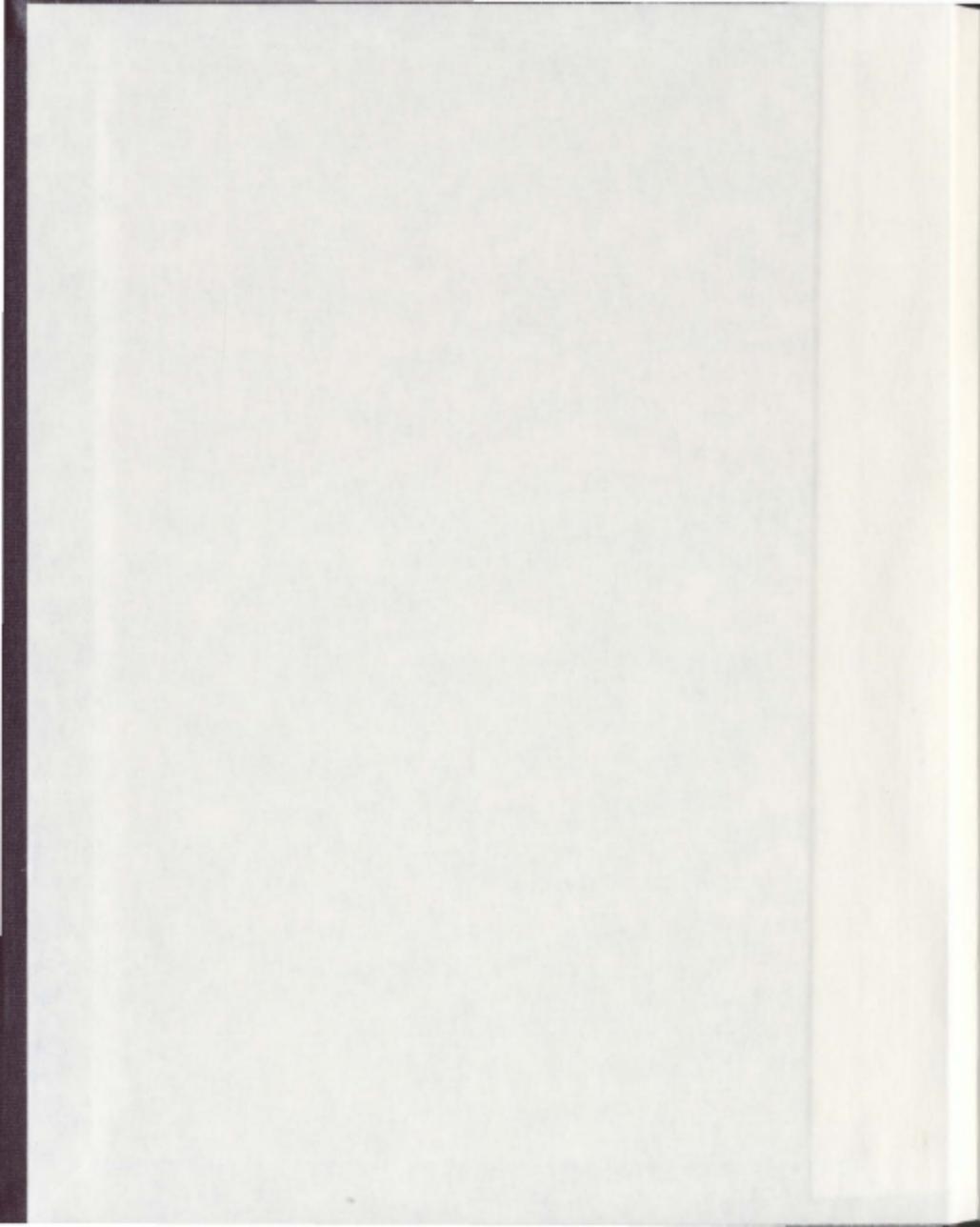


THE ATTRACTIVENESS OF RETURN-FOR-SERVICE
BURSARY PROGRAMS TO MEDICAL STUDENTS IN
NEWFOUNDLAND AND LABRADOR

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THE ATTRACTIVENESS OF RETURN-FOR-SERVICE BURSARY
PROGRAMS TO MEDICAL STUDENTS IN
NEWFOUNDLAND AND LABRADOR

by

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Abstract

Objectives and Methods: This study compared Return-for-service (RFS) programs available from provincial/territorial governments, determined terms of interest and predictors of acceptance in Newfoundland and Labrador (NL), and described experiences of RFS-holders. Research methods included document analysis, an online survey, and telephone interviews.

Results: RFS programs were a popular means of improving physician distribution.

Students rated monetary value (37.3%) and location of service return (34.9%) as the most important features in their decision to accept an RFS. Trainees with financial concerns and those who planned to remain in NL were 4.8 and 27.7 times more likely to accept a bursary.

Experiences of RFS-holders were positive; communication difficulties and a lack of active recruitment were identified as problems.

Conclusions: The RFS shows some promise for increasing physician recruitment, however it does not appear to be the most effective means; more bursaries fund trainees who plan to remain in NL already (80%) than attracts novel trainees (20%).

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List of Abbreviations

AB – Alberta

BC – British Columbia

CaRMS – Canadian Resident Matching Service

CIHI – Canadian Institute for Health Information

FM – Family Medicine

HIC – Human Investigation Committee

MB – Manitoba

MBa – Manitoba Aboriginal-Specific

MUN – Memorial University of Newfoundland

NB – New Brunswick

NL – Newfoundland and Labrador

NLCAHR – Newfoundland and Labrador Centre for Applied Health Research

NLHBA – Newfoundland and Labrador Health Board Association

NHSC – National Health Service Corps

NRFMS – Northern Remote Family Medicine Residency Stream

NS – Nova Scotia

NT – Northwest Territories

NU – Nunavut

OUAP – Ontario Underserviced Area Program

ON – Ontario

PEI – Prince Edward Island

PG – Postgraduate
PGME – Postgraduate Medical Education
P Res – Psychiatry resident
QC – Quebec
RFS – Return for service
RNI – Rural Northern Initiative
RPAP – Rural Physician Action Plan
SK – Saskatchewan
SMA – Saskatchewan Medical Association
SPSS - Statistical Package for the Social Sciences
TF – Travelling Fellowship
U of A – University of Alberta
U of C – University of Calgary
UG – Undergraduate
US – United States (of America)
WHO – World Health Organization

Chapter 1: Introduction

1.1 Research Problem

With Canada's "physician shortage" being the focus of much policy and media attention, it is clear physician supply is a topic of importance to Canadians. While physician numbers may be increasing (Canadian Institute for Health Information [CIHI], 2008), the distribution of physicians also plays an important role in the effectiveness of healthcare delivery. Canada is a spacious country, with variable population distribution; its many rural, remote, and northern populations make it difficult to ensure equitable access to medical services.

According to the 2007 Canadian Community Health Survey, about 4.1 million Canadians aged 12 or older (15%), reported that they did not have a regular medical doctor, either because they were unable to find one or because they had not looked (Statistics Canada, 2008). Six percent of the population aged 12 or older reported they could not find a regular doctor in 2007 (Statistics Canada, 2008). Rural or remote areas may suffer disproportionately compared to more urban areas; as of 2004, "only 9.4% of all physicians were located in rural areas, compared with 21.1% of Canadians" (Pong and Pitblado, 2008 p.16).

NL is a comparatively sparsely populated province; the population density of NL was estimated in 2009 to be 1.5 persons/km², while the national population density was 3.68 persons/km² (Statistics Canada, 2009). This poses a particular challenge with regard to physician distribution. A large portion of the province's population is considered to be rural (61.9%), yet only 32% of NL physicians practice in rural areas (Reamy, 1994).

Barer, Wood and Schneider report that there are "...many areas of the province without adequate, or any, local specialist services" (1999 p.108).

Previous studies found NL to have one of the highest proportions of individuals without a regular physician (Talbot et al., 2001), however, more recent research finds NL to have a ratio of individuals without a family physician to be similar to the national average (Statistics Canada, 2009b). While physician numbers have been increasing in the province (CIHI, 2008), there remains a problem with physician distribution. Mathews and Edwards (2004) found residents of rural communities were less likely to have a regular doctor than residents of urban or semi-urban communities; 74.4% of study respondents without a regular physician were individuals residing in a rural community.

The province has established a set of initiatives to attempt to solve its physician distribution problems. In 1992, the NL Department of Health and Community Services¹ established a bursary program (also known as a return-for-service program, or RFS), designed to pay university medical trainees bursaries in return for their commitment to practice in an underserved area (Reamy, 1994). Students and medical residents who accept these bursaries sign a contract with the Minister of Health and Community Services agreeing to work one return-of-service year in an area designated as 'in need' for each funded year (PracticeNL, 2010). Despite the fact that RFS programs have been used by many provinces and countries (Sempowski, 2004), few have been evaluated for their effectiveness, or have been well documented (Grobler et al., 2009; Sempowski, 2004).

¹ Prior to 1998, the Newfoundland and Labrador Department of Health became the Department of Health and Community Services [Newfoundland and Labrador Health Board Association [NLHBA], n.d.).

1.2 Research Questions

This study will analyze the RFS bursary program for medical trainees in NL. The study addressed the following questions:

1. What are the return-for-service programs across Canada?
2. What RFS program terms are important to NL trainees?
3. What are the experiences of NL RFS bursary holders?

1.3 Purpose and Objectives

The purpose of this study was to describe RFS programs and terms in Canada, and to assess the impact of RFS programs on recruitment by understanding the program elements that are important to potential and past RFS bursary holders. The study will also identify the characteristics of trainees who opt for an RFS bursary to understand who the program attracts, and whether the program attracts medical trainees who would not otherwise work in the province.

The research objectives are defined as follows:

1. Document the terms and conditions of RFS bursary programs offered to medical trainees by provincial governments of Canada.
2. Assess the proportion of medical trainees in NL who plan to accept RFS agreements.
3. Describe terms of RFS agreements of interest to medical trainees in NL.
4. Describe the satisfaction of RFS holders in NL.

1.3.1 Hypothesis

The study hypothesis is that the NL RFS program is rewarding individuals who already planned to work in the province, rather than attracting previously uninterested physicians to work in NL.

1.4 Study Rationale

The Canada Health Act states the primary objective of Canadian healthcare policy is to "protect, promote and restore the physical and mental well-being of residents of Canada and to facilitate reasonable access to health services without financial or other barriers" (Government of Canada, 1985 p.5). The unequal distribution of health professionals in NL poses a substantial obstacle to the goal of achieving optimal health for all.

Both the shortage and distribution of health professionals affects the health of Canadians. Having a regular family physician is strongly correlated to better health outcomes (Chao, 1988; Dietrich, 1982; Sudhakar-Krishnan and Rudolf, 2007). If the RFS bursary program is improving physician recruitment without improving physician retention, physician turnover will continue. Physician turnover is expensive and disruptive to the populations they serve, and continuity of care is strongly associated with patient satisfaction with their healthcare (Fan, et al., 2005). With continuity of care, physicians are not only able to have an improved relationship with patients but they have also been shown to work more effectively and have improved clinical outcomes (Sudhakar-Krishnan and Rudolf, 2007).

Bursaries take many forms and require different terms or conditions, but in general, through RFS agreements "medical students and residents receive grants, loans or

bursaries in exchange for agreeing to locate in a designated geographic area for a specified period upon completion of their training” (Barer and Stoddart, 1999 p.19). RFS programs make up a large portion of a province’s recruitment and retention effort, and millions of dollars fund trainees across Canada. In the 2009-2010 year, 88 bursaries were distributed in NL alone; excluding the travelling fellowships, this amounts to a spending of \$2,125,000 on a single program in a single year (personal communication, J.P. Gordan, May 2010). This is a considerable amount of money to be invested into a program that, as of yet, remains formally unevaluated (personal communication, J.P. Gordan, May 2010).

This study addresses a critical gap in the literature regarding RFS bursaries and their effect on physician distribution. It will provide program planners with evidence to improve the RFS program, and complements a study currently underway in NL that examines the impact of the RFS program on physician retention (Newfoundland and Labrador Centre for Applied Health Research [NLCAHR], 2010). Using administrative data from the medical registrar, the other study will compare the length of time physicians with and without RFS bursaries work in NL. (personal communication, M. Mathews, October 2010). Together, these two studies will provide a more complete understanding of the role the RFS program plays in recruiting and retaining physicians in NL.

If the NL RFS program is successful at recruitment but not retention, physician turnover will continue, and the province will continue to rely on this physician recruitment program. If we can discern which individuals are taking advantage of RFS programs and their reasons for doing so, we will be able to explore the attractiveness of the bursary program to potential subscribers. The results of the study will provide

program designers with valuable information to improve the program and ultimately, improve the distribution of physicians in NL.

Chapter 2: Background and Literature Review

2.1 Definitions and Terms of RFS

Return-for-service (RFS) agreements may alternatively be referred to as return-of-service (Barnighausen and Bloom, 2009; Sempowski 2004) or return-in-service agreements (Barer, Wood and Schneider, 1999), support-for-service (Pathman et al., 2004), or loan forgiveness (Pathman et al., 2000a). These agreements all seek to improve physician distribution by providing physicians (or physicians in training) with a financial incentive to practice in a designated area. According to Sempowski (2004 p.83), the goals of RFS programs are to “provide short-term rural physician manpower (recruitment),” and to “retain physicians past their mandated term (retention).”

Recipients of these agreements may be targeted as undergraduate or postgraduate students, or working physicians (Barer and Stoddart, 1999; Jackson et al., 2003; Pathman et al., 2000a; Pathman et al., 2004). RFS agreements provide different types of monetary incentives, usually depending on the career stage of the recipient. For their commitment to work in an underserved area, medical students may be awarded bursaries, scholarships, or grants for the duration of their education/residency (Bass and Copeman, 1975; Fitz et al., 1977; Mason, 1971). Alternatively, recent graduates may agree to receive tuition reimbursement, or have their existing student loans forgiven after completing a term of service (Pathman et al., 1994; Pathman et al., 2000b; Rosenblatt et al., 1996; Wilson et al., 1998). Signing bonuses provide physicians with unrestricted funds upon setting up practice in an underserved area in exchange for their commitment to remain in practice there for at least one year (Barer, Wood and Schneider, 1999; Pathman et al., 2004).

Each year of funding generally requires one year of returned service in an underserved area. The definition of underserved varies according to program, and eligible underserved areas may range from a wide definition, e.g. an entire state (Navin and Nichols, 1977) or a “small town” or “rural area” (Rabinowitz et al., 2005), to a very narrow definition, e.g. underserved areas defined through committees, considering factors beyond population size, such as number and composition of physician supply, socioeconomics, demographics, population needs and demand (Bass and Copeman, 1975; Pathman et al., 1992; Rosenblatt et al., 1996).

Many RFS programs include “buy-out options,” through which physicians may repay their bursary/loan/grant in lieu of fulfilling their service commitment. This option may simply require repayment (Navin and Nichols, 1977) or may impose additional interest charges as well (Copeman, 1979; Jackson et al., 2003; Matsumoto, Inoue, and Kajii, 2008b).

RFS agreements are not unique to physicians, nor are they unique to one country. RFS programs are available for many other health professions and have been described in the literature for dentists, pharmacists, nurses, nurse practitioners, physician assistants and midwives (Bradbury, 1963; Politzer et al., 2000). While US RFS programs are most frequently discussed in the literature, research on RFS programs from Canada (Anderson and Rosenberg, 1990; Bass and Copeman, 1975; Copeman, 1979; Wilson et al., 1998), Japan (Matsumoto, et al., 2008a; Matsumoto, et al., 2008b; Matsumoto et al., 2010), South Africa (Ross and Couper, 2004), and Australia (Dunbabin, McEwin and Cameron, 2006) have also been published.

2.2 Description of Canadian RFS Programs

RFS agreements are extensively used across Canada; Alberta (AB), Quebec (QC), Manitoba (MB), Ontario (ON), Newfoundland and Labrador (NL), the Northwest Territories (NT), and Saskatchewan (SK) have all used undergraduate or postgraduate student loans/bursaries with return of service as a strategy to improve physician distribution (Barer, Wood, Schneider, 1999). While some RFS programs have been in place since the 60's, Barer, Wood and Schneider's 1999 literature review, "Toward Improved Access to Medical Services for Relatively Underserved Populations: Canadian Approaches, Foreign Lessons", is the first and only publication that has attempted to identify and describe Canadian RFS programs.

QC, ON, NL, and SK RFS programs utilize bursaries as their financial incentive. Established in 1992, NL has made available up to \$25,000 bursaries for medical students in their "later years of residency" (Barer, Wood and Schneider, 1999). According to Barer et al. (1999), since the 1990's RFS bursaries worth \$18,000 per year are available to SK medical students in the second, third or fourth year of their undergraduate study, as well as residents. Students/residents who become general practitioners must practice in a rural area of less than 10,000 people, and specialists may practice anywhere in the province except Saskatoon and Regina (Barer, Wood and Schneider, 1999).

QC's RFS program, initiated in 1978, provides third and fourth year medical students with bursaries of \$10,000 per year, and family medicine residents are eligible for an additional two years of funding. In addition, regional health boards (as opposed to the province) provide residents studying designated specialties with bursaries between

\$10,000 and \$25,000 per year for the last two years of their residency (Barer, Wood and Schneider, 1999).

From 1969 to 1996, the Ontario Underserved Area Program (OUAP) administered a bursary of \$7,500 to students in their third and fourth year of medical school in exchange for their commitment to work one year in a designated northern community per year of funding. Barer et al. (1999) report that this program is no longer in use.

QC, ON, NL, and SK RFS programs all require one year of service in exchange for each year of funding received. Between 1978 and 1985 returned service was mandatory in QC; if a physician did not fulfill his or her commitment, the physician would not receive a billing number. However, since 1985, a repayment option has been available for all programs. In all provinces, physicians who fail to return their committed service are required to pay their bursaries back with additional interest (Barer, Wood and Schneider, 1999).

MB and AB's RFS programs both utilized loan forgiveness/remission. In MB, \$15,000 loans are available to students in their third and fourth undergraduate year. These loans would be forgiven on a year-for-year basis post graduation (Barer, Wood and Schneider, 1999). Alberta's Rural Physician Action Plan (RPAP), established in 1985, included a loan remission program, wherein new physicians could agree to practice one year in a designated area (physician: population ratio at least of 1:1,000) in return for a remission of \$10,000 of existing student loans. If physicians practiced in an underserved area for two years, they would receive another \$10,000 after completion of the second year (Barer, Wood and Schneider, 1999). The AB program appears to have been

ineffective, however, and was discontinued in 1998 due to low participation (Wilson et al., 1998), later replaced with a signing bonus coupled with return-of-service (Barer, Wood, and Schneider 1999).

The NT does not appear to have a formal RFS program; rather, Stanton Regional Hospital was employing funding from the Territorial Department of Health and Social Services to pay salaries for residents who provided return-in-service (Barer, Wood and Schneider, 1999).

2.3 RFS effectiveness

Several authors have lamented the lack of literature addressing the effectiveness of programs aimed to increase physician recruitment and retention (Barer and Wood, 1999; Barer, Wood and Schneider, 1999; Curran et al., 2007; Grobler et al., 2009; Sempowski, 2004; Simoens, 2004; Wilson et al., 2009; World Health Organizations [WHO], 2009). Despite the widespread use of RFS strategies, Barer and Wood report that “there ha[s] not been any formal evaluation of the student loan programs which rely upon return-of-service guarantees to secure service provisions for underserved areas” (1997 p.6).

2.3.1 Physician Recruitment and Service Commitment Fulfillment

There is limited published work, evaluating Canadian RFS programs. Two ON articles, the most recent being from 1979, describe the province’s undergraduate bursary program (Copeman, 1979; Bass and Copeman, 1975). This dated analysis of the RFS program found that 50% of students had honoured their commitment (as opposed to repaid their bursary), and two thirds of these physicians stayed in their community once

they had finished their service (Copeman, 1979). Less than 10% of female RFS bursary recipients completed their service (Copeman, 1979).

Barer, Wood and Schneider (1999) describe the default rates in both MB and QC. At the time of publication, MB had 102 students accept bursaries, of which 51 (50%) completed their RFS service or were in the process of doing so, 29 (28.4%) students were in training, and 22 (21.6%) had repaid their bursary. QC reported similar default rates. Since the introduction of the buy-out option in 1985 about 50 students accepted bursaries each year, with program planners expecting only 50% of these students to return service. Of the QC students who began their return of service, 50% generally repaid the remainder of their bursaries after one year of service (Barer, Wood and Schneider, 1999). This concern that a large proportion of physicians are taking advantage of available buy-out options rather than completing service has been expressed in literature describing US RFS programs as well (Mason, 1971; Sempowski, 2004; Simoens, 2004; Strosberg, Mullan and Winsberg, 1982).

The utilization of RFS programs in the US is substantial; according to a survey carried out by Pathman et al. (2000a p.265), 24.6% of a sample of 468 practicing family physicians funded all or part of their training with support from "federal, state, or community-sponsored scholarship, loan repayment and similar programs with service obligations." This uptake suggests there is a strong demand for RFS programs.

Evaluations of US RFS programs have been more thoroughly reported in the literature, and in general report higher service completion rates than existing Canadian data. Mason's 1971 evaluation of RFS programs reported 60% of physicians completed their RFS service commitment (38% repay, 2% default). A later study by Pathman et al.

(2000b) reviewed US support-for-service programs again, and found a similar rate of completion for undergraduate student scholarship programs (66.5%). Interestingly, the authors found programs that commit physicians in residency (or later) had a significantly higher completion rate (92%).

While the uptake and completion rates of RFS programs may be high, it is also important to consider whether these programs attract physicians to underserved areas or if physicians who intend to work in underserved areas are the ones who accept bursaries. A recent survey-based study of three Colorado healthcare provider loan-repayment programs found that of the 93 survey respondents/program participants, “74% were already working in or intending to work in an eligible community when they were made aware of the loan repayment program” (Renner et al., 2010 p.1). Of the individuals not already working in a rural community when they applied for the program, “69% reported that the opportunity for loan repayment was an important influence on their choice of practice,” however, 66% also stated they intended to work in a rural community already (Renner et al., 2010 p.5).

2.3.2 Physician Retention

While RFS bursaries have been shown to have an effect on rural recruitment of physicians, research has shown its effects on retention to be less successful. In 1992 Pathman, Konrad and Ricketts published a nine-year follow-up study of the US National Health Service Corps (NHSC) RFS scholarship program. The authors reported that retention of scholarship-obligated physicians was “statistically and meaningfully shorter” than non-obligated physicians (p.1556). After eight years, NHSC funded physicians were significantly less likely to remain in their community than non-obligated physicians (12%

vs. 39%), or in any rural community (29% vs. 52%) (Pathman, Konrad and Ricketts, 1992). While the loss of non-NHSC physicians occurred at a steady rate, NHSC physicians were retained for their obligated years, and were lost more sharply once obligations were completed. More recent NHSC research by Rabinowitz et al. (2001) agrees with the 1992 findings, and reported that participation in the NHSC program to be unrelated to long-term physician retention.

Rosenblatt et al. (1996) analyzed the long-term career paths of family physicians post-NHSC obligation. As of 1994, 20.9% of NHSC physicians who served between 1980 and 1983 were still practicing in their obligated-community. As in the Pathman et al. study (1992), many physicians left once their obligation was complete; of those that did leave, "most assignees who left their assignment counties did so within months of the conclusion of their obligations" (Rosenblatt et al., 1996 p.26), however, longer obligations were correlated with higher retention rates (Rosenblatt et al., 1996).

Canadian RFS programs do not seem to fare much better than their US counterparts. Longer follow-up of Ontario physician distribution before and after the institution of the OUAP found a lack of long-term retention. The authors concluded the OUAP did not have the desired impact on physician distribution; "there appears to be little improvement in physician distribution in the north compared to southern Ontario" (Anderson and Rosenberg, 1990 p.43).

RFS obligated physicians have been found to have a significantly greater concern about their finances in the first years following residency than non-obligated physicians; 93% of survey respondents stated their need for financial assistance had a moderate or major influence on their decision to apply for an RFS program (Jackson et al., 2003). The

high cost of medical training motivates students to commit to RFS agreements, and therefore promotes physician employment in underserved areas (Pathman et al., 2000a), however, this motivation may account for the lack of retention of physicians in their obligated areas as well. Obligated physicians were more likely to report choosing a practice location that would help them to pay off loans quickly, while non-obligated physicians were more likely to report choosing a practice site with long-term settlement in mind (Jackson et al., 2003).

2.3.3 Physician Post-RFS Program Perceptions

In 1996, Rosenblatt et al. conducted an analysis of long-term career paths as well as the retrospective impressions of a family physician cohort that had returned service for NHSC funding during 1980 and 1983. Of the 258 physicians who responded to the survey, 41% had mixed opinions of their experience, while 33% described their NHSC experience positively, 20% negatively, and 6% neutrally. There was no significant difference in responses between those who fulfilled their service and those who did not. The authors report, "the most common sentiment offered was that the NHSC placement had been a satisfying and valuable experience that resulted in an appreciation for rural life and culture" (p.27), while the second most common comment "revolved around displeasure with some aspect of the organization or administration of the NSHC and the process of matching with and being placed at a community" (p.27). While comments evidence that the experience was "a formative and worthwhile experience" (p.27) for many physicians, it was clear there were many problems with the program as well. The authors highlight the importance of appropriate matching to ensure better physician experiences and potentially retention (Rosenblatt, 1996).

It is not yet known how RFS programs affect physician distribution. Barer and Stoddart (1999) state that rather than attracting new physicians to rural areas for recruitment, "it can be argued that the main effect of increased levels of remuneration of various types for rural and remote practice is to reward those who might locate there anyway, or who have already done so largely for non-financial reasons" (p.15). Jackson et al. (2003) assessed West Virginia's financial incentive programs for rural physicians, and found 90% of program recipients responded that the program allowed them to work in their preferred setting. According to Jackson, this "indicat[es] that the programs did not attract significant numbers of recipients who were not already interested in underserved rural areas but, possibly, made these areas more appealing" (Jackson et al., 2003 p.337). Other research agrees that financial incentives may rather work to reinforce or facilitate the choice to work in a rural area instead of attracting uninterested physicians (Mathews, Seguin and Card, 2009).

2.4 Summary

Canadian RFS programs have not been well documented. The most recent (and first) attempt at a pan-Canadian survey of programs was undertaken by Barer, Wood, and Schneider 11 years ago (1999), and the only available Canadian RFS articles come from ON and AB - describing programs that are no longer in effect (Barer, Wood and Schneider, 1999). Barer and Wood state that outcomes "do not seem to have been traced" in half of the available Canadian RFS programs (SK, ON, or NL) (1999). Health policies and programs have most likely changed over this time, and this thesis will record what is currently available, as well as their terms and conditions, to provide a cohesive and current account of Canadian RFS programs.

Qualitative analysis of RFS programs has been recommended throughout the literature (Jackson, Shannon and Pathman, 2003; Pathman et al., 2000a) yet the Rosenblatt (1996) is the only publication to include qualitative data on the subject to date. Canadian medical, educational, and RFS programs are very different from those of the US, and is not known if NHSC experiences are generalizable to the Canadian or NL contexts. This thesis will address this gap, and will qualitatively explore the experiences of bursary recipients.

A study is currently being carried out in NL that aims to determine the proportion of physicians who have fulfilled their service obligations, and assess the retention of obligated physicians against non-obligated physicians (NLCAHR, 2010). By defining motivations for bursary acceptance and features that are attractive to students, this study will complement this ongoing work, providing the context to understand the success or failure of retention of RFS obligated physicians.

Chapter 3: Methods

This project consists of three sub-studies: a document analysis, an electronic survey of current medical trainees at Memorial University, and qualitative interviews of past NL RFS bursary recipients.

3.1 Document Analysis

To address research question one, we conducted a document analysis to create a cross-Canada comparison of the RFS bursary programs available to students and residents. The analysis describes the terms and conditions of RFS programs offered by the provinces and territories in Canada and previous evaluations of these programs on the recruitment and retention of physicians in the province or territory.

3.1.1 Data Collection

To document existing provincial/territorial RFS bursary programs, websites of government, student aid, and provincial/territorial health ministries were searched for RFS program information. If the required information was not available online, appropriate program contacts were identified through internet sources and were contacted for an interview by telephone or email in English between January and May of 2010.

3.1.2 Sample

Each province and territory is in charge of developing and maintaining their own recruitment and retention strategies. Only provincial/territorial government funded bursary programs with return-for-service components were included in this study, we did not compare the incentives offered by hospitals, regional or private firms.

3.1.3 Data Collection Instruments

A data collection tool was initially created based on information found in the literature. After a few initial interviews, the tool was modified to better represent the information available.

Using the data collection tool in Appendix A, fifteen attributes were collected from every program: the program title, the awarding body, date of origin, funding levels, award worth, terms and eligibility requirements, details about payment and commitment (time and location), the number of awards available and accepted each year, commitment fulfillment rates, and finally information about program evaluation.

3.1.4. Data Preparation and Analysis

Collected information was documented and then entered into an SPSS database. We reviewed the data to group recurring responses and coded data according to Appendix B. To study the commonality and variation between programs, descriptive statistics were then carried out on all variables.

3.2 Cross-Sectional Survey

To address research objective two and three, a cross-sectional survey of Memorial University undergraduate medical students and residents was conducted. The survey has two main objectives: first, to determine the proportion of medical students that are considering or have already accepted an RFS bursary; and second, to identify RFS bursary terms of interest. The survey will answer the questions "who are the RFS bursaries attracting and why?"

Survey research provides a quantitative description of trends, attitudes or opinions of a population, and aims to collect the same set of data for every 'case' in the study

(Green and Thorogood, 2009). They are the “design of choice” for research questions that will describe prevalence, or associations between measurable variables (Green and Thorogood, 2009).

3.2.1 Data Collection

An invitation to our anonymous email-distributed web-based survey was sent on our behalf to the entire population of undergraduate medical students at Memorial University by the Faculty of Medicine’s Student Affairs office, and to residents in training by the Post Graduate Medical Education (PGME) office. (Appendix C).

The survey was emailed by Student Affairs office on January 14, 2011, and by the PGME office on January 19, taking advantage of the med.mun.ca email accounts given to all Memorial University medical trainees. The email contained an explanation of the survey and its purpose, as well as a link to the survey on SurveyMonkey.com (SurveyMonkey, 2011). An increased number of contacts has been shown to strongly influence response rate (Cook, Heath, and Thompson, 2000; Kaplowitz, Hadlock and Levine, 2004), therefore one and two weeks after the initial email, follow-up emails were sent to students reminding them of the survey and the deadline by which the survey must be completed (Appendix C).

Research has found the response rate by residents to email surveys to be slightly lower than postal survey (Akl et al., 2005), however, responses to email and post mail surveys by student populations have been found to be comparable (Kaplowitz, Hadlock and Levine, 2004). Literature suggests an incentive should be provided to motivate participants to respond; “potential respondents will weigh the value of the incentive against their perceived cost in time and effort” (Sue and Ritter, 2007 p.95). Entry into a

draw for a \$50 gift certificate was offered as incentive to participate in and complete the survey.

3.2.2 Sample

All of Memorial University's current trainees with valid email addresses were sent the survey; 262 student and 239 resident emails were contacted.

According to the SurveyMonkey *Smart Survey Design* guide, it is expected that surveys administered through email to have an average response rate of 40%, while survey response rates of 50% to 60% are considered good and very good respectively (2010). Other web-based survey studies carried out on similar populations have received response rates of 42% (Couper et al., 2001) and 47% (Sheehan, 2001).

3.2.3 Data Collection Instruments

The survey questions were developed based on themes identified from the literature, the research team, and in consultation with NL RFS and recruitment program planners. Survey questions were informed from the first research objective, and the survey questions reflected some of the other RFS bursary terms/options that are available to other provinces. The survey was created with the online survey program SurveyMonkey and consisted of 26 questions (Appendix D).

The survey opened with multiple-choice questions that collected financial and socio-demographic information the literature suggests may affect the trainees' (medical students and residents) likelihood of accepting a bursary. It then asked whether or not they accepted, applied for, or intend to apply for a bursary. The questions about marital status and personal income were modified from the Canadian Community Health Survey (CCHS) Cycle 1.2 (Statistics Canada, 2002). Questions 10 and 11, describing the level of

financial concern, were modified from a previous study on medical training debt and service commitments (Pathman et al., 2000a). An open-ended question asked trainees about their primary motivation for accepting or choosing not to accept a bursary.

Finally, the survey addressed the attractiveness of the terms and conditions of the NL bursary program. Participants were asked to rate NL RFS terms, as well as different terms offered by other Canadian provinces.

Before creating our online survey, we pretested a paper version of our survey. Pretesting involves “the initial testing of one or more aspects of the study design, such as the questionnaire” (Babbie, 1990, p.220). To pretest the questionnaire, a small sample of science undergraduate and Community Health graduate students completed the survey, and provided us with feedback that allowed us to adjust our question response options and instructions for clarity and comprehensiveness, as well as to give an estimate of the time required to complete the survey.

The pretested survey was then created online on SurveyMonkey.com using the website’s built-in software, where we carried out a pilot study of our research instrument. According to Dillman, Smyth and Christian, a pilot study refers to “a mini-study in which the proposed questionnaire and all implementation procedures are tested on the survey population in an attempt to identify problems with the questionnaire and related implementation procedures” (2009, p.228). The survey link was delivered by email to the same group of graduate and undergraduate students who then completed the online questionnaire. The pilot test allowed us to correct any problems with the online formatting, as well as to test the email delivery of the survey link.

3.2.4 Data Preparation

Results were submitted and collected electronically by SurveyMonkey's software, and exported as an excel file. Student names and identifiers were removed and replaced with a study number. Data were imported and coded into SPSS (version 16.0 for Windows). To clean the data, frequencies and crosstabs were used to identify implausible or incorrect answers. Errors were corrected by consulting other questions in the survey if possible or changed to 'missing data'.

3.2.5 Variables

Variables from the survey were coded according to Appendix E. Some of the demographic variables required some modification before analysis. To calculate participant's age, we subtracted the reported birth year from the survey year, 2011. To categorize the variable "hometown," we used the Statistics Canada 2006 census Community Profiles (Statistics Canada, 2006) and Newfoundland and Labrador's Community Accounts website (Government of Newfoundland and Labrador, 2011) to look up the populations of entered communities. Consistent with other NL research (Mathews and Edwards, 2004), the size of one's hometown was coded as "rural" (having a population of < 10,000 people), "semi-urban" (10,000 – 99,999), and "urban" (>100,000 residents). We coded individuals' home province as NL (1), and Non-NL (0). Question 5 responses of "married" and "living common-law" were coded as 0, for "partnered," while responses "widowed," "separated," "divorced," and "single" were coded as 1 for "non-partnered."

For an individual's bursary status to be coded as 0, "does not hold, and does not plan to hold a bursary," they must have answered "no" to question 17 (indicating that they

have not received a bursary) and also have answered “no” to question 18 (indicating that they do not plan to apply for one in the future). For an individual’s bursary status to be coded as 1, “currently holds or intends to apply for a bursary,” they must have answered “yes” to question 17 (indicating that they have received a bursary), or question 18 (indicating that they intend to apply for a bursary).

Variables for student educational and overall debt were asked as open-ended questions. Once the surveys were completed, categories were created based on the quartiles of submitted responses, and coded for analysis. The primary motivation for a student’s choice to accept or decline an RFS bursary was investigated through an open-ended question on the survey; these responses were categorized and coded for analysis according to Appendix E).

3.2.6 Analysis

To assess the representativeness of the sample, chi square tests were used to compare the sex, year, and home province of students and residents. The characteristics of the student sample frame were based on the (publicly available) medical student class photos, which are arranged by class and include hometown/province information. Characteristics of the resident sample frame were provided to us by the PGME office.

We used descriptive statistics (frequencies, means and standard deviations) to describe the characteristics of the sample, the proportion of respondents who were aware of the bursary and who were interested in RFS bursaries, and to identify the most important RFS terms.

Chi square tests were used to compare the characteristics of students and residents to determine whether all respondents could be analyzed separately or together. Because

of significant differences between the two groups, all analyses were done for students and residents both separately and together.

To test our hypothesis we used multiple logistic regression to identify predictors of holding an RFS bursary. The variable “planned practice province five years after residency” was the independent variable and bursary status was the dependent variable. Chi square tests were used to identify differences in the characteristics of trainees who held/planned to hold an RFS bursary and those who did not. Potential covariates included variables that were statistically significant in these bivariate (chi square) analyses. In addition, we included potential interaction terms identified using chi square tests to compare the characteristics of trainees who planned and did not plan to stay in NL after five years.

Two variables were excluded from the logistic regression analysis to avoid potential multi-collinearity. The respondent’s “planned practice province immediately after residency” variable was not included in the regression model as it was highly correlated with the variable “planned practice province five years after residency.” The variable “plan to fund education with RFS” was not included in the analysis because those who plan to fund their education with an RFS either hold or plan to accept an RFS.

3.2.7 Ethical Considerations

Ethical approval was received from the Memorial University Human Investigation Committee (HIC reference #10.215), Memorial University’s Postgraduate Medical Education office and Student Affairs office before carrying out the survey. The initial email requesting survey participation explained the study and provided students with

information about how their information was to be used. Participation in and completion of the survey implied consent.

To protect confidentiality, email addresses supplied as entry for the incentive draw were removed immediately upon receiving the survey, and entered into a separate document. Any other identifying information was removed from the survey data, and each survey response was given a study number.

No personal identifying information was recorded for analysis, and individuals were not identified in any report or presentation. Since individuals were able to abort the survey at any time, we foresaw very little potential for harm caused by this research. Students participating in the survey were not likely to benefit directly from this research.

Data were stored in a locked room (Community Health, 2847A), with electronic files password protected. Only my supervisor and I have access to them. All data files will remain there for five years, after which they will be destroyed.

3.3 Qualitative Interviews

To address research objective three, we conducted qualitative interviews to gain insight into the experience and satisfaction of actual program users. Qualitative interviews, in general, use open-ended questions that seek to gain information and are “well suited for describing both program processes and outcomes from the perspective of the target audience or key stakeholder” (Guion, 2006, p.1).

Semi-structured interviews offer a less rigid type of interview than structured interviews. While this interview style involves asking pre-determined questions “typically asked of each interviewee in a systematic and consistent order”, the interviewers are “allowed freedom to digress; that is, the interviewers are permitted (in fact expected) to

probe far beyond the answers to their prepared and standardized questions” (Berg, 1995 p.34).

3.3.1 Data Collection

To recruit participants, our program contact Daniel Fitzgerald (Policy, Planning & Research Analyst, Department of Health & Community Services), sent an email to eligible past program-users explaining the study and requesting their participation (see Appendix F). On March 15 and 16, 2011, the letter was emailed to 177 trainees who received a bursary between 2004 and 2010. While this number represents the majority of bursary recipients for the time period of 2004 - 2010, it does not include everyone. Nineteen emails were returned as undeliverable, leaving 159 emails successfully delivered.

Physicians called our telephone number or responded by email to express their interest, after which consent forms were emailed or faxed to them. Their signed copies were faxed or scanned and emailed back to us. Physicians were then contacted by telephone to set up and carry out the interviews at mutually convenient interview times.

Semi-structured interviews were carried out in March and April 2011. Interviews lasted between ten and 20 minutes, and were carried out over the telephone as physicians were working in and outside the province.

3.3.2 Sample

To be included in the interview portion of the study, participants must have previously accepted an NL RFS bursary agreement, and completed their service repayment, repaid their bursary, or defaulted. To avoid any perception of coercion,

physicians who were in the process of training, repaying or completing their service were not eligible.

Initially we expected to conduct between eight and ten interviews to reach saturation (i.e. the point upon which the full range of ideas has been reached and no new information is being collected (Krueger and Casey, 2000)). Moreover, to ensure a representative sample, we employed purposive and stratified sampling (Berg, 1995). We planned to stratify our sample by the type of bursary (family medicine, psychiatry, specialist and travelling), and intended to interview two to three physicians for each type of bursary (including, where possible, at least one individual who fulfilled their bursary commitment through service, and one individual who had repaid their bursary).

3.3.3 Data Collection Instruments

The interviews were semi-structured, following the interview guide found in Appendix G. Interview questions were developed based on the literature review, and in consultation with my supervisory committee and program stakeholders. Questions explored the experiences of past-program users, and specifically addressed the attractiveness of the program, the motivations for and method of bursary repayment, and the effects that the RFS experience had on the physicians' careers (Appendix G).

3.3.4 Data Preparation and Analysis

Interviews were carried out over the telephone and recorded on a computer as .m4a files (digital audio files). The interviews were then transcribed verbatim. Names and identifying information were removed, and a study number was given to each interview.

Thematic analysis was employed to explore the interview data and derive meaning from the transcripts. Thematic analysis is a method for making sense of the data

(Boyatzis, 1998), and “identifying, analyzing and reporting patterns (themes) within data” (Braun and Clarke, 2006 p.79). Aronson explains that themes emerge from many fragments of the interviewee’s experiences, and are “pieced together to form a comprehensive picture of their collective experience” (1994 p.1). The product of a thematic analysis involves not only a description of the data, but also includes a description of the meaning of the themes/patterns (Braun and Clarke, 2006).

Data were coded through an iterative process; my supervisor and I independently read the first three interview transcripts and created a coding scheme by clustering recurring words or ideas into categories, that we then organized into themes. Together, we negotiated the coding template in Appendix H, which was then used to code and analyze all remaining interviews.

Our coding process ensured our findings included naturally arising categories, rather than those influenced by personal bias. Krueger and Casey explain that using two or more independent coders should produce a “precise, reliable and reproducible coding system” (2000, p.42). To improve the credibility of our study, detailed records were kept, including interview tapes, transcripts, field notes and observations made throughout the interviews, as well as throughout the data coding process (Mays and Pope, 1995). We referred to our field notes and observations after writing our results section, to ensure we interpreted quotes correctly.

3.3.5 Ethical Considerations

Ethical approval for the interviews was received from Memorial University’s Human Investigation Committee (HIC reference #10.216) before starting the study. Interview participants’ personal identifiers were removed from the data and were replaced

with study ID numbers. To protect the identities of the physicians who participated in the interviews, data that might identify the individual physicians were edited in the quotations. Individuals participating in the qualitative interview were not personally identified in any publication or presentation.

As no personal identifying information was recorded or analyzed, and the research was largely opinion based, there was little potential for harm caused by this research. Participants were not obligated to answer questions, and were advised of this before the interview started.

Data were stored in a locked room (Community Health, 2847A), and electronic files were password protected, with only my supervisor and me having access. The files will remain here for five years, after which they will be destroyed.

3.4 Knowledge Transfer

Our survey and qualitative interviews were developed with input from key program planners. These program planners were our link to the students and physicians studied, and contacted these individuals on our behalf.

The results of this study will be of interest to the Department of Health and Community Services, the NL Health Board Association (NLHBA), the Faculty of Medicine, physician supply and distribution researchers and other provincial Departments of Health. To reach these audiences I will disseminate the study findings by distributing summary reports, writing articles for peer-reviewed journals, and finally, by presenting at seminars and the 2011 Canadian Association for Health Services and Policy Research (CAHSPR) conference.

Chapter 4: Results

4.1 Document Analysis Results

This analysis was carried out to document the return-for-service (RFS) bursary programs available from provincial and territorial governments to medical trainees across Canada. The goal was to compare and contrast available programs and their differing characteristics, terms, and success rates.

Through use of both online and telephone sources we ascertained that each Canadian province and territory has some form of medical trainee funding program, with all but the Yukon (YU) requiring an RFS commitment. Thirteen government funded RFS programs were identified for inclusion in this study, one from every province and territory except YU, and two from MB.

While medical RFS bursary programs have existed in Canada since the 1960s, they have been subject to many changes. All current program versions were established after the year 2000, with the majority starting between 2000 and 2001. The most recent program comes from Alberta, which commenced in 2005 (personal communication, D. Kay, March 1, 2010) (Table 4.1).

Table 4.1 Year of Origin of Current Canadian RFS Programs by Province and Territory

	NL	PEI	NS	NB	QC	ON	MB	MBa	SK	AB	BC	YU	NT	NU
2000		✓	✓	✓		✓			✓				✓	
2001					✓		✓	✓			✓			
2002	✓													
2003														✓
2004														
2005										✓				

Note: MBa Refers to an Aboriginal-specific RFS program

The majority of RFS programs are given in the form of bursaries (Table 4.2). Other forms of incentive include grants, loan forgiveness, scholarship and tuition

reimbursement. All provinces deliver funds directly to the student except BC, in which the physician's provincial student loans are forgiven instead (Student Aid BC, n.d.). These incentives are considered taxable income in over half of programs, but depending on the province and type of bursary, may be included as either tax-exempt or tax-deductible income. Tax status of RFS incentives is dependent on the parameters set by the Canada Revenue Agency, and is not controlled by the program itself.

While all programs included in this study are provincially funded, they are administered through different organizations. Most financial incentives are awarded through the province or territory's department of health, however they could also be delivered through student aid programs (BC, MB), or an independent body (SK, AB). The Saskatchewan Medical Association (SMA) administers the Saskatchewan bursary program, and in Alberta, bursaries are distributed through the Alberta Rural Physician Action Plan (Table 4.2).

Table 4.2 Comparison of Provincial/Territorial RFS Financial Incentive Payment Details

	NL	PEI	NS	NB	QC	ON	MB	MBs	SK	AB	BC	NT	NU
Incentive Type:													
Bursary	✓		✓	✓					✓	✓		✓	✓
Grant		✓					✓	✓					
Loan forgiveness											✓		
Scholarship					✓								
Tuition reimbursement						✓							
Awarding Body:													
Provincial department of health	✓	✓	✓	✓	✓	✓						✓	✓
Provincial student aid department							✓	✓			✓		
Independent body									✓	✓			
Method of Payment:													
Directly to student	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓		✓	✓
Forgiveness of Loan											✓		

Incentive Tax Status:													
Tax exempt	✓									✓	✓		
Tax deductible			✓	✓		✓	✓					✓	
Taxable income		✓	✓			✓				✓			✓

Note: MBa Refers to an Aboriginal-specific RFS program

As seen in Table 4.3, all but one RFS bursary program offer funding to undergraduate students, with six programs offering funding to students before their third year of medical training. Eleven of 13 RFS programs provide postgraduate funding.

Table 4.3 Canadian RFS Program Availability by Province and Territory

	NL	PEI	NS	NB	QC	ON	MB	MBa	SK	AB	BC	NT	NU
Undergraduate Bursaries:													
Year 1							✓	✓	✓	✓	*	✓	✓
Year 2							✓	✓	✓	✓	*	✓	✓
Year 3	✓			✓	✓		✓	✓	✓	✓	*	✓	✓
Year 4	✓	✓		✓	✓	✓	✓	✓	✓	✓	*	✓	✓
Postgraduate Bursaries:													
Family Medicine: RI/II	✓	✓		✓	✓	✓	✓		✓		*	✓	✓
Family Medicine: RIII							✓				*		
Specialist: General	✓	✓		✓	✓		✓		✓		*	✓	✓
Specialist: Psychiatry	✓		✓								*		
Traveling Fellowship**	✓												

Note: MBa refers to an aboriginal specific program. RI = Residency year one, RII = Residency year two, and RIII = Residency year three * BC forgives provincial student loans in return for service **Travelling Fellowships offer funding to trainees who attend additional training unavailable in their province

The value of RFS funding varies by province, program, trainee year, and specialty. The required service time may vary according to program, year, and the area of service return. Award values and return requirements are summarized in Table 4.4. The mean value of a single year of undergraduate RFS funding is \$15,423 across Canada, with a median of \$15,000. Undergraduate RFS values range in worth from \$6,000 (New Brunswick Health, n.d.) to \$25,000 per year (personal communication, J. Pelly, May 4, 2010; Manitoba Health, 2011-12; PracticeNL, 2010).

The mean value of one year's funding for a family medicine resident is \$22,045 across Canada, with a median of \$20,000 (Table 4.4). Family medicine resident bursary values range in worth from \$10,000 in Ontario (Ministry of Health and Long-Term Care, 2009), to up to \$50,000, which is available to students in their second year of family medicine residency who are taking part in Manitoba's Northern Remote Family Medicine Residency Stream (NRFMS) program (personal communication, R. Parkinson, March 11, 2010). Both the mean and median values for one year of specialist RFS funding is \$20,000, with a minimum value of \$10,000 (Gouvernement du Québec, 2005), and a maximum of \$25,000 (personal communication, J. Pelly, May 4, 2010; Practice NL, 2010; New Brunswick Health, n.d.; Saskatchewan Medical Association, 2010).

RFS funding specific to psychiatry residents is available only in NL and Nova Scotia (NS), and are worth \$25,000 (Practice NL, 2010) and \$15,000 respectively (Nova Scotia Health, 2010). Travelling fellowships are offered to residents or physicians who seek specialty residency training that is in need in NL but is not offered in the province. These physicians receive their tuition and resident wages while completing residency outside NL in exchange for committing to practice one year of service in NL for each year of funding (PracticeNL, 2010).

Recipients may receive more than one bursary over the course of their education. The highest potential cumulative funding is \$131,000, available to family medicine trainees in Manitoba, if an individual receives the maximum four undergraduate grants and participates in both the Rural Northern Initiative (RNI) and the Northern Remote Family Medicine Residency Stream (NRFMS) (Manitoba Health, 2011-2012). The lowest

potential cumulative funding is available in Ontario, with students receiving a maximum of \$40,000 over four years (personal communication, R. Parkinson, March 11, 2010).

As seen in Table 4.4, the service commitment accompanying an RFS agreement varies between and within provinces. The majority of programs require physicians to work 12 months of service in exchange for one year of funding. However, particularly rural or remote areas as well as relief programs often require shorter duration of returned service. Most RFS programs require physicians to work in a rural community, or one that is classified as “in need” or “underserved;” however, several programs simply require physicians to remain in their province.

Table 4.4 Comparison of Canadian RFS Values and Return Requirements According to Province and Recipient Type

Province	Recipient	RFS Value (\$) per year of funding	Service location/specialty requirement	Service (months) per year funding
NL	UG 4	25,000	Area of need	12
NL	FM Res	25,000	Area of need	12
NL	SP Res	25,000	Area of need	12
NL	P Res	25,000	Area of need	12
NL	TF	Salary/tuition	Area of need	12
PEI	FM Res	15,000	Vacancy of greatest need	12
PEI	SP Res	20,000	Vacancy of greatest need	12
NS	P Res	15,000	Area of need	12+6 *
NB	UG 3-4	6,000	Regional health authority in area of need	12
NB	FM Res	12,500	In Saint John, Moncton, or Fredericton	18
NB	FM Res	25,000	Outside Saint John, Moncton, or Fredericton	18
NB	SP Res	20,000	Regional health authority in area of need	18
QC	UG 3-4	15,000	Area of need	12
QC	SP Res	20,000	Area of need	12
QC	FM Res	20,000	Area of need	12
QC	SP Res	10,000	Area of need	12
ON	UG 4	10,000	Underserved community or undersupplied specialty	12
ON	FM Res	10,000	Underserved community or undersupplied specialty	12
ON	SP Res	10,000	Underserved community or undersupplied specialty	12

MBa	UG 1-4 (Aboriginal)	7,000	Rural community	6
MB	UG 1-4	12,000	Location directed by province	6
MB	UG 3**	25,000	Rural community	12
MB	UG 4**	15,000	Manitoba community	12
MB	UG 4 (RNI)	25,000	Northern remote community - location directed by province	12
MB	FM Res	20,000	Within the province	12
MB	FM Res (NRFMS)	50,000	Northern remote community - location directed by province	24
MB	SP Res	20,000	Manitoba community	12
SK	UG 2-4	15,000	Rural relief (locums)	6
			Rural community	8
			Regional center	12
SK	FM Res	25,000	Rural relief (locums)	6
			Rural community	12
			Regional center	24
SK	SP Res	25,000	Rural relief (locums)	6
			Rural community	12
			Regional center	24
AB	UG 1-4 (U of A)	11,540	Family physician: non-metro, non-regional community	12
			Specialist: non-metro community	12
AB	UG 1-3 (U of C)	14,384	Family physician: non-metro, non-regional community	12
			Specialist: non-metro community	12
BC	Physicians	33.3% of all prov. funded student loans	Publicly funded facility in underserved area	12
NWT	UG 1-4	10,000	Within the territory	6
NWT	FM Res	15,000	Within the territory	6
NWT	SP Res	15,000	Within the territory	6
NU	UG 1-4	25,000	Within the territory	Depending on FM or SP
NU	FM Res	25,000	Within the territory	3 years total
NU	SP Res	25,000	Within the territory	5 years total

Note: MBa Refers to an Aboriginal-specific RFS program UG = undergraduate student, FM Res = family medicine resident, SP res = specialist resident, P Res = Psychiatry Resident, TF = travelling fellowship
 *Physicians return 12 months of service for the first year of funding, and 6 months for any additional funding. ** Will be phased out after 2011-2012 year

Leave is granted from all bursary programs for maternity, medical and compassionate reasons, but require physicians to move the end date of their service to honour their commitment to the province. Deferral of service due to illness or compassionate reasons or further training may be considered in most programs.

The penalty for not honouring RFS commitments varies by province, and ranges from no penalty at all to hefty fees and interest (Table 4.5). The majority of programs require physicians/trainees who do not fulfill their commitment to repay their bursary with interest that accumulates from when the bursary was received. Some programs instead require physicians and trainees to repay their bursary with interest that accumulates from when they decided not to fulfill their service commitment. The province of Ontario also requires payment of an additional fine to cover the costs associated with default (Ministry of Health and Long-Term Care, 2009).

Table 4.5 Comparison of Canadian RFS Program Leave, Deferral, and Penalty for Non-fulfillment by Province and Territory

	NL	PEI	NS	NB	QC	ON	MB	MBa	SK	AB	BC	NT	NU
Leave													
Maternity	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Medical/compassionate	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Deferral Considered													
For compassionate reasons	✓	✓		✓	✓		✓	✓	✓	✓	✓	✓	✓
For further training	✓	✓		✓	✓			✓	✓	✓	✓	✓	✓
Penalty													
None											✓		
Repay funding		✓		✓						✓			
Repay with interest on RFS funding from default						✓		✓					
Repay with interest on RFS funding from receipt	✓		✓		✓		✓		✓			✓	✓
Fees						✓							

Note: MBa Refers to an Aboriginal-specific RFS program

Some provinces and programs have a definite number of awards that are awarded each year, while in other provinces, the number awarded varies based on budget. Despite the allotted number of bursaries or budget available, as seen in Table 4.6 the number of bursaries actually distributed to students by the provinces and territories varied dramatically, ranging from zero in 2010 (personal communication, F. Nanji, May 7, 2010;

personal communication, S. MacLean, March 8, 2010), to 167 (personal communication, R. Parkinson, March 11, 2010).

Table 4.6 Canadian Provincial and Territorial RFS Availability and Fulfillment Rate

Province and Program	Number of RFS Contracts Available Per Year	RFS Contracts Awarded**	RFS Fulfillment Rate	
NL UG 4/FM Res	According to budget	48	*	
NL SP Res	According to budget	30		
NL Psych	According to budget	7		
NL TF	According to budget	3		
PEI		0	*	
NS	6	0	89%	
NB UG 3-4	40	40	*	
NB UG 3-4	40	40		
QC	According to budget	81	90-95%	
ON	According to budget	135	*	
MB UG 1-4	According to budget	167		
MB UG 3***	15			
MB UG 4***	15			
MB UG4 (RNI)	According to budget			
MB FM Res	According to budget			
MB FM Res (NRFMS)	10			
MB SP Res	According to budget			
MBa UG 1	10			
MBa UG 2	10			
MBa UG 3	10			
MBa UG 4	10			
SK UG 2-4	25			8
SK FM Res	At least 3			*
SK SP Res	15		15	
AB (U of A)	10	8	2 did not complete in 2009	
AB (U of C)	10	8 last year		
BC	According to budget	28 total since 1991	*	
NWT	No new intake	3	*	
NU	According to budget	3	*	

Note: MBa Refers to an Aboriginal-specific RFS program UG – undergraduate student, FM Res – family medicine resident, SP res – specialist resident, P Res – Psychiatry Resident, TF – travelling fellowship * Unknown or unavailable information ** In the 2009/10 year unless otherwise noted *** Will be phased out after 2011-2012 year

Most programs were unable to provide information about the proportion of their contracts that are fulfilled, as opposed to deferred, defaulted or repaid. While the majority of provinces reported that “a lot” or “the majority” of their students fulfill their service, NS and QC were the only provinces to provide their actual fulfillment rates of 89% and

90-95% respectively (personal communication, A. Busque, May 5, 2010; personal communication, F. Nanji, May 7, 2010).

Despite the large number of bursaries available and distributed across the country, very few of these current RFS programs have been formally evaluated (Table 4.7). Manitoba reports to have evaluated their programs internally (R. Parkinson, personal communication, March 11, 2010), and current research is in progress in NL to assess the effects of RFS bursary commitments on physician recruitment and retention (NLCAHR, 2010). Saskatchewan and Alberta plan to evaluate their programs in the future (personal communication, D. Kay, March 1, 2010; personal communication, E. Hobday, May 3, 2010).

Table 4.7 Evaluation Status of Return-for-Service Programs by Province/Territory

NL	PEI	NS	NB	QC	ON	MB	MBa	SK	AB	BC	NT	NU
✓*						✓						

Note: MBa Refers to an Aboriginal-specific RFS program *In progress

4.2 Medical Trainee Survey Results

The purpose of this survey was to describe the proportion of medical trainees that are considering or have already accepted an RFS bursary and to identify RFS bursary terms that are of interest to medical trainees. In addition, through our analysis we assessed whether the program is attracting previously uninterested trainees to commit to work in NL post-residency.

4.2.1 Sample Characteristics and Representativeness

Of the 501 surveys that were sent to students and residents, 150 students (57.25%) and 78 residents (32.64%) replied with an overall response rate of 45.5%. Two hundred

and twenty-eight trainees responded in total, with 208 trainees completing the survey entirely.

Of our respondents, 223 answered which province they wanted to practice in five years. To test our hypothesis, we compared the 106 trainees who planned to stay in NL five years after completing training to the 117 who did not. This sample size allowed us to detect a statistically significant difference of 18.2% or more between trainees who want to and who do not want to work in NL using an alpha of 0.05 and power of 0.80 (Lenth, 2006-9).

Among students, our sample size allowed us to detect a statistically significant difference of 23.2% or more between students who wanted to ($n=74$) and who did not want to ($n=71$) work in NL (Lenth, 2006-9). Our resident sample size allowed us to detect a statistically significant difference of 33.7% or more between trainees who want to ($n=32$) and who don't want to ($n=46$) work in NL (Lenth, 2006-9).

In terms of representativeness, the sample of students was not different from the student population with respect to sex ($p=0.736$) or home province ($p=0.855$) (See Appendix I). However the sample was different with respect to year of medical school ($p=0.005$); more first year students responded to the survey than expected, and fewer second to fourth year students responded than expected. The resident sample was not different from the resident source population with respect to sex ($p=0.255$), home province ($p=0.172$), or year of residency ($p=0.569$).

4.2.2 Sample Demographics

Tables 4.8 through 4.10 summarize socio-demographic characteristics and future practice plans of our sample. The largest proportion of respondents were non-partnered female Canadians, from an urban hometown, and between the ages of 26 and 29.

Table 4.8: Demographic Characteristics of the RFS Survey Sample (n = 228)

Variable	Total n (%)	Students n (%)	Residents n (%)	P-Value*
Sex				0.715
Male	84 (36.8)	54 (36.0)	30 (38.5)	
Female	144 (63.2)	96 (64)	48 (61.5)	
Age				< 0.000
23-25	67 (29.4)	66 (44.0)	1 (1.3)	
26-29	99 (43.4)	66 (44.0)	33 (42.3)	
> 30	62 (27.2)	18 (12.0)	44 (56.4)	
Home Country				0.035
Canada	221 (96.9)	148 (98.7)	73 (93.6)	
Non-Canada	7 (3.1)	2 (1.3)	5 (6.4)	
Hometown Size				0.492
Rural (<10,000)	76 (33.3)	54 (36.0)	22 (28.2)	
Semi-urban (10,000-99,999)	58 (25.4)	37 (24.7)	21 (26.9)	
Urban (>100,000)	94 (41.2)	59 (39.3)	35 (44.9)	
Home Province				0.002
NL	151 (66.2)	110 (73.3)	41 (52.6)	
Non-NL	77 (33.8)	40 (26.7)	37 (47.4)	
Year of Medical Training				-
Undergraduate Year 1	57 (25.0)	57 (38.0)	0 (0.0)	
Undergraduate Year 2	36 (15.8)	36 (24.0)	0 (0.0)	
Undergraduate Year 3	26 (11.4)	26 (17.3)	0 (0.0)	
Undergraduate Year 4	31 (13.6)	31 (20.7)	0 (0.0)	
Residency Year 1	27 (11.8)	0 (0.0)	27 (34.6)	
Residency Year 2	17 (7.5)	0 (0.0)	17 (21.8)	
Residency Year 3	20 (8.8)	0 (0.0)	20 (25.6)	
Residency Year 4	8 (3.5)	0 (0.0)	8 (10.3)	
Residency Year (Other)	6 (2.6)	0 (0.0)	6 (7.7)	
Student/Resident Status				-
Student	150 (65.8)	150 (100.0)	0 (0.0)	
Resident	78 (34.2)	0 (0.0)	78 (100.0)	
Marital Status				< 0.000
Partnered	78 (34.2)	32 (21.3)	46 (59.0)	
Non-Partnered	150 (65.8)	118 (78.7)	32 (41.0)	

Note: * This P-value is the result of comparing students and residents

Compared to students, a larger proportion of residents were over 30 years old, non-Canadian, not from NL and partnered. Because of these differences we analyzed students and residents both separately and together.

More than three quarters of trainees had moderate to great levels of concern about their finances (Table 4.9). Residents carried higher educational and total debt loads than students, however they did not have higher levels of either current or expected concerns. A larger proportion of students than residents expected to feel an increase in financial concern between their current and expected finances.

Table 4.9: Financial Characteristics of the RFS Survey Sample (n = 227)

Variable	Total n (%)	Students n (%)	Residents n (%)	P-Value*
Current Educational Debt				< 0.000
\$0	15 (6.6)	11 (7.3)	4 (5.1)	
\$1 – 49,000	55 (24.1)	48 (32.0)	7 (9.0)	
\$50,000 – 99,999	45 (19.7)	30 (20.0)	15 (19.2)	
\$100,000 – 149,999	31 (13.6)	22 (14.7)	9 (11.5)	
\$150,000 – 199,999	17 (7.5)	5 (3.3)	12 (15.4)	
\$200,000 – 249,999	15 (6.6)	3 (2.0)	12 (15.4)	
≥ \$250,000	6 (2.6)	1 (0.7)	5 (6.4)	
Do Not Know	26 (11.4)	18 (12.0)	8 (10.3)	
Refused	18 (7.9)	12 (8.0)	6 (7.7)	
Current Education Debt Quartiles				< 0.000
\$0 – 29,999	43 (23.4)	38 (31.7)	5 (7.8)	
\$30,000 – 64,999	48 (26.1)	33 (27.5)	15 (23.4)	
\$65,000 – 124,999	45 (24.4)	34 (28.3)	11 (17.2)	
\$235,000 – 500,000	48 (26.1)	15 (12.5)	33 (51.6)	
Current Total Debt				< 0.000
\$0	13 (5.7)	10 (6.7)	3 (3.8)	
\$1 – 49,000	38 (16.7)	33 (22.0)	5 (6.4)	
\$50,000 – 99,999	33 (14.5)	29 (19.3)	4 (5.1)	
\$100,000 – 149,999	23 (10.1)	18 (12.0)	5 (6.4)	
\$150,000 – 199,999	12 (5.3)	6 (4.0)	6 (7.7)	
\$200,000 – 249,999	13 (5.7)	3 (2.0)	10 (12.8)	
\$250,000 – 299,999	14 (6.1)	4 (2.7)	10 (12.8)	
≥ \$300,000	28 (12.3)	8 (5.3)	20 (25.6)	
Do Not Know	32 (14.0)	24 (16.0)	8 (10.3)	
Refused	22 (9.6)	15 (10.0)	7 (9.0)	
Current Total Debt Quartiles				< 0.000
\$0 – 36,499	43 (24.7)	37 (33.3)	6 (9.5)	
\$36,500 – 99,999	41 (23.6)	35 (31.5)	6 (9.5)	
\$100,000 – 227,499	47 (27.0)	27 (24.3)	20 (31.7)	
\$227,500 – 550,000	43 (24.7)	12 (10.8)	31 (49.2)	

Fund School with Work/Savings				< 0.000
No	87 (38.3)	70 (47.0)	17 (21.8)	
Yes	140 (61.7)	79 (53.0)	61 (78.2)	
Fund School from Parents				0.410
No	152 (67.0)	97 (65.1)	55 (70.5)	
Yes	75 (33.0)	52 (34.9)	23 (29.5)	
Fund School with Loans/Credit				0.204
No	29 (12.8)	16 (10.7)	13 (16.7)	
Yes	198 (87.2)	133 (89.3)	65 (83.3)	
Fund School with Scholarship/Bursary				0.0843
No	126 (55.5)	82 (55.0)	44 (56.4)	
Yes	101 (44.5)	67 (45.0)	34 (43.6)	
Fund School with Scholarship/Bursary with RFS Commitment				< 0.000
No	201 (88.5)	145 (97.3)	56 (71.8)	
Yes	26 (11.5)	4 (2.7)	22 (28.2)	
Current Financial Concern				0.168
None	11 (4.9)	7 (4.8)	4 (5.1)	
Slight	59 (26.5)	44 (30.3)	15 (19.2)	
Moderate	103 (46.2)	67 (46.2)	36 (46.2)	
Great	50 (22.4)	27 (18.6)	23 (29.5)	
Expected Financial Concern				0.294
None	8 (3.6)	3 (2.1)	5 (6.4)	
Slight	45 (20.2)	32 (22.1)	13 (16.7)	
Moderate	100 (44.8)	63 (43.4)	37 (47.4)	
Great	70 (31.4)	47 (32.4)	23 (29.5)	
Change in Financial Concern				< 0.000
Decreases	19 (8.5)	12 (8.3)	7 (9.0)	
No Change	148 (66.4)	83 (57.2)	65 (83.3)	
Increases	56 (25.1)	50 (34.5)	6 (7.7)	

Note: * This P-value is the result of comparing students and residents

More than half of respondents planned to stay in NL immediately after completing residency (Table 4.10). Compared to residents, a larger proportion of students reported not knowing where they planned to practice immediately after their residency. A smaller proportion of residents than students plan to practice in NL five years after their residency, and a larger proportion of residents than students plan to practice in a non-maritime province or territory. The majority of both students and residents wanted to work as specialists in an urban community.

Table 4.10: Future Practice Plans of the RFS Survey Sample (n = 223)

Variable	Total n (%)	Students n (%)	Residents n (%)	P- Value
Planned Practice Province Immediately after Residency				0.026
NL	116 (52.0)	76 (52.4)	40 (51.3)	
Non-NL Maritime Province	11 (4.9)	9 (6.2)	2 (2.6)	
Non-Maritime Province/Territory	16 (7.2)	6 (4.0)	10 (12.8)	
Outside of Canada	2 (0.9)	0 (0.0)	2 (2.6)	
Do Not Know	78 (35.0)	54 (37.2)	24 (30.8)	
Planned Practice Province Five Years After Residency				0.005
NL	106 (47.5)	74 (51.0)	32 (41.0)	
Non-NL Maritime Province	16 (7.2)	11 (7.6)	5 (6.4)	
Non-Maritime Province/Territory	14 (6.3)	3 (2.1)	11 (14.1)	
Do Not Know	87 (39.0)	57 (39.3)	30 (38.5)	
Desired Practice Community Size				0.109
Rural (<10,000)	24 (10.8)	17 (11.7)	7 (9.0)	
Semiurban (10,000-99,999)	89 (39.9)	63 (43.4)	26 (33.3)	
Urban (>100,000)	110 (49.3)	65 (44.8)	45 (57.7)	
Desired Practice Specialty				0.246
Family Medicine	73 (32.6)	48 (32.9)	25 (32.1)	
Specialist	146 (65.2)	93 (63.7)	53 (67.9)	
Undecided	5 (2.2)	5 (3.4)	0 (0.0)	

Note: * This P-value is the result of comparing students and residents

Table 4.11 summarizes the trainees' preferences for and knowledge and perceptions of the NL RFS Bursary program. Over two thirds of respondents were previously aware of the program prior to the survey, however a larger proportion of residents were aware of the program than students. Over half of the trainees (53.4%) who were aware of the RFS program held or planned to hold an RFS agreement. These 79 trainees represent just over one third (35.6%) of survey respondents.

The largest proportion of respondents preferred delivery of RFS funds to the student as a cheque, no punishment for not completing service, and the availability of bursaries to residents and all years of undergraduate study. The majority would consider participation in the NL RFS for \$25,000 or less, and felt that the maximum return period they would consider per year of funding was 12 months or less.

Table 4.11: RFS Survey Sample Knowledge, Preference, and Perception of the NL RFS Program (All Respondents n = 222)

Variable	Total n (%)	Students n (%)	Residents n (%)	P-Value*
Previously Aware of RFS Program				0.010
No	73 (32.9)	56 (38.9)	17 (21.8)	
Yes	149 (67.1)	88 (61.1)	61 (78.2)	
How Did They Become Aware of RFS?				0.087**
1 st Year Class Presentation	14 (9.5)	11 (12.6)	3 (4.9)	
Word of Mouth	80 (54.1)	42 (48.3)	38 (62.3)	
Physician Recruitment Office, UGME, or Student Affairs	30 (20.3)	17 (19.5)	13 (21.3)	
CARMS	2 (1.4)	0 (0.0)	2 (3.3)	
Media	8 (5.4)	6 (6.9)	2 (3.3)	
Other	14 (9.5)	11 (12.6)	3 (4.9)	
Bursary Status				0.851
Does Not Hold/Plan to Apply for RFS	69 (46.6)	40 (46.0)	29 (47.5)	
Currently Holds/Intends to Apply	79 (53.4)	47 (54.0)	32 (52.5)	
Reason for Accepting RFS (n = 20)**				0.009***
Financial Reasons	11 (55.0)	0 (0.0)	11 (57.9)	
Job Security	2 (10.0)	1 (100.0)	1 (5.3)	
Plan to Work in NL Anyways	7 (35.0)	0 (0.0)	7 (36.8)	
Reason for Applying for RFS (n = 58)**				0.080***
Financial Reasons	34 (58.6)	30 (66.7)	4 (30.8)	
Job Security	4 (6.9)	3 (6.7)	1 (7.7)	
Plan to Work in NL Anyways	19 (32.8)	11 (24.4)	8 (61.5)	
Desire to Contribute to Rural Medicine	1 (1.7)	1 (2.2)	0 (0.0)	
Reason for Not Applying for RFS (n = 68)**				0.121***
Do Not Want to Stay/Commit to NL	12 (17.6)	7 (17.5)	5 (17.9)	
Unsure of Plans/Do Not Want Constraints	25 (36.8)	20 (50.0)	5 (17.9)	
Small/Rural Communities Unattractive	6 (8.8)	4 (10.0)	2 (7.1)	
Other Service Commitments	4 (5.9)	1 (2.5)	3 (10.7)	
Significant Other/Family Commitments	6 (8.8)	3 (7.5)	3 (10.7)	
Not Financially Attractive Enough	2 (2.9)	1 (2.5)	1 (3.6)	
Specialty Unavailable/Limited	7 (10.3)	3 (7.5)	4 (14.3)	
Do Not Know Enough About Program	3 (4.4)	1 (2.5)	2 (7.1)	
Poor Treatment/Payment of Physicians	3 (4.4)	0 (0.0)	3 (10.7)	
Preferred RFS Fund Delivery				0.003***
To Student as Cheque	167 (79.9)	107 (79.3)	60 (81.1)	
To Student as Direct Deposit/Line of Credit	4 (1.9)	0 (0.0)	4 (5.4)	
To School as Tuition	9 (4.3)	9 (6.7)	0 (0)	
To Student Loan Agency	27 (12.9)	19 (14.0)	8 (10.8)	
Other	2 (0.9)	0 (0.0)	2 (2.7)	
Preferred RFS Recipients				0.007***
Residents only	42 (20.1)	20 (14.8)	22 (29.7)	
Residents/Fourth Year Undergraduates	69 (33.0)	49 (36.3)	20 (27.0)	
Residents/All Undergraduates	93 (44.5)	65 (48.1)	28 (37.8)	
Other	5 (2.4)	1 (0.7)	4 (5.4)	
Minimum \$ Required to Consider RFS				0.870
≤ \$25,000	131 (72.3)	81 (68.1)	50 (81.9)	
> \$25,000	50 (27.6)	37 (31.9)	13 (18.1)	

Maximum Time for 1 Year Funding to Consider RFS				0.037
≤ 12 Months	138 (73.4)	79 (68.1)	59 (81.9)	
> 12 Months	50 (26.6)	37 (31.9)	13 (18.1)	
Preferred Penalty for Not Completing Service				0.092
Repay	79 (37.8)	50 (37.0)	29 (39.2)	
Repay/Fine	42 (20.1)	30 (22.2)	12 (16.2)	
Repay/Interest from Default	49 (23.4)	36 (26.7)	13 (17.6)	
Repay/Interest from Receipt	35 (16.7)	18 (13.3)	17 (23.0)	
Other	4 (1.9)	1 (0.7)	3 (4.1)	

Note: * This P-value is the result of comparing students and residents ** Only those individuals that responded they had prior knowledge of the NL RFS program were asked whether they have accepted, or intend to apply for an RFS bursary or not. *** More than 20% of cells have expected count less than 5.

Of those individuals who have accepted or plan to accept an RFS, most cited financial reasons as the top reason for their choice (Table 4.12). Those who do not plan to apply for a bursary reported doing so mainly because they did not want their options to be limited or did not plan to stay in the province. The community where trainees must repay their service was ranked most important with regards to the choice to accept a bursary or not, followed by the bursary's monetary value, and the amount of return time required.

Table 4.12: Importance of Variables on Choice to Accept NL RFS Bursary to Survey Sample (All Respondents n= 209)

Variable	6 (Least Important) n (%)	5 n (%)	4 n (%)	3 n (%)	2 n (%)	1 (Most Important) n (%)
Tax status	78 (37.3)	33 (15.8)	37 (17.7)	20 (9.6)	26 (12.4)	15 (7.2)
Monetary Value	3 (1.4)	20 (9.6)	20 (9.6)	28 (13.4)	65 (31.4)	73 (34.9)
Return-Time	15 (7.2)	16 (7.7)	32 (15.3)	57 (27.3)	60 (28.7)	29 (13.9)
Location of Service Return	10 (4.8)	11 (5.3)	29 (13.9)	49 (23.4)	32 (15.3)	78 (37.3)
Availability of Leave/Vacation	32 (15.3)	65 (31.1)	58 (27.8)	33 (15.8)	16 (7.7)	5 (2.4)
Penalty for Not Fulfilling Commitment	71 (34.0)	64 (30.6)	33 (15.8)	22 (10.5)	10 (4.8)	9 (4.3)

Note: Shaded cells are the most frequently rated level of importance for each variable.

When separated by student/resident status, the results differed slightly (Appendix J). The greatest proportion of residents rated the area where the bursary must be returned

as the most important reason in their choice for accepting or not accepting an RFS agreement, with the monetary value of the bursary coming in second. The most important consideration for students was the monetary value of the bursary, with the location of return ranked second. Length of return time was ranked as the third most important factor for both groups.

4.2.3 Characteristics of Trainees Who Do and Do Not Want an RFS Bursary

As seen in table 4.13, compared to those who do not hold or plan to apply for an RFS bursary (non-holders), a larger proportion of individuals who do plan to or already hold an RFS bursary (holders) were from NL, non-partnered, planned to fund school with their RFS, and had moderate to great financial concerns (current and expected). A larger proportion of holders (than non-holders) wanted to practice family medicine, and planned to remain in NL after their residency both immediately and after five years. A larger proportion of holders considered the monetary value of the RFS of highest importance in the decision to accept a bursary or not. However, a greater proportion of non-holders than holders considered location of RFS service commitment the most important factor.

We compared these same characteristics against RFS status for students and residents separately (Appendix K). No additional differences were found.

Table 4.13: Differences in Characteristics of Trainees who Hold/Plan to Accept an RFS (n = 79) and Those Who Do Not Hold/Plan to Apply For an RFS (n = 69) (All Trainees)

Variable	Does Not Hold or Plan to Accept an RFS n (%)	Currently Holds or Intends to Apply for RFS n (%)	P-Value
Sex			0.068
Male	31 (44.9)	24 (30.4)	
Female	38 (55.1)	55 (69.6)	
Age			0.194
23-35	17 (24.6)	18 (22.8)	
26-29	29 (42.0)	32 (40.5)	
> 30	23 (33.3)	29 (36.7)	

Home Country			0.623
Canada	68 (98.6)	76 (96.2)	
Non-Canada	1 (1.4)	3 (3.8)	
Hometown Size			0.518
Rural	21 (30.4)	28 (35.4)	
Non-Rural	48 (69.6)	51 (64.6)	
Home Province			< 0.000
NL	34 (49.3)	68 (86.1)	
Non-NL	35 (50.7)	11 (13.9)	
Student/Resident Status			0.851
Student	40 (58.0)	47 (59.5)	
Resident	29 (42.0)	32 (40.5)	
Marital Status			0.019
Partnered	21 (30.4)	39 (49.4)	
Non-Partnered	48 (69.6)	40 (50.6)	
Current Education Debt Quartiles			0.087
1 st Quartile	13 (22.4)	10 (15.9)	
2 nd Quartile	20 (34.5)	12 (19.0)	
3 rd Quartile	12 (20.7)	16 (25.4)	
4 th Quartile	13 (22.4)	25 (39.7)	
Current Total Debt Quartiles			0.359
1 st Quartile	10 (17.9)	11 (18.0)	
2 nd Quartile	16 (28.6)	11 (18.0)	
3 rd Quartile	18 (32.1)	18 (29.5)	
4 th Quartile	12 (21.4)	21 (34.4)	
Fund School with Work/Savings			0.399
No	25 (36.2)	34 (43.0)	
Yes	44 (63.8)	45 (57.0)	
Fund School from Parents			0.211
No	46 (66.7)	60 (75.9)	
Yes	23 (33.3)	19 (24.1)	
Fund School with Loans/Credit			0.767
No	6 (8.7)	8 (10.1)	
Yes	63 (91.3)	71 (89.9)	
Fund School with Scholarship/Bursary			0.184
No	39 (56.5)	36 (45.6)	
Yes	30 (43.5)	43 (54.4)	
Fund School with Scholarship/Bursary with RFS Commitment			0.001
No	66 (95.7)	60 (75.9)	
Yes	3 (4.3)	19 (24.1)	
Current Financial Concern			0.004
None to Slight	30 (43.5)	17 (21.5)	
Moderate to Great	39 (56.5)	62 (78.5)	
Expected Financial Concern			< 0.000
None to Slight	26 (37.7)	10 (12.7)	
Moderate to Great	43 (62.3)	69 (87.3)	
Planned Practice Province Immediately after Residency			< 0.000
NL	17 (24.6)	70 (88.6)	
Non-NL	52 (75.4)	9 (11.4)	

Planned Practice Province 5 yrs After Residency			< 0.000
NL	13 (18.8)	63 (79.7)	
Non-NL	56 (81.2)	16 (20.3)	
Desired Practice Community Size			0.583
Rural	8 (11.6)	7 (8.9)	
Non-Rural	61 (88.4)	72 (91.1)	
Desired Practice Specialty			0.039
Family Medicine	17 (24.6)	31 (40.8)	
Specialist	52 (75.4)	45 (59.2)	
Tax-Exemption of RFS Most Important Factor in Accepting/Not			0.315
No	63 (94.0)	67 (89.3)	
Yes	4 (6.0)	8 (10.7)	
Bursary \$ Value Most Important Factor in Accepting/Not			0.016
No	52 (77.6)	44 (58.7)	
Yes	15 (22.4)	31 (41.3)	
Bursary Return Time Most Important Factor in Accepting/Not			0.689
No	62 (92.5)	68 (90.7)	
Yes	5 (7.5)	7 (9.3)	
Bursary Return Location Most Important Factor in Accepting/Not			0.003
No	29 (43.3)	51 (68.0)	
Yes	38 (56.7)	24 (32.0)	
Leave/Vacation Availability Most Important Factor in Accepting/Not			0.221
No	65 (97.0)	75 (100.0)	
Yes	2 (3.0)	(0.0)	
Penalty for Non-Fulfillment Most Important Factor in Accepting/Not			0.722
No	64 (95.5)	70 (93.3)	
Yes	3 (4.5)	5 (6.7)	

Multiple logistic regression was carried out to determine predictors for accepting an RFS bursary (Table 4.14). Variables included in the model were those identified as significant through chi square analysis.

Table 4.14: Logistic Regression Analysis Predicting Whether Respondents Would Accept an RFS Bursary (n = 148)

Variable	Odds Ratio	Confidence Interval		P-Value
		Lower	Upper	
Current Financial Concern				
None-Slight	-	-	-	
Moderate-Great	4.77	1.64	13.90	0.004
Planned Practice Province (After 5 Years)				
Non-NL	-	-	-	
NL	27.65	10.07	75.88	< 0.000
Location of Return Most Important Factor in Accepting RFS or Not				
No	-	-	-	
Yes	0.26	0.10	0.68	0.006

Finances and location appear to strongly affect RFS acceptance. Compared to trainees who have little concern about their current finances, trainees with moderate to great financial concern were nearly five times more likely to accept or plan to accept a bursary. Compared to individuals who did not want to work in the province, individuals who intended to stay in NL long term were much more likely to accept an RFS (OR = 27.65). Trainees who felt the location of return was the most important factor in their consideration to accept a bursary were almost four times less likely to accept an NL RFS bursary (OR = 0.26) than those who did not rate location as the most important factor.

Multiple logistic regressions were carried out on student and residents separately, using those factors identified as significant from their respective chi-square analyses (Appendix L). Significant factors contributing to the student model included current financial concern, planned practice province (five years after residency), and the location

of return being most important to accepting an RFS or not. Significant factors in the resident model included planned practice five years after residency.

To answer the question “does the RFS program help to attract previously uninterested physicians to stay in the province?” we examined the 79 trainees who held or planned to hold an RFS agreement. Sixty-three planned to remain in NL five years after their residency (and any RFS-obligated service period). Roughly 20% (16 of the 79) trainees did not plan to work in NL in the long term. These findings suggest that up to 20% of RFS holders are physicians who, without an RFS, would not practice in NL.

4.2.4 Survey Comments

An open space was placed at the end of the survey for respondents to leave their comments (See Appendix M). Of the 23 comments, over half expressed that trainees need more information about this program. Ten comments expressed the need for more information about the bursary program, the difficulty experienced in finding information, or the desire for more detailed information. In their comments, many trainees stated incorrect information about the program.

Three comments expressed positive opinions about the RFS program, however two trainees felt the funds offered by the province were not competitive with other provinces (or the US). Several trainees felt more effort should be made to recruit and retain both NL (1) and non-NL students (3), and two students expressed concern about the loss of NL RFS tax-exempt status.

4.3 Interview Results

The purpose of the interview portion of this research was to describe the experiences and satisfaction of previous NL RFS bursary holders.

4.3.1 Interview Sample Characteristics

Between March 17 and April 10, 2011, 14 physicians responded to our request for an interview. Six of these individuals were ineligible, as they had not yet completed training or repayment. Two physicians ultimately decided not to participate in an interview. Six qualitative interviews were carried out during this period. Only individuals who had received family medicine and specialist bursaries volunteered for the study.

The majority of interviewees were female (5:1) family physicians (4:2), and remained in the province after completion of service (5:1). All physicians who volunteered for an interview completed their service return through service (instead of repayment or default).

4.3.2 Impression of RFS Bursary Elements

The physicians we interviewed commented on the attractiveness of the NL RFS program features. Four of the six physicians interviewed suggested that the bursary's monetary value was clearly an attractive feature of the bursary:

It was financial incentive, because I have a family and with the resident wages it was hard to make both ends meet. (MS1)

Only one physician felt that the incentive was not large enough, suggesting the bursary value be doubled to become a fairer amount of funding.

Another attractive feature of the RFS program was the job security and flexibility that comes with the agreement. One specialist noted that: "It was the financial thing,

mainly, and secondly the thing was that I would be assured a position after I finished” (MS1). Two family physicians suggested that the flexibility of potential practice locations was also attractive. For example:

I think that it was that it was one year, which sort of gave you some flexibility, you know, on the off chance that the position you were accepting didn't work out for whatever reason. (FS1)

The location of where the bursary must be returned was an important consideration for participants. While some physicians were not concerned about the location they may have had to work, for others, it was a worrisome point. For example, one physician said:

I think it's great that, to my understanding, at least, I could practice anywhere in the province, for me it's not a huge issue, because I was willing to go rural. Perhaps some people who don't necessarily want to go rural and want to stay in St. John's, that, the bursary is still a bit flexible towards those people. (FFM1)

While other physicians found the vagueness of the RFS contract to be unattractive:

The contract itself is very vague, in that it says that wherever there is need, we will send you there. So that was the only concern that I had, was that there was a possibility that they would decide that a [sub-specialist] was needed in some small town. (FS1)

4.3.3 RFS Experiences

We asked interview participants to describe their experiences learning about the program, applying for the program, and completing the service requirement.

4.3.3.1 Hearing about the RFS

Five of six physicians learned about the NL RFS bursary through word of mouth: “I would not have known about it if it were not from my colleagues and friends. I just would not have known about it period” (FS2). While two physicians remembered hearing

about the bursary earlier in their undergraduate medical training, their comments suggest that more emphasis would have been beneficial:

We were informed about it early on in med school, probably first or second year I got a little bit of wind of it, but not, honestly, I don't think it was emphasized enough. (FFM1)

I only found out about this through word of mouth. It was because someone a year ahead of me had returned service to the program. I don't know what sort of advertising is done for this, but I guess it could be more attractive if it was more well known. (FS2)

A common theme brought up in half of interviews was the difficulty getting information from the RFS program itself:

Initially when I was asking questions about the bursary, I wasn't getting a whole lot of response. (FFM1)

Doing one or two recruitment drives a year isn't adequate. And I think they should follow up with the people who actually approach them. Which they didn't, really. (FS2)

And only one physician learned about the program through physician recruitment efforts:

I think there was a stall or a fair or something like that in the lobby of the health sciences, and there was this place about physician recruitment or something. That is where I heard [about] it. (MS1)

4.3.3.2 The Bursary Application Process

The bursary application process was well reviewed by the physicians. Comments referred to the process as clear, straight forward, simple and efficient. The only complaint was that it required having to ask for references:

... I find that a bit just annoying, to have and go ask individuals to write you a letter and that takes time out of their personal time. They don't get paid to you know, write you a reference letter but you know, I guess it's a small issue in the grand scheme of things. (FFM1)

4.3.3.3 Service Return Experiences

All six physicians commented very positively on their service return experience.

The program placements were well praised:

I had an excellent experience, and had really good relationships with the people I worked with—the colleagues, coworkers, mentors, etcetera—I found for me that was good fit. (FFM1)

It was great. I had done some of my residency there, so it was really good. I really liked it. (FFM2)

So you know, I think, certainly for us, it worked out very very well. I came to the position that I did, I've loved it, I have no intention of leaving... and I am going to spend my career here. So from that point of view, it worked out perfectly. (FS1)

Even with prompting, there were no negative comments on the actual service return experience: "I can't really say that I had any negative experiences. I was really grateful for the opportunity and it was not negative at all" (FFM3).

While all of the physicians completed their RFS commitments through service, they had different reasons for doing so. Some completed their service because they were planning to work in their positions or in the province anyways. However some displayed a principled reasoning for fulfilling their service; they were committed to their patients, and to the province for its support:

But I did end up staying a few extra month to finish out the contract, and plus I had been in [the community] for a while and made a commitment to stay for at least a year, so I wanted to fulfill that for my patients. (FFM2)

I never really thought of repaying it because I thought it was a fair deal. I thought that if the government was good enough to offer it to me, in order to retain physicians here, and I wanted to stay here anyways, but other places were offering things as well, but I thought if the government was sensible enough to offer some even small incentive, although it was smaller than other provinces, it was still worth it to me, so I never even thought of going back on the contract. (FFM3)

The way I look at it is that, they helped me when I needed help. And it's only right that I pay it back in terms of what they need. I'm sure they don't need my twenty-five thousand dollars back, what they need is somebody who can do the job and yes, I had an obligation and intended to fulfill it. (MS1)

4.3.4 RFS as a Part of Physician Recruitment

We also asked physicians to comment on the influence of the RFS bursary on their decision to work and stay in the province. While all six physicians commented that the bursary helped repay their debt and make ends meet during their training, only two stated that the financial incentive was their main reason for staying:

I can't think of another reason anyone would apply other than the financial benefit of it to be honest. I think although I know money is not the only factor that's going to keep people in the province, ... but, for me, it was a money decision for sure. It made a huge impact on my choice for sure. (FFM1)

For the other physicians in our study, the incentive was not the deciding factor in their decision to accept an NL RFS bursary. The remaining four physicians accepted the bursary not only for its monetary value, but because they wanted to work in the province already: "I was getting money, and I was coming here anyways" (FS2).

Three of these physicians stated that they were already going to stay in the province, and would have done so without receiving a bursary. One physician already had a position confirmed before applying for the bursary:

I finally signed the bursary after I had located a job offer in the province, so I mean, really, once my job was locked up... I had already decided I was going to come back to the province, so this bursary was just the cherry on top. (FS2)

The remaining physician felt that the RFS bursary worked to solidify her choice to remain in the province and prevented her from being drawn away by other provinces:

I'm from rural Newfoundland and I had an interest in returning to rural Newfoundland, but it certainly is a huge incentive to encourage me to keep on that path. I think if that incentive wasn't there I would be more likely to be drawn

away or be attracted to other sites in the country for recruitment, where the signing bonuses or the salaries are just that much more significant... I think the bursary itself just kind of like rooted me to my decision. (FFM1)

Two physicians that did not plan to remain in the province after their training accepted RFS bursaries. Both of these physicians admitted that they might not have stayed in the province without having accepted an RFS bursary:

Interviewer: "Did you initially plan to practice in Newfoundland after you completed your medical training?"

Physician: "No, I really didn't, I never had. I was very open minded to going to Ontario or Alberta. Once I considered the States, but then I'd ruled it out. The bursary did help me to decide to stay here, I must say."

Interviewer: "Do you think you would have stayed in Newfoundland if you hadn't had a bursary offered to you?"

Physician: "I would've been less inclined to stay here... because money would've been tight going through. So if another province had offered me something I would most likely have accepted because of the huge burden of medical school financially."

(FFM3)

Interviewer: "Did you originally intend to stay in Newfoundland once you completed your training?"

Physician: "No."

Interviewer: "Where did you plan on going?"

Physician: "I was thinking of going back to Ontario."

Interviewer: "Would you have stayed in Newfoundland if you hadn't accepted a bursary?"

Physician: "Unlikely."

(MS1)

Both of these physicians completed their commitments with the required service time, have remained in the province, and do not have any current plans to migrate.

Five of the six physicians interviewed remain in the province after fulfilling their service commitment. The only physician that left the province did so for family reasons. This physician reported having a positive experience with her service return community and without a familial pull away from the province, might have remained there long term:

I think I might have stayed. But I really really ended up loving [the community], so if it hadn't been for my husband I think I might have stayed there forever. (FFM2)

The RFS bursary is one element of the province's recruitment strategy. In our interviews, we also asked the physicians to comment on the role of the RFS program within the context of overall physician recruitment initiatives. Half of the interviews indicated a lack of active physician recruitment efforts to both the RFS program and to the province in general. As trainees, they commented that they had to take the initiative to find out about the program, and to receive a contract:

I kind of took it upon myself to go looking for the information, and went to the recruitment office and asked about applications and emailed individuals to get information on it. It wasn't like people were falling all over themselves to tell me about it. (FFM1)

It's kind of a bit hands-off... I was never ever recruited, I would say. (FFM2)

I wasn't recruited by them; I was self-recruited. I told them I wanted a job, and I lined it up independent of the recruitment program. I would say there is just an overall lack of recruitment and follow up. I wouldn't call it recruitment. (FS2)

One physician felt that the RFS program lost contact with the trainees in their residency and beyond, and found that there were no recruitment or retention efforts aimed towards her after she had signed her contract:

There's no follow-up, and you know, I don't even know if there was any checking to see if I actually did fulfill my return of service, I never heard from anyone. At all. (FFM2)

Since I left, I have barely had any contact with them at all and I have come back for locums too, in (community), but there hasn't been much contact for anything. And I know, when I was leaving even, no one called to say 'no you should stay, we can offer you this or that' or whatever...if bodies are there and the numbers look good, then they just forget about us. (FFM2)

4.3.5 Summary

Overall, the interviews suggest that the RFS bursary program provided valuable and positive experiences for trainees, and that the financial incentive was large enough to attract some novel physicians to stay in the province. Communication issues, whether within the wording of the contract, or through the perceived lack of promotion and recruitment efforts, were a common theme.

Chapter 5: Discussion

Solving physician distribution problems with financial means is not a new concept; both historically and currently, policy approaches to geographic distribution problems have been dominated by financial incentives. RFS bursary programs have existed in Canada in some form since 1969 (Barer, Wood and Schneider, 1999). While bursary award values have changed much since then, the goal and approach of the programs appears to have remained the same.

5.1 RFS Terms

The most current permutations of RFS bursary programs have been in effect since the early 2000's (ON, PEI, SK, NB, NS), and as late as 2005 (AB). As of 2010, all provinces but one have a provincially funded RFS program, as compared to the six identified by Barer, Wood and Schneider (1999). Although each province/territory manages bursary programs independently, they are similar in form and function with slight variation between bursary amounts and service commitments. RFS programming has seen a movement away from loan forgiveness incentives; at the time of Barer, Wood and Schneider's report, Manitoba and Alberta were both using loan forgiveness (1999), which has since been abandoned in favor of more direct subsidy. British Columbia (BC) is the only province currently using loan forgiveness as their RFS incentive.

The NL RFS bursary has the same return time commitment as the national average (twelve months), and is comparable to, if not better than, the national average with regards to monetary value. At \$25,000, NL's RFS bursary is worth more than the national average for undergraduate students (\$15,686), Family Medicine residents

(\$20,045), specialist residents (\$20,000), and psychiatry residents (\$20,000). The undergraduate student and family medicine bursary values have not increased since 1998 (Barer, Wood and Schneider, 1999), however psychiatry and specialist resident bursaries have increased to their current amount.

Other terms of the NL RFS bursary are in line with the majority of provinces and territories. They supply maternity and compassionate leave, consider deferral for both compassionate and training reasons, deliver RFS funds to the student by cheque, and require repayment from the date of award receipt from trainees who do not complete their service. Unlike most provinces and territories, however, the NL RFS bursary is tax-exempt rather than tax deductible. Despite the bursary's merits, many trainees did not consider the terms and conditions of the bursary to be competitive to other provinces or countries. Whether this is due to underestimation of the NL RFS terms and conditions, or overestimation of those offered elsewhere, these concerns could likely be dispelled with increased program-student communication (See Chapter 5.5).

5.2 RFS Attractiveness to NL Trainees

The terms and conditions of the current NL RFS programs met the preferences of the majority of NL medical trainees in our study. For example, the majority of survey respondents (73.1%) reported that they would consider taking a bursary for its current value amount or less. Very few study participants stated the current level of funding was too low. Almost one quarter of respondents would consider an RFS bursary that required more than the current one year's return of service per year of funding.

The majority of survey respondents (79.9%) preferred that funds continue to be delivered directly to the trainee. A large proportion of respondents (44.5%) felt the

program should be available to residents and all undergraduate medical students. Currently, the RFS program is only available to residents and third and fourth year medical students. Almost one third of respondents (37%) suggested there should be no penalties for RFS holders who do not fulfill their service commitment². The current method of penalization – charging interest from award receipt – was the least popular option amongst trainees. However, changing the penalty for non-fulfillment is unlikely to change the RFS utilization rates since only 3.7% of respondents rated penalties as the most important factor when deciding whether to take an RFS bursary.

It is important to note that the NL RFS bursary is meeting the requirements and expectations for the majority of its trainees. Although many students think that other provincial/territorial programs are superior, many of these do not meet their expectations or preferences.

5.3 Influential RFS Terms

For NL trainees, the most important factors in deciding whether or not to take an RFS bursary were the location they would be required to work, the monetary value of the bursary, and the return-time required to repay the service commitment. These findings were echoed in both the survey and interview components of this study. For example, the most commonly cited reason for wanting to hold or holding an RFS bursary was financial concerns. In fact, trainees with great financial concerns were more likely to hold (or plan to hold) an RFS bursary than trainees without financial concerns.

² We expect this would be the most common answer from any group when asking about their *ideal* terms.

While the majority of study participants who held or planned to hold an RFS bursary planned to remain in the province, many were still concerned about the exact location where they would have to work to fulfill their service commitment. For example, the vagueness of the contract wording “area of need” was a recurrent theme in both survey comments and qualitative interviews, and physicians stated that there was need for more clarity³. Interviewees reported that they were concerned about accepting the bursary and subsequently being placed in a rural, small, or undesirable community. Similar comments were made by survey respondents. In fact, the location of service return was a significant deterrent to bursary acceptance. Survey respondents who rated location of service return as the most important term of the RFS bursary were nearly four times less likely to hold an RFS bursary than those who had rated another term as most important.

5.4 Promotion and Awareness of RFS Program

The study highlighted the need for more promotion of the RFS program and its terms. Almost one third of respondents were unaware of the program before taking the survey. This may be an over-estimate due to the overrepresentation of first year students in this survey; the RFS program is discussed in March in the first year curriculum (after the survey was conducted). Nonetheless, many of the trainees who were aware of the program were misinformed of its specific terms. When we exclude first years from the analysis, one quarter of trainees were still unaware of the program. Many survey respondents reported not knowing whether they were eligible for the program, and several

³ Contrary to common understanding of survey respondents, the NL RFS bursary does not require physicians to work in a rural community, but rather to fulfill an area of need. As of 2010, the entire province was considered to be “in need,” including St. John’s, the province’s largest community.

comments from the survey suggested respondents did not understand the terms of the RFS. In fact, many respondents expressed interest in the program, and requested more information.

More than half of trainees surveyed (who were aware of the NL RFS bursary program) and nearly all interview participants learned about the bursary by “word of mouth”. This may explain the level of confusion about the program and the misunderstanding of terms reported by survey respondents. Many trainees reported that they did not know where to access information about the bursaries. Few study participants learned about the RFS bursary through the Physician Recruitment, Post Graduate Medical Education, or Student Affairs offices.

5.5 RFS Program Evaluation

RFS programs make up a large portion of a province’s recruitment and retention effort, and millions of dollars fund students across Canada. In the 2009-2010 year alone, NL delivered 88 bursaries, totaling over two million dollars. When this magnitude of resources is invested into one type of program, it is important to determine whether the program is working as it is intended.

The majority of programs in Canada have been in effect long enough for several cycles of students to have finished their training and service commitments; however, fulfillment rates were not well tracked in many provinces, if at all. A comparison of success rates between programs across the provinces and territories would provide important insights, however, the lack of program recruitment and retention data prevent us from comparing them vigorously.

For NL, our study highlights a number of positive aspects of the RFS bursary program. The study revealed generally positive experiences from those who held an RFS bursary. Physicians interviewed in our study commented on the ease of the application process and their satisfaction with the service portion of their contract. Moreover, a large number of trainees opted to take a bursary each year; over half of the survey respondents who were aware of the program either already held or intended to apply for an RFS bursary. NL awarded 88 bursaries in the 2009-2010 year, providing fewer bursaries than only two provinces.

Despite the substantial bursary utilization rates, the study suggests that the bursary largely rewards physicians who had already planned to stay in NL: 80% of trainees who opt for a bursary already planned to stay in the province. Twenty percent of RFS holders (or if the number of awards given per year remains constant, roughly 18 of 88 physicians per year) are "novel physicians"; that is, physicians who would not otherwise be working in the province. While we could not identify any equivalent statistics in Canadian literature, our result is similar to an American study of three Colorado loan repayment programs. In their study, 66% of trainees receiving financial incentive in exchange for their commitment to practice rurally, already planned to work in a rural area (Renner et al., 2010).

Our findings generally support the study hypothesis and the hypothesis of other researchers (Barer and Stoddart, 1999; Jackson et al., 2003) that the RFS program rewards individuals who plan to remain in the province, rather than to attract new and previously uninterested physicians. Evidence was also found to suggest that the financial incentive offered by the RFS program may reinforce or facilitate trainee's decision to

practice in a rural area. This study did not examine whether RFS holders were more likely to stay in the province long-term than physicians who did not take an RFS bursary, however, a study is currently in progress in the province that seeks to determine this (NLCAHR, 2010).

Despite the generally positive reviews of the program and their own experiences, study participants were critical of the promotion and advertising of the RFS program. They reported difficulties finding information about the program, and suggested better marketing and increased emphasis on the bursary. In addition, they commented on the lack of coordinated recruitment effort by the province. For example, interview participants and survey respondents reported a lack of contact and active physician recruitment efforts, either to encourage trainees to opt for the RFS bursary program or to remain in the province once they completed their RFS service commitment.

5.6 Strengths and Limitations

The mixed methodology and novelty are clear strengths of this study. RFS programs have not been studied to a great extent in Canada, and the mixed methodology allows us to comprehensively understand the program in NL, through the perspectives of both potential and actual bursary recipients.

This study is the first to chronicle the RFS bursaries available in Canada since Barer, Wood and Schneider's 1999 analysis, and provides a context for greater discussion of Canadian physician recruitment. We were able to include data from all provinces and territories in our document analysis. Unfortunately, RFS programs are subject to change, and caution must be taken, as our information may be out of date. The information presented in our document analysis (see chapter 3.1) was correct as of May 2010.

Our survey had a good response rate relative to other similar surveys, and our sample of both students and residents was largely representative of their source populations. There is still potential for bias in our survey response, however. It is possible that the individuals who were motivated to respond were already interested or invested in the program, which would exaggerate the measured interest in the program.

The interview portion of our study was limited by the availability of up-to-date contact information and the interview response rate of physicians. Only physicians who received bursaries between 2004 and 2010 could be contacted. While conducting interviews with recent RFS holders likely increased the quality of their memory, we were only able to complete six interviews. This small number of participants left us unable to stratify our results to compare physicians' experiences by bursary type or gender.

All of our participants repaid their commitments with service, therefore we were not able to understand the experiences of physicians who repaid or defaulted on their bursary commitments. There is a likely response bias with regards to completion of service. If a physician defaulted or repaid the program to pursue a career outside the province, they may not have been interested in improving this program, or may have lost contact with the province and have failed to update their contact information.

The small number of interviews carried out is not a sufficient enough number to create generalizable results, however they do add much to this study. Many themes brought up and discussed in the qualitative portion of the research were consistent with and add context to, our quantitative findings, thus improving the credibility and validity of our overall results.

The scope of the survey and interviews were limited to the context of NL, however, the general insights may be relevant for other provinces. The interview results are not representative of all individuals who received a bursary, however, the intent of our interviews was instead to report themes and patterns from these individuals' experiences.

Chapter 6: Conclusion and Recommendations

RFS bursaries have been in use in Canada for many years, yet little is known about what programs are currently available, nor how or if they affect physician supply and distribution. This study used mixed methods to explore these questions. We employed a document analysis to describe existing programs in Canada, and carried out an online survey of MUN medical trainees and qualitative interviews of past program participants to determine what features of the NL RFS bursary are attractive, and to describe the satisfaction of RFS holders. We used statistics to estimate the program's effect on physician recruitment, by determining the proportion of novel physicians that are attracted to the province through the RFS program.

We found that RFS programs were a popular method in recruitment programs in Canada, and were identified in nearly all provinces and territories. The NL RFS bursary compared competitively to other RFS programs across the country and its terms were largely favored by trainees. For NL trainees, the most important factors in the decision to accept an RFS bursary were the location they would be required to work, the monetary value of the bursary, and the return-time required to repay the service commitment. The experiences of past program users were largely positive with the placements and application process highly praised; however, communication difficulties and a lack of active recruitment were identified as weaknesses.

As is commonly agreed in US literature, we concluded from this study that the NL RFS bursary shows some promise for increasing physician recruitment. It does not appear

to be the most effective means of recruitment however; more bursaries fund trainees who plan to remain in the province already than attract new trainees to NL.

Based on our study findings we make the following recommendations to maximize the benefits available from the RFS program:

1. Continue the RFS bursary program pending results of further study.

While this program may not be the most effective means of attracting novel physicians to the province it appears to reinforce the decisions of many physicians who opt to remain in NL. In addition, the RFS program provided interviewed trainees with valuable and positive experiences. Policies are often intermingled and changing one policy may produce unintended effects that cannot be foreseen. For example, removing an existing financial incentive program may be regarded as punitive by trainees, and could persuade them to leave the province. Therefore, NL should continue to offer the bursary until more information is known about the bursaries impact on retention, at which time planners will be better informed about how best to change the program, if at all.

RFS programs should not be the sole means of addressing the maldistribution of physicians. They should be part of a larger coordinated recruitment initiative. Physician choice of practice location is dependent on many factors, with monetary incentive being just one part. Financial incentives alone, including RFS, are not the solutions to physician supply and distribution, but should rather be one part of a coordinated recruitment and retention effort.

2. **Maintain flexibility of placement location.**

The location of service return was one of the most important factors in the decision to accept a bursary to trainees, and the flexibility of practice location was a valued component of the bursary. Fear of being placed into an undesirable or incompatible area was a deterrent to RFS acceptance.

3. **Clarify terms of the bursary.**

The terminology of the bursary contract should be clearer. "Area of need" is a vague term that concerned trainees and bursary holders. Terms should be transparent and provide as much information to trainees as possible.

4. **Increase program promotion and marketing.**

The dependence on word of mouth is a poor means of promoting the program. Many trainees did not know where to find information about the RFS program, and were misinformed or uncertain about the terms and eligibility criteria of the bursary. The presence of student and resident-focused offices in the medical school should be taken advantage of to provide better information to students. Marketing posters or program brochures should be available in the medical school to increase awareness of the program.

The NL recruitment site (PracticeNL.ca) holds great potential for spreading quality information to trainees quickly, however it is difficult to navigate and we suggest it should include a section for trainees.

5. **Improve recruitment initiatives.**

We recommend interacting with the trainees throughout their training. We suggest that a program presentation be given to students in a later stage of their schooling, when it is relevant to their decision to accept an RFS bursary i.e. in the third or fourth year of undergraduate study, rather than, or in addition to, in their first year. This would ensure students had correct and up to date information about the program so they can make an informed decision with regards to RFS acceptance.

Active recruitment effort was found to be lacking by trainees and physicians. Improving and maintaining contact with trainees, during their residency as well as during and after their service commitment, was recommended by study participants as a way to improve recruitment efforts. Recruitment should focus on creating and maintaining relationships between the province and the trainees.

6. **Continue to research RFS effectiveness.**

The lack of program evaluation by all provinces and territories leaves gaps in our knowledge as to how effectively the programs are working. Provinces should be following up with their students with regards to service commitment fulfillment and retention of obligated physicians. Future comparisons should consider the effects of different

award amounts, years of eligibility, penalties and service terms on bursary uptake, on commitment fulfillment and physician retention.

Understanding how and why the return-for-service programs are working will enable program makers to maximize program effectiveness.

The experiences shared by the NL program participants were largely positive, and suggest that these positive experiences may have some bearing on a physician's decision to remain in the province post RFS-commitment. This study did not address the RFS bursary's effect on retention, however research is currently underway to evaluate the payment status and retention of return-for-service bursary holders. This should give us more insight into the cost-effectiveness of such a program, and allow program planners to determine whether it should be continued, altered, or if these funds could be better directed into alternative recruitment strategies.

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Appendix A: Document Analysis Collection Tool

RFS Program Document Analysis

Province:

Program title:

Program contact:

Distributor of award:	
Date of program origin:	
Award value (\$):	
Service requirement (time):	
Service requirement (location):	
Number awarded/year:	
Eligibility criteria:	
Terms/conditions of RFS:	
Taxable:	
Method of Payment:	
Leave/deferral available:	
Penalty:	
Program evaluations:	
Number RFS bursaries distributed/year:	
Proportion of contracts fulfilled:	

Appendix B: Coding Scheme for Canadian RFS Programs Document Analysis

Table B1: Coding Scheme for Canadian RFS Programs Document Analysis

Program Attribute	Variable	Code
Province	Alberta	0
	British Columbia	1
	Manitoba	2
	New Brunswick	3
	Newfoundland and Labrador	4
	Nova Scotia	5
	Nunavut	6
	Northwest Territories	7
	Ontario	8
	Prince Edward Island	9
	Quebec	10
Saskatchewan	11	
Year of Program Origin	2000	0
	2001	1
	2002	2
	2003	3
	2005	4
Incentive Type	Bursary/Scholarship	0
	Loan forgiveness	1
	Grant	2
	Tuition	3
	Fellowship	4
Program Target	Undergraduate students	0
	Family Medicine residents	1
	Specialist resident	2
	Psychiatry resident	3
	Physician	4
Return Time (in months, per year of funding)	6	0
	12	1
	18	2
	24	3
	Varies according to return location	4
Penalty	None	0
	Repay	1
	Repay with interest from default	2
	Repay with interest from award receipt	3
	Repay with interest from default plus fees	4

Taxed	Non-taxable	0
	Tax deductible	1
	Taxable income	2
Availability of deferral of service commitment	No	0
	Yes	1
Availability of leave from service commitment	No	0
	Yes	1
Has the program been evaluated?	No	0
	Yes	1

Appendix C: Survey Communication Plan

Emails to undergraduate students were delivered on our behalf by the Memorial University medical school's Student Affairs office. Emails to residents were delivered on our behalf by Memorial University's Post Graduate Medical Education office.

1. Initial email

RE: Bursary research survey invitation

Dear **name**:

Researchers in the Faculty of Medicine are conducting a survey to evaluate Newfoundland and Labrador Return-For-Service medical bursaries.

The survey takes ten minutes to complete. Your answers are confidential and participation is voluntary. Those who complete the survey can enter a draw for a \$50 Boston's Pizza gift certificate.

Click here to access the survey: <http://www.surveymonkey.com/s/NZGWYZD>

If you have any questions, please contact the study researcher, Shelley Greenaway, at smcg85@mun.ca.

We appreciate your help greatly,
Signature

2. Reminder email, to be sent seven days after initial contact:

Re: Research survey reminder

Dear **name**,

This is just a reminder to let you know we are still collecting responses, and are looking forward to hearing your opinions! You can fill in the survey here if you are interested: <http://www.surveymonkey.com/s/NZGWYZD>

Remember to supply your email address at the end to be entered into a draw for a \$50 Boston's Pizza gift certificate.

If you require more information, or have any questions, please feel free to contact the study researcher, Shelley Greenaway, at smcg85@mun.ca.

- Signature

3. Final email reminder:

Re: Final Bursary Survey Reminder

Dear Student,

To date we have not received your response. It is important that we be able to include your opinions in our study!

If you have a few minutes, please help us by filling in the survey here (<http://www.surveymonkey.com/s/NZGWYZD>), and enter to win a \$50 gift certificate for Boston's pizza!

If you have any questions, or would like more information about the study, please contact Shelley Greenaway, at smcg85@mun.ca.

Thank you,
Signature

Appendix D: Survey Questionnaire

Introduction:

As a medical trainee at Memorial University, you have the opportunity to apply for a return-for-service bursary with the province of Newfoundland and Labrador. This survey seeks to determine the demographics of interested and current users of the program, as well as to discern program attributes of interest for students.

All of your answers are confidential, and your participation will in no way affect your bursary or student status.

1. What is your sex? *(Multiple choice, radio buttons)*
 1. Male
 2. Female

2. What year were you born? _____ *(Single text box)*

3. What is your home country? _____ *(Single text box)*

4. What is your hometown and province/state? _____, _____ *(Two text boxes)*
(Your hometown refers to the community from which you graduated high school.)

1. Which year of medical training are you currently in? *(Multiple choice, radio buttons with comment field an answer choice)*
 1. 1st year undergraduate
 2. 2nd year undergraduate
 3. 3rd year undergraduate
 4. 4th year undergraduate
 5. Residency year 1
 6. Residency year 2
 7. Residency year 3
 8. Residency year 4
 9. Other _____

10. What is your marital status? *(Multiple choice, radio buttons)*
 1. Single, never married
 2. Married
 3. Living common-law
 4. Widowed
 5. Separated
 6. Divorced

7. What is your best estimate of your total current educational debt?
(This includes all debt incurred for both your medical degree and other post secondary education) *(Multiple choice, radio buttons with comment field an answer choice)*
1. \$ _____
 2. Do not know
 3. Refused
8. What is your best estimate of your current overall debt from all sources? This may include such things as a mortgage, car loans, student debt, credit debt, etc.
(Multiple choice, radio buttons with comment field an answer choice)
1. \$ _____
 2. Do not know
 3. Refused
9. Which of the following methods are you using to fund your education? *(Multiple choice matrix)*
1. Working or personal savings
Yes / No
 2. Parents
Yes/No
 3. Bank or personal loans (including line of credit)
Yes/No
 4. Scholarships/bursaries (with no service commitments)
Yes/No
 5. Scholarships/bursaries (with a service commitment)
Yes/No
10. How would you rate your level of concern about your current finances? *(Multiple choice, radio buttons)*
1. None
 2. Slight
 3. Moderate
 4. Great

11. How would you rate your level of concern for your expected finances upon finishing your medical training? *(Multiple choice, radio buttons)*
1. None
 2. Slight
 3. Moderate
 4. Great
12. Which province do you plan to practice in immediately after completing your residency training? _____ *(Drop down menu)*
1. Out of Canada
 2. Do not know
13. Which province do you plan to practice in five years after completing your residency training? _____ *(Drop down menu)*
1. Out of Canada
 2. Do not know
14. Which type of community would you like to practice in? *(Multiple choice, radio buttons)*
1. Small community (Less than 10,000 people)
 2. Medium community (10,000-99,999 people)
 3. Large community (100,000 people or more)
15. What specialty are you interested in pursuing? *(Multiple choice, radio buttons with comment field an answer choice)*
1. Family Medicine
 2. Psychiatry
 3. Specialist other than Psychiatry
 4. Other: _____

In 1992, the Newfoundland and Labrador Department of Health and Community Services established a bursary program (also known as a return-for-service program, or RFS), designed to pay university medical students bursaries in return for their commitment to practice in an underserved area.

Students who accept these bursaries sign a contract with the Ministry of Health and Community Services agreeing to work one return-for-service year in an area designated as 'in need' for each year of funding they receive. It is available to students in their fourth year, as well as residents.

16. Prior to this survey, were you aware of return-for-service (RFS) opportunities in Newfoundland and Labrador? *(Multiple choice, radio buttons)*
1. Yes
 2. No

(If NO, skip to Q20. If YES, continue to Q17.)

17. How did you hear about NL RFS bursary opportunities? *(Comment box)*
18. Have you accepted a Newfoundland and Labrador RFS bursary? *(Multiple choice, radio buttons)*
1. Yes
 2. No

(If NO, continue to Q19. If YES, skip to Q20a.)

19. Do you intend to apply for a Newfoundland and Labrador RFS bursary in the future? *(Multiple choice, radio buttons)*
1. Yes
 2. No

(If NO, skip to Q20c. If YES, skip to Q 20b.)

20. a. What is your **primary** reason for accepting an RFS bursary? *(Comment box)*

20. b. What is your **primary** reason for applying for an RFS bursary? *(Comment box)*

20. c. What is your **primary** reason for not applying for an RFS bursary? *(Comment box)*

Bursary terms and conditions:

Lastly, we have a few questions about your bursary preferences.

21. If you were to receive an RFS bursary, how would you prefer the bursary funds to be delivered? *(Multiple choice, radio buttons with comment field an answer choice)*
1. To the student as a cheque
 2. To the school as tuition
 3. Toward the student's student loan
 4. Other _____
22. To whom do you think RFS bursaries should be available? *(Multiple choice, radio buttons)*
1. Only residents
 2. Residents and fourth year undergraduate students only
 3. Residents and all years of undergraduate students
 4. Other (please specify)
5. What is the **minimum** amount of money you would consider taking an RFS bursary for? _____ *(Text box)*
6. What is the **maximum** period of service-time you would consider fair for one year of bursary funding? _____ *(Text box)*
7. What do you think would be a fair course of action for students who do not fulfill their service requirement? *(Multiple choice, radio buttons with comment field an answer choice)*
1. They should repay the bursary with no fines or interest
 2. Repay the bursary and pay a fine
 3. Repay the bursary with interest from when they decided not to fulfill their requirement
 4. Repay the bursary with interest from when they received their bursaries
 5. Other _____

6. Please rate in order of importance which criteria most strongly affect(ed) your choice to accept an NL RFS bursary or not. (1- Most strongly affect/ed choice, 6- least strongly affect/ed choice) You can choose each ranking only once.

(Choice matrix, with options of 1-6)

1. The bursary is non-taxable
2. The amount of money the bursary is worth
3. The time commitment required to repay the bursary
4. The location that service must be returned
5. The ability to take leave/vacation
6. The repercussions of not fulfilling commitment obligation

Box to submit email addresses to enter draw

Comment box

Thank you very much for your participation!

Appendix E: Coding Scheme for RFS Bursary Survey

Table E1: Coding Scheme for RFS Programs Analysis

Variable	Q #	Response	Code	Notes
Sex	1	Male	0	
		Female	1	
Age	2	23-25	0	2011 – Q2
		26-29	1	
		>30	2	
Home Country	3	Canada	0	
		Non-Canada	1	
Hometown	4	Rural	0	< 10,000 = "rural"
		Semi-urban	1	10,000-99,999 = "semiurban"
		Urban	2	>100,000 = "urban"
Home Province	4	NL	0	
		Non-NL	1	
Year of Medical School	5	Ug1	0	
		Ug2	1	
		Ug3	2	
		Ug4	3	
		Res1	4	
		Res2	5	
		Res3	6	
		Res4	7	
Student/Resident Status	5	Student	0	Ug1, Ug2, Ug3, Ug4 = "Student"
		Resident	1	Res1, Res2, Res3, Res4, ResOther = "Resident"
Marital Status	6	Partnered	0	Married, living common-law = "partnered"
		Non-partnered	1	Widowed, Separated, Divorced, Single = "non-partnered"
Current Educational Debt	7	\$0	0	
		\$1 – 49,000	1	
		\$50,000 – 99,999	2	
		\$100,000 – 149,999	3	
		\$150,000 – 199,999	4	
		\$200,000 – 249,999	5	
		≥ \$250,000	6	
Do not know	7			

		Refused	8	
Education Debt Quartiles	7	1 st Quartile	1	\$0 – 29,999
		2 nd Quartile	2	\$30,000 – 64,999
		3 rd Quartile	3	\$65,000 – 124,999
		4 th Quartile	4	\$235,000 – 500,000
Current Total Debt	8	\$0	0	
		\$1 – 49,000	1	
		\$50,000 – 99,999	2	
		\$100,000 – 149,999	3	
		\$150,000 – 199,999	4	
		\$200,000 – 249,999	5	
		\$250,000 – 299,999	6	
		≥ \$300,000	7	
		Do not know	8	
Refused	9			
Total Debt Quartiles	8	1 st Quartile	0	\$0 – 36,499
		2 nd Quartile	1	\$36,500 – 99,999
		3 rd Quartile	2	\$100,000 – 227,449
		4 th Quartile	3	\$227,500 – 550,000
Fund School with Work	9	No	0	
		Yes	1	
Fund School with Parents	9	No	0	
		Yes	1	
Fund School by Loans	9	No	0	
		Yes	1	
Fund School with Scholarships /Bursaries	9	No	0	
		Yes	1	
Fund School with RFS	9	No	0	
		Yes	1	
Current Financial Concern	10	None	0	
		Slight	1	
		Moderate	2	
		Great	3	
Expected Financial Concern	11	None	0	
		Slight	1	
		Moderate	2	
		Great	3	
Financial Concern Change	10	Decreased	0	
		No Change	1	
		Increased	2	
Intended Work Province After Residency	12	NL	0	
		Non-NL	1	

Intended Work Province 5 Years After Residency	13	Non-NL NL	0 1	
Desired Practice Community Size	14	Small Medium Large	0 1 2	< 10,000 = "rural" small 10,000-99,999 = "semiurban" med ≥100,000 = "urban" lg
Desired Practice Community Type	14	Rural Non-Rural	0 1	
Planned Specialty	15	Family Medicine Psychiatry Specialist Undecided	0 1 2 3	
Planned Specialty	15	Family Medicine Specialist	0 1	
Previously Aware of Program	16	No Yes	0 1	
How Aware of Program	17	1 st year class presentation Students, colleagues family or friends Physician Recruit, UGME, or Student Affairs office Carms Media Other	0 1 2 3 4 5	
Bursary Status	18 – 19	Does not hold and does not plan to apply for a bursary Currently holds or intends to apply for a bursary	0 1	Answers no to Q18, and no to 19. Answers yes to Q18, OR answers no to Q18 and yes to 19.
Reason for Accepting RFS	20 a	Financial reasons Job security Plan to work in NL anyways	0 1 2	
Reason for Applying for RFS	20 b	Financial reasons Job security Plan to work in NL anyways Desire to contribute to rural medicine	0 1 2 3	

Reason for NOT Applying for RFS	20	c	Do not want to stay or commit to NL	0
			Unsure of plans	1
			Do not want to work in small or rural community	2
			Already have other service commitments	3
			Significant other or family commitments	4
			Package not financially attractive	5
			Specialty unavailable or limited or not in eligible locations	6
			Do not know enough about program	7
			Poor treatment/ underpayment of physicians in province	8
			Preferred RFS Funds	21
Student (To bank or Line of Credit)	1			
Tuition	2			
Student loan	3			
Other	4			
Preferred RFS Recipients	22		Residents only	0
			Residents / UG4	1
			Residents / all UG	2
			Other	3
Minimum \$ Required to Take RFS	23		\$0-9,999	0
			\$10,000 - 19,999	1
			\$20,000-29,999	2
			\$30,000-39,999	3
			\$40,000-49,999	4
			> \$49,000	5
			Any amount	6
			No amount	7
Undecided	8			
Minimum \$ Required to Take RFS	23		≤ \$25,000	0
			> \$25,000	1

Maximum Time Required to Take RFS	24	< 12 months	0
		12 months	1
		> 12 months	2
		Dependent on other factors (money, area)	3
		Undecided	4
Maximum Time Required to Take RFS	24	≤ 12 months	0
		> 12 months	1
Penalty	25	Repay	0
		Repay/fine	1
		Repay/interest from default	2
		Repay/interest from receipt	3
		Other	4
Tax Free Most Important Factor	26	No	0
		Yes	1
Monetary Value Most Important Factor	26	No	0
		Yes	1
Time to Return Most Important Factor	26	No	0
		Yes	1
Location to Return Most Important Factor	26	No	0
		Yes	1
Leave/Vacation Most Important Factor	26	No	0
		Yes	1
Penalty Most Important Factor	26	No	0
		Yes	1

Appendix F: Qualitative Interview Invitation

Emails to past program participants were delivered on our behalf by program coordinator Daniel Fitzgerald.

Dear Name:

I am writing to invite you participate in a research project that is being undertaken by a Master's student in the Division of Community Health and Humanities at Memorial University between March and April of this year.

This research project will help to evaluate the Newfoundland and Labrador Return-For-Service bursary program. Since you are a past participant, we are hoping that you can help us by sharing your experiences with the program.

Participation requires simply signing a consent form, and agreeing to a 10-20 minute telephone interview at your convenience. Any information that you choose to share with the researcher is confidential, and will in no way affect your bursary status. Neither I, nor the department will be informed of your participation, or your commentary. Only anonymized comments will be shared with us.

If you are interested in participating, please contact the study researcher, Shelley-May Greenaway, between now and April 5th, at (709) 764-8468, or by email at smg85@mun.ca.

Your assistance in improving the NL RFS program is appreciated greatly,
Sincerely,
Dan Fitzgerald

Appendix G: Qualitative Interview Guide

(Greeting and introduction)

Thank you so much for taking the time to share your experiences with the NL RFS bursary program with me. The study was explained in the consent form you signed, and I anticipate that the interview should take about 15 minutes. Do you have any questions about the study?

Your answers are completely confidential and will be coded and recorded without names. Is it okay that I record this interview?

1. Describe your experience with the NL RFS program.
 1. Positive experiences?
 2. Negative experiences?
2. When did you decide to apply for a bursary?
3. What attracted you to this bursary program in the first place?
 1. How did you find out about it?
 2. Specific terms or conditions you found attractive?
 3. Specific terms or conditions you found unattractive?
4. Did you fulfill your RFS contract?
 1. Motivating factors? Why/why not?
5. Did you stay in the assigned area once your contract was through? Why/why not?
6. Did you intend to stay in NL once you completed your training?
 1. Would you have stayed in NL without having a bursary?
7. Do you have any suggestions for the improvement of the program?

Appendix H: Qualitative Interview Coding Template

A. Attractiveness of RFS (Aspects of the bursary that are attractive)

- A1 Money
- A2 Flexibility
- A3 Job security

B. Unattractive features of RFS

- B1 Location of return
- B2 Vagueness of contract
- B3 Not enough money

C. Reasons people chose to take RFS (The reason actually given for final decision to accept or not)

- C1 Plan to stay in province anyways
- C2 Family reasons
- C3 Debt/Financial need

I. RFS experiences

- D1 Learning about RFS
 - D1.1 Word of mouth
 - D1.2 Medical school
 - D1.3 Physician recruitment efforts
 - D1.4 Difficulties getting information
- D2 Application process
- D3 Return Component
 - D3.1 Experience in community/with program
 - D3.2 Reason for returning service to province

E. Effect of Bursary on Recruitment/Retention

- E1 Importance of RFS recruitment
 - E1.1 Career location intention (initial or long-term)
 - E1.2 Bursary influence on career location
- E2 Importance of RFS Bursary to staying in province

F. Active Recruitment/Follow up

- F1 Lack of active recruitment to RFS
- F2 Lack of active recruitment to the Province after RFS
- F3 Loss of contact after contract signed

Appendix I: Chi-Square Results Showing Sample Representativeness

Table 1: Chi-Square Test Comparing Sex in Sample and Actual Student Population

	Sample n (%)	Source n (%)
Male	54 (36.0)	95 (37.3)
Female	96 (64.0)	160 (62.7)

Chi square value = 0.117
p= 0.736

Table 2: Chi-Square Test Comparing Year of Study in Sample and Actual Student Population

	Sample n (%)	Source n (%)
UG 1	57 (38.0)	65 (25.5)
UG 2	36 (24.0)	65 (25.5)
UG 3	26 (17.3)	64 (25.1)
UG 4	31 (20.7)	61 (23.9)

Chi square value = 12.303
p= 0.005

Table 3: Chi-Square Test Comparing Home Province of Sample and Entire Student Population

	Sample n (%)	Source n (%)
NL	110 (73.3)	186 (72.9)
Non NL	40 (26.7)	69 (27.1)

Chi square value = 0.0336
p= 0.855

Table 4: Chi-Square Test Comparing Sex in Sample and Actual Resident Population

	Sample n (%)	Source n (%)
Male	30 (38.5)	108 (44.3)
Female	48 (61.5)	136 (55.7)

Chi square value = 1.296
p= 0.255

Table 5: Chi-Square Test Comparing Year of Study of Sample and Entire Resident Population

	Sample n (%)	Source n (%)
PG 1	27 (34.6)	74 (30.3)
PG 2	17 (21.8)	63 (25.8)
PG 3	20 (25.6)	51 (20.9)
PG 4	8 (10.2)	29 (11.9)
> PG 4	6 (7.7)	27 (11.1)

Chi square value = 2.936

p= 0.569

Table 6: Chi-Square Test Comparing Home Province Of Sample And Entire Resident Population

	Sample n (%)	Source n (%)
NL	41 (52.6)	111 (45.5)
Non NL	37 (47.4)	133 (54.5)

Chi square value = 1.866

p= 0.172

Appendix J: Importance of Variables on the Choice to Accept an NL RFS Bursary to Survey Sample by Student and Resident Status

Table J1: Importance of Variables on Choice to Accept NL RFS Bursary to Survey Student Sample (n = 135)

Variable	6 (Least Important) n (%)	5 n (%)	4 n (%)	3 n (%)	2 n (%)	1 (Most Important) n (%)
Tax status	52 (38.5)	25 (18.5)	18 (20.5)	10 (7.4)	12 (8.9)	8 (5.9)
Monetary Value	1 (0.7)	10 (7.4)	14 (10.4)	18 (13.3)	43 (31.9)	49 (35.3)
Return-Time	9 (6.7)	9 (6.7)	10 (7.4)	36 (26.7)	45 (33.3)	26 (19.3)
Location of Service Return	7 (5.2)	5 (3.7)	19 (14.1)	35 (25.8)	25 (18.5)	44 (32.6)
Availability of Leave/Vacation	15 (11.1)	42 (31.1)	45 (33.3)	24 (17.8)	6 (4.4)	3 (2.2)
Penalty for Not Fulfilling Commitment	51 (37.8)	44 (32.6)	19 (14.1)	12 (8.9)	4 (3.0)	5 (3.7)

Note: Shaded cells are the most frequently rated level of importance for each variable.

Table J2: Importance of Variables on Choice to Accept NL RFS Bursary to Survey Resident Sample (n = 74)

Variable	6 (Least Important) n (%)	5 n (%)	4 n (%)	3 n (%)	2 n (%)	1 (Most Important) n (%)
Tax status	26 (35.1)	8 (10.8)	9 (12.2)	10 (13.5)	14 (18.9)	7 (9.5)
Monetary Value	2 (2.7)	10 (13.5)	6 (8.1)	10 (13.5)	22 (29.7)	24 (32.4)
Return-Time	6 (8.1)	7 (9.5)	22 (29.7)	21 (28.4)	15 (20.3)	3 (4.1)
Location of Service Return	3 (4.1)	6 (8.1)	10 (13.5)	14 (18.9)	7 (9.5)	34 (45.9)
Availability of Leave/Vacation	17 (23.0)	23 (31.1)	13 (17.6)	9 (12.2)	10 (13.5)	2 (2.7)
Penalty for Not Fulfilling Commitment	20 (27.0)	20 (27.0)	14 (18.9)	10 (13.5)	6 (8.1)	4 (5.4)

Note: Shaded cells are the most frequently rated level of importance for each variable.

Appendix K: Differences in Characteristics of Students Who Hold or Plan to Apply for an RFS by Student and Resident Status

Table K1: Differences in Characteristics of Students who Hold or Plan to Apply for an RFS (n = 47) and Those Who Do Not Hold or Plan to Apply For an RFS (n = 40)

Variable	Does Not Hold or Plan to Accept an RFS n (%)	Currently Holds or Intends to Apply for RFS n (%)	P-Value
Sex			0.138
Male	19 (47.5)	15 (31.9)	
Female	21 (52.5)	32 (68.1)	
Age			0.359
23-35	17 (42.5)	18 (38.3)	
26-29	19 (47.5)	19 (40.4)	
> 30	4 (10.0)	10 (21.3)	
Home Country			1.000
Canada	40 (100.0)	46 (97.9)	
Non-Canada	0 (0.0)	1 (2.1)	
Hometown Size			0.720
Rural	13 (32.5)	17 (36.2)	
Non-Rural	27 (67.5)	30 (63.8)	
Home Province			0.001
NL	25 (62.5)	43 (91.5)	
Non-NL	15 (27.5)	4 (8.5)	
Marital Status			0.032
Partnered	5 (12.5)	15 (31.9)	
Non-Partnered	35 (87.5)	32 (68.1)	
Current Education Debt Quartiles			0.288
1 st Quartile	12 (35.3)	10 (27.8)	
2 nd Quartile	11 (32.4)	7 (19.4)	
3 rd Quartile	8 (23.5)	11 (30.6)	
4 th Quartile	3 (8.8)	8 (22.2)	
Current Total Debt Quartiles			0.484
1 st Quartile	9 (28.1)	10 (27.8)	
2 nd Quartile	12 (37.5)	9 (25.0)	
3 rd Quartile	9 (28.1)	11 (30.6)	
4 th Quartile	2 (6.3)	6 (16.7)	
Fund School with Work/Savings			0.894
No	19 (47.5)	23 (48.9)	
Yes	21 (52.5)	24 (51.1)	
Fund School from Parents			0.318
No	25 (60.0)	33 (70.2)	
Yes	16 (40.0)	14 (29.8)	
Fund School with Loans/Credit			0.118
No	1 (2.5)	6 (12.8)	
Yes	39 (97.5)	41 (87.2)	
Fund School with Scholarship/Bursary			0.247
No	22 (55.0)	20 (42.6)	
Yes	18 (45.0)	27 (57.4)	

Fund School with Scholarship/Bursary with RFS Commitment			1.000
No	39 (97.5)	46 (97.9)	
Yes	1 (2.5)	1 (2.1)	
Current Financial Concern			0.018
None to Slight	20 (50.0)	12 (25.5)	
Moderate to Great	20 (50.0)	35 (74.5)	
Expected Financial Concern			0.004
None to Slight	16 (40.0)	6 (12.8)	
Moderate to Great	24 (60.0)	41 (87.2)	
Planned Practice Province Immediately after Residency			0.000
NL	30 (75.0)	5 (10.6)	
Non-NL	10 (25.0)	42 (89.4)	
Planned Practice Province 5 yrs After Residency			0.000
NL	31 (77.5)	8 (17.0)	
Non-NL	9 (22.5)	39 (83.0)	
Desired Practice Community Size			0.721
Rural	3 (7.5)	5 (10.6)	
Non-Rural	37 (92.5)	42 (89.4)	
Desired Practice Specialty			0.062
Family Medicine	8 (20.0)	17 (38.6)	
Specialist	32 (80.0)	27 (61.4)	
Tax-Exemption of RFS Most Important Factor in Accepting/Not			0.364
No	28 (97.4)	40 (90.9)	
Yes	1 (2.6)	4 (9.1)	
Bursary \$ Value Most Important Factor in Accepting/Not			0.084
No	30 (76.9)	26 (59.1)	
Yes	9 (23.1)	18 (40.9)	
Bursary Return Time Most Important Factor in Accepting/Not			0.913
No	34 (87.2)	38 (86.4)	
Yes	5 (12.8)	6 (13.6)	
Bursary Return Location Most Important Factor in Accepting/Not			0.007
No	17 (43.6)	32 (72.7)	
Yes	22 (56.4)	12 (27.3)	
Leave/Vacation Availability Most Important Factor in Accepting/Not			0.218
No	37 (94.9)	44 (100.0)	
Yes	2 (5.1)	0 (0.0)	
Penalty for Non-Fulfillment Most Important Factor in Accepting/Not			0.119
No	39 (100.0)	40 (90.9)	
Yes	0 (0.0)	4 (9.1)	

As seen in Table K1, compared to non-holders, a larger proportion of holders were from NL, non-partnered, and had moderate to great financial concerns (current and

expected). A larger proportion of holders (than non-holders) planned to remain in NL after residency both immediately and after five years. A greater proportion of non-holders than holders considered location of RFS service commitment the most important factor.

Table K2: Differences in Characteristics of Residents who Hold or Plan to Accept an RFS (n = 32) and Those Who Do Not Hold or Plan to Apply For an RFS (n = 29)

Variable	Does Not Hold or Plan to Accept an RFS n (%)	Currently Holds or Intends to Apply for RFS n (%)	P-Value
Sex			0.277
Male	12 (41.4)	9 (28.1)	
Female	17 (58.6)	23 (71.9)	
Age			0.621
26-29	10 (34.5)	13 (40.6)	
> 30	19 (65.5)	19 (59.4)	
Home Country			1.000
Canada	28 (96.6)	30 (93.8)	
Non-Canada	1 (3.4)	2 (6.3)	
Hometown Size			0.567
Rural	8 (27.6)	11 (34.4)	
Non-Rural	21 (72.4)	21 (65.6)	
Home Province			< 0.000
NL	9 (31.0)	25 (78.1)	
Non-NL	20 (69.0)	7 (21.9)	
Marital Status			0.104
Partnered	16 (55.2)	24 (75.0)	
Non-Partnered	13 (44.8)	8 (25.0)	
Current Education Debt Quartiles			0.272
1 st Quartile	1 (4.2)	0 (0.0)	
2 nd Quartile	9 (27.5)	5 (18.5)	
3 rd Quartile	4 (16.7)	5 (18.5)	
4 th Quartile	10 (41.7)	17 (63.0)	
Current Total Debt Quartiles			0.594
1 st Quartile	1 (4.2)	1 (4.0)	
2 nd Quartile	4 (16.7)	2 (8.0)	
3 rd Quartile	9 (37.5)	7 (28.0)	
4 th Quartile	10 (41.7)	15 (60.0)	
Fund School with Work/Savings			0.234
No	6 (20.7)	11 (34.4)	
Yes	23 (79.3)	21 (65.6)	
Fund School from Parents			0.404
No	22 (75.9)	27 (84.4)	
Yes	7 (24.1)	5 (15.6)	
Fund School with Loans/Credit			0.241
No	5 (17.2)	2 (6.3)	
Yes	24 (82.8)	30 (93.8)	

Fund School with Scholarship/Bursary			0.500
No	17 (58.6)	16 (50.0)	
Yes	12 (41.4)	16 (50.0)	
Fund School with Scholarship/Bursary with RFS Commitment			< 0.000
No	27 (93.1)	14 (43.8)	
Yes	2 (6.9)	18 (56.3)	
Current Financial Concern			0.088
None to Slight	10 (34.5)	5 (15.6)	
Moderate to Great	19 (65.5)	27 (84.4)	
Expected Financial Concern			0.041
None to Slight	10 (34.5)	4 (12.5)	
Moderate to Great	19 (65.5)	38 (87.5)	
Planned Practice Province Immediately after Residency			< 0.000
NL	22 (75.9)	4 (12.5)	
Non-NL	7 (24.1)	28 (87.5)	
Planned Practice Province 5 yrs After Residency			< 0.000
NL	25 (86.2)	8 (25.0)	
Non-NL	4 (13.8)	24 (75.0)	
Desired Practice Community Size			0.241
Rural	5 (17.2)	2 (6.3)	
Non-Rural	24 (82.8)	30 (93.8)	
Desired Practice Specialty			0.306
Family Medicine	9 (31.0)	14 (43.8)	
Specialist	20 (69.0)	18 (56.3)	
Tax-Exemption of RFS Most Important Factor in Accepting/Not			1.000
No	25 (89.3)	27 (87.1)	
Yes	3 (10.7)	4 (12.9)	
Bursary \$ Value Most Important Factor in Accepting/Not			0.092
No	22 (78.6)	18 (58.1)	
Yes	6 (21.4)	13 (41.9)	
Bursary Return Time Most Important Factor in Accepting/Not			1.000
No	28 (100.0)	30 (96.8)	
Yes	0 (0.0)	1 (3.2)	
Bursary Return Location Most Important Factor in Accepting/Not			0.157
No	12 (42.9)	19 (61.3)	
Yes	16 (57.1)	12 (38.7)	
Leave/Vacation Availability Most Important Factor in Accepting/Not			-
No	28 (100.0)	31 (100.0)	
Yes	0 (0.0)	0 (0.0)	
Penalty for Non-Fulfillment Most Important Factor in Accepting/Not			0.337
No	25 (89.3)	30 (96.8)	
Yes	3 (10.7)	1 (3.2)	

As seen in Table K2, compared to non-holders, a larger proportion of holders were from NL, planned to fund school with their RFS, and planned to remain in NL after their residency both immediately and after five years.

Appendix L: Logistic Regression Analysis Predicting RFS Acceptance by Student and Resident Status

Table L1: Logistic Regression Analysis Predicting Whether Students Would Accept an RFS Bursary (n = 83)

Variable	Odds Ratio	Confidence Interval		P-Value
		Lower	Upper	
Current Financial Concern				
None-Slight	-	-	-	
Moderate-Great	5.77	1.424	23.37	0.014
Planned Practice Province (After 5 Years)				
Non-NL	-	-	-	
NL	26.29	6.96	99.34	< 0.000
Location of Return Most important Factor in Accepting RFS or Not				
No	-	-	-	
Yes	0.26	0.07	0.94	0.041

Compared to students with little financial concern, students with moderate to great financial concern were nearly six times as likely to accept an RFS bursary. Students who planned to remain in the province in the long-term were significantly more likely to accept a bursary (OR = 26.29) than students who did not plan to stay in NL. Students who felt the location of return was the most important factor in their consideration to accept a bursary or not were less likely to accept an NL RFS bursary (OR = 0.26) than students who did not think it was the most important factor.

Table 1.2: Logistic Regression Analysis Predicting Whether Residents Would Accept an RFS Bursary (n = 59)

Variable	Odds Ratio	Confidence Interval		P-Value
		Lower	Upper	
Planned Practice Province (After 5 Years)				
Non-NL	-	-	-	
NL	17.08	6.96	229.93	< 0.000
Location of Return Most important Factor in Accepting RFS or Not				
No	-	-	-	
Yes	0.19	0.04	0.98	0.047

Compared to residents who do not plan to remain in NL five years their residency, those who do were 17 times as likely to accept an RFS bursary. Residents who felt the location of return was the most important factor in their consideration to accept a bursary or not were less likely to accept an NL RFS bursary (OR = 0.19) than residents who did not think it was the most important factor.

Appendix M: Trainee Survey Comments

As a Canadian who studies medicine abroad I am already obligated to fulfill a return of service to the province. I feel it is unfair that this cannot be fulfilled concurrently with that for the family med bursary and this is why I have not applied.

As a first year student, I feel like I have little information on the opportunities available to me as a student, resident and graduate.

As far as I am aware, these bursaries are not available to students who are not residents of Newfoundland. Given that many come here from NB, PEI and other provinces, it seems like a missed opportunity to retain future physicians. As an NB resident, I'm not sure where I'll want to practice but my decision would easily be swayed by significant bursaries which may be available from my home province. If they were available to us here in NL, however, I would be far more likely to consider sticking around. Bursaries coinciding with a RFS agreement for IMGs should be considered, without extending the contract. There is more debt for IMGs normally, and incentives as such would help to keep more out-of-province citizens in NL, without feeling "forced", on the long-term, beyond their obligation.

Clarify the contract!

How can we find information about applying for a bursary?

I filled in the requested document, but I don't know whether bursary applies to me or not as a resident.

I think that most people are aware the bursaries exist. I'm always surprised that individuals, particularly Newfoundlanders aren't individually approached by NL Recruiters or their hometowns directly about staying to work in NL. You'd think there would be more motivation to retain us. I would feel positively about staying in NL, but so far no one has made any effort to encourage me to do so.

I think that the amount of Non-NFLD residents willing to return to NFLD is underestimated.

I think the RFS Bursary is an awesome idea! I know I would consider it if it was available.

I would, at this stage of the program, like to know how it is structured and what is the availability of service that I can manage with my family and location.

I'm an ortho resident and worried about getting a job when I finish. I do not think that there are any return for service agreements happening among ortho residents because there are no jobs here either.

It may be beneficial for someone to talk with the pre-clerkship students about these bursaries because many of us are unsure about the details.

It would be useful to provide more information throughout the 1st, 2nd, and 3rd year of medical school on the RFS bursaries and the areas that they serve, amount received, years of service and other details.

Newfoundland has a good bursary program. I've been informed that there have been changes to the tax system so that we might be taxed (fellowship exemption has been cancelled) for these bursaries. This requires attention, I think, because it seems an inappropriate thing to tax.

Nice about the bursaries unfortunately as an IMG I have the luxury of paying this province for my residency or staying here for 5 years earning about 100000 less than I would be in Ontario. Also, I'm no eligible for bursaries yet medical students are?? Therefore there's no incentive to stay...

PracticeNL does not have bursary info on the main page. I had to click on a link for jobs (out of curiosity) and then the bursary program had a link at the top of the page. Poor design. Incentives to practice should be a huge part of the main page for a recruitment website! I just stumbled upon the info.

Question #25 is a poorly designed as there were a couple of points of consideration that were EQUALLY as important when I was making my decision to accept a bursary!

Recruitment begins before any thought of return for service has been considered. As a second year New Brunswicker, it is frustrating to be getting emails on a regular basis, advertising scholarships and funding for Memorial medical students, however, very often they are only available for students from Newfoundland. Although this may play a small part in the grand scheme of things, it is frustrating at the moment, and at this moment I am certainly making decisions on where I want to be in the near future. Newfoundland is currently not at the top of my list, and this certainly plays a role.

RFS bursaries are excellent, but I don't necessarily think they keep people in NL long term or attract people to practice here in lieu of other places (which will offer similar ROS agreements). I think there should certainly be a penalty for not fulfilling the return of service as agreed. Health boards take this agreements into account for long term personnel planning, and renege on your contract prior to starting practice impacts negatively on communities that are already underserved

The pressure of debt is insane. Help in this area is greatly appreciated. Though I said I would prefer to work in a large center, that is mainly my spouse and families choice. I am a bay boy, I would live on Fogo if they had my specialty there!!

There are other things that are of grave importance to me, like the ability to have a family and take maternity leave. Issues such as these would also come into consideration when deciding to take an RFS.

They need to be more competitive with the rest of the Country and the US.

We have recently been informed that the bursary may be taxable under new NL tax law. If that is the case this will significantly decrease the interest in the bursary program for students already burdened by significant debt.



