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"A family doctor can do that!" Is there a role for a formalized referral network for office procedures in family practices of Newfoundland and Labrador?

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A thesis submitted in partial fulfillment of the requirements for the Master of Clinical Science degree in Family Medicine

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“A FAMILY DOCTOR CAN DO THAT!” IS THERE A ROLE FOR A FORMALIZED
REFERRAL NETWORK FOR OFFICE PROCEDURES IN FAMILY PRACTICES OF
NEWFOUNDLAND AND LABRADOR?

Thesis format: Integrated Article

by

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Graduate Program in Family Medicine

A thesis submitted in partial fulfillment
of the requirements for the degree of
Master of Clinical Science in Family Medicine

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Abstract

Office procedures are an important part of the comprehensive care package provided by family physicians. Every family physician cannot feasibly perform every office procedure. A cadre of family physicians drawing upon each other's procedural skills has the potential to improve patient care and enhance physician satisfaction. A mixed methods approach was used to explore potential clinical and educational roles of a formalized referral network* for office procedures in Newfoundland and Labrador, Canada. In a quantitative study, using a self-administered survey, family physicians identified that while there are procedures being performed in family practice, there is a discrepancy between the demand for, and performance of, office procedures. Respondents also identified interest in colleague referral† for office procedures. In a subsequent descriptive qualitative study, using focus groups of family physicians, participants suggested that colleague referral would be beneficial if supported by the entire medical community, accepted by patients, and implemented effectively.

Keywords

Family practice, office procedures, colleague referral, referral network, mixed methods, descriptive qualitative

* Referral network is defined as a network of physicians of the same designation (for example, family physicians) who draw upon each other's personal skills through referral to enhance the care of patients.

† Colleague referral is defined as referral between two colleagues with the same designation. In this case we are using the context of one family physician referring a patient to another family physician.

iCo-Authorship Statement

This thesis and both associated studies were developed, planned and conducted by the author. All data, from both the quantitative and qualitative studies, was collected by the author. The quantitative analysis was completed by the author and reviewed with Drs. Shadd and State. In the qualitative study, initial analysis was conducted in collaboration with Drs. Shadd and State and completed by the author. The thesis was written solely by the author, with editorial advise from Drs. Shadd and State.

Acknowledgements

I would like to thank the wonderful people who have helped to make this thesis possible:

Drs. Joshua Shadd and Stephen State for their support, guidance and patience during the entire process.

Dr. Bridget Ryan for her guidance and advise during the quantitative analysis.

Each of the family physicians who responded to the self-administered survey and participated in the focus groups.

The Department of Family Medicine Research Trust Fund for providing financial support for the quantitative study.

Most importantly, I wish to thank my husband, Steve; stepsons, Tyler and Zachary; and daughter, Lydia, for their encouragement, patience, and never-ending support.

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Chapter 1

1 Is there a role for a formalized referral network for office procedures in family practices of Newfoundland and Labrador?

1.1 Thesis overview

This thesis explores the possible role(s) of a formalized referral network for office procedures in family practices of Newfoundland and Labrador.

Chapter one introduces the concept of a formalized referral network for office procedures and discusses the context for the research studies. An overview of the methodologic approach and a summary of the existing, related literature provides background for the topic.

Chapter two describes the initial research project which quantifies the performance and predictors of office procedures in family practice. A descriptive quantitative study using a self-administered survey of Newfoundland and Labrador family physicians identifies which procedures are being performed in family practice, how often, and by whom. Willingness to participate in family physician colleague referral is also explored in order to identify the potential for a formalized referral network.

Chapter three describes the subsequent research project which explores the perceptions of Newfoundland and Labrador family physicians surrounding colleague referral for office procedures. A descriptive qualitative study using semi-structured focus groups explores current methods of colleague referral and the potential for a formalized referral network.

Chapter four reflects upon the findings of the two studies as they pertain to the possible role(s) of a formalized referral network for office procedures in Newfoundland and Labrador.

1.2 The terminology of office procedures

Office procedures include both diagnostic and therapeutic procedures that family physicians can provide to their patients in an office setting. Often synonymous with clinical procedures, procedural skills, and ambulatory care procedures, office procedures are defined by the College of Family Physicians of Canada (CFPC) Working Group on Procedural Skills as “the mental and motor activities required to execute a manual task and involving patient contact.”¹ This definition excludes physical examination skills and purely interpretive skills.

1.3 Office procedures in family practice

Office procedures are an important part of the practice of family medicine.¹ The technical skills required to perform office procedures are an integral part of the skill set of well-rounded family physicians.²⁻³ Performing office procedures not only improves access for patients while enhancing continuity of care, but increases both patient and physician satisfaction.⁴ However, due to barriers such as the additional time required, excess costs, limited confidence, and inadequate resources, few family physicians are actively undertaking procedural work.² As a result many procedures that were once routinely practiced by family physicians have been assumed by specialists and allied health professionals.⁵

1.4 The need for a formalized referral network for office procedures

in family practices of Newfoundland and Labrador

The distribution of patient and physician populations reveals the need for more office procedures in family practice. Less than 25% of Canadians live in rural communities and these communities are home to less than 3% of Canadian specialists.⁶ Similarly, less than 3% of Newfoundland and Labrador's specialists live in rural areas, however these rural areas contain 41% of the province's population.⁷⁻⁸ Clearly, the need for skilled family physicians to provide high-quality local health care exists in, and is essential for a healthy medical culture.⁹

Increasing the number of office procedures available in the family practice community cannot be the responsibility of each individual physician. It is not feasible or practical for each family physician to perform every office procedure.² Nor is it wise for a family physician to perform a skill so infrequently that confidence and perhaps competence may be affected.¹⁰⁻¹¹ One or two members of a family practice community specializing in a certain procedure is more efficient and economically sound if they are willing to share their expertise.⁴ This approach could also provide an opportunity to increase performance frequency and in turn provide greater competence for the performing family physician.

Having a network of family physicians who draw upon each other's skills through referral has the potential to enhance the community of family practice and improve patient care. Formalizing this network will provide a consistent and structured way to refer and accept patients between family physician colleagues for office procedures. While informal colleague referral networks may exist in the current medical culture, formalizing the process will increase awareness and access for interested family physicians. A formalized referral network would encompass both clinical and educational roles. The clinical role would focus upon connecting referring family

physicians with consulting family physicians. The educational role would focus on supporting office procedure training and skills maintenance by identifying available learning opportunities, helping medical learners and practicing family physicians avail themselves of these services by connecting them with teachers, and, where necessary, providing financial or other means of support.

1.5 Literature review

1.5.1 Family physician provision of office procedures

Office procedures are an important part of the practice of family medicine.¹ Available research suggests that benefits of office procedures in family practice may include providing family physicians the freedom to make decisions that meet their patients' needs, reduced wait times for specialist referral, and elimination of unnecessary patient travel.¹²⁻¹³ Performing office procedures allows a family physician the autonomy to decide which procedure performed with what urgency would best benefit their patient. The addition of office procedures increases physician and patient satisfaction, and enhances the continuity of care.¹⁴⁻¹⁵ While research amongst family physicians has identified lists of core office procedures which are considered as essential to family medicine, many practicing family physicians do not perform these procedures.¹

1.5.2 Predictors of office procedure performance in family practice

There is a wide array of characteristics found among physicians and their practices within the family practice community of Newfoundland and Labrador. Understanding how these characteristics influence the performance of office procedures is key to supporting them. A number of these characteristics, or "predictors," have been previously studied

among family physicians outside of Newfoundland and Labrador including: gender, age, number of years in practice, population of practice location, medical learner teaching, and access to hospital resources.

One Canadian study has noted that men performed more office procedures than women in urban environments, but that the genders were more equivalent in rural areas, possibly due to fewer referral opportunities.³ Several other studies have suggested that male gender and younger age are associated with increased performance.¹⁶⁻¹⁷ A Canadian study noted that the experience associated with the number of years in practice was not significantly associated with increased performance of office procedures.³

Practice location may influence a family physician's decision to perform office procedures. One Canadian study indicated that female family physicians working outside cities are more likely to perform office procedures than females in urban settings.³ This may be because rural family physicians are often associated with rural (cottage) hospitals and health authorities, which in turn may provide easier access to equipment, facilities, and resources. From the opposite perspective, procedural skill confidence may influence the choice of practice location. One Canadian study concluded that procedural skill confidence alone was not associated with rural or urban practice location, while another from Australia identified that a lack of procedural skills was a reason for not entering rural practice.¹⁸⁻¹⁹

Two Canadian publications state that family physicians who have access to outpatient departments are more likely to perform office procedures.³⁻⁴ Family physicians in many rural communities in Newfoundland and Labrador have the opportunity to acquire this access through family physician run, rural hospitals. This may explain why family physicians who withdraw from hospital practice tend to stop performing procedures.⁴ Research investigating the connection between hospital privileges and office procedures is limited but has shown that delivering babies and working emergency (both of which

require hospital privileges) are associated with increased office procedure performance.³

A Canadian publication discussing family physicians concluded that teaching medical learners leads to increased office procedure performance.³ Canadian family medicine training programs have lists of core procedural skills that should be offered to their students. Family physicians who are drawn to and involved in teaching medical learners are likely invested in providing a comprehensive education package which includes office procedures.

Current research into family practice office settings is limited. One study did not find an association between office setting and the performance of office procedures.³ There is, however, a growing trend of family physicians associating in groups and networks, making the feasibility of a group member specializing in a certain procedure more economically sound.⁴ This could provide physicians with the opportunity to become more skilled in a single procedure as a result of colleague referral. The opportunity for increased performance frequency may provide greater competence for the performing family physician.

In Newfoundland, there is a significant population of family physicians who completed their medical education abroad. One Canadian study showed that there was no association between having completed a family medicine residency and the performance of office procedures.³ Current research however has not studied whether a link exists between where a family physician trained and the number of office procedures they perform in active practice. Given that there is great diversity amongst family medicine residency programs within Canada regarding which procedures are considered 'core' to family medicine, it appears prudent to determine how great the diversity is on an international scale.²⁰

1.5.3 Competence, confidence, and training in office procedures

It is not enough to know how to perform an office procedure. It is essential that family physicians perform only procedures that they are capable of performing competently.¹⁵ Experience, especially during the early development process of acquiring skills, is essential to becoming competent. Competence continues to improve as a function of more experience.^{5,10-11,21} To maintain competence, office procedures must be performed regularly. Considering its potential impact on competence, the frequency with which family physicians perform office procedures is important.^{10,21-22}

Competence is not the only factor which affects office procedure performance. Wetmore states, “Doctors are more likely to practice those skills in which they have received training and in which they feel confident.”²³ Competence may be closely related to having a lack of up to date skills. A Canadian study of family physicians showed that the top reason for not performing a procedure in family practice was lack of up to date skills.²⁴ Another concluded that more than fifty percent of physicians cited reading as the method most used to update skills. However, with unlimited resources, more physicians would prefer to do clinical traineeships or attend courses to update skills.²⁵ Unfortunately, a systematic review has shown that widely used continuing medical education delivery methods such as conferences have little direct impact on improving practice, and more effective methods are seldom used.²⁶ Hands-on procedural skills workshops may provide valuable learning opportunities in the post-graduate setting.⁵

The 2010 National Physician Survey showed that Newfoundland and Labrador family physicians indicated significant barriers to participation in Continuing Medical Education (CME) programs including time away from practice, time away from family, and the cost of actual activities.²⁷ While these barriers have also been echoed in other Canadian and international studies, of note, lack of relevance to practice was not a barrier for the majority of physicians surveyed.^{2,9,15,21} Examining current learning environments can be used to develop creative solutions for family physicians to learn and maintain office

procedure skills.⁹ Family physicians need the best available information, programs to match their learning styles, and help with time and financial barriers.²⁵

Research has shown that the majority of family physicians who perform office procedures learned the skills required in medical school and/or residency.^{13,24,28} The CFPC training standard states that family practice residents “should be encouraged to learn the general principles of surgical procedures so that they can add to their skills once they have graduated.”²⁸ This would allow family physicians in active practice to more easily acquire office procedures that serve their specific patient population. This is reflected in current research identifying that the acquisition of many office procedures is driven by patient need.^{5,25,29}

1.5.4 Office procedures, family physicians, and interaction with the health care system

Family physicians have identified multiple barriers to the performance of office procedures in active practice including lack of interest or confidence, lack of time or space, equipment costs, and lack of adequate remuneration.² As a result of these barriers, many procedures that were once routinely practiced by family physicians have been assumed by other specialists and allied health professionals.⁵

In Newfoundland and Labrador, access to specialists is through referral only. The referral may come from a family physician, walk-in clinic, emergency room, or another specialist. At the present time there is no database to determine which referrals come from which of these populations. Office procedures are performed by their respective specialists on a frequent basis. There is no database at present to account for the number of procedures performed in Newfoundland and Labrador by salaried physicians, a population which includes most specialists. Moving these office procedures from the realm of the specialist into the arena of the family physician could reduce the burden on

specialists and associated wait times.²

Interaction with specialists is a key role of family physicians. However, difficulty in referring patients and lack of timely response has a negative impact on family physician satisfaction.³⁰ In a 2014 report, the average wait time to see a specialist in Newfoundland and Labrador was 13 weeks, with an additional 14 week wait time to treatment. The median wait time to see a gynecologist after family physician referral was 24 weeks and orthopedic surgery was 14 weeks.³¹ In 2010, the Newfoundland and Labrador Medical Association (NLMA) launched an advocacy campaign highlighting the long wait times caused by the shortage of physicians. This campaign highlighted the cases of patients waiting to see a dermatologist (210 days until appointment), orthopedic surgeon (225 days), and emergency room (6 hours).³² Most patients will require an office procedure during their regular care. Patients appreciate office procedures in family practice as they may avoid the frustration and inconveniences incurred as a result of specialist wait lists and travel to the nearest hospital.¹³

Health authorities could benefit from moving office procedures to the family practice community given the often overwhelming wait lists for specialists, as well as the financial burdens and time required to perform procedures in a hospital setting.⁴ These benefits, however, must be compared against the cost of equipment, support in case things go wrong, and the demands on available time for performing family physicians.²

1.5.5 Colleague referral for office procedures

A Canadian Study found that the majority of family physicians who do not perform office procedures themselves would refer to a specialist rather than to another family physician. Only a minority of family physicians reported referring to a colleague. Referral to family physician colleagues appears under-utilized.²⁴ A formalized referral network will depend both on office procedures being performed by family physicians, and on family

physicians using the network by referring to and accepting referrals from colleagues.

Researchers in the United Kingdom recognized that general practitioners can provide efficient, cost-effective minor surgical procedures and expanded upon this knowledge by piloting a referral service within one health authority area. A group of five interested general practitioners were contracted to offer select minor procedures to both their own patients and those of neighbouring colleagues. Thirty-five neighbouring physicians referred their patients: all were offered an initial appointment within one week and had their procedures performed within one month. Both patients and referring physicians reported being very satisfied with the service and felt it was successful.³³

As noted above, the concept of colleague referral is not new, but there is limited literature surrounding colleague referral for office procedures in Canadian family practices.[‡] In addition, the existing literature does not reveal a unique, unified term to describe the formalized referral network proposed in this thesis.

There are elements of this thesis' interpretation of a formalized referral network currently implemented in parts of Canada. Alberta Health Services has a published "Family Medicine Referral Directory" which lists family physicians' contact information and areas of interest for which they are willing to receive referrals from colleagues.³⁴ British Columbia has recognized that some general practitioners offer specialized services and has therefore expanded upon their Pathways program (a web-based directory which was designed to improve and streamline general practitioner-specialist referrals) to include colleague referral between general practitioners. The Pathways program is available to Vancouver physicians registered to the program, providing a searchable database which

[‡] It is difficult to conclusively say that there is no existing literature discussing many aspects of colleague referral as discussed in this thesis, however the literature review was extensive and included the search terms: Family Practice/Practitioners, Family Medicine, General Practice/Practitioners, Ambulatory Care, Primary Care, Procedures, Office Procedures, Minor Surgical Procedures, Clinical Procedures, Procedural Skills, Referral, Colleague Referral, Confidence, Competence, Learning, Medical Education, Continuing Medical Education, Barriers, Impact, Wait(ing) Times, and Wait Lists.

includes areas of special interest, wait times, availability, and referral forms.³⁵ These directory style programs, while not focused specifically on office procedures in family practice, address the distribution of information aspect of the formalized referral network proposed by this thesis. There are however aspects of the proposed formalized referral network that are distinct from these. It is not just a passive list but an interactive network. It would be accessible to all family physicians in the province and not restricted to a specific subset. The most notable difference is that it would have an explicit capacity-building function in the form of an educational role to provide training and support for office procedures in family practice.

1.6 Research aim

The goal of this thesis is to explore the possible role(s) and feasibility of a formalized referral network for office procedures in family practices of Newfoundland and Labrador. The two studies will complement each other to identify both the clinical and educational potential.

The fundamental basis for the clinical role of a formalized referral network is the performance of office procedures by family physicians. There must also be family physicians who do not perform office procedures and need to refer their patients. Both of these groups must be willing to participate in colleague referral by referring and accepting patients. Barriers and benefits associated with current referral methods need to be explored, and where possible, addressed in the implementation of a formalized referral network. Understanding family physicians' expectations for colleague referral and a formalized referral network will contribute greatly to developing a program that will be accepted and used by the family physician community.

A formalized network has the potential to provide an educational function for participating family physicians. Identifying the characteristics of physicians and their

practices that lead to performance of office procedures will allow targeted educational activities to encourage more family physicians to perform office procedures.

Determining in which learning environment office procedure skills and confidence were acquired will help streamline educational programs by employing the most effective office procedure learning environments.

1.7 Methodologic approach

1.7.1 Mixed methods

The research question for this thesis (Is there a role for a formalized referral network for office procedures in family practices of Newfoundland and Labrador?) is well-suited to a mixed methods approach. Using both quantitative and qualitative lenses helps us to answer what one method alone could not and increases the depth of understanding of each set of results. The ways in which we come to “know” and “understand” phenomena often don’t fit a single approach.^{36,37} Both approaches are essential to identify whether there is a role for a formalized referral network. The quantitative component will identify potential clinical and educational needs. The qualitative component will identify whether each need is actually a problem, how office procedures are currently handled, and whether a solution can be found within a formalized referral network.

The Quantitative approach will identify: 1) What are the patterns of office procedure performance in Newfoundland and Labrador? 2) What are the predictors for performing office procedures? 3) What learning environments influence office procedures in family practice? 4) Do family physicians believe there is potential for colleague referral for office procedures in family practice?

The Qualitative approach will explore: 1) How do Newfoundland and Labrador family physicians perceive colleague referral for office procedures? 2) What are the current

methods, barriers, and benefits of referral for office procedures? 3) How do Newfoundland and Labrador family physicians envision a referral network and its implementation?

1.7.2 Data collection strategy and design type

The approach chosen for this study was sequential explanatory design. First, the quantitative data was collected by survey and analyzed. The qualitative data was then collected using focus groups and analyzed. The final step was interpretation and synthesis of both analyses. The quantitative data was used to shape the qualitative research questions and recruit interested participants for the qualitative study. The qualitative data helped explain the quantitative results. Both portions, quantitative and qualitative, were considered to be of equal importance.³⁶

1.7.3 Purpose statement

The purpose of this sequential explanatory mixed methods study will be to identify the performance and predictors of office procedures and explore the potential clinical and educational roles for a formalized referral network for office procedures in family practice in Newfoundland and Labrador.

1.8 References

1. Wetmore SJ, Rivet C, Tepper J, Tatemichi S, Donoff M, Rainsberry P. Defining core procedure skills for Canadian family medicine training. *Can Fam Physician* 2005;51(10):1364-5.
2. Milne R. Minor surgery in general practice. *British Journal of General Practice* 1990;40:175-6.

3. Wetmore SJ, Agbayani R, Bass MJ. Procedures in ambulatory care. Which family physicians do what in southwestern Ontario? *Can Fam Physician* 1998;44:521-9.
4. Wetmore SJ. How do I perform procedures in my office? *Can Journal of CME* 2002;Nov:63-9.
5. MacKenzie MS, Berkowitz J. Do procedural skills workshops during family practice residency work? *Can Fam Physician* 2010;56:e296-301.
6. Society of Rural Physicians of Canada. Regional Information - Comparative Regional Statistics. 2009. Available at https://www.srpc.ca/resources_regional_stats.html. Accessed April 10, 2015.
7. Statistics Canada. Population, urban and rural, by province and territory (Newfoundland and Labrador). 2011. Available at <http://www.statcan.gc.ca/tables-tableaux/sum-som/l01/cst01/demo62b-eng.htm>. Accessed April 10, 2015.
8. The College of Physicians and Surgeons of Newfoundland and Labrador. Available at <http://www.cpsnl.ca/default.asp?adv=1&com=DoctorSearch>. Accessed April 10, 2015.
9. Kelly L. Surgical skills for family physicians: Do family physicians make the cut? *Can Fam Physician* 1998;44:469-70.
10. Ericsson KA. Deliberate practice and the acquisition and maintenance of expert performance in medicine and related domains. *Academic Medicine* 2004;79(10):s70-81.
11. Leach DC. Competence is a habit. *JAMA* 2002;287(2):243-4.
12. DeVoe J, Fryer GE, Hargraves JL, Phillips RL, Green LA. Does career dissatisfaction affect the ability of family physicians to deliver high-quality patient care? *The Journal of Family Practice* 2002;51(3):223-8.
13. Heikes LG, Gjerde CL. Office procedural skills in family medicine. *Journal of Medical Education* 1985;60:444-53.
14. DeVoe J, Fryer GE, Straub A, McCann J, Fairbrother G. Congruent satisfaction: Is there geographic correlation between patient and physician satisfaction. *Medical Care* 2007;45(1):88-94.
15. Norris TE, Cullison SW, Fihn SD. Teaching procedural skills. *JGIM* 1997;12:s64-70.

16. Eliason BC, Lofton SA, Mark DH. Influence of demographics and profitability on physician selection of family practice procedures. *Journal of Family Practice* 1994;39:341-7.
17. Calnan M. Variations in the range of services provided by general practitioners. *Family Practice* 1988;5:94-104.
18. Wetmore SJ, Stewart M. Is there a link between confidence in procedural skills and choice of practice location? *Can Journal of Rural Medicine* 2001;6(3):189-94.
19. Watts RW. The GP proceduralist. *Aust Family Physician* 1993;22(8):1475-8.
20. Van der Goes T, Gryzbowski SC. Procedural skills training: Canadian family practice residency programs. *Can Fam Physician* 1999;45:78-85.
21. Rethans J, Sturmans F, Drop R, Van der Vleuten C, Hobus P. Does competence of general practitioners predict their performance? Comparison between examination setting and actual practice. *British Medical Journal* 1991;303:1377-80.
22. Rethans J, Van Leeuwen Y, Van der Vleuten C, Sturmans F. Competence and performance: Two different concepts in the assessment of quality of medical care. *Family Practice* 1990;7(3):186-74.
23. Wetmore SJ. Is there a link between confidence in procedural skills and choice of practice location by graduating family medicine residents? Thesis. University of Western Ontario. 1998:15.
24. Sempowski IP, Rungi AA, Seguin R. A cross sectional survey of urban Canadian family physicians' provision of minor office procedures. *BMC Family Practice* 20:7:18.
25. Curry L, Putnam RW. Continuing medical education in maritime Canada: The methods physicians use, would prefer and find most effective. *CMA Journal* 1981;124:563-66.
26. Davis DA, Thomson MA, Oxman AD, Haynes RB. Changing physician performance, a systematic review of the effect of continuing medical education strategies. *JAMA* 1995;274(9):700-5.
27. College of Family Physicians of Canada. National Physician Survey 2010. Available at <http://nationalphysiciansurvey.ca/wp-content/uploads/2012/09/2010-FP-Q21b.pdf>. Accessed April 10, 2014.

28. Crutcher RA, Szafran O, Woloschuk W, Chaytors RG, Topps DA, Humphries PW, Norton PG. Where Canadian family physicians learn procedural skills. *Family Medicine* 2005;37(7):491-5.
29. Pitts J, Vincent S. General Practitioner's Reasons for not attending a higher professional education course. *British Journal of General Practice* 1994;44:271-3.
30. Thind A, Freeman T, Thorpe C, Burt A, Stewart M. Family physicians' satisfaction with current practice: what is the role of their interactions with specialists? *Healthcare Policy* 2009;4(3):e145-58.
31. Barua B, Fathers, F. Waiting you turn: Wait times for health care in Canada, 2014 Report. 2014;1-51.
32. Newfoundland and Labrador Medical Association. We need more doctors. 2010. Available at <http://www.nlma.nl.ca/Advocacy/We-Need-More-Doctors>. Accessed July 30th, 2013.
33. Brown JS, Smith RR, Cantor T, Chesover D, Yearsley R. General practitioners as providers of minor surgery - a success story? *The British Journal of General Practice* 1997;47(417):205-210.
34. Alberta Health Services. Family Medicine Referral Directory 2014. Available at <http://www.albertahealthservices.ca/hp/if-hp-cfm-referral-directory.pdf>. Accessed May 15th, 2015.
35. Divisions of Family Practice: A GPSC Initiative. Pathways. Available at <https://www.divisionsbc.ca/vancouver/pathways>. Accessed May 15th, 2015.
36. Cresswell JW. Research design: Qualitative, quantitative, and mixed methods approaches. Los Angeles: Sage, 2009.
37. Nova South Eastern University: Abraham S Fischler School of Education. Mixed Methods. Available at http://www.fischlerschool.nova.edu/Resources/uploads/app/35/files/ARC_Doc/mixed_methods.pdf. Accessed July 30th, 2013.

Chapter 2

2 Is there a role for a formalized referral network for office procedures in family practice?: Quantifying the performance and predictors of office procedures in family practices of Newfoundland and Labrador

2.1 Introduction

2.1.1 Background

Office procedures are an important part of family practice. Most patients require an office procedure during their regular care. Diagnostic and therapeutic procedures being done in an office setting are convenient for patients, professionally satisfying for physicians, and beneficial for health authorities; however, they appear to be underperformed.¹ It is important to recognize which office procedures are being performed by skilled family physicians and to keep these services active and supported for the future.² A formalized referral network could support procedures in the family practice community using both a clinical role of connecting referring family physicians with consulting family physicians, and an educational role of supporting office procedure training and skills maintenance.

A number of characteristics have been studied and shown to affect the performance of office procedures: gender, age, population of practice location, teaching medical learners, and access to hospital resources.^{1,3-4} Two factors might be significant for Newfoundland and Labrador family physicians but have not been found to be associated with office procedure performance in other studies: number of years in practice and office practice

setting. Another factor, location of residency training, might be significant but has not been studied for an association with office procedure performance.

In a Canadian study of family physicians in Ontario, Wetmore explored the predictors of office procedures. It concluded that more men in urban settings, and females in rural practice perform more office procedures.¹ In a separate publication, Wetmore discussed that access to outpatient departments and teaching medical learners are also important factors in the decision to perform office procedures.⁵ Other international studies have suggested that male gender, younger age, and rural location are associated with increased office procedure performance.^{3-4,6}

Wetmore's study did not find an association between office setting, number of years in practice, or completing a family medicine residency and the performance of office procedures.¹ However, family physicians in group practices have the opportunity to pool resources making certain procedures more economically sound. In addition, group practice could provide a referral network atmosphere increasing performance frequency for a specific procedure. Because family physicians enter medical school training at various stages of life and their careers are not always linear, it is worth reviewing if association with the age of family physicians differs from the number of years in practice.

Competence and confidence are important positive influences on the performance of office procedures. To maintain competence, office procedures must be performed regularly. Considering its potential impact, knowing the frequency with which family physicians perform office procedures is important.⁷⁻⁹ Family physicians are more likely to practice office procedures in which they have been trained and feel confident.¹⁰

Identifying learning environments which lead to the competent and confident addition of office procedures to family practice could be beneficial in developing methods for family physicians to learn new and maintain existing office procedure skills as part of the educational role of a formalized referral network. There has been limited research in this

area however one study does appear to support targeted workshops for certain procedures.¹¹

The clinical role of a formalized referral network will be dependent not only on office procedures being performed by family physicians, but on family physicians referring to and accepting referrals from colleagues. A Canadian Study found that the majority of family physicians who do not perform office procedures themselves would refer to a specialist colleague rather than to another family physician. Only a minority of family physicians reported referring to a family medicine colleague. Referral to family physician colleagues appears under-utilized.¹¹ To assess the potential usage of a formalized referral network, it must also be determined whether family physicians who perform office procedures would accept referrals, and if there are family physicians willing to refer their patients to a family physician colleague for an office procedure.

2.1.2 Study objectives

1. The primary objective of this study is to quantify the performance and predictors of office procedures in family practices in Newfoundland and Labrador. Specifically, the goal is to survey family physicians in office practice to determine if they perform procedures, which procedures they perform, with what frequency, and whether the characteristics of themselves or their practices is associated with increased office procedure performance.
2. A secondary objective of this study is to identify the potential for a formalized referral network for office procedures in family practice. Specifically, the goal is to survey family physicians in office practice to determine if they currently, or would in the future, participate in family physician colleague referral by referring or accepting patients.
3. A tertiary objective is to survey family physicians in office practice to determine in which learning environment office procedure skills and confidence were acquired in

order to identify potential areas for ongoing support and training opportunities which may bolster a formalized referral network.

2.1.3 Research questions

1. What are the patterns of office procedure performance in Newfoundland and Labrador?
2. What are the predictors for performing office procedures?
3. What learning environments influence office procedures in family practice?
4. Do family physicians believe there is potential for colleague referral for office procedures in family practice?

2.2 Method

2.2.1 Study design

This descriptive quantitative study was conducted using a survey entitled, “Quantifying the performance and predictors of office procedures in family practices of Newfoundland and Labrador.” The survey was developed according to the Dillman tailored design method and was pilot tested on six practicing family physicians to verify the clarity and suitability of the questions.¹²⁻¹³

The survey, which is included as Appendix A, included questions on gender, age, number of years in practice, family practice office setting, population of office location, access to hospital resources, teaching medical learners, and family medicine residency program. The balance of the survey asked respondents to identify the office procedure(s) that their patients may require, the procedure(s) they perform, as well as the frequency of performance of each procedure. Respondents were also asked to identify the learning environments that they used to acquire office procedure skills and select the one which provided the most confidence in office procedure performance. Finally, respondents were

asked whether they do refer to family physician colleagues, whether they would refer to colleagues, and whether they would accept referrals from colleagues for office procedures.

The office procedures for the purposes of this survey are elective, office-based procedures considered core skills in family practice resident training according to the sixty-five core procedures listed in the CFPC evaluation objectives in family medicine.¹⁴ The list was narrowed to twelve office procedures by including only procedures that are not already addressed by Newfoundland and Labrador health care initiatives such as: regional and mobile cervical screening clinics, colon cancer screening program fecal occult blood test home kits, and venipuncture services from community phlebotomists. The twelve procedures included in this survey are skin lesion biopsy, dermal lesion excision, excision of ingrown toenail (partial or wedge), intrauterine contraceptive device (IUCD) insertion, endometrial biopsy, diaphragm fitting, aspiration of breast cyst, inject/aspirate shoulder, inject/aspirate knee, inject/aspirate epicondylitis, inject/aspirate bursae, and anoscopy/proctoscopy.

This study received ethics approval from The University of Western Ontario Research Ethics Board for Health Sciences Research Involving Human Subjects (file number: 104731). (Appendix B)

2.2.2 Survey administration

A survey package, including a letter of information, self-administered survey entitled “Quantifying the performance and predictors of office procedures in family practices of Newfoundland and Labrador,” and a request for an expression of interest to participate in a subsequent study, was mailed to family physicians registered with the College of Physicians and Surgeons of Newfoundland and Labrador (CPSNL). Addresses were obtained from the CPSNL website.

A reminder letter was mailed to all family physicians who had not returned their survey thirty days after the original survey package was sent. Physician's names were assigned numbers which were matched to numbered surveys for the express purpose of following up on uncompleted surveys. The names were retained confidentially, and only cumulative data is reported. Submission of a completed study was considered proof of explicit consent.

2.2.3 Study sample

Survey packages were sent to every family physician registered with the CPSNL filtered to exclude researcher name and any emergency room address. Using these parameters 597 surveys were sent via Canada Post. The survey packages returned by Canada Post for incorrect listed address totalled 10. There were 157 surveys completed and returned and of these, 20 (12.74%) were ineligible based on the established exclusion criteria.[§] There were 137 eligible respondents and of these, 5 (3.65%) had missing or incomplete data. The remaining complete eligible respondents numbering 132 were used in the analysis below. This group reflects a completed eligible survey response rate of 22.11% of the total number of surveys distributed.

The sampling frame was all the family physicians registered with the CPSNL in April, 2014. As a result, the approach of Hulley and Cummings for fixed sample sizes was used to determine the effect size that the sample will have a reasonable power to detect.¹⁵ The primary objective of this study was to show that there are procedures, even in small numbers, being performed in family practices in Newfoundland and Labrador. Predictors of performance and referral potential were analyzed to identify trends instead of specific proportions and as such a larger confidence interval is tolerated. The recommended

[§] Inclusion Criteria: 1) Newfoundland and Labrador family physicians with an office practice
Exclusion Criteria: 1) Retired family physicians and 2) Locum tenens physicians

sample size using a confidence interval of 20%, a confidence level of 95%, and a response distribution of 50% is 103. (Appendix C)

2.2.4 Variables

There were 8 independent variables identified as potential predictors. These family physician and practice characteristics included gender, age, number of years in practice, family practice office setting**, population of office location, access to hospital resources, teaching medical learners, and completion of a family medicine residency program. Gender, age, number of years in practice, population of office location, access to hospital resources and teaching medical learners were included based on Wetmore's research on office procedures in family practice.¹ Family medicine residency program was selected de novo to reflect the diverse population of Canadian and international medical graduates practicing in Newfoundland and Labrador. The surveyed office procedures were chosen based on CFPC objectives and may not reflect international training program's expectations. Family practice office setting was also selected de novo to understand the potential for increased office procedures and referral for same in different types of practice settings. Group practices have the ability to share and thereby increase individual access to resources, and groups with cross coverage may have an impact on colleague referral potential.

The dependent variable for research question 2 (What are the Predictors for Performing Office Procedures?) was performance of office procedures in each of four categories: Dermatology, Gynecology, Surgery, and Orthopedics. Dermatology included skin lesion biopsy, dermal lesion excision, and excision of ingrown toenail (partial or wedge).

** Solo practice - a family physician as sole physician provider for a patient population
Group practice (shares facilities) - more than one physician in a shared physical location who share facilities but have separate patient populations
Group practice (share facilities and cross coverage) - more than one physician in a shared physical location who share facilities and provide health care coverage for each other's patient populations.

Gynecology included IUCD insertion, endometrial biopsy, and diaphragm fitting. Surgery included aspirate breast cyst and anoscopy/proctoscopy. Orthopedics included inject/aspirate shoulder, inject/aspirate knee, inject/aspirate epicondylitis, and inject/aspirate bursae. The four categories were selected based on the speciality of the consultant physician to whom a family physician would refer for the procedure. The twelve individual procedures were collapsed into these categories and subsequently treated in a binary fashion where performing one or more procedures in each category was compared to none. Due to similar resources being required for each procedure, further downstream, performing even one of the procedures in each category could mean potential involvement for the purposes of a formalized referral network.

The dependent variables for research question 4 (Do family physicians believe there is potential for colleague referral for office procedures in family practice?) determine the potential for a formalized referral network. The survey identified current and potential participation in family physician colleague referral. This was achieved with three binary variables including 1) do family physicians refer to colleagues, 2) would they refer to colleagues, and 3) would they accept referrals from colleagues for office procedures.

2.2.5 Analysis

Analysis of the data was conducted using the SPSS statistics version 22.¹⁶ Descriptive statistics were used to illustrate the office procedures that family physicians may require for their patients, that they perform, and the frequency of performance.

Frequency of performance of each procedure was examined descriptively using three categories identifying the number of procedures performed per month. Having the knowledge, resources and training to do any number of each procedure implies potential for involvement in a formalized referral network.

For the purposes of bivariate and multivariate analysis, each procedure can appear in only one of the four categories of office procedures. Each respondent, however, could report providing procedures in multiple categories. Comparisons of predictors and performance in each of the four categories were done using chi-square and fisher's exact test where appropriate for dichotomous variables and t-tests for continuous variables to test statistical significance. Direct logistic regression was also done using the SPSS statistical package in which sex, age, and all other variables found to be statistically significant in the bivariate analysis were included in the equation.

Descriptive statistics were used to illustrate the learning environment used and that which provided the most comfort in office procedures.

Comparisons of predictors and the potential for involvement in a formalized referral network were done using chi-square test, fisher's exact test, and t-tests to test statistical significance.

2.2.6 Power calculation

The sample size calculation was completed at the beginning of the study design based on the primary research objective: Quantifying the performance of office procedures in family practices of Newfoundland and Labrador. The primary research question (What are the patterns of office procedure performance in Newfoundland and Labrador?) was well powered.

A retrospective power calculation was not completed for the secondary objectives because it adds no new information to the analysis. Identifying the adequacy of the sample size, however, is useful for developing a future study. Using data obtained from this study will enable researchers to see how much additional data is needed.¹⁷

2.2.7 Approach to missing data

There were no discordant data (unusually large or small values) that were distinct from the rest of the data. Several categories were examined to ensure discordant data did not exist, these are listed in Appendix D. Less than 5% of the total number of completed surveys had one or more incomplete responses. All of the missing data was related to the primary questions on performance of office procedures (survey questions 9-11). As a result of these two factors and because the sample size remained adequate for the primary objective, list-wise deletion was used.¹⁸ Any case which had missing data was deleted from the study sample. This technique may lead to undetected selection bias and therefore the missing surveys were also analyzed to identify characteristics of those with incomplete surveys. The demographic profile of this group differed from the demographics of the eligible study sample in population of office location, practice office setting, access to hospital resources, and teaching medical learners. (Appendix E)

2.3 Results

2.3.1 Sample demographics

A description of the 132 eligible respondents, as identified using the study sample methodology noted above, is located in table 1.

Because the number of respondents in the rural, small and medium categories of the population of office location predictor were each small, they were collapsed into two

categories: non-urban (rural, small, and medium) and urban. As a result, the sensitivity was expected to be improved in order to detect a meaningful difference.^{††}

Total Respondents	
Gender (% male)	53.8
Age (mean)	46.6 - Standard Deviation [STD] 11.6
Number of Years in Practice (mean)	17.8 - STD 12.6
Family Practice Office Setting (%)	Solo - 18.9 Group shares facilities - 22.7 Group cross coverage - 58.3
Population of Office Location (% non-urban)	64.4
Access to Hospital Resources (% yes)	77.3
Teaches Medical Learners (% yes)	59.8
Canadian Family Residency Program (% yes)	68.2

Table 1. Description of eligible respondents

2.3.2 Research question 1: What are the patterns of office procedure performance in Newfoundland and Labrador?

All but one of the 132 respondents reported seeing patients who required at least one of the twelve office procedures and 94.7% of respondents reported performing at least one office procedure in their family practice.

Respondents reported a mean number of 10.4 (STD 2.0) office procedures which their patients require. Of those that reported seeing patients requiring office procedures, the

^{††} Breakdown of Population of Office Location into initial four surveyed sub-groups:

Rural - 8 (6.1%)

Small - 72 (54.5%)

Medium - 5 (3.8%)

Urban - 47 (35.6%)

mean number of the twelve office procedures performed was 6.6 (STD 2.8). Of those that performed procedures, the mean number of office procedures performed per month was 6.9 (STD 2.5).

The percentage of respondents who reported seeing patients requiring, and those who performed each examined office procedure is located in table 2. The mean frequency of performance of respondents who reported performing each of the examined office procedures is also reported in Table 2. For example, 97.7% of the respondents reported seeing patients requiring skin lesion biopsy and of those 76.5% performed the procedure. Of the respondents who performed the procedure, 43.7% reported performing the procedure equal to or less than one time per month while only 17.5% reported performing the procedure equal to or greater than five times per month.

After subdividing these procedures into their respective categories, analysis showed that a large percentage of respondents who reported seeing patients requiring dermatologic and orthopedic procedures performed the procedures (81.5% and 92.2% respectively). Procedures in the other two categories, gynecologic and surgical, were performed by substantially fewer respondents (40.7% and 55.8% respectively).

	Percentage of respondents who see patients requiring this procedure	Percentage of respondents who perform this procedure	Frequency of performance of this procedure per month
<u>Dermatologic Procedures</u>	98.5%	81.5%	
Skin lesion biopsy	97.7%	76.5%	≤1.0 - 43.7% 1.1-4.9 - 38.8% ≥5.0 - 17.5%
Dermal lesion excision	90.9%	68.2%	≤1.0 - 47.8% 1.1-4.9 - 36.7% ≥5.0 - 15.6%

Excision of ingrown toenail (partial or wedge)	95.5%	59.1%	≤1.0 - 70.9% 1.1-4.9 - 26.6% ≥5.0 - 2.5%
<u>Gynecologic procedures</u>	89.4%	40.7%	
IUCD insertion	87.9%	33.3%	≤1.0 - 73.3% 1.1-4.9 - 26.7% ≥5.0 - 0%
Endometrial biopsy	84.1%	23.5%	≤1.0 - 90.6% 1.1-4.9 - 9.4% ≥5.0 - 0%
Diaphragm fitting	40.9%	10.6%	≤1.0 - 100% 1.1-4.9 - 0% ≥5.0 - 0%
<u>Orthopedic procedures</u>	97.7%	92.2%	
Inject/aspirate shoulder	99.2%	86.4%	≤1.0 - 43.4% 1.1-4.9 - 34.0% ≥5.0 - 22.6%
Inject/aspirate knee	99.2%	88.6%	≤1.0 - 37.3% 1.1-4.9 - 32.2% ≥5.0 - 30.5%
Inject/aspirate epicondylitis	91.7%	74.2%	≤1.0 - 63.6% 1.1-4.9 - 26.3% ≥5.0 - 10.1%
Inject/aspirate bursae	95.5%	80.3%	≤1.0 - 53.8% 1.1-4.9 - 30.2% ≥5.0 - 16.1%
<u>Surgical procedures</u>	85.6%	55.8%	
Anoscopy/proctoscopy	72.7%	15.2%	≤1.0 - 73.7% 1.1-4.9 - 15.8% ≥5.0 - 10.5%
Aspirate breast cyst	81.8%	41.7%	≤1.0 - 90.7% 1.1-4.9 - 7.4% ≥5.0 - 1.9%

Table 2. Demand for and performance of office procedures

2.3.3 Research question 2: What are the predictors for performing office procedures?

Bivariate analysis

There are several statistically significant predictors of performance of the four categories of office procedures. Female gender was associated with a greater likelihood of gynecologic procedure performance and male with orthopedic. The mean age and mean number of years in practice of respondents who perform orthopedic procedures was almost 10 years less than those who do not. Respondents in groups that provide cross coverage were more likely to perform dermatologic procedures than those in the other practice settings. Practicing in non-urban populations was associated with a greater likelihood of performing dermatologic procedures. Teaching medical learners was associated with a greater likelihood of performing dermatologic, gynecologic and surgical procedures. Completing a Canadian residency program was associated with a greater likelihood of performing orthopedic procedures.

Dermatology	Percentage of respondents who perform these procedures 80.3 (106 respondents)	Percentage of respondents who do not perform these procedures 19.7 (26 respondents)	Statistical Significance
Sex (% male)	57.5	38.5	p = 0.080
Age (mean)	46.3 - STD 11.8	48.0 - STD 10.5	p = 0.504
Number of years in practice (mean)	17.3 - STD 12.6	20.3 - STD 12.6	p = 0.276
Office practice setting (%)	Solo - 17.0 Group shares facilities - 17.9 Group cross coverage - 65.1	Solo - 26.9 Group shares facilities - 42.3 Group cross coverage - 30.8	p = 0.495 (solo and group shares facilities) p = 0.031 (solo and group cross coverage) p = 0.001 (group shares facilities and group cross coverage)
Population of office setting (% non-urban)	69.8	42.3	p = 0.009
Access to hospital resources (% yes)	80.2	65.4	p = 0.106
Teaches medical learners (% yes)	64.2	42.3	p = 0.042
Canadian residency program (% yes)	71.7	53.8	p = 0.080

Table 3a. Predictors of performance of dermatologic procedures including skin lesion biopsy, dermal lesion excision, and excision of ingrown toenail (partial or wedge)

Gynecology	Percentage of respondents who perform these procedures 36.4 (48 respondents)	Percentage of respondents who do not perform these procedures 63.6 (84 respondents)	Statistical Significance
Sex (% male)	35.4	64.3	p = 0.001
Age (mean)	45.3 - STD 11.7	47.4 - STD 11.5	p = 0.314
Number of years in practice (mean)	16.8 - STD 12.6	18.4 - STD 12.6	p = 0.481
Office practice setting (%)	Solo - 10.4 Group shares facilities - 27.1 Group cross coverage - 62.5	Solo - 23.8 Group shares facilities - 20.2 Group cross coverage - 56.0	p = 0.154
Population of office setting (% non-urban)	62.5	65.5	p = 0.731
Access to hospital resources (% yes)	85.4	72.6	p = 0.091
Teaches medical learners (% yes)	79.2	48.8	p = 0.001
Canadian residency program (% yes)	75.0	64.3	p = 0.204

Table 3b. Predictors of performance of gynecologic procedures including IUCD insertion, diaphragm fitting, and endometrial biopsy.

Surgery	Percentage of respondents who perform these procedures 47.7 (63 respondents)	Percentage of respondents who do not perform these procedures 52.3 (69 respondents)	Statistical Significance
Sex (% male)	49.2	58.0	p = 0.313
Age (mean)	48.4 - STD 11.5	45.0 - STD 11.5	p = 0.095
Number of years in practice (mean)	19.3 - STD 11.5	16.5 - STD 13.4	p = 0.214
Office practice setting (%)	Solo - 12.7 Group shares facilities - 20.6 Group cross coverage - 66.7	Solo - 24.6 Group shares facilities - 24.6 Group cross coverage - 50.7	p = 0.126
Population of office setting (% non-urban)	61.9	66.7	p = 0.568
Access to hospital resources (% yes)	82.5	72.5	p = 0.168
Teaches medical learners (% yes)	76.2	44.9	p < 0.001
Canadian residency program (% yes)	76.2	60.9	p = 0.059

Table 3c. Predictors of performance of surgical procedures including breast cyst aspiration and anoscopy/proctoscopy.

Orthopedics	Percentage of respondents who perform these procedures 90.9 (120 respondents)	Percentage of respondents who do not perform these procedures 9.1% (12 respondents)	Statistical Significance
Sex (% male)	56.7	25.0	p = 0.036
Age (mean)	45.7 - STD 11.5	55.6 - STD 8.4	p = 0.005
Number of years in practice (mean)	17.0 - STD 12.5	26.7 - STD 10.4	p = 0.010
Office practice setting (%)	Solo - 19.2 Group shares facilities - 20.0 Group cross coverage - 60.8	Solo - 16.7 Group shares facilities - 50.0 Group cross coverage - 33.3	p = 0.054 Fisher's Exact Test (FET)
Population of office setting (% non-urban)	66.7	41.7	p = 0.114 (FET)
Access to hospital resources (% yes)	75.8	91.7	p = 0.296 (FET)
Teaches medical learners (% yes)	60.8	50.0	p = 0.465
Canadian residency program (% yes)	71.7	33.3	p = 0.018 (FET)

Table 3d. Predictors of performance of orthopedic procedures including inject/aspirate shoulder, knee, epicondylitis, and bursae.

Multivariate analysis

Dermatologic office procedures

Direct logistic regression was performed to assess the impact of sex, age, and all other variables found to be statistically significant in the bivariate analysis, on the likelihood that respondents would perform dermatologic office procedures. The model contained five independent variables (sex, age, office practice setting, population of office setting, and teaches medical learners). The full model containing all variables was statistically significant where the chi-square value is 29.13 with 7 degrees

of freedom ($N = 132$) where $p < 0.001$. Three of the independent variables made a unique statistically significant contribution to the model (sex, office practice setting, and population of office setting). The strongest predictors of performing dermatologic office procedures were male (recording an odds ratio of 4.24), non-urban population of office setting (recording an odds ratio of 4.60), and group office practice setting providing cross coverage (recording an odds ratio of 0.145). This indicates that male respondents and those who worked in non-urban populations were over 4 times more likely to perform dermatologic procedures and that respondents in groups who provide cross coverage were over 6 times more likely to perform dermatologic procedures than those in groups who share facilities only.

Gynecologic office procedures

Direct logistic regression was performed to assess the impact of sex, age, and all other variables found to be statistically significant in the bivariate analysis, on the likelihood that respondents would perform gynecologic office procedures. The model contained three independent variables (sex, age, and teaches medical learners). The full model containing all variables was statistically significant where the chi-square value is 21.86 with 3 degrees of freedom ($N = 132$) where $p < 0.001$. Two of the independent variables made a unique statistically significant contribution to the model (female gender and teaches medical learners). The strongest predictor of performing gynecologic office procedures was teaching medical learners recording an odds ratio of 4.02 indicating that respondents who teach medical learners were over 4 times more likely to perform gynecologic office procedures. Gender recorded an odds ratio of 0.30 indicating that female respondents were over 3 times more likely to perform gynecologic office procedures.

Surgical office procedures

Direct logistic regression was performed to assess the impact of sex, age, and all other variables found to be statistically significant in the bivariate analysis, on the likelihood

that respondents would perform surgical office procedures. The model contained four independent variables (sex, age, teaches medical learners and Canadian residency program). The full model containing all variables was statistically significant where the chi-square value is 21.34 with 4 degrees of freedom (N = 132) where $p < 0.001$. Two of the independent variables made a unique statistically significant contribution to the model (age and teaching medical learners). The strongest predictor of performing surgical office procedures was teaching medical learners recording an odds ratio of 3.24 indicating that respondents who teach medical learners were over 3 times more likely to perform surgical office procedures.

Orthopedic office procedures

Direct logistic regression was performed to assess the impact of sex, age, and all other variables found to be statistically significant in the bivariate analysis, on the likelihood that respondents would perform orthopedic office procedures. The model contained four independent variables (sex, age, number of years in practice, and Canadian residency program). The full model containing all variables was statistically significant where the chi-square value is 23.71 with 4 degrees of freedom (N = 132) where $p < 0.001$. Only one of the independent variables, male gender, made a unique statistically significant contribution to the model. The odds ratio for sex was 16.5 indicating that male respondents were over 16 times more likely to perform orthopedic office procedures.

2.3.4 Research question 3: What learning environments influence office procedures in family practice?

Medical school/residency was the most commonly used learning environment for acquiring office procedure skills involving 89.4% of respondents, followed by continuing medical education (65.2% of respondents) and self learning (62.1% of respondents). Table 4 shows which learning environments were used to acquire office procedure skills. The learning environments are not mutually exclusive as respondents were asked to

identify all environments used. Medical school/residency was also the learning environment associated with providing the most confidence in the performance of office procedures. Of the respondents who reported using medical school/residency to acquire office procedure skills, 59.3% identified it as providing the most confidence. Table 4 identifies the percentage of respondents who used each learning environment and subsequently identified it as providing the most confidence.

	Percentage of respondents who used this learning environment for office procedures	Of respondents who used the learning environment, percentage who identified it as providing the most confidence
Medical School/Residency	89.4% (118 respondents)	59.3% (70 of 118 respondents)
Continuing Medical Education	65.2% (86 respondents)	27.9% (24 of 86 respondents)
Clinical Traineeship	16.7% (22 respondents)	31.8% (7 of 22 respondents)
Self Learning	62.1% (82 respondents)	19.5% (16 of 82 respondents)
Other	9.9% (13 respondents)	69.2% (9 of 13 respondents)

Table 4. Learning environment used and which provided the most confidence in performance of office procedures.

2.3.5 Research question 4: Do family physicians believe there is potential for colleague referral for office procedures in family practice?

Descriptive analysis

Of the respondents who reported seeing patients requiring office procedures, 42.4% reported that they already refer and 90.2% reported that they would refer their patients to a family physician colleague. Of family physician respondents who perform office procedures, 78.4% reported that they would accept referrals for office procedures from a family physician colleague. Table 5 shows the current and potential colleague referral percentages of the physicians who do not perform procedures.

	Percentage of non-performing respondents who already refer to a family physician colleague	Percentage of non-performing respondents who would refer to a family physician colleague
Dermatologic Office Procedures	42.3% (11 of 30 non-performing respondents)	88.5% (23 of 30 non-performing respondents)
Gynecologic Office Procedures	50.0% (42 of 84 non-performing respondents)	88.1% (74 of 84 non-performing respondents)
Surgical Office Procedures	43.5% (30 of 69 non-performing respondents)	91.3% (63 of 69 non-performing respondents)
Orthopedic Office Procedures	50.0% (6 of 12 non-performing respondents)	91.7% (11 of 12 non-performing respondents)

Table 5. Current and potential colleague referral trends for physicians who do not perform office procedures

Bivariate analysis

There were several statistically significant predictors of referring to and accepting from colleagues for office procedures. Respondents in groups that provide cross coverage were more likely to currently refer to a colleague for office procedures than those in solo practice (Table 6a). Female gender, practicing in an urban population and completing a Canadian residency program were associated with a greater likelihood of reporting that they would refer for office procedures (Table 6b). Among respondents who perform office procedures, having access to hospital resources was associated with a greater likelihood of reporting a willingness to accept colleague referral for office procedures (Table 6c).

	Percentage of respondents who refer for these procedures 42.4 (56 respondents)	Percentage of respondents who do not refer for these procedures 57.6 (76 respondents)	Statistical significance
Sex (% male)	53.6	53.9	p = 0.966
Age (mean)	47.5 - STD 11.9	46.0 - STD 11.4	p = 0.463
Number of years in practice (mean)	18.7 - STD 13.1	17.2 - STD 12.2	p = 0.502
Office practice setting (%)	Solo - 8.9 Group shares facilities - 19.6 Group cross coverage - 71.4	Solo - 26.3 Group shares facilities - 25.0 Group cross coverage - 48.7	p = 0.175 (solo and group shares facilities) p = 0.005 (solo and group cross coverage) p = 0.155 (group shares facilities and group cross coverage)
Population of office setting (% non-urban)	57.1	69.7	p = 0.135
Access to hospital resources (% yes)	73.2	80.3	p = 0.340
Teaches medical learners (% yes)	60.7	59.2	p = 0.862
Canadian residency program (% yes)	69.6	67.1	p = 0.757

Table 6a. Predictors for existing family physician colleague office procedure referral

	Percentage of respondents who would refer for these procedures 90.2 (119 respondents)	Percentage of respondents who would not refer for these procedures 9.8 (13 respondents)	Statistical significance
Sex (% male)	49.6	92.3	p = 0.003
Age (mean)	46.3 - STD 11.3	50.0 - STD 13.7	p = 0.271
Number of years in practice (mean)	17.4 - STD 12.4	22.1 - STD 13.9	p = 0.197
Office practice setting (%)	Solo - 16.8 Group shares facilities - 23.5 Group cross coverage - 59.7	Solo - 38.5 Group shares facilities - 15.4 Group cross coverage - 46.2	p = 0.211 (FET)
Population of office setting (% non-urban)	61.3	92.3	p = 0.032 (FET)
Access to hospital resources (% yes)	76.5	84.6	p = 0.506
Teaches medical learners (% yes)	62.2	38.5	p = 0.098
Canadian residency program (% yes)	72.3	30.8	p = 0.004 (FET)

Table 6b. Predictors for potential future family physician colleague office procedure referral

	Percentage of respondents who would accept referrals for these procedures 78.4 (98 respondents)	Percentage of respondents who would not accept referrals for these procedures 21.6 (27 respondents)	Statistical significance
Sex (% male)	57.1	51.9	p = 0.087
Age (mean)	46.3 - STD 11.5	46.4 - STD 12.3	p = 0.963
Number of years in practice (mean)	17.5 - STD 12.6	17.9 - STD 13.0	p = 0.873
Office practice setting (%)	Solo - 16.3 Group shares facilities - 21.4 Group cross coverage - 62.2	Solo - 25.9 Group shares facilities - 22.2 Group cross coverage - 51.9	p = 0.376
Population of office setting (% non-urban)	69.4	55.6	p = 0.211
Access to hospital resources (% yes)	83.7	51.9	p = 0.002
Teaches medical learners (% yes)	62.2	51.9	p = 0.614
Canadian residency program (% yes)	69.4	70.4	p = 0.334

Table 6c. Predictors for potential acceptance of patients through family physician colleague office procedure referral

2.4 Discussion

The primary objective of this study was to quantify the performance of office procedures. The demographic profile of the 132 respondents appears to be similar to the Newfoundland and Labrador demographics as specified in the 2013 National Physician Survey in the categories of gender, age, family practice office setting, access to hospital resources, teaching, and Canadian residency program.¹⁹ (Appendix F) Descriptive analysis indicates that there are many office procedures being performed in family

practices of Newfoundland and Labrador with varying frequencies. Many of the studied procedures were performed less than once per month.

The five most commonly performed procedures among the responding physicians were:

- 1) Inject/Aspirate Knee
- 2) Inject/Aspirate Shoulder
- 3) Inject/Aspirate Bursae
- 4) Skin Lesion Biopsy
- 5) Inject Lateral Epicondylitis

The five least commonly performed procedures among the responding physicians were:

- 1) Diaphragm Fitting
- 2) Anoscopy/Proctoscopy
- 3) Endometrial Biopsy
- 4) IUCD Insertion
- 5) Aspirate Breast Cyst

Viewing through the lens of the potential for a formalized referral network, while there are procedures being performed within the community of Newfoundland and Labrador family physicians there are discrepancies between the number of respondents who see patients requiring a procedures and those who perform the procedure. The gynecologic procedures in particular show a large discrepancy. For example, while 87.9% of respondents reported seeing patients who required IUCD insertion, only 33.3% performed the procedure. Similarly, while 84.1% of respondents reported seeing patients who required endometrial biopsy, only 23.5% performed the procedure. Other procedures with a similar pattern of discrepancy (over 25%) included excision of ingrown toenail, diaphragm fitting, aspirate breast cyst, and anoscopy/proctoscopy. Looking broadly at the four categories of office procedures, 40.7% of respondents who reported seeing patients requiring gynecologic procedures performed these procedures, 55.8% for

surgical procedures, 81.5% for dermatologic procedures and 92.2% for orthopedic procedures. This reveals an opportunity for family physicians to avail themselves of a formalized referral network to access these procedures within the family physician community.

Descriptive analysis indicates that many office procedures are being performed in family practices of Newfoundland and Labrador on average less than four times per month. Increased clinical frequency could be provided to individual physicians through specializing in a small number of procedures and sharing this expertise with colleagues through a formalized referral network.

Male gender was associated with increased performance of orthopedic procedures while female respondents were more likely to perform gynecologic procedures. This information offers a gender comparison based on category of procedure which adds to the information obtained by Wetmore's study comparing gender based on practice location.¹ A formalized referral network involving both male and female family physicians could allow the community of family physicians to capitalize upon these associations and offer a broader range of office procedures as a group.

Younger physicians perform more orthopedic office procedures than do their older colleagues. Similarly the number of years in practice revealed that family physicians newer to practice were more likely to perform orthopedic procedures than their established colleagues. Comparing these findings to those of Wetmore, they confirm the trend for younger physicians to perform more procedures, but contrast with his finding that there was no significant difference based on number of years in practice.¹ This finding may be the result of improved training opportunities or a shift in the patient need related to long wait times for patients in this specialty area compared to others or the fact that these were surveys of two completely separate groups of physicians.

Office practice setting was associated only with increased performance of dermatologic procedures: family physicians in group practices which provided cross coverage were more likely to perform dermatologic procedures. While there are costs associated with many procedures, dermatologic procedures require sterile trays, sutures, disposable gloves, gauze, and specimen bottles. Family physicians who do not have colleagues to share the financial burden, or those who do not see an adequate volume due to a lack of patient cross coverage, may suffer financially.

Building upon Wetmore's research with rural location and office procedure performance, in which location only played a role for female family physicians, this study found that family physicians in non-urban populations of Newfoundland and Labrador were more likely to perform dermatologic procedures than their urban colleagues.¹ Specialist access to dermatologists outside of the urban settings is limited in the province (compared to the other three specialties examined) and as a result family physicians have likely stepped up to assume the dermatologic office procedures to avoid having their patients deal with access issues such as travel and long wait times.

Teaching medical learners was positively associated with dermatologic, gynecologic, and surgical procedure performance. While Wetmore concluded that teaching medical learners leads to increased office procedure performance, this study has broken procedures down by category and discovered different trends for different categories.¹ It would be nice to assume that medical school programs would seek out family physician clinical teachers who are proficient in office procedures; however, having medical learners may not always be associated with providing more procedures.

Canadian residency program completion was a significantly associated factor with the performance of orthopedic office procedures: Canadian residency trained family physicians were more likely to perform these procedures than those with other training. This is not a specific reflection on the strengths of Canadian residency

programs as alternate training environments were not individually identified in this research. It is however information that may be relevant to show Canadian residency programs some of their strengths and weaknesses compared to other programs that are training Canadian family physicians.

There were some items which may be relevant, but unfortunately the sample size was not adequate to detect if these were truly significant findings. Respondents in group practices which provided cross coverage seemed more likely to perform all four categories of office procedures than those in solo practices. Working in non-urban populations was associated with a trend towards increased performance of dermatologic and orthopedic procedures. Access to hospital resources was associated with a trend towards increased performance of dermatologic, gynecologic, and surgical procedures. One thing that these items have in common is the potential financial impact of cost and supplies; group practices share expenses lessening the burden on each individual; and, family physicians in non-urban population settings are more likely to work in a hospital setting leading to improved access to hospital resources.

Learning a procedure is required for its performance in practice. In keeping with existing literature, the most common learning environment used by respondents to acquire office procedures was medical school/residency.^{11,20-21} However, less than two-thirds of respondents who reported using medical school/residency to acquire office procedure skills identified it as providing the most confidence. There is a message in this for training programs to re-evaluate their training in office procedures in order to boost graduate confidence. Once in practice, CME and Clinical Traineeship were associated as providing the most confidence. Providing these programs to support practicing family physicians interested in learning or refreshing an office procedural skill may bolster the overall performance of procedures in the community and the confidence of individual practitioners. There may be a function within the educational role of a formalized referral network to provide this support.

The potential for a formalized referral network must not only rely on the fact that family physicians know how and perform office procedures in practice. As discussed above, there are discrepancies between the number of respondents who see patients requiring a procedure and those who perform the procedure. Colleague referral has the potential to reconcile these discrepancies.

This study reveals that informal colleague referral does exist. Respondents who work in office practice groups that provide cross coverage were more likely to refer to a colleague for office procedures than those in solo practice, suggesting that convenience in group practices may lead to more informal referrals. Although the sample size was not adequate to detect a statistically significant relationship, it may also be relevant that a greater percentage of those in urban populations refer to colleagues than those in non-urban settings perhaps related to practice isolation. Access to hospital resources, teaching medical learners and having a Canadian residency program do not appear to impact existing referral relationships. Existing informal referral relationships appear to be based largely upon the convenience of office setting and geographic location. Newfoundland and Labrador has many isolated family physicians in remote communities who are unable to rely upon a group practice or urban location to notify them of informal referral possibilities.

To expand upon the existing informal colleague referrals, family physicians must be willing to refer their patients to a family physician colleague for office procedures that they do not perform. In order for a formalized referral network to be worthwhile, there must be more family physicians who are willing to refer than are currently referring using current informal referral methods. Compared to the 42.4% of respondents who already refer their patients, 90.2% reported that they would. Examining each category of office procedure reveals the same trend in which fewer non-performing respondents currently refer than would refer to a family physician colleague for office procedures if given the opportunity. Female gender and completing a Canadian residency program are both

associated with a greater likelihood of willingness to refer patients. These associations should encourage family medicine residency programs not only to focus on improving resident comfort with office procedures, but to focus on the potential benefits of a formalized referral network. Population of office setting is also statistically significant revealing that those in an urban setting have a greater likelihood of willingness to refer patients. Those in non-urban settings may find referral to a specialist more challenging given the limited number of specialists in non-urban areas. Consideration should be given to the limited access to hospital resources of most urban family practices as a reason for this willingness.

At least some family physicians who perform office procedures must be willing to accept colleague referrals to complete the clinical role of a formalized referral network. 78.4% of family physician respondents who perform office procedures reported that they would accept referrals for office procedures from a family physician colleague. Family physicians with access to hospital resources have a greater likelihood of willingness to accept patients from colleagues for office procedure referrals, perhaps due to the reduced cost of equipment and supplies.

2.5 Limitations

Self reported questionnaires have potential validity concerns inherent in their very nature. Self reported answers may be exaggerated or respondents may be too embarrassed to reveal private details. Various biases, such as social desirability bias and non-response bias (if there are demographic differences between people who respond and people who do not), may affect the results. Self-report studies are inherently biased by the participant's feelings at the time they filled out the questionnaire. The title and survey questions reveal the researcher's intent to study office procedures in family practice. Respondents who perform office procedures may be more inclined to answer the

questionnaire than those who do not, and may also exaggerate their responses to avoid perceived embarrassment related to limited performance of office procedures.

The primary research question was well powered. However, it was surprising to find that most family physicians in Newfoundland and Labrador do perform office procedures. The analysis of the subsequent objectives is clearly not well powered, as the sample size was smaller than preferable because the sample size was fixed and recruitment strategies limited.

2.6 Conclusion

There are many office procedures being performed in the community of family physicians of Newfoundland and Labrador that could be used to enhance communal resources for patients. While some family physicians already use informal referral methods to access their colleague's office procedural skills, many more would refer their patients if provided with the opportunity. Additionally, many family physicians who perform office procedures reported that they would accept referrals for office procedures from a family physician colleague. This study identifies that there is potential for a formalized referral network for office procedures in family practices of Newfoundland and Labrador.

2.7 Recommendations

This study's goal was to survey family physicians of Newfoundland and Labrador about the patterns and predictors of office procedures and colleague referral. The primary research question was well powered. However, in order for the findings to be more generalizable to family physicians across Canada, there may be benefit in additional research in this area to detect statistical differences more accurately with a larger sample size. Two options could be considered for future research to bolster the sample size. One

option is obtaining funding to provide incentive to increase the physician response rate in Newfoundland and Labrador.²² The other is broadening the family physician population surveyed to include other parts of the country.

This study has identified several learning environments which may impact the acquisition of office procedure skills and confidence in their performance. Future research should explore participants' experiences with these learning environments in an effort to better understand these findings and inform change in the way(s) office procedure skills are acquired.

The fact that gynecologic and surgical procedures, although required by patients, are performed substantially less often in family practice, should prompt family medicine residency programs and the family practice community to examine the reason why, determine how to increase performance of and provide support for these procedures.

Having access to hospital resources was significant in the decision to accept colleague referrals for office procedures. This finding should prompt the family practice community to examine the issue and determine how to increase access to resources for community physicians.

This study identifies trends that support the potential for a formalized referral network, however this quantitative data does not reveal whether or how family physicians would use it. Qualitative research is needed to explore how family physicians perceive colleague referral, what items may influence colleague referral, and how to best implement a formalized referral network.

2.8 References

1. Wetmore SJ, Agbayani R, Bass MJ. Procedures in ambulatory care. Which family physicians do what in southwestern Ontario? *Can Fam Physician* 1998;44:521-9.
2. Kelly L. Surgical skills for family physicians: Do family physicians make the cut? *Can Fam Physician* 1998;44:469-70.
3. Eliason BC, Lofton SA, Mark DH. Influence of demographics and profitability on physician selection of family practice procedures. *Journal of Family Practice* 1994;39:341-7.
4. Calnan M. Variations in the range of services provided by general practitioners. *Family Practice* 1988;5:94-104.
5. Wetmore SJ. How do I perform procedures in my office? *Can Journal of CME* 2002;Nov:63-9
6. Watts RW. The GP proceduralist. *Aust Family Physician* 1993;22(8):1475-8.
7. Ericsson KA. Deliberate practice and the acquisition and maintenance of expert performance in medicine and related domains. *Academic Medicine* 2004;79(10):s70-81.
8. Rethans J, Van Leeuwen Y, Van der Vleuten C, Sturmans F. Competence and performance: Two different concepts in the assessment of quality of medical care. *Family Practice* 1990;7(3):186-74.
9. Rethans J, Sturmans F, Drop R, Van der Vleuten C, Hobus P. Does competence of general practitioners predict their performance? Comparison between examination setting and actual practice. *British Medical Journal* 1991;303:1377-80.
10. Wetmore SJ. Is there a link between confidence in procedural skills and choice of practice location by graduating family medicine residents? Thesis. University of Western Ontario. 1998:15.
11. Sempowski IP, Rungi AA, Seguin R. A cross sectional survey of urban Canadian family physicians' provision of minor office procedures. *BMC Family Practice* 20:7:18.
12. Dillman DA, Smyth JD, Christian LM. Internet, Mail and Mixed-Mode Surveys: The tailored Design Method, 3rd edition. Hoboken, NJ: Wiley, 2009.
13. Hoddinott SN, Bass MJ. The Dillman Total Design Survey Method. *Can Fam Physician* 1986;32:2366-68.

14. Report of the working group on the certification process. Defining competence for the purposes of certification by the College of Family Physicians of Canada: The evaluation objectives in family medicine. Part II. October 2010:58-9.
15. Hulley SB, Cummings SR, Browner WS, Grady DG, Newman TB. *Designing Clinical Research*. 4th edition. Philadelphia, PA: Lippincott Williams & Wilkins. 2013.
16. IBM SPSS Statistics for Windows, Version 22.0. IBM Corp.: Armonk, NK, 2013.
17. Lenth RV. Statistical power calculations. *J Anim Sci* 2007;86;E24-9.
18. Margolis R. Dealing with missing data: Strategies for beginners to data analysis. PDF Presentation. University of Western Ontario. 2013.
19. College of Family Physicians of Canada. National Physician Survey 2013. Available at <http://nationalphysiciansurvey.ca/result/2013-results-for-newfoundland-labrador/>. Accessed May 30, 2015.
20. Heikes LG, Gjerde CL. Office procedural skills in family medicine. *Journal of Medical Education* 1985;60:444-53.
21. Crutcher RA, Szafran O, Woloschuk W, Chaytors RG, Topps DA, Humphries PW, Norton PG. Where Canadian family physicians learn procedural skills. *Family Medicine* 2005;37(7):491-5.
22. Thorpe C, Ryan B, McLean SL, Burt A, Stewart M, Brown JB, Reid GJ, Harris S. How to obtain excellent response rates when surveying physicians. *Family Practice*. 2009;26:65-8.

Chapter 3

3 Is there a role for a formalized referral network for office procedures in family practice?: How do Newfoundland and Labrador family physicians perceive colleague referral for office procedures?

3.1 Introduction

3.1.1 Background

Office procedures are an important part of the practice of family medicine.¹ While this may be true, it is not reasonable or feasible for every family physician to perform every office procedure.² Nor is it wise for a family physician to perform a skill so infrequently that confidence and perhaps competence may be affected.³⁻⁴ However, performing office procedures in the family practice setting is beneficial for patients, physicians and health authorities.^{2,5} Exploring perceptions surrounding referring patients who require office procedures to family physician colleagues is essential to understanding whether colleague referral may provide the benefits of office procedures in family practice without the associated barriers.

The previous study, *Is there a role for a formalized referral network for office procedures in family practice?: Quantifying the performance and predictors of office procedures in family practices of Newfoundland and Labrador*, has shown that there are variety of office procedures being performed in family practices in Newfoundland and Labrador. It also revealed that there is a potential interest in a referral network for office procedures, potential meaning a willingness to refer and accept referral from family physician colleagues. This study will build upon the quantitative data of the previous

study and ultimately form the foundation for a proposed formalized referral network for office procedures in family practice.

A previous study of urban Canadian family physicians revealed that the majority of family physicians who would not perform procedures themselves prefer referral to a specialist rather than another family physician. Only a minority of family physicians reported referring to a family medicine colleague. Referral to family physician colleagues appears under-utilized.⁶ A study in the United Kingdom piloted a referral service for select minor procedures in general practice and found that it had the potential to be satisfying for both physicians and their patients. It identified benefits to colleague referral including financial savings for the local hospital and the health authority, increased job satisfaction, and access for patients. Barriers were also identified including patient comfort with new physicians, difficulty accessing resources, and inadequate fees.⁷

Although not specific to colleague referral, studies report physician dissatisfaction in general is closely related to perceived loss of autonomy and adverse effects on patient care resulting from system barriers.⁸ This thesis' research illustrate some important points to consider in discussing a family physician referral network. Interaction with specialists is a key role of family physicians. However, as one would expect, greater difficulty in referring patients and lack of timely response has a negative impact on family physician satisfaction.⁹ Moving office procedures from emergency rooms and specialist clinics into family practice offices could have a significant impact on relieving the congestion, frustration and burden of such long waits.

Health authorities could benefit from moving office procedures to the family practice community given the often overwhelming wait lists for specialists. Reducing the financial burdens required to perform procedures by specialists in a hospital setting, may provide significant savings to governing authorities. A British study found that dermatologic office procedures performed by family physicians were more cost effective,

more satisfying for patients, and had similar rates of complications.¹⁰ These benefits for health authorities and patients, however, must be compared with the cost of equipment, support in case things go wrong, and the demands on available time for family physicians willing to perform procedures.²

As family physicians move towards groups and community networks, the feasibility of one member of a group specializing in a certain procedure becomes economically sound and more efficient.¹¹ Colleague referral could provide select physicians with the opportunity to become more skilled in a single procedure. The opportunity for increased performance frequency provided by colleague referral may provide greater competence and comfort for the performing family physician.

In keeping with the ideal of using this information to improve inter-colleague referral, this study will explore how participants view colleague referral and envision a formalized referral network for office procedures. Medical practice could be improved in Newfoundland and Labrador if family physicians were to form a network of professionals with the potential to enhance the community of family practice.

3.1.2 Study objectives

1. The primary objective of this study is to describe how Newfoundland and Labrador family physicians perceive colleague referral for office procedures. A subsequent goal is to explore current methods of referral as well as the benefits and barriers associated with the current referral system.
2. A secondary objective of this study is to identify the potential for a formalized referral network for office procedures in family practice. Specifically the goal is to explore family physicians' expectations for colleague referral and how they envision a formalized network and its implementation.

3.1.3 Research questions

1. How do Newfoundland and Labrador family physicians perceive colleague referral for office procedures?
2. What are the current methods, barriers, and benefits of referral for office procedures?
3. How do Newfoundland and Labrador family physicians envision a referral network and its implementation?

3.2 Methods

3.2.1 Study design

This study was a descriptive qualitative study and used focus groups to collect the data. Descriptive qualitative study design allows for clear description of the characteristics of a phenomenon. The descriptive qualitative method investigates the why and how of decision making and aims to gather a deeper understanding of behaviour.¹²⁻¹³ Focus groups consisting of participants in a similar geographic area is the approach best used to capture and describe colleague referral relationships.

This study received ethics approval from The University of Western Ontario Research Ethics Board for Health Sciences Research Involving Human Subjects (file number: 105292), (Appendix G).

3.2.2 Participant recruitment and sampling

Survey recipients from the previous study (Is there a role for a formalized referral network for office procedures in family practice?: Quantifying the performance and predictors of office procedures in family practices of Newfoundland and Labrador) were

invited to express their interest to participate in a subsequent study. This study was described to recipients as consisting of focus groups of physicians interested in the concept of a formalized referral network for office procedures. Recipients were invited to submit their name and contact information on the separate form and return it with the survey to express their interest to participate (Appendix H). The contact information was retained and stored separately from the surveys to ensure anonymity.

Among physicians who expressed an interest in participating in the qualitative study, purposeful sampling strategy was employed to achieve maximum variation. Due to the finite information attained as a result of the separation of the expression of interest forms from the surveys, it was only possible to identify participants by gender and practice address. An effort was made to have an equal number of male and female participants in each focus group. Four focus groups were organized, each reflecting a specific geographic region of Newfoundland and Labrador, in order to attempt to capture a variety of practice settings and hospital access. Potential participants were contacted via their provided e-mail or mailing address and provided with recruitment information including details of the proposed focus group and a full description of the study. All participants provided written, informed consent.

The focus groups were held at four sites: an urban centre with an academic tertiary care hospital; a small community outside of the urban centre with no hospital of its own; a rural community with a family physician staffed cottage hospital; and a medium sized community with a secondary care hospital. There were 12 females and 8 males representing a variety of practice types, locations, and hospital access. The focus groups included family physicians who had varied experience with office procedures. Within the focus groups were family physicians who participated in a variety of existing informal referral relationships.

Each of the four focus group discussions were transcribed and analyzed independent of each other, and then compared to determine if saturation had been reached. While each of the twelve initial key themes was not present in all four focus groups, each was present in at least three of the four groups. This level of saturation was felt by the investigator to be acceptable, and that the collection of any new data would be unlikely to add anything new to the overall analysis.

3.2.3 Data collection

A semi-structured interview guide (Appendix I) which included open-ended questions and subsequent probes was used to conduct four focus groups between August 2014 and May 2015. There were four to six participants per group. The focus groups ranged in length from 45-70 minutes. The focus groups were moderated by the principal investigator and attended by an observer who made real-time field notes during the sessions. Immediately following each focus group, the moderator recorded initial thoughts as a reflective journal. Two recording devices were used to audio-tape each focus group and transcribed verbatim by the moderator. Any personal identifiers were removed prior to analysis. Field notes from the observer and reflective journal from the moderator were also transcribed.

3.2.4 Data analysis

A line-by-line coding of each transcript was conducted. The initial coding was subsequently examined looking for key quotes and emerging themes. The initial two focus group transcriptions were coded by three investigators (the candidate and two thesis supervisors), compared, and merged to identify common and relevant codes. The final two focus groups were coded by the principal investigator and reviewed by the two thesis supervisors. Transcribed field notes and reflective journals were reviewed to supplement and ensure accuracy of the initial analysis. Memoing was used by the principal

investigator throughout the analysis process to describe themes, define key elements, and summarize ideas. An initial list of twelve key themes was identified in the initial analysis of the first focus group and revised throughout the process as each subsequent focus group was analyzed. A second level analysis used a table to examine the smaller items expressed by each focus group within each of the twelve key themes and looked for similarities and connections. Using these findings, a final analysis template was established which consisted of five overarching themes with subsidiary minor themes, that allowed organization of the data and identified that all themes (key and minor) were present in a minimum of two focus group analyses.

3.2.5 Trustworthiness and credibility

Trustworthiness and credibility of the data were strengthened through the use of multiple techniques. Verbatim transcribing of the audiotapes, observer real-time field notes and moderator reflective journals were used to ensure the accuracy of data analysis and interpretation. The involvement of three analysts at each stage also encouraged comprehensive analysis. Memoing was used by the principal investigator throughout the analysis process to reflect upon and interpret the raw data. The principal investigator aimed to use the participants' language in the memos and subsequent analysis where possible. Member-checking was completed by forwarding the initial analysis of each focus group to one of its members for review. The members were asked to check the analysis for accuracy of key themes and report any ideas that they felt were not appropriately reflected.

3.3 Findings

Participants described how external and internal barriers and supporting factors influenced the performance of office procedures in family practice. Participants perceived the concept of a formalized referral network between family physician

colleagues as having the potential to improve medical practice for themselves and their patients. This potential was identified as being dependent upon addressing perceived barriers and effective implementation. Five overarching themes were identified in the analysis of the data: 1) Deciding to perform office procedures, 2) Providing support for office procedures in family practice, 3) Changing patient experiences with family physician referral, 4) Sharing expertise in family practice, and 5) Organizing office procedure referral. All five themes were perceived as having important implications for the potential future development of a formalized referral network. Although described separately, they are connected in a linear framework focusing on two main elements: deciding to perform office procedures and sharing expertise in family practice. Providing support for office procedures in family practice is imperative to encouraging family physicians to perform office procedures. Sharing expertise in family practice is not possible unless family physicians decide to perform office procedures. The success of sharing expertise through colleague referral will involve changing patient experiences with family physician referral and organizing effective office procedure referral.

3.3.1 Deciding to perform office procedures

Participants explored numerous internal and external influences that shape their decision to perform office procedures. These factors affect which office procedures (if any) are performed and how they are incorporated into family practice. The performance of office procedures in the family practice community is essential to colleague referral and the concept of a formalized referral network.

Participants identified internal influences that could positively or negatively influence their decision to perform an office procedure. All focus groups identified that patient need was an important driver in deciding to perform office procedures: “If you don’t do office procedures, it’s almost like you’re breaking a link in the chain of patient care.” This was illustrated by one participant who stated, “I’d never injected cortisone for carpal

tunnel before, until a couple weeks ago... because the wait times for EMG [electromyography] was months.” While all participants reflected that physician enjoyment and interest were important to consider when deciding to perform office procedures, two focus groups expressed that the performance of office procedures should be “a core skill for family practice.” Most participants agreed that, “procedures add fun to your practice” and “mix[es] things up.”

Despite these positive influences, participants identified that decisions to perform office procedures are limited by physician comfort level and time. Three of the focus groups felt, “you have to know your limits.” Two individuals from different groups were “willing to try any new thing once,” while many others chose procedures that had “very little risk with respect to things going awry too badly,” because they were “not wanting to get into a complication.” One focus group reflected that choosing to perform an office procedure was not just about “what the patient wants, it’s what you’re comfortable with, and sometimes it’s just circumstances dictated to you, maybe you push your confidence levels a little bit,...but I think that happens in every part of medicine and you end up going a bit farther than what you feel comfortable with.” Another group focused on personality as significantly impacting the decision to perform office procedures. There are “people who can see it once and do it once and then [are] fine, good to go” and those who “can see it once and do it once but want to do it another 10 times... with somebody watching.” Three focus groups felt that, “Family physicians are so busy that procedures take time, and one of the biggest impediments to doing procedures in our province is the fact that we’re busy.” Two of these groups expressed concerns that, “to take on referrals that aren’t your own patients, your own patients then will suffer longer wait times,” and while “there’s a lot of skills that I probably could do, I just don’t have time to see anyone else’s patients other than my own.” Performing office procedures in family practice not only affects the physician, but the support staff. Two of the focus groups reflected that it’s “not just how busy you are, but how busy your people in the office are.”

External influences including available resources and remuneration were identified as influencing participants in their decision to perform office procedures. All participants agreed that performing office procedures in a hospital setting increases the availability of resources because “when you go to the hospital you get the nurse helping you, you get everything covered.” Some participants reported being “in a unique situation because we are hospital based, so all these expenses are covered.” Others lamented that, “you can apply to get procedure time, but [opportunities] are few and far between” and “it is a bit of a hassle to keep the spot.” Two physicians noted, “the costs are covered if you do it in the minor OR [operating room] but, it disrupts the flow of your week and your schedule.” All four groups identified that, “having sterile equipment is an expensive task” and that having access to an autoclave is often a determining factor in the performance of office procedures. In addition all four groups identified that it is “very difficult to get resources” and this would limit the amount of procedures they were able to perform; “I would only be able to book enough people that I had [the] equipment for.” One focus group discussed that there was varying information for community family physicians regarding how to get access to hospital time and resources, or where to purchase supplies at low cost. For example, “where I get my spatula supplies. We found one place that it was per box twenty dollars cheaper than another. That’s good information to share.” They expressed a hope that sharing this information could improve access to resources in the community.

Remuneration was felt to be key in deciding to perform office procedures by all participants. At the present time, participants felt that family physicians “are not remunerated well” for office procedures, and “it’s cost prohibitive...the cost down is more than I’m going to make on it.” All participants identified that, “compensation is very important” and “addressing remuneration” is essential to encouraging family physicians to perform more office procedures.

Participants discussed practical scheduling and planning ideas that could assist in efficiently adding office procedures to their practice, including blocking off an amount of time to dedicate to office procedures and seeing patients for a consult visit prior to the office procedure appointment. Three of the focus groups identified that having a “deliberate, thoughtful process for organizing [office procedures]” would help with incorporating office procedures into family practice. One idea explored was to:

have procedures clinics, so there's a certain afternoon of the week that's designated as the afternoon for doing procedures and that's when all the procedures are done because it is time intensive, it is staff intensive. And when you're trying to set up for a procedure in the middle of a busy day, it can be very disruptive to the rest of the patient flow.

Several participants felt that this method could be more easily incorporated into new practices than busy, established practices. Another idea explored was double appointments, in which the patient comes first for a consult and then is booked at a later time for the procedure; “they have to come for a consult first and then they'll come back for the [procedure].” The majority of participants identified benefits to this approach including remuneration, patient education, and physician comfort with a new patient. One participant felt strongly that having double appointments extended the patient waiting time and was only used for inappropriate physician financial gain.

In summary, looking at the decision to perform office procedures purely from the lens of a formalized referral network, participants expressed concern that busy practices may suffer if accepting referrals from other family physicians, and that accessing enough resources to perform procedures for multiple family physicians' patients is cost prohibitive. In an effort to alleviate the pressures of colleague referral on time and cost, participants explored the concepts of double appointments and dedicated clinic time for office procedures.

3.3.2 Providing support for office procedures in family practice

Participants described how external support for office procedures in family practice influences both performance of office procedures and willingness to participate in a formalized referral network. External support is interpreted as any promotion of office procedures in family practice provided by influences outside of the family practice community. There are three such significant influences including: 1) family medicine residency and post graduate training programs, 2) specialists, and 3) regional health authorities. Practical solutions to improve access to resources were also explored as ways to support family physicians wishing to perform office procedures. Items felt to have significant impact on family practice office procedures included learning opportunities, relationships with specialists, frequency and competency, and financial support.

Participants discussed the importance of providing learning opportunities for family physicians who wish to learn office procedures at all stages of training and practice. Formal and informal learning opportunities, or lack thereof, were discussed and weighed in the context of performing procedures and developing expertise in family practice. Participants discussed a variety of office procedure experiences in residency. Most participants reported wanting to “take any opportunity in order to learn and do any procedures that [came] up.” However, some felt that they “didn’t get the experience in residency,” while others have “done much the same procedures that [their teachers] have done.” They reflected upon the importance of having residents “be[ing] exposed to family physicians who feel competent and confident to do [office procedures], so that when [residents] finish [they] can say, “well, I can do all of these, I may pick and choose which ones I still do at my practice, but I am capable of doing this whole package of procedures.” One participant started performing injections after attending “a lecture on skills...and it just made [them] go, ‘you’re right, this is a skill that I was taught and I need to practice again’ and now I’ll put a needle anywhere.” Several participants discussed the importance of learning “procedures from other more experienced physicians in [the community].” One focus group debated what it means to be an expert, and concluded that family physicians “don’t need a special course to be an expert,” as

they “have a license to be able to do all of these [office procedures], you don’t need special permission.”

There were varied opinions on both the supportive and detrimental influences that specialists can have on office procedure performance in family practice. Three focus groups touted positive relationships with specialist colleagues. Some participants trained with specialists and found them “very willing and open to teaching” and that specialists felt office procedures in family practice “was absolutely a wonderful idea for patient safety and for the service in the area.” If specialists “are supporting you, then you kind of feel like they’ve got your back if something goes amiss.” Having specialists as backup or a liaison for procedures was reported to make a family physician’s “comfort level so much better and expanded [their] scope of practice.” Participants surmised that, “some specialists get it and they help you out when you’re really in need.” Three focus groups had experienced negative influences from specialist colleagues. One participant in particular felt very strongly that specialists and family physicians were in a power struggle: “when you’re not in the hospital playing the game side by side, there’s no professional respect.” Some participants reflected upon numerous negative interactions with specialists, for example, “A specialist who did a very simple office based procedure on a facial lesion, and said, ‘Oh, you know, your family doctor could easily have done this, but that’s like giving the keys of your car to a five year old.’” The positive and negative influences were summarized by one colleague, “it goes from you knocking your head against the wall and being incredibly frustrated to having a tremendous respect for your specialist colleagues and knowing that they are doing such a wonderful job for your patients.”

Two focus groups felt that a formalized referral network had the ability to impact specialist wait times “because... they’re getting swamped too.” Participants felt that, “most of [the specialists] would be on board with family physicians taking more office procedures because they are so busy. There would be some [specialists]... that would not

be happy, but I think... most of them would be.” One focus group proposed that a specialist could “just re-refer [a patient] onto a family physician in the area”.

Participants explored the relationship between frequency and competence and a referral network’s potential to influence both positively. All focus groups reflected that, “you have to maintain enough volume to keep your proficiency.” One of the more experienced participants stated “I did do it all at one time. But now you can’t because you don’t have the frequency.” The low frequency was felt to be caused by numerous factors including limited access to resources, poor remuneration, low confidence, unavailable support if things went wrong, and patients’ expectations to see a specialist for procedures.

Participants reflected that a formalized referral network could provide an opportunity “to mini-specialize on my procedures...and do one thing and do it well.”

In the previous segment, participants discussed the need to improve access to resources and/or remuneration to support the movement of more office procedures into family practice. All focus groups discussed establishing a referral fee code for family physician colleague referral as a way to offset costs; “The issue of not having a [general practice] referral code is one of the barriers to encouraging family physicians to refer amongst themselves.” Participants believed that, “it would be nice to recognize people for their special skills... from a remuneration standpoint.” Participants discussed that consultant status is one way to offset costs, however “achieving consultant status can be quite challenging” in the current medical care plan. There was concern involving the inequality between specialists and family physicians. Specialists “get their consult fee and their [resources are] in hospital and they’re getting paid for it,” while family physicians have no referral fee to “mak[e] it worth your time and supplies or whatever else the costs.” One participant shared concern that attaching a referral fee code may be “potential for abuse, because if family physicians refer amongst one another and there is a fee involved with that, then they may be doing it for financial gain as opposed to what it is really meant for.” Participants offered a number of other suggestions for improving

access to resources: 1) “get [sterile packs] delivered to you and then send them back for autoclaving,” 2) “geographically centre on one of the family practice groups... who would distribute the autoclaved stuff,” and 3) make the process of accessing hospital procedure time user friendly for family docs. Participants concluded that, “overall, there would be a saving of resources for the patients and the health care system if you expanded the procedure base as much as you could into the periphery.”

In summary, a formalized referral network’s role in providing support of office procedures in family practice was felt to include advocating for improved learning opportunities, developing family physician referral code, and improving access to resources. Participants viewed the potential impact of a formalized referral network on patients and the health care system as including improved frequency and competence, and shortened specialist wait times.

3.3.3 Changing patient experiences with family physician referral

Participants explored the impact of family physician colleague referral on their patients. Family physicians have close relationships with their patients. Participants reflected that due to the dynamics of this relationship, changing patients’ experiences and expectations is challenging but potentially beneficial.

All participants felt that patient experiences with referral for office procedures could be improved if family physicians referred to each other. Participants discussed significant improvements to patient care in the areas of access (specifically focusing on wait times) and travel. Performing office procedures in family practice “eliminates significant wait times, just to see an orthoped to get a knee injection takes about a year and a half, so if we can do that, we can save them a lot of time and pain.” With a formalized referral network for office procedures in family practice, one “benefit may be more speedy access

for the patient,” therefore making the referral process “a little more efficient and making things happen faster and decreasing the wait times.” Participants felt that, “in the cottage hospitals and the smaller areas of Newfoundland, a lot of patients don’t want to go to the city and see a specialist.” “Travel, especially in the winter” was felt to be challenging for rural patients, especially the elderly.

All four groups felt that performing office procedures for their own patients would improve patient comfort and convenience. Participants discussed that when patients “know they are going to be seen rapidly and have something done by a competent physician, they feel good about it.” The participants reflected that as a community, “family physicians are looking at a comprehensive package for their patients, so that those patients can get as much comprehensive care in that package as possible in that environment.” One participant summarized thoughts of a patient’s own family physician performing their office procedure saying, “there is definitely a level of comfort for patients that I think they don’t always have with the specialist.”

Participants in three groups varied in their thoughts about the expectations of patients if a family physician colleague, instead of themselves, performed the office procedures. There was discussion about rural versus urban expectations, older versus younger demographics, patient by patient variability, and the trusting family physician relationship. Some participants felt that patients are “just as happy to see a family physician as they would to see the surgeon for [a procedure], and they would be angry to wait six months for it.” Participants reflected that patients who live in rural communities are used to family physicians performing procedures as part of the “standard care for that community” with “the assumption that the doctor d[oes] everything and if they d[on’t] know how, they would at least try.” Other participants reflected that patients in the city “expect that you are not going to do the procedures,” and “might be quicker to demand going to the specialist.” Some participants noted a difference in the expectations of different generations, “older patients would like to stay and would be happy to have

anybody do anything and not have to wait, and that the younger ones are a little more hesitant and often want to see the specialist.” Many participants felt expectations were specific to each individual patient; “some want to have the specialist and some would rather and be happier to have you, their favourite doctor in the world, do their stuff for them.” Two focus groups reflected on the trust between a patient and their family physician, whether or not it is transferable to a colleague:

it's a bit easier to have them accept you doing this procedure as their family doctor than maybe trying to send your patient to another family doctor, there may not be the same acceptance in terms of rapport. Like, if I'm sending you to another family doctor well I may as well be sending you to a specialist in terms of them knowing you, and there may be the perception of “well, if you're sending me out, why aren't you sending me to a specialist, why are you sending me to another person just like you?”

Shifting negative expectations may be important to help patients become comfortable using a formalized referral network. Two solutions presented were: 1) increase patient awareness of office procedures in family practice and 2) provide patients with an option of family physician or specialist referral. Two focus groups discussed that, “the public would need to have some kind of training” educating them about colleague referral to dispel the misperception that, “a specialist might have much more volume, with the knowledge that if you go see the specialist in most institutions, you'd be seeing residents or a clerk.” A second misperception that must be dispelled is “Did the patient think it was less serious because [the family physician] was sending you to another family doctor? We might have been thinking it was more serious and we were trying to expedite things.” Participants felt that giving patients the option of seeing a family physician colleague or a specialist was crucial to helping them become comfortable with a formalized referral network; “you can see [the specialist] or there's a guy here who does a great job, what would you prefer?”

In summation, participants felt that a formalized referral network could shorten wait times and eliminate unnecessary travel for patients. These benefits, however, must be considered within the context of a patient's comfort with another family physician given

the cultural norm of specialist referral. Improving patient awareness and offering the option of specialist referral were felt to be important steps in helping patients to be comfortable with the concept of a formalized referral network.

3.3.4 Sharing expertise in family practice

Participants in all groups agreed that sharing expertise (including but not limited to office procedures) in the community of family physicians is and would be beneficial: “family doctors in town who have special interests and focused practice... can [also] be a huge resource to family physicians.” Participants discussed that family physicians can’t “all be experts on all procedures, but... it’s really good if some family doctors develop expertise and then we take advantage.” By sharing expertise, participants identified that they could “utilize that expertise to the benefit of our patients without going through the typical specialty service-type referrals.” Participants felt that sharing expertise could provide a “community-wide, group practice,” with the “comfort to know that there is someone out there that is kind of like me, with a little extra knowledge, that is so easy to see, and I’ll get what I’m looking for.”

Several items related to the mechanics and practicalities of colleague referral were raised regarding a family physician referral network including setting clear expectations, managing follow up, clarifying medical/legal responsibilities, and maintaining a family physician balance. Participants in all four focus groups felt that setting clear expectations about the referral process was essential to its success; “you’d have to treat it just as that procedure, just as that mole, just as that endometrial biopsy...” Setting clear boundaries allows family physicians to be “clear about what [they] are comfortable with.”

Participants felt that although “it’s hard for us to say no,” sometimes it “just comes down to frank discussions with people.” Three groups expressed concern with referrals for office procedure because they would not want to “take ownership of those patients as their primary care doc.”

Participants felt that, “follow-up is kind of a grey zone,”; “who’s responsible for following up?” There was discussion about which physician, referring or accepting, would be responsible for patient follow up from a procedure; all groups concluded that, “if you’re expecting someone else to follow up,” written communication would be important. Participants differed on the extent of this communication, some felt “there would be expectations of a consult letter and a consult request, similar to the way we do things with specialists,” while others felt that “a cc of the pathology report” would be sufficient.

Participants in two focus groups questioned the medical legal responsibilities of sharing expertise. Participants felt that, “the onus is on the physician who did the procedure, to ensure that person gets the appropriate follow-up.” Participants also concluded that a family physician would have the right to refuse a referral if they “didn’t think it was appropriate or if [they] were uncomfortable, so long as you weren’t the only one in town doing it.” Participants summarized that, “all of these skills are expected to be a family physician’s... you would be held to the level of another family physician.”

Two focus groups discussed the importance of maintaining a work balance as a family physician in a referral network. There was fear expressed that a family physician could “get so specialized that you lose your general practice... and you lose the art of being a family physician where you are generalized in everything.” In a referral network participants expressed concern that we could “lean too heavily on them” and forget that, “that person has to find balance.”

All four groups expressed pleasure with existing informal family physician colleague relationships and implied that these relationships may be preferred to family physician/specialist referral relationships. Participants reflected that most colleagues “are happy to assist,” and that the “communication process between colleagues works better than the communication process between specialists.” Communication with specialists was noted

to be frustrating for some; “the family docs are not getting information back quick enough....nobody talks to me, nobody wants to speak to the GP [general practitioner].”

Participants in three focus groups also discussed establishing trust between family physician colleagues in a referral network. Participants reported that until they’d “had experience with that [accepting physician], we don’t have that trusting relationship,” but “when you know the person and you know what they do and how they do it, you are more likely to refer to them.” Participants continued the discussion to say that when it comes to office procedures, “I don’t really feel that I need to talk to that person if that person is a qualified family doctor in Newfoundland and they say that they can do a simple procedure, I’m going to take them at their word.” One participant reflected that, “there is enough in the literature now about what best practice might be, in terms of doing office based procedures, that you should be able to find some common ground that everyone could live with,” to use as a standard for a formalized referral network.

3.3.5 Organizing office procedure referral

Participants explored how they envisioned a formalized referral network operating and how best to implement it. While family physicians discussed the mechanics and practicalities of colleague referral from one family physician to another under the previous thematic heading, this section highlights discussion surrounding the organization of a formalized referral network on a more comprehensive scale. All participants agreed that a formalized referral network is “a really good idea, and [they’d] really like to see it come to light, something [they] would be certainly interested in and... the majority of primary care givers would participate in it.” In addition, they all agreed that “there would be growing with all the changes, [family physicians] are not good creatures of change, but we do eventually.”

Participants from all focus groups identified that distributing information about who does what is essential to formalizing a referral network and proposed several different methods for distribution. Participants posed questions to their groups such as: “How do you let people know?” and “Did you know there was a [general practitioner] who can do this?” Participants were “curious what everybody does, because maybe a lot of people are already doing a lot of procedures already, and we just don’t realize.” All participants agreed that, “the distribution of the information is the hardest thing to do,” and “spreading the information farther than your immediate community is difficult.” Many participants felt that, “a list would be nice,” but had different ideas about the best way to distribute this. These methods included word of mouth within the community, sending letters, publishing a list of who does what on the CPSNL or NLMA website, circulating an email about physicians willing to do procedures for other patients, or a forum setting where colleagues could come in and see the work being done in a presentation format. Some participants recommended using new technologies as a way of rapidly communicating “like a Facebook page... ‘doctors who do stuff!’” or an app “where you can pick from a drop down box... the physicians, where they’re located, and what they do.”

Participants suggested other ideas regarding organization including starting in small geographically centred groups, utilizing medical learners, and centralizing the referral process. All focus groups expressed that examining informal referral networks “that are already structured and the community already existing and then start to reinforce that and facilitate efficient communication,” would be a good place to start implementation. Participants agreed that in Newfoundland and Labrador, “the major challenge is geographical,” and there is a “need to identify communities of practice.” Starting small and keeping the referral network in “just a few core places, just to test it... you could expand and have something more formal.” Two focus groups discussed utilizing medical learners as being beneficial for the learner as well as the physician wishing to perform more office procedures; if medical learners are “keen on doing the procedures... they can

do that while you still run your regular clinic or vice versa, the resident can run your clinic while you are doing the procedure at the same time.” One focus group proposed “having procedure clinics in the family medicine teaching units, one: because it could engage the residents, two: family docs from outside of [those] clinics could come into the clinics and use [the] facilities.” Two focus groups discussed implementing a formalized referral network through “some sort of central hub” to “take on the job of the organization that would be required to coordinate all these separate practices with separate abilities.” An example given by one participant was:

if I just send in a referral with no name on it... into this office, and they know who does what. There's a person sitting there and they've got a list of all the family doctors in [the area] and they've got a list of what each one of those family doctors are doing with regard to the procedures. The consult would just go in to that person and they can distribute it appropriately.

Participants in all four focus groups explored the role of governing bodies such as the CPSNL, Regional Health Authority, Canadian Medical Protective Association (CMPA), or the NLMA in the organization of a formalized referral network. Some physicians suggested that, “for a starting point it’s important that you use either the NLMA or the CPSNL or regional health authority just to at least get the initial list.” Others wondered, “would the NLMA put some money behind this kind of thing?” Two participants suggested that the CMPA may play a role to provide a “kind of frequently asked questions” guidelines; “this is what’s required of you, here are pitfalls, try and protect yourself, and do this so you don’t run into [issues] with MCP(medical care plan).”

3.4 Discussion

3.4.1 Reflexivity

In order to address the issue of reflexivity, I must examine my personal and professional biases. I am a fee-for-service family physician in a group practice who performs and

accepts referrals for ten of the twelve office procedures explored in the quantitative study. In addition, I have completed a preceptorship in rheumatology and accept referrals from colleagues across Newfoundland and Labrador for rheumatology assessment and management. I believe that the wait lists in Newfoundland and Labrador for specialist assessment are too long and am often frustrated at the lack of access for my patients. I believe that if the community of family physicians were able to keep office procedures in their arena and out of specialist clinics, the wait lists would improve and provide better access for patients in need. Given that there is no documented referral network in place for office procedures in Newfoundland and Labrador, I am biased by my experience with rheumatology colleague referral. I have identified benefits for myself including a varied practice style, a fulfillment of a need to serve patients, and professional satisfaction. I have also identified barriers including difficulties in distinguishing between office procedure performer and family physician when treating referred patients. By acknowledging these biases, I hope to remain as impartial as possible.

3.4.2 Implications of the findings

This study provides an enhanced understanding of how Newfoundland and Labrador family physicians perceive colleague referral for office procedures by articulating five overarching themes: 1) Deciding to perform office procedures, 2) Providing support for office procedures in family practice, 3) Changing patient experiences with family physician referral, 4) Sharing expertise in family practice, and 5) Organizing office procedure referral.

Deciding to perform office procedures in family practice is key to colleague referral for office procedures. In order for a formalized referral network to exist, family physicians need to be comfortable performing office procedures as part of their practice. Choosing to perform an office procedure in practice was positively driven by patient need as well as physician interest. However, while both of these factors could have the potential to

improve patient care and create much valued diversity in practice, choosing to perform office procedures in practice is negatively limited by lack of physician comfort, lack of physician time, inadequate resources, and inadequate remuneration. Providing support for office procedures in family practice may help address these barriers to performance and increase the number of office procedures performed in family practice.

Physician comfort and confidence is linked to three main concepts: effective learning opportunities, specialist support, and performance frequency. Learning opportunities need to be available at all stages of training and practice, with willing and experienced teachers. Teachers can be specialists or more experienced family physicians. Specialists have a large impact on the performance of office procedures in family practice. They can be supportive of procedures in family practice by being a backup or a liaison for those who perform, or simply by providing professional respect for a family physician's capabilities when managing patient referrals. To keep proficiency in office procedures, a family physician must maintain enough volume. Accepting colleague referrals for one or more office procedures that they do well could allow a family physician to increase their frequency.

Since most family physicians are busy with their own patients, there is a fear that performing procedures and potentially accepting other's patients for procedures will be overwhelming. While making more time is a difficult task, practical scheduling techniques such as having procedure only half day clinics may improve patient flow in a busy practice. A publication discussing office procedures in family practice also presented this technique, suggesting scheduling office procedures on a specific day could assist in making scheduling, staffing, and handling equipment more efficient.¹¹ Double appointment scheduling (one for consult and education and one for procedure itself), may eliminate some of the time and staff intensity of performing a procedure in the middle of a busy clinic.

Limited access to available resources is a large deterrent to performing office procedures in family practice. Accessing resources in the community is a daunting task due to the financial burden. This echoes the findings of the United Kingdom's piloted referral network which stated that reimbursement (partial or whole) for equipment and instruments would encourage more general practitioners to invest in resources required for office procedures.⁷ One solution suggested by family physician participants as part of this study, would be to perform office procedures in the hospital setting where equipment, supplies, and support staff are available. Unfortunately, getting approved for procedure time is difficult in some parts of the province and travelling to the hospital can be disrupting to clinic flow. Another option is distributing autoclaved packs to community family physicians from a central location, thereby saving community family practices the cost related to autoclaving.

Remuneration is key to increasing the number of office procedures performed in community practice. Adequate remuneration will help to offset the costs of equipment and time spent to perform procedures. As the United Kingdom piloted referral network also stated, "the fees for any surgical procedure have to take into account the fact that GPs, unlike their hospital counterparts, have to purchase all their own instruments and equipment and are responsible for their maintenance, as well as paying their secretaries, practice nurses and cleaners."⁷ In the present medical payment culture, family physicians are not remunerated well enough to entice them to perform more office procedures. Asking family physicians to accept referrals from colleagues for office procedures without remunerating them appropriately would be cost prohibitive. The addition of a family physician referral code may encourage more family physicians to participate in a colleague referral network. Although this may be an additional cost for the governing authority, it may ultimately be beneficial by keeping patients in the community and away from specialist consult clinics. Specialist wait lists are long and specialist consult fees more expensive than most family physician codes.

The current method of referral for office procedures most often involves family physicians referring to a specialist. This method is wrought with barriers for patients and family physicians. One of the most notable barriers is access; both patients and their family physicians are frustrated with the wait times to see a specialist. The piloted referral network in the United Kingdom also found that patients “judged it to be a success because they could be seen promptly and have their treatment within four weeks.”⁷ The current method of referral requires a family physician to write a referral, wait for their patient to be booked for an appointment which is often just a consult, wait again for the patient to be rebooked for the procedure, and finally wait for communication which may or may not be timely or of high quality. In addition, given the large number of rural patients in Newfoundland and Labrador, travel from a remote area to an urban area to see a specialist especially in the winter months is not only time consuming and costly, but also potentially dangerous. A formalized referral network has the ability to improve both wait times and reduce travel.

Sharing expertise in the family practice community has the potential to be an extensive resource in primary care. Family physicians develop areas of expertise based on their specific areas of interest and combine their skills with other family physicians to provide a comprehensive community of practice for their patients. Despite the benefits including streamlining resources, and increasing practice diversity, there are several issues which need to be addressed. Family physicians need to set clear expectations for office procedure referral and share these with both referring physicians and patients.

Boundaries need to be enforced that a referral for an office procedure does not mean an extensive consult for a second opinion or an acceptance of that patient into the accepting physician’s practice. Setting boundaries for frequency of performance may also ensure that family physicians are able to maintain the much valued balance that is such a vital part of family medicine. Follow up is a tricky medical legal area which needs to be addressed, prior to formalizing colleague referral. The family physician community needs to be clear regarding who is responsible for follow up. Establishing trust between

the referring and accepting physician is essential in a formalized referral network. While office procedures are a normal part of family medicine training and culture, having personal experience with that physician is the best way to build a trusting relationship. As a result, referring to family physicians near your own practice and with whom you are comfortable may be advantageous.

The expectations of patients must be considered when sharing expertise in family practice. Patients have a level of comfort and trust with their own family physician but transferring this trust to another family physician may not feel as comfortable. Despite the above mentioned barriers of access and travel, sharing expertise will only work if patients are willing to see another family physician instead of the conventional specialist. The word specialist itself implies that there is an increased level of knowledge and experience, but office procedures may comfortably be in the wheelhouse of experienced family physicians. These findings are similar to those of the piloted referral network in the United Kingdom which concluded that patients would prefer to be treated by their own rather than by a neighbouring general practitioner, and if the same short wait lists existed in the hospital, most would have been referred there rather than to a neighbouring general practitioner.⁷ Individual patients may have varying opinions based on their current situation, past experiences, demographics, and local medical culture. The findings of this study suggest that elderly patients and those in rural areas may be more open to the idea of family physician colleague referral. Increasing patient awareness of competent office procedures in the family practice community instead of the traditional specialist referral, will be important to the acceptance of a formalized referral network by the patient community.

A formalized referral network has the potential to improve the lives of family physicians and their patients. Family physician participants were interested in using the formalized network to have timely access to office procedures, provide a more comprehensive care package for patients in their communities, and reduce costs associated with resources by

sharing procedural responsibility and reducing the amount of required equipment for each individual practitioner. The most difficult issue with implementation is how to distribute the information in an efficient, user-friendly manner. Distribution may be as simple as a list of who does what and when, and as involved as an App where you can input a number of criteria and get a short list. Starting small in geographically centred pods could be a good way to pilot a formalized referral network and work out the bugs before expanding it into a larger family practice community. This approach could also take advantage of existing informal referral relationships and family practice communities where the members are comfortable with each other's capabilities. Centring pods around family medicine teaching practices could allow for medical learners to be involved with office procedures from the beginning of their family practice education. This approach would also allow the practicing physicians the financial benefit of sharing resources and the support of having an extra set of hands.

There may be several roles for a governing body such as the NLMA or CPSNL: financial support, central hub for referrals, and providing guidelines. Financial support could be in the form of a family physician referral code to promote participation and in the distribution of information via their websites or through the development of an app. Having a central hub where a family physician could send a referral and have it matched with a colleague who performs the needed office procedure. Finally, a governing body could provide a publication outlining the requirements for a referral, potential pitfalls, and expectations to educate potential participants.

3.5 Limitations

Given the limitations with our recruitment strategy, there is a potential sampling bias to have family physicians who were more opinionated about the potential for a formalized referral network. In addition, maximum variation sampling was difficult in all areas except gender and location.

There is also potential for blind spots in the data. Despite the aim of having six to eight participants in each focus group, three of the focus groups fell shy of this goal due to two factors. In one geographic region there were only five physicians who responded with an expression of interest. In each of the other three focus groups, there were a minimum of six participants confirmed. Of those confirmed, four participants were unable to attend due to last minute conflicts. Four distinct geographic locations were selected for focus group recruitment in an effort to maximize the types of practices (academic, cottage hospital based, family practice with hospital privileges, and family practice without hospital privileges). However, it is possible that alternative arrangements exist that were not sampled as a part of this study.

3.6 Conclusion

This study provides an understanding of how Newfoundland and Labrador family physicians perceive colleague referral and the potential for a formalized referral network. Participants supported the development of a formalized referral network as a way to bolster the family physician community by sharing individual areas of expertise and providing a more accessible, comprehensive care package for patients. These benefits need to be tempered against issues that limit the performance of office procedures in family practice such as inadequate remuneration, limited access to resources, and inadequate support. It will be important to organize a formalized referral network in an easily accessible way keeping these benefits and barriers in mind.

3.7 Recommendations

This study reveals family physician support for the idea of implementing a formalized referral network for office procedures in family practice. While this study provides insights into family physicians' perspectives surrounding office procedures, colleague referral, and a formalized referral network, they are only one population involved with

and affected by colleague referral for office procedures. To complete the case for a formalized referral network, other populations including governing and regulatory bodies, regional health authorities, specialists, and patients must be studied.

This study provides valuable recommendations for the promotion of office procedures and colleague referral. These recommendations will involve proposals requesting the involvement of governing and regulatory bodies for family physicians in Newfoundland and Labrador. Promoting office procedures in family practice can be aided through the provision of education and awareness campaigns available to all family physicians to increase interest in office procedures and the development of a support network of experienced family physicians and specialists who are willing to share their expertise. Recommendations for facilitating colleague referral amongst family physicians include proposing the establishment of a family practice referral code, and providing reference material to family physicians identifying guidelines and potential pitfalls surrounding office procedures.

3.8 References

1. Wetmore SJ, Rivet C, Tepper J, Tatemichi S, Donoff M, Rainsberry P. Defining core procedure skills for Canadian family medicine training. *Can Fam Physician* 2005;51(10):1364-5.
2. Milne R. Minor surgery in general practice. *British Journal of General Practice* 1990;40:175-6.
3. Ericsson KA. Deliberate practice and the acquisition and maintenance of expert performance in medicine and related domains. *Academic Medicine* 2004;79(10):s70-81.
4. Leach DC. Competence is a habit. *JAMA* 2002;287(2):243-4.

5. Wetmore SJ, Agbayani R, Bass MJ. Procedures in ambulatory care. Which family physicians do what in southwestern Ontario? *Can Fam Physician* 1998;44:521-9.
6. Sempowski IP, Rungi AA, Seguin R. A cross sectional survey of urban Canadian family physicians' provision of minor office procedures. *BMC Family Practice* 20:7:18.
7. Brown JS, Smith RR, Cantor T, Chesover D, Yearsley R. General practitioners as providers of minor surgery - a success story? *The British Journal of General Practice* 1997;47(417):205-210.
8. DeVoe J, Fryer GE, Hargraves JL, Phillips RL, Green LA. Does career dissatisfaction affect the ability of family physicians to deliver high-quality patient care? *The Journal of Family Practice* 2002;51(3):223-8.
9. Thind A, Freeman T, Thorpe C, Burt A, Stewart M. Family physicians' satisfaction with current practice: what is the role of their interactions with specialists? *Healthcare Policy* 2009;4(3):e145-58.
10. O'Cathain A, Brasier JE, Milner PC, Fall M. Cost effectiveness of minor surgery in general practice: a prospective comparison with hospital practice. *Br J Gen Pract* 1992;42(354):13-7.
11. Wetmore SJ. How do I perform procedures in my office? *Can Journal of CME* 2002;Nov:63-9.
12. Sandelowski, M. Whatever happened to qualitative description?. *Res Nurs Health* 2000;23:334-40.
13. Sandelowski M. What's in a name? Qualitative description revisited. *Res Nurs Health* 2010;33:77-84.

Chapter 4

4 Synthesis: The role(s) of a formalized referral network for office procedures in family practices of Newfoundland and Labrador

4.1 Aim of the research

The goal of this thesis was to explore the possible role(s) and feasibility of a formalized referral network for office procedures in family practices of Newfoundland and Labrador. The research was focused on the level of the family physician as they are pivotal to the use of a formalized referral network. Existing literature on the subject of referral networks was limited and as such, a descriptive approach was used to explore the role(s) of a formalized referral network through the family physician lens.

A mixed methods approach was used to address this aim. A descriptive quantitative study using surveys was completed and informed a subsequent descriptive qualitative study using focus groups. Both studies were based on original data collection from Newfoundland and Labrador family physicians. The studies were treated with equal weight and integration was completed at the level of interpretation.

4.2 Review of main findings

4.2.1 Quantitative study

A descriptive quantitative methodology was used to address four research questions: 1) What are the patterns of office procedure performance in Newfoundland and Labrador? 2) What are the predictors for performing office procedures? 3) What learning

environments influence office procedures in family practice? 4) Do family physicians believe there is potential for colleague referral for office procedures in family practice?

Almost all (95%) Newfoundland and Labrador family physicians reported performing at least one of the twelve surveyed office procedures in their family practice. Of those who performed any office procedure, the mean number of office procedures performed was 6.9. More family physicians reported performing dermatologic (82%) and orthopedic procedures (92%), than gynecologic (41%) and surgical (56%).

No one predictor (characteristic of a family physician or their practice) was associated with increased performance of all office procedures. However, specific predictors were found to be associated with the performance of different subsets of procedures. While male family physicians performed more orthopedic procedures, their female counterparts performed more gynecologic procedures. Orthopedic procedures were performed more often by younger family physicians (both age and years in practice), and those who completed a Canadian residency program. Dermatologic procedures were performed more often by family physicians practicing in non-urban populations, and providing cross coverage. Family physicians who taught medical learners were more likely to perform dermatologic, gynecologic, and surgical procedures.

The most commonly reported learning environment used for acquiring office procedure skills was medical school/residency (89%), followed by continuing medical education (65%) and self learning (62%). Despite this, only a small percentage of family physicians who used these methods found them to have provided more confidence in performing office procedures. Medical school/residency was reported to provide more confidence, however, only 59% of those who used medical school/residency identified it as providing more confidence.

Family physicians participants thought there was potential for a formalized referral network. Of the family physicians who reported seeing patients who required office procedures, 42% reported they currently refer their patients to a family physician colleague for office procedures, but 90% reported that they would refer to a family physician colleague if given the opportunity. In addition, 78% of the family physicians who reported performing office procedures, reported that they would accept referrals for office procedures from a family physician colleagues.

4.2.2 Qualitative study

A descriptive qualitative methodology was used to address three research questions: 1) How do Newfoundland and Labrador family physicians perceive colleague referral for office procedures? 2) What are the current methods, barriers, and benefits of colleague referral for office procedures? 3) How do Newfoundland and Labrador family physicians envision a referral network and its implementation?

Performing office procedures in family practice is a fundamental element of colleague referral. Family physicians identified that choosing to perform office procedures is influenced by both positive and negative factors. Office procedures are driven by patient need and physician satisfaction, but limited by lack of physician comfort, difficulty accessing resources, inadequate remuneration, and lack of time. Family physicians identified that colleague referral may allow a physician the ability to specialize in certain procedures and maintain the frequency in order to maintain proficiency.

Family physicians felt that expanding colleague referral in family practice will require support from the larger medical community including specialists, health authorities, and government to address some of these barriers. Having supportive relationships with specialists to provide training opportunities and back up for difficult procedures is important to encouraging colleague referral. Health authorities and government can

support colleague referral in family practice by establishing a referral fee code or providing cost-effective access to resources.

Family physicians expressed that colleague referral could positively impact patient experiences with office procedures including improving access and reducing travel. Family physicians recognized that patients are individuals with their own expectations surrounding referral. Increasing patient awareness surrounding colleague referral was felt to be an important step in helping normalize colleague referral.

Family physicians agreed that sharing expertise between colleagues is beneficial and may be preferable to the current culture of specialist referral. Setting clear expectations about the referral process and identifying who was responsible for follow-up were identified as important items to consider if colleague referral were to be formalized.

Organizing a formalized referral network was felt to rely heavily upon effectively distributing information about who does what. Family physicians suggested a number of other organization ideas including starting in small, geographically centred groups and involving family physician governing bodies.

All family physicians agreed that a formalized referral network was “a really good idea.”

4.3 How do each study’s findings inform the other?

4.3.1 Influence of mixed methodology on study design and analysis

The sequential explanatory mixed methods approach allowed the qualitative study to build upon the insights of the quantitative study. The quantitative study’s findings helped recruit participants and inform the semi-structured focus group guide of the qualitative study. The qualitative study in turn helped to explain the quantitative results. Each study

answered related, but separate, research questions, which combined during the interpretation and synthesis stage to provide a deeper understanding of the possible role(s) of a formalized referral network for office procedures in family practice.

4.3.2 How do the qualitative findings build upon the quantitative findings to deepen understanding?

The quantitative findings identified potential clinical and educational roles for a formalized referral network for office procedures, which were then explained and explored by the qualitative study.

The quantitative study identified a potential clinical role of a formalized referral network. While there are many family physicians performing office procedures, there was a significant discrepancy between the demand for and performance of office procedures. The qualitative findings confirmed this discrepancy, and explored this more deeply by discussing what influences the decision to perform office procedures.

The survey revealed that there was interest in colleague referral for office procedures. More family physicians were willing to refer to a family physician colleague than currently do. In addition, the majority of family physicians who performed office procedures were willing to accept referrals from colleagues. The qualitative findings affirmed this interest in sharing expertise, including office procedures, among colleagues. Family physicians then extended discussion of the clinical role by exploring how best to implement colleague referral.

The quantitative study investigated an educational role by identifying the predictors of office procedures performance. It revealed that specific predictors were associated with different subsets of office procedures but that no one predictor was associated with increased performance of all office procedures. The qualitative findings affirmed several

of the predictors identified by the quantitative study, including access to resources, group practice office settings, and female gender for gynecologic procedures. Some additional considerations were identified only in the qualitative study, including physician comfort, remuneration, and available clinic time. Discussion was extended to include ideas for enhancing the performance of office procedures by focusing on these considerations.

The quantitative study revealed that medical school/residency was the most commonly used learning environment, but also revealed that commonly used learning environments are not associated with high levels of confidence in office procedure performance. The qualitative findings deepened understanding of the quantitative findings by examining why learning opportunities resulted in varied levels of family physician confidence. Family physicians discussed the importance of supporting office procedures in family practice at all levels of the current medical culture.

4.4 How do the findings of these studies contribute to the existing literature?

This thesis echos many of the ideas reflected in the existing literature, extending and building upon some, and offering new ideas for consideration. Focusing specifically on the Newfoundland and Labrador family physician population has provided specific insights not previously considered in the existing studies of other populations. These include items such as a large rural population, varied family physician access to hospital resources, and a payment model which is heavily weighted in fee for service.

The findings of this thesis agrees with the existing literature that family physician performance of office procedures is beneficial for both family physicians and their patients and driven by patient need and physician interest.¹⁻⁶ They expand upon this knowledge by quantifying the performance of twelve office procedures and establishing a baseline for office procedure performance in Newfoundland and Labrador.

For the most part, the findings are in keeping with the literature, in terms of the predictors of office procedures.⁷⁻¹¹ This knowledge built upon existing studies by analyzing office procedures by category (dermatologic, surgical, gynecologic, and orthopedic) revealing some trends in predictors and office procedures not previously noted. One example is gynecologic office procedures where, in contrast to orthopedics, female family physicians are more likely to perform gynecologic procedures. As noted above, specific differences between existing literature and this thesis may be related to geographic and access issues specific to Newfoundland and Labrador. Long wait times and costly travel to see certain specialists (such as dermatologists) may have been reflected in the relationship between some predictors and office procedure performance.

Participants in this thesis' research concurred with previous studies, reporting that medical school/residency was the most commonly used learning environment for office procedures.¹²⁻¹⁴ In addition, it echoed the idea that the performance of office procedures is often limited by confidence, and subsequently, confidence is limited by inadequate opportunities to perform.^{4,15-17} This thesis has built upon those studies by exploring learning environments which provide the most confidence. While existing literature has suggested that practicing physicians would use CME and/or clinical traineeships if given unlimited resources, this thesis determined that these two learning environments were among those associated with more confidence in performing office procedures.³

Participants in this thesis' research reflected upon the barriers to accessing continuing learning opportunities previously identified by the existing literature, including lack of time and cost.^{2,6,17-19} They expanded upon the ideas suggesting that effective, accessible access to learning opportunities may additionally require support from specialists for back up.

Family physicians, both in existing literature and studied in this thesis, felt that having adequate remuneration, time, and space to perform office procedures was important.^{4,6} Most family physicians in Newfoundland and Labrador are paid in a fee-for-service

agreement with the provincial government. Access to hospital resources, reimbursement, and accessible space to perform office procedures significantly varied among participants in this thesis' research; some participants had resources, support staff, and procedure rooms provided by hospital outpatient departments, while others paid for these items themselves despite being paid the same amount for the office procedure. This thesis expanded upon existing knowledge by suggesting that encouraging the performance of office procedures in family practice could improve access for patients and decrease specialist wait times, but may likely depend upon providing better access to resources.

The existing literature surrounding family physician colleague referral and referral networks for office procedures is limited, but the ideas regarding access to resources and adequate remuneration are echoed by this thesis.^{4,6,8} Both the existing literature and this thesis' research have identified that while informal colleague referral does exist, it is under-utilized in family practice.¹² This thesis has built upon the existing literature and identified that having access to hospital resources is associated with a willingness to accept patients from colleagues for office procedures. Participants have also revealed that colleague referral may increase the frequency they perform office procedures and thereby may improve confidence with performing them. Another potential benefit identified through this thesis is that colleague referral may be more cost effective for individual family physicians as well as for health authorities. The studies explored new aspects of a formalized referral network including setting boundaries, specifying expectations for follow-up, streamlining resources, and changing patient expectations for office procedure referral. One new element of colleague referral that has been explored in this thesis is the educational role to identify and provide effective and accessible learning opportunities for family physicians interested in learning new skills and refreshing existing skills.

This thesis has echoed the distribution concepts of established family physician colleague referral systems in other Canadian provinces.²⁰⁻²¹ Participants suggested

distribution techniques ranging from a simple list like the Alberta Health Services “Family Medicine Referral Directory” to an interactive distribution program like the Vancouver Pathways program. The voices heard from the focus groups also suggested new implementation ideas for a family physician formalized referral network including starting small with a pilot group, having a central hub for referrals, and involving governing bodies for financial support, distribution, and troubleshooting.

4.5 Reflections on a formalized referral network for office procedures in family practice

Proposed clinical and educational roles of a formalized referral network were supported by the findings of the studies completed as part of this thesis. Family physicians suggested possible roles of a formalized referral network through their survey and focus group discussions. These roles are discussed below.

4.5.1 Encourage office procedures in family practice

A formalized referral network ultimately relies on the family physicians performing office procedures in practice. As such, one of the roles must be to encourage the performance of office procedures in family practice. This can be done by focusing upon the predictors for doing office procedures identified in this mixed methods study.

Providing opportunities to learn the skills required to perform an office procedure is key to encouraging its performance. Most family physicians reported learning office procedures in medical school/residency, but reported a number of other learning environments including continuing medical education seminars, clinical traineeships, and informal preceptorships with specialists. Family physicians shared mixed feelings about the confidence associated with each of these environments. Some noted that they had ample access, supportive teachers, and opportunities for supervised practice. Others felt

discouraged by a lack of learning opportunities, teachers who were either not skilled themselves or did not support office procedures in family practice, or inadequate frequency during the learning phase. There is a message here for both existing learning environments and the educational arm of a formalized referral network to identify and improve access to family physicians and specialists who are experienced and interested in teaching office procedure skills.

While no specific characteristic of family physicians or their practices was associated with increased performance of all office procedures, several trends warrant consideration for a formalized referral network. While male family physicians performed more orthopedic procedures, their female counterparts performed more gynecologic procedures. A formalized referral network involving both male and female family physicians could allow the community of family physicians to capitalize on these gender tendencies.

There was increased performance of different subsets of office procedures by family physicians who were younger, taught medical learners, and completed a Canadian residency program. Canadian residency programs should be encouraged by these findings and continue to re-examine and expand their office procedure educational mandates.

Family physicians reported that accessing the necessary resources to perform office procedures is a challenge which often influences the decision to perform office procedures. This may be echoed in the finding that family physicians in group practices which provide cross coverage, working in rural populations, and having access to hospital resources tend to perform certain office procedures more frequently. These predictors, in the province of Newfoundland and Labrador, are more likely to be associated with easier and economical access to the required resources.

Improving access to resources may encourage more family physicians to perform office procedures by eliminating prohibitive factors such as cost. Family physicians suggested three solutions to aid this goal. Improving family physician access to hospital outpatient department clinics where equipment, supplies, and support staff are available will provide improved access for community family physicians. Distributing autoclaved packs to community family physicians from a central location, such as an academic teaching centre, will allow for centralized and streamlined access. Finally, providing adequate remuneration to offset the costs of equipment is essential if community family physicians are required to provide the resources required for office procedures.

4.5.2 Connect colleagues to address discrepancies between the demand for and performance of office procedures

The potential for a formalized referral network must not only rely on the fact that family physicians know how to perform office procedures in practice. There are multiple other factors that are essential to consider.

First, gaps must exist between the number of procedures performed and the number of procedures required by patients. This thesis shows that there are discrepancies between the number of respondents who see patients requiring a procedure and those who perform the procedure.

Second, a need must exist that is not already addressed by informal referral methods. It is statistically significant that respondents who work in an office practice group that has cross coverage are more likely to refer to a colleague for office procedures than those in solo practice, suggesting that convenience in group practices may lead to more informal referrals. Although not statistically significant, it may be relevant that a greater percentage of those in urban populations refer to colleagues than those in non-urban settings perhaps related to practice isolation. Existing informal referral methods appear

to be based largely upon the convenience of office setting and location. Newfoundland and Labrador has many isolated family physicians in remote communities who are unable to rely upon a group practice or nearby family physicians to offer involvement in informal referral. A formalized referral network should focus on increasing awareness and access to colleague referral for all interested family physicians.

Third, family physicians must be willing to refer their patients to a family physician colleague for office procedures that they do not perform. Family physicians in both the quantitative and qualitative studies reported that they would refer their patients to a colleague. More than ninety percent of family physicians reported interest in referring to a colleague if given the opportunity. This is in contrast to the mere forty-two percent who currently refer to colleagues. This trend was consistent in all categories of office procedures: dermatologic, gynecologic, surgical, and orthopedic. Family physicians agreed that referring to a family physician colleague could be beneficial for patients and physicians. Utilizing the expertise of colleagues to provide an easily accessible and more comprehensive care package for their patients was met with resounding support.

Fourth, in order for a formalized referral network to exist, there must not only be family physicians willing to refer patients, but family physicians willing to accept these referrals. More than three quarters of family physician respondents who perform office procedures reported that they would accept referrals from a family physician colleague. Family physicians with access to hospital resources were more likely to report being willing to accept patients from colleagues for office procedure referrals, perhaps due to readily available resources. Family physicians discussed several potential barriers to accepting referrals including increased costs, lack of time, inadequate remuneration, and the potential loss of family physician balance. A formalized referral network must weigh the benefits for patients and referring physicians against the barriers for accepting physicians and work to reconcile them.

4.5.3 Improve physician, patient, and health authority's satisfaction with colleague referral

A formalized referral network has the potential to improve the lives of family physicians and their patients. The current method of referral for office procedures most often involves family physicians referring to a specialist and is wrought with barriers. Sharing office procedures in the family practice community could be a great resource in primary care.

Family physician participants were interested in using the colleague referral to reduce costs associated with attaining resources, improve frequency of performance, and have timely access to office procedures. Family physicians reported frustration with attaining resources to perform procedures in family practice. Specializing in a small number of procedures developed based on individual areas of interest and expertise could reduce the number of resources required by an individual family physician. Colleague referral could also allow a family physician to maintain enough volume of a specific procedure to keep their proficiency. Timely access to office procedures is inhibited by the wait times to see a specialist in Newfoundland and Labrador. Referring patients to a family physician colleague may significantly reduce the wait time for an office procedure.

Participating in a formalized referral network could allow a family physician to provide a more comprehensive care package for patients in their communities. Improving patient access for office procedures can be done through shortening wait times and reducing unnecessary travel. These two improvements can be beneficial to health authorities as well, by alleviating specialist wait time burdens, potentially having cost savings by moving procedures into the family practice community, and reducing the costs and risks associated with patient travel.

4.5.4 Address family physician concerns through effective implementation

Effectively implementing a formalized referral network must take into consideration family physician concerns with colleague referral. Family physicians identified distribution, remuneration, expectations, and awareness as key considerations.

Information about who does what and when needs to be distributed to family physicians in an efficient and user-friendly manner. Small geographically centred pods could not only help with initial pilot studies, but could help identify resources within a local family practice community without overwhelming physicians with information for physicians far afield.

Remuneration is key in a family physician's decision to perform office procedures and a barrier to accepting referrals from colleagues. Family physicians agree that in the current payment schedule office procedures are cost prohibitive. The addition of a family physician referral code would help encourage family physicians to participate in a formalized referral network.

Establishing clear expectations about referrals and follow up is important in order for family physicians to be comfortable with the process. Boundaries need to be set so that colleague referral for an office procedure is limited only to the procedure, and is not a consult nor transfer of patient care. Expectations need to be clearly communicated so that patients are not lost to follow up.

Family physicians stressed the importance of spreading knowledge and awareness to patients and family physicians. Governing bodies could aid this process by providing publications outlining the requirements for a referral, potential pitfalls, and expectations to educate potential participants. Increasing patient awareness of competent office procedure performance in the family practice community through individual family physician discussion and public awareness campaigns will be important to the acceptance of a formalized referral network by the patient community.

4.6 Recommendations for future research on this topic

While this thesis supports potential clinical and educational roles for a formalized referral network from the perspective of Newfoundland and Labrador family physicians, it is important to reflect upon some of the other important questions that have gone unanswered.

The family physician participants reflected upon the impact that colleague referral through a formalized referral network may have upon patients, specialists, and health authorities. It would be helpful to have additional research focusing on the thoughts and expectations of these populations surrounding colleague referral.

Some recommendations, including specific research directions, have already been identified in chapters 2 and 3. Participants have suggested that the next step should be studying a small scale pilot formalized referral network in a trial location. This thesis has identified the potential for clinical and educational roles, but implementation may reveal issues that have not been explored or anticipated. Identifying a location with family physicians interested in participating in a formalized referral network and willing to work out the bugs would provide valuable data for the proposal of a formalized referral network for the entire province. Subsequent research surrounding a pilot formalized referral network is discussed below.

The quantitative study has described the current patterns of performance of office procedures in family practice and colleague referral for office procedures. Following the implementation of a formalized referral network as either a pilot project or a complete implementation, it will be important to see if the formalized referral network has made a difference in the patterns of performance of office procedures and referral. Pre and post implementation studies could be conducted to examine the clinical role of a formalized

referral network by determining the number of family physicians involved, number of procedures performed, and frequency of performance as a result of colleague referral. These pre and post implementation studies could also examine the impact that a formalized referral network may have upon wait times.

The relationships between referring and accepting family physicians are key to the success of a formalized referral network. Without the participation of the community of family physicians, a formalized referral network would cease to function. Social network analysis could be used to study relationships in existing informal colleague referral communities and a piloted referral network. It is important to understand the patterns of referral between participating family physicians to validate the potential for a more widespread network.

This thesis identified several elements of family physician colleague referral which may require additional consideration. These included setting boundaries, specifying expectations for follow up, maintaining a family physician work balance, and establishing trusting relationships between participating family physicians. The focus groups reflected on each of these items, but they were not explored in depth as they were not the purpose of these discussions. Qualitative research of family physicians who participate in informal colleague referral and a piloted referral network will help to understand these elements and how best to address them in a formalized referral network.

Existing literature and the research completed as part of this thesis have suggested that a formalized referral network may be more cost effective for individual family physicians, health authorities, and government. Establishing a family physician referral fee code for office procedures may be more expensive for government but may be offset by a decrease in the number of specialist consult fees for office procedures. Improving access to the resources through the health authority may be beneficial to community family physicians, but more costly to health authorities and government. Pre and post implementation

financial analysis will reveal the impact of a formalized referral network on the costs to each facet of the medical community.

4.7 Summary

This thesis employed a mixed methods approach to explore the possible role of a formalized referral network in family practices of Newfoundland and Labrador. Family physicians recognized that there is both a need and desire for a formalized referral network which incorporates both clinical and educational roles. Future research in this field would benefit from a pilot study of a small scale formalized referral network to study the clinical and educational effects on patients, family physicians, and the entire medical community.

4.8 References

1. DeVoe J, Fryer GE, Straub A, McCann J, Fairbrother G. Congruent satisfaction: Is there geographic correlation between patient and physician satisfaction. *Medical Care* 2007;45(1):88-94.
2. Norris TE, Cullison SW, Fihn SD. Teaching procedural skills. *JGIM* 1997;12:s64-70.
3. Curry L, Putnam RW. Continuing medical education in maritime Canada: The methods physicians use, would prefer and find most effective. *CMA Journal* 1981;124:563-66.
4. MacKenzie MS, Berkowitz J. Do procedural skills workshops during family practice residency work? *Can Fam Physician* 2010;56:e296-301.
5. Pitts J, Vincent S. General Practitioner's Reasons for not attending a higher professional education course. *British Journal of General Practice* 1994;44:271-3.
6. Milne R. Minor surgery in general practice. *British Journal of General Practice* 1990;40:175-6.

7. Wetmore SJ, Agbayani R, Bass MJ. Procedures in ambulatory care. Which family physicians do what in southwestern Ontario? *Can Fam Physician* 1998;44:521-9.
8. Wetmore SJ. How do I perform procedures in my office? *Can Journal of CME* 2002;Nov:63-9.
9. Eliason BC, Lofton SA, Mark DH. Influence of demographics and profitability on physician selection of family practice procedures. *Journal of Family Practice* 1994;39:341-7.
10. Calnan M. Variations in the range of services provided by general practitioners. *Family Practice* 1988;5:94-104.
11. Van der Goes T, Gryzbowski SC. Procedural skills training: Canadian family practice residency programs. *Can Fam Physician* 1999;45:78-85.
12. Sempowski IP, Rungi AA, Seguin R. A cross sectional survey of urban Canadian family physicians' provision of minor office procedures. *BMC Family Practice* 20:7:18.
13. Crutcher RA, Szafran O, Woloschuk W, Chaytors RG, Topps DA, Humphries PW, Norton PG. Where Canadian family physicians learn procedural skills. *Family Medicine* 2005;37(7):491-5.
14. Heikes LG, Gjerde CL. Office procedural skills in family medicine. *Journal of Medical Education* 1985;60:444-53.
15. Ericsson KA. Deliberate practice and the acquisition and maintenance of expert performance in medicine and related domains. *Academic Medicine* 2004;79(10):s70-81.
16. Leach DC. Competence is a habit. *JAMA* 2002;287(2):243-4.
17. Rethans J, Sturmans F, Drop R, Van der Vleuten C, Hobus P. Does competence of general practitioners predict their performance? Comparison between examination setting and actual practice. *British Medical Journal* 1991;303:1377-80.
18. College of Family Physicians of Canada. National Physician Survey 2010. Available at <http://nationalphysiciansurvey.ca/wp-content/uploads/2012/09/2010-FP-Q21b.pdf>. Accessed April 10, 2014.
19. Kelly L. Surgical skills for family physicians: Do family physicians make the cut? *Can Fam Physician* 1998;44:469-70.

20. Alberta Health Services. Family Medicine Referral Directory 2014. Available at <http://www.albertahealthservices.ca/hp/if-hp-cfm-referral-directory.pdf>. Accessed May 15th, 2015.
21. Divisions of Family Practice: A GPSC Initiative. Pathways. Available at <https://www.divisionsbc.ca/vancouver/pathways>. Accessed May 15th, 2015.

Appendices

Appendix A: Self-Administered Survey: Quantifying the Performance and Predictors of Office Procedures in Family Practices of Newfoundland and Labrador

Quantifying the Performance and Predictors of Office Procedures in Family Practices of Newfoundland and Labrador

1. Are you:

- male
 female

2. What is your age in years?

3. How many years have you been practicing as a family physician?

4. Which family practice office setting do you work in?

- solo practice
 group practice (shares facilities)
 group practice (shares facilities and provides cross-coverage for patients)
 I do not work in a family practice office setting

5. What is the population of the location of your main family practice office?

- Rural (population <1,000)
 Small population centre (1,000-29,999)
 Medium population centre (30,000-99,999)
 Urban population centre (>100,000)

6. Do you have access to hospital facilities, equipment or resources?

- yes
 no

7. Do you teach medical students or residents in your family practice office?

yes

no

8. Did you complete a Canadian family medicine residency program?

yes

no

9. In your family practice, do you see patients who may require the following office procedures? (please select all that apply)

A. Skin Lesion Biopsy

B. Dermal lesion Excision

C. Excision of ingrown toenail (partial or wedge)

D. IUCD insertion

E. Endometrial Biopsy

F. Diaphragm fitting

G. Aspirate breast cyst

H. Inject/Aspirate Shoulder

I. Inject/Aspirate Knee

J. Inject Lateral epicondylitis

K. Inject/Aspirate Bursae

L. Anoscopy/Proctoscopy

10. Which of the following office procedures do you perform in your family practice? (please select all that apply)

A. Skin Lesion Biopsy

B. Dermal lesion Excision

C. Excision of ingrown toenail (partial or wedge)

D. IUCD insertion

E. Endometrial Biopsy

F. Diaphragm fitting

G. Aspirate breast cyst

H. Inject/Aspirate Shoulder

I. Inject/Aspirate Knee

J. Inject Lateral epicondylitis

K. Inject/Aspirate Bursae

L. Anoscopy/Proctoscopy

11. How often on average do you perform each of the following office procedures in one month? (if you do not perform a procedure, please enter N/A)

- A. Skin Lesion Biopsy
- B. Dermal lesion Excision
- C. Excision of ingrown toenail (partial or wedge)
- D. IUCD insertion
- E. Endometrial Biopsy
- F. Diaphragm fitting
- G. Aspirate breast cyst
- H. Inject/Aspirate Shoulder
- I. Inject/Aspirate Knee
- J. Inject Lateral epicondylitis
- K. Inject/Aspirate Bursae
- L. Anoscopy/Proctoscopy

12. Which learning environments have you used to acquire office procedure skills? (select all that apply)

- Medical School or Residency
- Continuing Medical Education courses
- Clinical traineeships or preceptorships
- Self-learning
- Other _____
- I do not perform office procedures

13. Please select the one learning environment that has provided you with the most confidence in performing an office procedure? (select only one)

- Medical School or Residency
- Continuing Medical Education courses
- Clinical traineeships or preceptorships
- Self-learning
- Other _____
- I do not perform office procedures

14. Do you routinely refer your patients to a family physician colleague for an office procedure that you do not perform?

- yes
- no

15. Would you refer your patients to a family physician colleague for an office procedure that you do not perform?

yes

no

16. Would you be willing to accept referrals from another family physician for one or more of the above office procedures that you perform?

yes

no

not applicable, I do not perform office procedures

Appendix B: REB approval for quantitative study



Research Ethics

Use of Human Participants - Initial Ethics Approval Notice

Principal Investigator: Dr. Joshua Shadd
 File Number: 104731
 Review Level: Delegated
 Protocol Title: Quantifying the Performance and Predictors of Office Procedures in Family Practices of Newfoundland and Labrador
 Department & Institution: Schulich School of Medicine and Dentistry/Family Medicine, Western University
 Sponsor:
 Ethics Approval Date: January 30, 2014 Expiry Date: December 31, 2014
 Documents Reviewed & Approved & Documents Received for Information:

Document Name	Comments	Version Date
Other	One month reminder postcard for non-responders	2013/11/26
Other	Voluntary Expression of Interest to participate in related, subsequent research	2013/11/26
Instruments	Survey Questions	2013/11/26
Western University Protocol	original	
Letter of Information & Consent		2014/01/30

This is to notify you that The University of Western Ontario Research Ethics Board for Health Sciences Research Involving Human Subjects (HSREB) which is organized and operates according to the Tri-Council Policy Statement: Ethical Conduct of Research Involving Humans and the Health Canada/ICH Good Clinical Practice Practices: Consolidated Guidelines; and the applicable laws and regulations of Ontario has reviewed and granted approval to the above referenced revision(s) or amendment(s) on the approval date noted above. The membership of this REB also complies with the membership requirements for REB's as defined in Division 5 of the Food and Drug Regulations.

The ethics approval for this study shall remain valid until the expiry date noted above assuming timely and acceptable responses to the HSREB's periodic requests for surveillance and monitoring information. If you require an updated approval notice prior to that time you must request it using the University of Western Ontario Updated Approval Request Form.

Members of the HSREB who are named as investigators in research studies, or declare a conflict of interest, do not participate in discussion related to, nor vote on, such studies when they are presented to the HSREB.

The Chair of the HSREB is Dr. Joseph Gilbert. The HSREB is registered with the U.S. Department of Health & Human Services under the IRB registration number IRB 00000940.

[Redacted Signature]

Signature

Ethics Officer to Contact for Further Information

<input type="checkbox"/> Erika Bevilacqua (ebevil@uwo.ca)	<input type="checkbox"/> Grace Kelly (gkelly@uwo.ca)	<input type="checkbox"/> Mina Mekhal (mmekhal@uwo.ca)	<input checked="" type="checkbox"/> Viki Tran (viki.tran@uwo.ca)
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This is an official document. Please retain the original in your files.

Appendix C: Sample size calculation

The sample size was calculated based on the primary research question: What are the patterns of office procedure performance in Newfoundland and Labrador? The approach of Hulley and Cummings for fixed sample sizes was used to determine the effect size that the sample will have a reasonable power to detect.†† The recommended sample size using a confidence interval of 20%, a confidence level of 95%, and a response distribution of 50% is 103. A larger confidence interval was tolerated as the performance of office procedures in family practices of Newfoundland and Labrador, even in small numbers, provide the potential for a formalized referral network. The largest possible response distribution of 50% was selected as there was limited research surrounding the performance of office procedures in family practices of Newfoundland and Labrador.

$$N = 103 = [(1/q_1 + 1/q_2) S^2 (Z_\alpha + Z_\beta)^2] \div E^2$$

Where:

Z_α = the standard normal deviate for α ($Z_\alpha = 1.96$ when $\alpha = 0.05$ [confidence interval of 95%])

Z_β = the standard normal deviate for β ($Z_\beta = 0.84$ when $\beta = 0.20$ [confidence interval of 20%])

q_1 = proportion of subjects in group 1 (family physicians who perform office procedures)

q_2 = proportion of subjects in group 2 (family physicians who do not perform office procedures)

N = total number of subjects required

†† Hulley, S.B., Cummings, S.R., Browner, W.S., Grady, D.G., & Newman, T.B. (2013). *Designing clinical research*. Lippincott Williams & Wilkins.

Appendix D: Discordant data defined by category

- 1) age (<25 or >90)
- 2) number of years in practice (>65)
- 3) if there are performers of office procedures who do not see patients who require office procedures
- 4) if there are frequencies listed for office procedures if physicians who did not indicate that they perform the procedures
- 5) if there are N/A answers listed for frequency if physicians who indicated that they perform the procedures (this may indicate rare use and may need to be considered in the analysis)
- 6) if there are family physicians willing to accept referrals from another family physician however do not indicate that they perform office procedures (this may imply that they perform a different office procedure that is not in the twelve selected and may need to be considered in the analysis portion as well)

Appendix E: Missing data analysis

	Total Eligible Respondents	'Missing data' Respondents (ineligible)
Gender (% male)	53.8	60.0
Age	46.6 (STD 11.6)	43.4 (STD 12.62)
Number of Years in Practice (mean)	17.8 (STD 12.6)	13.7 (STD 10.35)
Family Practice Office Setting (%)	Solo - 18.9 Group shares facilities - 22.7 Group cross coverage - 58.3	Solo - 0 Group shares facilities - 20 Group cross coverage - 80
Population of Office Location (%)	Non-Urban - 64.4 (85 respondents) Urban - 35.6 (47 respondents)	Non-Urban - 100 Urban - 0
Access to Hospital Resources (% yes)	77.3	100
Teaches Medical Learners (% yes)	59.8	20
Canadian Family Residency Program (% yes)	68.2	60

Appendix F: 2013 National Physician Survey demographics of
Newfoundland and Labrador family physicians

	Total Respondents	2013 National Physician Survey Data for Newfoundland and Labrador
Gender (% male)	53.8	58.0
Age	mean of 46.6 (STD 11.6)	<35 - 4.6% 35-44 - 32.6% 45-54 - 23.1% 55-64 - 20.3% >65 - 9.3%
Number of Years in Practice (mean)	17.8 (STD 12.6)	no data available
Family Practice Office Setting (%)	Solo - 18.9 Group shares facilities - 22.7 Group cross coverage - 58.3	Solo - 14.1 Group - 69.2 Inter-professional practice - 15.3
Population of Office Location (%)	Non-Urban - 64.4 (85 respondents) Urban - 35.6 (47 respondents)	no data available
Access to Hospital Resources (% yes)	77.3	64.9
Teaches Medical Learners (% yes)	59.8	71.7
Canadian Family Residency Program (% yes)	68.2	Most recent post-graduate training: Canada - 59.6

Appendix G: REB approval for qualitative study



Research Ethics

**Western University Health Science Research Ethics Board
HSREB Delegated Initial Approval Notice**

Principal Investigator: Dr. Joshua Shadd
Department & Institution: Schulich School of Medicine and Dentistry/Family Medicine, Western University

HSREB File Number: 105292
Study Title: How do Newfoundland and Labrador Family Physicians Perceive Colleague Referral for Office Procedures?
Sponsor:

HSREB Initial Approval Date: July 09, 2014
HSREB Expiry Date: December 31, 2014

Documents Approved and/or Received for Information:

Document Name	Comments	Version Date
Recruitment Items	Recruitment Email/Letter	2014/04/06
Revised Western University Protocol	Western Protocol - clean copy	2014/06/17
Letter of Information & Consent	Letter of Information and Consent - clean copy	2014/06/17
Instruments	Semistructured Focus Group Discussion Guide - clean version	2014/06/17

The Western University Health Science Research Ethics Board (HSREB) has reviewed and approved the above named study, as of the HSREB Initial Approval Date noted above.

HSREB approval for this study remains valid until the HSREB Expiry Date noted above, conditional to timely submission and acceptance of HSREB Continuing Ethics Review. If an Updated Approval Notice is required prior to the HSREB Expiry Date, the Principal Investigator is responsible for completing and submitting an HSREB Updated Approval Form in a timely fashion.

The Western University HSREB operates in compliance with the Tri-Council Policy Statement Ethical Conduct for Research Involving Humans (TCPS2), the International Conference on Harmonization of Technical Requirements for Registration of Pharmaceuticals for Human Use Guideline for Good Clinical Practice Practices (ICH E6 R1), the Ontario Personal Health Information Protection Act (PHIPA, 2004), Part 4 of the Natural Health Product Regulations, Health Canada Medical Device Regulations and Part C, Division 5, of the Food and Drug Regulations of Health Canada.

Members of the HSREB who are named as Investigators in research studies do not participate in discussions related to, nor vote on such studies when they are presented to the REB.

The HSREB is registered with the U.S. Department of Health & Human Services under the IRB registration number IRB 00000940.

[Redacted Signature]
Ethics Officer, on behalf of Dr. Joseph Gilbert, HSREB Chair

Ethics Officer to Contact for Further Information

Erika Basile ebasile@uwo.ca	Grace Kelly grace.kelly@uwo.ca	Mina Mikhail mmikhail@uwo.ca	Vivaki Tran vivaki.tran@uwo.ca
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This is an official document. Please retain the original in your files.

Appendix H: Expression of interest form

The findings of this study will be used to inform a related, subsequent research project which will consist of focus groups of physicians interested in the concept of a formalized referral network for office procedures. If you are interested, you are invited to submit your name and contact information on the form provided and return it with the survey:

Name: _____

Practice Address: _____

Telephone Number: _____

E-mail address: _____

Appendix I: Semi-structured interview guide

Semistructured Focus Group Discussion Guide:

Preamble read to all participants:

Thank you for agreeing to participate in this focus group as part of a study entitled “How do Newfoundland and Labrador Family Physicians Perceive Colleague Referral for Office Procedures?” The purpose of this study is to provide insight surrounding colleague referral for office procedures and identify the potential for a formalized referral network of family physician professionals. I wish to remind you that your participation is completely voluntary and you may decline to answer any questions or withdraw from the focus group at any time without consequence. Today’s focus group will be audio-taped and subsequently transcribed to accurately document the information you provide. All data collected will remain confidential and accessible only to the investigators of this study. After three months the audiotapes will be erased and destroyed including all contact information. Individual participants will never be identified in any presentation or publication of the study findings.

I would now invite you to review the letter of information and consent that you previously received with your invitation to participate, and sign if you wish to continue in this focus group. One copy will be yours to keep and I will keep the other locked away to ensure confidentiality.

Do you have any questions before we begin? Then with your permission we will begin.

Begin audio recording

It is not feasible or practical for every family physician to perform every office procedure. Family physician colleague referral has the potential to enhance each other’s practices by increasing physician and patient satisfaction, reducing wait times for specialist referral, and eliminating unnecessary patient travel. A previous study entitled “Quantifying the Performance and Predictors of Office Procedures in Family Practices of Newfoundland and Labrador” identified areas of potential for a family physician referral network. 94.6% of family physicians in office practice in Newfoundland and Labrador perform at least one office procedure, and the average number of office procedures performed by those family physicians is 6.93 (std 2.48). It is clear from this data that there are office procedures being performed in our community of family practice that could be used to enhance our communal resources for our patients. It is not enough to determine that there is a need for more office procedure resources in family practice, we must examine whether family physicians would participate in a referral network; whether

it be informal or formal. 42.0% of family physician respondents reported they already refer their patients to a family physician colleague for office procedures and 90.1% reported that they would. In addition, 77.6% of family physicians who currently perform office procedures reported that they would accept referrals for office procedures from another family physician.

In the next 50-60 minutes, I would like to explore your thoughts regarding the potential for a formalized referral network. Perhaps we could begin by introducing ourselves and sharing an overview of our practice as a whole:

How long have you been in practice?

How large is your practice?

What is your family practice office setting? Solo, small group, large group, interdisciplinary?

Discussion Topic	Questions and Specific Probes
Introductions and Consent (10 minutes approx)	Preamble Obtain written consent from those willing to participate
Experiences with Office Procedures (5 minutes approx)	What are your experiences with office procedures? - If you see a patient who requires an office procedures, how do you handle this? Why? - How do you decide whether or not to perform an office procedure yourself, refer to a family physician colleague, or refer to a specialist? Why? - What is your experience with referring your patients to specialist for office procedures? to family physician colleagues?
Barriers or Facilitators to Office Procedure Referral (5 minutes approx)	Think about the last time you referred a patient for an office procedure, what did you like or dislike about the service? - What barriers exist to accessing timely office procedures for your patients? Facilitators? - What concerns you about referring your patients who require office procedures to specialists? What about to family physician colleagues?
Role for Formalized Referral Network (30 minutes approx)	Would it be worthwhile to formalize a Referral Network for office procedures in family practice? “Formalizing” meaning to have a consistent and structured way to refer and accept patients between family physicians for office procedures. - What are your thoughts on referring your patients to a family physician through a formalized referral network for an office procedure? - What are your concerns about a formalized referral network? For your patients? For your practice? - What potential benefits do you see in family physician colleague referral for office procedures? For your patients? For your practice? - What would you consider to be essential components of a formalized referral network? - Clearly there is a need to move more office procedures into family practice, if not a referral network, can you suggest an alternate approach?
Wrap up and Final Comments (10 minutes approx)	Thank you for participating in this focus group today. Is there anything else you would like to add?

Stop audio recording

Thank you again for your participation today.

Version: June 17th, 2014

Appendix J: Letter of Information: Quantitative study

Family Medicine



Project Title: Quantifying the Performance and Predictors of Office Procedures in Family Practices of Newfoundland and Labrador

Principal Investigator:

Joshua Shadd, MD CCFP MCISc, Department of Family Medicine, University of Western Ontario

Co-investigators:

Annabeth Loveys, MD CCFP, Graduate Student Research Coordinator, Department of Family Medicine, University of Western Ontario

Stephen State, PhD, Department of Family Medicine, University of Western Ontario

Letter of Information

1. Invitation to Participate

You are being invited to participate in a research study quantifying the performance and predictors of selected office procedures in family practice. As a Newfoundland and Labrador family physician, you are a vital part of the unique community of practitioners providing quality care to a complex, and often isolated, patient population. Dr. Annabeth Loveys is a full time family physician practicing in the province of Newfoundland and Labrador. She will be coordinating this research under the supervision of Dr. Joshua Shadd and Dr. Stephen State as part of the Masters of Clinical Science Program.

2. Purpose of the Letter

The purpose of this letter is to provide you with information required for you to make an informed decision regarding your participation in this important research.

3. Purpose of this Study

The purpose of this study is to identify the qualities of family physicians and practices which predict the performance of office procedures. Identifying the predictors will allow

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targeted continuing medical education programs for new skills development and skills maintenance. Given that it is not feasible or practical for every family physician to perform every office procedure, this study will identify the potential for a formalized referral network of family physician professionals with the potential to enhance each other's practices.

4. Inclusion Criteria

Newfoundland and Labrador family physicians with an office practice are eligible to participate in this study.

5. Exclusion Criteria

Family physicians who are retired or working as locum tenens are not eligible to participate in this study.

6. Study Procedures

If you agree to participate, please complete the attached survey and return in the envelope provided. It is anticipated that the survey will take less than 5 minutes to complete. Each survey will be assigned a number in order to identify family physicians who have completed the survey, and send a reminder at one month to those who have not.

7. Possible Risks and Harms

There are no known or anticipated risks or discomforts associated with participating in this study.

8. Possible Benefits

You may not directly benefit from participating in this study but the information gathered may provide benefit the Newfoundland and Labrador community of physicians and their patients. The potential benefits will include the provision of educational resources and support for family physicians interested in office procedures. It will also lay the



foundation for further research into the potential for a formalized office procedure referral network.

9. Compensation

You will not be compensated for your participation in this research.

10. Voluntary Participation

Participation in this study is voluntary. You may refuse to participate, refuse to answer any questions or withdraw from the study at any time. If you chose to withdraw your consent, you may chose to withdraw your data as well.

11. Confidentiality

All data collected will remain confidential and accessible only to the investigators of this study. Research records will be stored in a locked cabinet in a secure office and kept for 5 years. If the results are published, your name will not be used.

12. Contacts for Further Information

If you require any further information regarding this research project or your participation in the study you may contact:

Annabeth Loveys, MD CCFP, Graduate Student, Masters of Clinical Science, Schulich School of Medicine and Dentistry

If you have any questions about your rights as a research participant or the conduct of this study, you may contact The Office of Research Ethics

13. Publication

If the results of the study are published, your name will not be used. If you would like to receive a copy of any potential study results, please contact the investigator

**14. Consent**

Completion of the survey is indication of your consent to participate.

15. Important

The findings of this study will be used to inform a related, subsequent research project which will consist of focus groups of physicians interested in the concept of a formalized referral network for office procedures. If you are interested, you are invited to submit your name and contact information on the form provided and return it with the survey. Forms will be retained and stored separately from surveys. Focus group participants will be recruited from those who express interest.

This letter is yours to keep for future reference.

Sincerely,

Dr. Joshua Shadd

Dr. Annabeth Loveys

Dr. Stephen State

Appendix K: Letter of Information: Qualitative study

Family Medicine



Project Title: How do Newfoundland and Labrador Family Physicians Perceive Colleague Referral for Office Procedures?

Principal Investigator:

Joshua Shadd, MD CCFP MCISc, Department of Family Medicine, University of Western Ontario

Co-investigators:

Annabeth Loveys, MD CCFP, Graduate Student Research Coordinator, Department of Family Medicine, University of Western Ontario

Stephen State, PhD, Department of Family Medicine, University of Western Ontario

Letter of Information and Consent

1. Invitation to Participate

You have expressed an interest in participating in a research study to explore perceptions surrounding colleague referral of office procedures. As a Newfoundland and Labrador family physician, your unique experiences are a vital part of understanding the current and future methods for office procedures referral. Dr. Annabeth Loveys is a full time family physician practicing in the province of Newfoundland and Labrador. She will be coordinating this research under the supervision of Dr. Joshua Shadd and Dr. Stephen State as part of the Masters of Clinical Science Program.

The focus groups which will be held as part of this study will be held at:

Name of Local Restaurant

Date

The focus group will consist of 6–8 Newfoundland and Labrador family physician participants and will last approximately 1 hour informed by a semi-structured interview

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guide in which you will be asked to share your unique experiences and perceptions surrounding colleague referral for office procedures. Following the focus group you are invited to stay for dinner as compensation for your time and participation.

2. Purpose of the Letter

The purpose of this letter is to provide you with information required for you to make an informed decision regarding your participation in this important research.

3. Purpose of this Study

The purpose of this study is to provide insight through family physician focus groups regarding perceptions surrounding colleague referral for office procedures. Given that it is not feasible or practical for every family physician to perform every office procedure, this study will identify the potential for a formalized referral network of family physician professionals with the potential to enhance each other's practices.

4. Inclusion Criteria

Newfoundland and Labrador family physicians with an office practice are eligible to participate in this study.

5. Exclusion Criteria

Family physicians who are retired, do not have an office practice, or working as locum tenens are not eligible to participate in this study.

6. Study Procedures

If you agree to participate, please initial at the bottom of each page and sign the consent page.

7. Possible Risks and Harms

There are no known or anticipated risks or discomforts associated with participating in this study.

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8. Possible Benefits

You may not directly benefit from participating in this study but the information gathered may provide benefit the Newfoundland and Labrador community of physicians and their patients. The potential benefits will include the potential foundation for further research into the potential for a formalized office procedure referral network.

9. Compensation

You will not be compensated for your participation in this research, but you will receive a meal, including non-alcoholic beverages, at a local restaurant following the conclusion of the focus group. No reimbursement for travel expenses will be provided.

10. Voluntary Participation

Participation in this study is voluntary. You may refuse to participate, refuse to answer any questions or withdraw from the study at any time. The focus groups will be audiotaped. If you do not wish to be audiotaped, you should not participate in the study. Data from the focus group will be transcribed without identifiers and as a result if you chose to withdraw your consent, data you have provided prior to withdrawal will remain part of the complete focus group analysis. Withdrawal from the study at any point will not affect your employment.

11. Confidentiality

Due to the nature of the focus groups, full confidentiality cannot be guaranteed. All data collected will remain confidential and accessible only to the investigators of this study. Research records including audiotapes and transcripts will be stored in a locked cabinet in a secure office and kept for 5 years. During transcription, participants will not be identified by name, only by a code. If the results are published, your name will not be used.

Representatives of Western University's Health Sciences Research Ethics Board may contact you or require access to your study-related records to monitor the conduct of the research.

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12. Contacts for Further Information

If you require any further information regarding this research project or

your participation in the study you may contact:

Annabeth Loveys, MD CCFP, Graduate Student, Masters of Clinical Science,

Schulich School of Medicine and Dentistry

If you have any questions about your rights as a research participant or the conduct of this study, you may contact The Office of Research Ethics

13. Publication

If the results of the study are published, your name will not be used. If you would like to receive a copy of any potential study results, please contact the investigator.



Consent

I have read and understand the information in the attached letter of information regarding the study entitled: **How do Newfoundland and Labrador Family Physicians Perceive Colleague Referral for Office Procedures?**

The study has been explained to me and all my questions have been answered to my satisfaction. I understand that I may refuse to begin or withdraw my participation from this study at any time.

By signing this consent form, I agree to participate in this study.

Participant Signature

Investigator Signature

Participant Name (Please Print)

Dr. Joshua Shadd
Dr. Annabeth Loveys
Dr. Stephen State

Date

Date

A copy of this letter and consent form is yours to keep for future reference.

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t. 519.661-2037 f. 519-661-3878 www.schulich.uwo.ca/familymedicine

Curriculum Vitae

Annabeth Julia Loveys

I. EDUCATION & CREDENTIALS

A. EDUCATION

M.D. Memorial University, St. John's, NL 2007
BMus University of Western Ontario, London, ON 2003

B. MEDICAL LICENSURE & CERTIFICATION

College of Physicians and Surgeons of Newfoundland and Labrador

- Advanced Trauma Life Support (ATLS) 2009
- Basic Life Support (BLS) 2008
- Pediatric Advanced Life Support (PALS) 2008
- Advanced Cardiac Life Support (ACLS) 2007
- Advanced Life Support in Obstetrics (ALSO) 2007

C. ACADEMIC HONOURS & AWARDS

CFPC Family Medicine Resident Research Award for Scholarship 2009
Dr. Janice E. Lessard Scholarship in Geriatric Medicine 2007
Newfoundland and Labrador Provincial Music Festival Winner (voice) 2005
Beta Master Chapter, Beta Sigma Phi Award for Operatic performance 2004
Deral Johnson Award for outstanding commitment to vocalists 2003

II. CLINICAL HISTORY

A. PRACTICE

Family Medicine, Kelligrews Medical Clinic 2009-2015
Clinical Assistant, Nexus Clinical Research 2010-2012
Family Medicine, Blackmarsh Family Care Centre 2009
Family Medicine/Emergency Medicine, Notre Dame Bay Memorial 2009

B. RESIDENCY

Family Medicine, Memorial University, St. John's, NL 2007-2009

C. PRECEPTORSHIP

Rheumatology, Arthritis Centre, St. John's, NL 2010

D. ELECTIVES

Outpatient Gynecology, Memorial University, St. John's, NL 2008
Child Development, Memorial University, St. John's, NL 2008
Practice Management, Churchill Square Medical Clinic, St. John's, NL 2008
Otolaryngology, Memorial University, St. John's, NL 2007
Pediatric Emergency, Memorial University, St. John's, NL 2007
Palliative Care, Memorial University, St. John's, NL 2006
Geriatric Medicine, Memorial University, St. John's, NL 2006

III. TEACHING EXPERIENCE

- Part Time Clinical Assistant Professor, Memorial University, 2014-2015
Undergraduate House call rotation teaching
Remedial Resident training
- Instructor
Procedure Day for Second Year Medical Students 2008-2009
- Presenter
Hematology Patient Perspective Seminar 2005-2006

IV. RESEARCH

- "Public Awareness and Understanding of Advance Health Care Directives,"
A.J.Loveys; presented at the Family Medicine Research Forum, Memorial University, St.
John's, NL (2009)

V. AFFILIATIONS

- Canadian Medical Association
- Newfoundland and Labrador Medical Association
- College of Family Physicians of Canada