

Assessing the Contraception and Abortion Content of Nurse Practitioner and
Midwifery Programs in Canada: A Survey of Program Directors

Thesis

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Abstract

Objective: This study was done to assess the contraception and abortion content of nurse practitioner (NP) and midwifery programs in Canada.

Methods: In June 2014, we mailed out surveys to program directors for each of the 32 accredited NP programs in Canada and seven accredited midwifery programs. The mailing included a copy of the questionnaire, a cover letter explaining the purpose of the study, a pre addressed envelope for return of the survey and a pre addressed response card to determine if the respondent wanted a copy of the results. We analyzed the responses using descriptive statistics and content and thematic analysis

Results: We received sixteen NP surveys and two midwifery surveys making the response rate 70% and 40% respectively. More than half of the NP programs reported that they did not offer information about options counseling, first-trimester abortion procedures, and/or post-abortion care in their didactic curriculum. Our study found that if the mifepristone/misoprostol regimen was introduced in Canada 50% of NP programs and 100% of midwifery programs would teach it didactically.

Conclusion: Abortion education in Canadian NP and midwifery programs is severely limited. It is important to incorporate comprehensive information on contraception and abortion in both didactic and clinical curricula. Medication abortion receives the lowest rates of inclusion in both NP and midwifery programs, but there is overall support for the inclusion of mifepristone into existing didactic curriculum. In programs that cater to rural and remote communities there is a definite need to incorporate medication abortion training, particularly given the anticipated approval of mifepristone for use in early pregnancy termination.

Objectif: Cette étude a été réalisée pour évaluer la contraception et l'avortement contenu des infirmières praticiennes (IP) et des sages-femmes (SF) au Canada

Méthodes: En Juin 2014, nous avons envoyés des enquêtes aux directeurs de programme pour chacun des 32 programmes IP accrédités au Canada et 7 programmes de SF accrédités. L'envoi comprenait une copie du questionnaire, une lettre de motivation expliquant le but de l'étude, une enveloppe pré-adressée pour le retour de l'enquête et une carte-réponse pré-adressée afin de déterminer si le répondant voulait une copie des résultats. Nous avons analysé les réponses à l'aide de statistiques descriptives et de contenu et analyse thématique.

Résultats: Nous avons reçu 16 enquêtes IP et deux enquêtes SF qui font le taux de réponse de 70 % et 40% respectivement. Plus de la moitié des programmes d'IP ont déclaré qu'ils ne proposent pas d'informations sur les options de counselling , les procédures d'avortement du premier trimestre , et / ou les soins post-avortement dans leur programme didactique. Notre étude a révélé que si le schéma mifépristone / misoprostol a été introduit au Canada de 50% des programmes d'IP et de 100 % des programmes de SF seraient enseigner didactique.

Conclusion: L'éducation avortement dans les programmes canadiens IP et SF est sévèrement limitée. Il est important d'intégrer une éducation curriculum didactique et clinique plus compréhensive entourant l'avortement. L'avortement médicamenteux reçoit le moins de soutien du programme des deux programmes IP et SF, mais il est un soutien global pour l'inclusion de la mifépristone dans les programmes didactiques existant. Dans les programmes qui répondent aux collectivités rurales et éloignées, il est absolument

nécessaire d'intégrer la formation de l'avortement par médicaments spécifiquement entourant médicaments nouveaux et à venir tels que la mifépristone.

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List of Acronyms and Abbreviations

CIHI	Canadian Institute for Health Information
NP	Nurse practitioner
PI	Principal Investigator
Ob/ Gyn	Obstetrics and gynecology
REB	Research Ethics Board
WHO	World Health Organization

Chapter One: Introduction

Background

Every year in Canada, approximately 100,000 abortions are performed making abortion one of the most common medical procedures experienced by women of reproductive age (Raymond et al. 2002). This number may be a significant underestimate, as Quebec is not required to provide their abortion data and clinic-based abortions are often not captured (Shaw 2010). In 1988, the case *R v. Morgentaler* went to the Supreme Court resulting in the decriminalization of abortion. Since that time, neither the Canadian government nor the Supreme Court has passed any legislation with regards to abortion (Sabourin & Burnett 2012).

Currently, women face numerous barriers to abortion access such as time, cost, travel, and regional disparities (Sabourin & Burnett 2012). With no federal legislation, abortion falls solely under provincial jurisdiction creating situations where entire provinces (such as Prince Edward Island) do not have abortion providers (Sabourin & Burnett 2012; Eggertson 2001). Furthermore, provinces have great latitude in determining the coverage of abortion in provincial health insurance schemes. This latitude allows provinces to decide whether or not a hospital versus a clinic based abortion gets covered as well as what kind of stipend a woman who has to travel to get an abortion receives. This becomes increasingly problematic given the fact that the majority of abortion clinics (the major source for abortion provision) are centered in urban areas. Women who live in more rural, remote and northern communities do not have the same level of access as their urban counterparts (Eggertson 2001). Indeed, there are no freestanding abortion clinics in Canada's three territories and women residing in Northwest Territories, Nunavut, or Yukon must travel a considerable distance for care (Abortion Rights Coalition of Canada 2015). Moreover, abortion wait times vary and women can be forced to wait up to six weeks after

having made the decision to terminate their pregnancy, even in major urban centers such as Ottawa (Dube 2007). Over 90% of abortions in Canada take place in the first trimester of pregnancy, and the overwhelming majority are provided through aspiration techniques (Health Care Statistics Section, Health Statistics Division 2007). Worldwide, medication abortion, also known as medical abortion, is often used for early pregnancy termination (World Health Organization [WHO] 2012; Fjerstad et al. 2009). Unlike aspiration methods, medication abortion requires less technical skill and a much simpler health care infrastructure. This allows medication abortion to be delivered at a broader range of health care facilities by a wider set of providers (Clark et al. 2007). Moreover, studies show that medication abortion is considered by some women to be a more preferable and natural process compared to traditional aspiration techniques (Berer 2005; Cappiello, Merrell & Rentschler 2014).

In late 2011 one such medication known as mifepristone (also known as RU-486) was presented to Health Canada in partnership with a European pharmaceutical company (Grant 2014). Mifepristone is considered the gold standard of abortion medication and is used in combination with a prostaglandin such as misoprostol for early pregnancy termination (Henderson et al. 2005). Initially approved in 1988 in China and France, as of 2012 mifepristone had been registered in 57 countries worldwide and has been used by millions of women (Henderson et al. 2005; Ngoc et al. 2011; Shannon et al. 2004; Winikoff & Sheldon 2012). As of May 2015 Health Canada has yet to make a decision with regards to mifepristone making this, the longest a dossier has sat without a formal decision being made (Grant 2014).

Mifepristone blocks the action of progesterone, which alters the uterine lining, induces bleedings and causes the uterine lining to shed. Furthermore, it causes the cervix to soften and initiates uterine contractions. While some women can abort with just the use of mifepristone,

mifepristone is used in conjunction with misoprostol. Misoprostol interacts with the prostaglandin receptors and causes the cervix to soften and initiates uterine contractions. Mifepristone, taken orally, has an efficacy through nine weeks gestation. Past nine weeks gestation mifepristone decreases in efficacy. One to two days after taking mifepristone, a woman takes misoprostol to complete the abortion. Misoprostol is administered buccally, sublingually, or vaginally. The mifepristone/misoprostol regimen has an efficacy rate of 95-98% when used within nine weeks from the onset of the last menstrual period (Ibis Reproductive 2015).

Currently in Canada the only method of medication abortion for early pregnancy termination is the methotrexate/misoprostol regimen. Methotrexate is an anti-metabolite and it interferes with rapidly dividing cells. Methotrexate primarily affects the cytotrophoblast and inhibits the implantation process. Methotrexate like mifepristone also is used in conjunction with misoprostol. Methotrexate is delivered with either an intramuscular injection or an oral administration. Three to seven days later a woman is able to self-administer 800 micrograms of misoprostol vaginally in order to remove the products of conception and complete the abortion. Although the regimen is most effective in the first seven weeks of pregnancy, women with pregnancies of up to 9 weeks; gestation may still use the methotrexate and misoprostol regimen safely and effectively. However, as many as 25% of patients will experience a continued pregnancy one month after initial methotrexate injection and thus it doesn't address the geographic access barriers as lots of follow-ups are required (Ibis Reproductive 2015).

Despite new advances in technology, the current pool of abortion providers is aging, and fewer practitioners are choosing abortion as a specialty. Moreover, it has been postulated that the decline in physician interest to provide abortion stems from the lack of education provided during preclinical and clinical training in medical school (Raymond et al. 2002; O'Connell et al.

2009). With the potential introduction of mifepristone into the Canadian market, a wider range of providers may be able to provide first-trimester abortion care. Advanced practice clinicians, such as nurse practitioners (NPs) and midwives as well as physician assistants, all have the provision of medication as part of their current scope of practice (Erdman, Grenon & Harrison-Wilson 2008). Nurses are already part of current abortion service delivery and are often the first point of contact a woman encounters when she has an unintended pregnancy (Kishen & Stedman 2010). Moreover, NPs and midwives often work in rural, remote and northern communities where access to physicians is limited (WHO 2001). Research shows that these advanced practice clinicians are capable of performing safe and effective first-trimester abortion care (Clark et al. 2007; Yarnall et al. 2009; Leeman et al. 2007). In 2003, the WHO safe abortion guidelines recommended that abortion care be provided at the lowest appropriate level of the health care system (Berer 2009).

There is a paucity of Canadian research studying the level of education of health care providers receive with regards to abortion. There are no studies that look at advanced care practitioners such as NPs or midwives, and there are limited studies on other health care professionals. Studies performed on undergraduate medical education and residency programs consistently show deficiencies in routine abortion education and training (Raymond et al. 2002; Cessford & Norman 2011). A study conducted between 2002 and 2005 by Steinauer and colleagues examined 122 medical schools in both the US and Canada. Steinauer and colleagues distributed a questionnaire to medical students to evaluate the level of inclusion of fifty sexual and reproduction health topics including abortion in the preclinical years of medical school. The researchers discovered that there was a lack of consistency among the different institutions in their coverage of abortion and related topics. Additionally abortion was not covered extensively

or in great detail. In other words, the topic of abortion was not often the focus of an entire class or course, but merely briefly mentioned in ethical discussions or pharmacological classes. Moreover, when asked about how much time was dedicated to abortion discussion in class, students from 31% of participating schools indicated that a full range of induced abortion topics were covered and that coverage was less than thirty minutes (Steinauer et al. 2009).

Studies surrounding abortion education have also been done looking at postgraduate medical education in fields such as obstetrics and gynaecology (Ob/Gyn). Roy and colleagues (2006) disseminated an anonymous questionnaire that went to both postgraduate (Ob/Gyn) residents and program directors. The residents stated that 97% of all programs included abortion training. Only half of these programs had abortion incorporated into their core curriculum while the other half had it as a potential elective. Residents were offered abortion training as a choice among many electives. Thus, competence relied on residents' interest in training. Moreover, discrepancies were noted in the scope of training. All program directors surveyed reported training in dilation and evacuation, while only 67% of residents reported such training. Furthermore, when it came to the more current methods of medication abortion, 87% of directors and 67% of residents reported training opportunities. In addition, there was an inconsistency between directors and residents as to who was arranging abortion-training opportunities for residents. Sixty percent of directors and only 27% of medical students stated that the institution was instrumental in the arrangement of training (Roy et al. 2006)

Work done on undergraduate medical curricula within Canada has also shown the same lack of abortion-related education. Cessford and Norman (2011) sent a survey to undergraduate medical students at the University of British Columbia to determine their knowledge concerning abortion epidemiology, practice guidelines, abortion methods and procedures, as well as student

readiness to provide abortions. Students were found to have a limited understanding of abortion, but most were interested in furthering their education and indicated they would be willing to provide abortions. Like many of their research colleagues, Cessford and Norman also looked at class time dedicated to abortion, finding that time covering abortion ranged from 15 minutes to eight hours depending on the institution (Cessford & Norman 2011). A similar study conducted by Erdman and colleges (2008) reported that only half of Canadian medical schools taught abortion techniques, dedicating less than one hour of instruction to the subject in a four-year curriculum (Erdman, Grenon, & Harrison-Wilson 2008). Researchers also examined abortion and pregnancy counselling. Institutions such as The University of British Columbia were not found to include any discussion of these topics in preclinical years (Cessford & Norman 2011).

In a survey of family physician residency programs in Hamilton and Thunder Bay, only 39.1% of residents reported education on abortion during residency and one-fourth reported education during medical school. Moreover, on a 7-point Likert scale residents rated their level of abortion knowledge in the 1.7 to 3.6 range, with 1 indicating low levels of abortion knowledge to 7 indicating high levels of self-reported abortion knowledge. Furthermore, when training was made available, half of all family practice residents decided to participate. Many felt that the lack of medical training in abortion was a significant barrier to their willingness to practice (Raymond et al. 2002). While supplemental programs like Medical Students for Choice, which offers Reproductive Health Externships, exist within some universities, few offer credit for this program (Pace et al. 2008). Fleet and colleges (2008) attempted to examine why abortion was not a priority in Canadian medical schools. More specifically they looked at McMaster University, which uses the Priority Illness Conditions Table to determine what in their

curriculum receives teaching priority. Abortion was not on this table, indicating that in this well-known Canadian university abortion was not a curriculum priority (Fleet et al. 2008)

While there were no studies conducted in Canada that examine the education midwives and nurses receive in regards to abortion, studies carried out in the United States indicated that abortion education is limited. When respondents were asked to define why abortion was not incorporated into the curriculum the primary reason given by institutions was that abortion was simply not a curriculum priority, followed by reasons such as lack of trained teaching staff, and lack of equipment and medical space (Foster et al. 2006).

Overall, there is a lack of depth, breath, and consistency to which abortion education is being covered in Canadian health professions training programs. Canada lacks overall national abortion guidelines and is often not given the priority that it deserves. This is an issue as doctors, and now other medical professionals may soon be responsible for providing medication abortion.

Rationale

The current state of abortion in Canada shows a patchwork quilt of access, where women must overcome a variety of barriers in order to obtain timely and affordable abortion care. With abortion providers currently aging and the possibility of medication abortion being brought into Canada there is a unique opportunity for using other advanced practice clinicians to address the current gaps in abortion care. NPs and midwives can provide medications and are also a major source of primary care in northern, rural and remote communities. Education has been determined to be a primary factor in a provider's decision to choose to specialize in abortion provision (Raymond et al. 2002; O'Connell et al. 2009). A number of studies have been dedicated to the reproductive health content of medical education and residency training in

Canada (Steinauer et al. 2009; Roy et al. 2006; Raymond et al. 2002) yet there are no published studies on the reproductive health content of education in NP or midwifery programs. This study represents a first step in addressing this gap.

Specific Objectives

1. Assess the contraception and abortion content in nurse practitioner and midwifery programs in Canada;
2. Explore barriers to the inclusion of reproductive health topics; and
3. Identify possible avenues by which mifepristone could be incorporated into routine education and training, if approved

Research Framework

Action research serves as the theoretical foundation for this project. Specifically, this project is derived from and structured as practical action research and is situated within an interpretivist paradigm (Grundy 1982; Masters 1995). The reproductive health community in Canada has defined the issue we are addressing as a priority. Our project is specifically designed to affect social change. As is the character of action research in general, our design embraces the planning, acting, observing, and reflecting cycle, which was ongoing throughout the life of the project.

Outline of Thesis

The following thesis is written in the “thesis by articles” style, consisting of five chapters. Chapter One provides an overview of the issues surrounding abortion in Canada as well as a

review of the pertinent literature surrounding abortion in Canadian health service professionals' education and training. The first chapter also presents the rationale for embarking on this study, the specific research objectives and an outline of the thesis. Chapter Two presents the methodological approach used in this study and is broken down into the following subsections; description of survey materials, data collection method, and analytic approach.

The next two chapters, Chapters Three and Four, encompass the bulk of the thesis and consist of two articles. The first article (Chapter Three) assesses the coverage of reproductive and abortion-related issues in NP programs in Canada. This article was formatted for submission to *The Canadian Journal of Nursing Research* and conforms to the standard of that peer-reviewed journal. The second article (Chapter Four) examines the potential for the inclusion of mifepristone into existing NP and midwifery program curricula. Using the open-ended questions from the main survey, this article seeks to understand the perceptions of NP and midwifery program directors to the inclusion of mifepristone as well as the potential barriers to its inclusion. This article has been formatted for submission to *Contraception* and conforms to the standards of that peer-reviewed journal.

Chapter Five is the discussion section; it begins with a synthesis of the two research articles and includes a broader discussion of education in reproductive health as a whole. In addition, this chapter contains sections on significance and implications, future directions for research, limitations, statement of overall contribution for the study, and a conclusion. A bibliography and appendices can be found at the end of this thesis.

Chapter Two: Methods

This study utilizes methodology based on a number of similar studies conducted by Dr. Angel Foster in the United States (Foster et al. 2006; Foster et al. 2008; Simmonds, Foster & Zurek 2009). This study like the aforementioned studies uses a mixed methods approach, which is a design that incorporates both qualitative and quantitative research (Cresswell 2009). More specifically this study uses a concurrent mixed methods approach. We collected both forms of data at the same time and then integrated the information in the interpretation of the overall results (Cresswell & Clark 2007). We selected this type of research because it allows us to address complex health issues in a more thorough manner than either quantitative or qualitative research alone (Cresswell 2009). This particular method is beneficial to our study as we seek to both quantify the level of reproductive and abortion health content within programs, as well as understand barriers and potential opportunities to implementing new information into the existing curriculum.

To address the aforementioned objectives, we used a self-administered mailed survey. Our study uses a mailed survey approach because previous research done by Foster et al. (2008) showed that a mailed survey elicited a significantly higher response rate than surveys sent through e-mail or a combination of e-mail and mailed contacts.

Selection of Participants

We used the Canadian Institute for Health Information (CIHI) website to create a comprehensive database of all of the accredited NP and midwifery programs within Canada. Using the CIHI data collected, we were able to identify 32 individual NP programs and seven accredited midwifery

programs. We then cross-referenced the CIHI findings against all provincial and territorial nursing accreditation associations to ensure the sample was complete.

Next we completed a curriculum review of the listed programs in order better familiarize ourselves with the accreditation requirements and available information about the programs. We sought to find out what is required with respect to hours, subjects, topics, core competencies, as well as familiarizing ourselves with the different accreditation bodies. Following that we looked at what was available online about the different programs. This included a curriculum map, the different core and optional courses, and any online syllabi. We wanted to find what areas of reproductive health appeared in the curriculum and where.

We identified contact information for the program director of each program through the school's designated website. Program directors were used for this study due to their understanding of the comprehensiveness of their respective programs. We sent all program directors an invitation letter. The invitation letter began with an introduction by the principal investigator (PI) of this study (Dr. Foster) and provided a brief description of the study. We informed program directors in the invitation letter that the study was completely voluntary, it would take about twenty minutes and individuals would be sent a five-dollar gift card from Starbucks to thank them for their participation in the study. Within the invitation letter, we also informed participants that we intended to produce a report summarizing the results. Individuals would be able to obtain a copy of this report regardless of whether or not they chose to complete the survey. Lastly, we indicated to program directors that if they were not the most appropriate person to complete this survey, we would greatly appreciate it if they would forward the questionnaire to the individual in the program who is most knowledgeable about the reproductive health content of the curriculum.

We determined through our curriculum review as well as through contact with the NP and midwifery program directors that nine of the NP programs and three of the midwifery programs formed two separate consortia. This meant that there was one standardized curriculum for all the programs in the consortium. We sent the program directors of each program in the consortium a copy of the survey. Subsequently we were given the contact information of individuals who could speak to the consortium as a whole. We were then given the names of two individuals who would be able to speak for the consortia and those individuals were contacted separately and given a survey to fill out. Thus, our ultimate sample size was twenty-three NP program directors, representing 32 unique programs, and five midwifery program directors, representing seven unique programs.

Outline of the Survey

We developed this survey based on a 2006 study conducted by Foster et al. investigating abortion education in nurse practitioner, physician assistant and certified nurse-midwifery programs in the United States (Foster et al. 2006). After a brief section dedicated to basic program and respondent information, the first section of the survey asked if didactic and/or clinical education was provided in 17 reproductive health issues focusing on contraception, ectopic pregnancy, miscarriage management, and abortion. In this section, we asked respondents to state the number of hours dedicated both didactically and clinically to each subject area (closed questions). In the second and third sections of the survey, we asked respondents to discuss reasons why topics were not included (if applicable) within their didactic and/or clinical curricula. In the fourth section of the survey, we asked respondents to comment on areas of contraception, miscarriage and ectopic pregnancy management, or abortion care in their didactic

and clinical curriculum that they felt were particularly strong (free response section). In the fifth and final section of the survey we asked respondents to identify whether or not they would include mifepristone into their didactic or clinical curricula should the medication be approved for use by Health Canada (closed question). They were then asked to specify reasons for their choice to include or not to include mifepristone into their curricula (free response section).

Data Collection Method

In June 2014, we mailed out surveys to the program directors to the 23 NP program directors in Canada. The survey included was a copy of the questionnaire, a cover letter explaining the purpose of the study, a pre-addressed envelope for return of the survey and a pre-addressed response card to determine if the respondent wanted a copy of the results. We then sent follow-up mailings to all non-respondents three weeks after the initial survey was sent out. We sent subsequent non-respondents a new survey package via mail three weeks after the follow-up mailing and six weeks after the initial survey was sent out. This analysis includes all surveys returned by the end of 2014. In August of 2014, we expanded the study to include all accredited midwifery programs in Canada. The contact with the midwifery program directors followed the same guidelines as that of the NP programs.

Analytic Approach

I began the analysis portion of my thesis as soon as the questionnaires returned. I imputed all the data from the closed-ended questions into an excel spreadsheet. Due to the fact that my sample size was relatively small I was limited in the amount of statistical analysis that I would be able to perform, as I would not be able to determine significance with such a small sample size.

Therefore, I used descriptive statistics to present the results of close-ended questions. When researchers want to be able to identify trends and difference across levels of the independent variables they use descriptive statistics (Polgar & Thomas 2008). The strengths of descriptive statistics are their ability to “ collect, organize and compare a vast amount of discreet categorical and continuous non-discrete data in a more manageable form” (Trochim, 2006). I used excel to calculate frequencies or averages for each category of data.

I then turned to my analysis of the open-ended questions within the survey. I analyzed this data inductively using thematic analysis. Afterward I grouped the information into themes and then sub-themes were drawn out from the provided information. Then I focused on identifying relationships among the themes and concepts.

Ethics

This study received approval from the Health Sciences and Sciences Research Ethics Board (REB) located at the University of Ottawa (File #H02-13-12). The letter of approval from the University of Ottawa’s REB can be found in Appendix A. As is the standard for this type of survey completion and return of the survey indicated consent to participate.

Chapter Three: Article #1

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Assessing abortion coverage in nurse practitioner programs in Canada: A national survey of program directors

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Ms. Sheinfeld completed this study in partial fulfillment of her MSc degree in Interdisciplinary Health Sciences. She implemented the study, led the analysis, and drafted the manuscript.

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**Assessing abortion content of nurse practitioner programs in Canada:
A national survey of program directors**

Abstract

Background: Although nurse practitioners play a critical role in the delivery of reproductive health services in Canada, there is a paucity of published information regarding the reproductive health education provided in their training programs.

Methods: In 2014, we conducted a mailed survey to assess the coverage of, time dedicated to, and barriers to inclusion of 17 different areas of reproductive health, including abortion. We analyzed our results with descriptive statistics.

Results: Sixteen program directors returned the survey (response rate 70%). More than half reported that they did not offer information about options counselling, first-trimester abortion procedures, and/or post-abortion care in the didactic curriculum.

Conclusion: Reproductive health issues receive uneven, and often inadequate, curricular coverage. Compared to contraception, abortion receives far less attention. Identifying avenues to expand education and training on abortion appears warranted.

Keywords: Reproductive health; mifepristone, advanced practice clinicians

Introduction

In 2010, over 90,000 abortions were performed in Canada making it one of the most common medical procedures experienced by women of reproductive age (CIHI 2014). For every 100 live births recorded, there were 28.3 abortions (Shaw 2010) and an estimated one in three Canadian women will have an abortion over the course of their reproductive lives (Norman 2012). However, many Canadian women lack access to timely and affordable abortion care. Although Canada decriminalized abortion in 1988, the uneven distribution of abortion providers combined with provincial regulations has created geographic and socio-economic disparities in access (Sabourin & Burnett 2012; Erdman, Grenon & Harrison-Wilson 2008; Eggertson 2001).

The decreasing number of abortion providing clinicians also threatens access to abortion in Canada. The pool of abortion providers in Canada is aging, and fewer medical students are entering fields that have traditionally minted abortion-providing physicians (Raymond et al. 2002; O'Connell et al. 2009). Researchers postulate that the decline in physician abortion providers stems, in part, from the lack of routine education provided during preclinical and clinical training. Indeed, a series of studies conducted over the last two decades have demonstrated that both didactic and clinical instruction in abortion care is limited at a variety of training levels (Cessford & Norman 2011; O'Connell et al. 2009; Steinauer et al. 2009; Raymond et al. 2002).

Although nurses play a critical role in the delivery of reproductive health services in Canada, there is a paucity of published information regarding the routine education and training provided in their programs. From triage and screening to diagnosis and treatment nurses are often the cornerstones of reproductive health counselling and service delivery in the primary care setting. Nurses are fully integrated into the current abortion provision scheme and are often the

first point of contact for women with unintended pregnancies (Kishen & Stedman 2010).

Research on the education and training of advanced practice clinicians, including nurse practitioners (NPs) and certified nurse-midwives in the United States, has demonstrated a lack of routine coverage of abortion-related topics and procedures (Foster et al. 2006). To date, comparable research has not been conducted in Canada.

Understanding the training of Canadian nurse practitioners (NPs) is especially timely. NPs' scope of practice includes prescribing privileges (CIHI 2014). This has major implications for the expansion of medication abortion services throughout the country (Erdman, Grenon & Harrison-Wilson 2008). Health Canada is currently reviewing an application to register mifepristone and approve the mifepristone/misoprostol regimen, the gold standard medication regimen for early pregnancy termination, for use in Canada (Dunn & Cook 2014). Thus understanding the current coverage of abortion care in NP programs has the potential to shed light on how mifepristone, if and when approved, could be incorporated into routine education and training.

Informed by this context, we conducted a national survey of program directors to assess the abortion content of NP programs in Canada. To contextualize abortion coverage, we also assessed the curricular inclusion of contraception, miscarriage management, and ectopic pregnancy management. Through this survey, we hoped to understand perceived barriers to both didactic and clinical incorporation of abortion-related topics and procedures.

Methods

Study design & data collection

To assess the contraception and abortion content of nurse practitioner programs we conducted a national survey of program directors. We based our study design on the 2006 survey conducted by Foster et al. (Foster et al. 2006). According to the CIHI database, there were 32 accredited NP programs in Canada in 2014; 25 Anglophone programs, six Francophone programs, and one bi-lingual program. Nine of the programs comprise a consortium with a shared curriculum. Thus, we ultimately identified 23 program directors representing the 32 unique programs.

In June 2014, we initiated a three-contact bi-lingual mailed survey. The first packet included a cover letter explaining the purpose of the study, a copy of the questionnaire, a pre-addressed envelope for return of the survey, and a pre-addressed response card such that the respondent could indicate if she wanted a copy of the results. The cover letter instructed program directors to either complete the survey themselves or give the survey to an appropriate person within the program. Three weeks after the initial mailing we sent a reminder postcard to non-respondents. We mailed continued non-respondents a new survey package six weeks after we sent the initial package. Several program directors contacted us during the survey administration, and we responded to all clarifying questions. Upon completion and return of the survey, we mailed respondents a five-dollar Starbucks gift card as a thank you.

Questionnaire

With permission, we modeled our questionnaire after that used by Foster et al. (2006) and adapted the content for the Canadian context. After obtaining some basic demographic information from the respondent, we divided our three-page questionnaire into five distinct sections. The first section focused on the didactic and/or clinical coverage of 17 areas related to contraception, miscarriage and ectopic pregnancy management, and abortion care. Table 1 includes a list of the specific topics. We asked respondents to approximate the number of hours, if any, dedicated to each area, in this section. The second and third sections of the survey asked respondents to discuss reasons why specific topics were not included in their didactic and/or clinical curricula, if applicable. The fourth section of the survey explored innovative curricular models, and we asked participants to share details about areas of the didactic and/or clinical curriculum they felt were particularly strong. In the fifth and final section of the survey, we asked respondents to reflect on whether or not their program would incorporate mifepristone into the didactic and/or clinical curriculum should the medication be approved by Health Canada.

Data analysis

We imputed all responses to the closed-ended questions into an excel database, created specifically for this study. Given our small sample size, we used descriptive statistics to identify trends and difference across levels of the independent variables (Polgar & Thomas 2008). This included averages and frequencies. We inductively analyzed the responses to open-ended questions for content and themes. We included all surveys received by the end of the calendar year 2014 in our analysis.

Ethical considerations

This study received approval from the Health Sciences and Sciences Research Ethics Board at the University of Ottawa (File #H02-13-12). We have masked and or redacted all information that could allow for the identification of an individual respondent or her program.

Results

Respondent characteristics

Of the 23 program directors contacted, we received 16 surveys for a response rate of 70%. Our responses came from five program directors (31%), seven faculty members (44%), and two program director/faculty members (12.5%). Two respondents did not specify who had completed the survey (12.5%). Twelve respondents completed the survey in English, and the remainder completed the survey in French. We were unable to identify any characteristics shared by non-respondents.

Didactic and clinical curricular content

On Table 1 we provide a detailed breakdown of the curricular coverage of the 17 areas of contraception, ectopic pregnancy and miscarriage management, and abortion care included in our survey. Consistent with other surveys of health professions education and training, didactic coverage exceeded clinical coverage of all topics. Furthermore, no respondent reported clinical coverage of a topic that was not covered in the didactic curriculum. Contraceptive counselling, the full range of contraceptive methods, ectopic pregnancy and miscarriage management, and pregnancy options counselling are generally included in the didactic curriculum, with more than 80% of respondents reporting coverage. In contrast, roughly half of programs (44%-56%)

include coverage of various first-trimester abortion procedures in the didactic curriculum. The majority of programs (65%) cover ethical issues in abortion care, abortion procedures counselling, and post-abortion care.

The reported clinical coverage of our 17 areas of inquiry reflected greater variation (Table 1). More than two-thirds of our respondents noted that contraceptive counselling, barrier, hormonal, long-acting reversible contraceptive methods, and emergency contraception are routinely covered. In contrast, sterilization procedures and all first-trimester abortion methods are incorporated into the clinical curricula of less than half of the respondent programs. Medication abortion methods receive the least coverage of all topics included in the study. Even though mifepristone is not currently registered in Canada, five programs (31%) indicated that the mifepristone/misoprostol regimen is included in the clinical curriculum.

Hours devoted to covered reproductive health issues

To understand better the extent of the didactic and clinical coverage of a range of issues related to contraception and abortion, we asked respondents to approximate the number of hours dedicated to each subject. Issues related to contraception appear to receive the most significant didactic coverage, as most respondents (62.5%) indicated that this general area is allocated two or more hours. The other areas of reproductive health generally received one or less hours of didactic coverage, suggesting these issues are contained in a single lecture. Topics included in the clinical curriculum generally received one hour of coverage.

Reasons for the lack of coverage of abortion-related content

Nine programs (56%) reported that they did not offer information about pregnancy options counselling, first-trimester abortion procedures, and/or post-abortion care in the didactic curriculum. Eight programs (50%) reported that they did not offer information about pregnancy options counselling, first-trimester abortion procedures, and/or post-abortion care in the clinical curriculum. The reported reasons for the lack of inclusion in both curricular formats were consistent. The majority (n=7 and n=4, respectively) indicated that abortion was not a curricular priority or was outside of the scope of the particular NP program. One program reported that an appropriate site was unavailable for either didactic or clinical instruction. Notably, no respondents indicated that the lack of coverage was due to funding or religious restrictions, lack of approval from the administration, or controversy.

Successful and innovative curricular models

Respondents repeatedly reported that their programs excelled in the coverage of contraception related issues (n=11), ectopic pregnancy management (n=5), and miscarriage management (n=4). Survey participants showcased a range of innovative teaching and learning strategies, including incorporating experienced general practitioners, peer education modules, and opportunities for sharing clinical experiences into the curricula. However, only two of the 16 respondents referenced abortion as an area of strength. These two participants stated that some of their strong and innovated methods for teaching about abortion were using elective placements, having guest lecturers who were passionate about women's health teach about abortion-related issues, and holding classes during which students share clinical experiences.

Incorporating the mifepristone/misoprostol regimen into NP curricula

In general, respondents were open to incorporating the mifepristone/misoprostol regimen into their curricula if mifepristone is approved. Half of our respondents indicated they would include mifepristone into the didactic curriculum, and roughly a third expressed interest in incorporating the medication into the clinical curriculum. A minority of respondents indicated that their programs would not include mifepristone into the didactic (12.5%) or clinical (38%) curriculum. The remaining participants expressed uncertainty.

Half of all programs surveyed (n=8) said that they currently teach mifepristone in their didactic curriculum. Out of these programs, all but one reported that they would continue their didactic education in the event that mifepristone was approved by Health Canada. The other program responded that it was uncertain whether or not it would continue to teach didactically, however they did specify that they would probably teach through collaboration with an existing professional association. Out of these eight programs that teach mifepristone didactically 62.5% (n=5) would incorporate mifepristone into the clinical curriculum if approved. The other three programs expressed uncertainty; this uncertainty principally related to a lack of clarity as to whether or not mifepristone would be a part of the scope of practice for NPs.

Discussion

A body of work on health professions training in Canada indicates that reproductive health issues receive uneven, and often inadequate, curricular coverage. Roy and colleagues (2006) surveyed both obstetrics and gynaecology (Ob/Gyn) program directors and fourth and fifth year Ob/Gyn residents. Although both groups reported that the inclusion of abortion training in residency education was nearly universal, residents in particular reported that training was

often elective, and coverage of medication abortion methods were limited. These findings are consistent with an earlier study by Raymond et al. that showed family medicine residents in Hamilton rated their knowledge about medication abortion as poor but most were interested in receiving more information and training (Raymond et al. 2002). Other studies with residents indicate that providers-in-training are often more knowledgeable about contraception than abortion (Steinauer et al. 2003; Garcia & Fisher 2008).

Several studies dedicated to undergraduate medical education in Canada have also found that there are significant deficiencies in abortion education (Cessford & Norman 2011; Steinauer et al. 2009; Erdman, Grenon & Harrison-Wilson 2008; Fleet et al. 2008). Taken together these studies suggest that medical students in Canada have relatively poor exposure to a full range of abortion topics and that the time dedicated to abortion-related issues is relatively minimal. These studies posited that some of the barriers to implementation of abortion-related content included a concentration on elective (non-mandatory) exposure and competing curricular priorities.

Consistent with these previous studies, our survey of Canadian NP program directors revealed that abortion coverage is uneven and relatively limited. Compared to the coverage of contraception, miscarriage management, and ectopic pregnancy management, abortion-related topics receive far less coverage, and medical abortion receives even less attention. Not surprisingly, clinical inclusion is less robust than didactic inclusion. Consistent with previous studies, our survey suggests that the single greatest barrier to inclusion of abortion-related topics is the perception that abortion is not a curricular priority.

Given the prevalence of unintended pregnancy and the fact that abortion is an extremely common practice among women of reproductive age in Canada, the perception that abortion is not a curricular priority is surprising. Of course, there are many competing demands placed on

nurse practitioner programs and the relatively short period for specialized training presents a challenge. However, that a common medical issue is not considered a curricular priority by so many of our respondents likely reflects additional dynamics in abortion care. Notably, the majority of abortions in Canada are now performed outside of hospitals and hospital networks, the traditional site of clinical placements. Thus, NP educators may not expect their students to encounter abortion in their routine training and, therefore, do not prioritize this component of reproductive health education. Further, freestanding abortion clinics in Canada are centralized to urban areas (Eggertson 2001). This can create difficulties for programs to arrange placements such that their students can receive clinical exposure. Recognizing that abortion is an essential part of comprehensive reproductive health care, fortifying relationships with freestanding clinics and their practitioners, and exploring avenues for developing clinical externships akin to those available for undergraduate medical students (Evans & Backus 2011; Pace et al. 2008) appears warranted.

The upcoming decision by Health Canada on the mifepristone dossier may prove a watershed moment for expanding access to abortion in Canada. However, for this promise to be realized, engagement with health service professionals is critical. A range of health service providers such as advanced practice clinicians can provide medication abortion (Clark et al. 2007). As essential providers of primary reproductive health services, nurse practitioners have the ability to dramatically impact the geographic disparities in access to abortion care if they are able to provide and are trained. The approval of mifepristone could serve as an entry point to a broader discussion of abortion education and training in NP programs.

Limitations

Our study has several limitations. As noted in our methods section, the nine NP programs in Ontario are part of a single consortium with a single standardized curriculum. Although we originally intended to receive curricular information from all nine programs, members of the consortium repeatedly directed us to a consortium representative. For the purposes of this paper we “counted” that response as one program. However, the individual programs within the consortia likely exhibit differences in their curricula, which we are not able to capture.

Assessing clinical curricular coverage of topical areas is also difficult, as programs may have limited control over what their students experience once placed in a clinical setting. Necessarily, clinical coverage estimates are based on aggregate expectations and may not reflect actual student experience. Further, differentiating between a clinical experience and didactic information provided in a clinical setting may be muddled. This likely explains why five of our respondents reported clinical coverage of mifepristone, even though the medication is not available in Canada.

Finally, our results may reflect a social desirability bias. Health professions educators are often eager to share elements of their program that they deem high quality. Non-respondents, therefore, are more likely to be from programs that do not routinely incorporate our 17 study issues into teaching and learning. Further, respondents may overestimate the inclusion of our study topics in a desire to present their program in the best light. Thus, our results likely represent an overestimate of the extent of abortion coverage in nurse practitioner programs.

Conclusion

Our study indicates that reproductive health issues receive uneven, and often inadequate, curricular coverage. This lack of coverage is even more prominent in clinical education than in didactic education. The introduction of mifepristone has the potential to dramatically change abortion access in Canada. Nurse practitioners will likely play a significant role in the provision of mifepristone once the medication is approved. Identifying ways of improving the routine incorporation of abortion-related issues into both didactic and clinical NP training appears warranted.

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Table 1: Reproductive health topics covered in the curriculum of NP programs, N=16

Topic	Didactic education n (%)	Clinical education n (%)
Contraceptive counselling	15 (94)	12 (75)
Natural family planning methods (<i>abstinence, withdrawal, calendar method, Cyclebeads®</i>)	13 (81)	10 (63)
Barrier methods of contraception (<i>male condom, female condom, diaphragm</i>)	14 (88)	12 (75)
Hormonal methods of contraception (<i>oral contraceptive pills, patches, rings, Depo-Provera</i>)	14(88)	11 (69)
Long-acting reversible contraceptive methods (<i>IUDs, hormonal implants</i>)	15(94)	13 (81)
Sterilization procedures (<i>tubal ligation, vasectomy</i>)	14(88)	7 (44)
Emergency contraception (<i>Yuzpe method, Plan B®, ulipristal acetate, post-coital IUDs</i>)	14(88)	11 (69)
Management of ectopic pregnancy	15(94)	9 (56)
Management of spontaneous abortion	15(94)	9 (56)
Pregnancy options counselling (<i>for unintended pregnancy</i>)	13(81)	9 (56)
Ethical issues in abortion care	10 (63)	7 (44)
Abortion procedures counselling	10 (63)	8 (50)
First trimester aspiration abortion (<i>manual vacuum aspiration, electric vacuum aspiration</i>)	7 (44)	7 (44)
Medication abortion: Mifepristone/misoprostol regimen (<i>early abortion induced by mifepristone/RU-486 and misoprostol</i>)	8 (50)	5 (31)
Medication abortion: Methotrexate/misoprostol regimen (<i>early abortion induced by methotrexate and misoprostol</i>)	8 (50)	6 (38)
Medication abortion: Misoprostol-only regimen (<i>early abortion induced by misoprostol alone</i>)	9 (56)	6 (38)
Post-abortion care (<i>counseling, clinical management</i>)	10 (63)	8 (50)

Chapter Four: Article #2

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Could mifepristone be incorporated into nurse practitioner and midwifery education in Canada? A national study with program directors

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Abstract

Objective: Our study aimed to assess the barriers to implementing reproductive health content in nurse practitioner and midwifery programs and explored avenues for incorporating mifepristone into existing education in training, if the medication is approved by Health Canada.

Methods: In June 2014, we mailed surveys to program directors for each of the 32 accredited NP programs in Canada, subsequently in August 2014 we mailed surveys to program directors for each of the 7 accredited midwifery programs in Canada. Our analysis consisted of using descriptive statistics for closed-ended questions and inductive thematic analysis for open-ended questions

Results: Our study found that if the mifepristone/misoprostol regimen were introduced in Canada 50% of NP programs and 100% of midwifery programs would teach it didactically. We found that programs with ties to rural, remote, and northern communities were far more likely to support the inclusion of mifepristone into existing curricula. We also noted that programs with strong support from existing health care infrastructure were more likely to include mifepristone.

Conclusion: Overall NPs and midwives are critical providers of health services in rural and remote communities and thus it is imperative that these health service professionals are knowledgeable about full range of reproductive health options, including family planning and abortion

Keywords: Medication abortion, reproductive health, advanced practice clinicians, training

Implications

This study addresses the gap in knowledge surrounding NP and midwifery education in Canada, as well as addressing a wider gap in research surrounding abortion and more specifically medication abortion in Canada. This study also shows that advanced care practitioners such as NPs and midwives are interested in incorporating mifepristone into their existing curricula, which in combination with the current evidence based research may support the addition of NPs and midwives as providers of medication abortion.

Introduction

Abortion in Canada is one of the most common medical procedures, with approximately 100,000 abortions performed annually [1]. The overwhelming majority of abortion procedures take place in the first trimester with aspiration techniques; only a small percentage are done using the methotrexate/misoprostol regimen of medication abortion [1]. Although Canada decriminalized abortion in Canada since 1988, women face a multitude of barriers to accessing timely and affordable care, and there are significant provincial and rural-urban disparities in the distribution of providers [2,3]. Furthermore, the “greying” of existing abortion providing clinicians and the waning interest of medical students to pursue specialties that include abortion care has resulted in a shortage of providers, especially in non-urban centers [1,4].

Although Canada participated in the North American mifepristone clinical trials, as of early 2015, this gold standard medication abortion regimen was still not available in Canada [5]. A dossier to approve the registration of mifepristone was submitted to Health Canada in 2011 and is currently being reviewed [5]. That mifepristone is safe, effective, and acceptable to women and can be provided by a range of health service professionals has been well documented [6,7,8,9,10,11,12,13]. Advocates and reproductive health specialists anticipate that the approval will come through in the fall of 2015 [Personal communication, 2015 Canadian Abortion Providers’ annual meeting].

Incorporation of mifepristone into the Canadian abortion landscape holds a great deal of promise. Most importantly, both nurse practitioners (NPs) and midwives could potentially incorporate mifepristone into their respective scopes of practice, thereby increasing the number of abortion providers. As NPs are often the primary care providers in rural and remote communities [14], approval of mifepristone could greatly improve access to abortion care in historically underserved populations. However, for this promise to be realized, NPs and

midwives will need to be trained in the use of mifepristone for early pregnancy termination, through both continuing medical education efforts and existing training programs.

This is the context that motivated our study. In 2014, we conducted a survey of all NP and midwifery program directors in Canada. We aimed to both document existing curricular coverage of abortion and identify avenues by which mifepristone could be incorporated into routine didactic and clinical training of advanced practice clinicians once mifepristone is approved by Health Canada. In this paper, we focus specifically on the reports from program representatives about the barriers and facilitators to including mifepristone into education and training.

Methods

Study design and data collection

In the summer of 2014, we sent a bi-lingual survey (English-French) to the directors of all accredited NP programs (n=23) and midwifery programs (n=7) in Canada. We based our survey instrument on a 2006 study conducted by Foster et al. that investigated abortion education in nurse practitioner, physician assistant and certified nurse-midwifery programs in the United States [15]. Our survey explored 17 topical areas related to contraception, miscarriage management, ectopic pregnancy management, and abortion. We have described this survey in detail and provided descriptive results of our NP findings elsewhere [16]. In brief, our three contact mailed survey asked respondents to indicate the didactic and clinical coverage of the topics, the amount of time dedicated to each topical area, the reasons for lack of inclusion, if any, and the strengths of their existing programs. We dedicated the final section of the survey to the issue of mifepristone; we asked respondents to indicate their intention to include mifepristone in

both the didactic and clinical curricula if approved (closed questions) and reflect on barriers to and facilitators of the incorporation of mifepristone (free response questions). In this article, we specifically focus on this last section of the survey. Respondents received a \$5 gift certificate to Starbucks as a thank you for participating. We included all surveys returned by the end of 2014 in our analysis.

Data analysis

We imputed all responses to the closed-ended questions into an excel database, created specifically for this study. Given our small sample size, we used descriptive statistics to identify trends and difference across levels of the independent variables [17]. This included averages and frequencies. We inductively analyzed the responses to open-ended questions for content and themes. We included all surveys received by the end of the calendar year 2014 in our analysis.

Sample characteristics

Representatives from sixteen NP programs and two midwifery programs completed the survey, making the response rates 70% and 40% respectively. We received twelve NP surveys in English and four surveys in French. Both midwifery program surveys were completed in English. Respondents represented programs in nine provinces and one territory. We were not able to identify a pattern among the non-respondent programs.

Ethical considerations

We received approval to conduct this study from the University of Ottawa's Health Sciences and Sciences Research Ethics Board (File #H02-13-12). In the results section we quote from the

responses to the open-ended questions; we have removed or masked all identifying information about the programs but have otherwise left the text unaltered.

Results

Existing didactic and clinical coverage of abortion

Our findings indicate that existing abortion coverage is uneven and limited in both NP and midwifery programs. We provide details of the reported coverage in Table 1. Less than two-thirds of NP programs include a full range of abortion topics in the didactic curriculum, and less than half include a full range of abortion-related topics in the clinical curriculum. Five NP programs reported that no abortion topics are covered in the didactic curriculum, and five programs reported that no abortion topics are covered in the clinical curriculum. Medication abortion methods receive the least coverage in both the didactic and clinical curricula. For midwifery programs, respondents indicated that almost all topics related to abortion are covered in the didactic curriculum but neither program reported coverage of any abortion procedures in the clinical curriculum.

Intention to incorporate mifepristone into the curriculum, if approved

Table 2. Captures the intention of respondents with respect to didactic and clinical coverage of the mifepristone/misoprostol regimen. Half of the NP programs indicated that they would include mifepristone in their didactic education, and a third would include mifepristone in the clinical curriculum. Roughly a third of NP program representatives indicated that they were unsure about whether or not they would incorporate mifepristone into education and training. For

the midwifery programs both respondents indicated that their programs would teach mifepristone/misoprostol didactically and were unsure about clinical incorporation.

Scope of practice considerations

We asked respondents to indicate their reasons for choosing to include or exclude mifepristone/misoprostol in their didactic and clinical curricula. One of the main themes that emerged in the free response section of the survey is scope of practice. Those programs that stated that they would include mifepristone didactically felt that early medication abortion fell into NPs' and midwives' practice. This was particularly relevant for programs that identified themselves as servicing more northern, remote, or rural populations, and there was overwhelming support for including the mifepristone/misoprostol regimen. One respondent stated "our NPs work to full scope in the NWT [Northwest Territories] many work in rural and remote areas and this would be a very cost-effective and safe way to offer options to our northern women."

Participants who were unsure about future inclusion also raised the scope of practice issues. Respondents expressed their support for the teaching of mifepristone but were hesitant due to the inability to predict whether or not the provision of mifepristone would be part of their scope of practice. One respondent stated; "It would likely depend if this was included in midwifery Scope of Practice."

Those who indicated that their programs would not include mifepristone/misoprostol into the didactic and/or clinical curriculum cited that because their NP programs were dedicated to primary care, women's health was not the focus. This was especially true for clinical education. Respondents stated that while they would teach didactically in order to provide their students

with the necessary knowledge they would not teach mifepristone clinically because they did not anticipate that mifepristone would become a part of their scope of practice, even if approved by Health Canada.

Health care infrastructure considerations

Respondents touched on the notion of existing health care infrastructure as being an important variable in their decision-making regarding the incorporation of mifepristone into education and training. Respondents noted support from clinicians, especially Ob/Gyns, was an important consideration. One respondent stated “We have an Ob/Gyn department with a full-time NP on staff who are very supportive of NP practice, we would have the resources to develop an education program for these procedures and the clinical placement for our students.”

Conversely, respondents who indicated that they were unsure or did not intend to incorporate mifepristone into education and training reported that lack of support from existing health care providers as well as the lack of guaranteed clinical space influenced that decision. Individual programs stated that they would need to partner with a professional association in order to have the structural support to incorporate this regimen into their existing curricula and would also need to secure facilities in order to teach clinically. Finally, one respondent indicated that opposition and misinformation among local physicians would undermine the ability of her/his program to incorporate mifepristone. The respondent stated; “...I am told it is seldom successful/without complications and women often end up septic and/or with a D&C. If specialists are not comfortable with it I am not sure I feel this treatment should be offered in primary health care – I would have to research this more before I could be more certain.”

Discussion

As of 2012, mifepristone was registered in 57 countries [13] and since its introduction in France and China has been used by more than forty million women worldwide [10, 11,12,13]. Mifepristone has been available in the United States since 2000 and over the last 15 years more than two million women have used this method of early pregnancy termination. Health Canada has been reviewing the mifepristone dossier for nearly four years, making this the longest deliberation on a medication in the history of the institution [18]. However, the overwhelming body of evidence from around the globe indicates that mifepristone is safe, effective, acceptable, and cost-effective. Based on this evidence the approval of mifepristone is widely anticipated.

Providing women with more options with respect to abortion procedures is of considerable importance. Studies from a multitude of countries indicate that some women prefer medication abortion, describing the process as more natural and the lack of instrumentation as desirable [7,8,9,10,11,12,13]. From a reproductive justice standpoint, increasing women's options and providing women with a full range of safe and effective alternatives is important.

Mifepristone also has the potential to dramatically decrease the geographic disparities in abortion access that characterize the Canadian context. The patchwork of provincial regulations, the concentration of providers near the Canada-US border, the lack of freestanding abortion clinics in Canada's territories, and the absence of any providers in Prince Edward Island create differential financial and psycho-social burdens on women seeking abortion care [2, 19]. Recent studies have suggested that these barriers are pushing women to have abortions at later gestational ages and shape women's experiences of disclosure [3]. That mifepristone can be successfully provided by a range of clinicians and can be offered via telemedicine could dramatically alter the current reality [7].

However, for the promise of mifepristone to be realized, medication abortion would need to be incorporated into the services provided by clinicians who are not currently offering abortion care. Indeed, incorporating mifepristone into the primary reproductive health services delivered by NPs and midwives has the potential to greatly expand the pool and distribution of providers. This can only occur if advanced practice clinicians receive education and training about mifepristone.

Our findings suggest that there is the potential for mifepristone to be incorporated into both the didactic and clinical training of NPs and midwives in Canada. Fully half of the NP program respondents and both midwifery program respondents indicated an intention to incorporate mifepristone into didactic education if approved by Health Canada. Only 13% of all NP respondents and neither of the midwifery respondents indicated that their programs would definitively not include didactic information about mifepristone. Developing and distributing open access evidence-based modules targeted toward advanced practice clinicians could facilitate this process if and when mifepristone is introduced. Further, identifying ways for “early adopters” to share their experiences with other programs could facilitate didactic curricular incorporation.

However, responses to the question of clinical incorporation was decidedly more mixed, as respondents had questions about scope of practice and concerns about not having supportive clinicians or appropriate facilities in which to train student NP and student midwives. In Canada, both NPs and midwives can prescribe medications [20, 21]. Further, advanced practice clinicians are already currently incorporated into abortion care. Nurses are already part of current abortion provision and are often the first point of contact a woman encounters when she has an unintended pregnancy [20]. Moreover, NPs and midwives often work in rural, remote, and

northern communities where access to physicians is limited and are trained to offer culturally sensitive care [26]. A body of research shows that advanced practice clinicians are capable of performing safe and effective first-trimester abortion care [7, 22, 23]. In 2003, the WHO safe abortion guidelines recommended that abortion care be provided at the lowest appropriate level of the health care system [24].

This suggests mifepristone, if approved, would fall under the scope of practice of both types of clinicians. But until Health Canada announces its decision there is uncertainty as to whether or not advanced practice clinicians will be able to be directly involved in medication abortion provision. In the event that Health Canada places non-evidence-based restrictions on mifepristone such that advanced practice clinicians are precluded from providing the service, rapid response studies designed to evaluate the feasibility, acceptability, and efficacy of different service delivery models would be warranted.

Responding to respondents' concerns about the lack of physician support and facilities for placement is critical. This finding is consistent with studies in the United States that have examined the barriers to inclusion of medication abortion in family residency programs [15] and advanced practice clinician training [25]. Identifying innovative models to bring expert clinicians to individual program sites and creating opportunities for advanced practice clinicians to receive training at external high volume providing facilities could address this barrier.

Finally, our findings suggest that programs with strong ties to northern, rural, or remote communities evinced greater support for incorporating mifepristone into the curriculum. These respondents explained that their programs had the responsibility to provide all options to women in locations where other service provision is very limited. Respondents often expressed a perception that practitioners in these settings have a much broader range of practice than their

urban counterparts and thus need to have more expansive education and training. Capitalizing on this dynamic and prioritizing the incorporation of mifepristone into these programs could be a worthwhile effort.

Limitations

Our study had several limitations. The first involves the issue of the consortia. Per the advice of individual program directors, we invited the directors of the consortia to complete the survey on behalf of all consortia programs. However, it is inevitable that there are differences among consortia members, and thus we were not able to capture this nuance in our survey. The relative low response rate of midwifery programs also limits the generalizability of our findings. Another limitation of this study is that it is difficult to measure the level of clinical inclusion of topics. Clinical experiences are varied and depend on placement, patients, and preceptors. Programs have limited control over what students will experience once a clinical placement commences. Thus, reports regarding clinical inclusion of a topic are based on expectations, and likely include didactic instruction, observation, and clinical practice. Finally, social desirability bias is likely at play. Although we tried to mitigate this bias by ensuring confidentiality and masking program identifiers, respondents may have overestimated the level of inclusion of reproductive health topics and their intention to incorporate mifepristone in their curricula.

Conclusion

Nurse practitioners and midwives are essential providers of health services, especially in rural and remote communities. It is imperative that these health service professionals are knowledgeable about the full range of reproductive health options, including abortion.

Identifying ways to facilitate the incorporation of mifepristone, if approved, into the education and training of advanced practice clinicians and responding to the concerns expressed by representatives of NP and midwifery programs, is critical to expanding access to abortion care in Canada.

Table 1: Abortion coverage in NP programs (N=16) & midwifery programs (N=2)

Topic	NP programs		Midwifery programs	
	Didactic education n (%)	Clinical education n (%)	Didactic education n (%)	Clinical education n (%)
Pregnancy options counselling (for unintended pregnancy)	13(81)	9 (56)	1 (50)	1 (50)
Ethical issues in abortion care	10 (63)	7 (44)	2 (100)	1 (50)
Abortion procedures counselling	10 (63)	8 (50)	2 (100)	0 (0)
First trimester aspiration abortion (manual vacuum aspiration, electric vacuum aspiration)	7 (44)	7 (44)	2 (100)	0 (0)
Medication abortion: Mifepristone/misoprostol regimen (early abortion induced by mifepristone/RU-486 and misoprostol)	8 (50)	5 (31)	2 (100)	0 (0)
Medication abortion: Methotrexate/misoprostol regimen (early abortion induced by methotrexate and misoprostol)	8 (50)	6 (38)	2 (100)	0 (0)
Medication abortion: Misoprostol-only regimen (early abortion induced by misoprostol alone)	9 (56)	6 (38)	2 (100)	0 (0)
Post-abortion care (counseling, clinical management)	10 (63)	8 (50)	2 (100)	0 (0)

Table 2: Intention to include mifepristone, if approved, in NP & midwifery programs

	NP programs (N=16)		Midwifery programs (N=2)	
	Didactic Education n (%)	Clinical Education n (%)	Didactic Education n (%)	Clinical Education n (%)
Yes	8 (50)	5 (31)	2 (100)	0 (0)
No	2 (13)	5 (31)	0 (0)	0 (0)
Unsure	5 (31)	6 (38)	0 (0)	2 (100)
No response	1 (6)	0 (0)	0 (0)	0 (0)

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Chapter Five: Discussion

The final chapter of my thesis begins with a discussion of how the two manuscripts presented relate to one another. After that I include a section that addresses how some of the issues presented in my thesis relate more broadly to the issues surrounding abortion in Canada. Next the section contains information about the significance and implications of the thesis and is followed by a limitations section. I conclude with a statement of contribution for the thesis and a conclusion.

Integration of the Results

Larger themes emerge when examining both manuscripts together. The central theme is that there is a marked lack of abortion education within both the existing NP and midwifery program curricula. This lack of abortion education is variable based on issues such as NP versus midwifery programs, didactic versus clinical education and in rural, remote and northern programs. All of these factors will be addressed in this section of the discussion.

The Role of Nurse Practitioners and Midwives

Overall, NP and midwifery programs both showed a high level of didactic education in women's reproductive health topics such as contraceptive counseling, natural family planning methods, barrier, hormonal, long-acting reversible, sterilization, and emergency contraceptive methods, and management of ectopic pregnancy and spontaneous abortion. Although we only collected information about two of the midwifery programs, for all health topics listed midwifery programs showed consistently higher levels of didactic education than their NP counterparts. Conversely for clinical education NP programs were the ones who taught all reproductive health

topics and a higher rate than midwifery programs. This highlights some of the variation within the current scope of practice between nurse practitioners and midwives. While both groups of practitioners have prescribing privileges it is nurse practitioners who are part of the current framework of abortion provision (Kishen & Stedman 2010).

When it came to the introduction of mifepristone into existing curricula, both midwifery programs indicated that they would incorporate this new content into their programs. In contrast, only half of NP program respondents affirmed that they would incorporate mifepristone into their curricula. Again this was reversed when we looked at clinical education. Thirty one percent of NP respondents said that they were sure they would teach mifepristone clinically in the event it became available in Canada, while none of the midwifery programs responded asserted that they would include medication in clinical teaching.

The results of our study are mirrored in the limited amount of literature available in the United States on the topic of NPs' and midwives' abortion education. In 2003 a study was conducted looking at the personal characteristics, beliefs and clinical practices of California NPs, physician assistants, and midwives. One quarter of respondents desired training in medication abortion. A study done by Foster et al. (2006) looking at NP and certified nurse midwifery programs in the United States also showed that there was a discrepancy between NP and midwives in terms of education. This study found that midwifery programs were more likely to teach reproductive health topics and abortion both didactically and clinically than their NP counterparts (Foster et al. 2006)

Didactic vs. Clinical Education

In both NP and midwifery programs there were much higher rates of reported didactic education for all reproductive health issues. For example, 94% of NP respondents (n=15) reported didactic inclusion of the management of spontaneous abortion whereas just over half reported clinical inclusion. This finding held for the midwifery programs; both programs reporting that teach long acting contraceptive methods didactically and neither program reported inclusion of medication in the clinical curriculum.

With the potential inclusion of mifepristone we see a higher rate of anticipated didactic inclusion in comparison to clinical inclusion. Fifty percent of NP programs are willing to teach didactically while only thirty-one percent would teach clinically. The same trend is noted with the midwifery programs. Both programs would teach didactically but were unsure about whether or not they would teach clinically. There are unique challenges to incorporating material into clinical education that are not present with didactic education, such as finding appropriate facilities and clinical instructors. It was these challenges that made both NP and midwifery programs hesitant to incorporate mifepristone into their existing clinical curricula.

Similar studies have also shown differences between didactic and clinical education. One study looking at family residency training programs in the United States found that some of the main challenges to the inclusion of abortion education were time constraints given an already packed program as well as difficulties in finding suitable training sites (Bennett et al. 2006). Furthermore, a study that looked at California practitioners' interest in providing medication abortion found that lack of training opportunities, legal uncertainties and clinical facility constraints were the most frequently reported perceived barriers to provision of medication abortion (Hwang et al. 2005)

Rural, Remote and Northern Programs

Our study had responses from programs throughout Canada, and one of the notable trends was how programs that were located geographically in more rural, remote or northern locations, or who catered to more rural, remote or northern communities appear to have stronger and more comprehensive inclusion of abortion-related topics. While it is impossible to tell if this was a significant finding due to the small sample size this was noteworthy. This difference in education extended to the questions about the potential to incorporate mifepristone into existing curricula. NP and midwifery programs that served rural, remote and northern communities were more in favor of the inclusion of mifepristone into the existing curriculum than their urban counterparts. One respondent put it succinctly when he/she described how the program caters to individuals who live in the geographic north and therefore their practitioners must have a wider scope of practice in order to meet the needs of that community. This is particularly of interest as currently abortion clinics are centered in urban areas and it is often women in these rural, remote or northern settings who must bear an economic and personal burden in order to travel to access services (Eggertson 2001). This increased level of abortion education and interest in adding potential new technologies to existing education suggests that providers are currently seeking ways to fill in the gaps in the current system and are further interested in continuing to provide that necessary care to the women they serve.

One of the few Canadian studies done on medication abortion education looked at family medicine residents and physicians. This study was a self-administered mailed survey to family medicine residents in Hamilton and Thunder Bay. This study found that rural providers were less likely to support the use of medication abortion. While this result somewhat contradicts the findings of our study there are multiple differences between this study and our study that could

account for this difference. First and foremost the study population of this study is family medicine residents, while our study addresses NP and midwives. Furthermore, this study was conducted in 2002, which is twelve years prior to our study; attitudes towards mifepristone could have certainly changed within a decade (Raymond et al. 2002).

The Role of Abortion Education

The results from our study show that there is a noticeable deficit when it comes to abortion education in both NP and midwifery programs. While certain women's reproductive health issues such as contraceptive counseling, natural family planning methods, barrier methods of contraception, hormonal methods of contraception, long-acting reversible contraceptive methods, management of ectopic pregnancy, and spontaneous abortion, receive almost universal didactic coverage, there were fewer programs that tackled abortion-related content in their didactic and/or clinical curricula. Furthermore, one of the primary reasons stated for this lack of inclusion is that abortion-related content is not a curricular priority. Literature on NP and midwifery training in the United States mirrors our results (Foster et al. 2006). This is a sentiment that is also consistent with the literature involving physicians in Canada. Studies performed on undergraduate medical education and residency programs consistently show deficiencies in routine abortion education and training that is often ascribed to curricular priorities (Raymond et al. 2002; Cessford & Norman 2011).

This indifference towards abortion is problematic in the larger scheme of abortion rights within Canada. The current framework for abortion care is failing women; women face barriers to access that include long travel times, high out-of-pocket costs, long wait times for services, and regional disparities in the types of procedures that are offered (Sabourin & Burnett, 2010)

Furthermore, there has been a steady decrease in the number of individuals who are willing to specialize in abortion care. One of the primary reasons for this is the lack of abortion education in preclinical and clinical medical education (Raymond et al. 2002; O'Connell et al. 2009). The results of our study add to the distressing notion that the situation in Canada regarding poor abortion care stems from the education system. This makes it especially important to both learn about the education that practitioners are receiving as well as identify avenues to improve the current system.

Education is cyclical in nature; often individuals who learn about women's health issues go on to practice in those health issues and then become a part of system infrastructure that helps with the education of the next generation. This was one of the key findings of our study. Having the support of physicians and other clinicians who were willing to help with the education of students made program directors more likely to include content around women's health as well as more likely to include new content to their curricula such as mifepristone. This is not a finding unique to our study. Many studies looking at medication abortion in particular and abortion education in general showed the need for a strong support structure. Similar to our study, a study done by Bennett et al., (2006) also found that respondents were more likely to support medication abortion education if existing health care providers such as family physicians and Ob/Gyns were involved and supportive of educating advanced health care practitioners. In our study one we found that without physicians or other clinicians to support the education of NPs and midwives the programs had challenges incorporating women's reproductive health in general but more specifically abortion and mifepristone. Moreover, respondents indicated that they were uncertain about teaching about mifepristone because they harbored some misconceptions about its efficacy and believed that it caused sepsis. Ultimately, this

misinformation and lack of information could be a factor in preventing students from taking up abortion care as their specialty and thus perpetuating the continued decline in the accessibility of safe and effective abortion services throughout Canada.

Another important facet of abortion education is that schools have a unique opportunity to create greater social change by teaching their students about unique and innovative medical technologies. Fifty percent of NP programs teach about mifepristone/misoprostol didactically even though the medication is not already within Canada. Both of the midwifery programs teach about the medication didactically even though it is not in Canada. While this may be the result of a response bias within the study it also potentially indicates that programs are interested in furthering their students' education.

Lastly by educating NPs and midwives on abortion care we have the potential to increase the number of individuals who are interested in abortion provision. Our study showed that the majority of NP and midwifery programs were interested in the inclusion of mifepristone didactically within their curricula and that one of their major hesitations for clinical education was the uncertainty of whether the provision of this medication would fall within their scope of practice. Programs, especially in rural, remote and northern settings, were eager to potentially add mifepristone to their existing didactic curricula because they believed in providing women with all of their potential reproductive health options and felt that it was the job of NPs and midwives in these communities to provide full scope of care for their patients. Research shows that in situations where mifepristone does fall within NP and midwifery scope of practice this is a cost effective and efficient way to provide early pregnancy termination (WHO 2012; Fjerstad et al. 2009). Furthermore, it has been shown that these mid-level practitioners are capable of providing safe and effective care (Clark et al. 2007; Yarnall, Swica & Winikoff 2009; Leeman et

al. 2007). Therefore, the education of NP and midwives has the potential to address a system where there is a decrease in providing physicians as well as allow for a more fluid abortion provision framework where early pregnancy terminations can happen at any clinic or within the homes of the women who are taking the pills.

Significance, Implications and Future Plans

Prior to this thesis we had no published information on the reproductive health and abortion content of NP and midwifery programs in Canada. There is also a major gap in the literature on medication abortion in Canada specifically within the context of the education of health care providers. This gap is even more prominent when addressing advanced practice clinicians such as NPs and midwives. The information we collected can be used by program directors in order to inform the inclusion of reproductive health and abortion content. We hope that these results help expand NP and midwifery programs' commitment to teaching reproductive health and abortion. This study is also especially timely as a dossier on mifepristone now sits within Health Canada. There is potential that this study can be used as further evidence for bringing mifepristone to market as well as potentially informing what happens to mifepristone in the event of a rollout.

One of the outcomes of this study is a report that will be shared with program directors. Our hope is that program directors will take this information and use it to potentially improve the level of incorporation of women's reproductive health issues, especially issues such as abortion, in their existing didactic and clinical curriculum. We hope that these results show that there is the potential for the inclusion of NP and midwives into the abortion provision framework through the use of medication abortion.

Limitations

Our study suffered from several limitations. The first surrounds the nature of programs in Ontario. Originally we sent out surveys to all programs within Ontario. It was only later that it was determined that Ontario NP programs function as a consortium and thus all curricula are standardized. We had one individual respond to address the entire nine programs involved in the consortium. While we did receive one survey discussing some of the exceptions to the consortium, we were told by the majority of program directors within the consortium to contact only one program director in the consortium for the information regarding all nine programs. Further work could be done to tease out some potential differences within these nine programs.

Another limitation to the study is that it is difficult to measure the level of clinical inclusion of topics. Clinical experience of students often varies – by facility/site, preceptor, and patients – and programs have limited control in what their students will experience once placed in a hospital or clinic setting. Thus reports of levels of clinical inclusion are often an estimate of what students are experiencing in their clinical courses.

Finally a limitation to our study was the possibility of bias in the responses. While we tried to limit the level of reporting bias assuring participants that their responses would be held in confidence and asking respondents to report on levels of curricular inclusion for the previous academic year, social desirability bias is such that program directors may have overestimated the level of inclusion of reproductive health topics.

Statement of Contribution

As the Study Coordinator, I completed this study in partial fulfillment of the requirements for the Master of Science in Interdisciplinary Health Sciences Program at the University of

Ottawa. As the Study Coordinator I was responsible for working with the team to conceptualize the study, sending out the survey content, collecting and analyzing the data. I also led the development of both manuscripts.

Grady Arnott and Julie El-Haddad also contributed to this project. They were responsible for the generation of the database of NP program directors that was used throughout this study. Both Grady and Julie under the guidance of Dr. Foster were responsible for the creation of the study materials, the translation of the materials into French and for putting together the REB application.

Dr. Foster served as the PI for the project and was responsible for all components of the project, including study design, implementation, analysis, and dissemination. She supervised the study team throughout the process.

Conclusion

Our results reveal that abortion care education is deficient in NP programs in the Canada. With abortion being such a common medical procedure, access to services being highly variable across the country, and the potential introduction of a new medication abortion method, it is important to study whether health care providers such as NPs and midwives are learning about abortion and other reproductive health issues. With NPs having prescribing privileges and often serving as primary care providers in rural and remote communities it is imperative that NPs be knowledgeable about the full range of reproductive health options, including family planning and abortion. Identifying ways to facilitate the incorporation of abortion-related topics into routine NP and midwifery didactic and clinical education appears warranted.

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Appendix A: REB approval letter

File Number: H02-13-12

Date (mm/dd/yyyy): 04/30/2014



Université d'Ottawa **University of Ottawa**
Bureau d'éthique de d'intégrité de la recherche Office of Research Ethics and Integrity

Ethics Approval Notice **Health Sciences and Science REB**

Principal Investigator / Supervisor / Co-investigator(s) / Student(s)

<u>First Name</u>	<u>Last Name</u>	<u>Affiliation</u>	<u>Role</u>
Angel	Foster	Health Sciences / Others	Principal Investigator
Lindsay	Sheinfeld	Health Sciences / Others	Project Coordinator

File Number: H02-13-12

Type of Project: Professor

Title: Assessing the contraception and abortion content of Nurse Practitioner programs in Canada: A survey of program directors

Renewal Date (mm/dd/yyyy)	Expiry Date (mm/dd/yyyy)	Approval Type
03/04/2014	03/03/2015	Ia

(Ia: Approval, Ib: Approval for initial stage only)

Special Conditions / Comments:
N/A

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