attract rural students (SRPC, 2004)</td>
<td></td>
</tr>
<tr>
<td>- Too many designated “underserved” communities may decrease competitive advantage (Barer, Wood, Schneider, 1999)</td>
<td>- Fee-for-service method of payment a disincentive to perform duties not remunerated (Canadian Policy Research Network, 2005)</td>
<td>- Increased sense of professionalism (Canadian Policy Research Network, 2005)</td>
<td>- Relatively small number of graduates produced in the short-term (typically 20-25 per year)</td>
<td></td>
</tr>
<tr>
<td><strong>Cost of incentives</strong></td>
<td>Low (-2)</td>
<td>Medium (+1)</td>
<td>Low to Medium (0)</td>
<td>Low (-1)</td>
</tr>
<tr>
<td>- Typically the least cost-effective option, particularly if physician only stays for the short-term (&lt; 5 years)</td>
<td>+ Minimal “start-up” cost</td>
<td>+ Existing infrastructure utilized (phone, internet) for many locations (SRPC, 1998)</td>
<td>+ Potentially better long-term return on money spent than short-term financial bonuses (rural education=higher likelihood</td>
<td></td>
</tr>
</tbody>
</table>
## CRITERION

<table>
<thead>
<tr>
<th>CRITERION</th>
<th>Financial incentives</th>
<th>Locum provision</th>
<th>Consultation network</th>
<th>Education-based recruitment</th>
</tr>
</thead>
<tbody>
<tr>
<td>years)</td>
<td>- Physicians regularly indicate that financial incentives are not the most important factor in deciding to relocate (Kazanjian, Pagliccia, 1996)</td>
<td>- Likely to require additional incentives to attract locums, particularly if physician shortage is already acute</td>
<td>- Increased cost potential for locations without advanced technology</td>
<td>- Significant investment, per medical student: $260,000 over a 4-year period (Kirby, 2002)</td>
</tr>
<tr>
<td>Low (-2)</td>
<td>- Increased income usually supported by medical associations</td>
<td>Low to Medium (0)</td>
<td>High (+3)</td>
<td>- Significant infrastructure required to build/expand medical school enrolment (Canadian Policy Research Network, 2005)</td>
</tr>
<tr>
<td>Political Feasibility</td>
<td>- Regional disparities in fee schedules typically unpopular among physicians (Canadian Policy Research Network, 2005)</td>
<td>- Concentration of physicians in a regional centre (e.g., Prince George) may adversely affect income of fee-for-service physicians (Barer, Stoddart, 1999)</td>
<td>- Some limitations in flexibility among medical associations in locum assignments (e.g., prohibiting disincentives to residents providing locum services) (SRPC, 1998)</td>
<td>- Mixed results from previous financial incentives likely to make government approval of additional incentives difficult</td>
</tr>
<tr>
<td>Low to Medium (0)</td>
<td>+ Considered a priority among medical associations to improve rural physician working conditions</td>
<td>High (+3)</td>
<td>- Use of existing resources likely to appeal to decision-makers (and general public) concerned about cost</td>
<td>- Proposals at federal level for coordinated plan to promote health careers to students in rural and remote communities (Health Canada, 2002)</td>
</tr>
<tr>
<td>High (+3)</td>
<td>+ Improves professional development of less experienced physicians</td>
<td>- Improves consistency of evidence-based procedures, and increases available data among medical associations</td>
<td>Medium to High (+2)</td>
<td>- Precedence established in Canada, with rural medical schools and/or programs in most provinces</td>
</tr>
<tr>
<td>TOTAL:</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Net Value of factors (per column)</td>
<td>-8/12 ≈ -.67</td>
<td>3/9 ≈ +.33</td>
<td>8/10 ≈ +.80</td>
<td>4/10 ≈ +.40</td>
</tr>
<tr>
<td>Total # of factors (per column)</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

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7.4 Key Findings among Policy Option Summary

**Financial Incentives (Total: -0.67), Option 1 (Section 7.1.1):** For each of the four criteria, the net score was a negative value, particularly for *effectiveness*, reflecting the lack of success of financial incentives despite being the primary recruitment strategy throughout Canada. Due to this history, there is diminished *political feasibility*, as no policy maker wants to repeat previous mistakes, if possible. Money may be a popular enticement, but has proven to be an expensive and short-term “band aid” on a long-term malady.

**Locum provision (Total: +0.33), Option 2 (Section 7.1.2):** *Effectiveness* and *cost* were the stronger points of this option, as an available locum pool not only utilizes the existing physician supply, but also allows more time for professional development among rural physicians. In addition, proper distribution, equitable pay, and consistent availability of locum assignments also may present obstacles to both medical and government authorities. It is still considered one of the more viable options among the medical community, but actual implementation is often a delicate balance between the medical needs of a region, current incentives and workloads for full-time (or “host”) physicians, and conflicting policies such as the existing “cap” on number of patients per physician.

**Consultation network (Total: +0.80), Option 3 (Section 7.1.3):** *Effectiveness* and *political feasibility* were the strongest points, primarily because it is a simple and relatively inexpensive method of improving communication and coordination among isolated physicians. An added benefit from the medical perspective is the sharing of evidence-based medical information, in addition to having more reliable resources (including, in some cases, facilities) available in emergency circumstances. *Cost* is largely dependent on the current equipment of each physician’s office, technologically speaking, which translates into an inexpensive proposition for physicians that already enjoy high-speed internet and specialized medical computer software, but an expensive one for those that still rely on the telephone for communication. Phone coordination is of almost no expense, but advanced technology may be either unavailable or too expensive for some remote offices.

**Education-based recruitment (Total: +0.40), Option 4 (Section 7.1.4):** Consistently strong for most criteria, with the exception of *cost*. The long-term benefits of establishing a rural medical school were often mentioned in the literature, and reiterated during interviews (*effectiveness*). Positive reinforcement of existing programs in Canada enhances their *political feasibility*. Establishing new programs represent new opportunities for both rural communities (physician supply). *Cost* is the “weak link” of this option, due to the significant investment.
required to establish a rural-based medical school (or program within an existing school). Scholarships to economically disadvantaged prospective students present an additional financial burden, but are an essential component to ensure there is reasonable representation of students from rural areas. In spite of the significant cost, research to date suggests the forecasted long-term benefit of an education-based "investment" is more reliable than straightforward financial incentives to existing physicians.
8 Discussion and Conclusions

8.1 Prioritizing policy options

Among the four policy options, locum provision, consultation networks, and education-based recruitment meet the stated criteria more consistently than the relatively overused method of financial incentives. Does this mean that financial incentives (Section 7.1.1) are to be ignored as a policy option? The economic reality is “no”, although the research indicates they should not be the primary focus of incentive packages. The most suitable role is as a complementary piece of the complex puzzle needed for improved rural physician recruitment and retention. It is possible to be competitive while avoiding a “bidding war”, by remaining within financial range of neighbouring regions and provinces without having to be the “top dollar” offer. Making adjustments to this component, such as phasing out the fee-for-service model in rural areas, would discourage physicians from filtering particular cases (i.e., prioritizing patients with less time-consuming treatment requirements) or overbooking their schedule to crowd out the competition in a two-doctor town. Financial incentives will not solve the problem on their own, but are capable of being a more effective complement to the other components of the incentive package.

Ideally, implementation of the options should be simultaneous, if the resources are available. Each option (except education-based recruitment) has a range that extends from short-term (< 6 months) to either medium (6 months – 2 years) or long-term (> 2 years), based on phases of implementation (Section 7.1.1 - 7.1.4). For the short-term, financial incentives are able to get the attention of some candidates, knowing that their income would be competitive, improving the chance that the opportunity would receive “serious” consideration. If the financial portion were sub-market, then perhaps there would be no second-look by some candidates at the other components of the incentive package. The locum provision also has a short-term aspect, since the infrastructure already exists (Rural GP Locum program), but would need to be expanded and revised (Section 7.1.2). When prioritization is the economic reality, improving the responsiveness and flexibility of the current locum provision would provide prompt assistance to the overworked rural physician. A consultation network also contains a short-term aspect, with the existence of resources such as BCMA membership lists and the College of Physicians &
Surgeons of British Columbia directory to assist with initial coordination and organization (Section 7.1.3).

For the long term, the most significant investment with no “shortcut” is the education-based recruitment component (Section 7.1.4), but is also the most promising to the foundation of rural physician supply for the future. Relative to the other options, the likelihood of long-term rural service is greater for rural medical school graduates. For British Columbia, continued investment and expansion of the Northern Medical Program will ensure a continuous supply of rural-based physicians, beginning with the first graduates in 2008. As the demands on our health care system continue to grow, so must the scale of the NMP and related rural-based medical education programs, such as the Interprofessional Rural Program of BC (IRPBC)\(^{13}\). Although the investment in this option is significant, it provides a better “value” than continuing to emphasize financial incentives, as graduates of a rural-based program are more likely to fulfill the expectation of becoming a long-term rural physician. The locum provision contains a long-term aspect, since revision and implementation are likely to be slow moving due to the inherent complexity of an efficient locum program. Improvements will likely come in gradual phases, as physicians and policy makers are able to apply and revise locum regulations in real-world situations with variations in physician supply and medical needs. Short-term implementation does not usually translate into short-term accomplishment of policy goals, but will set the stage for a more effective program in the long-term. Although the existing membership lists are a short-term aspect of a consultation network, the planning, coordination, and implementation of the technology upgrade is a long-term process. Adding advanced technology (computers, high-speed internet, etc.) to offices in stages is feasible, prioritized by their remoteness from other physicians and emergency facilities. While funding of the other three options are likely to be dependent on the provincial government (Ministry of Health) budget, the cost of integrating the network among physicians may include help from the BCMA, as technology upgrades are a necessity for any physician office, regardless of location. Orchestrating programs at the local level to utilize existing resources (e.g., a high-tech office donating their old computer to a remote office) would contribute to the overall upgrade, with Regional Health Authorities playing an integral role. With an organized support network, equal distribution of responsibility is also more likely, to prevent experienced physicians from being overwhelmed if their neighbouring colleagues happen to be new physicians.

\(^{13}\) Current students in health professional education programs have the opportunity to complete their work study in a rural BC community, organized by IRPBC.
In sum, improving the locum program, establishing a consultation network, and continued dedication to the development of the NMP and related education programs are prudent and attainable goals that will make better use of limited resources. Financial incentives may be a “necessary evil”, but have not succeeded on their own in improving the supply nor workload of rural physicians. Conversely, the other three incentives do require significant financial support for effective and widespread implementation. The inter-dependency of these policy options on financial support is the economic reality, but the ineffectiveness of financial incentives in retaining physicians in rural areas is the social reality. This paradox represents an important consideration during policy (and budget) formulation, preferably prior to implementation.

With the policy options sorted and prioritized, steps for implementation are also needed. The first step of policy implementation would be the creation of community-level focus groups14 to obtain a more complete profile of the needs of the people. Focusing on a smaller scale than the current health authority regions (and subregions) would improve the quality of medical needs assessment by exposing issues and problems likely to be an oversight in large-scale statistics such as physician-population ratios.

The second step would include assessment from the provider’s perspective, by examining the workload and operational challenges for both general physicians and specialists at the community level. Participation in the community focus groups would provide one avenue of feedback from health care professionals, but additional evaluation through surveys, interviews, and coordination with medical associations would increase the knowledge base for policy-makers. This aspect would provide “supply-side” perspective, to complement the improved comprehension of the patients’ needs (“demand-side”) in the first step.

With the assessment of both patients and health care professionals improved at the community level for the short-term, the third step to initial implementation would involve long-term monitoring of local health care delivery challenges via comprehensive data gathering (i.e., not just physician-population ratios), to include ongoing focus groups and conferences throughout BC. The improved coordination and partnership among the regional health authorities (and subregions), medical associations, and community focus group facilitators (e.g., patients, health care professionals, Aboriginal representatives, etc.) would help provide the information needed to adjust policy goals to reflect changes in the needs of the community from year-to-year.

14 See Section 7.1 regarding community focus group demographic composition
Once the needs of both the patients and health care professionals are more thoroughly understood on a local (rather than only regional) scale, the four primary policy options (*locum provision, consultation networks, education-based recruitment, and financial incentives*) will more likely produce positive and timely outcomes.

### 8.2 How do the current incentives measure up?

In terms of financial incentives, the current BC package includes reimbursement and bonuses based on a “point system” (Table 12). This method factors in both distance to and amount of physicians within a designated region, size of community, distance from a “major” (regional centre) community, degree of latitude, and yet another distance measure by “location arc” (based on amount of air distance from Vancouver). The sum of these measures becomes the “medical isolation point value” for each rural physician (BCMA 2004). The combination of feedback from current rural physicians and comparison to other provincial programs implies that this system is both comprehensive and fair, although a bit complicated to measure. One may argue that equity and consistency are sometimes only achievable at the expense of simplicity. The opinions of the interviewees (and literature) often reflected this sentiment. My interviewees noted that the number of financial incentives currently offered is reasonable to some, not enough to others. The more relevant issue is the range of other incentives available, rather than simply increasing financial incentives to the point where communities and regions engage in a costly bidding war. On a few occasions, the comment was made that “no money is enough” to attract physicians to some especially remote areas (e.g. Fort St. John). This may be the sentiment among candidates towards other remote regions of BC, as well. As mentioned by the regional health authority employee interviewed, the health regions across BC are attempting to increase coordination, not competition for rural physicians. As indicated by much of the literature, and most of the BC physicians interviewed, more money may help, but is not enough by itself to improve recruitment in the long-term.

Education is an integral part of the “future” of our society, and this same value seems to hold true in the medical field, as well. A recurring theme in both the literature and the interviews was the support and optimism expressed for both continuing medical education (CME) and rural medical schools (such as the NMP). As one article summarizes, “In a study of rural physicians in British Columbia, family practice graduates who trained in a rural setting rated themselves as better prepared for rural family practice than urban-trained rural physicians” (Curran, Rourke 2004). The continued provincial investment into CME (currently with four components, known as
the Rural Education Action Plan, or REAP) and the NMP are most frequently viewed as a better long-term investment, particularly for retention of physicians, than relying on financial incentives or immigration alone. An inherent limitation of rural medical schools is the finite, artificially restricted supply of available spaces for prospective medical students. Increasing enrolment and incorporating rural programs at each medical school will likely improve the long-term rural stability among those who graduate, but cannot produce the necessary volume of physicians to sustain adequate rural health care delivery without the help of the other incentives. Another potential limitation to a rural medical school program is the possibility that a student may walk away during the residency (postgraduate) period, unless obligated by a scholarship or incentive that continues into this stage of their education. Such developments would not only result in the loss of a future rural physician (or specialist), but also a missed opportunity for an established physician to teach (or mentor). It is possible to surmount these limitations, however. Strategies include: ensuring continuous expansion of rural programs at all medical schools, continuation of scholarships or grants for rural residency assignments, and close monitoring and adjustment of residency assignments to maintain even distribution of rural communities and among GPs and specialists (by organizations such as the National Co-ordinating Committee on Post-graduate Medical Training). In addition, the availability of medical school or residency re-entry by existing GPs and specialists would provide increased flexibility for adjusting skills to reflect changing needs in the community (Barer, Stoddart 1999). The Rural Continuing Medical Education (RCME) program administered by regional health authorities to set aside an individual “reserve” based on an allowance especially designated for ongoing medical education is also a valuable resource for each physician’s future development. Although the results from the Ontario and Newfoundland rural education programs may not be conclusive at this time, the literature (and interviews) endorses rural exposure during training to improve rural retention. This option provides more promise than the disappointing results of financial incentives.

The portion of the current provincial incentives that seems to be in most need of reform and improvement is the current Rural GP Locum Program. Although there was not a significant amount of literature on locum coverage in BC, more than one physician highlighted the lack of available locums, as well as the lack of flexibility (at least a few weeks advanced notice for many in small towns and remote areas). Inadequate locum coverage is a significant reason for the inability of rural physicians to take adequate time off, and a barrier to fulfilling their continuing education (CME) needs (Chan, Barer 2000). This problem reflects the overall shortage of rural physicians, and thereby may “naturally” improve with continued incentives and education mentioned above. Until the overall supply of physicians increases, a more coordinated and
responsive locum program among the regional health authorities would help reduce the “burnout”
factor. The sharing of locum assignments and “on-call” status would be plausible among
neighbouring communities in the remote areas of the province (both within, and between adjacent
health authorities), rather than relying only on a centralized system that is inherently inflexible
when urgent situations arise. An “exchange” system of locum coverage also is likely to improve
consistency in health care delivery and familiarity with patients, compared to a physician from a
centralized source that may be unfamiliar with the special circumstances of the community.

Improving locum incentives without overshadowing the incentives for full-time physicians is a
delicate balance, and clearly a major challenge. In Ontario, a recommendation included the need
to: “…introduce measures to increase locum supply by, for instance, improving the flexibility of
locum contracts to accommodate short-term locums, eliminating eligibility restrictions for
rural/northern communities, and removing license restrictions on residents who have completed
one year post-graduate training so they may function as locum physicians” (Pong, Russell 2003).

The interviews reinforced the notion that to improve the lifestyle of a rural physician, more
reliable locum coverage is more meaningful than more money.

The final significant gap that is often an oversight in the current incentive package is
another “medical isolation” issue: access to and communication among colleagues throughout
rural BC. Mentioned on more than one occasion during the field interviews, this could be
especially problematic for a young physician in a remote area. The range of issues includes access
to specialists, more experienced GP’s, emergency facilities, and more advanced technology when
necessary. One survey of rural physicians within British Columbia reflects these concerns, as the
results showed “access to specialist expertise” as being one of the foremost issues in determining
the level of “satisfaction” in their work (Kazanjian, Pagliccia 1996). Another survey,
administered by the BCMA, reported that “professional practice issues, including access to
facilities and specialists, on-call responsibilities, and access to locum coverage for CME and
holidays, are of particular concern to rural physicians” (BCMA Rural Issue Committee 1998).
Continued development and implementation of a “partner” or “network” system that allows
isolated physicians preferred access to the nearest specialists and emergency facilities is needed
to reduce the “real” distance between medical professionals in rural areas. At a minimum, this
would reduce the isolation factor until the financial resources are available to invest in more
advanced technology (“telehealth”) and increase the number of regional facilities throughout the
province.
8.3 Limitations of Research

A primary limitation encountered during the research for this project was the lack of thorough assessments of existing rural incentive programs, whether they be in Canada or international. This fact is acknowledged in many articles that “scratch the surface” on this topic, but the overlap of incentive programs does present a major challenge to diagnosing what ails existing programs.

Another limitation is that there are yet to be graduates of the Northern Medical Program, although this will no longer be an issue after 2008. Tracking graduates of the NMP would enable measurement of the extent to which rural medical school graduates are remaining in BC to become rural physicians. A comparison of the results with other provinces would also be possible in this scenario.

The intention was to conduct more interviews with physicians now practising or who had practised in rural BC, and current and former rural-based medical school students (as mentioned in Section 6.1), but busy schedules of all who were contacted and a limited budget prevented a more extensive collection of qualitative data. Interviewing current medical students and some of their faculty, along with more physicians (e.g., some who migrated from rural to urban areas, to determine reason for relocation) would have added credence to the qualitative portion of this project.

A comprehensive survey of medical students and rural physicians, to complement the interviews, would also have been desirable if time and resources had allowed. This would have enabled first-hand quantitative and qualitative data, presuming there were enough participants. Utilizing existing survey results in the literature was adequate, but conducting a more recent survey with specific questions about the existing rural incentives would tell a more complete story that surveys conducted a few years ago, before implementation of many of the current incentives.

8.4 Future Research

The primary recommendation for future research is to monitor the progress of NMP graduates, once the data is available in a few years. This program holds much promise for the future of health care delivery in rural BC, and deserves the attention and acknowledgment of future qualitative (surveys, interviews) and quantitative (migration patterns of graduates) projects.
After some aspects of the current incentive package are more established, a survey of physicians throughout the province would provide a more complete portrait of both the strong and weak points of the program. Queries would address a physician’s background (rural or urban), medical school attended, location of practice, length of tenure in BC, plans for their practice in the future, and recommendations to improve existing policies. Results and suggestions in this project derive from the existing literature, but a minority of the information originates from BC. A more comprehensive field research project within BC will provide a more complete diagnosis of what ails rural health care delivery in our province, whether the conclusions reinforce or ameliorate the recommendations presented here.

For comparative purposes, a thorough assessment on an international scale, preferably among nations that share similarities in demographics, economy, and health care system (e.g., Australia, United Kingdom) would likely add new perspectives and experiences to a common problem. Careful selection of nations would be of the utmost importance, as many other “G8” or OECD nations have significantly different geography, population distribution, health care systems, and political climates. Once adequate common ground is determined, the international perspective would add a unique dimension to future research.

8.5 Conclusion

The results of both the literature review and field interviews illustrate the complexity and depth of the issue of rural physician recruitment and retention throughout Canada, and an extension of the shortage of physicians that already exists in most regions of our country, and province. The unique challenges and problems of rural medical health care delivery, and of physician recruitment and retention, have been an ongoing obstacle for policy makers and the medical community that may lack simple answers, but continuing research and analysis will bring us closer to a viable solution.

The investment of time and resources to address this problem has been, and will continue to be, a significant one. With so many distinct communities isolated in a vast land, there are no shortcuts to solve the problem. However, providing accessible medical service to all residents of our province is a fundamental responsibility that is the basis for the Canada Health Act. Accurately identifying the underserved communities, and providing them with qualified physicians, is an integral part of this responsibility.

The current package of rural incentives presented to physicians is reasonably comprehensive, in comparison to other provincial programs, and has been dramatically improved
and expanded in only a few years. Based on the experiences of other provinces in Canada, however, history has shown that financial incentives are only a part of the solution, not the entire solution. The formation of the Northern Medical Program and integration of the Continuing Medical Education programs add needed diversity and depth to the overall rural incentive package. To make this package more complete, however, there still exists the need to improve (and reduce the length of) the “typical day” of a rural physician, in the form of an improved infrastructure of communication, coordination, and support among rural communities sharing similar challenges in health care delivery. A greater support network will likely go further in stabilizing the rural medical workforce than stacking additional financial incentives, as the point of diminishing returns has been reached in many remote areas that cannot attract physicians (particularly in the long-term) at any “price”. Daily life will always be more challenging for a rural physician, but with a more in-depth understanding of their daily challenges, policy makers have the potential to make greater strides towards stabilizing the rural medical workforce and providing more reliable and efficient health care to all residents of the province.
Appendices

Appendix A: List of Questions (Physicians)

PHYSICIAN:

1. From which medical school did you graduate?

2. Were you raised in an urban, suburban, or rural area? In Canada?

3. Did any of the provincial incentives encourage you to locate in a rural area?

4. Do you know of any colleagues that also relocated to a rural area because of provincial incentives?

5. What do you consider to be the biggest challenges of a rural medical practice?

6. Do you foresee any reason why you would move your practice to an urban area?
Appendix B: List of Questions (Recruitment)

RECRUITMENT SPECIALIST:

1. What has been the biggest challenge or obstacle in recruitment of physicians to the Health Region?

2. Was there consultation with other health regions in BC in formulating a recruitment strategy? Examples of "good ideas" and "mistakes" learned from other programs?

3. What are the recruitment goals for the Health Region (both past and present)? Based on ratios, quotas, or other measures? Have those goals been met?

4. Which is the greater challenge, based on the experience of the Health Region: recruiting physicians from urban areas, or finding qualified physicians from rural areas? Has this trend changed in recent years?

5. Do you feel that some provincial rural incentives have been more effective than others in attracting physicians? If so, which ones (financial, educational, etc.)?
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Tepper, J., Schultz, S., Rothwell, D. & Chan, B. 2006, *Physician Services in Rural and Northern Ontario*, Institute for Clinical Evaluative Services (ICES), Toronto, ON.


**Interviews**

1. Physician (and SRPC regional contact), Interior BC (in person, February 22, 2007)

2. Physician (and Northern Medical Society member), Northern BC (in person, February 26, 2007)


4. Physician (and former SRPC president), Interior BC (by phone, March 2, 2007)

5. Regional Health Authority employee (and assistant with recruitment project) (in person, February 21, 2007)

6. Regional Health Authority recruitment specialist (by phone, March 16, 2007)