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# Executive Summary

## Introduction

This executive summary describes:

- Background to the introduction of primary health care Nurse Practitioners (NPs) in the province of Ontario;
- Objectives of the Primary Health Care NP Integration Study;
- Data collection methods and analytic framework;
- Synthesis of key findings; and
- Recommendations based on the findings.

## Background

In Ontario, the term NP is used interchangeably to describe a number of advanced practice nursing roles, such as primary health care NPs and acute care NPs. In this report, the term NP refers specifically to primary health care NPs who are registered in the extended class (RN[EC]) with the College of Nurses of Ontario.

In 1998, the *Expanded Nursing Services for Patients Act* amended the Regulated Health Professions Act and Nursing Act (as well as other legislation) to provide NPs in the province of Ontario with an expanded scope of practice. With these amendments, NPs registered in the College of Nurses' "extended class" have the authority to communicate a diagnosis, order specified tests such as diagnostic ultrasound or x-rays, order electrocardiograms in non-acute circumstances, prescribe and administer specified drugs and order specified laboratory tests. Pursuant to the *Expanded Nursing Services for Patients Act*, the College of Nurses of Ontario regulates the NP scope of practice.

Since 1998, 402 NP positions have been funded by the Ontario Ministry of Health and Long-Term Care (MoHLTC) in Community Health Centres, the Underserviced Area Program, long-term care facilities, Aboriginal Health Access Centres, Primary Care Networks and Public Health Units. The following are the major funding initiatives related to these positions:

- 1998 – 22.5 new positions were created in Community Health Centres and 90.5 nursing positions in Community Health Centres and Aboriginal Health Access Centres were upgraded to NP positions;
- 1999 - 107 positions were created in the Underserviced Area Program, Aboriginal Health Access Centres, long-term care facilities and Primary Care Networks;
- 2000 - 5 positions were created in Public Health Units in the Cervical Cancer Screening Program;
- 2001 -10 positions were created in Public Health Units in the Early Childhood Development Pre and Post Natal Program;
- 2002 – 20 positions were created for demonstration projects in communities that have limited access to family physicians; and

- 2002 – funding for 117 positions in underserviced communities was announced.

In addition to these major funding initiatives, 30 NP positions have been funded since 1998 in Community Health Centres and Health Service Organizations.

The MoHLTC is committed to creating an additional 348 NP positions over the next three years. In addition, the government invests $1.7 million annually for the NP education program.

## Objectives of the Study

The primary focus of the Primary Health Care NP Integration Study was to determine how best to integrate primary health care NPs into Ontario's health care system and specifically into various practice settings. The key questions to be answered by the study were:

1. What barriers must be overcome and what facilitators must be encouraged to further integrate NPs into specific practice settings?
2. What can be learned about the practice models in which NPs function; specifically, which models do not work well and why and which models work best to support integration of NPs?

## Data Collection Methods and Analytic Framework

### Data Collection Methods

We utilized the following data collection methods:

#### *Literature Review*

A literature review focused on the NP role, practice models and settings, as well as barriers and facilitators for integration of NPs into the primary health care setting. Our focus was on the experience with NPs in Ontario. We also looked at a small number of articles from other provinces across Canada, as well as the United States and United Kingdom.

***NP Survey***

A comprehensive mail-in survey was developed that asked questions related to NP demographics, workplace activities and satisfaction. The survey included two scales widely used in studies of NPs: the Misener NP Job Satisfaction scale[1] and the Jones and Way Scale for Collaboration[2]. The survey was pretested prior to its administration. The sample was drawn from a list obtained from the Ontario College of Nurses of all nurses with the designation RN(EC) (N=476) in 2002.

The response rate for the NP survey was 77%, representing 365 completed surveys. Given the research focus on practising primary health care NPs in Ontario, a detailed analysis was conducted on the 253 NPs who met the study requirements while descriptors were provided on 54 non-practising NPs. The remaining NP surveys were not included in the analysis as they were comprised of NPs working outside of Ontario and those identified as NP educators.

***Physician Survey A (physicians working with an NP)***

A mail-in survey for physicians who worked with NPs was developed. These physicians were identified through a combination of methods including telephone calls to sites with funded NP positions to obtain names of MDs who worked with NPs. We asked physicians questions related to demographics and practice activities. In addition, we asked physicians similar questions to the NP survey related to satisfaction, as well as facilitators and barriers to integration of NPs. The survey was pre-tested prior to its administration. Just over 500 surveys were distributed to physicians.

As the total population of physicians who work with NPs could not be identified, we could not calculate a response rate. Based on the Janus 2001 National Family Physicians Workforce Survey,[3] approximately seven percent or 524 family physicians are estimated to work with NPs in Ontario. We received 225 completed physician surveys indicating that the results represent approximately 43% of the total population of MDs working with NPs.

***Physician Survey B (physicians not working with an NP)***

A mail-in survey for physicians who were not currently working with NPs was developed. A mailing list of all family physicians in Ontario was obtained from the Ontario College of Family Physicians. A stratified (by region) random sample of 1600 physicians was drawn from this mailing list in an attempt to achieve regional representation. We asked these physicians questions related to demographics and practice

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[1] T.R. Misener and D.L. Cox, "Development of the Misener Nurse Practitioner Job Satisfaction Scale" (2001) Journal of Nursing Measurement 9 (1): 91-108.

[2] D. Way, L. Jones and N. Baskerville, "Improving the effectiveness of primary health care through NP/family physician structured collaborative practice", Final Report, University of Ottawa, March 31, 2001 (unpublished).

[3] 2001 National Family Physician Workforce Survey, Janus Project, Nurse Practitioners and Ontario Family Physicians, March 31, 2003.

activities. In addition, we asked physicians if they had worked with an NP in the past and if they would work with an NP in the future. The survey was pre-tested prior to its administration.

We received 492 completed physician surveys indicating that the results represent approximately 31% of the study sample.

***Site Visits***

We visited 27 sites with funded NP positions in Ontario representing the following practice settings:

- Community Health Centres (CHCs);
- Long-term care facilities;
- Aboriginal Health Access Centres and Health Centres (AHAC);
- Primary Care Networks (PCNs);
- Health Service Organizations (HSOs);
- Emergency department, hospital outpatient and other clinics;
- Fee-for-service (FFS) physician practices;
- Public health units;
- Victorian Order of Nurses (VON);
- Community Care Access Centres (CCACs); and
- Other community agencies.

The purpose of the site visits was to gain a better understanding of the practice models employed in the various settings and the factors that contributed to making these models work effectively. Interview guides were developed to assist with qualitative data collection at each site.

All site visits included interviews with the NPs, physician and other members of the health team, where available, such as managers, registered nurses (RNs), social workers and health educators.

***Patient Survey***

A survey for patients related to their experience with NPs and satisfaction with NP services was developed. Patient surveys were distributed to a sample of patients who saw NPs over a two week period at the sites we visited.

The patient survey was pre-tested with five patients who had seen an NP. We received 260 completed surveys from patients.

***Population-based Survey* (Health*Insider*)**

IBM Business Consulting Services' National Survey Centre in Ottawa administered a survey to 428 Ontarians 15 years and older about their knowledge, use and satisfaction with NP services.

## Analytic Framework

The study was constructed based on practice dimensions that describe aspects of practice models and integration domains that were used to measure integration. Given the wealth of information collected in the surveys, a detailed analytical framework was developed to guide the data analysis. The analytical framework details the level of analyses by survey (NP, MD, patient and Ontario citizens) and the working hypotheses.

The analysis plan included basic statistics such as frequencies and cross-tabulations on the survey data, as well as selected multivariate statistical techniques to better understand the relationships among variables. The results of this analysis provided us with information on the similarities and differences between survey respondents and identified significant relationships among variables. The site visit findings were assessed and reported in a descriptive form based on the identified dimensions of practice models.

A project working group developed an analysis plan and identified the integration domains (outcome variables). Based on the literature and other information sources, we analyzed relationships among selected variables related to NP implementation and integration. The relationship among these variables was assessed based on:

- Identified measures of NP integration (outcome variables) e.g., satisfaction; and
- Identified factors that influence integration (explanatory variables) e.g., barriers and facilitators.

Variables were grouped into domains to allow the exploration of relationships between various factors in a methodical manner. The integration domains identified were as follows:

- NP role within the practice setting;
- External influences impacting the extent to which the NP is able to provide patient care within the scope of practice;
- NP role in decision making;
- NP workplace satisfaction; and
- Collaboration and team dynamics.

Factors that impact integration in terms of its relationship to practice models and barriers and facilitators were identified to answer the study's two research questions. Under each domain, a number of key comparisons were conducted through cross-tabulations and pairwise significance tests on selected indicators of integration.

Explanatory (predictor) variables were identified such as: demographics; practice model dimensions; length of time in practice; role characteristics; payment type; patient numbers and type; and hours worked per week. In addition, predictor variables specific to each integration domain were identified based on assessments by the working group and results from the exploratory statistical analysis. This enabled the analysts to isolate and examine the effect on integration of a combination of influences such as:

- Practice/Care Setting;
- Client Population;

- NP Scope and Responsibilities;
- Team Interaction;
- Organizational Characteristics;
- External Factors; and
- Employment Relationship.

Outcome (dependent) variables were also identified for each of the domains. For all integration domains, with the exception of external influences, the dependent variables were created using factor analysis.

Where the findings were deemed valid and meaningful, regression analysis was employed to evaluate the underlying relationships between factors and the relevant practice model dimensions.

Based on the results of the analyses described above, a matrix was developed to identify and summarize the measures and influencers of NP integration. The matrix synthesizes the factors that impact successful integration of NPs based upon the NP and physician survey results.

## Synthesis of Key Findings

In this section we set out our key findings from the data collection described above. We have divided the findings into the following themes:

- Practice Models;
- Shared Vision for the NP Role and Role Alignment;
- Role Definition and Clarity at the Practice Level;
- Team Dynamics;
- Resources;
- Scope of Practice Issues;
- Facilitators to Integration of Primary Health Care NPs into the Ontario Health Care System;
- Barriers to Integration of Primary Health Care NPs into the Ontario Health Care System;
- Other Findings; and
- Results of a Survey of the Public and Patients.

### Practice Models

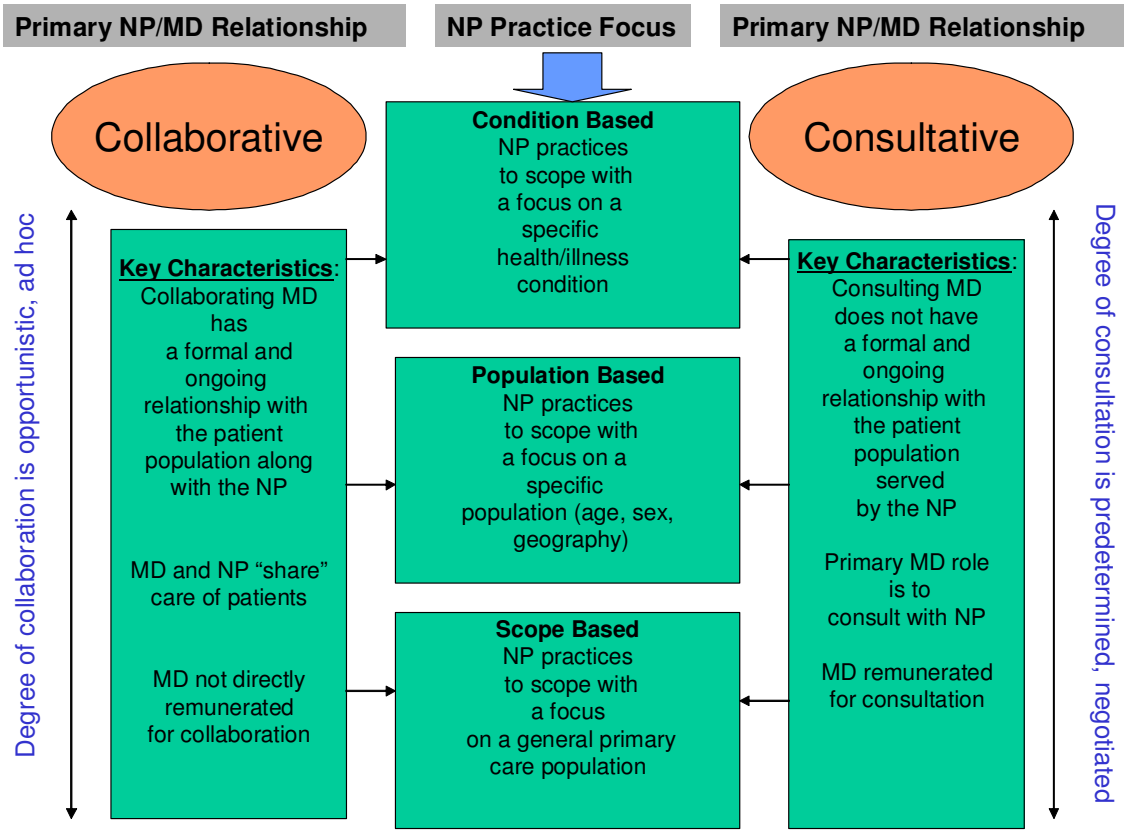
An important question for this study was to determine what could be learned about the practice models in which NPs function. To accomplish this objective, a taxonomy of practice models was developed using a four-step process. The first step was to explore the literature in relation to practice models. The second step described dimensions and associated elements of NP practice through a working group. In step three, site visit interviews assisted in clarifying dimensions of practice, identifying elements that contribute to functionality in practice and informing the development of a taxonomy of practice models. The fourth and final step was to synthesize this information into a framework.

Information gathered from the site visits indicated that there were two main structures for the MD/NP relationship – collaborative and consultative as described below. Within these two relationship structures, the focus of the NP practice was condition-based, population-based or scope-based. Thus, there were six possible practice models:

- Collaborative or Consultative – condition-based;
- Collaborative or Consultative – population-based; and
- Collaborative or Consultative – scope-based.

A schematic of the model is presented in Exhibit 1.

**Exhibit 1: Overview of practice model framework**




***Collaborative Approach***

The concept of collaborative practice was described in the literature as encompassing the "physician-nurse dyad working together in a joint effort toward a mission of excellent patient care" (Norsen et al.,

1995),[4] where "effectiveness is based on cooperation, assertiveness, responsibility, communication, mutuality, autonomy and coordination" (Norsen et al., 1995[5]; Way et al., 2001[6]; Siegler et al., 1994[7]). Additionally, collaborative practice is described as "joint communicating and decision-making while respecting the unique qualities and abilities of each professional" (Hanrahan 2001[8]). A collaborative approach is based on establishing a collegial relationship that evolves over time based on experience.

Our observations of collaborative practice in the selected sites visited included the following key features:

- Formal practice relationship between physician and patient;
- Formal relationship and responsibility between physician and NP;
- Physician not paid for supporting and consulting with NP;
- NP practices autonomously;
- Triage process often utilized to access NP;
- Referrals occur between physicians and NP and other members of the health care team; and
- Degree of collaboration most often on an ad hoc or opportunistic basis.

During the site visits, this type of practice model was seen in CHCs, fee-for-service settings, Primary Care Networks, a long-term care facility, VON, emergency departments, and an Aboriginal Health Access Centre.

***Consultative Approach***

Although many of the features of a collaborative approach could also apply in a consultative approach – for example cooperation and mutuality – there were some significant differences observed in consultative practices that warranted differentiating these practices from others. The key features of a consultative practice were:

- No formal ongoing practice relationship between the physician and patient. In some cases, the physician may not see these patients;
- Physicians reimbursed for consultation with NP;
- Patients most often see NP as the primary provider;
- No triage process to access the NP; and
- Consultation between the NP and MD most often pre-arranged, structured and negotiated.

In this model, the NP calls on the physician when required, but the physician does not have an established or ongoing relationship with the patient population or the organization. His or her primary

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[4] L. Norsen, J. Opalden, and J. Quinn, "Practice model, collaborative practice", (1995) Critical Care Nursing Clinics of North America, 7(1).

[5] L. Norsen, J. Opalden and J. Quinn, "Practice model, collaborative practice", (1995) Critical Care Nursing Clinics of North America, 7(1).

[6] D. Way, L. Jones and N. Baskerville, "Improving the effectiveness of primary health care through NP/family physician structured collaborative practice", Final Report, University of Ottawa, March 31, 2001 (unpublished).

[7] E. Siegler, F. Whitney, M. Schmitt, "Collaborative practice: research questions". In: Siegler, E., Whitney, F., (ed), *Nurse-Physician Collaboration: Care of Adults and the Elderly*, (NY: Springer 1994) 193-203.

[8] C. Hanrahan, C. Way, J. Housser and M. Applin, "The nature of the extended/expanded nursing role in Canada", Consultants: Centre for Nursing Studies and the Institute for the Advancement of Public Policy, Final Report, March 30, 2001, (unpublished).

relationship is with the NP. In consultative practice models, the physician receives a payment for the consultation advice provided.

During the site visits, this practice model was found in a fee-for-service setting, a long-term care facility, VON, Public Health Units, a Community Care Access Centre, Aboriginal Health Access Centres and community agencies.

***NP Practice Focus***

In addition to the nature of the MD and NP relationship, there were three major foci for the NP practice: condition-based, population-based or scope-based. In each of these practice models, the NP worked autonomously and consulted or collaborated with the physician in given circumstances.

With a condition-based focus, the NP practice was primarily based on a specific patient condition(s). Examples were practices where NPs only saw patients with congestive heart failure, diabetes, mental health issues or for chronic disease management.

With a population-based focus, the NP practice was primarily based on a specific type of patient population or geographic area. Examples of this practice were NPs who saw mainly teenagers, children, marginalized people or First Nations people.

With a scope-based focus, the NP primarily saw a broad-based primary care patient population and consulted or collaborated with the physician mainly with respect to issues beyond the NP's scope.

## Shared Vision for the NP Role and Role Alignment

During the site visits, we identified a shared "vision" for the practice as being an important factor in relation to successful integration of the NP. A shared vision encompasses common values, an understanding of mission and desired outcomes that are aligned with the NP role. Development of the vision for the NP included identifying community needs, assessing who could best meet those needs and educating the team and community about the roles NPs could play.

The shared vision can begin forming when an organization makes an application for a funded position for an NP. Obtaining funding for an NP requires that an organization:

- Identifies patient needs which can be filled by an NP; and
- Has an understanding of the scope of practice and contributions that an NP can provide.

Other factors that supported the development of shared vision included the length of time the NP had been a member of the health care team, the role of the NP in developing the vision, the extent to which there was an orientation for the NP, physicians and other staff with regard to the NP's role and the functioning of the interdisciplinary team.

## Role Definition and Clarity at the Practice Level

One of the most important facilitators to NP integration was the need to clearly define the NP role at the practice level. This includes the need to:

- Spend time identifying the client and patient needs that the NP is expected to meet;
- Ensure understanding of health care team members' practice styles and readiness for integrating the NP role;
- Identify the role of the NP in writing and circulate and discuss it widely to obtain buy-in to the position and facilitate education about the role;
- Develop guidelines and a position description to govern the role and practice of the NP and distribute it to members of the interdisciplinary team; it is important that there is an understanding of what the NP can and cannot do; and
- Allow the NP time to establish rapport with physicians and other members of the health care team to become familiar with each other's practice style.

Thirty-one percent (31%) of primary health care NPs identified that they were not involved in developing their position/job description (Exhibit 35). Those involved in developing the position were more likely to identify higher levels of satisfaction with scope of practice within the practice setting, their role in the decision making process and collaboration and team dynamics within the practice setting.

Whether or not the NP's current role was clearly defined was a predictor of integration on all domains (i.e., scope of practice, external influences, NP's role in decision making, NP workplace satisfaction and collaboration and team dynamics). Those NPs who identified that their role was clearly defined indicated higher satisfaction rates on all domains. In addition, those NPs with clearly defined roles also indicated that both the physician and NP are less likely to express concern regarding NP scope of practice and/or liability. With roughly one in five NPs identifying that their role is not clearly defined, this could have significant impact on NP integration.

The NP survey found that 80% of NPs identified that their role is clearly defined (Exhibit 35). In addition, NPs whose roles were clearly defined are more likely to:

- Work within their full scope of practice (85% vs. 65%) (Exhibit 61);
- Not be limited to certain types of patients (22% with clearly defined roles vs. 46% with poorly defined roles) (Exhibit 61); and
- Spend more time on clinical work and less on non-clinical and clerical work.

Those NPs who identified the narrowness of their role as a barrier to their ability to fulfill their NP role were less likely to be satisfied with their scope of practice within the practice setting and with their role in the decision-making process.

On average, 44% of primary health care NPs are the primary care provider for their patients. However, there was significant variation in NP responses with a range from 0 to 100%. Slightly more than one-

quarter of NPs indicated that their practice is limited to specific patient populations. Fifty-one percent (51%) stated that the patient population is their chosen area of their specialty (Exhibit 22).

"Patients referred from outside the practice setting" was the least frequent option identified by NPs for method of patient assignment. The analysis showed that in comparison to other methods (i.e., patient books appointment specifically with NP, referral from colleagues within the setting, receptionist assigns patient, referral from another setting, triage), those primary health care NPs who were assigned patients from outside the practice setting were more likely to work within their full scope of practice. Further qualitative research should investigate reasons why this relationship is occurring.

Being able to deliver care in the way the NP likes was also a predictor of many of the integration domains. Three-quarters of NPs identified that they deliver care in the way they like (Exhibit 23). This was associated with higher satisfaction rates on the NP's role in the decision-making process and collaboration and team dynamics. NPs who provide care the way they like are also more likely to work within their full scope of practice and less likely to have identified concerns regarding their liability. Sixty-two percent (62%) of NPs indicated that the most positive aspect of their job is the autonomy (Exhibit 54). Another 23% of NPs identified that limited autonomy is one of the most negative aspects of their job (Exhibit 53).

On average, primary health care NPs spend 73% of their time on clinical activities (Exhibit 24). However, there was variation in the response to this question with the percentage of time spent on clinical activities ranging from 19 to 100% (Exhibit 24). The analysis suggests that those NPs who spend a greater percentage of time on clinical duties are more likely to be satisfied with their scope of practice within the practice setting. Twenty-two percent (22%) of NPs reported that one of the most positive aspects of their job is the interaction with patients (Exhibit 54). Those NPs who participated in on-call activities are also more likely to have identified that they worked within their full scope of practice.

Very few patients reported dissatisfaction with NPs. In these situations, dissatisfaction was a result of lack of definition and clarity of the NP's role. More than 70% of physicians (either working or not working with an NP) identified patient acceptance of the NP role as a facilitator to NP integration (Exhibits 101 and 102).

## Team Dynamics

Team dynamics are important to the successful integration of an NP. Organizations where NPs are successful team members spend some time devoted to dealing with team issues. We found that various sites do this in different ways; however, we conclude that key enablers for successful teams with an integrated NP position include the following:

- Respect for one another;
- Easy conflict resolution;
- All team members understand each other's role;
- Team members are willing to help each other; and
- Institutional memory of the organization's collaborative culture.

On average, primary health care NPs identified that they are satisfied with the open communication and amount of collaboration between the NP and the family physician(s) regarding patient care decisions. In fact, more than 30% of NPs indicated that the collaborative practice is the most positive aspect of their role (Exhibit 54). However, those NPs who identified that they are dissatisfied with the communication and collaboration with the family physician were more likely to identify that their physician has concerns regarding the NP's scope of practice and/or liability, which is a barrier to the NP's practice.

Where physicians expressed concerns regarding NP scope of practice and/or liability and the concerns were not resolved, NPs reported higher levels of workplace dissatisfaction. This speaks to the need for a conflict resolution process.

A number of factors influenced the level of satisfaction with collaboration and team dynamics. Those NPs who agreed with the following statements reported higher levels of satisfaction with collaboration and team dynamics:

- Co-operate in making decisions about patient care;
- Co-ordinate implementation of a shared plan for patient care; and
- Respect the other's knowledge and skills in making shared decisions about patient care.

Those NPs who had changed practice settings in the past three years reported lower levels of satisfaction with collaboration.

NPs who are satisfied with the acceptance and attitude of physicians also indicated higher satisfaction with collaboration and team dynamics. Interestingly, 40% of NPs also identified that the top negative aspect of their role is the lack of understanding from medical professionals (Exhibit 53).

Of MDs working with NPs, 84% agreed that they planned and 89% agreed that they cooperated with NPs in making patient care decisions (Exhibit 113). Roughly 90% reported that they communicated openly, trusted and respected each other when making patient decisions. Interestingly, two-thirds of physicians agreed that NPs and physicians shared responsibility for patient care decisions, compared with 80% of NPs (Exhibit 128).

Those NPs who identified isolation of practice as a barrier to fulfilling the NP role indicated lower levels of satisfaction with collaboration and team dynamics. One in five NPs identified that their isolation is a barrier to integration.

Seventy-seven percent (77%) of patients indicated they were very satisfied with the way the health care team worked together to help with their health problems (Exhibit 162).

A very sensitive topic between NPs and physicians is related to the distribution and expectations of the work between these two professionals. In some cases, there was clearly a difference of opinion regarding sharing responsibility for patient care, time allocation and work distribution. Some of these

issues centred on on-call activities, hours of work, patient encounter time, MD time required to consult with/support the NP, and distribution of NP time between education, teaching and direct patient care.

In general, concerns about work and time allocation were more frequently expressed by physicians who work in fee-for-service settings. This concern often reflected the lack of physician remuneration for collaboration with the NP. Where MDs are compensated for consultation with the NP, these issues are less of a concern.

## Resources

The site visits confirmed that human, capital and financial resources are required to support NPs' work. Examples of resources included:

- Funding for salary and benefits (including vacation), overhead expenses, space and equipment, medical supplies and administrative services sufficient to support the work of NPs;
- Support for travel between multiple sites or home visits;
- Capital replacement costs;
- Patient/resident education materials;
- Information technology and decision support;
- On-call reimbursement;
- A sufficient supply of NPs so that recruitment efforts resulted in appropriate candidates;
- Access to continuing educational resources for NPs; and
- Access to peer support – especially for those who worked independently and in geographically remote areas.

### *Salary and Other Benefits*

Although it did not come up as a significant predictor to NP integration in the data analysis, almost one-third of NPs identified that lack of remuneration is the most negative aspect of their role (Exhibit 53).

Forty-six percent (46%) of physicians working with NPs agreed with the statement "inadequate funding for NP salary" is a barrier to integration (Exhibit 110). Thirty-one percent (31%) of NPs identified "limitations of funding" (e.g., lack of money for health promotion, travel) as a top-ranked barrier to integration (Exhibit 51).

Other findings include:

- Twenty-six percent (26%) of non-practising NPs left practice because the salary was too low (Exhibit 11);
- Twenty-seven percent (27%) of non-practising NPs indicated the primary reason for not practising is because they cannot find employment; this includes those who could not find employment within their scope of practice (Exhibit 12); and
- Twenty-nine percent (29%) of non-practising NPs are willing to relocate and 79% of those willing to relocate indicated that salary and relocation packages are factors to consider in relocating (Exhibit 13).

Furthermore, 13% of NPs would advise the MoHLTC that increased remuneration/salary equalization is required; and one in five NPs would advise that increased funding/more opportunities/more positions are required to better integrate NPs (Exhibit 55).

Key issues related to dissatisfaction included:

- Inequity of salaries for NPs across the province for similar MoHLTC funded positions;
- Requiring NPs to pay additional funds other than those from MoHLTC for overhead and other operating expenses;
- Lack of yearly cost of living or other adjustments;
- Lack of incentives and relocation costs to recruit NPs to under-serviced areas; and
- New NP positions funded at a different level than the current positions.

Seventy percent (70%) of primary health care NPs identified that they have full-time employment. Five percent have contract employment, almost 20% have part-time employment and 6% have casual employment (Exhibit 15). Those with permanent or contract employment are more satisfied with their role in the decision making process than those who indicated other employment. Sixteen percent (16%) of NPs have union membership. Those NPs working in a unionized environment indicated that they are less satisfied with their role in decision making.

NPs were also asked several questions regarding their education. Almost all primary health care NPs indicated attendance at lectures, conferences and or presentations; 86% used other education materials; 80% received education on clinical practice guidelines and two-thirds participated in small group learning, traineeships and workshops (Exhibit 43). In addition, 19% of NPs indicated that professional growth/increased knowledge/continuing learning is one of the most positive aspects of their role (Exhibit 54). Those NPs whose education expenses were reimbursed (86% identified that at least some expenses are reimbursed) indicated higher levels of workplace satisfaction (Exhibit 137).

***Overhead***

Funding of overhead expenses for NPs was identified as a concern. The NP survey data showed that:

- Fifty-one percent (51%) of NPs state that they travel as part of their responsibilities (Exhibit 24) and 64% state that they travel to see patients (Exhibit 28);
- Fifty-eight percent (58%) of NPs have travel costs and 74% have these costs reimbursed;
- Seven percent of NPs pay a fee for medical or computer equipment (Exhibit 39);
- Six percent of NPs pay a fee to use support staff (Exhibit 39); and
- Seven percent of NPs pay a fee to use office space (Exhibit 39).

There was some dissatisfaction with the amount of funding designated for overhead payments among physicians. This was most strongly felt in settings where MDs have overhead responsibilities. Most sites reported that their overhead expenses related to NPs exceed the $10,000 allocated by the Ministry for overhead. Some sites reported that the NP position is not sustainable unless additional money is received for overhead, including monies for secretarial support and a consultation fee for physicians.

The number one reason reported by MDs who do not currently work with an NP for not being interested in working with an NP is “inadequate funding for NP-related overhead (61%) and NP salary (59%)” (Exhibit 86). However, no physicians who had ceased working with NPs identified inadequate overhead funding as a reason for doing so.

***NP Supply and Demand***

There were varying reports among the sites about the adequacy of the supply of NPs. Approximately 27% of NPs not currently practising or unable to find employment within scope of practice indicated that they would like to work as an NP (Exhibit 12). This variation was not just related to geography or practice setting, although northern communities more consistently reported during the site visits that there is an insufficient supply of NPs. Among those NP survey respondents who indicated they were not working, 29% would consider relocating to a rural or remote area for either a temporary or long term position.

The perception exists that some settings, because of their structure or historical role, are more desirable and more easily able to recruit NPs. In addition, the top two factors determining NPs’ willingness to consider relocation to a rural or remote area are the ability to work within their full scope of practice and the availability of physician support.

***NP Activity***

Across sites, NPs reported a wide variation in both the volume and type of activities they undertake. In all cases, this level of activity appears to be a negotiated situation between the NP and the site sponsor or clinical manager.

All three surveys asked respondents about the types of services provided by NPs to clients. NPs were asked to identify the various types of patient services they provided (e.g., wellness care) and the percentage of time spent on each type of activity. All physicians were asked to rate the perceived value of the NP services.

Many services provided by primary health care NPs are valued by MDs who work with NPs such as health promotion and wellness care, monitoring of chronic illness, and supporting post-episodic continuity of care (Exhibit 91). Almost all physicians with experience working with NPs indicated that care of episodic illness is a valuable contribution. Almost all NPs indicated that they provide care of episodic illness and about 70% of physicians interested in working with NPs indicated this service is valuable. About 90% of all physicians indicated that prevention/wellness care/health promotion is a valuable contribution. Almost 100% of NPs indicated providing this service, spending approximately 38% of their time doing so. Approximately three-quarters of physicians indicated that monitoring of chronic illness is a valuable service with 90% of NPs providing the service. Interestingly, more than 70% of physicians interested in working with NPs identified that psychosocial support, counselling and home visits to housebound patients are valued services. Not enough information from the NP survey was available to determine the percentage of NPs providing home visits to housebound patients.

Physicians who had experience working with NPs were more likely to see the value of NPs' services. This was related to length of time working with NPs as well as type of setting. Even working with an NP for one year increased the likelihood of seeing the value of their services. This related to wellness, minor acute, major acute, chronic, palliative care and psychosocial support and counselling. For example:

- Thirty-eight percent (38%) of MDs without experience with NPs reported minor acute care is a valuable service NPs could provide; however, the odds of indicating value from this service tripled if MDs had current or prior experience with NPs; and
- Four percent of MDs without experience with NPs reported major acute care is a valuable service NPs could provide; however, the odds of indicating value from this service increased between four and six fold among MDs with current or prior experience with NPs.

MDs were generally satisfied with the NPs with whom they work. For example, more than 75% of MDs reported satisfaction in the areas of NP time with patients, ability of physician to access NP, NP time spent completing documentation, and with MD time required to support NP (Exhibit 122). Site or clinical managers reported that they would find it very helpful to have a "benchmark" report from the MoHLTC to help them determine an appropriate level of NP activity. This requirement also results from a desire to be accountable for NP resources and develop the ability to report to the community and funders regarding funding for NPs.

NPs are generally keeping encounter information as requested by the MoHLTC. In some situations, NPs are developing their own site-specific data collection tools in order to assist in reporting to local funders or clinical managers. Most NPs were concerned about the usability of the information submitted to MoHLTC since in most cases, the information does not reflect their true activity.

We found that access to the appropriate technology to collect and analyze information related to practice activity varied between sites. Many NPs keep paper records of patient encounters, while others have on-site access to a computer and the Internet.

Many NPs spoke of their interest in evidence-based practice, sharing best practices among NP colleagues, participating in research and making more referrals among NPs. Appropriate technology would support this objective.

## Scope of Practice Issues

There was little in the Canadian literature concerning scope of practice issues. However, it has been suggested by one researcher that it is important to clarify the meaning of the term "nurse practitioner" in order to discuss the future of the role (Haines, 1993)[9]. Haines also argues that it is important to define the scope of the role so that only those within the scope can call themselves NPs.

[9] J. Haines, "The NP", Discussion Paper, Canadian Nurses Association (1993) (unpublished)

***Referrals***

The requirement to have physicians sign most of the referrals to specialists is seen as an unnecessary requirement by NPs and physicians alike. Many NPs suggested that one of the main reasons they refer patients to physicians is to obtain a referral to a specialist. The requirement to have physicians sign referrals is seen as time consuming. In addition, it causes fragmented or duplicated care and is costly and inefficient.

NPs who identified that they receive referrals from outside their practice setting are twice as likely to function within their full scope of practice relative to those who do not receive such referrals.

Inside the practice, most NPs refer patients to the physician whom they are working with when their patients' needs are outside their scope of practice. Forty-four percent (44%) refer when they are uncomfortable handling a case and 19% refer based on a preset arrangement with the physician (Exhibit 32). Most MDs reported they feel satisfied with the extent to which NPs practice within their scope, as indicated by appropriate physician consults.

***Ordering of Drugs and Laboratory Tests***

During the site visits, there were a number of comments related to the types of drugs and laboratory tests NPs are allowed to order. One concern was that the drugs approved for NPs to order are listed by name instead of by classification. A preferred approach, that would be more time efficient, would be to list approved drugs by classification.

Other concerns related to the fact that some common laboratory tests and drugs are not included in the approved list for NPs, causing an unnecessary restriction on their practice.

In some settings, the local acute care hospital is the community resource for laboratory testing. Many of these hospitals require the NP to go through an "approval" process before he/she can refer patients to the hospital for laboratory tests and receive the results. In other cases, the results of laboratory tests ordered by the NP are sent to the physician. These processes can cause delays in patient care and disrupt continuity of care. Orientation of local laboratories, diagnostic imaging centres and hospital departments to the NP role and scope of practice is an important facilitator to NPs being able to access laboratory and radiology reports in a timely manner.

***Access to Acute Care Patient Information and Hospital Admission Privileges***

Many NPs reported that limitations related to hospital admission privileges, lack of access to information on care provided during the acute care stay (diagnostic tests, laboratory results etc.) or lack of access to the discharge summary notes impacted continuity and quality of patient care. This concern was most often expressed by NPs who do not have regular access to a physician for consultation and collaboration and whose patients require hospital-based care. This was also a significant issue in practices where NPs provide primary health care to "orphan" clients.

***Liability Issues***

Concern related to insurance coverage of NPs was also put forward by a number of sites. Questions arose regarding the site's responsibility when a legal suit is lodged after an NP has left the practice. This is a concern because people have up to seven years from the date of service to pursue a claim.

More than 90% of RN(EC)s in Ontario currently have access to $5 million in occurrence-based coverage through their membership in the Registered Nurses Association of Ontario (RNAO) from the Canadian Nurses Protective Society. NPs may purchase an additional $5 million dollars of claims-made malpractice insurance through commercial carriers. The additional commercial policies carry an option to purchase tail insurance, also referred to as extended reporting protection. NPs who are employed in certain settings such as hospitals, long-term care facilities, and CHCs are covered by their employer and may be covered by the Ontario Nurses Association, if they are members.

Furthermore, many nurse practitioners have malpractice coverage under their institution's policy; many of these institutions such as community health centres and hospitals have occurrence-based coverage through Healthcare Insurance Reciprocal of Canada (HIROC).

NPs were asked if they had concerns regarding their liability and reasons for these concerns. Those NPs who identified that they had concerns regarding the adequacy of their liability insurance were more likely to also identify that their physicians had expressed concerns regarding their scope of practice. In addition, those NPs that identified concerns regarding their liability because they are asked to practice outside their scope of practice had less workplace satisfaction.

***Initial NP Orientation***

For many new NPs, their first position after they completed their formal NP education was their first time practising independently within the full scope of practice as an NP. Many NPs indicated that it took six months to a year to become fully comfortable in their new role. During this time, they required greater assistance from the physician and other members of the team and in-service training. This was not particularly surprising as many family physicians or RNs (General Class) would report feeling the same when they entered practice as a novice. Some have suggested that this learning curve should be accounted for and that internships for NPs should be considered.

The NP survey data showed that virtually all NPs had worked more than five years as an RN with an average of 20 years of experience and a maximum of 40 years of experience indicating that this is a very experienced workforce (Exhibit 15). The analysis indicated that those primary health care NPs with the greatest number of years experience as RNs are less likely to identify as a barrier that their physician identified concerns regarding their scope of practice and/or liability.

In addition, those NPs who identified their work experience prior to entering the NP program as a barrier to fulfilling their NP role are less satisfied with their scope of practice within the practice setting (Exhibit

130). However, only 3% of NPs identified their work experience prior to entering the NP program as a barrier (Exhibit 51) while 58% identified this factor as a facilitator (Exhibit 52). Further research should explore the relationship between NP's work experience and satisfaction with scope of practice.

## Facilitators to Integration of Primary Health Care NPs into the Ontario Health Care System

The literature suggests that in Ontario, key facilitators to integration of NPs include: introduction of policies that legitimize the NP role; the establishment of one recognizable title; patient awareness of the NP role; an understanding of the NP role by other health professionals; the view of collaborative practice by physicians as desirable; the provision of resources to sites that want to employ an NP; and policy changes to provide reimbursement to NPs and the physicians who work in collaboration with them (Hanrahan, Way, Housser and Applin, 2001;[10] Way, Jones, and Baskerville, 2001[11]).

A number of U.S. studies look at how different personal behaviours and characteristics define an effective NP. These include sound leadership skills, confidence, autonomy, and caring behaviour (Jones et al., 1990;[12] Brunton and Beaman, 2000;[13] Mark et al., 2001[14]).

We heard from several sites that the individual NP who held the position in part shaped the NP role. This was seen as both a facilitator and, in some cases, a barrier.

In many sites the team was particularly supportive of "their" NP. They indicated that the specific skills or personality of the NP they worked with was instrumental in the acceptance of the role within the organization and the high degree of satisfaction of the clients and team with the NP role. While this is positive for the individual concerned, there seems to be doubt that the skills that "their" NP contributes can be applied to NPs in general. This is likely a public education issue. Once the role that NPs play is more widely understood by the population in general, the particular skills that the NP brings may be better accepted as a factor of the profession rather than of a particular individual.

When NPs were asked for their general comments regarding integration of the role, many felt that a better understanding of their potential contribution would result in greater use of their services. Forty-three percent (43%) of physicians working with NPs and 37% of physicians not working with NPs identified that community acceptance of the NP role facilitated effective integration of NPs (Exhibits 101 and 102).

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[10] C. Hanrahan, C. Way, J. Housser and M. Applin, "The nature of the extended/expanded nursing role in Canada", Consultants: Centre for Nursing Studies and the Institute for the Advancement of Public Policy, Final Report, March 30, 2001, (unpublished).
[11] D.Way, L. Jones and N. Baskerville, "Improving the effectiveness of primary health care through NP/family physician structured collaborative practice", Final Report, University of Ottawa, March 31, 2001 (unpublished).
[12] L. Jones et al., "NPs: leadership behaviours and organizational climate", (1990) Journal of Professional Nursing, 6 (6).
[13] B. Brunton and M. Beaman, "NPs' perceptions of their caring behaviours", (2000) Journal of the American Academy of NPs, 12 (11).
[14] D. Mark, V. Byers and M. Mays, "Primary care outcomes and provider practice styles", (2001) Military Medicine, 166 (10)

***Skill Set***

We heard from many physicians and NPs that there is wide variation in the skill sets of NPs. Given that professional trust is a facilitator to an effective clinical decision-making relationship between the MD and NP, the NP skill set is very important. Many MDs and NPs spoke of a learning curve required to identify and develop the skills required for a particular position and the challenges of recruiting an NP to meet those requirements. MDs spoke of the need to have an understanding of the basic skill set that could be expected from NPs.

NPs were asked a series of questions regarding their education. When asked if primary health care NPs felt educationally prepared when they first started practising, 54% indicated that they did not (Exhibit 42). This is a typical feeling for any learner leaving an educational program and beginning a new role as a novice. This dropped to 14% when they were asked if they currently feel educationally prepared (Exhibit 42). For those who indicated that they were/are not educationally prepared, they were then asked to identify their concerns. The majority of respondents indicated that they lacked some substantive knowledge and were/are not prepared for the complexity of health problems. Sixty-three percent (63%) of those unprepared educationally when they first started practising also indicated that they were not prepared for the level of independence of the role. It is to be expected that NPs will experience a learning curve as they move from novice to expert. For many NPs previous related experience was found to facilitate this learning curve.

Those primary health care NPs who identified they were not educationally prepared when they first started practising suggested that their concerns could be addressed by:

- Having a longer practicum (73%) (Exhibit 42);
- Having an internship year (64%) (Exhibit 42);
- Having a masters level program (47%) (Exhibit 42);
- Creating a longer educational program (46%) (Exhibit 42) and
- Having greater emphasis on continuing education (41%) (Exhibit 42).

Those primary health care NPs who currently feel they are not educationally prepared (14%) identified that having greater emphasis on continuing education would address some of their concerns (60%) (Exhibit 42). Again, it is to be expected that NPs will experience a learning curve as they move from novice to expert.

Seventy-nine percent (79%) of physicians not practising with NPs and 89% of physicians who are practising with NPs identified NP expertise as a facilitator to integration (Exhibits 101 and 102). This view did not vary across practice settings, but the logistic regression analysis showed that MDs more experienced working with NPs place significantly higher importance on NP expertise as a key facilitator. Past MD experience with NPs doubled the odds of an MD reporting NP expertise as an integration facilitator.

## Barriers to Integration of Primary Health Care NPs into the Ontario Health Care System

The Canadian literature suggests that physicians and NPs have a different view of the barriers to NP integration (Hanrahan et al., 2001[15]). Barriers identified by physicians include: the negative impact on the income of fee-for-service physicians; potential for impeding physician recruitment and retention; inadequate nurse supervision; and responsibility and liability concerns for attending physicians when NPs see patients independently.

From the physician survey, it was identified that 63% of MDs practising with NPs reported that the structure of the MD-NP working relationship is a strong barrier to NP integration and 20% ranked it as the most important concern (Exhibit 110). Although the concept of structure was not defined for survey respondents, the strength of the finding is meaningful. Fifty-six percent (56%) identified NP expertise as a barrier, with 34% ranking this as one of the top three barriers (Exhibit 110). Inadequate funding for NP salaries was raised as an issue for 46% of MDs, and 20% ranked this as the most important barrier (Exhibit 110). The barriers identified by NPs included: skill/knowledge limitations; restrictions on scope of practice (e.g., prescriptive authority, ease of access to referrals and diagnostic services); inadequate public and professional awareness; unsupportive physicians and resistance from physicians, especially those compensated by fee-for-service.

During the site visits, we heard that while there is no doubt about the positive contribution that NPs make to client care, they would be more highly used if those contributions were better understood by patients and members of the interdisciplinary team.

## Other Findings

### *Practice Settings*

NPs working in long-term care settings or in other settings unspecified by survey respondents identified that they are more satisfied with their scope of practice within the practice setting (Exhibit 130), their role in the decision making process (Exhibit 135) and their workplace satisfaction (Exhibit 137). Those working in an emergency department also identified higher levels of workplace satisfaction (Exhibit 137) and satisfaction with collaboration and team dynamics (Exhibit 139). On the other hand, those NPs working in a public health unit identified that they are less satisfied with their scope of practice within the practice setting than NPs in other practice settings (Exhibit 130).

Almost half of MDs not practising with NPs are in private group practice and almost one-quarter are in solo private practice (Exhibit 83). This distribution is markedly different than that for MDs practising with NPs; almost half of the MDs in that group work in a CHC and only nine percent work in solo and group private practice combined (Exhibit 84). Other points of note were:

- MDs in CHCs value NPs' role in prevention/wellness care/health promotion the most (Exhibit 92);

[15] C. Hanrahan, C. Way, J. Housser and M. Applin, "The nature of the extended/expanded nursing role in Canada", Consultants: Centre for Nursing Studies and the Institute for the Advancement of Public Policy, Final Report, March 30, 2001, (unpublished).

- Physicians in long-term care, emergency department, and fee-for-service practices value NPs' role in prevention/wellness care/health promotion the least (Exhibit 92):
- NPs' role in minor acute illness was perceived to be particularly valuable by MDs in CHCs and long-term care settings (Exhibit 93);
- Controlling for gender and experience, physicians in a fee-for-service setting are least likely to identify care of major acute illness as a valuable NP service (Exhibit 94);
- Monitoring of chronic illness by NPs is less important to physicians in fee-for-service settings and emergency practices than in other settings (Exhibit 95);
- MDs in long-term care settings are most likely to value palliative care services (Exhibit 96);
- Forty-five percent (45%) of fee-for-service physicians value the provision by NPs of home visits to house bound patients (see text above Exhibit 97);
- Physicians in fee-for-service settings, Health Service Organizations, Primary Care Networks are the most likely to identify night and weekend on-call coverage as a valuable NP service (Exhibit 98);
- Almost half of all MDs feel that NPs could provide linkages to community organizations (Exhibit 99); and
- Forty percent (40%) of fee-for-service physicians identified psychosocial support and counselling as a valuable NP service with more in CHCs and Health Service Organizations, Primary Care Networks and less in long-term care and emergency settings (see text above Exhibit 100).

***MD Willingness to Work with NPs***

Of MDs not working with NPs at the time of the survey, 49% indicated they would be interested in practising with NPs, 33% would not be interested, and 18% were uncertain (text below Exhibit 85). Controlling for practice setting, a key determinant of MD interest in working with an NP if given the opportunity is past experience working with an NP. Working with an NP in the past increases the odds of MD interest by 2.4 times, and this result was independent of duration of past work experience.

The propensity to be willing to work with an NP is substantially smaller for fee-for-service physicians relative to other MDs (Exhibit 88). For example, relative to the reference group, physicians in fee-for-service settings have 60% lower odds of being interested in working with NPs; the odds of MDs working in Health Service Organizations, Family Health Networks or Primary Care Network settings being interested in working with NPs is 36 times higher than for MDs in a fee-for-service setting. This does not indicate that fee-for-service MDs are mainly uninterested; roughly half of fee-for-service MDs did express interest; rather fee-for-service MDs are substantially less receptive than those observed in other settings.

Controlling for other factors, male physicians are one and a half times more likely to be interested in working with NPs.

***Non-practising NPs***

Of non-practising NPs, 69% are between 35 to 54 years of age (Exhibit 10). This compares with roughly 85% of those respondents that are practising in a primary care setting (Exhibit 14). A higher percentage

of non-practising NPs were identified in both the 25 to 34 age group and 55 and over age group (Exhibits 10 and 14).

Non-practising NPs also reported higher levels of education than the practising primary care NPs. One quarter of non-practising respondents indicated having a Masters or PhD as their highest level of completed education. This compares with 18% of practising primary health care NPs (Exhibits 10 and 14).

Forty percent (40%) of NPs who reported that they were no longer practising as an NP identified that they have never practised (even though they were licensed to practise). Of those who practised in the past, the top three reasons for leaving practice included that salary was inadequate (26%), limitations were imposed by their employer (26%) and long distances between the setting and home (23%) (Exhibit 11).

### Results of a Survey of the Public and Patients

Forty-six percent (46%) of Ontario residents reported that they had heard of a health provider called an NP (Exhibit 152). Upon explanation of the NP role, two-thirds said they would be willing to see an NP for wellness care and for treatment of minor illnesses. Of those who had seen an NP in the past 12 months, satisfaction rates were high. Both the patient and the public surveys found females are more likely than males to use NP services. The majority of patients who had seen an NP at site visit settings and who completed surveys were higher income individuals in good health. Results from the Health*Insider* survey of the public indicated a higher level of familiarity with NPs among these groups.

When asked what they liked about seeing an NP, patient survey respondents indicated the following: the amount of time the NP spent with them; the quality of care they received; the ease with which they were able to speak to the NP; and the information given about their health condition.

The findings also indicated a lower level of awareness of NPs and their role than might be expected. This finding leads to a recommendation for the MoHLTC to provide more consumer education in relation to the NP role. This is of great importance given the introduction of more NPs into the provincial health care system.

## Recommendations

We set out our recommendations below. We note in brackets next to each of the recommendations the key data that support the recommendations. The identified exhibits are not all inclusive but give an indication of the key data that support the recommendations. Many of the recommendations are based on multi-variate analysis which looks at the relationships between variables and it is, therefore, difficult to identify one particular variable that explains each recommendation.

## Accountability for Implementation of Recommendations

1. The Joint Provincial Nursing Committee (JPNC) to prioritize, develop a timetable, and assign responsibility for the implementation of the recommendations contained in this report.

2. The Nursing Secretariat to be accountable for facilitating an evaluation in two years time to examine the extent to which the recommendations in this report are implemented and the impact of that implementation.

## Shared Vision and Role Alignment

3. MoHLTC, Council of Ontario University Programs in Nursing (COUPN), stakeholder organizations and associations to develop a joint statement related to the vision for NPs in the province. This vision statement should be broadly disseminated to health organizations, providers and the public. (See Site Visit Summary, Chapter 6.)

4. MoHLTC to encourage organizations with funded NP positions to articulate their mission, vision and team strategy. This could be a requirement in the proposal process for sites to have a funded NP. (See Site Visit Summary, Chapter 6.)

5. Educational institutions, with the support of MoHLTC, to plan opportunities for NPs, physicians and other allied health care professionals to learn about respective roles during professional training. (See Analysis of NP and MD Surveys, Chapter 5, Exhibit 53, Site Visit Summary, Chapter 6.)

6. COUPN, with the support of MoHLTC, to plan for internship opportunities for NPs that build on the basic NP education and recognize the transition from novice to expert. These opportunities should also recognize the differences in skills and experiences across practice settings. (See Analysis of NP and MD Surveys, Chapter 5, Exhibits 42,52 and 55, Site Visit Summary, Chapter 6.)

## NP Role Clarity

7. MoHLTC to require that funding proposals for NP positions include a needs assessment and clear definition and description of the proposed NP role at that site. (See Analysis of NP and MD Surveys, Chapter 5, Exhibits 35, 61, 130, and 139, Site Visit Summary, Chapter 6.)

8. MoHLTC, in collaboration with stakeholder groups, to develop an orientation package for sites funded for an NP. The package could include specific information about NP skill sets and guidelines for education and orientation to the NP role for all members of the health care team. (See Analysis of NP and MD Surveys, Chapter 5, Exhibits 35, 49, 73, 130, 135 and 139, Site Visit Summary, Chapter 6.)

9. NPs to be included by the funded sites in defining their role and level of autonomy, taking into consideration their skills and experience as part of the introduction of the NP into the practice setting. (See Site Visit Summary, Chapter 6.)

10. NP role definition to be reviewed and updated by sites funded for an NP on an annual basis or as needed to ensure patient needs, other team members' roles and practice focus are aligned. (See NP and MD Surveys, Chapter 5, Exhibits 21, 130, 135, 137 and 139, Site Visit Summary, Chapter 6.)

## Team Dynamics

11. MoHLTC to work with stakeholders to create a venue/forum for sharing best practices related to team collaboration in sites funded for an NP. (See Analysis of NP and MD Surveys, Chapter 5, Exhibits 101, 102 and 110, Site Visit Summary, Chapter 6.)

12. MoHLTC to remunerate MDs for consultation and collaboration with the NP unless the funding mechanism of a setting (e.g., CHC) already includes this remuneration. The MoHLTC and OMA should work to determine the most appropriate rate to be paid to physicians for formal and informal collaboration and consultation with the NP. (See Analysis of NP and MD Surveys, Chapter 5, Exhibit 86, Site Visit Summary, Chapter 6.)

13. MoHLTC and hospitals to review the impact of NPs on emergency department volumes and the associated impact on MD positions funded through Alternate Payment Plans. (See Analysis of NP and MD Surveys, Chapter 5, Exhibit 121, Site Visit Summary, Chapter 6.)

14. Practices creating an NP role for the first time to be given one-time funding from the MoHLTC to support the costs associated with orientation, role definition, team building exercises and conflict resolution. Knowledge created through this process should be transferred when other NPs/team members join the practice. (See Key Findings of Analysis of NP and MD Surveys, Chapter 5, Site Visit Summary, Chapter 6.)

## Resources

15. To facilitate planning and monitoring, the MoHLTC to develop with the program areas and selected stakeholders, standard information collection and reporting mechanisms regarding NP human resources and activity. This information could be used to facilitate planning for resource allocation, NP education and to support the development of performance measures. (See Analysis of NP and MD Surveys, Chapter 5, Exhibits 55 and 110, Site Visit Summary, Chapter 6.)

16. MoHLTC to identify a co-ordinating body for NP human resources planning and monitoring. (See Analysis of NP and MD Surveys, Chapter 5, Exhibits 12 and 13.)

17. MoHLTC to develop a centralized process to maintain current information about funded NP positions. (See Key Findings of Analysis of NP and MD Surveys, Chapter 5.)

18. In relation to NP salary and benefits: (See Analysis of NP and MD Surveys, Chapter 5, Exhibits 40, 41, 55, 86, 110, 126 and 127.)

    a. MoHLTC to oversee the development of a policy for a stable funding mechanism for NP positions.

    b. In conjunction with selected stakeholders, MoHLTC to develop guidelines for sites to use in relation to salary equity.

    c. MoHLTC to develop a plan to align salaries between newly funded positions and current positions.

    d. MoHLTC to develop a long-term plan for funding to account for cost of living and other increases.

    e. MoHLTC to re-examine the amount allocated to sites for overhead costs to ensure comprehensive and appropriate coverage.

19. MoHLTC and selected partners to develop NP activity benchmarking and disseminate this information to sites with funded NP positions. ( See Analysis of NP and MD Surveys, Chapter 5, Exhibits 21 and 34.)

## NP Scope of Practice

20. MoHLTC to consult with medical and nursing associations in relation to billing rules within Ontario's Schedule of Benefits related to the issue of allowing a specialist to be paid when a referral comes from an NP. (See Analysis of NP and MD Surveys, Chapter 5, Exhibits 31, 32 and 62, Site Visit Summary, Chapter 6.)

21. Consistent with the RHPA, MoHLTC to consult with nursing and medical associations and regulatory bodies to develop a review process related to approved drugs NPs can prescribe and laboratory tests that NPs can order. This is intended to improve and streamline the process and ensure inclusion of tests and drugs to manage conditions within the NP's scope of practice. (See Site Visit Summary, Chapter 6.)

22. Nursing associations to develop a process to ensure the timely dissemination of information to NPs about updates to the list of approved drugs. This list to categorize drugs by name and classification. (See Site Visit Summary, Chapter 6).

23. MoHLTC, with the appropriate stakeholders and institutions, to develop a process that facilitates the flow of information between care sectors (e.g., hospital, long-term care facility) and allows for NP involvement in patient care as it relates to continuity. (See Site Visit Summary, Chapter 6.)

24. Nursing and medical associations to disseminate information to NPs, physicians and interested stakeholders about current NP liability coverage and implications for each professional group. (See Analysis of NP and MD Surveys, Chapter 5, Exhibits 33, 34 and 131 to 133, Site Visit Summary, Chapter 6.)

25. In the Fall of 2002, relevant stakeholders, including nursing and medical associations, respective protective agencies and MoHLTC began a collaborative review of the restrictions related to NP liability protection that was resolved in June 2003. It is recommended that the implementation of the outcomes of this review be monitored by the involved stakeholders. (See page 18 and 37, Analysis of NP and MD Surveys, Chapter 5, Exhibits 33, 34 and 131 to 133.)

## Recommendations – System Integration of the NP

26. MoHLTC, in collaboration with NP stakeholder groups, to develop a public education program about NPs and their role in primary health care. This program will include guidelines and best practices for community education programs about the NP role. (See Analysis of NP and MD Surveys, Chapter 5, Exhibits 101 and 102, Site Visit Summary, Chapter 6.)

27. MoHLTC and NP stakeholder groups to facilitate the development of a best practices information clearing house related to community/organization/health setting education and/or orientation to the NP role. This information should be integrated with other initiatives related to best practices for primary health care delivery. (See Key Findings of Analysis of NP and MD Surveys, Site Visit Summary, Chapter 6.)

28. MoHLTC and the Council of Ontario University Programs in Nursing (COUPN) to review strategies for increasing the educational preparedness of the NPs including longer clinical practica, addition of an internship year, raising the level of the PHCNP educational program to a Master's level, increasing the length of the educational program, and increasing the emphasis on and access to continuing education. (See Analysis of MD and NP Surveys, Chapter 5, Exhibits 42 and 55, Site Visit Summary, Chapter 6.)

29. MoHLTC and COUPN, in consultation with nursing associations, to develop an educational strategy that would respond to the basic and on-going education needs of NPs related to specific primary health care clinical practice areas. (See Analysis of MD and NP Surveys, Chapter 5, Exhibits 42 and 55.)

# 1. Introduction

This report is divided into the following sections:

- Executive Summary
- Introduction
- Policy Context
- Literature Review
- Approach and Analytic Framework
- Summary Analysis of Surveys of Nurse Practitioners and Physicians
- Site Visit Summary
- Results of a Survey of Ontarians and Patients
- Study Limitations and Confounders
- Conclusions and Recommendations

The appendices referred to in this report can be found under a separate cover and include the following:

A. Abbreviations
B. Canadian Literature
C. International Literature
D. Primary Health Care Nurse Practitioner Survey
E. Physician Survey A
F. Physician Survey B
G. List of Variables Tested in Regression Analysis
H. Site Visit Interview Guides
I Patient Survey
J. Summary of NP Practice Dimensions and Elements
K. List of Steering Committee Members

The main focus of the Primary Health Care Nurse Practitioner (NP) Integration Study has been to determine how best to integrate primary health care NPs into Ontario's health care system and specifically into various settings. The key questions to be answered by the study were:

1. What barriers must be overcome and what facilitators must be encouraged to further integrate NPs into a specific practice setting?
2. What can be learned about the practice models in which NPs function, specifically, which models do not work well and why and which models work best to support integration of NPs?

The project undertook a number of data collection activities to address these questions including:

- Targeted interviews;
- Review of MoHLTC data;
- A review of the literature;
- Surveys of patients, NPs and physicians; and
- Site visits.

The authors of the report acknowledge the invaluable support and assistance from the project leadership. In addition, a number of ad hoc working groups provided important feedback about project activities. We would also like to thank the College of Family Physicians of Canada for sharing a copy of the National Family Physicians Workforce Survey with the project team.

We appreciate the valuable time and thoughtful comments from site visit participants who vividly described the role and contributions of NPs in the various practice settings.

And finally, we wish to acknowledge the profound commitment to quality health care demonstrated by dedicated NPs, physicians and other members of the health care team.

# 2. Policy Context

## Introduction

The introduction of the NP initiative in Ontario heralded an important step forward in the evolution of health care delivery in the province. Numerous studies have documented the roles for NPs in health care delivery, the benefits NPs bring to patient care and the impact of NP care on patient satisfaction. Recent interest from NPs, government, educators and other health care providers has moved from an understanding of the benefits of the NP role to gaining greater knowledge regarding the ways in which the role can be more fully implemented. Across Ontario, NPs practise in a variety of settings including acute and primary health care. The focus of this report is primary health care NPs. Primary health care NPs generally have an increased emphasis on health assessment, health promotion and illness prevention.

A recent report from the Advisory Committee on Health Human Resources states "the full implementation of extended/expanded roles by registered nurses remains unrealized despite consistent empirical support for the positive impact on the accessibility, availability and comprehensiveness of health care services, consumers' acceptance of and satisfaction with this nursing role, cost containment, and positive health outcomes."[16]

Given these experiences, the Steering Committee for this study wanted to focus on the future and explore how best to integrate primary health care NPs into Ontario's health care system and specifically into various practice settings. A list of Steering Committee members can be found in Appendix K.

## Background

In 1997, researchers noted that "although it is difficult at this time to predict the degree to which the nurse practitioner will be established in Canada, it appears that the potential remains for a more expanded role of nurses."[17]

NPs' experiences in Canada vary from province to province. In some provinces, the role has been specifically legislated while in others, NPs function within existing nursing legislation.[18] Across Canada, different official titles exist for nurses who work within a broader scope of practice. The literature review in Chapter 3 of this report discusses these differences in more detail.

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[16] The Centre for Nursing Studies in collaboration with the Institute for the Advancement of Public Policy Inc. " The Nature of the Extended/Expanded Nursing Role in Canada" (March 30, 2001).
[17] C. Patterson, "We're not out of the woods yet". In: C. Patterson (ed.), *Visions and Voices: the Nurse Practitioners Today* (Troy, ON: Newgrange Press, 1997).
[18] For example, in the Yukon, nursing is broadly defined such that the activities of nurses practising in an expanded role fall within the definition of nursing and additional legislation is noted as being required. In Alberta, as early as 1996, amendments to the Public Health Act enabled nurses in specific communities to provide expanded services. In Ontario, NPs have been legislated via amendments to the Nursing Act. J. Hubert et al., "The Spark that Lit the Flame" in C. Patterson (ed.), *Nurse Practitioners: the Catalyst of Change* (Brantford, ON: JPatt Publishing Inc, 2000).

NPs have had an interesting history in Canada and in Ontario. Knowledge of the history and evolution of NPs is important because it contributes to a better understanding of the environments in which NPs work, the barriers and challenges they face, the positions taken by stakeholders and the potential opportunities to be explored. The following is a brief overview of the history of NPs.

**NP Initiatives in Canada - A Historical Perspective**

In 1967, the first education program for NPs working in northern nursing stations was started at Dalhousie University in Nova Scotia. During this period, Canada was experiencing:

- A changing role of the nurse from generalist to specialist;
- A physician shortage - ratio 740:1, more in rural than in urban areas; and
- A trend towards specialization in medicine resulting in fewer MDs in primary health care and increased emphasis on the curative aspects of medicine.

During the 1970's, the following significant events occurred:

- 1971 - the Boudreau Report made the implementation of the expanded role of the RN a high priority in Canada's health care system;
- 1971 – establishment of the first university program in Ontario to prepare expanded role RNs;
- 1971 - Dr John Hastings chaired the Community Health Centre Project in support of community based care;
- 1973 - CNA/CMA Joint Committee Policy Statement on the role of the NP;
- 1974 - the Lalonde Report supported some of the concepts of primary health care by recognizing the influence of determinants of health on societal health and well-being and the role of the RN in health promotion and disease prevention; and
- 1975 – Ontario's Council of Health published "The Nurse Practitioner in Primary Care" which made recommendations about necessary legislative changes and remuneration issues.

During the 1980's the following events occurred:

- The first NP Initiative ended in the early 1980s because of: perceived physician oversupply, lack of remuneration mechanisms, lack of legislation, lack of public awareness regarding the role and lack of support from both medicine and nursing;
- Some 250 NPs continued to function throughout the 1980s and early 1990s, working mainly in community health centres and in northern nursing stations, with a variety of educational preparations and responsibilities;
- 1983 - McMaster University - the last NP program in Ontario closed;
- In spite of failure of the first initiative, the NP role was consistently cited in the recommendations of many provincial health care commissions and task forces;
- Reallocation continued within the health care system to disease and injury prevention, health promotion and community-based care; and
- The NPAO continued to actively advocate for the re-establishment of educational programs in Ontario and the recognition of the NP as a viable member of the Ontario health care system.

# NP Initiative in Ontario

## History

In 1993, the New Democratic government in Ontario announced a new NP Initiative as part of improving access to primary health care. The project involved such tasks as: [19]

- Commissioning of major discussion papers (e.g., Utilization of Nurse Practitioners in Ontario, September 1993; The Clinical Nurse Specialist, Clinical Nurse Specialist/Nurse Practitioner and Other Titled Nurses in Ontario, November 1994; Assessment of the Need for Nurse Practitioners in Ontario, January 1995);
- Consulting with key stakeholders in the health care delivery system through focus groups;
- Supporting the development of a university- based post-baccalaureate education program with funding for the first five years; and
- Establishing and funding a five year evaluation project to review the education program, the placement of NPs, and the impact NPs have on the health care system.

In December 1994 a report entitled "Nurse Practitioners in Ontario: A Plan for the Education and Employment of NPs" was released with specific steps for implementation. The Council of Ontario University Programs in Nursing which involved a consortium of 10 nursing faculties developed the new Primary Health Care NP Program, which commenced in the fall of 1995.

In 1995, the Minister of Health asked the Health Professions Regulatory Advisory Council (HPRAC), whose role it was to advise the Minister on matters of professional regulation, what services NPs could or should provide.[20] After a great deal of public consultation, HPRAC, (in a report released in June 1996) recommended that:[21]

- The Nursing Act be amended to include diagnosis in the scope of practice statement;
- NPs be authorized to perform the controlled act of communicating a diagnosis, as designated in regulations;
- NPs be authorized to order diagnostic ultrasound and common laboratory tests such as blood tests; and
- NPs be authorized to perform the controlled act of prescribing drugs as designated in regulation to treat common conditions.

These recommendations were supported by the MoHLTC with the eventual introduction in 1997 of the *Expanded Nursing Services for Patients Act*. This Act was proclaimed in 1998.

The *Expanded Nursing Services for Patients Act* amended the Regulated Health Professions Act and Nursing Act (as well as other legislation) to provide NPs in the province of Ontario with an expanded

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[19] Nurse Practitioners Association of Ontario, see online, www.npao.org/role.html
[20] C. Noesgaard and H. Hoxby, "The Quest of the NP in Ontario", in C. Patterson (ed.), *Nurse Practitioners: the Catalyst of Change* (Brantford, ON: JPatt Publishing Inc, 2000).
[21] Health Professions Regulatory Advisory Council, see online, http://www.hprac.org/english/pagedisplay.asp?webdocID=2107

scope of practice. With these amendments, NPs registered in the College of Nurses' "extended class" now have the authority to communicate a diagnosis, order specified tests such as diagnostic ultrasound or x-rays, order electrocardiograms in non-acute circumstances, prescribe and administer specified drugs and order specified laboratory tests.

Pursuant to the *Expanded Nursing Services for Patients Act*, the College of Nurses of Ontario regulates the NP scope of practice. Primary health care NPs are registered in the Extended Class (RN(EC)) with the College of Nurses of Ontario.

To be eligible for registration in the Extended Class with the College an RN must:

- hold a Bachelor of Science in Nursing;
- hold an NP certificate from an approved Primary Health Care NP (PHCNP) Program;
- have practiced in nursing for at least two of the last five years, with at least one of the years in a nursing role that required the use of advanced knowledge and decision-making, skills in assessment, diagnosis and health care management; and
- pass the Extended Class Registration examination.

Shortages in health human resources continued to be a factor in government decision-making. In September 1998, the Ministry of Health established the Nursing Task Force. The Task Force's report was released in February 1999. The Task Force recommended that a portion of provincial health care funds be invested towards employment for NPs. [22]

## Definition

In Ontario, the term NP is used interchangeably to describe a number of advanced practice nursing roles, such as primary health care NPs and acute care NPs. In this report, the term NP refers specifically to primary health care NPs who are registered in the extended class (RN [EC]) with the College of Nurses of Ontario.

## Legislative Framework

The authorized scope of NPs' practice is largely defined in the *Nursing Act, 1991* and regulations under the Act (Regulation 275/94). In addition to the acts that may be performed by RNs, NPs are authorized to perform the following acts:

1. Communicate a diagnosis to a patient or his/her representative which identifies a disease or disorder that can be identified from:
    a. The patient's health history;
    b. The findings of a comprehensive health examination; or
    c. The results of any laboratory tests or other tests and investigations that the NP is authorized to order or perform.

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[22] C. Noesgaard and H. Hoxby, "The Quest of the NP in Ontario", in C. Patterson (ed.), *Nurse Practitioners: the Catalyst of Change* (Brantford, ON: JPatt Publishing Inc, 2000).

2. Order the application of a form of energy prescribed by the regulations (namely, the application of sound-waves for diagnostic ultrasound of the abdomen, pelvis and breast).
3. Prescribe a drug designated in the regulations.
4. Administer, by injection or inhalation, a drug that the NP may prescribe.

In addition, the Regulations pursuant to the Nursing Act set out a number of other acts that NPs may perform, largely with respect to *treating* patients (whereas RNs are restricted to *assessing* patients). They may also perform certain suturing procedures, as well as venipuncture in order to obtain blood samples for prescribed laboratory tests.

The NP scope of practice is supplemented by the *Healing Arts Radiation Protection Act, 1990* (which allows NPs to order x-rays of the chest, ribs, arms, wrists, hands, legs, ankles, feet as well as mammography); the *Laboratory and Specimen Collection Centre Licensing Act, 1990* and Regulations (which allow NPs to order certain laboratory tests); and the *Medical Laboratory Technology Act, 1991* and Regulations (which authorize requests from NPs to take, collect and process specimens for certain tests).

Regulation 965 under the *Public Hospitals Act, 1990* acknowledges NPs' authority to register out-patients and to provide a full range of services within their legislated scope of practice. However, NPs are restricted in terms of services they may provide for in-patients. NPs do not have the authority under the Regulation to admit people as in-patients or to discharge those patients.

Sometimes, a physician or other health professional may delegate authority to an NP to perform certain acts. The *Regulated Health Professions Act, 1991* sets out controlled acts that may only be performed by persons who are authorized to do so by a health profession act such as the *Medicine Act, 1991*. However, section 27 of the *Regulated Health Professions Act* does provide for the delegation of a controlled act. The Ontario College of Physicians and Surgeons has issued guidelines for physicians with regard to delegating such acts. For procedures shared jointly by the scope of practice of physicians and the RN(EC)s there is no need to delegate at all. Therefore, for example, immunization is not a procedure that would be delegated. However, there are many acts not in the Nursing Act which are in the Medicine Act. A physician may delegate these acts but must accept responsibility for verifying the qualifications of the person to whom they are delegated and must institute a sufficient level of review and/or supervision to guarantee patient safety.

Services provided by NPs are not insured benefits under the Ontario Health Insurance Plan (OHIP) and cannot be billed to OHIP.[23] For professional services such as consultations, assessments and counselling, the physician who claims for the service must personally perform the service, such as psychotherapy etc. Physicians cannot claim for these services if they have delegated them to an NP. They can, however, claim for common office procedures such as immunizations, ear syringing or suture

[23] MoHLTC, OHIP Bulletin No. 10003, July 21, 1999, online at: http://www.health.gov.on.ca/english/providers/program/ohip/bulletins/10000/bul10003.html .

removal that have historically been delegated to an RN in a physician's private office. In those circumstances, the NP must be an employee of the physician.

NPs are assigned OHIP registration numbers for the purposes of referring patients for certain diagnostic tests (e.g., mammography), and these tests can be claimed by the physician who performs the test. These registration numbers are only for referral purposes and cannot be used to claim for services provided by or delegated to the NP.

With respect to referrals to specialists, Ontario's Schedule of Benefits (April 2002) for physicians provides that in order to receive the full fee for a consultation, a specialist must have a referral from a physician. Accordingly, a specialist would not receive the full fee if a referral was to be made by an NP. As a result, the NP must often obtain a referral note from the family physician with whom she/he works in order for the specialist to see the patient.

## Changes to the Legislation

In March 2003, the government approved amendments to five provincial regulations to remove barriers to RN(EC) current scope of practice. These regulatory changes will increase public access to primary health care services provided by RN(EC)s in public hospitals and long-term care facilities. For example, in public hospitals, RN(EC)s can, in addition to ordering diagnostic tests, prescribe and order treatments for out-patients, including those patients who attend the emergency department. The amendments also provide for insurance of out-patient services provided by the RN(EC).

Amendments to three long-term care regulations acknowledge the role of the RN(EC) in long-term care facilities, and outline specific responsibilities the RN(EC) may provide consistent with their legislated scope of practice. In addition, the amendments provide long-term care residents with more choice with respect to their health care provider. For example, residents of long-term care facilities can now choose an RN(EC) along with an attending physician, as the primary provider of their health and medical care services.

## Funded Positions

Since 1998, 402 NP positions have been funded by the Ontario Ministry of Health and Long-Term Care (MoHLTC) in Community Health Centres, the Underserviced Area Program, long-term care facilities, Aboriginal Health Access Centres, Primary Care Networks and Public Health Units. The following are the major funding initiatives related to these positions:

- 1998 – 22.5 new positions were created in Community Health Centres and 90.5 nursing positions in Community Health Centres and Aboriginal Health Access Centres were upgraded to NP positions;
- 1999 - 107 positions were created in the Underserviced Area Program, Aboriginal Health Access Centres, long-term care facilities and Primary Care Networks;
- 2000 - 5 positions were created in Public Health Units in the Cervical Cancer Screening Program;
- 2001 -10 positions were created in Public Health Units in the Early Childhood Development Pre and Post Natal Program;

- 2002 – 20 positions were created for demonstration projects in communities that have limited access to family physicians; and
- 2002 – funding for 117 positions in underserviced communities was announced.

In addition to these major funding initiatives, 30 NP positions have been funded since 1998 in Community Health Centres and Health Service Organizations.

The MoHLTC is committed to creating an additional 348 NP positions over the next three years. In addition, the government invests $1.7 million annually for the NP education program.

It is intended that NPs will play a vital role in increasing access to primary care health services in small, rural and under-serviced communities[24] The MoHTLC has stated that NPs have an important role in alleviating physician shortages and enhancing primary health care across the province.[25]

## Liability

More than 90% of RN(EC)s in Ontario currently have access to $5 million in occurrence-based coverage through their membership in the Registered Nurses Association of Ontario (RNAO) from the Canadian Nurses Protective Society. NPs may purchase an additional $5 million dollars of claims-made malpractice insurance through commercial carriers. The additional commercial policies carry an option to purchase tail insurance, also referred to as extended reporting protection. NPs who are employed in certain settings such as hospitals, long-term care facilities, and CHCs are covered by their employer and may be covered by the Ontario Nurses Association, if they are members.

Furthermore, many nurse practitioners have malpractice coverage under their institution's policy; many of these institutions such as community health centres and hospitals have occurrence-based coverage through Healthcare Insurance Reciprocal of Canada (HIROC).

[24] "Eves government invites communities across Ontario to apply for new nurse practitioners", Government of Ontario Press Releases, October 28, 2002.
[25] See online at the MoHLTC's website: http://www.health.gov.on.ca/english/providers/project/nursepract/practitioners_mn.html.

# 3. Literature Review

## Introduction

We have reviewed the literature on the NP role, practice models and settings, as well as barriers and facilitators for integration of NPs into the relevant practice settings. The purpose of the literature review was to provide assistance in understanding how to best integrate NPs into Ontario's health care system, with specific focus on the primary care setting.

We carried out comprehensive searches on Medline using the keywords "Nurse Practitioner" and "NP" in combination with keywords such as "outcomes", "cost effectiveness", "role", "setting" and "barriers" and "facilitators". We then reviewed the results for relevance and obtained and reviewed all relevant articles. In addition, we obtained and reviewed the following:

- Documents obtained from the Canadian and American nursing associations such as the American Academy of NPs (AANP) and the Nurse Practitioners Association of Ontario (NPAO);
- Published reports by researchers from organizations and consulting firms retained by the MoHLTC; and
- Documents that were referred to us as a result of key informant interviews.

The Steering Committee asked us to focus on the NP experience in Ontario. Accordingly, we devote this Chapter largely to Ontario articles, along with a small number of other Canadian articles that we also deemed to be relevant. However, we do describe some research from the U.S.A and the UK. We have included this research as we feel that it is of particular interest and relevance to Ontario. NPs have existed in the U.S.A since the 1960s, as opposed to Canada and the UK where (with the exception of some earlier experiments) the role only came into being in the 1980s. Accordingly, a majority of the published literature is from the U.S.A. Other countries, such as New Zealand and Australia, have only begun to introduce the role more recently and there is limited literature available.

We have not included all of the literature that we obtained through the search. Rather, we have only included those articles that are of relevance to this study. In accordance with the Steering Committee's wishes, we have only included articles that are pertinent to the primary care practice setting and have not included articles that speak to other settings such as acute care. We have excluded most articles that were published prior to the 1990s, as the age of these articles greatly limits their usefulness. We have also excluded articles that do not speak to the issue of integration, for example, articles that discuss whether or not NPs are effective. In summary, we looked for articles that are: recent, relevant to the primary care setting and speak to the issue of integration. Detailed references for the Canadian and international literature can be found in Appendices B and C respectively.

This Chapter includes two sections, the first dealing with the Canadian (primarily Ontario) literature (detailed in Appendix B), and the second dealing with the international (primarily U.S.) literature (detailed

in Appendix C). We begin the Canadian section with an overview of the literature reviewed, and then organize the remainder of the discussion according to the following themes:

- Practice Models
- Implementation of the NP role
- Facilitators and Barriers to NP integration
- Practice Settings and Client Population
- Scope of Practice
- Interaction/Collaboration in Practice Teams, and Between NPs and Physicians
- Prescriptive Authority (this theme is not discussed in the Canadian section as we have not identified any articles in this regard; however, the U.S. articles are of interest)
- Personal Behaviours (this theme is not discussed in the Canadian section as we have not identified any articles in this regard; however, the U.S. articles are of interest)

In the international section, we look at the above themes where there is literature that appears to us to be of particular relevance and use in the Ontario context. We also look at U.S. studies that discuss the impact of NPs' personal behaviours, as these studies contain some useful analysis of certain behaviours that could act as facilitators of successful NP practice and integration in Ontario.

# The Canadian Literature

## An Overview of the Canadian Literature

The Ontario literature concerning NPs is extremely limited. We identified a total of 32 relevant articles that are either specific to Ontario or include Ontario as part of a wider national study. We identified another three articles, from Newfoundland, Manitoba and Alberta. Of the Ontario and wider articles that include Ontario, nine were written in the 1970s (largely in the early part of the decade) following studies of various aspects of the NP role. Due to their age, these studies have little value and we make relatively few references to them in this report. However, we provide summaries in the attached appendix of Canadian articles (Appendix B). The remaining articles represent very few comprehensive studies.

The lack of literature can be partly explained by the relatively short history of NPs in Ontario. Although the NP initiative in Ontario dates back to the 1970s, NPs were formally introduced into the province in 1993 when the New Democratic government announced a plan for the on-going education and employment of NPs as equal partners in multidisciplinary health care teams. In December 1994, a report entitled "Nurse Practitioners in Ontario: A Plan for the Education and Employment of Nurse Practitioners" was released with specific steps for implementation. The Council of Ontario University Programs in Nursing (COUPN) which involved a consortium of 10 nursing faculties developed the new Primary Health Care NP Program which commenced in the fall of 1995.

Throughout this period, shortages in health human resources continued to be a factor in government decision-making. In 1999, the Ministry of Health's Nursing Task Force recommended that a portion of

provincial health care funds be invested in employment for NPs.[26] Since the conclusion of the Task Force, the Ministry has invested funds for NPs in practice settings such as nursing stations, long-term care facilities, and under-serviced areas.

Looking then at the articles that do exist, they can be grouped as follows:

- *Articles discussing NP education*: We have identified two studies looking at the approach taken to NP education. These studies are both recent, Andrusyszyn et al., in 1999, and Van Soeren et al., in 2000. The Andrusyszyn study was an evaluation of educational delivery methods over a two-year period. Qualitative data were obtained through surveys of professors and tutors, and through surveys and focus groups with students. The response rate was high, making this study worthy of consideration in terms of looking at the education program being evaluated. The Van Soeren study involved analysis of qualitative data derived from the dean and director members of the Council of Ontario University Programs in Nursing, regional co-ordinators and course developers about being part of a consortium after the first year. Again, the results of this study are useful for consideration of educational issues.

- *Post-graduation surveys*: Three unpublished studies by Caty et al., have surveyed NPs in Ontario at various points following their graduation. These studies provide useful data in terms of seeing where NPs in Ontario are practising, and looking at how they view the education programme, factors that influence their practice locations and their career plans and practice.

- *Articles looking at collaboration and other practice models*: We obtained five articles looking at collaboration and other practice models. The most comprehensive of these is a recent study of Ontario, Newfoundland and Saskatchewan (Hanrahan, Way, Housser & Applin, 2001). This was a field study which collected data through interviews and participant observation sessions with NPs and physicians working at identified sites, as well as a survey of patients/clients accessing the resource at the centre or clinic. The others are discussion papers and/or are based on limited data. There is a study by Woodman which only looked at one site in rural Kingston (2002). There are four studies by Way and Jones (1994, 1997, 2000 and 2001). The 2000 study was also co-authored by Busing, while the 2001 study was co-authored by Baskerville and Busing. The 1994 study is based on an observation of a community health centre near Ottawa. The 1997 article is based on the same observation as the 1994 study. It describes an NP-physician dyad, and outlines a model of collaborative partnership. The 2000 and 2001 studies are both descriptive studies. The 2000 study used baseline data from two rural Ontario primary care practices, while the 2001 study uses case studies and a literature review.

- *Articles examining the nature of the NP role*: Two articles look at the nature of the NP role. One (Patterson and Haddad, 1992) is a literature review and is not based on any other data, while the second, (Hanrahan, Way, Housser and Applin, 2001) is a study across Ontario, Newfoundland and

[26] C. Noesgaard and H. Hoxby, "The Quest of the NP in Ontario", in C. Patterson (ed.), *Nurse Practitioners: the Catalyst of Change* (Brantford, ON: JPatt Publishing Inc, 2000).

Saskatchewan. As noted above, this study is based on quantitative and qualitative data and is fairly comprehensive within the scope of the study.

- *Discussion papers*: We obtained two relevant discussion papers, one by Newbery et al., for the College of Family Physicians of Canada (2000); and one by Haines for the Canadian Nurses Association (Haines, 1993). The Newbery paper is not based on original research data. The Haines paper uses data collected from interviews with key informants and a literature review and looks at the need to clarify the meaning of "NP" and "expanded" to discuss the future of the role. These are important issues to consider and the paper is therefore worthy of consideration.

- *Articles looking at the need for NPs/utilization of NPs*: We obtained two reports (Mitchell et al., 1993; and Mitchell et al., 1995), both based on comprehensive data collection in Ontario. The authors of the 1993 report, however, noted that time constraints meant the report was not as fully comprehensive as it could have been. It is, however, worth considering its findings.

- *Articles looking at the implementation of the NP role*: A descriptive study by Sidani, Irvine and Dicenso, published in 2000 looks at the implementation of the primary care NP role in Ontario. This study was based on a survey of 166 NPs.

- *Miscellaneous articles*: We located a 1986 study which looked at health problems encountered by three levels of providers in a rural part of northwestern Ontario. This study involved patient data for 27 communities in the area, including a total of 139,618 patient visits in that area. It is accordingly a fairly comprehensive study but has a limited objective (to see what health problems were encountered by each level of provider), and some of the findings are likely to be unique to a rural setting.

As noted, in addition to the articles discussed above, there are a small number of articles from other Canadian provinces that are worthy of consideration. We discuss them briefly below. We will refer to these further in the course of this report.

There is a comprehensive report on the evaluation of the implementation of the role of primary health care NPs in Newfoundland and Labrador (Gilroy, 2001). The report evaluates the implementation of the role, examines the extent to which NPs have integrated into the health and community system, examines the impact of the NP role in the health and community system, and identifies plans for future deployment of the NP. It is based on a survey of NPs, selected managers, health professionals and physicians. The researchers also conducted key informant interviews with provincial level organizers involved in the development. They collected data on the services, workload, and activity patterns for each NP over a one-week period, and also carried out a literature review.

In Calgary, Alberta, a recent study looked at the integration of NPs in the inner city (Grand, 2000). Using one case study, the study examined the development of a collaborative primary care model to increase access to quality health care by the poor and homeless, and sought to demonstrate the relevancy and

influence of an NP seen as a care provider between traditional nursing and medical roles. This is an interesting case study of a particular practice setting.

A study in Manitoba looked at physicians' perceptions of NPs (MacDonald and Katz, 2002). Three focus group discussions were conducted with eight resident physicians and three faculty physicians at a Manitoba family residence training clinic. The results are interesting but are based on limited data.

A recent article (Patterson, Pinelli and Markham, 1999) examined why the NP movement has been more successful in the U.S. than in Canada. The authors looked at differences between countries in terms of health care funding sources, organization of NPs, and levels of political will within governments to allow NPs to make headway into the legislative process. While the U.S. health care system is different from the Canadian system, this article notes some lessons to be learned.

## Practice Models

In this section we discuss the various practice models identified in the Canadian literature. However, there are relatively few such articles. We have included five from Ontario as well as one from Alberta. In Ontario, the majority of the literature is written by Daniel Way and Linda Jones, either together or in co-authorship with other researchers. Their studies are all based on observations of practice settings. There is also an article by Hanrahan, Way, Housser and Applin (2001) which is fairly comprehensive, being based on a field study in Ontario, Newfoundland and Saskatchewan. The Alberta study is based on a case study of one particular practice setting in the city of Calgary (Grand, 2000). We summarize the findings from this literature in the box below. We then discuss the literature in more detail.

**Summary of Practice Models**: The Canadian literature suggests that the preferred practice modality is that of a collaborative practice model. For example, Hanrahan, Way, Housser and Applin have suggested that collaborative practice between physicians and NPs be the norm for all practice settings (2001). Way, Jones and Busing (2000) carried out a descriptive study, concluding that the required elements for a successful collaborative practice are responsibility and accountability; coordination; communication; cooperation; assertiveness; autonomy; and mutual trust and respect. Arrangements within collaborative practices vary based upon the practice structure and other behavioural elements. Jones and Way have suggested guidelines for collaborative practice (1997), although their guidelines do not appear to have been evaluated. Jones and Way have also conducted research which concludes that the area of overlap between the family physician and the NP is in the area of shared care. In terms of measurement and evidence of collaborative practice, a study in rural Ontario by Way, Jones, Baskerville and Busing (2001) found that NPs were underutilized with regard to curative and rehabilitative care. This was due to a number of factors, including medicolegal issues related to shared responsibility, lack of interdisciplinary education and lack of familiarity with the scope of NP practice. They suggest strategies to improve collaborative practice, in particular by using NPs more effectively in the management of acute episodic and stable chronic illness, and to promote bi-directional referral between NPs and family physicians.

The literature describes practice models in terms of being independent (autonomous) or collaborative. Under the autonomous practice model, NPs practice autonomously within their defined scope, consulting with the physician when necessary and do not try to replace or provide substitution for medical care. Collaborative practice has been defined as "an inter-professional process for communication and decision-making that enables the separate and shared knowledge and skills of care providers to synergistically influence the client/patient care provided" (Way, Jones and Busing, 2000).

***General Conceptual Collaboration***

The Canadian literature suggests that the preferred practice modality is that of a collaborative practice model (Way, Jones and Busing 2000; Hanrahan, Way, Housser and Applin, 2001). Way, Jones and Busing carried out research to describe the elements that form the framework or structure found in successful collaborations and a process for determining the roles and functions of the collaborative partners based on role guidelines. They did a literature review and looked at case studies. They found that the required elements for a successful collaborative practice were responsibility and accountability, coordination, communication, cooperation, assertiveness, autonomy, and mutual trust and respect. Regarding the role and functions of the practice partners, the authors concluded it would be necessary to identify the needs of the practice population and the specifics of the practice setting and then make clear decisions regarding the services that need to be offered by the groups, along with the services to be provided by individual practice members.

Hanrahan, Way, Housser and Applin carried out a study to discuss the nature of the extended/expanded nursing role in Canada. The study aimed to identify facilitators of and barriers to the effective delivery of primary care services by registered nurses working in extended/expanded roles and to recommend policy options that would facilitate more effective utilization of RNs working in NP roles. The study included a survey of key informants at sites across the country to construct a profile of organizational structures. It also included collection of data at selected sites to measure physicians' and RNs' perceptions of EC nursing roles, to describe the experiences of nurses in the role and measure patient satisfaction with the services delivered by the EC nurse (EC stands for "extended class" and is another title for a NP). The findings from this study led the authors to recommend that collaborative practice between physicians and EC nurses be the norm for all practice settings.

Arrangements within collaborative practices vary based upon the practice structure and other behavioural elements.

Jones and Way have constructed NP-physician dyad guidelines, which were established through a case study in a community health centre near Ottawa, Canada (1994). The authors observed functioning of the centre over a period of five years in order to construct the guidelines. The centre drew from a catchment area of 80,000 people and had an annual budget of $3 million. The staff comprised 2.5 family physicians, two NPs (one seconded to a community-based programme), 2.5 RNs, two health promoters, other part-time staff providing psychiatric, chiropody and nutrition services, and full-time administrative staff. The clinic offered direct service 40 hours per week, with on-call support 24 hours per day, year round. The authors noted that the practice model was based on mutual respect, a collaborative practice,

client centred, with a holistic approach and strived for efficiency and cost-effectiveness by offering a provider appropriate for the care needed. There was a possible limitation in terms of efficiency with the additional time needed to coordinate care between two providers. The purposes of the guidelines were to guide practice, guide the evaluation of NPs, communicate the NP's role, and to increase the efficiency of the family physician-NP dyad.

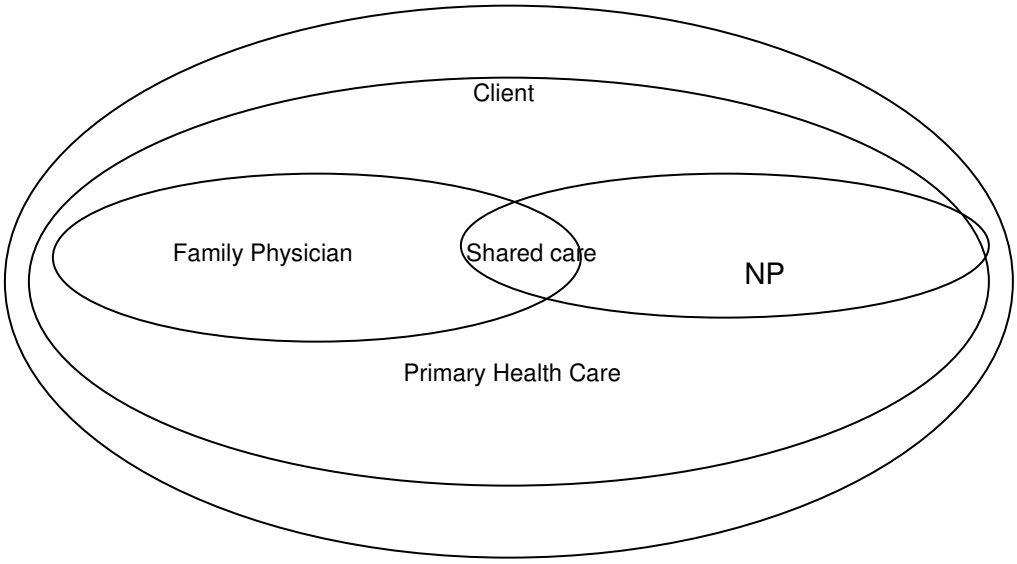
The NP-physician dyad guidelines formulated by Jones and Way are set out in a 1997 article (Jones and Way, 1997) and are as follows:

- Both providers recognize one another's situation and respect the other's efforts to integrate that into responsible patient care;
- Providers should respect each other's profession; and
- Mutuality of concern will result in moral autonomy to the other.

It should be noted that these guidelines have not been formally evaluated.

The following diagram illustrates the model described by Jones and Way.

**Model of collaborative partnerships (Jones and Way, 1997)**




Based on the research undertaken by Jones and Way, the area of overlap between the family physician and the NP is the area of shared care. They note that the size of the shared care area depends on the following variables:

- Knowledge and skills of the health care providers;
- Client characteristics, requirements and wants; and
- Work setting, and its policies and legislation.

***Measurement and evidence of collaborative practice***

Measures must be developed in order to evaluate the effectiveness of collaboration in practice. In two rural Ontario primary care practices, Way, Jones, Baskerville and Busing (2001) have sought to identify what health problems NPs and family physicians treat in the practices and what care is shared by the two providers. The authors collected baseline data from two rural Ontario primary care practices to improve structured collaborative practice between NPs and family physicians and compare service provisions between the two. Two NPs and four family physicians participated in the data collection of 400 patient encounters over a two-month period. The results showed that NPs saw more patients for health examinations and delivered more services related to disease prevention and support than the physicians. The study found that NPs were underutilized with regard to curative and rehabilitative care. This was due to a number of factors, including medicolegal issues related to shared responsibility, lack of interdisciplinary education and lack of familiarity with the scope of NP practice. The authors suggest strategies to improve collaborative practice, in particular by using NPs more effectively in the management of acute episodic and stable chronic illness, and to promote bi-directional referral between NPs and family physicians.

A study in Alberta found that community settings can improve the cost and quality of care by integrating NPs into the skill mix (Grand, 2000). The purpose of the study was to examine the development of a collaborative primary care model that can increase access to quality health care by the poor and homeless, and demonstrate the relevancy and influence of an NP seen as a care provider between traditional nursing and medical roles. The study was a reaction to the experiences of one community clinic located in the inner city of Calgary that had turned away 800 people during the period of one year due to funding constraints. An NP was integrated into the staff mix and the authors described and analyzed the process, challenges and outcomes related to the integration of a NP into a collaborative model in one case study. The study found that the NP improved the collaborative team's ability to offer coordinated, multi-level and cost effective care. The study also found that the NP connected gaps between the medical and nursing roles, and provided access to advanced nursing care not typically available in the inner city.

## Implementation of the NP role

There is very little recent literature in Canada concerning the implementation of the NP role. We have only identified three articles, and two of these are ten years old: a historical overview by Haines (1993), and an unpublished report by Mitchell et al., that was based on comprehensive data collection (1993). The most recent article was the study by Hanrahan, Way, Housser and Applin (2001). We summarize the findings from this literature in the box below. We then discuss the literature in more detail.

**Summary of Implementation of the NP Role**: The implementation of the NP role requires a clear and comprehensive strategy that takes into consideration the environment, the period of adjustment and the timeframe for implementation (Hanrahan et al., 2001). While the NP role was initially seen as a substitution to compensate for an undersupply of physicians, the intrinsic value of NPs is now more widely recognized.

In the 1960s, the implementation of NPs in Canada came about as a result of an undersupply of physicians (Hanrahan et al., 2001). The implementation of NPs was seen to substitute for physicians in rural and remote areas. More recently, the role of the NP has been expanded and is more valued in the primary care setting. For example, the Association of Ontario Health Centres (1990) supported the expansion of the NP movement with a clinical specialty in primary health care. Haines, in a historical overview that included interviews with key informants and a literature review, argues that if the goal is to move NPs into the community setting, then resources need to be shifted from institutions to community settings (Haines, 1993).

There has been discussion in Ontario around where NPs should begin their employment. In a 1993 report, Mitchell et al., argued that NPs should begin employment in primary care settings and then move into mental health, gerontology, long-term care, oncology, cardiac care and pediatrics. The report was in response to a request from the Ontario Ministry of Health to prepare a discussion paper about nurse practitioners. The authors used three main sources of data. These included a variety of documents produced by provincial or federal governments and professional organizations; published material (predominantly in Canadian and American journals); and discussions with numerous key informants and stakeholders. The authors note that the project was limited by time but also reported agreement and consistency among individuals and the literature regarding the issues and recommendations. They found overwhelming support for the utilization of NPs in the health care system. The factors used by Mitchell et al., to determine where NPs should practice following primary care include resident shortage, physician shortage, increased demand for services, and consistency with priorities of the health care reform agenda.

## Facilitators and Barriers to NP Integration

There is a limited amount of literature concerning barriers and facilitators to integration of NPs into practice settings in Ontario. We have only identified two studies: Hanrahan, Way, Housser and Applin (2001), and Way, Jones, Baskerville and Busing (2001). The study by Way, Jones, Baskerville and Busing is useful, but based on less comprehensive data (i.e., uses case studies) than the Hanrahan study. There is also a study carried out by Gilroy Management Consultants Inc (2001) in Newfoundland which is based on wide-ranging data collection in that province. We summarize the findings from this literature in the box below. We then discuss the literature in more detail.

**Summary of Facilitators and Barriers**: There have been a limited number of studies concerning Ontario that examine the facilitators and barriers to implementation of the NP role. In Ontario, key facilitators include: introduction of policies that legitimize the NP role; the establishment of one recognizable title; patient awareness of the NP role; an understanding of the NP role by other health professionals; the view of collaborative practice by physicians as desirable; the provision of resources to sites that want to employ an NP; and policy changes to provide reimbursement to NPs and the physicians who work in collaboration with them. The need for further research into the elements of collaboration has also been noted.

In terms of barriers, a recent Canadian study concerning Ontario, Saskatchewan and Newfoundland (Hanrahan et al., 2001) found that physicians and NPs had a different view of what the barriers to NP integration were. Barriers identified by physicians included: the negative impact on the income of fee-for-service physicians; potential for impeding physician recruitment and retention; inadequate nurse supervision; and responsibility and liability concerns for attending physicians when nurses see patients independently. The barriers identified by NPs included: skill/knowledge limitations; restrictions on scope of practice (e.g., prescriptive authority, ease of access to referrals and diagnostic services); inadequate public and professional awareness; unsupportive physicians and resistance from physicians, especially those compensated by fee-for-service.

Below we set out a summary table of the facilitators identified by studies in Canada, followed by a written summary of the various studies. We then discuss barriers to implementation using the same format.

***Facilitators***

**Exhibit 2: Summary of facilitators identified in studies**

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| **Policies and legislation**<br>▫ Legislation and regulatory framework that legitimizes the NP role and improves access to resources<br>▫ Legislation that improves access to resources<br>▫ Establishment of core competencies and practice standards for NPs<br>▫ Adoption of common definitions and language |
| **Funding**<br>▫ New funding methods for physicians so they will be adequately compensated for working with NPs<br>▫ Establishment of resources that are available to sites that want to employ an NP |
| **Practice models**<br>▫ Establishment of collaborative practice models as the norm<br>▫ Other health professionals that understand, and assess their role and contribution to collaboration<br>▫ Research into the elements of collaboration and assessment of their importance to facilitate implementation of collaborative practice |
| **Education**<br>▫ Support of NPs with continuing education for primary care<br>▫ Introduction of education around collaboration in clinical and academic settings |
| **Evaluation and measurement**<br>▫ Continual evaluation and monitoring of primary health care services<br>▫ Practice guidelines<br>▫ Measurement of patient outcomes to determine effect on quality of care |
| **Other**<br>▫ Measurement of cost-effectiveness<br>▫ Physicians and site managers who help define the NP role in practice and help NPs to develop skills<br>▫ The individual leadership of some NPs in implementing their role and negotiating their practice |

Hanrahan, Way, Housser and Applin have made recommendations to improve and expand the role of the extended class (EC) in Canada (2001). The authors contacted representatives from nursing associations and ministries to develop a profile policy and legislative/regulatory framework. Initially, all relevant provincial/territorial legislation and regulations were reviewed and a cross-country survey of key informants undertaken to document existing information on nursing practice models. Data were gathered from consultants employed by the nursing associations concerning the regulation of, as well as the policy and standards for, extended/expanded nursing practice in their respective jurisdictions. Representatives of provincial/territorial ministries of health were contacted to augment and/or clarify information received from the nursing associations. The authors also surveyed administrative personnel in different provincial agencies/organizations that employ registered nurses to work in extended/expanded practice roles.

During the second phase of data collection, an in-depth study was conducted at select sites in primary health care settings in Newfoundland, Ontario and Saskatchewan. Their recommended facilitators to implementation of the NP role included:

- Introduce policies to legitimize the EC role and improve access to resources;
- Change all relevant legislation to improve access to resources;
- Establish core competencies and practice standards for EC nurses;
- Support EC nurses with continuing education for primary care;
- Adopt common definitions and language;
- Establish collaborative practice between physicians and EC nurses as the norm;
- Continuously evaluate and monitor primary health care services; and
- Develop new funding methods for physicians so they will be adequately compensated for working with an EC nurse.

In another Canadian study, Way, Jones and Baskerville (2001) devised an intervention to assist NP-family physician collaborative practice, and made numerous recommendations concerning facilitators to such a practice. Their study involved descriptive, quantitative and qualitative collection methods. Data were collected pre- and post-intervention from health care providers, students and patients; and from key informants post intervention. Evaluation methods included monitoring of programme implementation and progress as well as: surveys and interviews of providers; patient surveys; patient encounter forms; key informant surveys; and a questionnaire and interview of students. The recommendations to facilitate and improve collaborative practice include:

- Provide a broader introduction of collaborative practice in larger samples of Canadian sites;
- Other health professionals need to understand, and assess their role and contribution to collaboration;
- Measure cost-effectiveness;
- Future interventions need to implement establish practice guidelines, and have sufficient time to measure patient outcomes to determine effect on quality of care;
- Establish resources and have them available to sites that want to employ an NP;
- Policy changes that provide reimbursement to NPs and the physicians who work in collaboration with them;
- Research the elements of collaboration and assess their importance to facilitate implementation of collaborative practice; and
- Support implementation of recommendations of the Ontario Chairs of Family Medicine and the Council of Ontario University Programs in Nursing calling for continuing education on collaboration in clinical and classroom settings.

Another Canadian report sought to evaluate, in Newfoundland and Labrador, the implementation of the role of the NP in primary health care; the extent to which the NP primary health care role had been integrated into the health and community services system; and the impact of the NP primary health care role on the health and community services system (Goss Gilroy Management Consultants Inc., 2001). The data collection for the evaluation concluded in March 2001. Surveys were conducted of all NPs from the first two classes in the programme at the Centre for Nursing Studies who had practiced in the province. Also, a total of 22 NPs were interviewed. Managers, health professionals, and physicians at

each site with NPs from the first two classes were also interviewed. In total, 31 interviews were conducted with management at institutional and health and community services boards; 12 interviews were conducted with physicians and 18 interviews were conducted with health professionals. In addition, another 15 key informant interviews were conducted with individuals who had been involved in the development and integration of the NP role in Newfoundland and Labrador and with individuals in Alberta and Ontario. A literature review was also completed on learnings from the implementation of the role in other jurisdictions.

The Newfoundland evaluation identified the following facilitators to the implementation of the NP role:

- Legislation and regulatory framework legitimized the role;
- Funding was a catalyst for health boards to implement the role of NPs;
- Work done by provincial health organization resolved questions surrounding implementation;
- Some physicians and site managers were invaluable by actively aiding in defining the NP role in practice and helped the practitioner to develop skills; and
- The individual leadership of some NPs in implementing their role and negotiating their practice.

***Barriers***

A number of barriers to implementation of the NP role have been identified in the literature. We set out below a table summarizing the barriers identified, followed by a summary of the relevant studies.

**Exhibit 3: Summary of barriers identified in the studies**

| |
|---|
| **Attitudinal**<br>▫ Negative attitude and lack of acceptance of the role by physicians<br>▫ Physicians feeling threatened by NPs<br>▫ Lack of common understanding of the role among health providers<br>▫ Lack of public awareness of NP role<br>▫ Increased role strain and delayed confidence-building due to the presence of unsupportive physicians |
| **Legislative barriers**<br>▫ Decreased effectiveness of NP role due to restricted prescriptive authority<br>▫ Decreased effectiveness of the NP role due to restrictions imposed on scope of practice (e.g., prescriptive authority, ease of access to referrals and diagnostic services, etc.) |
| **Funding and income issues**<br>▫ Systemic issues including fee-for-service payment and other payment policies (e.g., negative impact on the income of fee-for-service physicians)<br>▫ Potential for impeding physician recruitment and retention<br>▫ No mechanism in place for fee-for-service physicians in private practice to hire NPs |
| **Title**<br>▫ Lack of consensus re NP title is a potential source of confusion and barrier to integration (“NP” is not a protected title in Ontario, and the title for NPs varies across Canada) |

| |
|---|
| **Skill/knowledge limitations**<br>▫ Decreased ability of NPs to provide comprehensive health care services due to skill/knowledge limitations |
| **Liability issues**<br>▫ Responsibility and liability concerns for attending physicians when nurses see patients independently |
| **Practice model limitations**<br>▫ Lack of clarity in the relationships surrounding collaborative practice<br>▫ Potential for continuity of care problems when nurses order diagnostic tests independent of physicians<br>▫ Lack of fraternity with specialty physicians<br>▫ Limited access to diagnostic services, especially in rural/remote areas |

In their 2001 study discussed in the 'facilitators' section above, Hanrahan et al., identified several barriers to full utilization and acceptance of extended/expanded nursing roles (Hanrahan et al., 2001). Physicians identified the barriers as:

- Negative impact on the income of fee-for-service physicians;
- Potential for impeding physician recruitment and retention;
- No mechanism in place for fee-for-service physicians in private practice to hire nurses to work in extended/expanded roles;
- Decreased effectiveness of extended/expanded nursing roles due to restricted prescriptive authority, absence of fraternity with specialty physicians and limited access to diagnostic services, especially in rural/remote areas;
- Absence of fraternity with specialty physicians and limited access to diagnostic services, especially in rural/remote areas;
- Potential for continuity of care problems when nurses order diagnostic tests independent of physicians;
- Inadequate nurse supervision may result in the provision of poorer quality care to patients; and
- Responsibility and liability concerns for attending physicians when nurses see patients independently.

According to NPs surveyed in the Hanrahan study, the following barriers exist:

- Decreased ability to provide comprehensive health care services due to skill/knowledge limitations;
- Decreased effectiveness of the extended/expanded nursing roles due to restrictions imposed on scope of practice (e.g., prescriptive authority, ease of access to referrals and diagnostic services, etc.);
- Thwarted/delayed acceptance of extended/expanded nursing roles due to inadequate public/professional awareness;
- Increased role strain and delayed confidence-building due to the presence of unsupportive physicians;
- Restricted utilization of extended/expanded role nurses in private physicians practice due to the heavy reliance on a fee-for-service system and the absence of alternative funding mechanisms; and
- Resistance from physicians, especially those compensated by fee-for-service, impeded full implementation of the extended/expanded role.

The Newfoundland study by Goss Gilroy Management Consultants Inc (2001) that evaluated the 1997 implementation of NPs in primary care identified the following barriers to the implementation of the NP role:

- Lack of common understanding of the role among health providers;
- Lack of acceptance of the role by physicians;
- Lack of clarity in the relationships regarding collaborative practice;
- Lack of a general primary health care plan; and
- Systemic issues including fee-for-service payment and other payment policies.

Attitudes of physicians have been identified as a significant barrier to NP practice. In their 1997 study, Jones and Way found that there was a negative response from physicians towards the project. Physicians felt threatened by NPs and did not support changes to their legislative role.

## Practice Settings and Client Population

We have identified just two studies that look specifically at the NP role within the primary care setting. They are both recent studies and therefore useful for the purposes of this study. They are a study by Sidani et al., (2000) and a study of Primary Care Reform Pilots in Ontario for the Ministry of Health and Long Term Care by IBM Business Consulting Services (2002).

**Summary of Practice Setting and Client Population**: We have reviewed two Canadian studies concerning the NP role in the primary care setting. Looking at a significant number of practising NPs in Ontario, the Sidani study found that the large majority of NPs were working in CHCs and physician practices. The MoHLTC study only concerned pilot primary care networks and therefore only looked at a small number (seven) of NPs.

Similar to other jurisdictions, Ontario is undergoing primary health care reform. The goals of primary care reform include improved access, quality and continuity of care, increased patient and provider satisfaction, and increased cost-effectiveness of health care services. One focus of primary care reform in Ontario is the increased involvement of non-physician providers such as nurses in the delivery of primary care. The new primary care model – Family Health Network – should promote collaboration between physicians, NPs and other health care professionals.

Primary care is the niche within which most NPs choose to practice. There are a number of primary care practice settings, including general and family practices, paediatric practices, and community health centres (CHCs). A descriptive study by Sidani et al., (2000) surveyed 166 NPs in Ontario to examine the implementation of the NP role in primary care settings. This represented 73% of the 227 NPs certified by the College of Nurses of Ontario as Extended Class to whom surveys were sent. The survey inquired about the NPs' professional characteristics, employment settings, scope of practice, practice patterns, and satisfaction with their role. The survey found that 50% of the NPs were employed in CHCs, 40% were in physician practices and 10% were working in out-post settings. CHCs provide a comprehensive range of health care, health education, community development and social services. CHCs are typically

established in medically under-serviced areas in rural communities and inner-city urban areas. These communities have high-risk populations who do not readily have access to primary care services. CHC services are provided by multi-disciplinary teams of social and health care professions, all of whom are salaried. As of 2000, there were approximately 55 CHCs in operation across Ontario.

Primary care NPs participating in the Sidani study reported that they were able to practice to their full potential. They viewed themselves as having a high level of independence and independence related to decision making with respect to care requirements. Sidani et al. found that almost all NPs surveyed offered wellness care, care of minor acute illness, and monitoring of chronic illness and that over 60% offered care of major acute illness and palliative care. About 25% offered other services for specific populations such as the homeless, aboriginal people, pregnant women, or those with psychosocial problems.

A study for the MoHLTC by IBM Business Consulting Services (MoHLTC Evaluation of Primary Care Reform Pilots in Ontario: Phase 2 Report, 2002) found that within the province's pilot primary health care networks, there were seven practising NPs. The researchers note that a lack of data limited the evaluation team's ability to fully examine the impact of NPs in the primary care networks. However, based on the information gathered, NPs may have had a positive impact on preventative interventions and on access (i.e. taking call; seeing walk-in patients/same day appointments). NPs surveyed felt they had improved health outcomes.

## Scope of Practice

In addition to the study by Sidani et al., referenced above, we have identified three articles that discuss scope of practice: a historical overview by Haines (1993), an article by Patterson and Haddad (1992) and a study by Way, Jones and Busing (2000). We summarize the findings from this literature in the box below. We then discuss the literature in more detail.

**Summary of Scope of Role**: The scope of practice of NPs varies across Canada. With respect to the primary care setting, legislation in Ontario sets out controlled acts which are to be performed by registered nurses with an extended class designation. In primary care practice settings, many NPs conduct general primary care (e.g., well-baby exams, well-women exams, physical examinations), patient education (e.g., diabetes, hypertension), health promotion and preventative health care such as pap smears and blood pressure checks.

The scope of what NPs do varies across the country and tends to be driven by the specific needs of the practice setting and differing legislation, which contributes to the significant variation in the NP scope of practice. Through a descriptive study and literature review, Way, Jones and Busing (2000) evaluate the NP's role as either a consultative or collaborative role. Their research indicates that NPs practice most often in a consultative role rather than a collaborative role. In a consultative practice model, care is transferred from physician to NP and then back to the physician.

There is no consistent definition or scope of practice for the NP role across and within jurisdictions in Canada (Hanrahan et al., 2001). Exhibit 4 provides a summary of scope of practice by jurisdiction.

**Exhibit 4: Extended/expanded scope of practice by jurisdiction**

| Jurisdiction | Scope of Practice |
|---|---|
| Ontario | Legislated scope of practice relates to primary care functions only. Controlled acts are to be performed by RNs with an extended class designation |
| British Columbia | Extended/expanded practice is undertaken by delegated acts, which are established by working arrangements according to location, organization and training. RNABC has guidelines for Delegated Medical Functions |
| Alberta | The Extended Practice Roster Regulation governs registered nurses in extended/expanded roles. AARN has developed competencies and guidelines to govern nurses providing “extended health services” |
| Saskatchewan | Scope of practice is defined by the province-wide clinical practice guidelines but subject to site modifications |
| Manitoba | Under the new legislation, regulations will be developed for required competencies in extended/expanded nursing practice. MARN has established standards of practice which apply to all practising registered nurses in the province regardless of their roles or practice settings |
| Québec | Delegated medical functions are not necessarily supported by protocols. Concerns have been raised by nurses about situations where they could be exposed to liability and have no protection |
| New Brunswick | Site specific protocols govern the delegation of function |
| Prince Edward Island | Not applicable at present. However, if there were a movement to introduce extended/expanded nursing roles, the nursing association would establish guidelines for core competencies in accordance with CNA guidelines |
| Nova Scotia | Scope of practice is defined by delegation of medical functions under guidelines negotiated between the College of Physicians and Surgeons of NS and RNANS |
| Newfoundland and Labrador | The ARNNL approves standards of practice and competencies for NP- PHC |
| Yukon | Employers have adopted the MSB Scope of Practice Guidelines for Community Health Nurses, Nursing Stations and Health Care Treatment facilities |
| Northwest Territories and Nunavut | All extended/expanded practice is under the authority of protocols with the medical profession and employer organizations. |

Source: Hanrahan et al., (2001)

In some provinces, the NP role has been specifically legislated while in others, NPs function within existing nursing legislation. The NP role tends to be driven by the specific needs of the practice setting and differing legislation, which contributes to the significant variation in the NP scope of practice.

Haines argues that it is important to clarify the meaning of "NP" in order to discuss the future of the role. She also argues that it is important to define the scope of the role so that only those within the scope can call themselves NPs (Haines, 1993).

An article by Patterson expands the NP role as an educator and researcher. Patterson sees the NP as combining education from medical and nursing models to make unique contributions to the health care system (Patterson et al. 1992). At the individual level of analysis, Patterson finds that personal characteristics can influence the scope of the NP role. An individual characteristic seen as important to the role is flexibility, a trait that is important in exploring new avenues in the health care system (Patterson et al. 1992). Personal characteristics contribute to the clinical role of the NP, but are uniquely different because they differ between individuals.

## Interaction/Collaboration in Practice Teams, and Between NPs and Physicians

Other than the literature discussed above looking at facilitators and barriers to integration, there is very little recent literature from Ontario concerning interaction and collaboration in practice teams, and between NPs and physicians. In this category, we have identified the MoHLTC Evaluation of Primary Care Reform Pilots in Ontario, carried out by IBM Business Consulting Services. In addition, a case study by Woodman (2002) looked at one successful NP-MD collaboration in rural Kingston.

**Summary of Interaction/Collaboration in Practice Teams, and Between NPs and Family Physicians**: There have been very few Canadian studies looking at interaction between NPs and practice teams, and family physicians. An early study in Canada which found that physicians tended to be threatened by the introduction of an NP role (Sackett, 1973) is too dated to be of any real significance in today's environment. A more recent study that examined primary care network pilots in Ontario suggested that there are mixed perceptions of the NP role, with some physicians finding it difficult to effectively fit a NP into their practice (MoHLTC Evaluation of Primary Care Reform Pilots in Ontario: Phase 2 Report, 2002). Positive perceptions of the NP role will undoubtedly be important to ensure successful integration within teams and physician practices. A small, isolated case study by Woodman of a site in rural Kingston (2002) found that reasons for the successful collaboration there included: the physicians' past experience working with NPs; the foundation that had been established in prior student/mentor roles; the presence of mutual trust and respect; exemplary communication between practitioners; NPs' background, ability, motivation and insight into limitations; receptiveness and responsiveness from patients and the community; and support staff that helped facilitate the role.

The MoHLTC study found that some primary care networks felt the NP was an asset to and an integral part of the health care team, whereas other practices found that it was difficult to fit an NP effectively into their practice. Furthermore, some physicians who had experienced nurses in their practice did not see the need for an NP (MoHLTC Evaluation of Primary Care Reform Pilots in Ontario: Phase 2 Report,

2002). This evaluation utilized both qualitative and quantitative research methods, including a focus group with five NPs working in the primary care networks (there were a total of seven NPs funded as part of the Primary Care Reform programme), interviews with 60 primary care network physicians, and a survey of 126 primary care network physicians and 185 control group physicians. Messages from the NPs included: that it was important for them to maintain their own identity; that some physicians are reluctant to have NPs independently order blood work or medication or perform follow up visits; that the reality of the economics of health care means that NPs are employed by and paid by physicians, and therefore there is a power differential.

A small, isolated case study by Woodman of a site in rural Kingston (2002) found that reasons for the successful collaboration there included: the physicians' past experience working with NPs; the foundation that had been established in prior student/mentor roles; the presence of mutual trust and respect; exemplary communication between practitioners; NP's background, ability, motivation and insight into limitations; receptiveness and responsiveness from patients and the community; and support staff that helped facilitate the role.

## The International Literature

### Practice Models

There are a large number of articles from the U.S. looking at various practice models, as well as some from the UK. Here we have identified articles from the U.S. and the UK that discuss practice models and that have potential to add learning to that gained from the Canadian literature. We summarize these in the box below and then discuss them in more detail.

**Summary of Practice Models**: The U.S. research echoes the Canadian view that the preferred practice model is a collaborative one. From the U.S. we see more research around the various structures and characteristics present in collaborative models. One researcher's conclusions as to the required characteristics required for a successful collaborative practice (cooperation, assertiveness, responsibility, communication, autonomy and coordination) are very similar to those identified by Way et al., in their 2000 study (Norsen, Opalden and Quinn, 1995). The Schuler model provides a different conceptual model for consideration. The U.S. studies are therefore worthy of consideration by Ontario policymakers.

In the U.S., a study by Shuler and Huebsher (1998) created a model to represent and identify contributions that NPs make to health care. This model's characteristics include:

- Assessment of patients from a holistic view;
- Development of mutually agreeable, self-care oriented treatment plans;
- Inclusion of illness prevention and health promotion activities in the plan of care;
- Consideration of all non-pharmacological plans of care, including alternative healing practices;
- Functioning in a collaborative model; and
- Improvement of the patient's and NP's individual quest for wellness.

Shuler argues that a nursing model that distinguishes unique nursing characteristics is essential to building a well-developed theory for the discipline and control of nursing practice over a multitude of settings.

***Consultative and collaborative models***

Like Way et al., in Canada, various researchers in the U.S. and the UK identify the consultative and collaborative approach as a fundamental component of the NP's role. Key articles include: Torn and McNichol (1998, UK); Wright (1995, UK); Garland and Marchione (1982, U.S.); Arcangelo et al., (1996, U.S.); Siegler and Whitney (1994, U.S.); Norsen et al., (1995, U.S.); Grady and Wojner (1996, U.S.); Lorenz et al., (1999, U.S.); Freeman et al., (2000,UK); Giardino and Jones (1994, U.S.); and Dontje et al., (1996, U.S.).

Torn et al., (1998, UK) further expanded the NP's role into consultative and clinical areas. The clinical component attributes to NPs the role of solving problems, whereas in the consultative component NPs are guided by protocols. In terms of consultation, Wright (1995, UK) views the technical instrumental role of NPs as being built on 'softer' skills such as caring.

Regardless of the theory, Garland and Marchione (1982, U.S.) argue that the NP role should be interpreted at three levels of analysis in order to account for the structures affecting the role. The levels of analysis are societal, group and individual. The societal or institutional level of analysis accounts for the social norms that affect the role. The group or interactional level of analysis recognizes that people generally interact in terms of status, and roles are learned in the process of social interaction. This is the level in which gender-specific occupations occur, and why nurse-physician relations are such an integral aspect of the implementation and survival of NPs.

Arcangelo et al., (1996, U.S.) present a model whereby there are four generally accepted types of collaborative practice models. Their work is descriptive and looks at the advantages of collaborative practice, as well as addressing practical considerations for implementing a collaborative practice The models of collaborate practice they identify are:

- Parallel Model: NP sees stable patients and physician sees medically complex patients.
- Sequential Model: NP performs the initial assessment and physician is responsible for the diagnosis and management of the patient.
- Shared Care Model: NP and physician both see patients on alternating schedules and the patient may visit with either.
- Collaborative Model: Patient chooses or is assigned to one of the health providers regardless of the complexity of the health problem.

In another descriptive study coming out of the United States, Siegler and Whitney (1994, U.S.) define a collaborative structure as composed of three models:

- Hierarchical model: Comprised of unidirectional communication, and limited contact between the patient and physician.

- Collaborative practice model - Type 1: This model consists of bi-directional communication, and continues to place the physician ahead of the NP, constructing barriers between the patient and physician.
- Collaborative practice model - Type 2: This model comprises interdisciplinary, patient-centred care, in which all health care providers work with each other and the patients.

Norsen et al., (1995, U.S.) used a description and case study to conceptualize the structure of collaboration as a pyramid. Starting from the bottom, the pyramid is as follows:
- Protocols for advanced practice: members are able to discuss, resolve disagreement, and ensure quality.
- Practice agreement: outlines aspects of the relationship between the NP and the physician.
- Standards of advanced practice: reference that lists responsibilities.
- Scope of advanced practice: defines legislative parameters of collaborative arrangement.

Norsen further defined the process characteristics required for collaborative practice as:
- Cooperation: emphasize collegial relationships based on equality and shared decision-making;
- Assertiveness: individuals in practice support other's views with confidence;
- Responsibility: individuals are able to accept accountability for all team actions;
- Communication: sharing information about the patient;
- Autonomy: Each individual has trust from the team and empower each individual independently; and
- Coordination: Organize components of care.

In forming a practice with NPs, Grady and Wojner (1996, U.S.) argue in a descriptive study that it is essential to recognize that the development of group collaboration occurs in four stages:
- Forming phase: comprises inquiry and exploration;
- Storming phase: where groups conflict on goals and relationships;
- Norming phase: follows guidelines and collaboration is visible; and
- Performing phase: evidence of individual and group initiative.

Other components of collaborative practice, which are highlighted by Siegler et al., (1994, U.S.), Lorenz et al., (1999, U.S.), and Arcangelo et al., (1996, U.S.) are mutual respect, optimism, common purpose, shared knowledge base, compromise and interdependence.

Through case studies of teams, Freeman et al., (2000, UK) postulate that individual philosophies of teamwork can affect the process of collaborative practice. Information collected through observations and interviews identify three individual philosophies of collaboration.
- Directive philosophy: assumes a hierarchy, and different levels of communication;
- Integrative philosophy: commitment towards collaboration, views the development of role boundaries as important, assigns equal value to all contributions, and agrees with discussion for team understanding; and
- Elective philosophy: views a system of liaison, the need for attention to role clarity, short communications, and that learning is valued from only those of equal or higher status.

Giardino and Jones (1994, U.S.) reviewed the literature regarding instruments developed to measure collaborative practice and identified four indicators of collaboration, outlining the most recognized measurements of each indicator: power-control, practice spheres, mutual concerns and common goals. They also looked at satisfaction measures for NPs, physicians and patients.

Studies in the U.S. have shown that, in a community setting, collaborative practice between NPs and physicians has improved the organization and efficiency of care in community health centres and physician general and specialty practices. Dontje et al., (1996, U.S.) examined the collaborative model implemented in a comprehensive breast clinic. The clinic opened in 1991 with two NPs and one surgeon. Providers agreed upon guidelines for patient visits, including for the initial evaluation, the follow-up, and the treatment plan. The study concluded that the clinic was successful due to its recorded 86% patient satisfaction, quality assurance, and provider satisfaction.

## Implementation of the NP Role

We have identified two U.S. studies regarding implementation of the NP role. Given that there is very little literature on this subject in Canada, these are worthy of consideration. We summarize them in the box below and then discuss them in more detail.

**Summary of Implementation of the NP Role**: Research in the U.S. suggests that implementation of the NP role results in an adjustment period for the system and staff, as well as for the NPs themselves. (Brown and Olshansky, 1998) Research in the U.S. also suggests that the environment in which the NP operates plays an important role in the implementation (Zammuto et al. 1979).

A study by Brown and Olshansky (1998) relied on data from a longitudinal, qualitative research study of 35 new NP graduates. They concluded that the implementation of the NP role results in an adjustment period, not just for the system and staff, but also for the NPs themselves. As such, they constructed a model that identifies the stages of adjustment before the NP has become comfortable with the role, namely, laying the foundation, launching, meeting the challenge, and broadening their perspective.

A study by Zammuto et al., (1979, U.S.) found that certain types of settings are able to utilize nurse associates more effectively than others. He found that institutional agencies formalized the role at a significantly faster rate than did non-institutional agencies. He also found that the effect of the type of sponsoring agency was not significant. He concluded that the rate of implementation appears to be more strongly influenced by the structural characteristics of each individual agency than by generic type of agency.

## Facilitators and Barriers to NP Integration

There are a large number of U.S. studies that consider barriers and facilitators to integration of the NP role into practice settings. Below we set out a summary table of the facilitators identified by studies in the U.S., followed by a written summary of the various studies. We then discuss barriers using the same

format. While the U.S. health care system is vastly different from the Canadian system, there are still a number of potential lessons to be learned from the U.S. studies.

**Summary of Facilitators and Barriers**: The literature shows that in the U.S., the success of the NP movement can be attributed to facilitators such as: educational curricula focusing on nursing content; development of NPs as experts; the use of one recognizable title; desire on the part of all providers to adopt the collaborative model; creation of conditions within the practice that promote positive communication; and allowing both providers to practice from the uniqueness of their separate disciplines.

The studies identified barriers including: structural barriers; differing philosophies of care between NPs and physicians; poor communication between NPs and physicians; legislative barriers; limited knowledge by other health professionals of the NP's role; and limited public awareness.

The number of U.S. studies and identification of facilitators and barriers that are also identified in Canadian studies suggest that there would be merit in taking note of the U.S. studies.

***Facilitators***

**Exhibit 5: Summary of facilitators identified in U.S. studies**

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|---|
| **Policies and legislation**<br>▫ Choose one recognizable title<br>▫ Organize NPs into a group, work towards nationally recognized certification process, seek third-party reimbursement<br>▫ Ensure the practice is aware of NP regulations within the state or province |
| **Funding**<br>▫ Consider methods of reimbursement/payment reforms |
| **Practice models**<br>▫ All providers practice from the uniqueness of their separate disciplines<br>▫ Providers must share responsibility and accountability for patient care within their roles<br>▫ Providers share decision-making<br>▫ Providers share philosophy through mutual understanding of the role of each other's practice<br>▫ Provider must communicate effectively/create conditions within the practice that promote positive communication<br>▫ All providers must desire to adopt the collaborative model<br>▫ Personal clarification of what one wants to achieve through the joint practice relationship<br>▫ Self-examination of inter-actional patterns with physicians<br>▫ Evaluate how close the patterns are to mutual understanding |
| **Practice setting/scope of practice**<br>▫ Determine how NPs will be used in the practice<br>▫ Expand scope of clinical sites |

| |
|---|
| ▫ Decide upon protocols if any |
| **Education** |
| ▫ Identify master's degree level as first level of qualification<br>▫ Focus educational curricula on nursing content<br>▫ Spend numerous days observing day-to-day tasks |
| **Other** |
| ▫ Initiate a public relations campaign before the implementation of the NP<br>▫ Make patients aware that NP care is not identical to medical care<br>▫ Self-reflection |

In a U.S. study aimed to address the most serious obstacles facing NPs and recommend strategies for survival, Billingsley and Harper (1982, U.S.) used a descriptive method in which problems were discussed and recommendations offered and reinforced by literature. The authors made the following recommendations to facilitate and promote the role of the NP in different settings:

- Focus educational curricula on nursing content;
- Develop NPs as the experts;
- Identify and discuss NP tasks in health care;
- Identify masters degree level as first level of qualification;
- Choose one recognizable title;
- Make patients aware that nurse/health care is not identical with medical care;
- Organize NPs into a group, work towards nationally recognized certification process, seek third-party reimbursement; and
- Expand scope of clinical sites.

A study in the early 1990s in the U.S. examined justifications of NPs by third-party payers using a case analysis format. The author carried out a literature review and three case studies derived from information from NPs. She concluded that payment reforms improve practice because they reflect the NP's worth of services; they affect willingness and ability for patients to receive services; they are significant for salaried workers; they permit NPs to practice independently and they reflect changing attitudes of law-makers. She thus concluded that payment reform policies are critical for governments to set trends (Sullivan, 1992).

In a descriptive study, Arcangelo et al., discussed the advantages of collaborative practice and addressed practical considerations for implementing a collaborative practice (Arcangelo et al., 1996, U.S.). They concluded that certain factors can aid in the implementation and maintenance of collaborative practice. They identified the following facilitators of implementation of collaborative practice:

- All providers must desire to adopt the collaborative model;
- Determine how NPs will be used in the practice;
- Spend numerous days observing day-to-day tasks;
- Initiate a public relations campaign before the implementation of the NP;
- Ensure the practice is aware of NP regulations within the state or province;
- Consider methods of reimbursement;
- Decide upon protocols if any; and

- Complementary professional relationship.

A U.S. study in the late 1980s aimed to investigate the observed failure of nurses and physicians to collaborate, and the underlying meaning behind this failure (McLain, 1988, U.S.). Using a phenomenological and participatory approach, 18 family NPs and physicians in joint practice were interviewed separately and together about their practice relationships. The author concluded that individual practices affect collaboration and that self-examination can help build positive conditions for collaborative practice. McLain suggests the following facilitators for the individual NP in collaborative practice:

- Self-reflection;
- Personal clarification of what one wants to achieve through the joint practice relationship;
- Self-examination of inter-actional patterns with physicians;
- Evaluate how close the patterns are to mutual understanding; and
- Create conditions within the practice that promote positive communication.

In a descriptive study, Nugent and Lambert (1996) discussed barriers and facilitators and prepared a model of collaborative practice. The authors found that after collaborative practice has been implemented, facilitators are essential to ensure collaboration, and not conflict. They identified the following facilitators to maintain collaborative practice:

- Both providers practice from the uniqueness of their separate disciplines;
- Providers must share responsibility and accountability for patient care within their roles;
- Providers share decision-making;
- Providers share philosophy through mutual understanding of the role of each other's practice;
- Providers must communicate effectively; and
- Synergy distinguishes collaboration from other relationships.

***Barriers***

**Exhibit 6: Summary of barriers identified in the U.S. studies**

| |
|---|
| **Legislative barriers** |
| ▫ Legislative barriers in the last 25 years have prevented the definition of advanced practice, organized practice acts so physicians had control, limited prescriptive and hospital visiting privileges, and prevented reimbursement |
| ▫ Concerns surrounding prescriptive authority and reimbursement for NPs, fearing that changes in legislation would result in NPs practising independently |
| ▫ Legal ambiguities |
| ▫ Lack of consensus as to the NP title |
| **Attitudinal/professional relationships** |
| ▫ Physicians' attitudes |
| ▫ Social psychological discounting |
| ▫ Differing philosophies of care between NPs and physicians |
| ▫ Conflicts between academic and clinical nurses within the profession |

| |
|---|
| ▫ Many nurses do not want to collaborate<br>▫ Physicians feeling less effective in their work and less satisfied when the NP assumed more responsibility<br>▫ Patterns to professional relationships:<br>▫ Assistant/Guest: located in private practices with high personal control;<br>▫ Gatekeeper: located in large bureaucratic institutions with high structural controls; and<br>▫ Colleague/Manager: located in settings with low structural and personal controls. |
| **Structural**<br>▫ Physicians were typically male, of higher social class, and physically larger<br>▫ Male dominance<br>▫ Structural barriers including educational and economic backgrounds<br>▫ Two different educational systems have developed two separate languages |
| **Practice model limitations**<br>▫ Poor communication between nurses and physicians<br>▫ Physicians felt that the NP should be required to follow established protocols, and did not relate diagnostic reasoning to the scope of practice<br>▫ Limited knowledge of each other, and the scope of one another's practice<br>▫ An undefined role |
| **Knowledge/skill limitations**<br>▫ Clinical nurse specialist role was developed for specialized practice and not for primary care |
| **Funding issues**<br>▫ Financial and legislative disincentives surrounding collaborative care<br>▫ Lack of third party re-imbursement |
| **Other**<br>▫ Nurses lack of identification with their profession<br>▫ Limited consumer awareness<br>▫ Territorial constraints |

In Billingsley and Harper's descriptive U.S. study (1982) the following barriers to the implementation of the NP role were identified:

- An undefined role;
- Lack of consensus concerning name;
- Limited consumer awareness;
- Legal ambiguities;
- Lack of third party re-imbursement; and
- Territorial constraints.

Nugent and Lambert also undertook a descriptive study which found the following barriers to collaboration (1996, U.S.):

- Male dominance;
- Structural barriers including educational and economic backgrounds; and
- Differing philosophies of care between NPs and physicians.

Another barrier that has been identified to collaboration is the limited knowledge of each other, and the scope of one another's practice (Alpert et al., 1992, U.S.). Alpert et al.'s study involved the description of the creation of an NP practice model in one particular hospital.

In the U.S., a descriptive study by Herzog (1976, U.S.) describes how physicians felt less effective in their work and less satisfied when the NP assumed more responsibility. In a 1977 study by Lawrence, a questionnaire was sent to all physicians practising in one state. The results showed that 85.9% of physicians approved of the conceptual role of the NP (Lawrence et al., 1977, U.S.). However, the survey also indicated that only 34.4% of the physicians would consider hiring one. Those who felt that they would not hire an NP either did not require assistance in their practice or thought they would hire another provider.

A more recent U.S. study indicated that there is an overall acceptance of NPs as cost-effective providers of health care among physicians (Ford and Kish, 1998). In this study, a convenience sample was used in which equal numbers of faculty and residence staff were randomly selected to comprise a total of 10 participants. Semi-structured interviews were conducted and coded. While there was an overall acceptance of NPs, the physicians felt that the NP should be required to follow established protocols, and did not relate diagnostic reasoning to the scope of practice. There were concerns surrounding prescriptive authority and reimbursement for NPs, fearing that changes in legislation would result in NPs practising independently.

In addition, Martin and Hutchison (1999, U.S.) discussed the relevance of social psychological discounting as a barrier to NPs. The data collection techniques included interviews with 23 NPs, document review and observation of relevant meetings. There was triangulation across data to ensure reliability and validity. The study found that discounting includes being undermined, ignored, excluded, blamed, verbally abused, stigmatized, being made invisible and being misidentified by other health care providers. Social structural discounting is divided into two categories. Discounting in the organizational setting includes: unclear role expectations, inadequate resources, lack of administrative support, lack of planning, chain of command issues, financial exploitation and NPs' inability to receive direct reimbursement.

Using a literature review, Siegler and Whitney (1994, U.S.) reviewed the social and economic barriers to collaboration that exist between nurses and physicians. They identified a number of barriers including:

- Poor communication between nurses and physicians;
- Physicians were typically male, of higher social class, and physically larger;
- Two different educational systems have developed two separate languages;
- Conflicts between academic and clinical nurses within the profession;
- Clinical nurse specialist role was developed for specialized practice and not for primary care;
- Financial and legislative disincentives surrounding collaborative care;
- NPs were different from physician assistants because they could practice independently; and

- Legislative barriers in the last 25 years have prevented the definition of advanced practice, organized practice so that physicians have control, limited prescriptive and hospital visiting privileges, and prevented reimbursement of NPs.

Little (1980, U.S.) carried out a descriptive study that aimed to briefly review the history and need for collaboration and to look at the spirit of collaboration, the spectrum of collaboration, key ingredients for collaboration, and thoughts concerning future collaboration. Little identified two types of control that cause conflicts between the providers. First, structural controls are institutional policies and protocols that affect the division of labour in health care and second, personal controls that are placed on the NP by other health care providers. Little identified the following patterns to professional relationships which act as barriers to the implementation of the NP role:

- Assistant/Guest: located in private practices with high personal control;
- Gatekeeper: located in large bureaucratic institutions with high structural controls; and
- Colleague/Manager: located in settings with low structural and personal controls.

## Prescriptive Authority

We have looked at three U.S. studies around the issue of NPs' lack of prescriptive authority. We summarize these in the box below, and then discuss them in more detail.

**Summary of Prescriptive Authority**: While we have not identified any Canadian studies that specifically focus on NP prescriptive authority, U.S. studies suggest that the ability of NPs to prescribe may have beneficial impacts on patient outcomes.

The U.S. literature points to issues arising from NPs' lack of authority to prescribe medication. A recent study by Sherman et al., used a qualitative approach to document the barriers or constraints to prescriptive authority and prescribing practices as perceived by clinical health specialists, clinical nurse midwives and NPs both with and without prescriptive authority. A correlation survey was undertaken across three NP groups. There was a 36% response rate, being a total of 178 NPs. These NPs perceived major barriers to prescriptive practice. Fifty percent (50%) of the NPs identified barriers including their inability to sign for prescription samples, restrictions of state laws, payment differentials between providers and third party reimbursement (Sherman et al., 1999, U.S.).

A study by Hamric et al., (1998, U.S.) documented patient outcomes from NPs' prescriptions. The study involved 33 advanced practice nurses from 25 different practice sites. However, the selection process was not random, leaving open the possibility for bias. The patients were from rural clinics (47%), urban clinics (15%), pediatric clinics (13%) or HIV clinics (9%). Data were collected over a two-month period and 683 patient outcomes were analyzed. Physician data were collected after the project and on-site visits were conducted. The study found that patient outcomes were positive, with 59% of the patients improving and 76% percent either improving or stabilizing due to the prescriptive treatment. Both patients and physicians were satisfied with the treatment and waiting times decreased.

Another American study aimed to describe the prescribing practices of NPs accorded prescriptive privileges by their state licensing regulatory board, whose scope of practice was adult/family health and who were engaged in practice in one of the five western states (Batey and Holland, 1985, U.S.). Questionnaires were sent to 401 NPs with prescriptive authority. A total of 227 NPs returned the questionnaires. Of these, 140 had identified their scope of practice. A follow-up questionnaire was sent out to record the NPs' degree of confidence with prescribing drugs, to which 89 responded. It was found that 70% of all the prescriptions were written for five of the 18 devised health problem categories and 52% of the prescriptions written by 140 NPs were for non-drug devices. The highest confidence for prescribing practices came from immunization/vaccines, anti-biotics, vitamins and ophthalmics.

## Personal Behaviours

There are a number of articles from the U.S. that look to see how NPs' individual behaviours and characteristics can affect their work. We summarize these in the box below and then discuss them in more detail.

**Summary of Personal Behaviours**: In summary, in the absence of any Canadian studies on the subject, the U.S. literature is instructive in showing how different behaviours and characteristics can affect NPs' work. The studies looked at suggest that there are various behaviour characteristics which define an effective NP. These include sound leadership skills, confidence, autonomy, and caring behaviour.

A number of U.S. studies suggest that NPs' individual behaviours and characteristics can affect their work. Personal attributes are important to the effectiveness of the NP role. The research indicates that various behaviour characteristics define an effective NP. For example, in a survey in the U.S. of a random sample of 317 NPs, Jones et al., (1990) found that there is a negative association with leadership and performance standards and that it is necessary to provide NPs with sufficient leadership skills. Leadership behaviours are linked to aspects of the organizational climate, including risk, structure, reward and responsibility.

Practice styles are influenced by personal behaviours and can also affect the medical outcomes of patients. In a U.S. study, Mark et al., (2001) found a strong positive correlation between confidence and autonomy and concluded that leadership and confidence produce an autonomous relationship with other health care providers.

In addition, the research indicates that caring is a principle concept in the nursing model and is also a personal attribute that can vary among NPs. A study in the U.S. by Brunton and Beaman (2000, U.S.) involved a random sample survey sent to 200 members of an Illinois NP group. It was found that the ten most frequent caring behaviours were:

- Appreciating the patient as a human being;
- Showing respect for the patient;
- Being sensitive to the patient;
- Talking to the patient;
- Treating patient information confidentially;

- Treating the patient as an individual;
- Encouraging the patient to call with problems;
- Being honest with the patient; and
- Listening attentively to the patient.

The Brunton study noted the importance of NPs measuring caring because such behaviour can go unrecognized until it is missed by patients and their families.

## Conclusion

The NP profession has made significant strides in Ontario over the last decade, although the profession still faces many hurdles and there is a large amount of work that still needs to be done. Although NPs have primarily practiced in three countries – U.S.A, Canada, and the UK - the new NP role is starting to emerge globally as a new level of nursing and this should help strengthen the NP profession within Ontario.

Based on the literature review, it is evident that there are many issues that need to be addressed such as:

- *Barriers and facilitators*: It is important that note is taken of the various barriers and facilitators to NP integration identified to date in order to maximize the chance of successful implementation of the NP role in Ontario.

- *NP title*: The lack of clarity and consensus regarding the NP title presents challenges in marketing the benefits and credibility of the NP. The various stakeholders (e.g., Canadian nursing associations, NPs, government) need to take a leadership role in addressing this matter.

- *Scope of practice*: The scope of what NPs do varies across the country and tends to be driven by the specific needs of the practice setting and differing legislation. There is no consistent definition or scope of practice for the NP role across and within jurisdictions in Canada. Legislation is needed in all jurisdictions to support the NP role. Until this time, NPs will have to work within existing nursing legislation.

- *Funding/Reimbursement*: This creates a significant barrier to the implementation of NPs in most jurisdictions. Much attention has been placed on funding/reimbursement in an effort to develop an alternative funding mechanism for NPs.

- *Positioning of NPs in the health care system*: The NP community, along with various stakeholders, need to work together to develop a comprehensive strategy and vision for positioning the NP within the health care sector. This is a critical step in charting the future of NPs.

# 4. Approach and Analytic Framework

## Theoretical Framework

### Introduction

The analysis team and data analysis working group developed an analysis plan and identified the integration domains (outcome variables). Based on the literature and other information sources, the team analyzed relationships among selected variables related to NP implementation and integration. The relationship among these variables was assessed based on:

- Identified measures of NP integration (outcome variables) e.g., satisfaction; and
- Identified factors that influence integration (explanatory variables) e.g., barriers and facilitators.

Variables were grouped into domains to allow the exploration of relationships between various factors in a methodical manner. The integration domains identified are set out below.

### NP Role Within the Practice Setting

NP role within the practice setting refers to the influences arising from a specific practice setting that impact the extent to which the NP is able to provide patient care within the RN(EC) scope of practice. It is based upon the formalization of the NP's role and the type of activities he or she performs as well as the patient focus.

### External Influences

External influences refers to the influences that impact the extent to which the NP is able to provide patient care within the RN(EC) scope of practice regardless of the practice setting. It is based upon legislation, regulations and policies.

### NP Role in Decision-Making

NPs' role in decision-making refers to the degree to which independence/autonomy has been achieved in the workplace (including the degree to which NPs function within determined lines of responsibility and the degree to which consistent processes and mechanisms are in place to support various functions). NPs' role in decision-making is based upon factors such as conflict resolution processes, clarity of the NP role, recognition, and accountability.

### NP Workplace Satisfaction

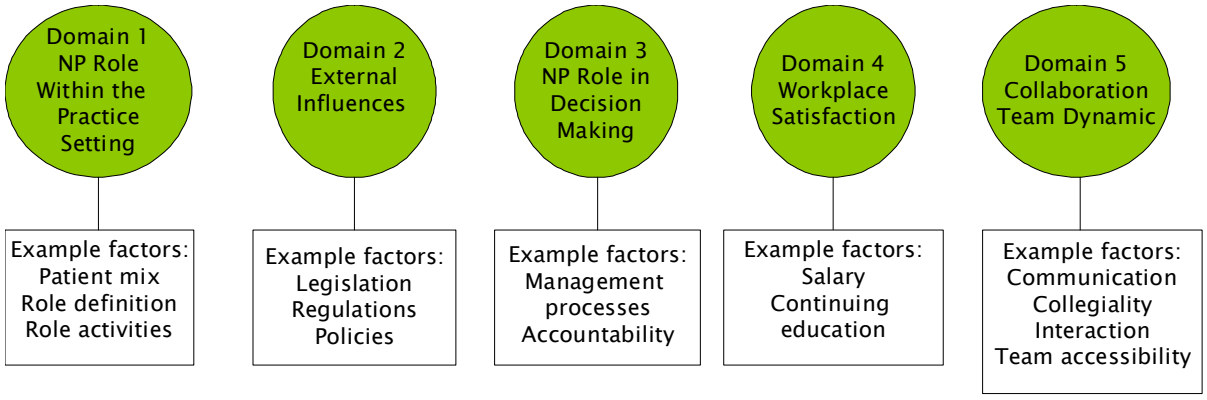
NP workplace satisfaction refers to the degree to which there is congruence among NPs' expectations, values, environment and personal characteristics. Workplace satisfaction is based upon factors such as working conditions, payment system, salary, opportunities for professional growth and continuing education.

### Collaboration and Team Dynamics

A consideration of collaboration and team dynamics involves examining the degree to which formal/informal partnerships function within the practice setting. The NP, physician and other members of the health care team can be part of a collaborative relationship. Collaboration and team dynamics are based upon factors such as role clarity, communication style and mutual respect. Elements such as the nature of time spent together and availability of the partners inform the level of collaboration.

Exhibit 7 summarizes the domains and provides examples of the factors that contribute to each domain.

**Exhibit 7: NP integration domains**




## Methods

### Survey Design and Sampling Methods

Three questionnaires were designed based on the literature review, existing survey instruments and consultation with the Steering Committee.

***NP Survey***

The first survey was administered to all nurses with RN(EC) designation from the College of Nurses of Ontario. The survey included questions regarding NP demographics, practice descriptors, NP satisfaction and perceptions/experiences of barriers and facilitators in various practice settings. The researchers drew upon two scales widely used in studies of NPs – the Jones and Way scale for collaboration and the Misener NP job satisfaction scale. The questionnaire also included numerous items designed specifically to address the research questions. A copy of the NP survey is found in Appendix D.

A list of the names of Ontario RN(EC)s in 2002 was obtained from the College of Nurses of Ontario. All 475 individuals on the list were included in the survey, regardless of where they resided or practised. The survey was mailed to participants at the beginning of October 2002. Efforts to increase the survey response rate included a mailed reminder postcard and a second mailing of the survey. As of mid-March, 2003, 365 (77%) survey responses had been received.

***Physician Survey***

The second and third surveys were administered to primary care physicians. The first survey (Survey A) was administered to physicians working with NPs, while the second survey (Survey B) was administered to physicians not working with NPs. Survey A included questions regarding physician demographics, practice descriptors, satisfaction with the NP and perceptions/experiences of barriers and facilitators. Several of the questions posed in these surveys and the NP survey were duplicated to allow for comparisons across the groups (i.e., physicians vs. NPs, physicians working with NPs vs. physicians not working with NPs). Copies of Surveys A and B are found in Appendices E and F respectively.

The survey package mailed to primary care physicians included a cover letter signed by the Ontario Medical Association and the Ontario College of Family Physicians, surveys and a stamped return envelope. In total, 1,600 physicians were randomly selected from the Ontario College of Family Physicians mailing list and sent both survey A (for those who work with NPs) and survey B (for those who do not work with an NP). MDs were sent both surveys as we could not be sure which of the randomly selected MDs worked with NPs and which did not. Responding physicians were provided with a $50 honorarium. A total of 492 completed surveys were received, representing 31% of the study sample.

A survey was also developed for physicians known to work with NPs. Given the absence of a comprehensive list of MDs who work with NPs in Ontario, a variety of approaches were used to reach these MDs:

- Telephone calls to sites with MoHLTC-funded NP positions;
- MoHLTC program specific information; and
- Letters to site sponsors, executive directors, and medical directors of long-term care facilities requesting they distribute surveys on our behalf.

These physicians received a package with a co-signed cover letter, survey and stamped return envelope. Responding physicians were provided with a $100 honorarium. We received 226 completed surveys.

The 2001 National Family Physicians Workforce Survey, which is a census survey of all family physicians in Canada, asked family physicians to indicate the number of NPs in their main setting (response rate of 51.2%). Based on the results of this survey, there are 524 family physicians/general practitioners who work with NPs in Ontario (seven percent of those in the province). Thus, the MD survey represents approximately 43% of the target population.

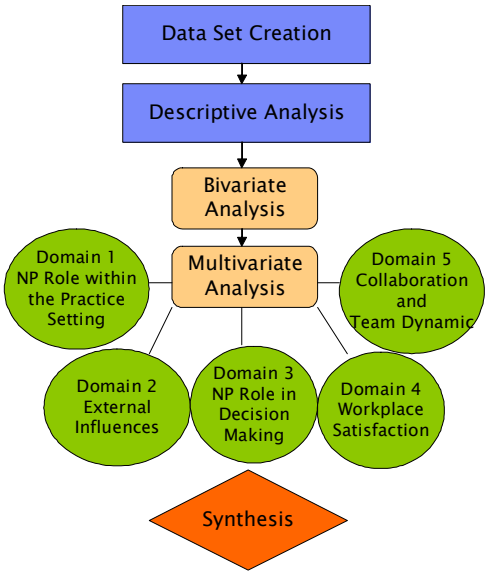
## Analytical framework

Given the wealth of information collected in the surveys, a detailed analytical framework was developed to guide the data analysis. The analytical framework details the level of analyses by survey question and the working hypotheses. The analysis plan includes basic statistics such as frequencies and cross-tabulations on the survey data, as well as selected multivariate statistical techniques to better understand the relationships among variables that impact integration of NPs.

A summary of the framework is presented in Exhibit 8.

**Exhibit 8: Analytical framework**

- Descriptive Analysis:
  - General description of variables
  - Frequencies
  - Analysis of incomplete questionnaires
- Bivariate Analysis:
  - Cross tabulations
  - Correlations
  - T-tests
  - Test of distributional assumptions
- Multivariate Analysis:
  - Factor analysis
  - Regression analysis
- Matrix synthesis




The analytical work commenced with the creation of datasets from the survey data (NP and Physician surveys) in SPSS. A significant number of resources were dedicated to grouping the data into appropriate practice settings. Numerous surveys were investigated individually to ascertain the appropriate practice setting group. As well, in some instances, for the purposes of analysis, categorical variables were converted to ordinal scales. The datasets were also examined for errors and potentially spurious data; these data were extracted for further review and assessed for validity. Respondents in the study were targeted to be representative of the underlying population. The response rate to the NP

survey was relatively high at 77% and the representation of physicians working with NPs was substantial (43%). Furthermore, obtaining a 31% response rate for the physicians not working with NPs is standard among a random survey of physicians not engaged in the specific program of study. Although selection bias was not a fundamental concern, the analytical plan included a review of the distribution of unanswered questions on the surveys.

To answer the study's two research questions, factors that impact integration in terms of its relationship to practice models as well as barriers and facilitators were identified. Under each domain, a number of key comparisons were conducted through cross-tabulations and pair wise significance tests on selected indicators of integration. The descriptive and bivariate analyses provided a summary of the survey results and further clarified the relationships among the variables. Using the identified integration domains as a framework and the results of the descriptive and bivariate analyses, the hypotheses of the facilitators and barriers that influence NP integration were formalized.

Explanatory (predictor) variables were identified such as: demographics; practice model dimensions; length of time in practice; role characteristics; payment type; patient numbers and type; and hours worked per week. In addition, predictor variables specific to each integration domain were identified based on assessments by the working group and results from the exploratory statistical analysis. This enabled the analysts to isolate and examine the effect on integration of a combination of the influences such as:

- Practice/Care Setting;
- Client Population;
- NP Scope and Responsibilities;
- Team Interaction;
- Organizational Characteristics;
- External Factors; and
- Employment Relationship.

Outcome (dependent) variables were also identified for each of the domains. For all integration domains, with the exception of scope of practice (external influences), the dependent variables were created using factor analysis. In the survey, respondents often answered questions that together relate to a single underlying concept. For example, the NP survey includes 57 items regarding NP satisfaction. Factor analysis can be used as a tool to combine several questions on satisfaction into a single index measure. The index can then be used as a measure to be analyzed or as a measure for analysis (e.g., as an outcome variable in a multiple regression model). For the purposes of this study, factor analysis was used as a data classification technique to detect structure in the relationships between survey variables. For each domain, factor analysis was conducted to cluster correlated variables into a minimum set of groups or factors. The analysis further allowed common variables within each factor to be combined to create index scores. For all indices constructed, reliability and internal consistency were assessed by the standard Cronbach's alpha approach, including robustness tests using the stepwise variable deletion method.

Where the findings were deemed valid and meaningful, regression analysis (linear/logistic regression) was employed to evaluate the underlying relationship between factors and the relevant practice model dimensions. The objective of regression analysis is to identify the relationship between several explanatory or predictor variables and an outcome or dependent variable. In general, regression allows a researcher to ask "what is the best predictor of ...". Generally, multivariate analyses were performed using linear regression, except in the instances when the outcome variable took only two possible values (e.g., yes, no), in which case logistic regression was used. The analysis team conducted regression analyses in two stages. In the first stage, the team used regression as an exploratory technique to identify outlying and erroneous data. In the second stage, the team used regression to identify important determinant variables after outliers had been treated (standardized) and/or removed. For each domain, the multivariate analysis identified variables that have a significant and substantive effect on the integration process.

Based on the results of the analyses described above, a matrix was developed to identify and summarize the measures and influencers of NP integration. The matrix synthesizes the factors that impact successful integration of NPs based upon the NP and physician survey results.

It should be noted that a data analysis working group was formed to guide all of the analyses. The group contributed a significant amount of conceptual thinking and “hands on” experience to the overall plan.

## Confounders

Wherever possible, the researchers attempted to minimize the degree of sampling error and selection bias by designing a systematic study design with significant input from the Steering Committee. In addition, where possible, the researchers attempted to control any other known confounders in the analysis. The potential confounders to both the NP and physician surveys are identified below.

### *NP Survey*

Prior to administering the NP survey, the questionnaire was pre-tested for length, clarity, language and comprehensiveness of response options by a group of seven NPs. Suggestions for change were incorporated into the survey. In addition, the survey was reviewed by the project executive for content. Where possible, the survey also utilized pre-existing questions. Although the pre-testing of the questionnaire allowed the researchers to clarify the questionnaire prior to distribution, there may still have been some questions that respondents found unclear. This is particularly true in mail-in surveys where respondents cannot immediately clarify questions. To avoid bias in the constructs, the researchers removed those questions from the multivariate analysis.

The questionnaire was designed predominately as a closed-ended survey with a well-designed form for the respondent. Closed-ended questionnaires provide some advantages in that they may prompt the respondent to remember responses that might otherwise be forgotten and they are in accordance with the principle that specific questions are better than general ones. However, open-ended questions may be more effective when the survey is exploratory or questions are sensitive. To create a balance, the team

created questions that were closed-ended but provided an opportunity to provide comments. A substantial number of questions were re-coded to include these comments in the database.

Mail-in surveys are also typically subject to response bias and low response rates. The NP survey, however, was well publicized and supported by the MoHLTC. As a result, the response rate for this questionnaire was 77%. In addition, in reviewing the data, there was significant variation in the responses indicating that the survey reflects a wide range of NP opinions and perspectives.

In order to gain information related to a wide variety of domains while identifying important respondent characteristics, the number of questions in the survey was substantial, numbering 86. To verify that questions occurring later in the survey were not prone to under-reporting, the researchers examined the portion of missing responses for each question on the survey and did not find evidence of a trend.

***Physician Surveys***

The two physician surveys were pre-tested by eight physicians, four of whom work with NPs (survey A) and four of whom do not work with NPs (survey B). Again, suggestions for change were incorporated into the surveys. In addition, the surveys were reviewed by the project executive for content. The surveys were developed in part, to ask questions similar to those asked of the NPs. Therefore, many of the questions from the NP survey were duplicated, allowing the researchers to refine the physician surveys based on the results of the NP survey. However, as with the NP survey, the physician survey was a mail-in survey and therefore physicians could not obtain immediate clarification on questions if required.

MDs who work with NPs could not be clearly identified. Therefore, the research team attempted to reach this population through two methods. First, the project team telephoned all the sites with MoHLTC funding for NP positions and requested information on the physician names and addresses for those physicians working with NPs. This information was provided by some but not all sites. In addition, all site visit sponsors were asked to distribute the physician surveys to physicians on behalf of the project. The project team also generated a random sample of physicians through the Ontario College of Family Physicians. Given that some of the physicians who were randomly selected may in fact work with NPs, copies of both Survey A and survey B were included in the physician package. Although several methods were employed to reach all study physicians, the sampling frame may not have covered the entire physician population that works with NPs. To minimize the influence of selection bias on the findings, the site visit findings were used to validate the survey findings. The research team was not, however, able to obtain information on non-respondents.

Typically, physicians represent a population that is over-surveyed, hence, the response rate to physician questionnaires is generally very low. To overcome this limitation, physicians were offered an honorarium for survey completion ($100 for completion of survey A; $50 for completion of survey B).

# 5. Summary Analysis of Surveys of NPs and Physicians

Surveys were developed and distributed to all nurses with the RN(EC) designation and to samples of physicians, some of whom work with NPs and some of whom do not. The following two research questions guided data collection and analysis:

1. What barriers must be overcome and what facilitators must be encouraged to further integrate NPs into specific practice settings?
2. What can be learned about the practice models in which NPs function, specifically, which models do not work well and why and which models work best to support integration of NPs?

## Overall Survey Descriptors and Bivariate Analysis

This section provides an overview of all of the descriptive and bivariate analyses that were conducted for the NP and physician surveys. The section is structured as follows:

- A description of the NP survey providing detail on those NPs who are not currently practising as well as for those primary care NPs working in Ontario. The NP survey questions were organized by integration domain to provide some structure and flow to the analysis.
- Facilitators and barriers to NP integration and a summary of the positive and negative aspects to the NP role are then presented.
- A discussion of the survey questions by practice setting which completes the descriptive and bivariate analyses of the NP survey.
- A discussion of the physician surveys: an overall description is provided of the survey results, followed by an integrated discussion of physicians with and without experience working with NPs. Summary statistics and bivariate analyses of physician responses are supplemented with multivariate analysis to describe key determinants of physician perspectives on NP integration and satisfaction.
- A comparative analysis of primary health care NPs and MDs in various practice settings.

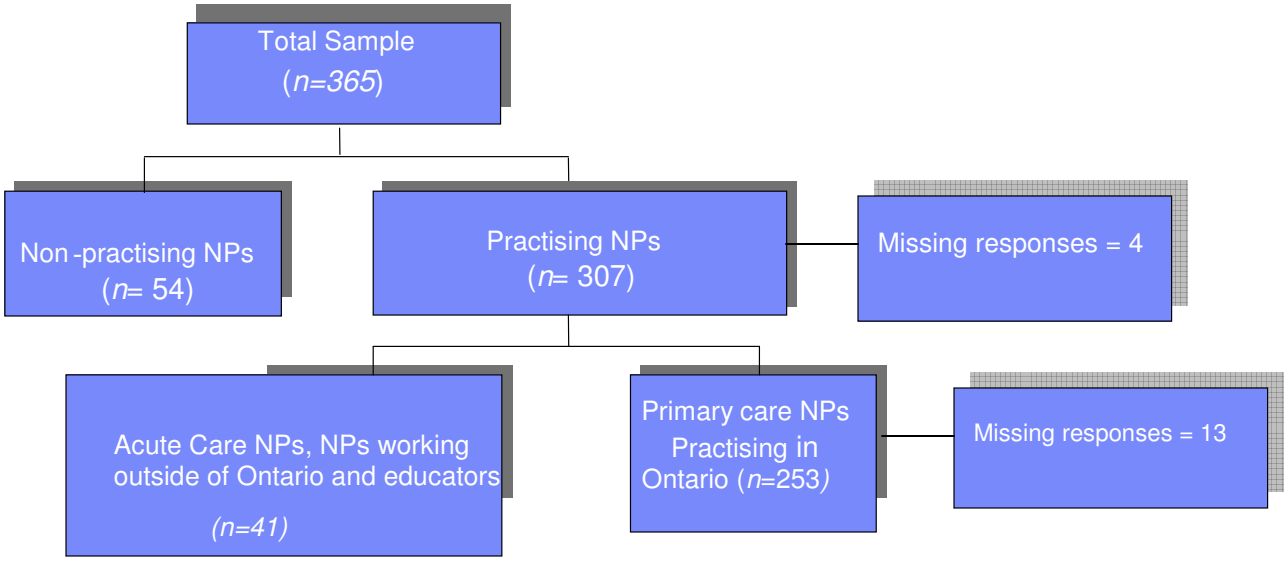
## NP Survey Description

Responses to the NP survey were received over several months to obtain as high a response rate as possible. So as not to delay project timeframes and in order to meet interim deadlines, descriptive and bivariate analyses were conducted on the dataset prior to closing it. Given that the descriptive and bivariate analyses provide only directional information on the relationships of the variables, this was seen as an appropriate approach to meeting project deliverables and obtaining as representative a sample of the NP population as possible. The multivariate analysis and key findings, however, are based upon the full sample of 253 NPs.

The NP survey was mailed to all 475 Ontario RN(EC)s. Respondents to the survey included 365 RN(EC)s. The data were then sub-divided into non-practising and practising NPs. A total of 54 (15%)

NPs identified that they were non-practising and 307 (84%) identified they were practising (Note: four missing responses). Of those who identified that they are practising, 253 (70%) identified that they are primary health care NPs practising in Ontario. Missing data was not included in the analysis.

**Exhibit 9: Respondents to NP survey**




## Non-Practising NPs

The descriptors of non-practising NPs presented in this section are based upon a sample of 52 survey respondents and are presented in Exhibit 10 (Note: the final sample includes 54). Of those non-practising NPs, 69% are between 35 to 54 years of age compared to 85% of NPs practising in primary health care settings who fall into this age category (see Exhibit 14). A higher percentage of non-practising NPs were identified in both the 25 to 34 age group and 55 and over age group. Those non-practising NPs also reported higher levels of education than the practising primary health care NPs. One-quarter of non-practising respondents indicated having a Masters or PhD as their highest level of completed education. This compares with 18% of practising primary care NPs (see Exhibit 14).

**Exhibit 10: Age, education and experience of non-practising NPs**

| Characteristics | Total Respondents | Percentage of Respondents |
|---|---|---|
| **Age** * | (*n*=51) | |
| 25 to 34 | 9 | 17.7 |
| 35 to 44 | 17 | 33.3 |
| 45 to 54 | 18 | 35.3 |
| 55 and over | 7 | 13.7 |
| | | |
| **Highest Level of Education** | (*n*=52) | |
| Diploma | 3 | 5.8 |
| Baccalaureate | 36 | 69.2 |
| Masters | 11 | 21.2 |
| PhD | 2 | 3.8 |
| | | |
| **Greater than one diploma/degree** | (*n*=52) | |
| | 24 | 46.2 |
| | | |
| **Years Practising as an RN*** | (*n*=51) | |
| 1 to 2 | 1 | 2.0 |
| 5 or more | 50 | 98.0 |

* one missing response

Of the 52 NPs who reported that they are not practising as an NP, 21 identified that they had never practiced (even though they were licensed to practice). Of those 31 who had practiced in the past, the most frequently cited reasons for leaving practice included inadequate salary (26%), limitations imposed by employers (26%) and long distances between the setting and home (23%) (see Exhibit 11). Interestingly, respondents identified several reasons each for leaving practice with many respondents specifying other reasons than those offered in the survey (e.g., lack of continuing education).

**Exhibit 11: Reasons for leaving practice: non-practising NPs**

| Characteristics | Total Respondents | Percentage of Respondents |
|---|---|---|
| **Percentage of NPs who have practised in the past** | (*n*=52) | |
| Yes | 31 | 59.6 |
| No | 21 | 40.4 |
| | | |
| **Reasons for leaving practice~** | (*n*=31) | |
| Salary was too low | 8 | 25.8 |
| Limitations imposed by employer | 8 | 25.8 |
| Setting is too far from home | 7 | 22.6 |
| Limitations imposed by workplace | 6 | 19.4 |
| No full time employment/permanent positions | 6 | 19.4 |
| Workload | 5 | 16.1 |
| Did not like role or relationship with other providers | 5 | 16.1 |
| Other employment opportunities | 5 | 16.1 |
| Other | 5 | 16.1 |
| Benefits | 4 | 12.9 |
| Family/personal constraint | 4 | 12.9 |
| Continuing education | 4 | 12.9 |
| Spousal factors e.g., spouse cannot work in area | 3 | 9.7 |
| Too much travel as a job requirement | 2 | 6.5 |
| On-call requirements | 1 | 3.2 |

~ multiple response option.

Respondents were asked the primary reason for not currently practising. Of note, 27% of respondents indicated they could not find employment as an NP (including those who could not find employment within their scope of practice). Other reasons included that they could find employment, but the setting was too far from home (16%) while others had chosen a different career path (13%) (see Exhibit 12).

**Exhibit 12: Primary reason for not practising: non-practising NPs**

| Characteristics | Total Respondents | Percentage of Respondents |
|---|---|---|
| **Primary Reason for not practising *** | (n=45) | |
| Cannot find employment as a NP | 10 | 22.2 |
| Can find employment, but setting is too far from home | 7 | 15.6 |
| Chose different career path | 6 | 13.3 |
| Can find employment, but do not like the setting | 5 | 11.1 |
| Lack of continuing education | 5 | 11.1 |
| Can find employment, but salary is too low | 3 | 6.7 |
| Family/personal constraints | 3 | 6.7 |
| Other | 3 | 6.7 |
| Cannot find employment within my scope of practice | 2 | 4.4 |
| Can find employment, but it is a contract position | 1 | 2.2 |

* seven missing responses

Non-practising NPs were asked if they would consider relocating to a rural/remote area in order to gain employment as an NP. Twenty-nine percent (29%) (n=14) indicated that they would be willing to relocate with 50% of that number indicating they would be willing to relocate on a long-term basis and 50% reporting that they would only be willing to relocate on a temporary basis. These NPs identified that the top factors that they would consider in the decision to relocate are the ability to work fully within their scope of practice and availability of physician support. Other relevant factors included spousal factors, salary and relocation package, and educational/continuing education opportunities. Interestingly, scope of work was considered to be of more importance than salary and benefits (see Exhibit 13).

**Exhibit 13: Perceptions of non-practising NPs on relocation to rural/remote areas**

| | Total Respondents | Percentage of Respondents |
|---|---|---|
| **Would you consider relocating to a rural/remote area*** | (*n*=49) | |
| Yes | 14 | 28.6 |
| No | 35 | 71.4 |
| **On a temporary basis or a long-term basis?** | (*n*=14) | |
| Temporary | 7 | 50.0 |
| Long-term | 7 | 50.0 |
| **Factors to consider in relocating:~** | (*n*=14) | |
| Ability to work fully within scope of practice | 12 | 85.7 |
| Availability of physician support | 12 | 85.7 |
| Spousal factors | 11 | 78.6 |
| Salary and relocation package | 11 | 78.6 |
| Educational/continuing education opportunities | 11 | 78.6 |
| Networking opportunities/support of colleagues | 10 | 71.4 |
| Housing | 8 | 57.1 |
| Lifestyle issues/social factors | 7 | 50.0 |
| Location remoteness | 7 | 50.0 |
| Availability of locum/vacation relief | 6 | 42.9 |
| Ability to work more independently | 5 | 35.7 |
| Career mobility/future opportunities | 5 | 35.7 |
| Other | 2 | 14.3 |

* three missing responses

~ multiple response option

# Primary Health Care NPs Practising in Ontario

## General Descriptors of Primary Health Care NPs Practising in Ontario

The following descriptors are based on a sample of 234 survey respondents who identified themselves as primary health care NPs (Note: the final sample includes 253 NPs). Exhibit 14 provides a descriptive profile of practising primary health care NPs. The majority of primary health care NPs are within the 35 to 54 age group (85%) and have at least a baccalaureate as the highest level of education achieved (90%).

**Exhibit 14: Age and education of practising primary health care NPs**

| Characteristics | Total Respondents | Percentage of Respondents |
|---|---|---|
| **Age** * | (*n*=231) | |
| 25 to 34 | 23 | 10.0 |
| 35 to 44 | 99 | 42.8 |
| 45 to 54 | 97 | 42.0 |
| 55 and over | 12 | 5.2 |
| | | |
| **Highest Level of Education** | (*n*=234) | |
| Diploma | 24 | 10.3 |
| Baccalaureate | 169 | 72.2 |
| Masters | 41 | 17.5 |
| PhD | 0 | 0.0 |
| | | |
| **Greater than 1 diploma/degree** | (*n*=234) | |
| | 99 | 42.3 |
| | | |
| **Method of Obtaining NP Education**~ | (n=234) | |
| COUPN certificate program | 114 | 49.4 |
| COUPN integrated program | 48 | 20.8 |
| COUPN transition program | 21 | 9.1 |
| Non-COUPN certificate program | 23 | 10.0 |
| Non-COUPN degree program | 7 | 3.0 |
| Other | 35 | 15.2 |

*three missing responses

~multiple response

Primary health care NPs are an experienced workforce with almost all primary care NPs reporting that they have five or more years of experience as RNs and almost 70% indicating that they have more than two years of NP working experience. Nursing experience and employment status are displayed in Exhibit 15.

**Exhibit 15: Years practising and employment status: practising primary health care NPs**

| Characteristics | Total Respondents | Percentage of Respondents |
|---|---|---|
| **Years Practising as an RN*** | (*n*=230) | |
| 1 to 2 | 1 | 0.4 |
| 3 to 4 | 0 | 0 |
| 5 or more | 229 | 99.6 |
| | | |
| **Months Practising as an NP** | (*n*=234) | |
| 24 or less | 72 | 30.8 |
| 25 to 48 | 112 | 47.8 |
| 49 or more | 50 | 21.4 |
| | | |
| **Employment Status**** | (*n*=218) | |
| Full-time | 152 | 69.7 |
| Contract (term) | 10 | 4.6 |
| Part-time | 42 | 19.3 |
| Casual | 14 | 6.4 |

* four missing responses; ** 16 missing responses

The majority of primary health care NPs indicated that they have full-time employment (70%); 20% indicated they have part-time employment, roughly 6% have casual employment and roughly 5% have contract employment. Only 16% of the primary health care NPs reported working in a unionized environment. Of those who are on contract, the average length of the contract is approximately 23 months, with the maximum term reported as 60 months (see Exhibit 16).

Practising primary health care NPs also commented on their income and hours worked (see Exhibit 16). The average annual gross income reported is $68,170 with a range of $12,000 to $127,500. A breakdown of average income by employment status follows:

- Full-time employment: $70,681 ($25,000 - $88,000);
- Casual employment: $67,174 ($12,000 - $127,500);
- Part-time employment: $57,795 ($26,000 - $87,750); and
- Contract (term) employment: $67,474 ($56,000 – $94,700).

On average, NPs work 32.5 regular hours per week, 4.1 paid overtime hours per week and 4.9 unpaid overtime hours per week. Again, summarizing the data by employment status, the number of regular hours worked per week is:

- Full-time employment: 36.5;
- Casual employment: 12.3;
- Part-time employment: 23.2; and

- Contract (term) employment: 31.6.

The results are summarized for all primary health care NPs in Exhibit 16 below.

**Exhibit 16: Length of contract, gross income, hours/wk: practising primary health care NPs**

| | Total Respondents | Range | Mean |
|---|---|---|---|
| What is the total length of your contract (months)?* | 51 | 0-60 | 22.6 |
| Average annual gross income?** | 166 | $12,000-$127,500 | $68,170 |
| How many hours/wk do you get paid to work as an NP? | | | |
| Regular hours | 226 | 3-70 | 32.5 |
| Overtime hours | 35 | 1-10 | 4.1 |
| Unpaid overtime hours | 115 | 1-20 | 4.9 |

* 4 missing responses

** 68 missing responses

Eighty-one percent (81%) of primary health care NPs indicated that they receive all of their funding through the MoHLTC. About 10% indicated they receive funding from several sources (blended), roughly five percent from physicians only and roughly four percent from other sources (see Exhibit 17). NPs were further asked if they contribute directly to their overhead expenses. Only six percent of primary health care NPs (*n*=14) contribute, with the average amount being $482 per month and a range of $24 to $1400.

**Exhibit 17: Funding sources of NP role: practising primary health care NPs**

| Characteristics | Total Respondents | Percentage of Respondents |
|---|---|---|
| **Source of funding*** | (*n*=188) | |
| MOHTLC | 152 | 80.9 |
| Physician | 9 | 4.7 |
| Blended | 19 | 10.1 |
| Other | 8 | 4.3 |

*46 missing responses

NPs also commented on how the physicians they work with are paid. Sixty percent (60%) indicated that their physician is on a salary, 20% reported a combination (e.g., fee-for-service (FFS) and other), 14% fee-for-service, 3% other and 2% capitation (see Exhibit 18).

**Exhibit 18: Funding sources for physicians as reported by primary health care NPs**

| | Total Respondents | Percentage of Respondents |
|---|---|---|
| **Physician payment type*** | (*n*=224) | |
| Salary | 135 | 60.3 |
| Combination | 46 | 20.5 |
| Fee-for-service | 32 | 14.3 |
| Other | 6 | 2.7 |
| Capitation | 5 | 2.2 |

*10 missing responses.

Primary health care NPs were also asked to comment on the type(s) of organization(s) in which they are currently practising. Exhibit 19 below indicates the number of primary health care NPs working in various practice settings. Respondents could check more than one response to this question. More than half of all respondents reported currently practising in a Community Health Centre (including Aboriginal Health Access Centres). Almost 11% indicated working in a fee-for-service physician office, almost eight percent in long-term care and almost eight percent in an outpatient clinic.

**Exhibit 19: Practice setting of practising primary health care NPs**

| Characteristics | Total Respondents | Percentage of Respondents |
|---|---|---|
| **Practice Setting~** | (*n*=234) | |
| Community Health Centre | 108 | 46.2 |
| Fee-for-service physician office | 25 | 10.7 |
| Long-term care facility | 18 | 7.7 |
| Outpatient Hospital/Clinic/Ambulatory Care | 18 | 7.7 |
| Aboriginal Health Access Centre | 16 | 6.8 |
| Family Health Network/Primary Care Network | 12 | 5.1 |
| Public health unit | 11 | 4.7 |
| Other | 8 | 3.4 |
| Health Service Organization | 8 | 3.4 |
| Outpost/Nursing Station | 8 | 3.4 |
| Emergency department | 6 | 2.6 |
| Canadian Forces/DND | 5 | 2.1 |
| Acute care hospital | 4 | 1.7 |
| Mental Health/Psychiatry | 3 | 1.3 |

| Characteristics | Total Respondents | Percentage of Respondents |
|---|---|---|
| Rehabilitation | 3 | 1.3 |
| CCAC | 2 | 0.9 |
| Critical Care | 1 | 0.4 |
| Maternal/Newborn | 1 | 0.4 |
| Nursing Education | 1 | 0.4 |

~ multiple response option

Primary health care NPs were also asked if they had changed practice settings and/or employers in the last three years. Slightly more than three-quarters of NPs indicated that they have remained in the same practice setting for the past three years; however, approximately one-third indicated that they have changed employers over the past three years (see Exhibit 20 below).

**Exhibit 20: Change in employment of practising primary health care NPs**

| Characteristics | Total Respondents | Percentage of Respondents |
|---|---|---|
| **Changed practice setting in last 3 years *** | (n=231) | |
| Yes | 56 | 24.2 |
| No | 175 | 75.8 |
| | | |
| **Changed employers in last 3 years**** | (n=222) | |
| Yes | 74 | 33.3 |
| No | 148 | 66.7 |

*three missing responses

**12 missing responses

***Descriptors Related to NP Role within the Practice Setting***

NPs were asked a series of questions that describe the scope of NP practice across the province. The questionnaire was designed to gain input on the extent to which NPs are responsible for the provision of patient care within the RN(EC) role.

NPs were first asked if they function within their full scope of practice. Eighty percent (80%) of primary health care NPs identified that they do practice within their full scope of practice (see Exhibit 21).

**Exhibit 21: Function within full scope of practice**

| | Total Respondents | Percentage of Respondents |
|---|---|---|
| **Practice within full scope*** | (*n*=230) | |
| No | 45 | 19.6 |
| Yes | 185 | 80.4 |

* four missing responses

NPs then commented on whether or not their practice was limited to seeing certain patients (e.g., home care visits). Twenty-eight percent (28%) of primary health care NPs indicated that they are limited to serving certain patient populations. The majority of limitations (51%) are due to the NP's chosen area of specialty; however, 15% are at the request of an employer. The remaining 34% are due to other reasons (see Exhibit 22).

**Exhibit 22: Limitations of practice**

| | Total Respondents | Percentage of Respondents |
|---|---|---|
| **Limited to serving certain patient populations*** | (*n*=231) | |
| No | 167 | 72.3 |
| Yes | 64 | 27.7 |
| **If yes, why are there limitations**** | (*n*=59) | |
| Chosen area of specialty | 30 | 50.8 |
| At request of employer | 9 | 15.3 |
| Other | 20 | 33.9 |

* three missing responses

** five missing responses

Almost all primary health care NPs (97%) responded that they have full access to patients' charts and 75% indicated that they are able to deliver care in the way they like (see Exhibit 23).

**Exhibit 23: Access to patient's chart and satisfaction with delivery of care**

| | Total Respondents | Percentage of Respondents |
|---|---|---|
| **Do you have full access to the patient's chart?*** | (*n*=230) | |
| Yes | 224 | 97.4 |
| No | 6 | 2.6 |
| **Are you able to deliver care in the way you would like?**** | (*n*=225) | |
| Yes | 168 | 74.7 |
| No | 57 | 25.3 |

* four missing responses

** nine missing responses

NPs were also asked to describe their practice in terms of the types of duties they are responsible for, types of services they provide and a description of the patient population they serve.

Almost all primary health care NPs reported that they perform clinical duties in an average week; among those who perform these duties, the average percentage of time spent per week on these duties is 73%. Almost nine in ten NPs perform non-clinical work with an average of 15% of time spent on these tasks. Eighty-four percent (84%) of NPs perform clerical tasks, which occupy, on average, 12% of their time. Twenty-two percent (22%) of NPs identified that the physicians in their practice have clerical duties as well (e.g., faxing, filing, etc.). Finally, 51% of NPs reported that they are required to travel which occupies approximately six percent of their time (Exhibit 24). When asked why they travel to see patients, NPs replied as follows (some gave multiple responses):

- Sixty-three percent (63%) (n=93) for home visits;
- Fifty-one percent (51%) (n=75) due to different practice locations; and
- Twenty percent (20%) (n=29) for other reasons.

Half of the primary health care NPs indicated that they incur travel costs with their role with an estimated travel cost of $28 per week. Of those who incur a cost, 74% pay and are reimbursed by the employer or the employer pays. Another 26% pay themselves and do not get reimbursed by their employer.

**Exhibit 24: Time allocation of duties in an average week**

| | Number of respondents who perform these duties | Percentage who perform these duties | Percentage of time spent on duties (range) | Mean *(n)* percentage of time spent on duties |
|---|---|---|---|---|
| **Duties*** | (*n*=229) | | | |
| Clinical | 230 | 99.6 | 19-100 | 73.2 (*n*=229) |
| Non-clinical | 205 | 88.7 | 1-50 | 14.8 (*n*=202) |
| Clerical | 193 | 83.5 | 1-50 | 12.1 (*n*=190) |
| Travel | 117 | 50.6 | 1-35 | 6.1 (*n*=106) |

* five missing responses (Note: missing responses for each item are interpreted as the NP does not perform those duties).

NPs were asked to allocate their time spent on clinical duties across several types of client services. Ninety nine (99%) percent of primary health care NPs spend time on wellness care for their clients with an average of 38% of their time spent providing this service. Ninety six percent (96%) spend time caring for minor acute illness, occupying approximately 32% of their time. Ninety percent of NPs monitor chronic illness taking up approximately 25% of time on average. Only six in ten primary health care NPs spend time providing care of major acute illness occupying 11% of time per week on average. Twenty-nine percent (29%) of NPs spend time providing care for palliative patients taking up approximately five percent of their time on average. Administration services account for 33% of time per week and are performed by 3.5% of NPs. Approximately seven percent of NPs identified spending time on other activities (e.g., counselling, social support work and other) using varying amounts of NP time (see Exhibit 25).

**Exhibit 25: Allocation of NP time spent on providing specific types of services to clients**

| | Number of respondents providing service | Percentage Providing service | Percentage of time spent on service (range) | Mean (*n*) percentage of time spent on service | Percentage of NPs who spend 50% or more of time on each service |
|---|---|---|---|---|---|
| **Services** | *(n=229)* | | | | |
| Wellness care | 228 | 98.7 | 1-100 | 37.9 (*n*=225) | 38.2 |
| Care of minor acute illness | 221 | 95.7 | 5-85 | 31.9 (*n*=219) | 22.4 |
| Monitoring of chronic illness | 208 | 90.0 | 1-100 | 24.9 (*n*=204) | 15.2 |
| Care of major acute illness | 135 | 58.4 | 1-100 | 10.6 (*n*=133) | 3.8 |
| Care of palliative patients | 66 | 28.6 | 1-15 | 4.9 (*n*=59) | 0.0 |
| Administration | 8 | 3.5 | 5-100 | 32.5 (*n*=8) | 25.0 |
| Counselling/education | 7 | 3.0 | 5-20 | 10.4 (*n*=7) | 0.0 |
| Social Support Work | 1 | 0.4 | 8-8 | 8.0 (*n*=1) | 0.0 |

| | Number of respondents providing service | Percentage Providing service | Percentage of time spent on service (range) | Mean (*n*) percentage of time spent on service | Percentage of NPs who spend 50% or more of time on each service |
|---|---|---|---|---|---|
| Other | 9 | 3.9 | 5-90 | 28.8 (*n*=9) | 14.3 |

* five missing responses (Note: missing responses for each item are interpreted as the NP does not perform that service).

In general, the primary health care NP patient population encompasses all age groups with a greater focus on adults and the elderly. On average, the breakdown of the patient population served by NPs includes 17% children, 18% adolescents, 43% adults and 22% elderly (see Exhibit 26).

**Exhibit 26: Breakdown of NP patient population**

| | Number of respondents | Range % | Mean % |
|---|---|---|---|
| **Patient Population** | (*n*=222) | | |
| Children (0-12) | 196 | 0-50 | 17.1 |
| Adolescents (13-18) | 202 | 0-95 | 18.2 |
| Adults (19-64) | 222 | 5-100 | 42.5 |
| Elderly (65+) | 205 | 0-100 | 22.2 |

* 12 missing responses (Note: missing responses for each item are interpreted as the NP does not serve that population).

Primary health care NPs also indicated that on average, 44% of patients have the NP as their primary care provider. Fifty-three percent (53%) of NPs have practices in which they are the primary provider to more than half of the clients. On average NPs provide services to 13 patients per day; however this ranges from 0 to 30. NPs may also see patients after-hours, with an average of two patients seen per day with a range of 0 to 30.

Sixty-nine percent (69%) of primary health care NPs care for specific patient populations. The specific populations appear in Exhibit 27. Almost two-thirds of NPs focus on women's health issues; almost 50% focus on patients with specific conditions or diseases such as diabetes or hypertension; about 30% work with aboriginal people and the same proportion with immigrant populations and with abused women.

**Exhibit 27: NP care for specific populations**

| | | Total Respondents | Percentage of Respondents |
|---|---|---|---|
| **Care for specific populations*** | | (*n*=215) | |
| | No | 67 | 31.2 |
| | Yes | 148 | 68.8 |
| **If yes, what populations** | | | |
| | Women's health | 94 | 66.7 |
| | Patients with specific condition or disease | 70 | 49.6 |
| | Children | 68 | 48.2 |
| | Babies/Newborns | 67 | 47.5 |
| | Mental health | 58 | 41.1 |
| | Seniors | 57 | 40.4 |
| | Aboriginal | 45 | 31.9 |
| | Immigrants | 45 | 31.9 |
| | Abused women | 42 | 29.8 |
| | The homeless | 17 | 12.1 |
| | Other | 15 | 10.6 |
| | Adolescents/youth | 10 | 7.1 |

*missing 19 responses

In terms of participation in on-call activities, home visits and travel:

- Thirteen percent (13%) of primary health care NPs participate in on-call activities with an average of 68 hours per month on call, and a range of 1 to 240. Eighty-eight percent (88%) of these NPs are on-call a minimum of five hours per month.
- Forty-eight percent (48%) of NPs provide home care visits averaging four home visits a month, with a range of one to 30.
- Sixty-four percent (64%) of NPs travel to see patients. Of those who travel, 50% travel to different practice locations to see clients, 63% travel for home visits and 20% travel for other reasons. It should be noted that NPs may have to travel for several different reasons in order to see their patients (see Exhibit 28).

**Exhibit 28: Participation in on-call activities and home visits**

| | | Total Respondents | Percentage of Respondents |
|---|---|---|---|
| **On-call*** | | (*n*=232) | |
| | No | 202 | 87.1 |
| | Yes | 30 | 12.9 |
| **Home Visits**** | | (*n*=230) | |
| | No | 120 | 52.2 |
| | Yes | 110 | 47.8 |
| **Travel to see patients***** | | (*n*=233) | |
| | No | 85 | 36.5 |
| | Yes | 148 | 63.5 |
| **If yes, why do you travel ~** | | | |
| | Different Practice locations | 74 | 50.0 |
| | Home visits | 93 | 62.8 |
| | Other | 29 | 19.6 |

* two missing responses

** four missing responses

*** one missing response

~ multiple response options

To better understand NPs' patient practices, NPs were asked how patients are assigned to their care. Primary health care NPs reported that patients come under their care through several different mechanisms. Seventy-eight percent (78%) of NPs have clients who book an appointment specifically to see them. Referrals are a major source of patient assignment; 38% get referrals from another setting, 64% get a referral from a colleague within the setting and 24% get a referral from a physician in the community. Thirty-one percent (31%) of NPs get patients through triage and 57% get patients because the receptionist assigns the patients. Finally, 25% of NPs get patients through other means (see Exhibit 29).

**Exhibit 29: Methods of patient assignment to care**

| | Total Respondents (*n*=231) | Percentage of Respondents |
|---|---|---|
| **Methods~** | | |
| Patient books appointment specifically with NP | 181 | 78.0 |
| Referral from a colleague within the setting | 149 | 64.2 |
| Receptionist assigns patients | 132 | 56.9 |
| Referral from another setting | 89 | 38.4 |
| Triage | 71 | 30.6 |
| Other | 58 | 25.0 |
| Referral from a physician in the community | 55 | 23.7 |

~ multiple response option

Referrals to NPs come from a variety of sources. Seventy-eight percent (78%) of NPs receive referrals from physicians (physicians in the practice setting and the community), 75% from nurses, 48% from social workers, 40% from mental health workers and 32% from nutritionists. Seventy-nine percent (79%) of NPs get referrals from the patients themselves and 37% of NPs have clients who walk in without a referral. Thirty-six percent (36%) of NPs get referrals from other sources (other sources not specified in the survey) (see Exhibit 30).

**Exhibit 30: Methods of referrals to NP**

| | Total Respondents (*n*=232) | Percentage of Respondents |
|---|---|---|
| **Referral~** | | |
| Physicians | 182 | 78.1 |
| Nurses | 174 | 74.7 |
| Social Workers | 111 | 47.6 |
| Mental health workers | 93 | 39.9 |
| Nutritionists | 74 | 31.8 |
| Patients refer themselves | 184 | 79.0 |
| No referral – patients walk in | 86 | 36.9 |
| Other | 83 | 35.6 |

~ multiple response option

***External Influences***

The survey specifically asked NPs questions regarding the external influences that impact the extent to which the NP is able to provide patient care within the RN(EC) scope of practice regardless of the practice setting. Specifically, NPs were asked to comment on legislation, regulations and policies.

Primary health care NPs were asked to comment on whether or not they make referrals to specialists and to indicate the mechanism by which they refer. Over 90% of NPs indicated that they refer their clients to specialists. Of those who do so, the majority of NPs, at 88%, reported that they write the consult note and the physician signs the note. Less than 10% of NPs reported that they either refer the patient to the physician (who sees the patient and writes the consult note) or have the physician write the consult note after discussing the matter with the NP (see Exhibit 31).

**Exhibit 31: NP referrals to specialists and how these referrals are handled**

| | | Total Respondents | Percentage of Respondents |
|---|---|---|---|
| **Referrals to specialists*** | | (*n*=231) | |
| | No | 18 | 7.8 |
| | Yes | 213 | 92.2 |
| **If yes, how are these handled**** | | (*n*=167) | |
| | I refer the patient to the physician who sees the patient, and writes the consult note | 12 | 9.5 |
| | I write the consult note, and the physician signs the note | 111 | 88.1 |
| | The physician writes the consult note after discussing the matter with me | 3 | 2.4 |

* three missing responses

** 87 missing responses

Primary health care NPs were then asked to report on the percentage of patients they refer to physicians in a given week. About 60% of NPs indicated referring an average of 11% of their patients to the physician for referral to a specialist. About 56% of NPs indicated referring directly to the specialist. On average, about 14% of NPs' patients are referred this way. NPs also reported on other reasons for referring their patient population. Interestingly, 94% of NPs refer to a physician because the patient needs are outside of their scope and this occurs for about 15% of the NP patient population. Forty-four percent (44%) of NPs refer because they are uncomfortable handling the case; representing, on average, seven percent of the patient population for this group of NPs. Nineteen percent (19%) of NPs refer

because they have a pre-set arrangement with the physician; representing, on average, 26% of the patient population for this group of NPs (see Exhibit 32).

**Exhibit 32: Percentage of patients that the NP refers to the physician**

| | Number of NPs who make these referrals | Percentage of NPs who make these referrals | Mean percentage of these referrals made each week |
|---|---|---|---|
| **Referrals** | | | |
| Refer to the physician for referral to a specialist | 138 | 61.6% | 10.8 *(n=130)* |
| Refer to a specialist directly | 125 | 55.8% | 13.8 *(n=116)* |
| Refer – patients needs are outside your scope | 211 | 94.2% | 14.6 *(n=203)* |
| Refer – you are uncomfortable handling the case | 98 | 43.8% | 6.8 *(n=90)* |
| Refer – due to a pre-set arrangement with physician | 42 | 18.8% | 25.7 *(n=31)* |

The survey then focused on a series of questions about concerns regarding scope of practice and liability. NPs were first asked whether or not their physician partner had expressed any concerns regarding their scope of practice and his or her liability. Of the primary health care NPs, almost 40% indicated that their physician partner had expressed concerns and more than half of those indicated that this is a barrier to their practice. Of those NPs whose physician partner had expressed concern, only 36% had discussed and resolved the concerns; 48% indicated that they were still discussing the concerns and 16% indicated that the concerns had not been addressed (see Exhibit 33).

**Exhibit 33: Physician concerns regarding scope of NP practice and liability**

| | | Total Respondents | Percentage of Respondents |
|---|---|---|---|
| **Physician concerned*** | | (*n*=232) | |
| | No | 143 | 61.6 |
| | Yes | 89 | 38.4 |
| **If yes, how are these handled**** | | (*n*=83) | |
| | We have discussed them and resolved the concerns | 30 | 36.1 |
| | We are still discussing these concerns | 40 | 48.2 |
| | These concerns have not been addressed | 13 | 15.7 |

| | | Total Respondents | Percentage of Respondents |
|---|---|---|---|
| **If yes, do you view this as a barrier to your practice?**** | | (*n*=85) | |
| | No | 39 | 45.9 |
| | Yes | 46 | 54.1 |

* two missing responses

** six missing responses

*** four missing responses

Thirty-seven percent (37%) of NPs indicated they also have concerns regarding their own liability and 43% of these respondents indicated that this is a barrier to their practice. Of those NPs who have concerns, 46% say these concerns are due to being asked to practice outside of their scope; 80% of these individuals feel that this occurs sometimes while the remaining 20% feeling that it occurs often. For 17% of respondents who have these concerns it is because they feel that they are not given enough information to treat patients properly; of these individuals 80% say this occurs only sometimes, with the remaining 20% feeling it occurs often. Seventeen percent (17%) of those who have expressed concerns over their liability do so because they feel that they are not competent to perform some of the tasks they are asked to perform; of these individuals, everyone feels this occurs only sometimes. Forty-four (44%) percent of individuals with concerns feel the reason for their concerns is due to inadequate liability insurance; 63% feel this sometimes and 37% feel this often. Thirty-five percent (35%) feel there is some other reason for their concerns regarding their liability (see Exhibit 34).

**Exhibit 34: NP Concerns regarding liability**

| | | | Total Respondents | Percentage of Respondents |
|---|---|---|---|---|
| **Concerns regarding liability*** | | | (*n*=228) | |
| | No | | 143 | 62.7 |
| | Yes | | 85 | 37.3 |
| **If yes, reasons for concerns~** | | | | |
| | I feel that I am asked to practice outside of my scope | | 39 | 45.9 |
| | | Sometimes | 31 | 79.5 |
| | | Often | 8 | 20.5 |

9

| | | | Total Respondents | Percentage of Respondents |
|---|---|---|---|---|
| **Concerns regarding liability*** | | | (*n*=228) | |
| | I feel that I am not given enough information to treat patients properly | | 14 | 16.5 |
| | | Sometimes | 11 | 78.6 |
| | | Often | 3 | 21.4 |
| | I feel that I am not competent to perform some of the tasks I am asked to perform | | 14 | 16.5 |
| | | Sometimes | 14 | 100.0 |
| | | Often | 0 | 0.0 |
| | I feel that my liability insurance is inadequate | | 37 | 43.5 |
| | | Sometimes | 20 | 62.5 |
| | | Often | 12 | 37.5 |
| | Other | | 30 | 35.3 |
| | | Sometimes | | 56.3 |
| | | Often | 7 | 43.8 |
| **If yes, barrier to practice?** | | | | |
| | No | | 44 | 57.1 |
| | Yes | | 33 | 42.9 |

* six missing responses

~ multiple response question

***Descriptors Related to NP Role in Decision-Making***

NPs were asked to respond to a series of questions that measure the degree to which independence and autonomy have been achieved in the workplace. This includes the degree to which NPs function within determined lines of responsibility and the degree to which consistent processes and mechanisms are in place to support various functions.

One component of the Misener NP job satisfaction scale is challenge and autonomy. This includes satisfaction on elements such as challenge in work, level of autonomy, opportunity to expand scope and practice, sense of value for what you do and ability to deliver quality care (Misener and Cox, 2001).[27] The scale uses a six-point Likert-type scale with responses ranging from "very dissatisfied" (1) to "very satisfied" (6). The primary health care NPs indicated a mean value of 5.35 with a range of 2 to 6 on challenge and autonomy satisfaction. On average therefore, primary care NPs are satisfied with the challenge and autonomy of their job. The Misener satisfaction level for intrapractice partnership/collegiality includes elements such as satisfaction with immediate supervisor, respect for your opinion, recognition from superiors, freedom to question decisions and practices, input into organizational policy and process used in conflict resolution. Primary care NPs reported a mean value of 4.11 (signifying minimal satisfaction) with a range of 1 to 6 for intrapractice partnership/collegiality.

NPs were also asked several questions regarding role clarity and role formation. Twenty percent (20%) of NPs feel their role is not clearly defined. Seventy percent (70%) of primary health care NPs were involved in the development of their position with 16% involved in the development of the proposal for their role (see Exhibit 35). The researchers investigated whether those who were involved in developing their position felt their NP role is clearly defined and did not find a significant relationship.

[27] T.R. Misener and D.L. Cox, "Development of the Misener Nurse Practitioner Job Satisfaction Scale" (2001) Journal of Nursing Measurement 9 (1): 91-108.

**Exhibit 35: Role clarity and NP involvement in development of position and proposal for NP role**

| | Total Respondents | Percentage of Respondents |
|---|---|---|
| **NP Role clearly defined**** | (*n*=226) | |
| No | 45 | 19.9 |
| Yes | 181 | 80.1 |
| **NP involved in developing position*** | (*n*=218) | |
| No | 67 | 30.7 |
| Yes | 151 | 69.3 |
| **Involved in development of proposal for NP role***** | (*n*=222) | |
| No | 89 | 40.1 |
| Yes | 35 | 15.8 |
| Not applicable | 98 | 44.1 |

* 16 missing responses

** eight missing responses

*** 12 missing responses

To better understand lines of responsibility, NPs were asked to indicate who they are accountable to for their clinical and non-clinical activities. For the clinical activities, the majority of primary health care NPs are accountable to a manager or administrator. Approximately 23% of NPs report to a medical director, with similar numbers reporting to a physician or some other individual for their clinical activities; 10% work independently and therefore, are not accountable to anyone for their clinical activities (see Exhibit 36).

**Exhibit 36: NP accountability for clinical activities**

| | Total Respondents (*n*=233) | Percentage of Respondents |
|---|---|---|
| **Whom accountable to ~** | | |
| Manager or administrator | 155 | 66.2 |
| Medical director | 54 | 23.1 |
| Physician | 64 | 27.4 |
| Other | 48 | 20.5 |
| Not applicable, work independently | 24 | 10.3 |

~ multiple response option

About eight out of every 10 primary health care NPs perform non-clinical activities. Of these, approximately 70% report to a manager or administrator for non-clinical activities, about 10% report to a nursing director, 8% to a medical director, 4% to a physician and 16% to someone else. Ten percent (10%) work completely independently and do not report to anyone for their non-clinical activities (see Exhibit 37).

**Exhibit 37: NP accountability for non-clinical activities**

| | Total Respondents | Percentage of Respondents |
|---|---|---|
| **Have non-clinical activities*** | (*n*=229) | |
| No | 41 | 17.9 |
| Yes | 188 | 82.1 |
| | | |
| **Whom accountable to ~** | | |
| Manager or administrator | 133 | 71.5 |
| Nursing director | 21 | 11.3 |
| Medical director | 15 | 8.0 |
| Physician | 7 | 3.8 |
| Not applicable, work independently | 18 | 9.7 |
| Other | 30 | 16.1 |

* five missing responses

~ multiple response option

NPs were then asked if they have an annual performance appraisal. Sixty-six percent (66%) of primary health care NPs identified that they have an annual performance review. For 55% of NPs, a manager or administrator is responsible for their annual performance appraisal. Twenty percent (20%) of NPs identified that another person is responsible for their performance appraisal. Less than 10% of NPs identified, respectively, that the nursing director, physician partner or medical director are responsible for their performance appraisal (see Exhibit 38).

**Exhibit 38: Responsibility for NP annual performance appraisal**

| | Total Respondents | Percentage of Respondents |
|---|---|---|
| **Who is responsible for NP annual performance appraisal?*** | (*n*=187) | |
| Manager or administrator | 103 | 55.0 |
| Nursing director | 17 | 9.1 |
| Medical director | 14 | 7.5 |
| Physician partner | 17 | 9.1 |
| Other | 36 | 19.3 |

* 37 missing responses

NPs were also asked if they pay a fee for medical or computer equipment, support staff or office space. NPs' response on these questions may influence overall satisfaction as well as the NP's role in decision-making. If NPs are responsible for paying a fee for these items, then it is expected that they may play a significant role in the practice setting's decision-making. Almost all NPs indicated that they do not pay a fee for medical or computer equipment (93%), support staff (94%) or office space (94%) (see Exhibit 39). For those NPs who do pay a fee for the use of support staff, the average fee per month is $836. For those who pay a fee for office space, the average fee per month is $741.

**Exhibit 39: Number of NPs who pay additional fees**

| | | Total Respondents | Percentage of Respondents |
|---|---|---|---|
| **Did you pay a fee for medical or computer equipment?*** | | *(n=230)* | |
| | Yes | 16 | 7.0 |
| | No | 214 | 93.0 |
| **Do you pay a fee for use of support staff?**** | | *(n=231)* | |
| | Yes | 13 | 5.6 |
| | No | 218 | 94.4 |
| **Do you pay a fee for use of office space?~** | | *(n=233)* | |
| | Yes | 15 | 6.5 |
| | No | 217 | 93.5 |

* four missing responses

** three missing responses

~ one missing response

***Descriptors Related to NP Workplace Satisfaction***

In this domain, NPs were asked several questions regarding working conditions, payment system, salary, opportunities for professional growth and continuing education.
NPs were asked to comment on their satisfaction with their salary. About 65% of primary health care NPs identified some satisfaction (ranging from minimally to very satisfied) with their salary. Seven percent of NPs indicated that they are very dissatisfied (see Exhibit 40).

**Exhibit 40: Primary health care NP satisfaction with salary**

| | Total Respondents | Percentage of Respondents |
|---|---|---|
| **Satisfaction with Salary*** | (*n*=231) | |
| Very Satisfied | 9 | 3.9 |
| Satisfied | 76 | 32.9 |
| Minimally Satisfied | 65 | 28.1 |
| Minimally Dissatisfied | 20 | 8.7 |
| Dissatisfied | 46 | 19.9 |
| Very Dissatisfied | 15 | 6.5 |

* three missing responses

NPs were asked how they should be remunerated for services rendered. The highest level of agreement for NP salary support is to receive funding from the MoHLTC through a transfer payment to an organization employer (i.e., long-term care facility); the next highest agreement is for salary through funding paid by the MoHLTC to a central incorporated agency that would manage all NP salaries and benefits. The least liked option for salary support is for NPs to bill the patient for services rendered (see Exhibit 41).

**Exhibit 41: NP opinion about how primary health care NPs should be remunerated**

| | Strongly disagree | Disagree | Neutral | Agree | Strongly agree | Number that agree |
|---|---|---|---|---|---|---|
| **Remuneration for NPs** | | | | | | |
| Salary with funding provided by MoHLTC to a transfer payment to an organization employer (i.e. Long-Term Care Facility) | 11 (4.8%) | 14 (6.2%) | 23 (10.1%) | 96 (42.3%) | 83 (36.6%) | 179 (78.9%) |
| Salary with funding paid by the MoHLTC to a central incorporated agency that would manage all NP salaries and benefits | 15 (6.9%) | 24 (11.0%) | 43 (19.7%) | 66 (30.3%) | 70 (32.1%) | 136 (62.3%) |

| | Strongly disagree | Disagree | Neutral | Agree | Strongly agree | Number that agree |
|---|---|---|---|---|---|---|
| Salary with funding provided by MoHLTC to a transfer payment agency such as a municipality | 23 (10.8%) | 34 (16.0%) | 41 (19.4%) | 86 (40.6%) | 28 (13.2%) | 114 (53.8%) |
| NP directly bills OHIP for services rendered | 83 (37.4%) | 48 (21.6%) | 35 (15.8%) | 32 (14.4%) | 24 (10.8%) | 56 (25.2%) |
| NP directly bills private insurer for services rendered | 94 (43.5%) | 43 (19.9%) | 25 (11.6%) | 35 (16.2%) | 19 (8.8%) | 54 (25.0%) |
| Salary with funding provided by MoHLTC to a physician employer | 103 (46.6%) | 44 (19.9%) | 26 (11.8%) | 29 (13.1%) | 19 (8.6%) | 48 (21.7%) |
| NP bills patient for services rendered | 163 (73.1%) | 37 (16.6%) | 13 (5.8%) | 6 (2.7%) | 4 (1.8%) | 10 (4.5%) |

* 22 missing responses.

NPs were also asked to rate their satisfaction on the Misener NP job satisfaction scale for time and professional growth. The time factor includes items such as time allocated for seeing patients, time allocated for review of laboratory and other test results and patient scheduling policies and practices. The primary health care NPs indicated a mean value of 4.54 and a range of 1 to 6 on the time factor. Primary care NPs are therefore, on average, minimally satisfied to satisfied with time allocated for review of laboratory and other test results and patient scheduling policies and practices. Professional growth had a mean value of 3.99 and a range of 1 to 6, indicating that primary health care NPs are minimally satisfied with professional growth. Professional growth includes factors such as opportunity for professional growth, support for continuing education, involvement in research and time off to serve on professional committees. Benefits include satisfaction with vacation/leave policy, benefit package and retirement plan. Primary health care NPs indicated a mean value of 4.17 and a range of 1 to 6 on benefits indicating minimal satisfaction.

NPs were then asked specifically about the number of days of paid vacation and education they receive per year. Primary health care NPs indicated that they receive on average, 18.3 days ($n$ = 223) of paid vacation, with a range of 0-56 days. Fifteen NPs (6.7%) indicated that they receive no paid vacation days. Primary health care NPs also indicated that they receive 5.4 days ($n$=175) of paid education, with a range of 0-38 days per year. Thirty-seven NPs (21.1%) indicated that they receive no paid education days at all. When asked what is the greatest barrier to participating in continuing education, 51% of primary health care NPs indicated time commitment, 22% distance to learning venue, 20% financial reasons and six percent other reasons.

NPs were also asked a series of questions regarding their education. When asked if they felt educationally prepared when they first started practising, 54% of primary health care NPs indicated that they did not. This dropped to 14% when they were asked if they currently feel educationally prepared. For those who indicated that they were/are not educationally prepared, they were then asked about their

concerns. The majority of respondents indicated that they lacked in some substantive knowledge and were/are not prepared for the complexity of health problems. Those unprepared educationally when they first started practising also indicated that they were not prepared for the level of independence of the role. Those primary health care NPs that identified they were not educationally prepared when they first started practising suggested that their concerns could be addressed by:

- Having a longer practicum (73%);
- Having an internship type of year (64%);
- Having a master's level program (47%);
- Creating a longer educational program (46%); and
- Having greater emphasis on continuing education (41%).

Those primary health care NPs who currently feel they are not educationally prepared identified that having greater emphasis on continuing education (59%) would address some of their concerns (see Exhibit 42).

**Exhibit 42: Educational preparedness among primary health care NPs**

| | First started practising | | Currently | |
|---|---|---|---|---|
| | Total Respondents | Percentage of Respondents | Total Respondents | Percentage of Respondents |
| **Did you feel educationally prepared*** | | | | |
| No | 125 | 53.9 | 29 | 14.1 |
| Yes | 107 | 46.1 | 176 | 85.9 |
| **If no, what are some of your concerns?**~** | (*n*=102) | | (*n*=26) | |
| Lacking in some substantive knowledge | 78 | 76.5 | 11 | 42.3 |
| Not prepared for the complexity of health problems | 73 | 71.6 | 14 | 53.8 |
| Not prepared for the level of independence of the role | 64 | 62.7 | 6 | 23.1 |
| Other | 27 | 26.5 | 10 | 38.5 |
| **How can some of these concerns be addressed? ***~** | (*n*=100) | | (*n*=22) | |
| Have a longer clinical practicum | 73 | 73.0 | 4 | 18.2 |
| Have an internship type of year | 64 | 64.0 | 3 | 13.6 |
| Have a Masters level program | 47 | 47.0 | 7 | 31.8 |
| Longer educational program | 46 | 46.0 | 3 | 13.6 |
| Greater emphasis on continuing education | 41 | 41.0 | 13 | 59.1 |
| Other | 25 | 25.0 | 7 | 31.8 |
| Make the program region specific | 19 | 19.0 | 6 | 27.3 |

* First started practising: two missing responses; Currently practising: 29 missing responses

| | First started practising | | Currently | |
|---|---|---|---|---|
| | Total Respondents | Percentage of Respondents | Total Respondents | Percentage of Respondents |

** First started practising: five missing responses; Currently practising: three missing responses

* First started practising: seven missing responses; Currently practising: seven missing responses

~ multiple response option

NPs were then asked to comment on what was included as part of their on-going/continuing education in the past year. Almost all (96%) NPs indicated that lectures, conferences and/or clinical presentations had been included; 86% indicated other education materials, 80% indicated clinical practice guidelines and 67% indicated small group learning, traineeships and workshops. Only 18% indicated distance courses or night courses and 29% indicated chart audit with feedback on performance (see Exhibit 43).

**Exhibit 43: Profile of continuing education activities among primary health care NPs**

| | Total Respondents | Percentage of Respondents |
|---|---|---|
| **Which have been included in your continuing education in last year?*~** | (*n*=203) | |
| Lectures, conferences and/or clinical presentations | 223 | 95.7 |
| Other education materials | 200 | 85.8 |
| Clinical practice guidelines | 187 | 80.3 |
| Small group learning, traineeships or workshops | 157 | 67.4 |
| Chart audit with feedback on performance | 68 | 29.2 |
| Distance education courses or night courses | 41 | 17.6 |

* one missing response

~ multiple response option

***Descriptors Related to Collaboration and Team Dynamics***

The NP survey included several questions to measure collaboration and team dynamics. This domain has been defined as the degree to which formal/informal partnerships function within the practice setting and may include elements such as role clarity, communication style and mutual respect. The NP, physician and other members of the health care team can be part of a collaborative relationship.

The Misener NP job satisfaction scale includes measures on NP satisfaction on professional, social and community interaction. This interaction factor includes items such as social contact at/after work, professional interaction with other disciplines, recognition of work from peers and status in the community. Primary health care NPs indicated a mean value of 4.5 and a range of 1 to 6 on interaction.

Therefore, NPs indicated that they are minimally satisfied to satisfied with professional, social and community interaction.

The Jones and Way collaboration score is based on the seven essential elements for collaborative practice based on the descriptive and research literature (Jones, Way and Baskerville, 2001).[28] The scale uses a five-point Likert-type scale. For presentation in this report the Jones and Way satisfaction scale has been reverse scaled to remain consistent with the reporting of other satisfaction scales. Responses have been recoded to range from "very dissatisfied" (1) to "very satisfied" (5) across 11 elements, and responses ranging from "strongly disagree" (1) to "strongly agree" (5) for nine elements. A mean score can be calculated for each element as well as across all elements to obtain a composite measure of collaboration. The results from the Jones and Way scoring is provided in Exhibit 44.

On average, primary health care NPs identified that they agree to strongly agree with the items within the Jones and Way scale. The highest levels of agreement were identified by NPs for:

- Communicate openly as decisions are made about patient care;
- Respect the other's knowledge and skills in making shared decisions about patient care;
- Co-operate in making decisions about patient care; and
- Demonstrate trust in the other's decision making ability.

The lowest levels of agreement were identified by NPs for:

- Co-ordinate implementation of a shared plan for patient care; and
- Fully collaborate in making shared decisions about patient care.

NPs identified that they are, on average, neutral to satisfied on the Jones and Way items. The highest levels of satisfaction were identified by NPs for:

- The respect shown by the NP and the family physician(s) in each other's knowledge and skills;
- The trust shown by the NP and family physician(s) in each other's decision making ability in making shared decisions about patient care;
- The decisions that are made between the NP and the family physician(s) about patient care; and
- The open communication that takes place between the NP and the family physician(s) regarding patient care decisions.

The lowest levels of satisfaction identified by NPs included:

- The co-ordination between the NP and family physician(s) when implementing a shared plan for patient care;
- The amount of collaboration that occurs between the NP and the family physician(s) in making decisions about patient care;
- The way that decisions are made between the NP and the family physician(s) about patient care (i.e., with the decision making process, not necessarily with the decisions); and

[28] D. Way, L. Jones and N. Baskerville, "Improving the effectiveness of primary health care through NP/family physician structured collaborative practice", Final Report, University of Ottawa, March 31, 2001 (unpublished).

- The shared planning that occurs between the NP and the family physician(s) while making decisions about patient care.

**Exhibit 44: NPs' measure of current collaboration**

| | Number of Respondents | Mean Score (high score signifies higher agreement) | Standard Deviation |
|---|---|---|---|
| **Rated NP degree of disagreement or agreement based on current experience of collaborative practice between NP and the family physician(s)** | | | |
| Communicate openly | 219 | 4.34 | 0.88 |
| Respect the other's knowledge | 220 | 4.25 | 0.90 |
| Cooperate in decision making | 220 | 4.24 | 0.88 |
| Demonstrate trust | 221 | 4.23 | 0.93 |
| Plan decision together | 217 | 4.15 | 1.01 |
| Consider nursing/medical | 220 | 4.07 | 0.96 |
| Share responsibility | 221 | 4.06 | 1.01 |
| Fully collaborate in making decisions | 217 | 3.98 | 1.07 |
| Co-ordinate implementation | 215 | 3.97 | 1.04 |
| **Rated NP degree of dissatisfaction or satisfaction based on current experience of collaborative practice between NP and the family physician(s)** | **Number of Respondents** | **Mean Score (high score signifies higher satisfaction)** | **Standard Deviation** |
| Respect shown in others | 219 | 4.07 | 0.88 |
| Trust shown in others | 220 | 4.06 | 0.87 |
| Decisions made between NPs and physicians | 217 | 4.06 | 0.82 |
| Open communication about patient | 219 | 4.05 | 0.90 |
| Cooperation in making decision | 218 | 4.01 | 0.93 |
| Shared responsibility for decisions | 219 | 3.92 | 0.91 |
| Consideration of nursing/medical concerns | 221 | 3.92 | 0.90 |
| Shared planning while making decision | 216 | 3.91 | 0.95 |
| Way decisions are made | 220 | 3.91 | 0.99 |
| Amount of collaboration | 219 | 3.88 | 1.00 |
| Coordination when implementing decisions | 218 | 3.85 | 0.97 |

Primary health care NPs were then asked about their satisfaction with physician availability, of which 36% indicated that they are very satisfied. Over 90% indicated they are satisfied at some level with the physician's availability (see Exhibit 45).

**Exhibit 45: NP satisfaction with physician availability**

| | Total Respondents | Percentage of Respondents |
|---|---|---|
| **Satisfaction with Physician availability*** | (*n*=231) | |
| Very Satisfied | 84 | 36.4 |
| Satisfied | 109 | 47.2 |
| Minimally Satisfied | 22 | 9.5 |
| Minimally Dissatisfied | 10 | 4.3 |
| Dissatisfied | 2 | 0.9 |
| Very Dissatisfied | 4 | 1.7 |

* three missing responses

More directly, NPs were asked if the physician with whom they collaborate is located on-site. Seventy-three (73%) percent of primary health care NPs indicated that the physician is on-site and for these NPs, 66% indicated that the physician is available as needed. For those NPs with a physician located off-site, the primary mode of contact is through a combination of methods at 31%, followed by in-person contact at 24%. For those NPs with a physician located off-site, almost one in three connect with the physician a few times per week (see Exhibit 46).

**Exhibit 46: Availability of physician to NP**

| | Total Respondents | Percentage of Respondents |
|---|---|---|
| **Physician located on-site*** | (*n*=196) | |
| On-site | 143 | 73.0 |
| Off-site | 53 | 27.0 |
| **If on-site, how often is the physician available?**** | (*n*=137) | |
| Sometimes | 16 | 11.7 |
| Often | 31 | 22.6 |
| As needed | 90 | 65.7 |
| **If off-site, how do you primarily connect with this physician***** | (*n*=51) | |
| Phone | 16 | 9.8 |
| In person | 4 | 23.5 |
| Fax | 1 | 3.9 |
| E-mail | 1 | 9.8 |

| | Total Respondents | Percentage of Respondents |
|---|---|---|
| Combination | 28 | 31.4 |
| Other | 11 | 21.6 |
| **If off-site, how often do you connect ***** | (*n*=51) | |
| More than once a day | 2 | 3.9 |
| Once a day | 5 | 9.8 |
| A few times per week | 16 | 31.4 |
| Once per week | 12 | 23.5 |
| Once per month | 5 | 9.8 |
| Other | 11 | 21.6 |

* 38 missing responses

** six missing responses

*** two missing responses

NPs were also asked to identify the type of team of which they are members. Seventy-two percent (72%) of primary health care NPs identified themselves as members of an interdisciplinary team. Less than 10% identified that they are members of a medical group or medical group practice and nursing team. About six percent of NPs identified that they are primarily members of an other type of team and four percent indicated they are members of a nursing team (see Exhibit 47).

**Exhibit 47: NPs' primary membership**

| | Total Respondents | Percentage of Respondents |
|---|---|---|
| **Member of:*** | (*n*=232) | |
| Interdisciplinary health care team | 167 | 72.0 |
| Medical group practice | 22 | 9.5 |
| Both medical group practice and nursing team | 20 | 8.6 |
| Other | 13 | 5.6 |
| Nursing team | 10 | 4.3 |

* two missing responses

To better understand the structure of the NP team, NPs were asked to comment on the type and number of practitioners in their setting. The majority of primary health care NPs identified that they work with RNs, dieticians and social workers. Between 30 and 50% of NPs work with registered practical nurses, mental health workers and other types of health care workers. Less than 30% of NPs work with midwives,

physiotherapists or occupational therapists. Eight percent of NPs do not work with any other types of practitioners (see Exhibit 48).

**Exhibit 48: Type and number of practitioners in the NP setting**

| | Number of NPs who work with other practitioners | Percentage of NPs who work with these practitioners | Range of practitioners the NP works with | Mean number of practitioners that the NP works with |
|---|---|---|---|---|
| **Practitioners~** | | | | |
| RNs | 164 | 70.4 | 1-100 | 5.41 |
| RPNs | 78 | 33.5 | 1-40 | 6.06 |
| Midwives | 15 | 6.4 | 1-5 | 2.44 |
| Physiotherapists | 61 | 26.2 | 1-5 | 1.86 |
| Dieticians | 138 | 59.2 | 1-4 | 1.43 |
| Occupational Therapists | 28 | 12.0 | 1-5 | 1.91 |
| Social Workers | 136 | 58.4 | 1-14 | 2.27 |
| Mental Health | 96 | 41.2 | 1-10 | 1.95 |
| Don't practice with other practitioners | 19 | 8.2 | | |
| Other | 106 | 45.5 | 1-40 | 4.05 |

~ multiple response option

Primary health care NPs were asked whether their practice setting has an orientation for team members to the NP's role. Fifty-five percent (55%) of primary health care NPs identified that there was an orientation for the physicians and health care team to the NP's role prior to or upon arrival of the NP (see Exhibit 49).

**Exhibit 49: Orientation of NP role to team members**

| | Total Respondents | Percentage of Respondents |
|---|---|---|
| **Orientation to NP role:*** | (*n*=209) | |
| No | 69 | 33.0 |
| Yes | 116 | 55.5 |
| Not applicable | 24 | 11.5 |

* 25 missing responses

The survey results identified that the majority (80%) of primary health care NPs had clinical guidelines included in their continuing education during the previous year. In addition, 72% of primary health care NPs identified that they find actually using clinical practice guidelines better enables them to work with

their physician partner. Twenty-three percent (23%) of NPs responded that they do not use guidelines, thus identifying a potential audience for further education. (See Exhibit 50).

**Exhibit 50: Usefulness of clinical practice guidelines in working with physician**

| | Total Respondents | Percentage of Respondents |
|---|---|---|
| Do you find using clinical practice guidelines useful?* | (*n*=222) | |
| Yes | 160 | 72.0 |
| No | 11 | 5.0 |
| Do not use | 51 | 23.0 |

* 12 missing responses

## Factors in Practice which Facilitate/Create Barriers to the Ability to Fulfill the NP Role

NPs were asked to identify what factors in their practice setting facilitate and/or create barriers to their ability to fulfill their NP role (see Exhibit 51). Specifically, NPs were asked to rank the top three barriers and top three facilitators. Primary health care NPs identified several barriers including:

- Health care financing (i.e., NP cannot refer directly to specialist and specialists cannot bill for referral from NP) (62%);
- Legislation such as the Public Hospitals Act, Long Term Care Act, Nursing Homes Act etc (44%);
- Funding limitations (i.e., lack of money for health promotion, travel etc) (31%); and
- Resistance from health care providers outside the practice (30%).

Interestingly, 20% of primary health care NPs also identified that the personality and philosophy of physicians with whom they practice is a barrier.

**Exhibit 51: Top ranked barriers by NPs**

| | Rank 1 | Rank 2 | Rank 3 | Number Top Ranking | Percentage of Total Respondents |
|---|---|---|---|---|---|
| Health care financing (i.e., NP cannot refer directly to specialist and specialists cannot bill for referral from NP) | 55 | 56 | 28 | 139 | 62.1 |
| Legislation such as the Public Hospitals Act, Long-Term Care Act, Nursing Homes Act etc. | 48 | 26 | 25 | 99 | 44.2 |
| Limitations of funding (i.e., lack of money for health promotion, travel etc.) | 30 | 18 | 21 | 69 | 30.8 |
| Resistance from health care providers outside the practice | 17 | 32 | 19 | 68 | 30.4 |
| The personality and philosophy of physicians with whom I practice | 20 | 16 | 9 | 45 | 20.1 |
| Isolation in practice (i.e., hard to be the only NP in this setting) | 10 | 21 | 13 | 44 | 19.6 |
| The nature of my employment relationship (i.e., employed by organization, employed by physician practice) | 5 | 10 | 17 | 32 | 14.3 |
| Other | 15 | 6 | 8 | 29 | 12.9 |
| Limitations of space (e.g., not enough room in the office) | 4 | 10 | 15 | 29 | 12.9 |
| Resistance from other health care providers in the practice | 8 | 5 | 15 | 28 | 12.5 |
| Level of my own confidence to take on the responsibilities of this new role | 9 | 7 | 9 | 25 | 11.2 |
| Too many patients to practice in this role satisfactorily | 7 | 9 | 9 | 25 | 11.2 |
| My educational preparation through the NP program | 11 | 8 | 5 | 24 | 10.7 |
| The way my role has been defined is too narrow | 6 | 5 | 8 | 19 | 8.5 |
| Orientation of the health care team to my role | 4 | 1 | 11 | 16 | 7.1 |
| The practice model under which I operate (i.e., collaborative practice, consultative practice etc.) | 4 | 5 | 4 | 13 | 5.8 |
| The way my role has been defined - too broad | 4 | 5 | 4 | 13 | 5.8 |
| Working relationships with other providers within the practice | 3 | 3 | 2 | 8 | 3.6 |
| My work experience prior to entering the NP program | 3 | 2 | 2 | 7 | 3.1 |
| Resistance from patients | | 3 | 4 | 7 | 3.1 |
| Too few patients to practice in this role satisfactorily | 2 | 1 | 3 | 6 | 2.7 |
| Resistance from the community | | 2 | | 2 | 0.9 |

The following are the top ranked facilitators that primary health care NPs identified (see Exhibit 52):

- The personality and philosophy of physicians with whom the NP practices (70%);
- NPs' work experience prior to entering the NP program (58%);
- Practice model in which the NP operates (i.e., collaborative practice, consultative practice etc) (57%);
- Working relationships with other providers within the practice (44%); and
- Nature of the NP employment relationship (i.e., employed by organization, employed by physician practice) (37%).

**Exhibit 52: Top ranked facilitators by NPs**

| | Rank 1 | Rank 2 | Rank 3 | Number of Respondents | Percentage of Respondents |
|---|---|---|---|---|---|
| The personality and philosophy of physicians with whom I practice | 68 | 42 | 39 | 149 | 69.6 |
| My work experience prior to entering the NP program | 58 | 40 | 27 | 125 | 58.4 |
| The practice model under which I operate (i.e., collaborative practice, consultative practice etc.) | 37 | 43 | 41 | 121 | 56.5 |
| Working relationships with other providers within the practice | 18 | 39 | 37 | 94 | 43.9 |
| The nature of my employment relationship (i.e., employed by organization, employed by physician practice) | 35 | 26 | 19 | 80 | 37.4 |
| Level of my own confidence to take on the responsibilities of this new role | 12 | 24 | 23 | 59 | 27.6 |
| My educational preparation through the NP program | 18 | 18 | 21 | 57 | 26.6 |
| Orientation of the health care team to my role | 6 | 10 | 17 | 33 | 15.4 |
| Other | 2 | | 3 | 5 | 2.3 |
| Resistance from health care providers outside the practice | 2 | 1 | 1 | 4 | 1.9 |
| Resistance from patients | | 2 | 2 | 4 | 1.9 |
| The way my role has been defined - too broad | | 2 | 2 | 4 | 1.9 |
| Health care financing (i.e. NP cannot refer directly to specialist and specialists cannot bill for referral from NP) | 1 | 1 | 1 | 3 | 1.4 |
| Resistance from the community | 1 | 1 | 1 | 3 | 1.4 |
| Legislation such as the Public Hospitals Act, Long-Term Care Act, Nursing Homes Act etc. | 1 | | 2 | 3 | 1.4 |
| Limitations of space (e.g., not enough room in the office) | | 1 | 1 | 2 | 0.9 |
| Isolation in practice (i.e., hard to be the only NP in this setting) | 1 | | | 1 | 0.5 |
| Too many patients to practice in this role satisfactorily | | | 1 | 1 | 0.5 |

At the end of the survey, NPs were asked to rank the top three most negative and positive aspects of their role (see Exhibit 53). The top ranked negative aspects of the NP role included:

- Lack of understanding from medical professionals (40%);
- Lack of remuneration (i.e., salary too low, poor benefits) (27%); and
- Limited autonomy (i.e., inability to make referrals) (23%).

**Exhibit 53: The top ranked negative aspects of the NP role**

| | Rank 1 | Rank 2 | Rank 3 | Number of Respondents | Percentage of Respondents |
|---|---|---|---|---|---|
| **The most negative aspects of NP role?*** | | | | | |
| Lack of understanding from medical professionals | 26 | 42 | 28 | 96 | 39.5 |
| Lack of remuneration (i.e., salary too low, poor benefits) | 29 | 18 | 19 | 66 | 27.2 |
| Limited autonomy (i.e., inability to make referrals) | 22 | 18 | 15 | 55 | 22.6 |
| Not being able to work full scope/within scope | 16 | 22 | 3 | 41 | 16.9 |
| Lack of awareness from community/government | 14 | 13 | 13 | 40 | 16.5 |
| Lack of collaborative effort | 25 | 7 | 8 | 40 | 16.5 |
| Lack of funding | 15 | 16 | 8 | 39 | 16.0 |
| Isolation | 15 | 12 | 7 | 34 | 14.0 |
| Limited job opportunities | 9 | 11 | 12 | 32 | 13.2 |
| Long hours/overworked | 15 | 7 | 9 | 31 | 12.8 |
| Lack of administrative support/clerical duties | 7 | 12 | 5 | 24 | 9.9 |
| Time constraints | 9 | 3 | 6 | 18 | 7.4 |
| Lack of opportunity for continuing education | 2 | 8 | 8 | 18 | 7.4 |
| Too much paperwork | 6 | 5 | 1 | 12 | 4.9 |
| Lack of respect | 6 | 1 | 3 | 10 | 4.1 |
| Decreases confidence levels | 4 | 3 | 1 | 8 | 3.3 |
| Doctor shortage | 2 | | 4 | 6 | 2.5 |
| Too much travel time | | 1 | 4 | 5 | 2.1 |
| Lack of information technology | | | 2 | 2 | 0.8 |

* 11 missing responses

The issue of autonomy is important to NPs. When limited, it was seen as one of the most negative aspects of their role, and yet, when present, it was seen as the top ranked positive aspect by 62% of NPs. Other top ranked positive aspects included (see Exhibit 54):

- Collaborative practice/teamwork (32%);
- Working within full scope of practice (22%); and
- Patient interaction/working with patients (22%).

**Exhibit 54: The top ranked positive aspects of the NP role**

| | Rank 1 | Rank 2 | Rank 3 | Number of Respondents | Percentage of Respondents |
|---|---|---|---|---|---|
| **The most positive aspects of your NP role?*** | | | | | |
| Autonomy (includes practising independently) | 98 | 38 | 18 | 154 | 62.3 |
| Collaborative practice/teamwork | 13 | 28 | 39 | 80 | 32.4 |
| Working within my full scope of practice | 27 | 15 | 12 | 54 | 21.9 |
| Patient interaction/working with patients | 25 | 13 | 15 | 53 | 21.5 |
| Professional growth/increase knowledge/continued learning | 9 | 16 | 21 | 46 | 18.6 |
| Job satisfaction/it is rewarding | 14 | 20 | 8 | 42 | 17.0 |
| Educating patients/providing counselling to patients | 7 | 16 | 14 | 37 | 15.0 |
| Support from medical and administrative professionals | 5 | 18 | 12 | 35 | 14.2 |
| Positive feedback/recognition from community | 14 | 7 | 12 | 33 | 13.4 |
| Ability to provide care | 12 | 10 | 10 | 32 | 13.0 |
| Challenges | 4 | 14 | 8 | 26 | 10.5 |
| Variety of clients/patients | 6 | 9 | 6 | 21 | 8.5 |
| Provide additional access (seeing MDs and specialists) | 3 | 6 | 4 | 13 | 5.3 |
| Respect | | 5 | 5 | 10 | 4.0 |
| Good salary | | 2 | 7 | 9 | 3.6 |
| Provide holistic care | 4 | 2 | 2 | 8 | 3.2 |
| Flexibility | 1 | 5 | 2 | 8 | 3.2 |
| Creativity | | 1 | 4 | 5 | 2.0 |
| Ability to improve/advocate NP role | | 1 | 4 | 5 | 2.0 |
| Community-based practice | 1 | | 3 | 4 | 1.6 |
| Added responsibilities | 3 | 1 | | 4 | 1.6 |

* seven missing responses

Finally, NPs were asked to provide any advice to the MoHLTC to further the integration of NPs. One in five NPs indicated that the MoHLTC should increase funding for more positions/more job opportunities and should encourage more integration of NPs with family physicians. Thirteen percent (13%) indicated that the MoHLTC should increase and/or equalize NPs' salaries and eight percent indicated the need to educate medical professionals on the NP role (see Exhibit 55).

**Exhibit 55: Advice for MoHLTC from NP survey respondents**

| | Total Respondents | Percentage of Respondents |
|---|---|---|
| **Advice for the Ministry of Health and Long-Term Care:*** | | |
| Increase funding for more positions/more job opportunities | 49 | 20.8 |
| More integration with family physicians | 45 | 19.1 |
| Remunerate/increase/equalize salary | 30 | 12.7 |
| Educate medical professionals (e.g., doctors) | 18 | 7.6 |
| More education/longer practicum/internship | 13 | 5.5 |
| More autonomy for NPs (prescribing, making referrals etc) | 13 | 5.5 |
| Educate the public | 13 | 5.5 |
| Listen to us/better communication | 11 | 4.7 |
| Set up proper method of payment | 10 | 4.2 |
| Change legislation/fix legislative barriers | 9 | 3.8 |

* 18 missing responses

## NP Survey Results by Practice Setting

Within each domain, bivariate analysis was conducted to further clarify the relationships among the variables. Using the identified integration domains as a framework and the results of the descriptive and bivariate analyses, the hypotheses of the facilitators and barriers that influence NP integration were formalized. This section summarizes the data by practice setting and includes key findings from the bivariate analysis for primary health care NPs.

Note: Post hoc analyses were not performed to further define the significant relationships found. Further research should explore these relationships.

### *NP Role within the Practice Setting*

The data suggest that there are numerous differences in the patient population and the NP role across the practice settings. The next several exhibits highlight the key differences.

NPs were asked to identify whether or not they functioned within their full scope of practice. Those primary health care NPs working in CHCs (90%) and Primary Care Networks/Health Service Organizations (89%) were most likely to identify that they work to the full scope of their practice; NPs working in a fee-for-service setting were least likely (68%) ($p$<.01) (see Exhibit 56).

**Exhibit 56: Percentage of NPs working to full scope by practice setting**

| Setting** | Number of Respondents | Working to scope of practice |
|---|---|---|
| CHC | 94 | 90.4 |
| PCN/HSO | 16 | 88.9 |
| Outpost | 7 | 87.5 |
| LTC | 10 | 76.9 |
| Aboriginal | 10 | 71.4 |
| FFS | 21 | 67.7 |

**$p$<.01

A relationship was also found between whether or not the practice of the primary health care NP is limited to certain patients and the type of setting the NP works in. Those NPs working in public health units (89%), mental health/rehabilitation (60%), Aboriginal Health Access Centres (40%), long-term care facilities (43%) and CCACs/community nursing (43%) represent the highest percentage of NPs who identified limitations to their practice ($p$<.01). NPs working in Community Health Centres (14%), Primary Care Networks/Health Service Organizations (17%), and outpost stations (0%) reported among the lowest percentages of NPs that identified limitations to their practice (see Exhibit 57).

**Exhibit 57: Percentage of NPs who identified their practice is limited by type of setting**

| Setting** | Number of Respondents | Percentage of Respondents |
|---|---|---|
| Public Health | 9 | 88.9% |
| Mental Health / Rehab | 5 | 60.0% |
| Other | 13 | 46.2% |
| LTC | 14 | 42.9% |
| CCAC/ Community nursing | 7 | 42.9% |
| Aboriginal | 15 | 40.0% |
| FFS | 31 | 38.7% |
| PCN/HSO | 18 | 16.7% |
| CHC | 104 | 13.5% |
| Outpost | 7 | 0.0% |

**$p$<.01

Interestingly, the analysis did not find a statistically significant relationship between the percentage of NP time spent on clinical activity and practice setting. However, the results indicated a relationship between

the number of patients seen individually on average and the practice setting ($p$<.01). Those settings where the majority of NPs see on average less than ten patients a day include:

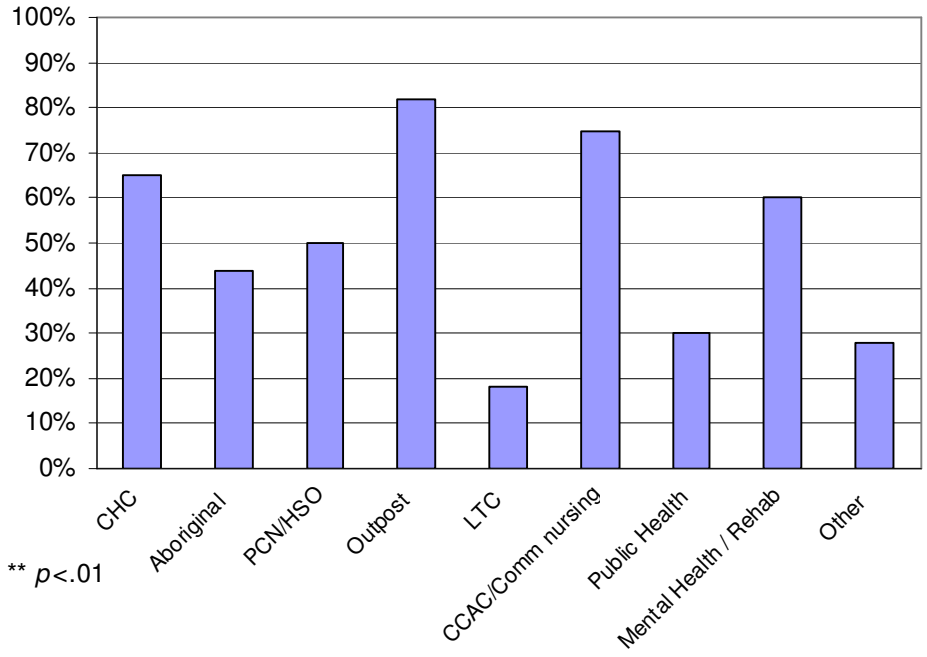
- Public health (73%);
- CCAC/Community nursing (60%);
- Aboriginal Health Access Centre (50%); and
- Mental Health (50%).

Those settings where the highest percentage of NPs see on average more than ten patients a day include:

- Outpost station (92%); and
- Primary Care Network/Health Service Organization (79%).

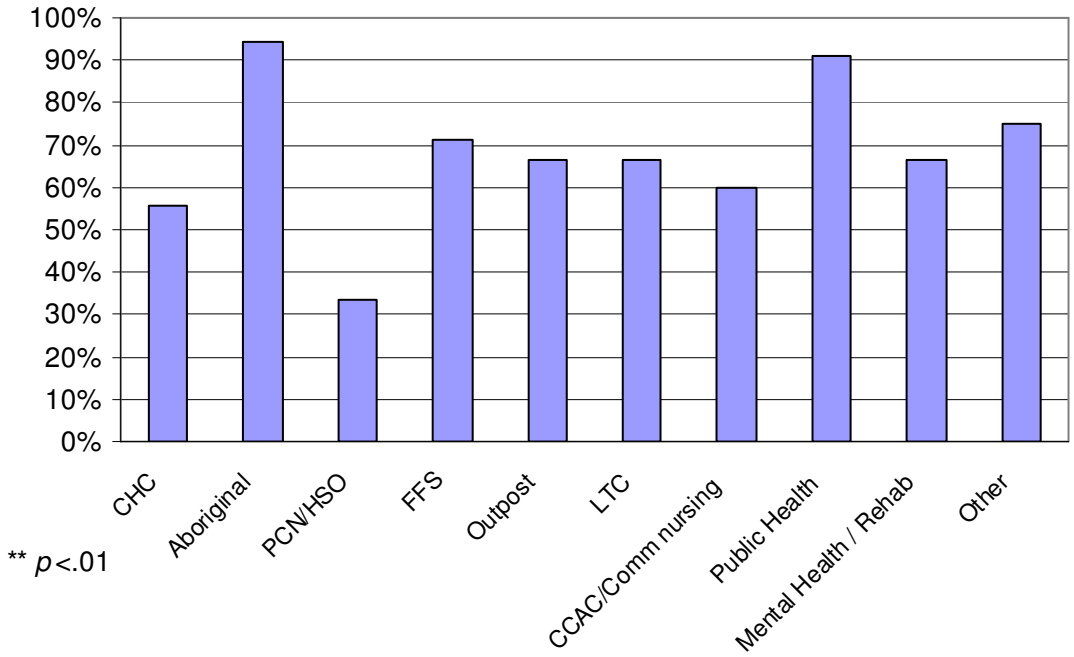
The data also suggest that differences exist across the practice settings with respect to the percentage of NPs that are primary providers for at least half of their patient population. Those primary health care NPs working in outpost stations, CCAC/community nursing, Community Health Centres, mental health/rehabilitation and Primary Care Network/Health Service Organization settings reported that more than 50% of the NPs are the primary provider for at least half of the population. This compares with long-term care settings where less than 20% of the respondents are the primary provider for at least half the population ($p$<.01) (see Exhibit 58).

**Exhibit 58: Percentage of NPs who are the primary provider for the majority of their patients by type of setting**



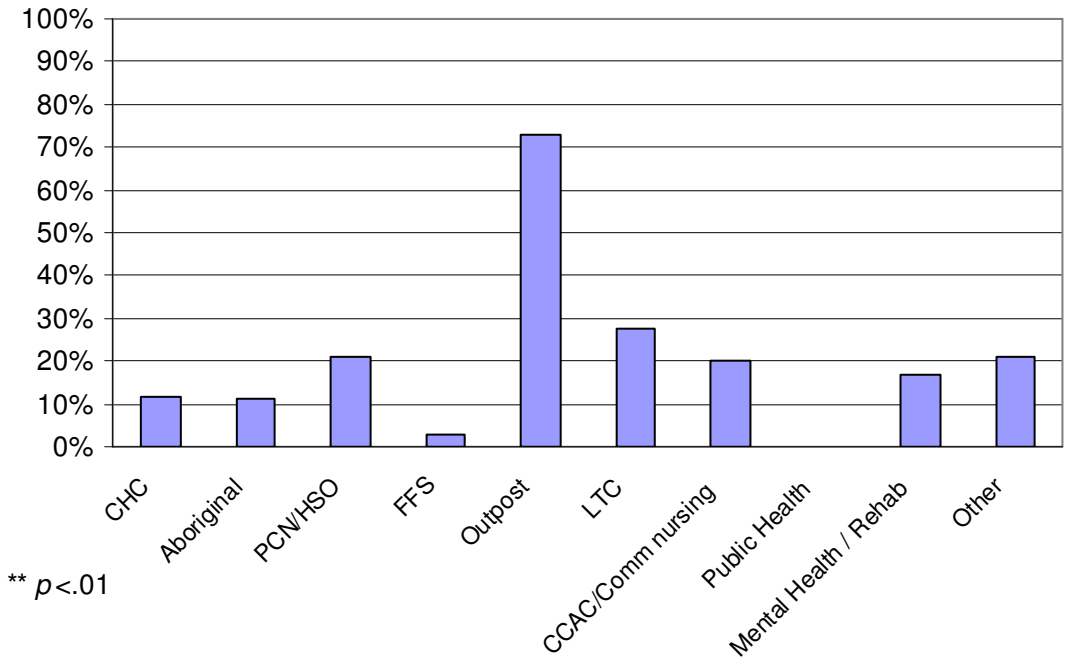
Furthermore, a relationship exists between the percentage of NPs who care for a specific population and type of practice setting. In most settings, at least half of all primary health care NPs identified that they care for a specific population, with more than 90% of NPs working in Aboriginal Health Access Centres and public health units indicating they care for a specific population. This compares with Primary Care Networks/Health Service Organizations where less than 40% of the respondents indicated that they care for a specific population (see Exhibit 59).

**Exhibit 59: Percentage of NPs who care for a specific population of clients by type of setting**




The data also suggest that a relationship exists between the percentage of NPs who participate in on-call activities and type of setting ($p<.01$). More than 70% of NPs in outpost stations participate in on-call activities. This drops to 21% of NPs in Primary Care Networks/Health Service Organizations. NPs working in public health units and fee-for-service settings identified the lowest percentage of NPs participating in on-call activities (zero and three percent respectively) (see Exhibit 60).

**Exhibit 60: Percentage of NPs who participate in on-call activities by type of setting**




Finally, the analysis indicated that having a clearly defined role influences the response to several other questions in the NP survey. Those primary health care NPs whose roles are clearly defined are more likely to:

- Work within their full scope of practice (e.g., 85% who have clearly defined roles vs. 65% who do not have clearly defined roles);
- Identify that they are not limited to certain types of patients (e.g., 22% with clearly defined roles vs. 46% with poorly defined roles);
- Spend more time on clinical work and less on non-clinical and clerical work; and
- Have full access to patient charts.

Exhibit 61 below depicts the relationship of having the NP role clearly defined across the variables. A plus sign indicates a positive relationship (e.g., yes to both questions) (++ $p$<.01, + $p$<.05). A negative sign indicates an inverse relationship (e.g. yes to one question and no to the other) (-- $p$<.01; - $p$<.05).

**Exhibit 61: Impact of clearly defined NP role**

| | Current role clearly defined |
|---|---|
| Function with full scope practice | ++ |
| Practice limited to certain types of patients | -- |
| Percent of time spent on clinical duties | ++ |
| Percent of time spent on non clinical duties | -- |
| Percent of time spent on clerical duties | -- |
| Full access to patient chart | + |

***External Influences on Scope of Practice***

NPs were asked several questions regarding the degree to which external factors influence their scope of practice. This section highlights the relationships found between scope of practice and practice settings, as well as any other key variables.

Over 90% of primary health care NPs identified that they refer their clients to specialists. Some variation exists across practice settings, with all NPs in outpost stations, mental health/rehabilitation settings and Primary Care Networks/Health Service Organizations identifying that they refer patients to specialists. Those NPs working in long-term care settings (64%) and CCAC/community nursing settings (71%) identified the lowest percentage of referrals to specialists ($p<.01$) (see Exhibit 62).

**Exhibit 62: Percentage of NPs who refer to specialists by practice setting**

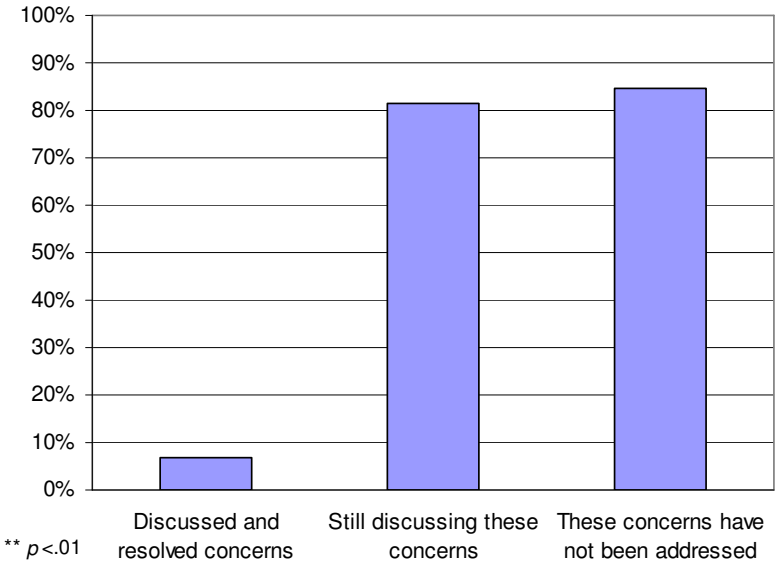
| Setting | Refers to specialists (%) |
|---|---|
| Outpost | 100.0% |
| Mental Health / Rehab | 100.0% |
| PCN/HSO | 100.0% |
| CHC | 97.1% |
| Aboriginal | 93.3% |
| FFS | 90.6% |
| Public Health | 88.9% |
| Other | 83.3% |
| CCAC/Community nursing | 71.4% |
| LTC | 64.3% |

** $p<.01$

A relationship exists between whether an NP's physician partner expressed any concerns regarding NP scope and the main practice site. Eighty percent (80%) of NPs working in a mental health/rehabilitation

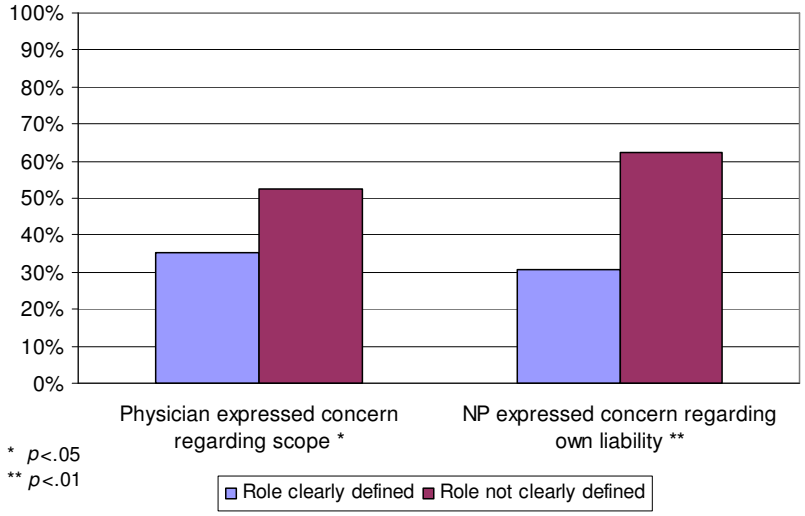
setting and 62% of those working in a long-term care setting indicated that their physician had expressed concern regarding their scope. This compares with 17% in Primary Care Networks/Health Service Organizations, 32% in fee-for-service settings and 37% in the remaining settings ($p<.05$). For those NPs who identified physician concern regarding their scope of practice, if the concerns had been discussed and resolved, then less than 10% of NPs identified the physician concern as a barrier to the NP's practice. For those NPs who were either still discussing the physician concerns or for those NPs where the physician concerns had not been addressed at all, more than 80% identified it as a barrier to their practice ($p<.01$) (see Exhibit 63). This underscores the importance to the NP scope of practice of discussing and resolving physician concerns.

**Exhibit 63: Percentage of NPs who identified the physician's concern about their scope as a barrier based on whether the NP discussed and resolved these concerns**




Interestingly, no statistically significant differences were found between practice setting and NP concerns regarding liability. However, the survey results did indicate that there is greater concern about liability both on the part of the NP ($p<.01$) and the physician ($p<.05$) in instances where the NP's role is not clearly defined (see Exhibit 64).

**Exhibit 64: Percentage of physicians and NPs expressing concern regarding scope and NPs perception on role clarity**




### *NP Role in Decision Making*

Two key variables were identified through the bivariate analysis in the domain of NPs' role in decision-making; those being whether or not the NP was involved in developing the proposal for the NP role and whether or not the NP's role is clearly defined. Sixteen percent (16%) of NPs identified that they had been involved in developing the proposal for the NP role. Looking more closely by practice setting, however, more than half of all NPs working in fee-for-service settings were involved in developing the position and 41% of NPs in long-term care settings were involved. This compares with NPs in Aboriginal Health Access Centres, outpost stations and mental health/rehabilitation where no NPs were involved in developing the position ($p<.05$) (see Exhibit 65).

**Exhibit 65: Percentage of NPs involved in developing proposal for the NP role by practice setting**

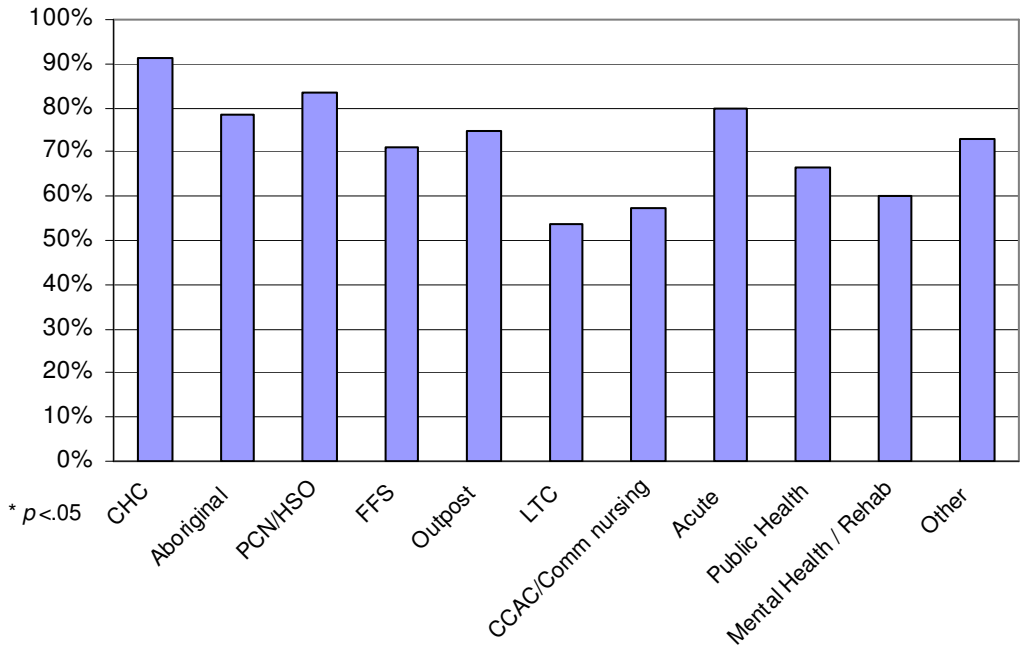
| Setting | Percentage involved in developing proposal for NP role |
|---|---|
| FFS | 54.5 |
| LTC | 41.2 |
| PCN/HSO | 23.1 |
| CHC | 20.8 |
| Other | 20.0 |
| Public Health | 16.7 |
| CCAC/Community nursing | 14.3 |

| Setting | Percentage involved in developing proposal for NP role |
|---|---|
| Aboriginal CHC | 0.0 |
| Outpost | 0.0 |
| Mental Health / Rehab | 0.0 |

* $p<.05$

Role clarity was found to be an important variable in explaining the variance across NP responses to many questions. By practice setting, the data identify that the highest percentage of NPs who identified their role was clearly defined are working in Community Health Centres, Primary Care Networks/Health Service Organizations and Aboriginal Health Access Centres. Only 53% of NPs in long-term care and 57% of NPs in CCAC settings identified their role is clearly defined ($p<.05$) (see Exhibit 66).

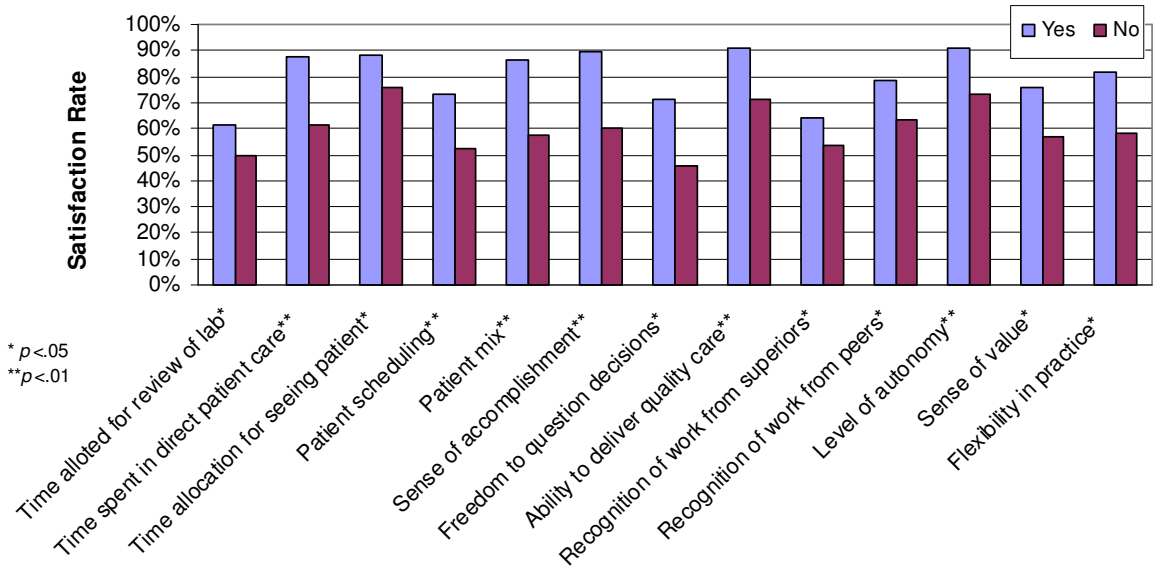
**Exhibit 66: Percentage of NPs who identified their role is clearly defined by type of setting**




NPs' responses on role clarity also varied on several of the Misener satisfaction elements (see Exhibit 67). For numerous Misener satisfaction elements, a greater percentage of NPs identified satisfaction when their role was clearly defined. The greatest variation was found among satisfaction on:

- Sense of accomplishment (89% satisfied when role clearly defined vs. 60% when role not clearly defined);
- Patient mix (86% vs. 58%);
- Freedom to question decisions (71% vs. 45%); and
- Time spent in direct patient care (88% vs. 61%).

**Exhibit 67: Percentage of NPs who identified satisfaction by whether or not role is clearly defined**




***NP Workplace Satisfaction***

In this domain, NPs were asked questions to determine the congruity among NPs' expectations, values, environment and personal characteristics. This section summarizes the relationships of those questions pertaining to workplace satisfaction and practice setting, as well as other important relationships.

When asked how satisfied NPs were with their salary, 65% indicated they are satisfied at some level and seven percent indicated they are very dissatisfied. Although variation exists within this variable, NPs' practice setting does not appear to explain the variation. The survey data did suggest, however, that the type of NP position influences salary satisfaction. NPs in a contract position (79%) are more satisfied than those in a permanent position (61%); seven percent of those in permanent positions also indicated they are very dissatisfied as compared to two percent of those on contract ($p<.05$).

NPs reported on whether or not their educational expenses are reimbursed. All NPs working in outpost stations, CCAC/community nursing, and mental health/rehabilitation settings indicated that all to some of their expenses are reimbursed. This compares with 31% of NPs in fee-for-service, 23% of NPs in other settings and 22% in Primary Care Networks/Health Service Organizations who indicated they have no expenses reimbursed ($p<.01$) (see Exhibit 68).

**Exhibit 68: Percentage of NPs who receive reimbursement for educational expenses**

| Setting* | Percentage of "all to some" reimbursed | Percentage of "no" expenses reimbursed |
|---|---|---|
| Outpost | 100.0 | 0.0 |
| CCAC/Community nursing | 100.0 | 0.0 |
| Mental Health / Rehab | 100.0 | 0.0 |
| LTC | 92.9 | 7.1 |
| CHC | 89.2 | 10.8 |
| Public Health | 88.9 | 11.1 |
| Aboriginal | 84.6 | 15.4 |
| PCN/HSO | 77.8 | 22.2 |
| Other | 76.9 | 23.1 |
| FFS | 68.8 | 31.3 |

*$p<.01$

As discussed earlier, the survey included the Misener job satisfaction scale that asked NPs to rate their satisfaction on numerous elements. The results of the data analysis indicated that there are differences by type of setting for satisfaction related to benefits. Those NPs working in public health units reported that on average they are satisfied with their benefits (mean score of 5). Those working in CHCs (4.4) and long-term care (4.4) settings reported they are minimally satisfied to satisfied with their benefits. However, those NPs working in Primary Care Networks/Health Service Organizations (3.3), Aboriginal Health Access Centres (3.6) and CCAC/community nursing settings (3.9) indicated that they are minimally dissatisfied to minimally satisfied with their benefits ($p<.05$) (see Exhibit 69).

**Exhibit 69: NP benefit satisfaction rates by type of setting**

| | CHC | Aboriginal | PCN/HSO | FFS | Outpost | LTC | CCAC/ Community nursing | Public Health | Mental Health | Other |
|---|---|---|---|---|---|---|---|---|---|---|
| | ($n$=102) | ($n$=14) | ($n$=17) | ($n$=31) | ($n$=7) | ($n$=14) | ($n$=7) | ($n$=9) | ($n$=5) | ($n$=12) |
| *M* | 4.36 | 3.55 | 3.29 | 4.05 | 4.14 | 4.36 | 3.86 | 4.96 | 4.07 | 3.89 |
| *SD* | 1.02 | 1.49 | 1.44 | 1.35 | 1.23 | 1.11 | 1.32 | 0.73 | 1.30 | 1.28 |

* $p<.05$

NPs working in contract positions identified the highest levels of satisfaction with their salary. However, NPs working in contract positions also identified the lowest levels of satisfaction with their benefits. Those in a contract or other type of employment position identified that they are minimally dissatisfied to minimally satisfied with their benefits (mean score of 3.8). Those working in a permanent position identified that they are minimally satisfied to satisfied with their benefits 4.3) ($p<.05$) (see Exhibit 70).

**Exhibit 70: NP benefit satisfaction rates by type of employment terms**

| | Permanent | Contract | Other |
|---|---|---|---|
| | (*n*=150) | (*n*=52) | (*n*=16) |
| M | 4.32 | 3.81 | 3.79 |
| SD | 1.15 | 1.33 | 1.23 |

* *p*<.05

No other significant differences were found across practice settings. Interestingly, however, the results also show that NPs on contract are less satisfied with professional growth than those in a permanent position. Those in a contract or other type of employment position identified that they are minimally dissatisfied to minimally satisfied with their professional growth (mean score of 3.9 and 3.2, respectively). Those working in a permanent position identified that they are minimally satisfied with their professional growth (4.1) (*p*<.05) (see Exhibit 71).

**Exhibit 71: NP professional growth satisfaction rates by type of employment**

| | Permanent | Contract | Other |
|---|---|---|---|
| | (*n*=147) | (*n*=52) | (*n*=17) |
| M | 4.13 | 3.87 | 3.22 |
| SD | 1.14 | 1.24 | 1.28 |

** *p*<.01

A relationship was also found between satisfaction with professional growth and role clarity. Those NPs who identified that their role is clearly defined identified that they are minimally satisfied with professional growth (mean score 4.1). This compares with those whose role is not clearly defined who indicated they are, on average, minimally dissatisfied to minimally satisfied with professional growth (mean score 3.6) (*p*<.05) (see Exhibit 72).

**Exhibit 72: NP professional growth satisfaction rates by whether or not role clearly defined**

| | Yes | No |
|---|---|---|
| | (*n*=173) | (*n=42)* |
| M | 4.07 | 3.60 |
| SD | 1.15 | 1.30 |

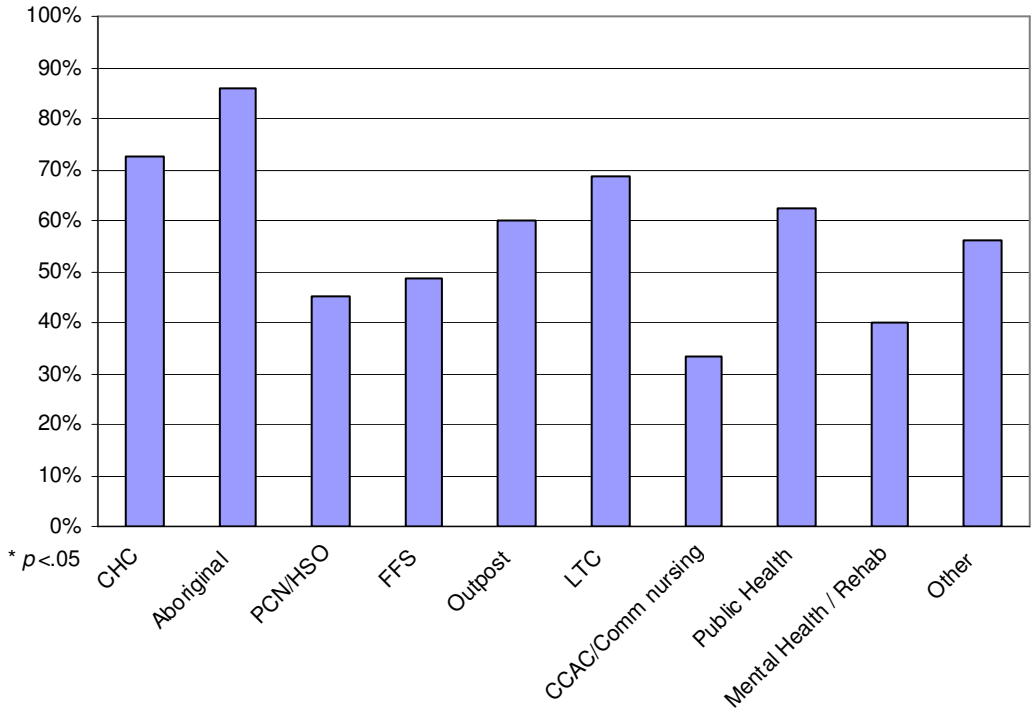
**p*<.05

***Collaboration and Team Dynamics***

Collaboration and team dynamics within the practice setting describe how the formal and/or informal partnerships function. The team may consist of the NP, physician and other health care providers. This section describes the significant differences found among the collaboration and team dynamics variables and practice setting as well as any other important variables in the survey.

NPs were asked if there was an orientation of the physician and health care team to the NP role prior to the NP commencing work in that role. NPs working in Aboriginal Health Access Centres (86%), Community Health Centres (72%) and long-term care (69%) settings were the most likely to report an orientation. Less than half of all NPs working in CCAC/community nursing settings, Primary Care Networks/Health Service Organizations, fee-for-service and mental health reported an orientation of team members to their role ($p<.05$) (see Exhibit 73).

**Exhibit 73: Percentage of NPs who identified an orientation of the physician and health care team to their role by setting**




NPs were asked to describe the team of which they believed they were primarily a member. On average, 72% of primary health care NPs indicated that they belong to an interdisciplinary health care team. However, there is wide variation at the practice setting level in the percentage who work in interdisciplinary health care teams. Ninety-two percent (92%) of NPs in Community Health Centres and 94% of NPs in Aboriginal Health Access Centres indicated that they work in an interdisciplinary team. This compares with 54% of NPs in Primary Care Networks/Health Service Organizations and fee-for-

service settings. Twenty-one percent (21%) of NPs in Primary Care Networks/Health Service Organizations and 27% of NPs in fee-for-service settings indicated that they are primarily a member of a medical group practice. In long-term care settings, 83% indicated working in an interdisciplinary team and 11% indicated working in a combined medical group practice and nursing team. Not surprisingly, 64% of NPs working in a public health unit indicated that they work in a nursing team ($p<.01$) (see Exhibit 74).

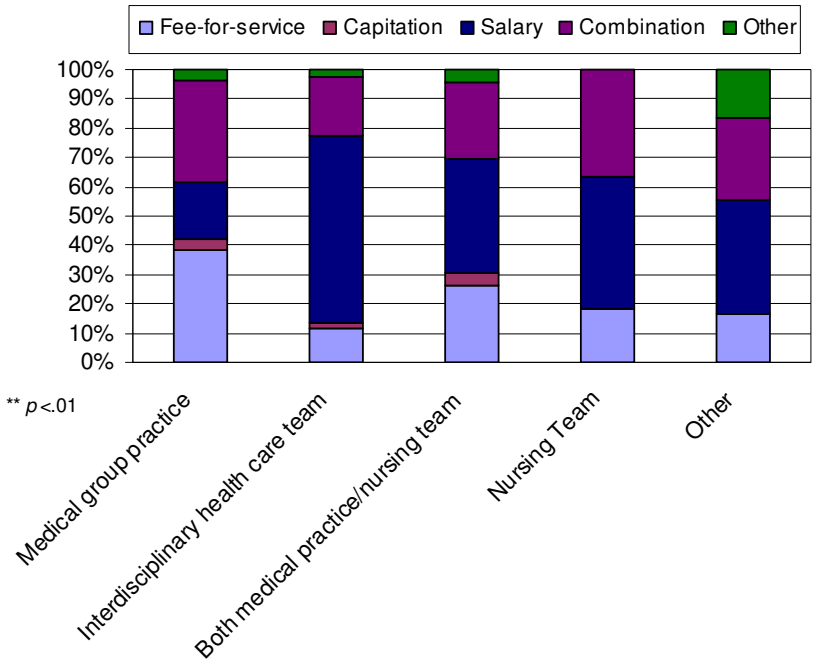
**Exhibit 74: Percentage of NPs working in each type of team by practice setting**

| Type of Team | CHC | Aboriginal | PCN/ HSO | FFS | Outpost | LTC | CCAC/ Comm nursing | Public Health | Mental Health / Rehab | Other |
|---|---|---|---|---|---|---|---|---|---|---|
| Medical group practice | 4.2% | 0.0% | 20.8% | 27.0% | 0.0% | 0.0% | 0.0% | 0.0% | 0.0% | 5.0% |
| Interdisciplinary health care team | 91.6% | 94.4% | 54.2% | 54.1% | 58.3% | 83.3% | 44.4% | 9.1% | 83.3% | 60.0% |
| Both medical practice/nursing team | 3.4% | 5.6% | 12.5% | 13.5% | 8.3% | 11.1% | 22.2% | 9.1% | 0.0% | 15.0% |
| Nursing Team | 0.0% | 0.0% | 4.2% | 2.7% | 0.0% | 5.6% | 11.1% | 63.6% | 0.0% | 0.0% |
| Other | 0.8% | 0.0% | 8.3% | 2.7% | 33.3% | 0.0% | 22.2% | 18.2% | 16.7% | 20.0% |

**$p<.01$

The data were also analyzed by physician payment system. Of primary health care NPs working in an interdisciplinary health care team, 64% indicated that the physicians are salary based. NPs working in a medical practice, however, indicated that the physicians are under several payment systems including fee-for-service (38%), combination (35%) and salary (19%) (*$p<.01$) (*see Exhibit 75).

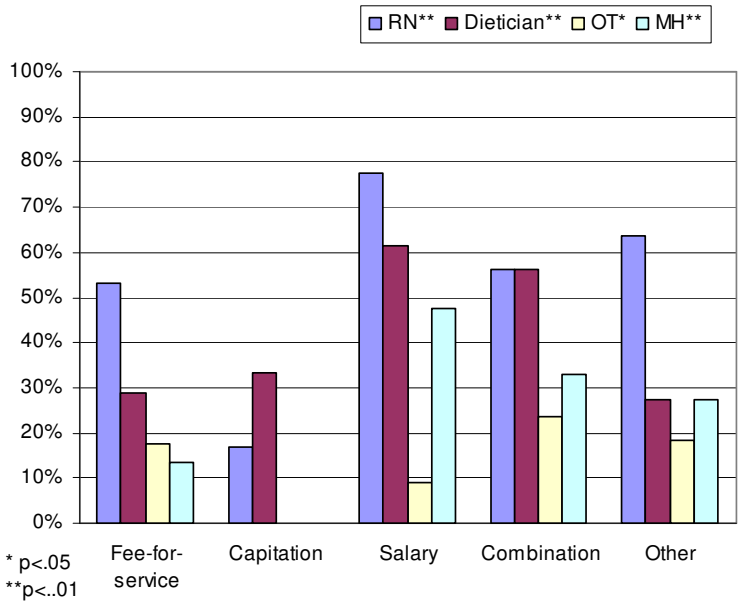
**Exhibit 75: NP physician payment system by type of team**




Looking at the composition of the teams that NPs are working with, less than half of NPs in Primary Care Networks/Health Service Organizations, fee-for-service settings, outpost stations and CCAC/community nursing agencies work with RNs. Community nursing agencies and fee-for-service NPs do not work with many other health professionals. Interestingly, the data also show that those NPs who work with RNs are more likely to work with other health workers. For example, 87% of NPs who work with RNs work with physiotherapists, compared to 13% of those NPs who do not work with RNs (*p<.01).*

Those NPs who work with physicians on a capitated system are least likely to indicate that they work with RNs, dieticians, occupational therapists (OT), and mental health (MH), workers. NPs who work with physicians on a salary or blended system are most likely to indicate that they work with these providers (see Exhibit 76).

**Exhibit 76: Percentage of NPs working with other health workers by physician payment type**




NPs were also asked if the physician with whom they collaborate is located on- or off-site. Not surprisingly, all those NPs working in an outpost station indicated that their collaborating physician is located off-site. More than 80% of NPs working in long-term care, public health units, CCAC/community nursing settings identified that their physician is located off-site. On the other hand, less than 10% of NPs working in fee-for-service or Community Health Centres indicated that their collaborating physician is located off-site ($p<.01$) (see Exhibit 77).

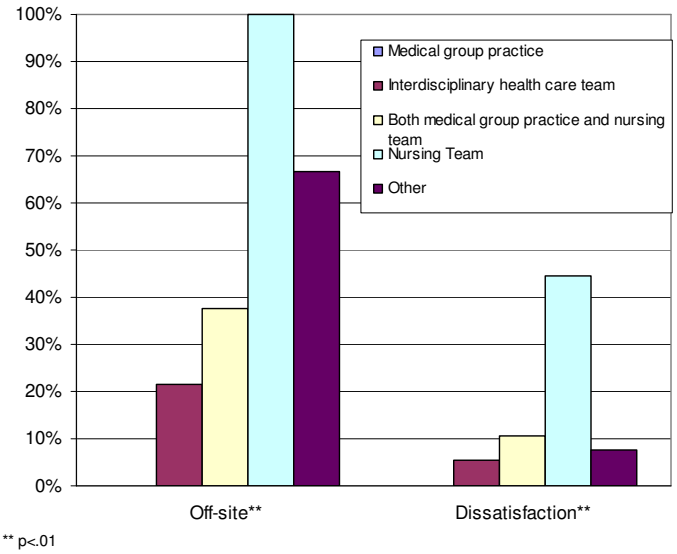
**Exhibit 77: Percentage of NPs who indicated collaborating physician is located off-site by setting**

| Setting | Number of Respondents | Percentage of Respondents |
|---|---|---|
| Outpost | 7 | 100.0 |
| LTC | 14 | 85.7 |
| Public health | 7 | 85.7 |
| CCAC/Community nursing | 6 | 83.3 |
| Mental health / Rehab | 5 | 60.0 |
| Other | 11 | 54.5 |
| Aboriginal | 7 | 42.9 |
| PCN/HSO | 18 | 16.7 |
| FFS | 29 | 6.9 |
| CHC | 85 | 5.9 |

*$p<.01$

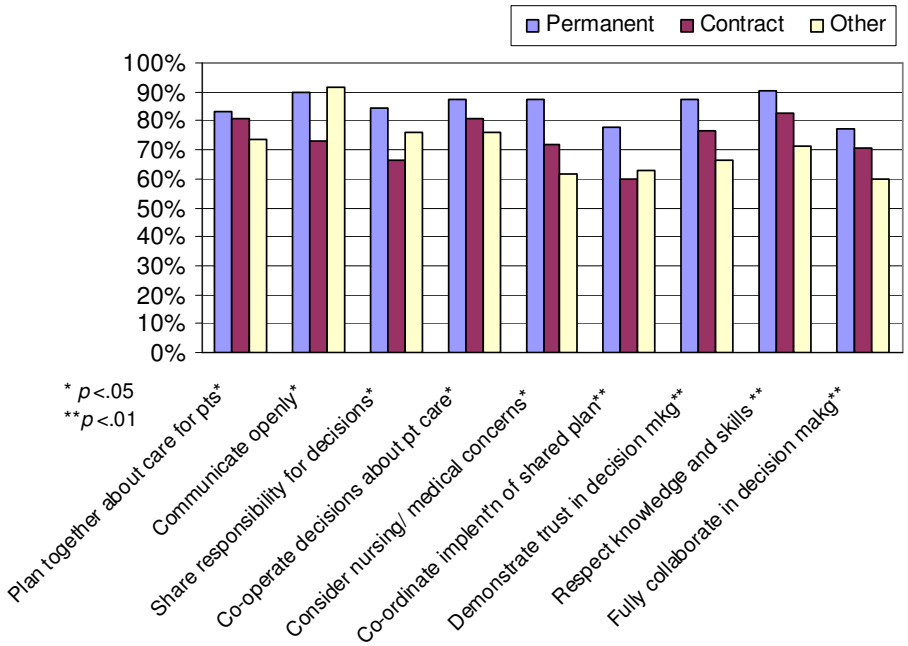
NPs were also asked if they were satisfied with the physician's availability. No statistically significant differences were found across practice settings. However, differences were found across team settings. When asked if the collaborating physician is located on- or off-site, all NPs working in a nursing team indicated that the physician is located off-site. When asked if they were satisfied with the physician's availability, more than 40% of those NPs working in a nursing team indicated dissatisfaction ($p<.01$) (see Exhibit 78). This relationship is examined more closely in the multivariate analysis.

**Exhibit 78: NP perception of physician availability by team setting**



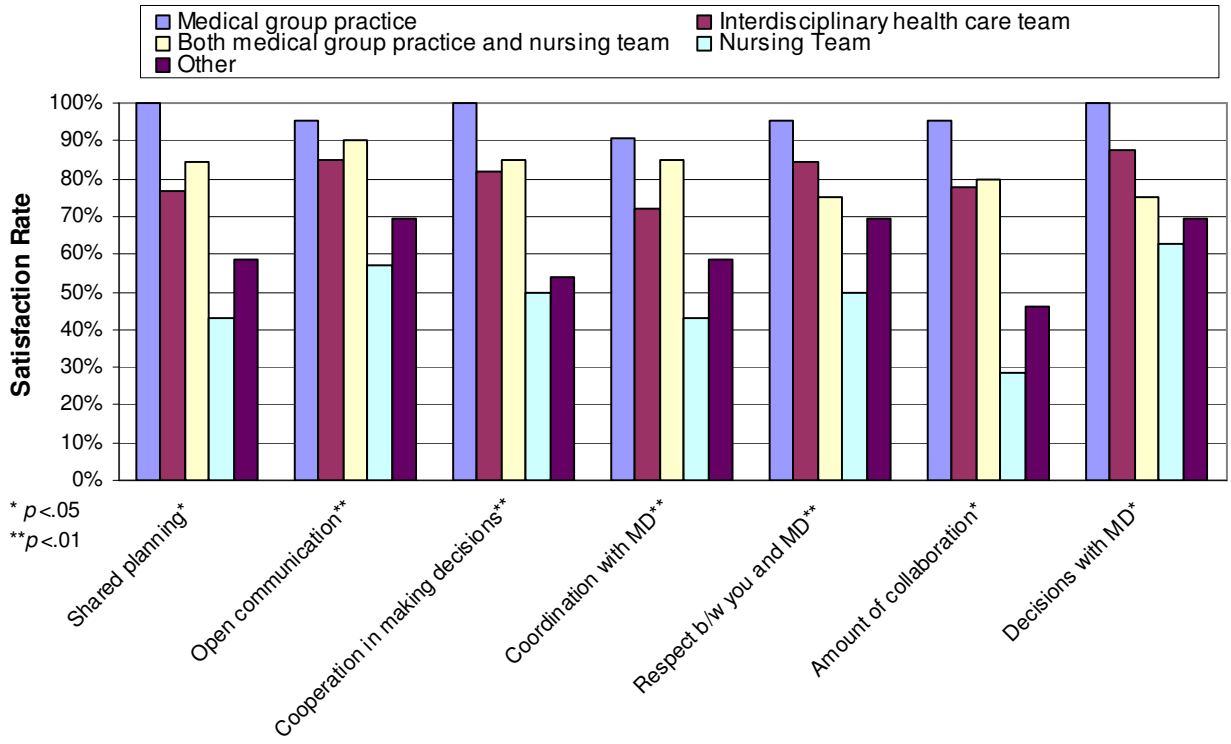

The data showed that NPs' agreement and satisfaction score on the Jones and Way scale does not significantly vary across the practice settings. However, across all Jones and Way components, a relationship exists with type of employment. In all components, higher levels of agreement are indicated on the Jones and Way scale where the NP is permanently employed (see Exhibit 79).

**Exhibit 79: Percentage of NPs who agree with Jones and Way elements by type of employment**



Furthermore, a relationship was found between Jones and Way satisfaction elements and the type of team. NPs in a medical group practice or both medical group and nursing team indicated higher levels of satisfaction on the Jones and Way scale. The lowest levels of satisfaction were indicated by NPs in nursing teams (see Exhibit 80).

**Exhibit 80: Percentage of NPs who are satisfied with Jones and Way elements by type of team**




## Description of MD Surveys

Physicians (MDs) completed one of two surveys according to whether they identified themselves as currently working with or without an NP. In addition to common questions regarding MD personal characteristics, practice settings and perceptions of NPs, each survey contained questions that were specific to each group of MDs. This approach allowed for comparisons across study samples, as well as targeted analysis for each of the MD sub-groups.

The initial samples consisted of 238 physicians (Group A) identifying themselves as currently working with NPs and 508 (Group B) who did not. After removing MDs from the samples that were not in primary care, the final analytical sample contained 226 MDs in Group A and 492 MDs in Group B.

Exhibits 81 and 82 show the distributions of demographics and experience for each of the MD groups. The data showed that the group of MDs practising with NPs include a higher proportion of males, are generally older and have more years of experience than MDs not practising with NPs.

**Exhibit 81: Demographics and experience of MDs not practising with NPs**

| Characteristics | Total Respondents | Percentage of Respondents |
|---|---|---|
| **Gender*** | (*n*=489) | |
| Female | 217 | 44.4 |
| Male | 272 | 55.6 |
| **Age** * | | |
| 25 to 34 | 147 | 30.1 |
| 35 to 44 | 149 | 30.5 |
| 45 to 54 | 118 | 24.1 |
| 55 and over | 75 | 15.3 |
| | | |
| **Years Practising as an MD**** | (*n*=484) | |
| 1 to 9 | 156 | 32.2 |
| 10 to 19 | 140 | 28.9 |
| 20 to 29 | 111 | 22.9 |
| 30 or more | 77 | 15.9 |

* three missing responses

** eight missing responses

**Exhibit 82: Demographics and experience of MDs practising with NPs**

| Characteristics | Total Respondents | Percentage of Respondents |
|---|---|---|
| **Gender*** | (*n*=225) | |
| Female | 87 | 38.7 |
| Male | 138 | 61.3 |
| **Age** | | |
| 25 to 34 | 41 | 18.1 |
| 35 to 44 | 60 | 26.5 |
| 45 to 54 | 75 | 33.2 |
| 55 and over | 50 | 22.1 |
| **Years Practising as an MD**** | (*n*=220) | |
| 1 to 9 | 49 | 22.3 |
| 10 to 19 | 60 | 27.3 |
| 20 to 29 | 69 | 31.4 |
| 30 or more | 42 | 19.1 |

*one missing response

**six missing responses

Primary health care MDs were also asked to comment on the type of organization in which they are currently practising. Exhibits 83 and 84 indicate the frequencies for primary health care MDs by practice setting for each of the two MD groups. Almost half of the MDs not practising with NPs are in private group practice and almost one-quarter are in solo private practice. This distribution is markedly different from that for MDs practising with NPs; almost half of the MDs in that group work in a community health centre and only eight percent work in private solo and group practice combined.

**Exhibit 83: Practice setting of MDs not practising with NPs**

| Characteristics | Total Respondents | Percentage of Respondents |
|---|---|---|
| **Practice Setting** | (*n*=492) | |
| Private Group Practice | 218 | 44.3 |
| Solo Private Practice | 115 | 23.4 |
| Emergency Department | 44 | 8.9 |
| Other | 40 | 8.1 |
| Free-standing Walk-in Clinics | 26 | 5.3 |
| Family Health Network/Primary Care Network | 19 | 3.9 |
| Health Service Organization | 16 | 3.3 |
| Community Health Centre | 6 | 1.2 |
| Nursing Home/Home for the Aged | 5 | 1.0 |
| Public Health Department | 3 | 0.6 |

**Exhibit 84: Practice setting of MDs practising with NPs**

| Characteristics | Total Respondents | Percentage of Respondents |
|---|---|---|
| **Practice Setting** | (*n*=226) | |
| Community Health Centre | 98 | 43.4 |
| Family Health Network/Primary Care Network | 30 | 13.2 |
| Nursing Home/Home for the Aged | 22 | 9.8 |
| Other | 22 | 9.8 |
| Emergency Department | 14 | 6.2 |
| Private Group Practice | 12 | 5.3 |
| Health Service Organization | 10 | 4.4 |
| Aboriginal Access Health Centre | 10 | 4.4 |
| Solo Private Practice | 7 | 3.1 |
| Public Health Department | 1 | 0.4 |

## MD Interest in Practising with NPs (MDs not currently working with NPs)

MDs not currently practising with NPs were asked questions relating to historical experience with NPs and their perspectives on NP integration. Approximately 36% these MDs reported that they had worked with NPs in the past and of those, as shown in Exhibit 85, almost 80% have more than one year's experience working with NPs. If there were significant structural issues related to integration, one would expect that these might be a cause of MD-NP separations. Examining the reasons MDs ceased practising with NPs shown in Exhibit 85 demonstrates that this is not generally the case:

- Sixty-seven percent (67%) of the physicians who ceased working with an NP reported that this was due to the MD leaving the practice;
- Only three to four percent reported that it was due to NP practice style or an ineffective working relationship; and
- Acceptance of providers outside the practice, the community, and patients were not identified as reasons for separation.

**Exhibit 85: MD reasons for ceasing to work with NPs in the past**

| **MD Time Spent in the Past with NPs*** | (*n*=178) | |
|---|---|---|
| Less than one year | 36 | 21.3 |
| 12-24 months | 80 | 47.3 |
| 25 months to 36 months | 32 | 18.9 |
| More than three years | 20 | 12.5 |
| | | |
| **Reasons for Ceasing to Practice with NPs**** | (n=178) | |
| MD left the practice setting | 119 | 66.9 |
| Ineffective Working Relationship between NP and MD | 6 | 3.4 |
| Lack of acceptance by other providers in the practice | 1 | 0.6 |
| Lack of acceptance by providers outside the practice | 0 | 0 |
| Lack of acceptance by community | 1 | 0.6 |
| Lack of acceptance by patients | 3 | 1.7 |
| Practice style of the NP | 7 | 3.9 |
| Inadequate funding for NP salary | 2 | 1.1 |
| Inadequate funding for NP-related overhead | 0 | 0 |
| Lack of space | 0 | 0 |
| Patient volume too low to support NP | 0 | 0 |
| NP decided to leave practice setting | 0 | 0 |
| Unable to recruit NP | 0 | 0 |

** 9 missing responses
* Multiple Response Option

Of 486 MDs not working with NPs, 49% said that they would be interested in working with NPs while 33% said that they would not. Eighteen percent (18%) were not certain if they would be interested in working

with an NP. MDs who identified that they are not interested in working with an NP were asked a set of questions that described their attitudes further, as summarized in Exhibit 86. The most frequent reasons for lack of MD interest are concern about unfunded NP-related overhead expenses and lack of funding for NP salary. In addition:

- Forty-seven percent (47%) of these physicians indicated that they could not see a benefit to practising with NPs;
- Twenty-three percent (23%) of MDs who have practised with NPs in the past are not interested in working with an NP; and
- Thirty-eight percent (38%) of MDs who did not have experience with NPs are not interested in practising with NPs.

Lack of support from other providers, patients, the community as well as space concerns were raised as barriers to MD interest. Of the MDs who indicated that they would not be interested in working with NPs, 33% also indicated reasons beyond those asked directly in this survey. These reasons included: physician liability concerns; concerns with NP scope of practice; lack of financial incentives and concerns with administrative and managerial workload (see Exhibit 86).

**Exhibit 86: MD reasons for not being interested in working with NPs**

| Characteristics | Total Respondents | Percentage of Respondents |
|---|---|---|
| **Reasons for Being Unwilling to Practice with NP*** | (*n*=160) | |
| Lack of funding for NP-related overhead | 97 | 60.6 |
| Lack of funding for NP salary | 95 | 59.4 |
| Would not benefit from NP services | 75 | 46.9 |
| Lack of space | 70 | 43.8 |
| Other | 53 | 33.1 |
| Lack of patient support | 33 | 20.6 |
| Patient volume too low | 32 | 20.0 |
| Lack of support from other providers in practice setting | 24 | 15.0 |
| Limited availability of NPs | 19 | 11.9 |
| Lack of community support | 13 | 8.1 |
| Lack of support from providers from outside practice setting | 10 | 6.3 |

* Multiple Response Option

In order to understand the determinants of MD attitudes toward practising with NPs, bivariate and multivariate analyses were undertaken. For the purposes of these analyses, original practice settings

were aggregated into the following groups: fee-for-service; private and group practices and walk-in clinics; Health Service Organizations, Family Health Networks and Primary Care Networks; Community Health Centres; long-term care settings; emergency departments; and other groups. Statistical analysis could generally be undertaken with adequate power as almost 50% of the MDs sampled were interested in working with NPs and 33% were not, as well as the fact that responses varied by MD and practice setting characteristics.

Exhibit 87 demonstrates that practice setting may be an important determinant of MD (not currently working with an NP) interest in working with NPs. There is a similar split of fee-for-service MDs between those who are and are not interested in working with NPs. However, MDs in Health Service Organizations, Family Health Networks and Primary Care Networks and emergency departments were substantially more inclined to show interest in working with NPs. The same was also true for Community Health Centre and long-term care MDs, although the sample sizes were quite small.

**Exhibit 87: MDs interested in working with NPs by practice setting (for those MDs not currently working with an NP)**

| **Characteristics** | **Number (Percent) Interested In Working with NP** | | | |
|---|---|---|---|---|
| **Practice Group** | Yes | No | Uncertain | Total |
| FFS | 150 (42.3) | 137 (38.6) | 68 (19.2) | *355* |
| HSO/FHN/PCN | 29 (82.9) | 3 (8.6) | 3 (8.6) | *35* |
| CHC | 4 (66.7) | 1 (16.7) | 1 (16.7) | *6* |
| LTC | 4 (80.0) | 1 (20.0) | 0 (0) | *5* |
| Public Health | 1 (33.3) | 1 (33.3) | 1 (33.3) | *3* |
| Emergency Department | 27 (61.4) | 8 (18.2) | 9 (20.5) | *44* |
| Other | 24 (63.2) | 9 (23.7) | 5 (13.2) | *38* |
| *Total* | *239 (49.2)* | *160 (32.9)* | *87 (17.9)* | *486* |

*six missing responses

In order to examine the variation in MD interest further, the analysis examined fee-for-service and Health Service Organizations, Family Health Networks and Primary Care Networks relative to other settings. In addition, it was hypothesized that gender, age, MD experience, amount of time the MD had worked with an NP in the past and MD opinions on appropriate NP employer could be important NP acceptance determinants. Importantly, studies have found that physician experience working with NPs resulted in a

more positive attitude toward the role of the NP and the NP's ability to enhance the provision of primary care (Johnson and Freeborn, 1986[29]; Aquillino *et al.*, 1999[30]).

To test these hypotheses, a logistic regression analysis was undertaken focusing on those MDs who reported that they would or would not be interested in working with an NP. In the first phase of analysis, none of the emergency department settings, MD experience, MD age or MD opinions about appropriate NP employer were significant independent (predictive) determinants. Although past experience with NPs was significant, the duration of this relationship was not found to be important. Accordingly, the analysis was rerun with the remaining factors included in the model, with the results shown in Exhibit 88. The logistic regression indicates how the odds of being interested in working with an NP change according to MD characteristics and practice setting. In addition, intervals are provided around the calculated effects to show how the estimates might vary due to sampling error.

For a representative MD female without past experience working with an NP and not working in a fee-for-service setting, Health Service Organization, Family Health Network, or Primary Care Network, the relative odds of being interested in working with an NP was 1.4. Consistent with the bivariate analysis, MDs in Health Service Organization/Family Health Network/Primary Care Network settings were even more likely to be interested in working with NPs; the relative odds increase four fold. On average, being male also increased the odds of being interested relative to females by 1.6, although the lower confidence interval indicates that this effect could be small.

The propensity to be willing to work with an NP is substantially reduced for fee-for-service physicians. For example, relative to the reference group, physicians in fee-for-service have 60% lower odds of being interested in working with NPs; the odds of MDs working in Health Service Organizations, Family Health Networks and Primary Care Networks being interested in working with NPs are 36 times higher than for MDs in a fee-for-service setting. This does not indicate that fee-for-service MDs are mainly uninterested; roughly half of fee-for-service MDs did express interest, rather, fee-for-service MDs are substantially less receptive than those observed in other settings.

Controlling for practice setting, a key determinant of MD interest in working with an NP is past experience working with an NP. Having worked with an NP in the past increases the odds of MD interest by 2.4 times, and this result is independent of duration of past work experience.

[29] R. Johnson and D. Freeborn, "Comparing HMO Physicians' Attitudes Towards NPs and PAs", Nurse Practitioner (1986) 53(11): 39-49.
[30] M.L. Aquillino et al., "Primary Care Physicians' Perceptions of the Nurse Practitioner in the 1990s", Archives of Family Medicine (1999) 8(3): 224-227.

**Exhibit 88: Determinants of MD interest in working with NPs**

| | Odds ratio | P value | 95% CI Lower | 95% CI Upper |
|---|---|---|---|---|
| Gender: Male | 1.6 | .03 | 1.05 | 2.55 |
| Practice Setting: HSO/FHN/PCN | 4.0 | .04 | 1.08 | 14.88 |
| Practice Setting: FFS | .4 | .002 | .23 | .72 |
| Worked with NP in the past | 2.4 | .000 | 1.54 | 3.82 |
| Constant | 1.4 | | | |

* reference category: female, no NP experience, non FFS/HSO/FHN/PCN

## NPs' Services

All MDs surveyed were asked a series of questions in order to identify the NP services they felt were most valuable to their practice. As shown in Exhibit 89, of the MDs not practising with NPs, approximately half felt that prevention/wellness care/health promotion, home visits, linkages to community organizations and support and counselling are valuable services NPs could provide. There was less agreement for other services, and only four percent of MDs not practising with NPs felt NPs could provide valuable care for major acute illness.

**Exhibit 89: Services NPs could provide according to MDs not working with NPs**

| Characteristics | Total Respondents | Percentage of Respondents |
|---|---|---|
| **Services Valuable to Practice~** | (*n*=492) | |
| Prevention/wellness care/health promotion | 265 | 53.9 |
| Linkages to community organizations | 237 | 48.2 |
| Psychosocial support and counseling | 236 | 48.0 |
| Home visits to housebound patients | 230 | 46.7 |
| Monitoring of chronic illness | 210 | 42.7 |
| Care of episodic illness/minor acute | 188 | 38.2 |
| Care of palliative patients | 184 | 37.4 |
| Night and weekend coverage | 134 | 27.2 |
| Other | 36 | 7.3 |
| Care of major acute illness | 19 | 3.9 |

~ Multiple response option

Since these perceptions are important drivers of MD willingness to integrate NPs into their practices, Exhibit 89 was reproduced (see Exhibit 90) but responses were stratified according to MD interest in

working with NPs. Exhibit 90 shows that the 239 interested MDs have significantly different perceptions of the services NPs could provide when compared to those MDs not practising and not interested in working with NPs ($p<.05$). There were generally higher levels of agreement on the services NPs could provide among those MDs not practising but interested in working with NPs as compared to those not interested in working with NPs. Exhibit 90 indicates that approximately 90% of *interested* physicians not working with NPs felt that prevention/wellness care/health promotion was a valuable NP service. This compares with only 29% of MDs not interested in working with NPs. More than three-quarters of MDs *interested* in working with NPs indicated that psychosocial support and counselling, linkages to community organizations and monitoring of chronic illness are valuable NP services. This compares with 30% or less of MDs not interested in working with NPs.

**Exhibit 90: Services NPs could provide according to MDs not working with NPs (stratified based on MD interest)**

| | MDs interested in working with NPs | | MDs not interested in working with NPs | |
|---|---|---|---|---|
| **Characteristics** | **Total Respondents** | **Percentage of Respondents** | **Total Respondents** | **Percentage of Respondents** |
| **Services Valuable to Practice~** | (*n*=239) | | (*n*=160) | |
| Prevention/wellness care/health promotion | 215 | 90.0 | 46 | 28.8 |
| Psychosocial support and counselling | 186 | 77.8 | 46 | 28.8 |
| Linkages to community organizations | 184 | 77.0 | 48 | 30.0 |
| Monitoring of chronic illness | 180 | 75.3 | 27 | 16.9 |
| Home visits to housebound patients | 177 | 74.1 | 48 | 30.0 |
| Care of episodic illness/minor acute | 166 | 69.5 | 20 | 12.5 |
| Care of palliative patients | 148 | 61.9 | 34 | 21.3 |
| Night and weekend coverage | 105 | 43.9 | 27 | 16.9 |
| Other | 27 | 11.3 | 9 | 5.6 |
| Care of major acute illness | 15 | 6.3 | 4 | 2.5 |

~ Multiple response option
*$p<.05$

To understand how these MD perceptions compare with the types of NP services valued by MDs practising with NPs, the survey asked MDs practising with NPs to indicate what services NPs provide and to rank these in order of importance. The results are shown in Exhibit 91.

**Exhibit 91: Services provided by NPs as reported by MDs working with NPs**

| Characteristics | Percentage of Total Respondents (n=225) | | | |
|---|---|---|---|---|
| | Agree | Rank 1 | Rank 2 | Rank 3 |
| **Services Valuable to Practice*** | | | | |
| Care of episodic illness/minor acute | 93.8 | 22.1 | 39.4 | 18.6 |
| Prevention/wellness care/health promotion | 88.4 | 50.9 | 15.0 | 13.3 |
| Monitoring of chronic illness | 71.1 | 7.1 | 17.8 | 23.6 |
| Psychosocial support and counselling | 59.8 | 4 | 9.3 | 14.2 |
| Linkages to community organizations | 39.3 | 0.4 | 2.2 | 4.9 |
| Home visits to housebound patients | 36.2 | 3.1 | 4.9 | 2.7 |
| Care of palliative patients | 27.1 | 1.3 | 1.3 | 2.2 |
| Care of major acute illness | 24.0 | 2.2 | 2.2 | 4.9 |
| Night and weekend coverage | 10.4 | 0.4 | 1.3 | 1.8 |

* Multiple response option, one missing response

Comparing MDs interested in, but not practising with NPs with MDs practising with NPs:

- Similarly high proportions of both groups identified prevention/wellness care/health promotion (90% and 88% respectively) and monitoring of chronic illnesses (75% and 71% respectively) as valuable NP services.
- Twenty-four percent (24%) of MDs practising with NPs reported that NPs provide major acute care, with eight percent defining this as among the most important services; only six percent of MDs interested in but not practising with NPs identified this as a valuable NP service.
- Ninety-four percent (94%) of MDs practising with NPs reported that NPs provide episodic/minor acute care, with 80% reporting that this is among the most important services; 70% of MDs interested in, but not practising with NPs identified this as a valuable NP service.
- Higher proportions of MDs interested in but not practising with NPs identified palliative care, home visits to housebound patients, night and weekend coverage, linkages to community organizations, and psychosocial support and counselling as valuable NP services when compared to MDs practising with NPs.

Based on these substantial differences, the researchers felt that multivariate analysis should be undertaken to explore the correlation of perceptions between MDs who practise with and MDs who do not practise with NPs. For each of the service areas considered, logistic regression was used to examine the agreement between MDs based on their practice setting and personal characteristics such as age,

gender and experience working with NPs. Regression results for all practice settings are shown, however, when independent variables were not significant (p >.1) their unique effects were considered marginal to the analysis, so the final regression did not consider these factors further.

Prevention/wellness care/health promotion (see Exhibit 92):

- The odds of MDs in Community Health Centres reporting value from this service are 26 times greater than for MDs in fee-for-service settings.
- Only long-term care and emergency department MDs reported less value for this service than fee-for-service MDs.
- The probability of a fee-for-service MD without NP experience reporting value from this service is 44%.
- All else being equal, MDs with experience working with NPs have almost three times the odds of reporting that prevention/wellness care/health promotion is a valuable NP service.

**Exhibit 92: Probability of MD agreement (between those who do and do not work with an NP): NP providing prevention/wellness care/health promotion**

| | P Value | Odds ratio | 95% CI Lower | 95% CI Upper |
|---|---|---|---|---|
| Practice Setting: HSO/FHN/PCN | .000 | 3.506 | 1.801 | 6.827 |
| Practice Setting: CHC | .000 | 25.918 | 6.184 | 108.620 |
| Practice Setting: LTC | .136 | .527 | .227 | 1.223 |
| Practice Setting: Emergency Department | .050 | .555 | .308 | 1.000 |
| Other | .204 | 1.465 | .813 | 2.640 |
| Worked with NP-less than one year | .003 | 2.580 | 1.384 | 4.810 |
| Worked with NP-more than one year | .000 | 2.838 | 1.915 | 4.204 |
| Constant * | .084 | .810 | | |

*reference category: fee-for-service, no experience with NPs

Minor Acute/Episodic Illness (see Exhibit 93):

- The odds of indicating value from this service tripled if MDs have current or prior experience with NPs (Note: 14% of MDs without experience with NPs reported value from this service).
- This service was especially perceived to be valuable in Community Health Centres and long-term care settings.

**Exhibit 93: Probability of MD agreement (between those who do and do not work with an NP): NP providing care of minor acute Illness**

| | P Value | Odds ratio | 95% CI Lower | 95% CI Upper |
|---|---|---|---|---|
| Gender: Male | .087 | 1.367 | .956 | 1.955 |
| Practice Setting: HSO/FHN/PCN | .000 | 4.011 | 2.234 | 7.204 |
| Practice Setting: CHC | .000 | 16.536 | 6.887 | 39.700 |
| Practice Setting: LTC | .001 | 27.737 | 3.635 | 211.625 |
| Practice Setting: Emergency Department | .008 | 2.297 | 1.245 | 4.238 |
| Other | .158 | 1.500 | .854 | 2.633 |
| Worked with NP-less than one year | .000 | 3.123 | 1.723 | 5.660 |
| Worked with NP-more than one year | .000 | 3.513 | 2.381 | 5.184 |
| Constant * | .000 | .290 | | |

*reference category: female, fee-for-service, no experience with NPs

Major Acute Illness (see Exhibit 94):

- Female physicians in fee-for-service settings without experience working with NPs were the least likely to identify care of major acute illness as a valuable NP service. Experience was a significant factor in changing this perception; even less than one years experience increases the odds of recognizing this service six-fold.
- MDs in other settings were more likely to recognize this service and this effect was uniform across settings.

**Exhibit 94: Probability of MD agreement (between those who do and do not work with an NP): NP providing care of major acute illness**

| | P Value | Odds ratio | 95% CI Lower | 95% CI Upper |
|---|---|---|---|---|
| Gender: Male | .012 | 2.028 | 1.171 | 3.513 |
| Practice Setting: HSO/FHN/PCN | .088 | 2.185 | .889 | 5.369 |
| Practice Setting: CHC | .000 | 4.210 | 2.009 | 8.821 |
| Practice Setting: LTC | .185 | 2.311 | .670 | 7.975 |
| Practice Setting: Emergency Department | .178 | 1.957 | .737 | 5.194 |
| Other | .005 | 3.420 | 1.436 | 8.147 |
| Worked with NP-less than one year | .000 | 6.228 | 2.345 | 16.541 |

| | P Value | Odds ratio | 95% CI Lower | 95% CI Upper |
|---|---|---|---|---|
| Worked with NP-more than one year | .001 | 4.232 | 1.852 | 9.672 |
| Constant * | .000 | .012 | | |

*reference category: female, fee-for-service, no experience with NPs

Monitoring Chronic Illness (see Exhibit 95):

- Controlling for other factors, MDs with NP experience have 2.5 times the odds of MDs without NP experience of identifying this service.
- Only MDs in emergency departments had a lower probability than fee-for-service physicians of identifying monitoring of chronic illness as important to the practice.

**Exhibit 95: Probability of MD agreement (between those who do and do not work with an NP): NP monitoring chronic illness**

| | P Value | Odds ratio | 95% CI Lower | 95% CI Upper |
|---|---|---|---|---|
| Practice Setting: HSO/FHN/PCN | .002 | 2.402 | 1.387 | 4.160 |
| Practice Setting: CHC | .016 | 1.848 | 1.119 | 3.051 |
| Practice Setting: LTC | .020 | 3.140 | 1.200 | 8.214 |
| Practice Setting: Emergency Department | .147 | .646 | .358 | 1.166 |
| Other | .602 | 1.158 | .668 | 2.004 |
| Worked with NP-less than one year | .002 | 2.416 | 1.388 | 4.203 |
| Worked with NP-more than one year | .000 | 2.492 | 1.728 | 3.595 |
| Constant * | .000 | .525 | | |

*reference category: fee-for-service, experience with NPs

Care for Palliative Patients (see Exhibit 96):

- MDs in long-term care settings have twice the odds of naming this service as valuable to their practice than do fee-for-service physicians.
- Prior experience with NPs increases the odds of naming this as a valuable service regardless of setting.

**Exhibit 96: Probability of MD agreement (between those who do and do not work with an NP): NP caring for palliative patients**

| | P Value | Odds ratio | 95% CI Lower | 95% CI Upper |
|---|---|---|---|---|
| Practice Setting: HSO/FHN/PCN | .852 | 1.051 | .622 | 1.778 |
| Practice Setting: CHC | .001 | .413 | .241 | .709 |
| Practice Setting: LTC | .085 | 2.073 | .905 | 4.747 |
| Practice Setting: Emergency Department | .235 | .687 | .370 | 1.276 |
| Other | .977 | .992 | .568 | 1.731 |
| Worked with NP-less than one year | .618 | 1.158 | .651 | 2.058 |
| Worked with NP-more than one year | .026 | 1.526 | 1.052 | 2.213 |
| Constant * | .000 | .468 | | |

*reference category: fee-for-service, no experience with NPs

Home Visits to Housebound Patients (see Exhibit 97):

- Forty-five percent (45%) of fee-for-service MDs indicated that this is a valuable service.
- MDs in long-term care and emergency departments are less likely than fee-for-service MDs to identify this service (Note: this result is as expected given the nature of care delivered in long-term care and emergency department settings).

**Exhibit 97: Probability of MD agreement (between those who do and do not work with an NP): NP providing home visits to housebound patients**

| | P Value | Odds ratio | 95% CI Lower | 95% CI Upper |
|---|---|---|---|---|
| Practice Setting: HSO/FHN/PCN | .147 | 1.446 | .879 | 2.378 |
| Practice Setting: CHC | .818 | .951 | .623 | 1.453 |
| Practice Setting: LTC | .003 | .156 | .046 | .530 |
| Practice Setting: Emergency department | .006 | .418 | .225 | .779 |
| Other | .817 | .940 | .555 | 1.591 |
| Constant * | .080 | .834 | | |

*reference category: fee-for-service

Night and Weekend On-Call Coverage (see Exhibit 98):

- In all settings, less than one-quarter of MDs identified this as a valuable NP service.
- Fee-for-service and MDs in Health Service Organizations, Family Health Networks and Primary Care Network settings are the most likely to identify this as a valuable NP service.

**Exhibit 98: Probability of MD agreement (between those who do and do not work with an NP): NP can provide night and weekend on-call coverage**

| | P Value | Odds ratio | 95% CI Lower | 95% CI Upper |
|---|---|---|---|---|
| Practice Setting: HSO/FHN/PCN | .990 | 1.004 | .568 | 1.775 |
| Practice Setting: CHC | .005 | .418 | .228 | .767 |
| Practice Setting: LTC | .265 | .538 | .181 | 1.600 |
| Practice Setting: Emergency department | .110 | .543 | .257 | 1.148 |
| Other | .660 | .870 | .468 | 1.619 |
| Constant * | .000 | .338 | | |

*reference category: fee-for-service

Linkages to Community Organizations (Exhibit 99):

- Almost half of all MDs surveyed feel that NPs could provide linkages to community organizations, with the odds being slightly less for males but otherwise independent of MD setting and characteristics.

**Exhibit 99: Probability of MD agreement (between those who do and do not work with an NP): NP can provide linkages to community organizations**

| | P Value | Odds ratio | 95% CI Lower | 95% CI Upper |
|---|---|---|---|---|
| Gender: Male | .039 | .730 | .542 | .984 |
| Constant * | 1.000 | 1.000 | | |

*reference category: female, fee-for-service

Psychosocial Support and Counselling (see Exhibit 100):

- Forty percent (40%) of fee-for-service physicians identified this as an NP service; more than in CHCs and Health Service Organization, Family Health Network, and Primary Care Network settings and fewer than in long-term care and emergency settings.
- Controlling for practice setting, experience with NPs more than doubles the odds of a physician reporting psychosocial support and counselling as a useful NP service.

**Exhibit 100: Probability of MD agreement (between those who do and do not work with an NP): psychosocial support and counselling**

| | P Value | Odds ratio | 95% CI Lower | 95% CI Upper |
|---|---|---|---|---|
| Practice Setting: HSO/FHN/PCN | .270 | 1.343 | .796 | 2.265 |
| Practice Setting: CHC | .115 | 1.487 | .907 | 2.438 |
| Practice Setting: LTC | .054 | .429 | .181 | 1.016 |
| Practice Setting: Emergency Department | .323 | .747 | .419 | 1.332 |
| Other | .851 | .949 | .550 | 1.637 |
| Worked with NP-less than one year | .002 | 2.399 | 1.382 | 4.163 |
| Worked with NP-more than one year | .000 | 2.107 | 1.467 | 3.025 |
| Constant * | .001 | .666 | | |

*reference category: fee-for-service, experience with NPs

## MD Perspectives on NP Integration

All MDs surveyed were asked to give their perspective on key elements of effective NP integration. For MDs not working with NPs, Exhibit 101 shows that the structure (as defined by the respondent) of the working relationship between the NP and MD is a key facilitator. All the facilitators specifically addressed through the survey are generally deemed to be important by these MDs. In addition, other facilitators mentioned include clarifying issues around physician liability and consideration of financial incentives for MDs.

**Exhibit 101: MDs not practising with NPs: factors facilitating effective NP integration**

| Characteristics | Total Respondents | Percentage of Respondents |
|---|---|---|
| **Factors Facilitating Effective Integration of NPs** | (*n*=492) | |
| Structure of working relationship between NP and MD | 424 | 86.2 |
| Expertise of NP | 388 | 79.0 |
| Nature of NP employment relationship | 360 | 73.2 |
| Patient acceptance of NP role | 351 | 71.3 |
| Practice style of NP | 313 | 63.6 |
| Co-workers understanding of NP role | 280 | 56.9 |

| Characteristics | Total Respondents | Percentage of Respondents |
|---|---|---|
| Co-workers acceptance of NP role | 280 | 56.9 |
| Confidence of NP | 269 | 54.8 |
| Acceptance of NP role by providers outside practice | 213 | 43.3 |
| Community acceptance of NP role | 184 | 37.4 |
| Other | 51 | 10.4 |

* Multiple response option.

MDs working with NPs were also asked to identify elements from the same set of facilitators, and were additionally requested to rank the importance of each, with 1 being the most valuable contribution.

Comparing exhibits 102 to 101 shows a high degree of commonality, with MDs identifying relationship structure as being the most important key factor. NP expertise is also a key factor, with MDs with NP experience identifying this with slightly greater frequency than MDs without experience. In addition, 23% of MDs practising with NPs identified NP expertise as the most important facilitator and 60% identified this as one of the top three facilitators for successful NP integration.

**Exhibit 102: MDs practising with NPs: factors facilitating NP integration**

| Characteristics | Percentage of Total Respondents (n=225) | | | |
|---|---|---|---|---|
| | Agree | Rank 1 | Rank 2 | Rank 3 |
| **Factors facilitating NP integration** | | | | |
| NP expertise | 88.9 | 22.6 | 22.1 | 15.9 |
| Structure of MD/NP working relationship | 84.4 | 38.5 | 14.6 | 15.5 |
| Patient acceptance of NP role | 72.0 | 8.0 | 11.1 | 10.2 |
| NP practice style | 71.1 | 6.2 | 13.3 | 11.1 |
| Co-workers' understanding of NP role | 68.9 | 4.9 | 6.2 | 7.1 |
| Confidence of the NP | 67.1 | 2.7 | 8.8 | 9.7 |
| Co-worker's acceptance of NP role | 63.1 | 4.4 | 4.4 | 8.8 |
| Nature of the NP employment relationship | 61.8 | 8.8 | 12.8 | 8.8 |
| Acceptance of NP role by providers outside practice | 47.6 | 1.8 | 3.5 | 6.6 |
| Community acceptance of NP role | 42.7 | 0.9 | 0.4 | 3.5 |

* Multiple response option, one missing response

Although the overall responses related to NP integration were similar, the samples were drawn from different populations, and other variables may detect underlying differences in perceptions between MDs practising with and without NPs. In order to explore these differences, a series of logistic regressions were performed, using physician and practice characteristics to predict the propensity of physicians to select facilitators as important. Initial variables considered included: physician age; experience; gender; experience practising with NPs; and practice setting. The final results from this analysis are shown in exhibits 103 to 109.

In general, MD views on facilitators for effective NP integration are dependent on the settings in which they practice:

- The nature of the employment relationship is more important for male than female MDs, and fee-for-service physicians are also more likely to state this as being an important facilitator.
- Fee-for-service physicians feel that acceptance of the NP role by patients is a key facilitator, while MDs in emergency departments were less likely to indicate that this is an important issue in their practice.
- MDs working in Community Health Centres considered the following to be especially important facilitators: co-workers' understanding of the NP role; acceptance by outside providers and the community; and NP confidence.
- Seventy-five percent (75%) of all MDs agreed that the NP's expertise is a key facilitator. This view did not vary across practice settings, but the logistic regression analysis shows that those more experienced working with NPs place significantly higher importance on the NP's expertise as a key facilitator. Past MD experience with NPs doubles the odds of an MD reporting NP expertise as an integration facilitator.
- The data showed general uniformity of views about the importance of the structure of the working relationship, co-workers' acceptance, and NP practice style across physician and practice setting characteristics.

**Exhibit 103: MD perspectives (between those who do and do not work with an NP) on integration facilitators: nature of NP employment relationship**

| | P Value | Odds ratio | 95% CI Lower | 95% CI Upper |
|---|---|---|---|---|
| Gender: Male | .021 | 1.477 | 1.061 | 2.056 |
| Practice Setting: HSO/FHN/PCN | .353 | .770 | .443 | 1.337 |
| Practice Setting: CHC | .010 | .552 | .352 | .867 |
| Practice Setting: LTC | .024 | .387 | .170 | .881 |
| Practice Setting: Emergency Department | .000 | .344 | .194 | .610 |
| Other | .022 | .525 | .302 | .913 |
| Constant * | .000 | 2.535 | | |

*reference category: female, fee-for-service

**Exhibit 104: MD perspectives (between those who do and do not work with an NP) on integration facilitators: co-workers' understanding of NP role**

| | P Value | Odds ratio | 95% CI Lower | 95% CI Upper |
|---|---|---|---|---|
| Practice Setting: HSO/FHN/PCN | .134 | 1.477 | .887 | 2.460 |
| Practice Setting: CHC | .000 | 2.549 | 1.596 | 4.071 |
| Practice Setting: LTC | .118 | 1.980 | .840 | 4.666 |
| Practice Setting: Emergency Department | .310 | 1.339 | .762 | 2.353 |
| Other | .007 | 2.177 | 1.231 | 3.849 |
| Constant * | .216 | 1.136 | | |

*reference category: fee-for-service

**Exhibit 105: MD perspectives (between those who do and do not work with an NP) on integration facilitators: acceptance of NP role by outside providers**

| | P Value | Odds ratio | 95% CI Lower | 95% CI Upper |
|---|---|---|---|---|
| Practice Setting: HSO/FHN/PCN | .778 | .930 | .561 | 1.541 |
| Practice Setting: CHC | .000 | 2.271 | 1.475 | 3.496 |
| Practice Setting: LTC | .742 | .872 | .385 | 1.972 |
| Practice Setting: Emergency Department | .492 | 1.215 | .697 | 2.117 |
| Other | .200 | .697 | .402 | 1.210 |
| Constant * | .001 | .717 | | |

*reference category: fee-for-service

**Exhibit 106: MD perspectives (between those who do and do not work with an NP) on integration facilitators: expertise of the NP**

| | P Value | Odds ratio | 95% CI Lower | 95% CI Upper |
|---|---|---|---|---|
| Worked with NP less than one year | .074 | 1.924 | .939 | 3.943 |
| Worked with NP more than one year | .000 | 2.092 | 1.389 | 3.149 |
| Constant * | .000 | 3.118 | | |

*reference category: no experience with NP

**Exhibit 107: MD perspectives (between those who do and do not work with an NP) on integration facilitators: confidence of the NP**

| | P Value | Odds ratio | 95% CI Lower | 95% CI Upper |
|---|---|---|---|---|
| Practice Setting: HSO/FHN/PCN | .846 | 1.051 | .637 | 1.734 |
| Practice Setting: CHC | .000 | 2.617 | 1.614 | 4.242 |
| Practice Setting: LTC | .876 | 1.066 | .477 | 2.383 |
| Practice Setting: Emergency Department | .175 | .681 | .391 | 1.186 |
| Other | .357 | .782 | .463 | 1.320 |
| Constant * | .018 | 1.279 | | |

*reference category: fee-for-service

**Exhibit 108: MD perspectives (between those who do and do not work with an NP) on integration facilitators: acceptance of NP role by patients**

| | P Value | Odds ratio | 95% CI Lower | 95% CI Upper |
|---|---|---|---|---|
| Practice Setting: HSO/FHN/PCN | .933 | 1.025 | .580 | 1.811 |
| Practice Setting: CHC | .729 | .920 | .573 | 1.476 |
| Practice Setting: LTC | .327 | .657 | .283 | 1.522 |
| Practice Setting: Emergency Department | .000 | .348 | .198 | .611 |
| Other | .445 | .800 | .451 | 1.419 |
| Constant * | .000 | 2.876 | | |

*reference category: fee-for-service

**Exhibit 109: MD perspectives (between those who do and do not work with an NP) on integration facilitators: acceptance of NP role by community**

| | P Value | Odds ratio | 95% CI Lower | 95% CI Upper |
|---|---|---|---|---|
| Practice Setting: HSO/FHN/PCN | .080 | .619 | .361 | 1.059 |
| Practice Setting: CHC | .004 | 1.877 | 1.228 | 2.871 |
| Practice Setting: LTC | .187 | .549 | .225 | 1.338 |
| Practice Setting: Emergency Department | .039 | .520 | .279 | .969 |
| Other | .049 | .559 | .313 | .998 |
| Constant * | .000 | .671 | | |

*reference category: fee-for-service

Note: A number of variables were included in the regression models that were not significant however, were important contributors to the model.

In addition to inquiring about facilitators, physicians (practising with NPs) were asked to identify barriers to effective NP integration. Respondents were asked to identify important barriers and, in addition, rank the top three in order of importance. As shown in Exhibit 110, 63% reported that the structure of the MD-NP working relationship was a strong barrier to NP integration and 20% ranked it as the most important concern. Fifty-six percent (56%) identified the area of NP expertise with 33% ranking this in the top three. Inadequate funding for NP salary was raised as an issue for 46% of MDs, and 20% ranked this as the most important barrier. Almost all of the suggested issues were viewed as important by more than 25% of MDs practising with NPs, suggesting that these are important issues to be monitored.

**Exhibit 110: MDs practising with NPs: factors creating barriers to NP integration**

| Characteristics | Percentage of Total Respondents (n=225) | | | |
|---|---|---|---|---|
| | Agree | Rank 1 | Rank 2 | Rank 3 |
| **Factors Creating Barriers to NP integration** | | | | |
| Structure of MD/NP working relationship | 63.1 | 19.9 | 11.9 | 11.5 |
| NP expertise | 55.6 | 10.6 | 11.1 | 12.4 |
| NP practice style | 46.7 | 4.9 | 6.2 | 8.8 |
| Inadequate funding for NP salary | 45.5 | 19.9 | 8.8 | 5.3 |
| Co-worker's acceptance of NP role | 45.3 | 8.8 | 5.8 | 8.0 |
| Co-workers' understanding of NP role | 44.0 | 3.5 | 6.6 | 7.1 |
| Confidence of the NP | 43.1 | 2.7 | 7.1 | 2.7 |
| Patient resistance to NP role | 39.1 | 4.0 | 8.8 | 6.2 |
| Resistance to NP role by providers outside practice | 38.2 | 5.8 | 6.6 | 8.4 |
| Nature of the NP employment relationship | 36.9 | 7.5 | 5.3 | 5.8 |
| Legislative barriers | 33.8 | 3.1 | 4.9 | 6.6 |
| Inadequate funding for NP-related expenses | 30.8 | 4.0 | 4.9 | 3.1 |
| Lack of space for NP | 27.6 | 2.2 | 4.0 | 5.3 |
| Community resistance to NP role | 23.1 | .9 | 2.2 | 2.7 |

* Multiple response option, one missing response

## MDs Working with NPs: Additional Perspectives

For physicians that described themselves as having experience working with NPs, an additional set of survey questions inquired about details of the practice, their relationship with NPs, barriers to integration, benefits of working with NPs, and level of satisfaction across different dimensions. These additional aspects relate to communication and collaboration, expenses and workload, benefits of NPs and physician satisfaction with NPs.

### *Communication and Collaboration*

Physicians were asked how much time they spend directly with the NP. The term "directly" was defined by the survey respondents. As expected, of the 196 MDs working with NPs, the time spent working directly with NPs generally differs across practice settings (see Exhibit 111). Overall, the amount of direct time varies substantially within and across practice settings and between physicians. On average, physicians who work with NPs in Community Health Centres spend the most direct time with NPs, while those in long-term care spend the least. Of interest is that across the diverse practice settings considered, some MDs spend considerable time with NPs, suggesting either a high degree of integration and collaboration or that a high degree of supervision is required. Further analysis should explore this finding.

**Exhibit 111: Hours spent working directly with NP in a typical week by practice setting**

| Characteristics | Minimum | Median | Maximum | Total Respondents |
|---|---|---|---|---|
| **Practice Setting*** | | | | (n=196) |
| Fee-for-service | 1 | 3 | 40 | 16 |
| HSO/FHN/PCN | 0 | 2 | 35 | 34 |
| CHC | 0 | 6 | 40 | 100 |
| Long-term care | 0 | 1 | 10 | 18 |
| Emergency department | 2 | 4 | 30 | 13 |
| Other | 0 | 2 | 20 | 15 |

*$p<.05$

In addition to the time MDs spend directly working with NPs, the survey inquired about the forms of communication used. Exhibit 112 summarizes the forms of communication according to practice setting. Ninety-four percent (94%) of MDs in long-term care settings identified that they communicate by telephone. The data indicated that there is more direct communication in fee-for-service and emergency departments. Unplanned and as-needed communication is the general case across practice settings; although not surprisingly, in settings where MDs and NPs tend to work side by side more frequently (such as emergency departments), communication by telephone, unplanned or regular meetings are less frequent.

**Exhibit 112: Methods of communication between MDs and NPs***

| **Characteristic: Communication** | Phone | Unplanned | As needed | Regular meetings | Work side by side | *Total Respondents* |
|---|---|---|---|---|---|---|
| Fee-for-service | 37.5% | 81.3% | 100.0% | 31.3% | 37.5% | *16* |
| HSO/FHN/PCN | 42.4% | 75.8% | 97.0% | 24.2% | 42.4% | *33* |
| CHC | 57.4% | 84.2% | 95.0% | 73.3% | 52.5% | *101* |
| Long-term care | 94.4% | 83.3% | 83.3% | 38.9% | 27.8% | *18* |
| Emergency department | 15.4% | 30.8% | 61.5% | 15.4% | 76.9% | *13* |
| Other | 73.3% | 46.7% | 60.0% | 13.3% | 66.7% | *15* |
| | 55.1% | 76.0% | 89.8% | 50.0% | 50.0% | *196* |

*multiple response question

As described in the section of this chapter that focuses on the NP survey, the Jones and Way collaboration score is based on the nine essential elements for collaborative practice based on the descriptive and research literature. The scale uses a five-point Likert-type scale varying from “strongly disagree” (1) to “strongly agree” (5) for these elements. MDs working with NPs were asked to complete the same scale (Exhibit 113).

There was considerable agreement overall in MDs’ responses. Approximately 84% of MDs agreed that they plan and cooperate with NPs in decision-making and roughly 90% reported that they communicate openly and trust and respect each other when making patient decisions. There was no considerably strong disagreement in any of these aspects; the largest area of disagreement was in sharing responsibility for patient care decisions: 18% of MDs do not feel that they share responsibility for patients with NPs, while only 66% agree.

**Exhibit 113: MD measure of current collaboration (MDs currently working with NPs)**

| Characteristics | Strongly disagree | Disagree | Neutral | Agree | Strongly Agree | Number that agree (n=224) |
|---|---|---|---|---|---|---|
| **NP MD relationship*** | | | | | | |
| Plan together to make patient care decisions | 5 (2.2%) | 14 (6.2%) | 14 (6.2%) | 89 (39.4%) | 101 (44.7%) | 190 (84.1%) |
| Communicate openly in patient care decision-making | 3 (1.3%) | 5 (2.2%) | 10 (4.4%) | 80 (35.6%) | 124 (55.1%) | 204 (90.7%) |
| Share responsibility for patient care decision-making | 9 (4.0%) | 31 (13.8%) | 34 (15.1%) | 86 (38.2) | 63 (28.0) | 149 (66.2%) |
| Co-operate in patient care decision-making | 3 (1.3%) | 4 (1.8%) | 16 (7.1%) | 103 (45.8%) | 96 (42.7%) | 199 (88.5%) |
| Consider NP and MD concerns in patient care decision-making | 3 (1.3%) | 16 (7.1%) | 29 (12.9%) | 97 (43.1%) | 78 (34.7%) | 175 (77.8%) |
| Co-ordinate implementation of shared patient care plan | 4 (1.8%) | 17 (7.5%) | 30 (13.3%) | 101 (44.7%) | 70 (31.0%) | 171 (75.7%) |
| Demonstrate trust in other's patient care decision-making | 4 (1.8%) | 10 (4.4%) | 9 (4.0%) | 82 (36.3%) | 119 (52.7%) | 201 (89.0%) |
| Respect for NP ability in making shared patient care decisions | 4 (1.8%) | 7 (3.1%) | 9 (4.0%) | 77 (34.2%) | 126 (56.0%) | 203 (90.2%) |
| Fully collaborate in shared patient care decisions | 6 (2.7%) | 19 (8.5%) | 33 (14.7%) | 77 (34.4%) | 87 (38.8%) | 164 (73.2%) |

* two missing responses

The median scores for each question are reported in Exhibit 114 by practice group. In general, the median estimates suggest considerable to strong agreement with the questions posed. Statistically significant differences ($p<.05$) in these estimates were identified for the question addressing shared responsibility, with MDs in long-term care and emergency settings reporting neutrality, as opposed to agreement. Notably, the median estimates for responsibility, communication, joint planning, trust, respect and collaboration score strongly in the fee-for-service setting.

**Exhibit 114: MD measure of current collaboration by practice group (MDs currently working with NPs)**

| Characteristics | FFS | CHC | HSO/FHN/PCN | LTC | Emergency | Other |
|---|---|---|---|---|---|---|
| **NP MD relationship*** | | | | | | |
| Plan together to make patient care decisions | 5 | 4 | 4 | 4 | 4 | 5 |
| Communicate openly in patient care decision-making | 5 | 5 | 5 | 5 | 4 | 5 |
| Share responsibility for patient care decision-making | 5 | 4 | 4 | 3 | 3 | 4 |
| Co-operate in patient care decision-making | 4 | 4 | 4 | 4 | 4 | 5 |
| Consider NP and MD concerns in patient care decision-making | 4 | 4 | 4 | 4 | 4 | 4 |
| Co-ordinate implementation of shared patient care plan | 4 | 4 | 4 | 4 | 4 | 4 |
| Demonstrate trust in other's patient care decision making | 5 | 5 | 5 | 5 | 4 | 5 |
| Respect for NP ability in making shared patient care decisions | 5 | 5 | 5 | 5 | 4 | 5 |
| Fully collaborate in shared patient care decisions | 5 | 4 | 4 | 4 | 4 | 5 |
| Total Respondents | 19 | 40 | 108 | 22 | 14 | 23 |

* two missing responses

***Expenses and Workload***

One concern addressed by MDs who do not work with NPs is the potential cost of unfunded expenses incurred through the use of NPs. This concern may be warranted, as shown in Exhibit 115. Of those physicians that work with NPs, a majority of fee-for-service and one-third of MDs in Health Service Organizations, Family Health Networks, and Primary Care Networks reported the presence of unfunded NP-related expenses.

**Exhibit 115: Existence of unfunded NP-related expenses in the practice**

| Characteristics | Yes | Don't Know | Total Respondents |
|---|---|---|---|
| **Practice Setting*** | | | |
| Fee-for-service | 57.9% | 15.8% | 16 |
| HSO/FHN/PCN | 32.5% | 22.5% | 34 |
| CHC | 7.4% | 18.5% | 100 |
| Long-term care | 4.5% | 9.1% | 18 |
| Emergency department | 7.1% | 7.1% | 13 |
| Other | 26.1% | 30.4% | 15 |
| Total Respondents | 17.7% | 18.5% | 196 |

The nature of these unfunded expenses was described by 39 MDs who responded to this question, as summarized in Exhibit 116. Of these, 85% reported increased support services; 79% reported increased office expenses; one-half reported incremental capital costs; and roughly one-third indicated costs related to rent, education, insurance and NP continuing education. Physicians were then asked to estimate the total overhead costs related to the presence of the NP in their practice setting (excluding salary). Of the 43 physicians who responded to this question, physicians indicated spending on average $18,073 per year on overhead costs with a range of $20 to $120,000 per year.

Note: as significant variation exists within the responses to this question, the data should be interpreted with caution.

**Exhibit 116: Unfunded NP-related expenses in the practice**

| Characteristics | Number of Affirmative Responses | Percentage of Respondents |
|---|---|---|
| **Type of Unfunded NP Expense*** | (*n*=39) | |
| Additional rent | 10 | 26 |
| Office expenses | 31 | 79 |
| Capital costs | 21 | 54 |
| Support services | 33 | 85 |
| Costs related to patient health education/promotion | 12 | 31 |
| Additional insurance costs | 12 | 31 |
| Costs related to NP continuing education | 15 | 38 |

*one missing response

As previously discussed, another reason MDs reported being hesitant to work with NPs relates to concerns around increases in physician workload. MDs working with NPs were asked to identify if, and by how much, their workload changed since they began working with an NP. Exhibit 117 shows that 48% of MDs to whom this question applied reported no change in workload; nine percent of applicable responses identified between 10% and 20% increases in workload and nine percent identified decreases between 10% and 20%. The differences are not generally explained by practice setting, although for 14 respondents working in emergency departments, five percent reported an increase in time while 10% reported an average decrease of 10%. These results suggest that physician concerns may be justified around increased workload; however, this is only inferred as the survey did not ask how MD workload changed by working with the NP. Twenty-six percent (26%) of MDs viewed this question as inapplicable to them for various reasons, including that they have always worked with an NP in their particular practice setting.

**Exhibit 117: Change in physician workload due to NP**

| Characteristic | | Total Respondents | Percentage of Respondents |
|---|---|---|---|
| **Change in MD workload*** | | (*n*=214) | |
| Decrease | < 10 % | 4 | 1.9% |
| | 10-20% | 19 | 8.9% |
| | > 20% | 6 | 2.8% |
| No Change | 0% | 102 | 47.7% |
| Increase | < 10 % | 3 | 1.4% |
| | 10-20% | 20 | 9.3% |
| | > 20% | 5 | 2.3% |
| Not Applicable | - | 55 | 25.7% |

*12 missing responses.

If NPs did create additional demands on resources in the practice setting, it is expected that they would increase patient volumes. Exhibit 118 demonstrates that, of the 222 respondents to whom the question applied, 37% reported that having an NP had increased the number of patients. However, a substantial portion of MDs also reported that patient throughput had not changed as a result of working with an NP.

**Exhibit 118: NP effect on number of patients**

| Characteristics | Total Respondents | Percentage of Respondents |
|---|---|---|
| **Has NP changed number of patients?** | (*n*=222) | |
| No | 55 | 24.8 |
| Increased | 81 | 36.5 |
| Yes but did not increase | 9 | 4.1 |
| Unsure | 19 | 8.6 |
| Not Applicable since setting has always had NP | 58 | 26.1 |

* four missing observations

The introduction of an NP could cause a decline in MDs' take-home pay if MDs spend more time with the NP without any resulting increases in throughput and efficiency. This concern was reported to be an impediment to MD working with NPs. As shown in Exhibit 119, of 199 respondents, 86% of MDs experienced no change in income since commencing work with NPs. Fourteen percent experienced small changes in take-home pay, either increases or decreases but statistical analysis suggests that these numbers were more related to changes in physician workload and patients and less to differences in expenses.

**Exhibit 119: NP impact on MD take-home pay**

| Characteristics | Number of Affirmative Responses | Percentage of Respondents |
|---|---|---|
| **How has working with an NP affected MD take-home pay?** | (*n*=199) | |
| Increased | 11 | 5.5 |
| Decreased | 17 | 8.5 |
| No Change | 171 | 85.9 |

*27 missing responses

***MD Benefits of Working with NPs***

The survey provided a set of questions that asked MDs the specific areas in which they benefited from practising with an NP. Respondents graded these seven aspects on a four point Likert scale ranging from strongly disagree to strongly agree. This scale was then converted to scores ranging from 0 to 100. Strong disagreement received a 0 score; general disagreement received a score of 25; general agreement received a score of 75 and strong agreement received a score of 100.

Exhibit 120 shows that for each potential aspect, there were substantial rates of agreement with respect to the statement that NPs provided benefits. About 75% of MDs agreed that NPs have a beneficial role in

reducing MD workload and almost 80% indicated that NPs allow the practice to see more patients. The difference in responses to change in MD workload presented in exhibit 117 and 120 are recognized. These results are derived from two different questions and represent MD responses. Over 85% of MDs agreed that it was of benefit to them that NPs can focus time and expertise on specific patient populations (e.g., the elderly, patients with diabetes), health promotion and wellness, patient education, and linking patients with community resources. Consistent with this, about 85% of MDs indicated that working with an NP allows them to focus their skills in the care of more acute or complex patient problems.

**Exhibit 120: MD attitudes related to the benefits of NPs (MDs currently working with NPs)**

| Characteristics | Strongly disagree | Somewhat disagree | Somewhat agree | Strongly agree | Number that agree (n=224) | Total Respondents |
|---|---|---|---|---|---|---|
| **Benefits of NP*** | | | | | | |
| Reduces MD workload | 14 | 43 | 114 | 53 | 167 | 224 |
| | (6.3%) | (19.2%) | (50.9%) | (23.7%) | (74.6%) | |
| Allows physician to focus on more acute/complex cases | 9 | 25 | 95 | 93 | 188 | 222 |
| | (4.1%) | (11.3%) | (42.8%) | (41.9%) | (84.7%) | |
| Allows practice to see more patients | 12 | 34 | 105 | 72 | 177 | 223 |
| | (5.4%) | (15.2%) | (47.1%) | (32.3%) | (79.4%) | |
| NP can focus time on specific patient populations | 6 | 23 | 107 | 83 | 190 | 219 |
| | (2.7%) | (10.5%) | (48.9%) | (37.9) | (86.8%) | |
| NP can focus time on wellness and health promotion | 7 | 18 | 96 | 103 | 199 | 224 |
| | (3.1%) | (8.0%) | (42.9%) | (46.0%) | (88.9%) | |
| NP can focus time on patient education | 5 | 18 | 106 | 95 | 201 | 224 |
| | (2.2%) | (8.0%) | (47.3%) | (42.4%) | (89.7%) | |
| NP can help linking patients with community resources | 4 | 25 | 119 | 76 | 195 | 224 |
| | (1.8%) | (11.2%) | (53.1%) | (33.9%) | (85.0%) | |

* two missing responses.

In each of these areas, there were a significant number of MDs who reported disagreement. In order to understand this variation further, a series of regression analyses were undertaken to determine if there were identifiable differences in reported benefits according to MD and practice characteristics. For ease of interpretation, response scores for strong disagreement, partial disagreement, partial agreement, and strong agreement were recoded to 0, 25, 75 and 100 respectively.

The study group hypothesized that MD characteristics such as gender, age, years since graduation, and experience working with NPs could impact perception of benefits. Practice setting characteristics varied considerably across respondents, allowing for statistical testing of the importance of workplace effects, including time spent interacting with NP, and extent to which NPs impact overall MD compensation.

Exhibit 121 reports the results of multivariate stepwise regressions to examine the determinants of MD perceptions of NP benefits.

**Exhibit 121: Regression analysis summary: benefits of NP**

| | Reduced MD workload | MD can focus skills | Increases throughput | NP can focus on specific patients | NP can focus on wellness and health promotion | NP can focus on patient education | NP can link patients with community resources |
|---|---|---|---|---|---|---|---|
| Intercept | 72.2 | 72.2 | 60.9 | 80.1 | 81.8 | 78.3 | 75.8 |
| Gender: female | - | 7.0*** | - | - | 5.6*** | 6.5** | 6.2*** |
| More than 2 years experience with NP | - | 6.1*** | - | -5.5*** | | - | - |
| **Practice Setting** | | | | | | | |
| Fee-for-service | - | - | 31.1* | 12.4** | | - | - |
| HSO/FHN/PCN | - | - | 10.3** | - | - | - | -9.0** |
| CHC | -8.5*** | - | 16.6* | - | - | - | - |
| Long-term care | - | - | - | - | -2.8* | - | - |
| Emergency | - | - | - | -15.8** | -25.1* | -13.6** | - |
| **Change in pay** | | | | | | | |
| Decrease | -20.2** | -16.1* | -25.5* | - | -10.4*** | - | - |
| *$R^2$* | *4.5* | *5.7* | *14.1* | *5.3* | *12.3* | *4.0* | *3.5* |

*$p$<.01

**$p$<.05

***$p$<.01

The data showed that perceived benefits of NPs in some domains vary by gender although this effect is not substantial. The intercepts of the regressions restate the fact that MDs generally agreed that NPs provide the indicated benefits. Other findings include:

- Changes in NP effects on MD workload do not generally vary by practice setting, although MDs working in CHCs were slightly more inclined to disagree than those in other settings.
- The effect on perceived NP benefits do not vary with the amount of experience the MD has working with NPs.
- MDs working in fee-for-service settings were substantially more inclined to agree that NPs increase the number of patients. An average score of 92% in this area indicates that the large majority of MDs in fee-for-service settings strongly agreed about these benefits.
- MDs in Health Service Organizations, Family Health Networks and Primary Care Networks and also in Community Health Centres agreed that having an NP increases the number of patients; while MDs in long-term care and emergency department settings were generally neutral.

- MDs felt that NPs improve patient access to wellness and health promotion, except for MDs in emergency departments, who were strongly apt to disagree that this benefit is achieved in their practice setting.
- MDs who felt that having an NP results in reductions in their pay were more likely to disagree that NPs reduce their workload, increase the MD ability to focus their time, increase the number of patients and increase wellness care and health promotion.

***MD Satisfaction with the role of NPs in their practice***

In all the dimensions addressed through the survey, Exhibit 122 shows that MDs are generally satisfied with the NPs with whom they work. Most MDs feel satisfied with the quality of care provided by NPs and with the extent to which NPs consult with them when appropriate. In addition, more than 75% of MDs reported satisfaction in the areas of NP time spent with patients; physician ability to access NP services; and with NP time spent completing documentation. About 75% were satisfied with the amount of time required to support the NP. Although the majority of MDs surveyed indicated that they are satisfied, there were some who indicated that they are not satisfied with aspects of the NP role.

**Exhibit 122: MD satisfaction with the NP role**

| Characteristics | Very Dissatisfied | Somewhat Dissatisfied | Somewhat Satisfied | Very Satisfied | Number that are satisfied | Total Respondents |
|---|---|---|---|---|---|---|
| Quality of care provided | 3 | 14 | 73 | 133 | 206 | 223 |
| | (1.3%) | (6.3%) | (32.7%) | (59.6%) | (92.3%) | |
| Length of NPs' time spent with patients | 14 | 27 | 62 | 118 | 180 | 221 |
| | (6.3%) | (12.2%) | (28.1%) | (53.4%) | (81.5%) | |
| Consult with physician when appropriate | 4 | 19 | 68 | 131 | 199 | 222 |
| | (1.8%) | (8.6%) | (30.6%) | (59.0%) | (89.6%) | |
| Physician ability to access NP services | 11 | 34 | 72 | 101 | 173 | 218 |
| | (5%) | (15.6%) | (33.0%) | (46.3%) | (79.3%) | |
| Time NP spends completing documentation | 14 | 35 | 84 | 83 | 167 | 216 |
| | (6.5%) | (16.2%) | (38.9%) | (38.4%) | (77.3%) | |
| Time required to support NP | 17 | 39 | 82 | 83 | 165 | 221 |
| | (7.7%) | (17.6%) | (37.1%) | (37.6%) | (74.7%) | |

To determine if MD satisfaction scores in each of these areas were related to one another, the working group examined the correlations between the satisfaction rates. These correlations ranged from a low of .44 to a high of .74, with a mean correlation of .55. Satisfaction with quality of care and physician consultation were highly correlated (R=.74), as were the items related to NP time (R=.71).

Since variables were not highly correlated (individual MD attitudes varied across the satisfaction dimensions), there may be different relationships between the satisfaction scores and underlying determinants. In order to understand whether underlying factors explained the remaining variation in satisfaction, a series of multiple regression analyses were performed. As with the analysis of NP survey data, the outcome variable was recoded to a scale ranging from 0 to 100, indicating strong disagreement to strong agreement. Backward stepwise regression was applied with variables being included whenever the associated p-value was less than .1. All regressions were examined for statistical outliers and underwent tests for normality of the residuals. Age was entered as relative to the average MD age of 47 years, allowing for ease of interpretation of the regression intercept. Exhibit 123 summarizes the results from the regression analysis. In some domains, female MDs reported higher levels of satisfaction than male MDs and satisfaction was positively related to age.

Notably, satisfaction levels did not generally vary by practice setting, indicating that NPs were functioning well across a diversity of practices. MDs in fee-for-service and Community Health Centres were additionally more satisfied with their ability to access services of the NPs with whom they work, as well as the time NPs spend on documentation. MDs who felt that their earnings have increased due to the presence of the NP are also more satisfied than others on the following variables: NPs consulting the physician when appropriate; the ability of the MDs to access NP services; and the time required to support the NP.

**Exhibit 123: Regression analysis summary: MD satisfaction with NPs**

| | Quality of care provided | Consult with physician when appropriate | Physician ability to access NP services | Time NP spends completing documentation | Time required to support NP |
|---|---|---|---|---|---|
| Intercept | 79.6 | 79.7 | 65 | 66.4 | 62.5 |
| Gender: female | 7.7* | 9.3* | | | |
| Age | - | .28*** | | .33*** | .43** |
| More than 2 years experience with NP | 6.1** | | | | 12.1* |
| **Practice Setting** | | | | | |
| FFS | - | | 19.0* | 21.3* | |
| HSO/FHN/PCN | - | | | | |
| CHC | - | | 14.5* | 9.9** | |
| LTC | - | | | | |
| ED | - | | | | |
| **Change in pay** | | | | | |
| Increase | - | 16.4** | 16.0*** | | 17.9*** |
| Decrease | - | | | -16.9** | |
| $R^2$ | *5* | *5* | *7* | *6.5* | *7* |

*$p$<.01

**$p$<.05

***$p$<.01

## Comparison of NP and MD Survey Results by Practice Setting

Several questions were duplicated in the three surveys (NP, Physician A and Physician B) to allow comparisons between NPs, physicians working with NPs and physicians not currently working with NPs. This section summarizes common questions and/or themes that emerged from the three surveys. Respondents may have been asked more items within a question that are not presented in this section, as those additional items were not common to at least two of the surveys. Also note that "NA" indicates that the question was not asked in the survey.

All three surveys asked the respondents to identify their main practice setting. Roughly an equal proportion of NPs and physicians working with NPs from Community Health Centres (approximately 47%) and fee-for-service (approximately 10%) practice settings responded to the survey. A higher proportion of physicians who work with NPs reported that they work in Family Health Networks or Primary Care Networks (15%) as compared to NPs who replied to the survey (five percent). More than two-thirds of physicians not currently working with NPs who replied to the survey work in a fee-for-service office (see Exhibit 124).

**Exhibit 124: Comparison of NPs' and MDs' main practice setting**

| Characteristics | Percentage of NP respondents* | Percentage of MDs working with NPs** | Percentage of MDs NOT working with NPs*** |
|---|---|---|---|
| **Practice Setting*** | (*n*=234) | (*n*=204) | (*n*=487) |
| Community Health Centre | 46.2 | 48.0 | 1.2 |
| Fee-for-service physician office | 10.7 | 9.3 | 68.4 |
| Long-term care centre | 7.7 | NA | NA |
| Outpatient hospital/clinic/ambulatory care | 7.7 | 0.5 | 5.3 |
| Aboriginal Health Access Centre | 6.8 | NA | NA |
| Family Health Network/Primary Care Network | 5.1 | 14.7 | 3.9 |
| Public health unit | 4.7 | 4.9 | 0.6 |
| Other | 3.4 | 10.8 | 8.2 |
| Health Service Organization | 3.4 | 4.9 | 3.3 |
| Outpost/Nursing station setting | 3.4 | NA | NA |
| Emergency department | 2.6 | 6.9 | 9 |
| Canadian Forces/DND | 2.1 | NA | NA |
| Acute Care hospital | 1.7 | NA | NA |
| Mental Health/Psychiatry | 1.3 | NA | NA |
| Rehabilitation | 1.3 | NA | NA |
| CCAC | 0.9 | NA | NA |

| Characteristics | Percentage of NP respondents* | Percentage of MDs working with NPs** | Percentage of MDs NOT working with NPs*** |
|---|---|---|---|
| Critical care | 0.4 | NA | NA |
| Maternal/Newborn | 0.4 | NA | NA |
| Nursing Education | 0.4 | NA | NA |

* multiple response option for NPs

** 22 missing responses.

*** three missing responses.

All three surveys asked respondents about the types of services NPs provide to clients. Primary care NPs indicated both the percentage of NPs that are providing the service and the mean percentage of time that NPs spend on the service. Physicians currently working with NPs and physicians interested in working with NPs were asked to rate the perceived value of the NP's services. Almost all physicians with experience working with NPs indicated that care of episodic illness was valuable. Almost all NPs indicated that they provide care of episodic illness and about 70% of physicians interested in working with NPs indicated this service is of value. About 90% of all physicians indicated that prevention/wellness care/health promotion is valuable. Almost 100% of NPs indicated that they provide this service, and that it takes up approximately 38% of their time. Approximately three-quarters of physicians indicated that monitoring of chronic illness is a valued service with 90% of NPs indicating that they provide the service (see Exhibit 125).

**Exhibit 125: Evaluation of NP services**

| Characteristics | Percentage of NPs providing the service* | Mean percentage of NP time spent on service* | Perceived value of NP services by MDs experienced in working with NPs** | Perceived value of NP services by MDs interested in working with NPs*** |
|---|---|---|---|---|
| **NP services:** | *(n=229)* | *(n=229)* | (*n*=225) | (*n*=239) |
| Prevention/wellness care/health promotion | 98.7 | 37.9 | 88.4 | 90.0 |
| Care of episodic illness/minor acute | 95.7 | 31.9 | 93.8 | 69.5 |
| Monitoring of chronic illness | 90.0 | 24.9 | 71.1 | 75.3 |
| Care of major acute illness | 58.4 | 10.6 | 24.0 | 6.3 |
| Care of palliative patients | 28.6 | 4.9 | 27.1 | 61.9 |

* multiple response option, five missing responses

** multiple response option, one missing response

*** multiple response option, 253 missing responses

Both groups of physicians were asked who NPs' employers should be (see Exhibit 126). Thirty-nine percent (39%) of physicians working with NPs identified that a health care organization should be the employer compared to only 15% of those physicians not working with NPs. A large percentage of respondents from both groups of physicians indicated that the MoHLTC should employ NPs (28% and 37% respectively). Twenty-one percent (21%) of physicians working with NPs and 31% of physicians not working with NPs also identified physician or group practices as preferred employers. Interestingly, almost 10% of both groups indicated that NPs should be self-employed. The results from the NP survey indicate that 69% of NPs receive their funding from a direct employer, 13% from a transfer payment agency (e.g., municipality) and 13% from another source. Only six percent of primary health care NPs (14) who replied to the survey contribute to overhead expenses and this was identified as an important concern for physicians currently or considering practising with NPs.

**Exhibit 126: Physicians' perspectives on who should be the NP employer**

| Characteristics | Percentage of MDs working with NPs** | Percentage of MDs not working with NPs*** |
|---|---|---|
| **Who Should be NP Employer *** | (*n*=222) | (*n*=477) |
| MOHTLC | 27.5 | 37.1 |
| Health Care Organization | 39.2 | 14.9 |
| Municipality or regional authority | 0.5 | 4.2 |
| Self-employed | 9.5 | 9.6 |
| MD or group practice | 21.2 | 31 |
| Other | 2.3 | 3.1 |

* multiple response question, 22 missing responses

** four missing responses

*** 15 missing responses

NPs and physicians working with NPs were asked their level of agreement on the source of NP remuneration. The majority of respondents to both surveys indicated that the source of NP remuneration should be either an organization employer or the MoHLTC/intermediary. A higher percentage of physicians agreed that NPs should bill OHIP directly (39%) or be paid from a physician employer (60%) as compared to about one in four NPs who agreed that this should be the case (see Exhibit 127).

**Exhibit 127: Comparison of NP and physician perspectives on NP remuneration**

| Characteristics | Percentage of NP respondents who agree* | Percentage of MDs working with NPs who agree** |
|---|---|---|
| **Source of NP remuneration** | (*n*=212) | (*n*=222) |
| Paid to organization employer | 78.9 | 83.3 |
| Directly from Ministry or intermediary | 62.4 | 84.9 |
| NP bills OHIP directly | 25.2 | 38.6 |
| Paid to physician employer | 22 | 59.7 |

* multiple response question, 22 missing responses

** multiple response question, four missing responses

Both NPs and physicians working with NPs were asked questions concerning collaboration from the Jones and Way scale. Exhibit 128 below indicates the percentage of respondents who agree with each of the items on the scale in descending order. On average, more than 75% of the respondents indicated that they agree that the NPs and physicians in their practice setting collaborate. A high percentage of

NPs and physicians agreed that NPs and physicians communicate openly, have respect for the NP's ability, co-operate in patient care decisions and demonstrate trust in the other's patient care decision-making. Interestingly, only two-thirds of physicians agreed that NPs and physicians share responsibility for patient care decisions; this compares with 80% of NPs.

**Exhibit 128: Comparison of collaboration scores on Jones and Way scale**

| Characteristics | Percentage of NP respondents who agree* | Percentage of MDs working with NPs who agree* |
|---|---|---|
| **NP-MD relationship** | | |
| Communicate openly in patient decision-making | 88.6 | 90.7 |
| Respect for NP ability in making shared patient care decisions | 86.9 | 90.2 |
| Co-operate in patient care decision-making | 84.8 | 88.5 |
| Demonstrate trust in other's patient care decision-making | 84.0 | 89.0 |
| Plan together to make patient care decisions | 82.4 | 84.1 |
| Consider NP and MD concerns in patient care decision-making | 81.4 | 77.8 |
| Share responsibility for patient care decision-making | 79.7 | 66.2 |
| Fully collaborate in shared patient care decision-making | 74.7 | 73.2 |
| Co-ordinate implementation of shared patient care plan | 73.5 | 75.7 |

## Multivariate Analysis by Integration Domain

The multivariate analysis is based upon defined regression models for each domain. The purpose of the regression models is to evaluate the underlying factors that influence the integration of NPs by domain. The predictor (independent) variables for each domain are based upon assessments by the working group and the results from the exploratory statistical analysis. Together the dependent and independent variables for each regression model allow the researcher to ask the question "what is the best predictor of…". Exploratory factor analysis was used to define the dependent variables. For the purposes of this study, factor analysis was used as a data classification technique to detect structural relationships between survey variables. For each domain, factor analysis was conducted to cluster correlated variables into a minimum set of groups or factors. The analysis further allowed common variables within each factor to be combined to create index scores.

All of the multivariate analysis presented in this section is conducted only on the NP survey results data. The data from the MD surveys could not be directly linked to the NP data and therefore could not be included in this analysis. However, all of the results (univariate and multivariate) of the MD analysis have been presented in this document and are integrated into the key findings.

For each of the domains (with the exception of legislative) satisfaction scales from the NP survey were the basis of the dependent variable. This includes 57 items from the Misener job satisfaction scale, the Jones and Way collaboration scale, satisfaction with salary and physician availability. The NP's sample ($n$=253) scores for all of the satisfaction scales (e.g., Misener, Jones and Way) ranged from 132 to 290 (all scales were standardized to a 1 to 5 scale) with a mean of 223 ($SD$= 33.5). The mean score of 223 corresponds to 3.84 on the five-point scale and specifies an overall indication of neutral to satisfied.

In the absence of an *a priori* theoretical framework, exploratory factor analysis was undertaken to identify the underlying factor structure and to reduce the number of items to the most parsimonious level. The principal axis factoring method was used to extract the factors followed by varimax rotation. When interpreting the rotated factor pattern, item-to-factor loading cutoff points are considered acceptable at .3 (Burns & Grove, 1997). In this study, an item was considered to load on a given factor if the factor loading was .3 or greater. An initial analysis of the correlations and results of Bartlett's test of sphericity ($p$<.001) indicated that factor analysis was an appropriate method for analysis. Missing values were imputed based on the mean item score and were validated for robustness. Based on examination of screen plots and application of the Kaiser-Guttman rule (eigenvalues greater than one) the iterative process was stopped with eight factors accounting for 66% of the common variance. Factor analysis was applied again to create the composite scores for each domain. (Note: All factor scores were calculated using principle components analysis and compared to the results using the principal axis factoring method. The results indicated that the scores were not sensitive to choice of method).

Using the above criteria, 13 items were found to load on scope of practice within the practice setting domain, 13 items loaded on NP role in the decision-making domain, 16 items on the NP workplace satisfaction domain and 19 on the collaboration and team dynamics domain. Some items cross-loaded on the domains and were therefore included in more than one domain. Furthermore, one item from the Misener scale (satisfaction on acceptance and attitudes of physicians) did not load on any of the domains and was analyzed separately. For all indices constructed, reliability and internal consistency were assessed by the standard Cronbach's alpha approach, including robustness tests using the stepwise variable deletion method.

For the external influences domain, two questions within the survey were used as the dependent variables. A full discussion of the dependent variables and the resulting regression analysis is provided below.

Following the creation of the dependent variables and identification of possible predictor variables for each domain, regression analysis (linear/logistic regression) was employed to evaluate the underlying relationship between factors and the relevant practice model dimensions. The general purpose of regression is to learn more about the relationship between several explanatory or predictor variables and an outcome or dependent variable. Generally, multivariate analyses were performed using linear regression, except in the instances when the outcome variable took only two possible values (e.g., yes, no), in which case logistic regression was used.

The analysis team conducted regression analysis in two stages. In the first stage, the researchers entered variables in the regression thought to be highly relevant and important to the domain. Data outliers can seriously bias results by "pulling" or "pushing" the regression line in a particular direction, thereby leading to biased regression coefficients. Including a single extreme case can yield a different set of results. Therefore, residuals were investigated to identify outlying and erroneous data that were then treated and/or removed from the regression. The regression was then repeated and the relationships analyzed. Highly correlated variables were identified and removed to eliminate the redundancy of predictor variables. In the second stage, the analysis team included other variables thought to influence the dependent variable. For each domain, the multivariate analysis identified variables that have a significant and substantive effect on the integration process.

The following section provides an overview of the creation of the dependent variables along with the presentation of the results of the regression analysis for each domain.

## NP role within the practice setting

The NP role within the practice setting measures the extent to which NPs are responsible for the provision of patient care within the NP role at the micro level. The factor analysis indicated 13 items that loaded on this domain. Exhibit 129 below shows the means, standard deviations and factor loading scores of the items.

**Exhibit 129: Descriptive statistics of composite index**

| | *M* | *SD* | Factor Loadings |
|---|---|---|---|
| Time spent in direct patient care | 4.07 | 0.74 | 0.56 |
| Time allocation for seeing patients | 4.14 | 0.73 | 0.46 |
| Patient mix | 4.04 | 0.87 | 0.55 |
| Sense of accomplishment | 4.20 | 0.79 | 0.78 |
| Status in community | 3.96 | 0.89 | 0.66 |
| Opportunity to expand practice | 3.53 | 1.06 | 0.72 |
| Expanding skill level | 3.68 | 1.02 | 0.72 |
| Ability to deliver quality care | 4.15 | 0.70 | 0.68 |
| Opportunity to expand practice | 3.45 | 1.00 | 0.56 |
| Recognition of work from peers | 3.94 | 0.82 | 0.56 |
| Level of autonomy | 4.26 | 0.80 | 0.59 |
| Sense of value | 3.90 | 1.02 | 0.72 |
| Challenge in work | 4.17 | 0.85 | 0.73 |

The overall composite index mean is 4.0 (SD = 0.62) with a range of 2 to 5, indicating that on average primary health care NPs are satisfied. The Cronbach's alpha coefficient of .9 indicated that the 13 item

composite index demonstrated a high degree of internal consistency (Nunnally, 1978).[31] Examining the change in alpha if items were deleted revealed that dropping no single item would improve the alpha significantly for the scale.

A multiple regression model was conducted. This model initially tested 13 factors to determine the strength of the association of these factors and satisfaction regarding scope of practice within the practice setting. The independent factors initially tested in the model included:

- Main practice setting;
- Whether or not there was an orientation for the physician and health care team prior to the NP's arrival;
- Whether or not the NP pays a fee for medical/computer equipment, support staff or office space;
- The percentage of NP time spent on clinical, non-clinical, clerical and travel in an average week;
- Whether or not the physician partner has expressed any concerns regarding the NP's scope of practice/liability and whether or not it is a barrier to the NP's practice;
- Percentage of patients for whom the NP is the primary care provider;
- Whether or not the NP participates in on-call activities;
- Whether or not the NP conducts home visits;
- How patients are assigned to the NP;
- Whether the physician with whom the NP collaborates is located on-site;
- Whether or not the NP makes referrals to specialists;
- Percentage of patients the NP refers directly to a specialist; and
- Facilitators and barriers included in question 75 in the survey (including that the role is too narrow or too broad, education, experience, isolation, too few patients and too many patients).

The independent variables were first examined to obtain a better sense of the relationship between each variable and the composite satisfaction index across all respondents. This was conducted initially through bivariate analysis. In addition, scatter plots were produced for all continuous independent variables and the composite satisfaction index. The scatter plots indicated that a significant amount of variation exists across the respondents. Hence, a combination of the factors likely explains variation of satisfaction on scope of practice across the respondents. Given the results of the first regression, additional variables were tested in a subsequent regression. All variables tested in the regression are listed by domain in Appendix G.

Regression analysis (using both stepwise and enter methods) was conducted to test the various independent variables. The results of the analysis indicated that the following factors were significant and substantive determinants of satisfaction with scope of practice within the practice setting:

- Long-term care setting ($\beta$=9.1, p<.01);
- Public health setting ($\beta$=-6.7, p<.1);
- Settings other than those described in the survey ($\beta$= 5.6, p<.01);
- Whether or not involved in developing the NP position ($\beta$=4.4, p<.05);

[31] J. Nunnally, *Psychometric Theory* (New York: McGraw Hill, 1978).

- Percentage of time spent on clinical activities (ß=2.1, p<.01);
- Whether or not the NP role is clearly defined (ß=5.5, p<.01);
- Role defined too narrowly (ß=-11.6, p<.01); and
- NP's work experience prior to entering the NP program (ß=-3.4, p<.05).

The public health setting was only significant at p<.1, however, it is an important contributor to the model.

A significant portion of variation in satisfaction was accounted for by the predictor variables. The $R^2$ for this model was 24.9% and was significant (p<.01) at the 99% level. The results of the regression analysis are provided in Exhibit 130.

**Exhibit 130: Regression analysis summary: NP scope of practice within the practice setting domain**

| Variable | Coefficient | Standard Error | ß | |
|---|---|---|---|---|
| Intercept | 68.7 | 2.4 | | *** |
| Long-term care | 9.1 | 3.0 | 0.177 | *** |
| Public health unit | -6.7 | 3.4 | -0.111 | * |
| Other practice setting | 5.6 | 2.1 | 0.161 | *** |
| Were you or another NP involved in developing your position? | 4.4 | 1.4 | 0.179 | *** |
| Percentage of time spent on clinical activities | 2.1 | 0.6 | 0.197 | *** |
| Is your current role clearly defined? | 5.5 | 1.7 | 0.196 | *** |
| The way my role has been defined - too narrow | -11.6 | 2.8 | -0.240 | *** |
| My work experience prior to entering the NP program | -3.4 | 1.4 | -0.141 | ** |

*Note:* $R^2$=0.249 (*n*=247, *p*<.01)

*$p$<.1

**$p$<.05

***$p$<.01

The coefficients can be interpreted as follows:

- The base satisfaction level is 69%. This equates to an overall index score of neutral to satisfied.
- Those primary health care NPs working in a long-term care setting are on average nine percentage points more satisfied with their scope of practice than NPs working in other practice settings.
- Those NPs working in a public health unit are on average seven percentage points less satisfied with their scope of practice than NPs working in other practice settings.
- Those NPs working in practice settings other than those listed in the survey are six percentage points more satisfied with their scope of practice. Examples of other settings identified by NPs include community cardiovascular care, self-employed, student health services and a private school medical clinic.

- Those NPs involved in developing their position/job description are four percentage points more satisfied on the composite score than those who are not so involved.
- For every percentage point of time spent on clinical activities, satisfaction increases by two percentage points.
- Those NPs who identified that their role is clearly defined are six percentage points more satisfied with scope of practice than those that indicated their role is not clearly defined.
- Those NPs who identified that the way in which their role has been defined (e.g., too narrow) is a barrier to their practice are 12% less satisfied on scope of practice.
- Those NPs who identified their work experience prior to entering the NP program as a barrier to their practice are four percentage points less satisfied with scope of practice.

Interestingly, the following factors were not found to be significant:

- Whether or not there was an orientation of the physician and health care team to the NP role;
- Whether or not the NP pays a fee for medical/computer equipment, support staff or office space;
- Whether or not the physician partner has expressed any concerns regarding scope of practice and whether it is a barrier to NP practice;
- Percentage of patients for which the NP is the primary care provider;
- If the NP performs on-call activities;
- If the NP conducts home visits;
- How patients are assigned to the NP's care;
- Whether or not the physician with whom the NP collaborates is located on-site;
- Whether or not the NP makes referrals to specialists;
- The percentage of patients the NP refers to a specialist directly; and
- Facilitators and barriers questions included in the survey (including role too narrow, education, isolation, too few patients and too many patients).

This does not suggest that these factors are not important to scope of practice. Firstly, there may be uniformity in key factor components across practices resulting in inadequate variation in the sample. Secondly, a larger sample may have detected a significant relationship with some of these factors. For example, 92% of NPs indicated that they refer to specialists directly. Given that only 19 NPs indicated they do not refer to specialists, the model may not have detected the relationship due to the small sample size. Hence, the site visit data findings should be interpreted in conjunction with these findings.

Also, although the NP's work experience prior to entering the NP program is statistically more significant than the public health unit practice setting, the public health unit is contributing more to the model. This may be due in part to the small sample size in public health units (n=10).

Furthermore, the model detected a relationship between satisfaction with scope of practice and whether or not NPs feel their work experience prior to entering the NP program was a barrier to their practice. However, no relationship was found between satisfaction with scope of practice and the number of years the NP had practised as an RN. Further analysis should explore why an NP's work experience is a barrier and source of dissatisfaction for NPs regarding their scope of practice.

The model also tested for the presence of multi-colinearity. Variance inflation factor values, tolerance values and variance proportions were investigated. Results of this analysis indicated that correlation of the independent variables in the sample is not an important concern.

A review of the residuals included examination of normal probability plots and studentized residuals, and these results confirmed that the assumptions underlying the linear regression model were satisfied.

## External influences impacting the extent to which the NP is able to provide patient care within the scope of practice

The analyses in this domain explored the degree to which external factors influence NPs' scope of practice. Scope of practice at the macro-level relates to factors such as legislation and liabilities. Three outcomes were assessed in this regard. These included: 1) whether the physician had expressed concern regarding NP scope of practice and/or liability and if this was considered a barrier; 2) whether the NP had expressed concern regarding liability and if this was considered a barrier to NP practice; and 3) whether or not the NP functioned within the full scope of his or her practice. Logistical regression models were employed to conduct the analysis.

### *Physician Concern about Scope and Liability*

This regression model investigated the relationship between the predictor variables and whether or not the NP's physician partner expressed any concerns regarding NP scope of practice/liability and whether this was a barrier to the NP's practice.

A logistic model was conducted as respondents either answered that the physician partner had no concerns or that they did have concerns that are a barrier to the NP's practice. This model initially tested 12 factors to determine the strength of the association of these factors and the dependent variable. The independent factors initially tested in the model included:

- Main practice setting;
- Presence of orientation for the physician and health care team to NP's role prior to or upon his or her arrival;
- Whether or not the NP makes referrals to specialists;
- Whether or not the collaborating physician is located on-site;
- Percentage of patients NP refers to the MD;
- Whether the NP's role is clearly defined;
- Percentage of patients referred to the MD in a given week that are within the NP's scope;
- Whether the NP functions within their full scope of practice;
- Whether the NP is able to deliver care in the way they like;
- Presence of concerns on the part of the NP regarding their liability;
- Jones and Way collaboration satisfaction scale (open communication, decisions that are made, trust shown); and
- Facilitators and barriers question included in the survey (including financing, legislation, employment).

The results of the regression model are presented in Exhibit 131.

**Exhibit 131: Logistic regression analysis summary: external influences domain (1)**

| | Odds ratio | | 95% CI Lower | 95% CI Upper |
|---|---|---|---|---|
| Constant | 51.17 | *** | | |
| Number of years practising as an RN | .95 | * | .91 | 1.00 |
| Works in emergency department | 6.18 | * | .90 | 42.44 |
| Role not clearly defined | 2.98 | *** | 6.54 | 1.34 |
| NP has concerns regarding adequacy of liability insurance | 2.28 | * | .96 | 5.42 |
| NP average dissatisfaction with communication and collaboration~ | 2.70 | *** | 4.24 | 1.72 |

~ Jones and Way

*p<.1

**p<.05

***p<.01

The extent of physician concern about the NP's scope of practice and liability along with the extent to which this is considered a barrier is related to the following:

- In instances where the NP's role is not clearly defined, the NP is three times more likely to report that the physician had concerns and that this is a barrier.
- The greater the NP's dissatisfaction with the level of communication and collaboration (from the Jones and Way scale) the greater the likelihood that the physician had concerns related to scope and liability.
- There tends to be a greater likelihood of the physician having expressed concern about NPs where they are working in an emergency department.
- The greater the number of years the NP practised as an RN, the less likely the physician had concerns related to scope and liability.
- There appears to be an association between NPs having concerns about the adequacy of their own liability and the reporting of physician concerns about NP scope and liability.

***NP Concern about Liability***

An analysis was also conducted regarding NPs' concern about their liability and the extent to which this is considered a barrier to their practice. Again, a logistic model was conducted as respondents either answered that they had no concerns regarding their liability or that they had concerns that are a barrier to their practice. This model initially tested 12 factors to determine the strength of the association of these factors and the dependent variable. The independent factors initially tested in the model included:

- Main practice setting;
- Whether or not the NP was involved in developing their position/job description;

- Whether or not there was any orientation for the physician and health care team to the NP's role prior to or upon their arrival;
- In an average week, what percentage of time is spent on clinical, non-clinical, clerical and travel duties;
- Whether or not the physician partner expressed any concerns regarding scope of practice and whether or not it is a barrier to the NP's practice;
- Percentage of patients for whom the NP is the primary care provider;
- Whether or not the NP undertakes on-call activities;
- Whether or not the NP conducts home visits;
- How the NP's patients are assigned to his or her care;
- Whether or not the physician with whom the NP collaborates is located on-site;
- Percentage of patients the NP refers directly to specialists; and
- Facilitators and barriers questions included in the survey (including narrow role, broad role, education, experience, isolation, too few patients, too many patients).

The results of the regression model are presented in Exhibit 132.

**Exhibit 132: Logistic regression analysis summary: external influences domain (2)**

| | Odds ratio | | 95% CI Lower | 95% CI Upper |
|---|---|---|---|---|
| Constant | 1.70 | | | |
| Current role not clearly defined | 2.68 | ** | 5.780 | 1.247 |
| Not able to deliver care in the way you would like | 2.60 | ** | 5.495 | 1.230 |

**$p<.05$

The extent of NPs' concern about their liability and the extent to which this is considered a barrier are related to the following:

- In instances where the NP's role is not clearly defined, the odds of an NP reporting concerns about their liability as a barrier is 2.6 times those for NPs with clearly defined roles; and
- An NP reporting that they are not able to deliver care in the way they would like results in a 2.7 time increase in the odds of having liability concerns.

***Function within Full Scope of Practice***

An analysis was also conducted on whether or not NPs function to the full scope of practice. Respondents could respond yes or no to this question, therefore a logistic model was conducted. This model initially tested 13 factors to determine the strength of the association of these factors and the dependent variable, including:

- Main practice setting;
- Whether or not the NP was involved in developing their position/job description;

- Whether or not there was any orientation for the physician and health care team regarding the NP role;
- Percentage of NP time spent on clinical, non-clinical, clerical and travel duties;
- Whether or not the physician partner expressed any concerns regarding scope of practice and whether or not it is a barrier to the NPs practice;
- Percentage of patients for whom the NP is the primary care provider;
- Percentage of patients the NP refers to the MD;
- Whether or not the NP participates in on-call activities;
- Whether or not the NP conducts home visits;
- How the patients are assigned to the NP;
- Whether or not the physician with whom the NP collaborates is located on-site;
- Whether or not the NP makes referrals to specialists; and
- Facilitators and barriers question included in the survey (including financing, legislation, narrow role, broad role, education, experience, isolation, too few patients, too many patients).

The results of the regression model are presented in Exhibit 133.

**Exhibit 133: Logistic regression analysis summary: external influences domain (3)**

| | Odds ratio | | 95% CI Lower | 95% CI Upper |
|---|---|---|---|---|
| Constant | 1.02 | | | |
| Percentage of patients NP is primary care provider for | 1.04 | ** | 1.02 | 1.05 |
| Practice not limited to specific patient population(s) | 3.48 | ** | 8.07 | 1.50 |
| Participates in on-call activities | 4.23 | * | .83 | 21.50 |
| Able to deliver care in the way you would like | 4.42 | ** | 2.09 | 9.34 |
| Patients are referred from outside practice setting | 2.15 | * | .99 | 4.68 |

*$p<.1$

**$p<.05$

***$p<.01$

Whether or not NPs function within their scope of practice is associated with the following:

- The greater percentage of patients for whom the NP is the primary care provider, the greater the likelihood the NP practices within the full scope of practice. For example, a doubling of the number of these patients increases the odds the NP will practice within his or her full scope by 2.08 times;
- NPs not limited to providing care for specific patient populations have 3.5 times the odds of functioning to their full scope relative to those who work with a limited patient population;
- The relative odds of practising to the full scope of practice is at least four times greater for those NPs who are able to deliver care in the way they would like, and it tends to be associated with participating in on-call duties; and

- NPs who have patients referred to them from outside their practice setting have about twice the odds of functioning within their full scope of practice relative to those who do not receive such referrals.

## NPs' role in the decision-making process

The analysis in this domain focused on the degree to which independence/autonomy has been achieved in the workplace. The factor analysis indicated 13 items that loaded on this domain. Exhibit 134 below shows the means, standard deviations and factor loading scores of the items.

**Exhibit 134: Degree to which independence/autonomy has been achieved in the workplace – means, standard deviations and factor loading scores of the items**

| | *M* | *SD* | Factor Loadings |
|---|---|---|---|
| Your immediate supervisor | 3.79 | 1.15 | 0.63 |
| Consideration given to your opinions | 3.63 | 1.14 | 0.88 |
| Input into organizational policy | 3.44 | 1.13 | 0.87 |
| Freedom to question decisions | 3.71 | 1.08 | 0.86 |
| Recognition of work from superiors | 3.67 | 1.09 | 0.79 |
| Level of autonomy | 4.26 | 0.80 | 0.52 |
| Evaluation process/policy | 3.38 | 1.00 | 0.72 |
| Reward distribution | 3.20 | 0.99 | 0.73 |
| Opportunity to develop ideas | 3.78 | 1.01 | 0.77 |
| Process used in conflict resolution | 3.42 | 0.99 | 0.75 |
| Amount of consideration given to needs | 3.79 | 0.98 | 0.67 |
| Flexibility in practice | 3.90 | 0.86 | 0.69 |
| Respect for your opinion | 3.88 | 0.91 | 0.82 |

The overall composite index mean was 3.7 (SD = 0.83) with a range of 1 to 5, indicating that on average primary health care NPs are neutral to satisfied. The estimated Cronbach's alpha coefficient of .9 indicated that the 13 item composite index demonstrated a high degree of internal consistency (Nunnally, 1978).[32] Examining the change in alpha if items were deleted revealed that the alpha would not be improved significantly for the scale by dropping any single item.

The regression analysis initially tested 10 factors to determine the strength of the association of these factors and satisfaction on NP role in decision-making. The independent factors initially tested were identified in the bivariate analysis as being relevant to this domain and include:

- Main practice setting;

[32] J. Nunnally, *Psychometric Theory* (New York: McGraw Hill, 1978).

- The NP's type of employment;
- Whether or not the NP was involved in developing the position;
- Whether or not the NP is a member of a union;
- Whether or not the NP's current role is clearly defined;
- Who the NP is accountable for clinical activities;
- What team the NP is primarily a member of;
- Whether or not the NP pays a fee for medical/computer equipment, support staff or office space;
- Percentage of patients for whom the NP is the primary care provider; and
- Facilitators and barriers question included in the survey (including role too narrow, role too broad, employment, confidence, funding, orientation).

Univariate and bivariate exploratory analyses of the composite satisfaction index and the independent variables were first undertaken. Following this was an examination of scatter plots produced for all continuous independent variables (e.g., "what percentage of patients are you the primary provider for?") against the composite satisfaction index. The scatter plots indicated that a significant amount of variation exists across the respondents. Therefore, a combination of the factors likely explains variation of satisfaction with NPs' role in decision making process across the respondents. Given the results of the first regression, subsequent variables were tested in the regression. All variables tested in the regression are listed by domain in Appendix G.

A regression (using both stepwise and enter methods) was conducted to test the various independent variables. The results of the analysis indicated that the following factors were significant and substantive determinants of satisfaction with the NP's role in decision making:

- Union membership ($\beta$=-5.7, p<.05);
- Role defined too narrowly ($\beta$=-7.8, p<.05);
- Role clearly defined ($\beta$=6.3, p<.01);
- Delivering care in the way you like ($\beta$=10.0, p<.01);
- Involved in developing the NP position ($\beta$=4.9, p<.01);
- Type of employment (e.g., contract, permanent, other) ($\beta$=-6.4, p<.05);
- Long-term care setting ($\beta$=8.2, p<.05); and
- Other settings than described in the survey ($\beta$= 5.6, p<.05).

The $R^2$ for this model was 24.9% and was significant (p<.01). The results of the regression analysis are provided in Exhibit 135. The variables are listed in the order in which they were entered into the model.

**Exhibit 135: Regression analysis summary: NP's role in decision making**

| | Coefficient | Standard Error | β | |
|---|---|---|---|---|
| Intercept | 59.1 | 2.5 | | *** |
| Are you a member of a union? | -5.7 | 2.3 | -0.141 | ** |
| The way my role has been defined - too narrow | -7.8 | 3.5 | -0.128 | ** |
| Is your current role clearly defined? | 6.3 | 2.1 | 0.178 | *** |
| Are you able to deliver care in the way you like? | 10.0 | 1.9 | 0.302 | *** |
| Were you or another NP involved in developing your position? | 4.9 | 1.7 | 0.160 | *** |
| Nature of employment | -6.4 | 2.7 | -0.135 | ** |
| Long-term care | 8.2 | 3.7 | 0.127 | ** |
| Other practice setting | 5.6 | 2.5 | 0.127 | ** |

*Note:* $R^2$=0.249 (*n*=251, p<.01)

*$p$<.01

**$p$<.05

***$p$<.01

The coefficients can be interpreted as follows:

- The base satisfaction level is 59. This equates to an overall index score of neutral.
- Those NPs who have union membership are six percentage points less satisfied with their role in decision-making than those who do not.
- NPs who identified that their role has been defined too narrow are almost eight percentage points less satisfied with their role in decision-making that those whose role is not so defined.
- Those NPs who identified that their role is clearly defined are six percentage points more satisfied with their role in decision-making than those whose role is not clearly defined.
- Those NPs who are able to deliver care the way they like are ten percentage points more satisfied with their role in decision-making than those who are not.
- NPs involved in developing their position/job description are five percentage points more satisfied on the composite score then those not involved.
- Those in a position that is not permanent or contracted for a specific term (e.g., casual) are six percentage points less satisfied with their role in decision-making than those whose position is permanent.
- Those primary health care NPs working in a long-term care facility are on average eight percentage points more satisfied with their role in decision-making than those working elsewhere.
- Those NPs working in practice settings other than those listed on the survey are six percentage points more satisfied with their role in decision-making than those in practice settings listed on the survey.

Interestingly, the following factors were not found to be significant:

- Whom the NP is accountable to for clinical activities;

- The team of which the NP is primarily a member (e.g., interdisciplinary, medical, nursing, etc);
- Whether or not the NP pays a fee for medical/computer equipment, support staff or office space;
- The percentage of patients for whom the NP is the primary care provider; and
- Facilitators and barriers question included in the survey (including role too broad, employment, confidence, funding, orientation).

As mentioned earlier, this does not suggest that these factors are not important to decision-making. Qualitative research, such as the site visit data findings should be interpreted in conjunction with these findings. The model also tested for the presence of multi-colinearity. Variance inflation factor values, tolerance values and variance proportions were investigated. Results of this analysis indicated that correlation of the independent variables in the sample is not an important concern.

A review of the residuals included examination of normal probability plots and studentized residuals. One observation with a studentized residual greater than 3.5 was flagged as an outlier and removed from the analysis. Repeating the regression procedure confirmed that the residuals were normally distributed.

## NP workplace satisfaction

Within this domain, the researchers considered NPs' working conditions, payment system, salary, opportunities for professional growth and continuing education. Workplace satisfaction attempts to measure the degree to which there is congruity among NPs' expectations, values, environment and personal characteristics. The factor analysis for this domain indicated 16 items that loaded on this domain. Exhibit 136 below shows the means, standard deviations and factor loading scores of the items.

**Exhibit 136: Workplace satisfaction – means, standard deviations and factor loading scores of the items**

| | *M* | *SD* | Factor Loadings |
|---|---|---|---|
| Vacation/leave policy | 3.70 | 1.09 | 0.51 |
| Benefit package | 3.35 | 1.13 | 0.46 |
| Retirement plan | 3.10 | 1.25 | 0.37 |
| Time allotted for answering messages | 3.47 | 0.95 | 0.63 |
| Time allotted for review of laboratory tests | 3.52 | 0.92 | 0.60 |
| Amount of administrative support | 3.42 | 1.15 | 0.60 |
| Quality of assistive personnel | 3.63 | 1.00 | 0.46 |
| Patient scheduling | 3.83 | 0.85 | 0.43 |
| Support for continuing education | 3.29 | 1.18 | 0.69 |
| Opportunity for professional growth | 3.46 | 1.10 | 0.73 |
| Time off to serve on committees | 3.31 | 1.13 | 0.75 |
| Amount of involvement in research | 2.98 | 0.99 | 0.62 |

| | *M* | *SD* | Factor Loadings |
|---|---|---|---|
| Reward distribution | 3.20 | 0.99 | 0.64 |
| Monetary bonuses | 2.17 | 1.07 | 0.55 |
| Opportunity to receive compensation | 2.47 | 1.17 | 0.53 |
| Satisfaction with salary | 3.12 | 0.96 | 0.33 |

The overall composite index mean was 3.2 (SD = 0.69) with a range of 1 to 5, indicating that on average, primary health care NPs' level of satisfaction is neutral. The Cronbach's alpha coefficient of .9 indicated that the 16 item composite index demonstrated a high degree of internal consistency (Nunnally, 1978).[33] Examining the change in alpha, if items were deleted, revealed that dropping no single item would improve the alpha significantly for the scale.

Again, a linear regression model was applied to test 11 factors to determine the strength of the association of these factors and satisfaction on NP workplace satisfaction. The independent factors initially tested were identified in the bivariate analysis as being relevant to this domain and include:

- Main practice setting;
- Type of NP employment;
- Whether or not the NP was involved in developing their position;
- Whether or not the NP is a member of a union;
- Whether or not the NP's current role is clearly defined;
- Who the NP is accountable to for clinical activities;
- Whether or not the NP has an annual performance appraisal;
- What team the NP is primarily a member of;
- Whether or not NP education expenses are reimbursed;
- Whether or not the NP felt educationally prepared when they first started practising as an NP; and
- Facilitators and barriers question included in the survey (including orientation and experience).

The variables identified above were first examined to obtain a better sense of the relationship between each variable separately and the composite satisfaction index across all respondents. This was conducted for the most part in the bivariate analysis. All variables in this regression are categorical or discrete variables and therefore it was not necessary to conduct scatter plots of the variables. The bivariate analysis provided information on individual relationships with the dependent variable. The multivariate analysis investigates the combination of the factors to explain the variation of NPs' workplace satisfaction across the respondents. Given the results of the first regression, subsequent variables were tested in the regression. All variables tested in the regression are listed by domain in Appendix G.

A regression (using both stepwise and enter methods) was conducted to test the various independent variables. The results of the analysis indicated that the following factors were significant and substantive to NP's workplace satisfaction:

[33] J. Nunnally, *Psychometric Theory* (New York: McGraw Hill, 1978).

- Long-term care setting (ß=9.4, p<.05);
- Emergency department (ß= 6.7, p<.1);
- Other settings than described in the survey (ß= 5.8, p<.01);
- Reimbursement of educational expenses (ß= 8.8, p<.01);
- Role clearly defined (ß=4.5, p<.01);
- Other type of membership than described in the survey (e.g., interdisciplinary, nursing team, etc) (ß=-4.3, p<.1);
- Physicians' concerns regarding scope/liability and concern not resolved (ß=-3.2, p<.05);
- NP has concerns regarding liability and is asked to practice outside scope (ß=6.0, p<.01); and
- NP delivers care the way they like (ß=7.3, p<.01).

The $R^2$ for this model was 28.4% (p<.01). The results of the regression analysis are provided in Exhibit 137.

**Exhibit 137: Regression analysis summary: NPs' workplace satisfaction**

| | Coefficient | Standard Error | ß | |
|---|---|---|---|---|
| Intercept | 49.5 | 2.4 | | |
| Long-term care | 9.4 | 3.0 | 0.176 | ** |
| Emergency department | 6.7 | 4.1 | 0.090 | * |
| Other practice setting | 5.8 | 2.0 | 0.161 | *** |
| Are your educational expenses reimbursed? | 8.8 | 1.8 | 0.264 | *** |
| Is your current role clearly defined? | 4.5 | 1.7 | 0.154 | *** |
| Other type of membership | -4.3 | 2.7 | -0.090 | * |
| MD expressed concern that has not been resolved | -3.2 | 1.5 | -0.121 | ** |
| Have concerns regarding liability and am asked to practice outside of my scope | -6.0 | 1.8 | -0.184 | *** |
| Are you able to deliver care in the way you like? | 7.3 | 1.5 | 0.266 | *** |

*Note:* $R^2$=0.284 ($n$=252, p<.01)

*$p$<.1

**$p$<.05

***$p$<.01

The coefficients can be interpreted as follows:

- The base satisfaction level is 50. This equates to an overall index score of dissatisfied to neutral.
- Primary health care NPs working in a long-term care settings are on average nine percentage points higher on NP workplace satisfaction rates than NPs in other settings.
- NPs working in emergency departments indicated seven percentage points higher satisfaction rates than other practice settings.

- NPs working in practice settings other than those listed on the survey are six percentage points more satisfied on NP workplace satisfaction than those NPs in settings listed in the survey.
- NPs who indicated that their educational expenses are reimbursed have nine percentage points higher workplace satisfaction rates than those expenses are not reimbursed.
- NPs who identified that their role is clearly defined are almost five percentage points more satisfied in their workplace satisfaction than those whose role is not clearly defined.
- NPs who indicated they are primarily a member of a team not listed in the survey (i.e., not a medical group practice, interdisciplinary health care team or nursing team) are four percentage points less satisfied in workplace satisfaction than those NPs who are primarily a member of a team listed in the survey.
- NPs working with physicians who expressed concerns regarding the NP's scope/liability and the concerns are not resolved are three percentage points less satisfied on workplace satisfaction than NPs who have resolved such concerns.
- NPs who have concerns regarding their liability and are asked to practice outside their scope are six percentage points less satisfied on workplace satisfaction than NPs who do not have such concerns.
- NPs who are able to provide care in the way they like are seven percentage points more satisfied on workplace satisfaction than NPs who are not able to provide care in the way they like.

Emergency department and other memberships were only significant at $p<.1$ however, both are important contributors to the model.

Interestingly, the following factors were not found to be significant:
- The mechanism in which NPs are paid (permanent, contract, other);
- Whether NP was involved in developing their position;
- Whether or not the NP works in an unionized environment;
- Who the NP is accountable to for clinical activities;
- Whether or not the NP has an annual performance appraisal;
- Whether or not the NP felt educationally prepared when they started; and
- Facilitators and barriers question included in the survey (including orientation and experience).

This does not suggest that these factors are not important to workplace satisfaction. Qualitative research such as the site visit findings should be interpreted in conjunction with these findings.

The model also tested for the presence of multi-colinearity. Variance inflation factor values, tolerance values and variance proportions were investigated. Results of this analysis indicate that correlation of the independent variables in the sample was not an important concern.

A review of the residuals, including examination of normal probability plots and studentized residuals confirmed that the underlying regression assumptions were satisfied.

## Collaboration and team dynamics

This domain measures the degree to which formal/informal partnerships function within the practice setting. The collaborative relationship includes the NP, physician and other members of the health care team. The results of the factor analysis indicated that 19 items loaded on this domain. Exhibit 138 below shows the means, standard deviations and factor loading scores of the items.

**Exhibit 138: Collaboration and team dynamics – means, standard deviations and factor loading scores of the items**

| | *M* | *SD* | Factor Loadings |
|---|---|---|---|
| Quality of assistive personnel | 3.63 | 1.00 | 0.39 |
| Patient scheduling | 3.83 | 0.85 | 0.33 |
| Social contact at work | 3.90 | 0.90 | 0.36 |
| Social contact with colleagues | 3.59 | 0.91 | 0.66 |
| Professional interaction | 3.75 | 0.91 | 0.45 |
| Interaction with other NPs | 3.35 | 0.98 | 0.61 |
| Amount of consideration given to needs | 3.79 | 0.98 | 0.32 |
| Satisfaction with physician availability | 4.17 | 0.82 | 0.55 |
| Dis/satisfaction with shared planning while decision-making? | 2.27 | 1.25 | 0.89 |
| Dis/satisfaction with open communication about patient? | 2.10 | 1.19 | 0.89 |
| Dis/satisfaction with shared responsibility for decision-making? | 2.24 | 1.20 | 0.90 |
| Dis/satisfaction with cooperation in decision-making? | 2.18 | 1.26 | 0.90 |
| Dis/satisfaction with consideration of nursing/medical concerns? | 2.23 | 1.16 | 0.78 |
| Dis/satisfaction with coordination when implementing? | 2.39 | 1.33 | 0.86 |
| Dis/satisfaction with trust shown in others? | 2.13 | 1.19 | 0.83 |
| Dis/satisfaction with respect shown in others? | 2.10 | 1.17 | 0.85 |
| Dis/satisfaction with amount of collaboration? | 2.29 | 1.24 | 0.91 |
| Dis/satisfaction with way decisions are made? | 2.24 | 1.24 | 0.87 |
| Dis/satisfaction with decision made between you and the physician? | 2.10 | 1.14 | 0.87 |

The overall composite index mean was 3.9 (SD = 0.71) with a range of 1 to 5, indicating that on average primary health care NPs are satisfied. The Cronbach's alpha coefficient of .9 indicated that the 19 item composite index demonstrated a high degree of internal consistency (Nunnally, 1978).[34] An examination of the alpha, if items were deleted, revealed that the alpha would not improve significantly for the scale upon any single item being dropped.

[34] J. Nunnally, *Psychometric Theory* (New York: McGraw Hill, 1978).

Again, a linear regression model was applied to test 12 factors to determine the strength of the association of these factors and satisfaction on collaboration and team dynamics. The independent factors initially tested were identified in the bivariate analysis as being relevant to this domain and include:

- Main practice setting;
- Jones and Way collaborative scale (agreement/disagreement);
- Whether or not the NP pays a fee for medical/computer equipment, support staff or office space;
- Satisfaction on acceptance and attitudes of physicians;
- Whether or not the NP agrees that using clinical guidelines enables their work with the physician;
- Whether or not the NP participates in on-call activities;
- Whether or not the NP's collaborating physician is located on-site;
- Whether or not the NP was involved in developing their position;
- Whether or not there was an orientation for the physician and health care team to the NP's role;
- Whether or not the NP's current role is clearly defined;
- Whether or not the NP delivers care in the way they like; and
- Facilitators and barriers questions included in the survey (including personality of physicians, practice model, resistance from health care providers, resistance from other health care providers, isolation, too few patients, too many patients).

The variables identified above were first examined to obtain a better sense of the relationship of each variable separately and the composite satisfaction index across all respondents. This was conducted for the most part in the bivariate analysis. In addition, scatter plots were produced for all continuous independent variables (e.g., Jones and Way) and the composite satisfaction index. The scatter plots indicated that a significant amount of variation exists across the respondents. Hence, a combination of the factors will likely explain a portion of the variation of satisfaction on collaboration and team dynamics across the respondents. Given the results of the first regression, subsequent variables were tested in the regression. All variables tested in the regression are listed by domain in Appendix G.

A regression (using both stepwise and enter methods) was conducted to test the various independent variables. The results of the analysis indicated that the following factors were significant and substantive to collaboration and team dynamics:

- Emergency department practice setting ($b$=6.6, $p<.05$);
- Changed practice setting in past three years ($b$=-3.0, $p<.05$;)
- Satisfaction on acceptance and attitudes of physicians ($b$=2.4, $p<.01$);
- Dis/agreement with: NP and family physician(s) co-operate in making decisions ($b$=3.0, $p<.01$);
- Dis/agreement with: NP and family physician(s) co-ordinate implementation ($b$=2.6, $p<.01$);
- Dis/agreement with: NP and family physician(s) respect the other's knowledge ($b$=3.8, $p<.01$);
- NP identified as a barrier: resistance from health care providers outside the practice ($b$=4.0, $p<.01$);
- NP identified as a barrier: isolation in practice ($b$=-4.3, $p<.01$);
- NP involved in developing position ($b$=2.4, $p<.05$);
- Role is currently clearly defined ($b$=3.5, $p<.01$); and
- Physician has not expressed concerns regarding NP scope and/or liability ($b$=3.5, $p<.01$).

The $R^2$ for this model was 57.1%(p<.01). The results of the regression analysis are provided in Exhibit 139.

**Exhibit 139: Regression analysis summary: collaboration and team dynamics**

| | Coefficient | Standard Error | β | |
|---|---|---|---|---|
| Intercept | 25.5 | 3.4 | | |
| Emergency department | 6.6 | 3.1 | 0.092 | ** |
| Have you changed practice settings in the past 3 years? | -3.0 | 1.2 | -0.105 | ** |
| Acceptance and attitudes of physicians | 2.4 | 0.5 | 0.203 | *** |
| Dis/agreement with: Co-operate in making decisions? | 3.0 | 1.1 | 0.201 | *** |
| Dis/agreement with: Co-ordinate implementation? | 2.6 | 0.8 | 0.204 | *** |
| Dis/agreement with: Respect the other's knowledge? | 3.8 | 1.0 | 0.258 | *** |
| Resistance from health care providers outside the practice | 4.0 | 1.3 | 0.139 | *** |
| Isolation in practice | -4.3 | 1.4 | -0.131 | *** |
| Were you or another NP involved in developing your position? | 2.4 | 1.1 | 0.097 | ** |
| Is your current role clearly defined? | 3.5 | 1.3 | 0.123 | *** |
| MD did not express concerns re scope | 3.5 | 1.1 | 0.142 | *** |

*Note:* $R^2$=0.571 ($n$=248, p<.01)

*$p$<.1

**$p$<.05

***$p$<.01

The coefficients can be interpreted as follows:

- The base satisfaction level is 26. This equates to an overall index score of very dissatisfied.
- Primary health care NPs working in an emergency department indicated seven percentage points higher satisfaction rates on collaboration than NPs working in other settings.
- NPs who have changed practice settings in the past three years are three percentage points less satisfied on collaboration than NPs who have not changed practice settings.
- NPs who are satisfied with the acceptance and attitudes of the physicians they work with are two percentage points more satisfied with collaboration than NPs who are not so satisfied.
- NPs who agree with the Jones and Way statements that the NP and the family physician(s) co-ordinate in making decisions about patient care, co-ordinate implementation of a shared plan for patient care and respect the other's knowledge and skills in making shared decisions about patient care are three, three and four percentage points (respectively) more satisfied on the composite collaboration scale than NPs who do not agree.
- Primary health care NPs who identified resistance from other health care providers in the practice as a barrier to their practice are four percentage points more satisfied with the collaboration and team

dynamics than those who did not identify resistance. This relationship seems counter-intuitive and requires further investigation.

- NPs who identified isolation in practice as a barrier to their practice are four percentage points less satisfied on the composite scale than NPs who did not identify isolation in practice as a barrier.
- NPs involved in developing their position are three percentage points more satisfied on the collaboration and team dynamics scale than NPs who were not involved in developing their position.
- NPs who indicated that their role is currently clearly defined are four percentage points more satisfied on the composite collaboration scale than NPs who indicated that their role is not currently clearly defined.
- NPs whose physician has not expressed concern regarding their scope and/or liability are four percentage points more satisfied on the composite scale.

The base satisfaction rate equates to an overall index score of very dissatisfied. This is due to the fact that the predictor variables are explaining a large proportion of the variance. The overall composite index score for all NPs for collaboration and team dynamics rates is satisfied. Therefore, the majority of NPs answered yes to those questions that indicated increased satisfaction.

It is unclear why those NPs who identified resistance from other health care providers as a barrier to their practice actually identified increased satisfaction on collaboration and team dynamics. Further analysis (qualitative and quantitative) should explore this relationship.

Interestingly, the following factors were not found to be significant:

- The employment status of NPs (permanent, contract, other);
- Whether NP is involved in developing their position;
- Whether or not the NP works in an unionized environment;
- To whom the NP is accountable for clinical activities;
- Whether or not the NP has an annual performance appraisal;
- Whether or not the NP felt educationally prepared when they started in the role; and
- Facilitators and barriers question included in the survey (including orientation and experience).

This does not suggest that these factors are not important to collaboration and team dynamics. Qualitative research, such as the site visit data findings should be interpreted in conjunction with these findings.

The model also tested for the presence of multi-colinearity. Variance inflation factor values, tolerance values and variance proportions were investigated. Results of this analysis indicated that correlation of the independent variables in the sample is not an important concern.

A review of the residuals, including examination of normal probability plots and studentized residuals confirmed that the underlying regression assumptions were satisfied.

## Limitations

The methods (sampling and analytical) employed in this study were designed to minimize the degree of bias in the estimates and findings. However, some of the survey variables analyzed had very small cell counts. Wherever possible, the research team aggregated "like" responses to increase the sample size; however, this was not always possible. As a result, the analysis may not have identified all possible variables that have a significant and substantive effect on the integration process. The researchers also investigated variables that were not significant but had a substantive effect on the dependent variable. Where other analysis supported inclusion of these variables they were added to the final regression model. The analysis was also reviewed by the data analysis working group to provide face validity to the findings. Regardless of this, the findings of this analysis should be placed in context with the qualitative site visit analysis.

The analysis was also constrained by the questions and responses provided in the survey. Although the surveys were comprehensive, in some instances respondents indicated the response "other" without providing any further specification. In addition, important questions may not have been asked of the respondents. However, the research team designed the survey tools based on the literature and pre-existing tools that should minimize this bias.

Finally, as this is the first study of its kind to apply the composite scores in regression to predict NP integration, it is difficult to evaluate the overall integrity of the results. Replication of this work in other jurisdictions will increase the validity and reliability of the findings.

## Key Findings

Both the NP and physician surveys provide a wealth of information making it challenging to summarize all of the key findings. As such, this section attempts to emphasize those findings pertinent to the research questions. The research questions identified for this study are:

1. What barriers must be overcome and what facilitators must be encouraged to further integrate NPs into specific practice settings?
2. What can be learned about the practice models in which NPs function, specifically, which models do not work well and why and which models work best to support integration of NPs?

This section highlights the findings from all of the analysis and describes the practice model dimensions that influence integration of NPs. These dimensions include:

- Practice/Care Setting;
- NP Characteristics;
- MD Characteristics;
- Client Population;
- NP Scope and Responsibilities;
- Employment Relationship;
- Team Interaction; and
- External Factors.

Exhibit 140 below provides a matrix synthesis of the relationship of the outcome variables and the predictor variables. The rows have been organized to identify each of the predictor variables within the dimensions identified above. The columns have been organized by integration domain. When interpreting the synthesis note that a “+” sign indicates a positive relationship (e.g., clearly defined role positively influences satisfaction with scope of practice within the practice setting) and a “-“ sign indicates an inverse relationship (e.g., the more work experience the NP had prior to entering the NP program the more dissatisfied they are with satisfaction with scope of practice within the practice setting). A negative sign does not imply dissatisfaction, rather, relative to the average, these respondents are less satisfied.

A full discussion of the interpretation and implications of these findings can be found in the Executive Summary.

**Exhibit 140: Matrix synthesis of NP and MD survey findings**

| Practice model dimensions | Predictor variables | NP role within the practice setting | External Influences | | | NPs' role in decision making | NP workplace satisfaction | Collaboration and team dynamics | Physicians interested in working with NPs | Increased throughput | MDs' perception of factors that affect NP integration |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | MD concern re: NP scope/ liability | NP concern about liability | Function in scope of practice | | | | | | |
| Practice/care setting | Long-term care | + | | | | + | + | | | | |
| | HSO/FCN/PCN | | | | | | | | + | + | |
| | Public Health Unit | - | | | | | | | | | |
| | Emergency department | | | | | | + | + | + | | |
| | Fee-for-service | | | | | | | | - | + | |
| | Community Health Centre | | | | | | | | | + | |
| | Other practice setting | + | | | | + | + | | | | |
| | Membership other than interdisciplinary team, medical group practice, nursing team | | | | | | - | | | | |

| Practice model dimensions | Predictor variables | NP role within the practice setting | External Influences | | | NPs' role in decision making | NP workplace satisfaction | Collaboration and team dynamics | Physicians interested in working with NPs | Increased throughput | MDs' perception of factors that affect NP integration |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | MD concern re: NP scope/ liability | NP concern about liability | Function in scope of practice | | | | | | |
| NP characteristics | # of years NP practiced as an RN | | - | | | | | | | | |
| | Changed setting in past 3 years | | | | | | | - | | | |
| | NP's level of expertise | | | | | | | | | | + |
| | NP's education | | | | | | | | | | + |
| | NP's work experience prior to entering the NP program | - | | | | | | | | | |
| MD characteristics | Experience in working with NP | | | | | | | | | | + |
| Client population | Percentage of patients for whom NP is primary provider | | | | + | | | | | | |
| | NP practice not limited to specific patient populations | | | | + | | | | | | |
| | NP patients are referred from outside the practice | | | | + | | | | | | |

| Practice model dimensions | Predictor variables | NP role within the practice setting | External Influences | | | NPs' role in decision making | NP workplace satisfaction | Collaboration and team dynamics | Physicians interested in working with NPs | Increased throughput | MDs' perception of factors that affect NP integration |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | MD concern re: NP scope/ liability | NP concern about liability | Function in scope of practice | | | | | | |
| | setting | | | | | | | | | | |
| | Patient and community acceptance to NP role | | | | | | | | | | + |
| NP scope and responsibilities | NP involved in developing position | + | | | | + | | + | | | |
| | Percentage of time NP spends on clinical activities | + | | | | | | | | | |
| | NP participates in on-call activities | | | | + | | | | | | |
| | NP current role is clearly defined | + | - | - | | + | + | + | | | |
| | NP able to deliver care in way they like | | | - | + | + | + | | | | |
| | NP identified narrow role definition as barrier | - | | | | - | | | | | |
| | NP practises within full scope of practice | | | | | | | | | | + |

| Practice model dimensions | Predictor variables | NP role within the practice setting | External Influences | | | NPs' role in decision making | NP workplace satisfaction | Collaboration and team dynamics | Physicians interested in working with NPs | Increased throughput | MDs' perception of factors that affect NP integration |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | MD concern re: NP scope/ liability | NP concern about liability | Function in scope of practice | | | | | | |
| | NP's role in health promotion and wellness care | | | | | | | | | | + |
| | NP's role in patient education | | | | | | | | | | + |
| | NP's role in supporting post episodic continuity of care | | | | | | | | | | + |
| Employment relationship | Educational expenses reimbursed | | | | | | + | | | | |
| | NP unionized | | | | | - | | | | | |
| | Employment permanent/contract | | | | | + | | | | | |
| | Structure of MD-NP working relationship | | | | | | | | | | + |
| Team interaction | NP satisfaction with communication and collaboration ~ | | - | | | | | | | | |

| Practice model dimensions | Predictor variables | NP role within the practice setting | External Influences | | | NPs' role in decision making | NP workplace satisfaction | Collaboration and team dynamics | Physicians interested in working with NPs | Increased throughput | MDs' perception of factors that affect NP integration |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | MD concern re: NP scope/ liability | NP concern about liability | Function in scope of practice | | | | | | |
| | NP agreement with: Cooperate in decisions-making ~ | | | | | | | + | | | |
| | NP agreement with: Co-ordinate implementation ~ | | | | | | | + | | | |
| | NP agreement with: Respect the other's knowledge ~ | | | | | | | + | | | |
| | NP satisfaction with acceptance and attitudes of physicians | | | | | | | + | | | |
| | Resistance from health care providers outside the practice | | | | | | | + | | | |
| | Isolation in practice | | | | | | | - | | | |
| External factors | MD expressed concerns re: scope/liability and concerns not resolved | | | | | | - | | | | |

| Practice model dimensions | Predictor variables | NP role within the practice setting | External Influences | | | NPs' role in decision making | NP workplace satisfaction | Collaboration and team dynamics | Physicians interested in working with NPs | Increased throughput | MDs' perception of factors that affect NP integration |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | MD concern re: NP scope/ liability | NP concern about liability | Function in scope of practice | | | | | | |
| | MD did not express concerns regarding scope/liability | | | | | | | + | | | |
| | NP concerns regarding adequacy of liability insurance | | + | | | | | | | | |
| | NP concerns regarding liability and being asked to practice outside scope | | | | | | - | | | | |

## Practice/Care Setting

Seven percent of primary care NPs work in a long-term care setting and another seven percent work in settings not identified in the NP survey (e.g., community cardiovascular care, self-employed, student health services and private school medical clinic). NPs working in long-term care settings or in other settings identified that they are more satisfied on scope of practice within the practice setting, their role in the decision- making process and their workplace satisfaction. Those working in an emergency department (three percent) also identified higher levels of workplace satisfaction and interestingly, satisfaction with collaboration and team dynamics. Alternatively, those NPs working in a public health unit (five percent) identified that they are less satisfied than NPs in other practice settings on scope of practice within the practice setting. Data from the site visits may provide evidence as to why these results are evident across the various practice settings.

There are significant differences in NP presence between fee-for-service and non fee-for-service settings, suggesting that there may be opportunities for increased NP integration into these areas. Forty-nine percent (49%) of surveyed MDs in fee-for-services settings who were not working with NPs were interested in practising with an NP if given the opportunity. These MDs in fee-for-services settings were evenly split on willingness to practice with NPs, but MDs in Health Service Organizations, Family Health Networks, Primary Care Networks and emergency settings were substantially more inclined to show interest. For example, relative to the reference group, physicians in fee-for-service settings not working with NPs had 60% lower odds of being interested in working with NPs; the odds of MDs working in Health Service Organizations, Family Health Networks and Primary Care Networks being interested in working with NPs were 36 times higher than for MDs in a fee-for-service setting.

Fee-for-service MDs practising with NPs were substantially more inclined than MDs in other settings to agree that having an NP increases the number of patients. An average score of 92% in this area indicates that the large majority of fee-for-service MDs strongly agreed about these benefits. MDs in Health Service Organizations, Family Health Networks, Primary Care Networks and CHCs agreed that NPs increased the number of patients, while MDs in long-term care and emergency department settings were generally neutral.

## NP Characteristics

The data show that virtually all NPs have worked more than five years as an RN with the average NP indicating that they have 20 years of experience and a maximum of 40 years of experience. This indicates that on average, NPs make up a very experienced workforce. However, even with an average of 20 years of experience, the analysis indicates that those primary health care NPs with the greatest number of years experience as an RN are less likely to say that their physician identified concerns regarding their scope and/or liability**.** Twenty-three percent (23%) of MDs practising with NPs identified NP expertise as the most important facilitator and 60% identified this as one of the top three facilitators toward successful NP integration. Having worked with an NP in the past doubled the odds of an MD reporting NP expertise as an integration facilitator.

In addition, those NPs who identified that their work experience prior to entering the NP program facilitates fulfillment of their role also indicated that they are less satisfied with their scope of practice within the practice setting; more than half of NPs (58%) identified their work experience as a facilitator. This provides some indication that those NPs with greater amounts of experience are not working to their full scope of practice**.** Site visit data will further investigate this relationship. Yet, based on MD and NP responses, it is likely that investments in continuing education, longer practicum experiences and other enhancements to training would be an effective strategy to improve NP integration.

Almost one-quarter of primary health care NPs identified that they changed practice settings in the last three years. Those NPs who indicated they changed practice settings are less satisfied with collaboration and team dynamics than others. Further research should investigate the underlying causes/reasons for changing practice.

## MD Characteristics

Consistent with findings in the literature (Aquillino *et al.*, 1999)[35], this study has found that even brief workplace interaction between MDs and NPs can reduce MD resistance and increase MD appreciation of the NP role.

MDs may be educated about the NP role and ability during this period; they may develop professional relationships and reduce bias; and they may see first hand how the NP can play a complementary role in practice, in many cases improving quality, productivity and specialization. Regardless of practice setting, physicians were more likely to identify NP services as being valuable to their practice if they had even a nominal amount of experience working directly with an NP. Working with an NP in the past increases the odds of MD interest by 2.4 times, and this result was independent of duration of past work experience.

Of the 253 physicians who neither practised with nor expressed clear interest in working with an NP, 99% felt that NPs could not provide major acute care and 91% felt that NPs could not provide minor acute and episodic care. However, these attitudes were significantly different for MDs practising with NPs. Twenty-four (24%) of MDs practising with NPs reported that NPs provide major acute care, with eight percent defining this as among the most important services. In addition, 94% of MDs practising with NPs reported that NPs provide episodic/minor acute care, with 80% reporting that this is among the most important services provided by NPs.

## Client Population

Primary health care NPs who identified that they are more likely to work within the full scope of their practice if:

- There is a high percentage of patients for whom the NP is the primary care provider;

[35] M.L. Aquillino et al., "Primary Care Physicians' Perceptions of the Nurse Practitioner in the 1990s", Archives of Family Medicine (1999) 8(3): 224-227.

- Practice is not limited to certain types of patients; and
- Patients are referred from outside the practice setting.

On average, 44% of primary care NPs are the primary care provider for their patients. However, there is significant amount of variation in NP responses with a range from 0 to 100%. More than one-quarter of NPs indicated that their practice is limited to specific patient populations predominately because it is the chosen area of their specialty (51%). Also, "patients referred from outside the practice setting" was the least frequent option identified by NPs for method of patient assignment. The analysis shows, however, that in comparison to the other methods (i.e., patient books appointment specifically with NP, referral from colleagues within the setting, receptionist assigns patient, referral from another setting or triage), those primary health care NPs who are assigned patients from outside the practice setting are more likely to work to their full scope of practice. Further qualitative research should investigate reasons for why this relationship is occurring. Few NPs identified resistance by patients and the community as a major barrier but MDs were far more likely to identify this factor. This difference in perceptions is interesting and merits further study.

## NP Scope and Responsibilities

Whether or not an NP's current role is clearly defined is a predictor of integration on all domains. NPs who identified that their role is clearly defined indicated higher satisfaction rates on all domains. In addition, those NPs with clearly defined roles also indicated that both the physician and NP are less likely to express concern regarding NP scope and/or liability. With one in five NPs identifying their role as not clearly defined, this could have significant consequences on NP integration.

Being able to deliver care in the way the NP likes is also a predictor on many of the integration domains. Three-quarters of NPs identified that they deliver care in the way they like, indicating higher satisfaction rates on the NP's role in the decision-making process and collaboration and team dynamics. NPs that provide care the way they like are also more likely to work to their full scope of practice and less likely to have identified concerns regarding their liability. Sixty-two percent (62%) of NPs indicated that the most positive aspect of their job is the autonomy. However, another 23% of NPs identified that the limited autonomy was also one of the most negative aspects of their job.

Thirty percent (30%) of primary health care NPs identified that they were involved in developing their position/job description. Those involved in developing the position are more likely to identify higher levels of satisfaction on scope of practice within the practice setting, their role in the decision making process and collaboration and team dynamics within the practice setting. Those NPs that participate in on-call activities are also more likely to have identified that they work within their full scope of practice.

On average, primary health care NPs spend 73% of their time on clinical activities. However, there was significant variation in the response to this question with the percentage of time spent on clinical activities ranging from 19 to 100%. The analysis suggests that those NPs who spend a greater percentage of time on clinical duties are more likely to be satisfied with their scope of practice within the practice setting.

Twenty-two percent (22%) of NPs reported that the most positive aspect of their job is the interaction with patients.

Those NPs who identified the narrowness of their role as a barrier to their ability to fulfill their NP role are less likely to be satisfied with their scope of practice within the practice setting and their role in the decision-making process.

More than 75% of MDs agreed that NPs had a beneficial role in reducing MD workload, allowing NPs and MDs to play complementary roles in treating patients and increasing throughput in the practice. MDs working with NPs showed strong agreement with the statement that NPs ought to perform activities such as health promotion and wellness, patient education, and supporting post episodic continuity of care.

Most MDs felt satisfied with the quality of care provided by NPs and with the extent to which NPs practice within their scope, as indicated by appropriate physician consults. In addition, more than 75% of MDs reported satisfaction in the areas of NP time with patients; physician access; NP time spent completing documentation; and with support time spent by the MD. MDs in fee-for-service settings were substantially more inclined to agree that having an NP increases the number of patients. An average score of 92% in this area indicates that the large majority of MDs in fee-for-service settings strongly agreed about these benefits.

Notably, satisfaction levels did not generally vary by practice setting, indicating that NPs were functioning well in a diversity of practices. There was considerable agreement overall in MDs' responses. Approximately 84% of MDs agreed that they planned and cooperated with NPs in making decisions and roughly 90% reported that they communicate openly, trust and respect each other when making patient decisions.

## Employment Relationship

Two thirds of primary health care NPs identified that they have permanent employment, one-quarter have contract employment and seven percent have other employment not specified. Those with permanent or contract employment are more satisfied with their role in the decision-making process than those who indicated other employment. Further analysis should explore the other types of employment relationships available to NPs. Sixteen percent (16%) of NPs have union membership. Those NPs working in a unionized environment indicated that they are less satisfied with their role in decision-making.

NPs were asked several questions regarding their education. Almost all NPs indicated participating in lectures, conferences and or presentations; 86% participated in other education activities; 80% received education on clinical practice guidelines and two-thirds participated in small group learning, traineeships and workshops. In addition, 18% of NPs indicated that professional growth, increased knowledge and continuing learning are the most positive aspects of their role. Those NPs who have their education expenses reimbursed (86% identified that at least some expenses are reimbursed) indicated higher levels of satisfaction on workplace satisfaction.

Interestingly, income was not identified as an important predictor to NP integration, however, almost one-third of NPs identified that lack of remuneration was the most negative aspect of their role. Furthermore, 13% of NPs advised the MoHLTC that increased remuneration and salary equalization are required; and one in five NPs advised the MoHLTC that increased funding, more opportunities and more positions were required to better integrate NPs.

The structure of the working relationship between the NP and MD was identified as a key barrier to effective NP integration, with 63% of MDs reporting that an appropriate relationship structure was a fundamental requirement, while 20% ranked it as the most important concern.

## Team Interaction

On the Jones and Way collaboration scale, NPs are asked to indicate both their satisfaction and their agreement levels to several elements. On average, primary care NPs identified that they were satisfied with the open communication and amount of collaboration with the family physician(s) regarding patient care decisions. In fact, more than 30% of NPs indicated that the collaborative practice is the most positive aspect of their role. However, those NPs that identified that they were dissatisfied with the communication and collaboration with the family physician were more likely to identify that their physician had concerns regarding their scope/liability, which is a barrier to an NP's practice.

A number of factors influenced the level of satisfaction on collaboration and team dynamics. Those NPs that agreed with the following statements reported higher levels of satisfaction on collaboration and team dynamics:

- Co-operate in making decisions about patient care;
- Co-ordinate implementation of a shared plan for patient care; and
- Respect the other's knowledge and skills in making shared decisions about patient care.

Of note, primary health care NPs had the lowest levels of agreement on co-ordination of the implementation of a shared plan for patient care.

NPs that are satisfied with the acceptance and attitude of physicians also indicated higher satisfaction on collaboration and team dynamics. Interestingly, 40% of NPs also identified that the most negative aspect of their role is the lack of understanding from the medical profession.

Those NPs that identified isolation of practice as a barrier to fulfilling the NP role indicated lower levels of satisfaction on collaboration and team dynamics. One in five NP's identified that their isolation is a barrier.

## External Factors

NP's were asked to comment on whether or not their physician had expressed concerns regarding their scope and liability and whether or not these concerns had been resolved. Those NPs who identified that their physician had expressed concern and the concerns were not resolved had lower levels of

satisfaction on workplace satisfaction. Furthermore, those NPs who identified that their physician had not expressed any concerns at all indicated higher levels of satisfaction on collaboration and team dynamics.

NP's were also asked if they had concerns regarding their liability and what the reasons were for these concerns. Those NPs who identified that they had concerns regarding the adequacy of their liability insurance were more likely to also identify that their physicians had expressed concerns regarding their scope. In addition, those NPs who identified concerns regarding their liability because they are asked to practice outside their scope were less satisfied on workplace satisfaction.

# 6. Site Visit Summary

## Introduction

Twenty-seven (27) sites that employed primary health care NPs were visited across the province in the late winter of 2003. The purpose of the site visits was to gain a better understanding of the practice models in which NPs worked and the factors that contributed to successful models.

Two practice models were identified – collaborative and consultative. Within each model, the NP focused the practice based on a specific patient condition, a population group or the full scope of practice with a general primary care population.

Facilitators for each model were very similar across all sites. In general, comments from participants in the site visits indicated that primary health care NPs are seen by their team and managers as improving access to primary care and providing a useful addition to the services of the practice setting. The flexibility of the NP was seen as a definite advantage to better serve primary care patients in their local communities. Many primary care settings also noted that with the introduction of the NP role there had been a substantial decrease in waiting lists and waiting times.

NPs were also acknowledged by their peers for positively impacting the quality of care provided. In some primary care sites NPs were able to address and manage complex, chronic conditions such as diabetes, resulting in improved health outcomes. In one site, it has been possible to have a walk-in clinic since the introduction of the NP.

In two sites, NPs had implemented evidence-based protocols and assessment tools resulting in changes in practice that were adopted by other team members as well. Many of the sites indicated that the inclusion of an NP facilitates a more holistic approach to health service delivery allowing for an emphasis on health promotion, wellness and education.

## Objectives for the Site Visits

Site visits were completed as one of a number of activities to inform the two key project questions:

1. What barriers must be overcome and what facilitators must be encouraged to further integrate NPs into specific practice settings?
2. What can be learned about the practice models in which NPs function, specifically, which models do not work well and why and which models work best to support integration of NPs?

It was recognized that each type of practice setting reflected a wide range of characteristics and thus, a descriptive case study approach was used to gather information to develop/create a broad understanding of practice models and the barriers and facilitators to integration.

## Background to the Approach

The sites selected for visits, as well as the information gathered, were based on the study's two research questions.

Given the interest in practice models, integration, barriers and facilitators, as well as understanding the influence of NPs on access, quality and outcome, innovation and satisfaction, sites were selected to the extent possible, to capture both the diversity and uniqueness of practice settings.

In addition, a project working group defined a number of practice dimensions and elements of interest associated with each practice dimension. Practice dimensions included:

- Practice/setting characteristics;
- Client population;
- Scope of NP role/responsibilities;
- Team interaction;
- Organizational characteristics; and
- External factors.

A recent study, Policy Synthesis on Primary Healthcare[36] describes a number of dimensions of primary care. Information related to these dimensions was also captured as part of the site visits:

- Context;
- Vision;
- Organizational structures;
- Resources; and
- Practices.

## Methodology for Site Selection

Three key criteria were used for site selection:

1. Representation from each of the types of practice settings of interest to the project
    - Community Health Centres;
    - Long-term care facilities;
    - Aboriginal Health Access Centres and Aboriginal Community Health Centres;
    - Primary Care Networks;
    - Emergency departments, hospital outpatient and other clinics;
    - Fee-for-service physician practices;
    - Public Health Units;
    - VON;

[36] Lamarche et al., Policy Synthesis on Primary Healthcare Preliminary Report, Canadian Health Services Research Foundation, New Brunswick Department of Health and Wellness, Saskatchewan Health, Quebec Ministry of Health and Social Services, Health Canada. August 15, 2002.

- Community Care Access Centres; and
- Other community agencies.

2. Representation of sites by geographic location in the province considering locations that are:
   - Urban;
   - Rural;
   - Underserviced; and
   - Northern.

3. Representation from sites identified as particularly unique or of special interest to the project

Applying these criteria resulted in the following distribution of site visits.

**Exhibit 141: Number of site visits by type of setting**

| Practice setting Type/Type of Sponsoring Organization | Number of Sites |
|---|---|
| Community Health Centres | 6 |
| Fee-for-service physician practices | 4 |
| Primary Care Networks | 2 |
| Long-term care facilities | 2 |
| VON | 2 |
| Public Health Units | 2 |
| Community Care Access Centres | 1 |
| Emergency departments | 3 |
| Aboriginal Health Access Centres | 3 |
| Community agencies/organizations | 2 |
| **Total** | **27** |

## Information Collection

Given the broad range of sites and practice settings, the approach was undertaken on a site-by-site basis. This approach was planned in conjunction with the most appropriate person for each site such as the administrator.

All site visits included interviews with the NP(s), physician(s) and other members of the interdisciplinary team where available. The types of other personnel interviewed varied with the site, but included managers, and other health team members, such as RNs, social workers, dieticians and health educators. Standard interview guides were developed to address the key study questions. These guides may be found in Appendix H.

Interviewers collected information where possible and appropriate from seven sources:

- Background and demographic information;
- NP(s);

- MD(s);
- Other health care providers and support staff;
- Program sponsor;
- Individuals who have clinical/administrative oversight responsibility; and
- Main community partner.

The initial call with the site contact helped confirm the most appropriate person at the site to make the arrangements for the site visit. An introductory letter explaining the purpose of the study and inviting participation in a site visit was sent to each site. This was followed by a telephone call to provide more detail and establish a time for the visit. Once the site indicated their willingness to participate, a package providing more details on the process for the site visit and a list of potential interview questions was sent.

To assist in developing a description of each site, basic descriptive and contact information was requested. The information came from available reports or was provided verbally during the site visit. During the site visits, NPs and other members of the health care team referred to patients, clients and residents. For ease of writing, the term patients or patient population will be used to refer to all three groups of individuals.

## Description of Sites

The following table provides an overview of the sites visited. To maintain the confidentiality of the sites, descriptive information is provided.

**Exhibit 142: Descriptive summary of visited sites**

| Type of Setting / Sponsor Agency | Site Description | # of NPs | # of MDs | Other Health Care Providers | Practice Model |
|---|---|---|---|---|---|
| **Community Health Centres** | | | | | |
| Centre 1 | - Under-serviced area in Central West Region<br>- NP position has been in place for 20 years<br>- Both NPs are new to the setting within the last two years<br>- "Closed" CHC for past three years<br>- NPs see general primary care population<br>- No on-call activity | 2 | 3 | - Registered Nurses<br>- Mental Health Worker<br>- Dietician | Collaborative – scope based |
| Centre 2 | - Urban centre in East Region<br>- One of the NPs has been with the centre for 25 years<br>- Currently three NPs on staff, one primarily sees patients with appointments, the other two run a walk-in clinic<br>- One physician is rostered to act as back-up for the NPs at all times | 3 | 6 | - Nutritionists<br>- Acupuncturist<br>- Chiropodist<br>- Physiotherapist<br>- Mental Health Nurse<br>- Lactation Consultant | Collaborative – scope based |
| Centre 3 | - Under-serviced area in the North<br>- NP in setting eight to nine years<br>- Currently three NP vacancies<br>- "Closed" CHC for two years<br>- NP sees general population for primary care | 1 | 2 | - Community Health Workers<br>- Midwives<br>- Chiropodist<br>- Community Health Nurse | Collaborative – scope based |

| Type of Setting / Sponsor Agency | Site Description | # of NPs | # of MDs | Other Health Care Providers | Practice Model |
|---|---|---|---|---|---|
| | - No on-call activity | | | | |
| Centre 4 | - Underserviced area in Eastern Region<br>- NP position has been in place for 10 years<br>- Two NPs there now have been in the position for less than a year.<br>- One NP does primary care for the population and a small amount of community care<br>- The other NP is funded through the Early Years program and spends four days a week working in the community.<br>- There are two NPs who each work in one under serviced community approx 100 km from the CHC centre; the funds for their position are flowed through the CHC but they do not have a practice relationship with the CHC | 2<br><br>plus 2 NPs at remote sites. | 2 | - Registered Nurse who specializes in diabetic education.<br>- Social Worker | Collaborative – scope based |
| Centre 5 | - North Region.<br>- 2 NPs work at two remote sites<br>- Funds are flowed through the CHC but they do not have a practice relationship with the Centre.<br>- Each NP sees about 15 to 20 clients per day; they are currently closed to new clients.<br>- Provide on-call services. | 2 | 1 | - None at the remote sites. | Collaborative – population based |
| Centre 6 | - CHC in urban area<br>- Toronto Region | 1 | 3 | - Three Registered Nurses<br>- Dietician<br>- Chiropodist<br>- Diabetic educator | Collaborative –population based |

| Type of Setting / Sponsor Agency | Site Description | # of NPs | # of MDs | Other Health Care Providers | Practice Model |
|---|---|---|---|---|---|
| | | | | - Social Worker | |
| **Fee-for-service Physician Office** | | | | | |
| Office 1 | - Northern Region<br>- Medical specialist is the sponsor<br>- NP focuses on patients with 1 medical condition<br>- Primary role is education and chronic disease management | 1 | 1 | - None | Collaborative – condition based |
| Office 2 | - South-West Region<br>- Town is the sponsor<br>- There are six physicians in the town but the NP works extensively with one, to a lesser degree with two more and not at all with the others.<br>- Has 525 active files and sees approx 12 to 15 clients per day. | 1 | 6 | - None | Collaborative –scope based |
| Office 3 | - Central-South Region, under-serviced, small community where many clients do not have a family MD<br>- NP provides service to a central health clinic/office and has satellite clinics at three regional high schools (0.5 days per school = 1.5 days per week)<br>- In central clinic – provides assessments, episodic care, pre-natal care, counselling support (helped create a support group) etc | 1 | 3 | - Office staff<br>- Registered Nurse<br>- Public Health Nurses | Collaborative – population based |
| Office 4 | - South West Region, under-serviced area<br>- NP sees 12-14 patients/day for primary | 1 | 6 | - Registered Nurse | Consultative – scope based |

| Type of Setting / Sponsor Agency | Site Description | # of NPs | # of MDs | Other Health Care Providers | Practice Model |
|---|---|---|---|---|---|
| | care<br>- Close working relationships with local acute care hospital for diagnostic imaging, laboratory | | | | |
| **Primary Care Networks** | | | | | |
| Centre 1 | - Central-South Region – urban centre<br>- NP shared across 15 offices and 21 physicians and provides differential support to MDs<br>- Primarily provides on-call support and house calls, flu clinics but moving to scheduled clinic model with six of 21 MDs(who determined between them who would access the NP)<br>- Feb-Dec 2002 – 802 patient visits, 1232 immunizations, about 500 phone contacts | 1 | 21 | - Office staff<br>- Registered Nurses | Collaborative – condition based |
| Centre 2 | - Central-South Region – urban centre<br>- One large clinic site in community mall – with diagnostics and laboratory in same building<br>- Under-serviced and marginalized urban neighbourhood<br>- Provide specialized consultation/management of clients with diabetes and mental health issues, episodic care and share care for drop-ins<br>- 2143 patients seen in 2002 with on average 20 minute appointments | 1.5 | 6 | - Office manager<br>- Registered Nurses<br>- Clerical staff | Collaborative –condition based |
| **Long-Term Care Facilities** | | | | | |
| Facility 1 | - Northern Region | 1 | 3 | - Staff nurses and Directors of | Consultative – population |

| Type of Setting / Sponsor Agency | Site Description | # of NPs | # of MDs | Other Health Care Providers | Practice Model |
|---|---|---|---|---|---|
| | - NP works between three LTC facilities with 400 residents in total<br>- Direct responsibility for 147 residents<br>- NP's employer is the local hospital<br>- NP is non-unionized<br>- 2636 residents seen April 2002 – March 2003<br>- Average wait time to be seen by the NP is 0-5 days<br>- NP takes after-hours call | | | Care at each facility | based |
| Facility 2 | - Central-East Region<br>- NP is responsible for two LTC sites<br>- One site has 99 LTC beds which includes palliative care beds and a day program<br>- Second site has 138 LTC beds, and a 12 bed closed Alzheimer unit. She also supports a day program, 10 seniors apartments, 30 assisted living units<br>- Some assistance via community education is also provided to the Alzheimer Society<br>- First LTC site was focus of site visit<br>- NP assesses and follows-up with approx 20 clients per day over 4.5 clinical days per week across all sites | 1 | 9 | - Registered Nurses<br>- Registered Practical Nurses<br>- Health Care Aids<br>- Director of Patient Care<br>- Day Program Coordinator<br>- Other Managers/Coordinators<br>- Administrators,<br>- Support staff<br>- Clerical Staff | Collaborative –condition based |
| **VON Sponsored – Primary Care Sites** | | | | | |
| Centre 1 | - Primary care clinic in small community, under-serviced area in Central-South Region.<br>- NPs run clinic four and a half days per week with no physician present.<br>- MD does not work in the clinic but is | 1 | 1 | There are VON nurses in the organization but they do not work in the primary care clinic.<br><br>The clinic has linked with churches in the area to provide | Consultative – scope based |

| Type of Setting / Sponsor Agency | Site Description | # of NPs | # of MDs | Other Health Care Providers | Practice Model |
|---|---|---|---|---|---|
| | available by phone. | | | some social services. | |
| Centre 2 | - South-West Region<br>- Primary care (fee-for-service) clinic in small community, under-serviced area<br>- MD only available a couple of half days per week – NP acts as sole practitioner for the rest of the time | 2 | 3 | Office assistant, VON Executive Director provides administrative/coaching support | Collaborative – scope based |
| **Public Health** | | | | | |
| Centre 1 | - Public Health Unit in North Region.<br>- The NP works in the sexual health program<br>- There is one position funded but recruitment problems mean the position is only filled one afternoon per week | 0.10 | 1 | Public Health Nurses | Consultative – scope based |
| Centre 2 | - Public Health Unit in Central-South Region<br>- One NP works in the sexual health program<br>- One NP works in the early years program in two communities; this program just started in January 2003. | 2 | 1 | Public Health Nurses | Consultative – population based |
| **Emergency Departments** | | | | | |
| Dept. 1 | - Northern Region<br>- NP "assigned" to MD on a rotating basis<br>- NP works day and afternoon shifts<br>- Major limitation to practice is hospital's timeframe in approving medical directives<br>- NP sees approximately 900 patients every three month period | 1 | 12 | - Registered Nurses | Collaborative – population based |

| Type of Setting / Sponsor Agency | Site Description | # of NPs | # of MDs | Other Health Care Providers | Practice Model |
|---|---|---|---|---|---|
| | - NP sees primarily less urgent cases (2269 in one year) followed by urgent cases (956 in one year) | | | | |
| Dept. 2 | - Northern Region<br>- Small community hospital in remote and under-serviced area<br>- Physicians reimbursed by alternate payment model<br>- 3521 patients seen in 2001/2003 – many are “orphan” clients | 1 | 8 | - Registered Nurses<br>- Director of Patient Care<br>- Clerical/Office staff<br>- Support staff | Collaborative – population based |
| Dept. 3 | - South-West Region<br>- Two NPs<br>- NPs see approximately 300 patients per month<br>- Majority of patients seen are at CTAS level four (less urgent) and five (non-urgent), 30% of patients are at level three (urgent)<br>- Community relations and education role | 2 | 4 | - Registered Nurses | Collaborative – population based |
| **Aboriginal Health Access Centres** | | | | | |
| Centre 1 | - Rural and remote Northern Region<br>- NPs provide clinics at remote sites<br>- NPs provide clinics for homeless in addition to aboriginal communities | 2 | 1 | - Aboriginal Healers<br>- Community Health Workers | Consultative – population based |
| Centre 2 | - Northern Region<br>- NP has been in position for three years<br>- 1,080 children seen per year | 1 | 1 | - Community Health Workers | Consultative – population based |
| Centre 3 | - Urban area<br>- Toronto Region | 1 | 1 | - Registered Nurses<br>- Traditional Healers | Collaborative -population based |

| Type of Setting / Sponsor Agency | Site Description | # of NPs | # of MDs | Other Health Care Providers | Practice Model |
|---|---|---|---|---|---|
| | - Sees approximately eight to 12 clients per day; approx 50% are booked and the other half are walk-in clients. | | | - Social Workers | |
| **Community Agency/Organization (including CCAC)** | | | | | |
| Centre 1 | - South-west Region<br>- One NP provides support to a teen focused health centre with an urban central clinic and five satellite clinics where NP is sole practitioner<br>- Focused on reproductive health and emotional and mental health issues<br>- Second NP provides primary care to homeless clients (many are orphan clients) at Salvation Army program sites (including a methadone clinic), only MD consult support available<br>- 1630 clients seen in 2001/2003 | 2 | 8 | - Registered Nurses<br>- Social Workers<br>- Psychologists<br>- Counselors | Consultative - population based |
| Centre 2 | - NP works at the CCAC to provide primary care in the home to home bound clients or difficult to serve clients<br>- Under-serviced area in Northern Region<br>- Has a link with a physician who provides consultative advice in return for one afternoon per week of office service from the NP.<br>- Covers a huge geographic area. | 1 | 1 | - Therapists including Social Workers<br>- Physiotherapists<br>- Occupational Therapists<br>- Registered Nurses | Consultative – population based |
| Centre 3 | - NP provides health service for the students and staff at a community college.<br>- Underserviced area in Northern Region<br>- Has 639 active files and half turn over each year as the students come and go. | 1 | 1 | - Counsellors<br>- Teachers | Consultative – population based |

# Practice Models

## Types of NP Practice

From the information gained during the site visits, we have observed that primary health care NPs are providing services consistent with their scope of practice within a primary health care model, including wellness care, health promotion, health education, management of stable chronic conditions and episodic care (which includes management of minor acute illnesses).

The NP survey data indicated that the practice settings where the NPs averaged at least half of his or her time on wellness care were fee-for-service settings, community nursing agencies and public health units. Practice settings where the NP averaged more than 50% of his or her time on minor illness care were Aboriginal Health Access Centres and emergency departments.

A few NPs also indicated that they were involved in community education and health promotion activities, but usually only as a minor part of their role.

Observations about the role in general include:

- The type of patient population seen by NPs varied across sites and type of practice setting. In some sites, the NP focussed on a relatively narrow patient population e.g., attendees at a sexual health clinic. In other sites, the NP/s saw patients of all types. The NP survey data indicated that NPs working in CHCs are the least likely to have their practice limited to certain patients. Overall, 28% of NPs have a practice focussed on a specific patient group/population.
- In all types of practice settings, NPs reported that they function independently within their scope of practice for the care they provide to between 75% and 80% of the patients they see.
- The care team structure and composition varied across all sites. In some sites, the NP functioned as part of a team employed by the site. In other cases the NP was linked to physicians who were not affiliated with or working on the site and various arrangements had been developed to facilitate the linkage between the NP and the physician.

At many sites, medical directives had been developed and implemented which allowed NPs to expand their scope of practice within the legislation or to expand their activities to function more fully within their scope of practice.

## Practice Models

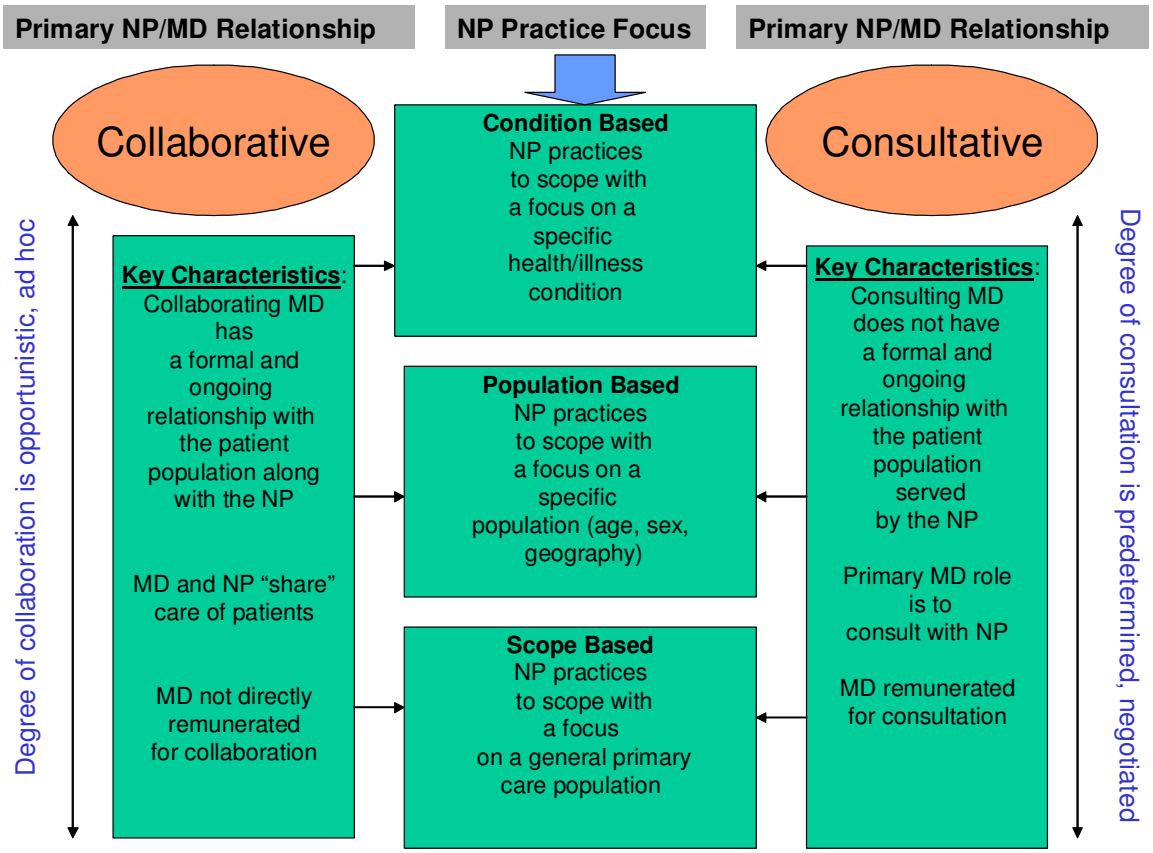
An important question for this study was to determine what could be learned about the practice models in which NPs function. To accomplish this objective, a taxonomy of practice models was developed using a four-step process. The first step was to examine the literature in relation to practice models. The second step described dimensions and associated elements of NP practice through a working group (please see Appendix J for a summary of these dimensions and elements). In step three, site visit questions assisted in clarifying practice dimensions, identifying elements that contribute to functionality of the practice and informing the development of a taxonomy of practice models. The fourth and final step was to synthesize this information into a framework.

Information gathered from the site visits indicated that there are two main structures for the MD/NP relationship – collaborative and consultative as described below. Within these two relationship structures, the focus of the NP practice can be condition based, population based or scope based. Thus, there are six possible practice models:

- Collaborative or Consultative – condition based;
- Collaborative or Consultative – population based; and
- Collaborative or Consultative – scope based.

A schematic of the models is presented in Exhibit 143.

**Exhibit 143: Overview of practice model framework**



***Collaborative Approach***

The concept of collaborative practice was described in the literature as encompassing the "physician-nurse dyad working together in a joint effort toward a mission of excellent patient care" (Norsen et al., 1995),[37] where "effectiveness is based on cooperation, assertiveness, responsibility, communication, mutuality, autonomy and coordination" (Norsen et al., 1995,[38] Way, Jones, and Baskerville 2001,[39] Siegler et al., 1994[40]). Additionally, collaborative practice is described as" joint communicating and decision-making while respecting the unique qualities and abilities of each professional" (Hanrahan et al., 2001)[41]. A collaborative approach is based on establishing a collegial relationship that evolves over time based on experience.

Imbedded in the model is the differentiation between the concepts of independence, autonomy and collaboration described by Arcangelo et al., (1996)[42], where independence and collaboration describe interaction within a system and autonomy describes ultimate responsibility for practice. "One can be autonomous and collaborative at the same time where collaborative practice enhances the autonomous practice of each member of the team." Further, Arcangelo states that "no health care provider practices independently in the strictest sense; there is a need to consult with others to provide optimum care for patients."

Therefore, a collaborative approach is based on establishing a collegial relationship that evolves over time based on experience.

Our observations of collaborative practice in the selected sites included the following key features:

- Formal practice relationship between physician and patient;
- Formal relationship and responsibility between the physician and NP;
- Physician not paid for supporting and consulting with the NP;
- NP practices autonomously;
- Triage process often utilized to access the NP;
- Referrals occur between the physicians and the NP and other members of the health care team; and
- Degree of collaboration is most often on an ad hoc or opportunistic basis.

During the site visits, this type of practice model was seen at CHCs, fee-for-service settings, Primary Care Networks, a long-term care facility, VON, emergency departments and an Aboriginal Health Access Centre.

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[37] L. Norsen, J. Opalden and J. Quinn, "Practice model, collaborative practice", (1995) Critical Care Nursing Clinics of North America, 7 (1).
[38] L. Norsen, J. Opalden, and J. Quinn, "Practice model, collaborative practice", (1995) Critical Care Nursing Clinics of North America, 7 (1).
[39] D. Way, L. Jones and N. Baskerville, "Improving the effectiveness of primary health care through NP/family physician structured collaborative practice", *Final Report*, (University of Ottawa, March 31, 2001 unpublished).
[40] E. Siegler, F. Whitney, and M. Schmitt, "Collaborative practice: research questions". In: E. Siegler, F. Whitney, editors. Nurse-Physician Collaboration: Care of Adults and the Elderly, 1994: 193-203.
[41] C. Hanrahan, C. Way, J. Housser and M.Applin, "The nature of the extended/expanded nursing role in Canada", Centre for Nursing Studies, March 30, 2001 (unpublished).
[42] V. Arcangelo, M. Fitzgerald, D. Carroll, and J. Plumb, "Collaborative care between NPs and primary care physicians", Primary Care, 1996.

***Consultative Approach***

Although many of the features of a collaborative approach could also apply in a consultative approach – for example, co-operation and mutuality – there were some significant differences observed in consultative practices that warrant differentiating these practices from others. The key features of a consultative practice were:

- No formal ongoing practice relationship exists between the physician and patient. In some cases, the physician may not see these patients;
- Physicians reimbursed for consultation with the NP;
- Patients most often see NP as the primary provider;
- No triage process to access the NP; and
- Consultation most often pre-arranged, structured and negotiated.

In this model, the NP calls on the physician when required, but the physician does not have an established or ongoing relationship with the patient population or the organization. His or her primary relationship is with the NP. In consultative practice models, the physician receives a payment for the consultation advice provided.

During the site visits, this practice model was found in a fee-for service setting, a long-term care facility, VON, Public Health Units, Community Care Access Centre, Aboriginal Health Access Centres and community agencies.

***NP Practice Focus***

In addition to the nature of the MD and NP relationship, there are three major foci for NPs' practice: condition-based, population-based or scope-based. In each of these practice models, the NP worked autonomously and consulted or collaborated with the physician in given circumstances.

With a *condition-based focus*, the NP practice is primarily based on a specific patient condition(s). Examples are practices where NPs only see patients with congestive heart failure, diabetes, mental health issues or chronic disease management.

With a *population-based focus*, the NP practice is primarily based on a specific type of patient population or geographic area. Examples of this practice where NPs who saw mainly teenagers, children, marginalized people or First Nations people.

*"We're all independent practitioners. The NP has her clients that she sees. Some days I have very little contact with the NPs, even none. On other days I'm back up for the NPs." (physician)*

*"The other day I saw a patient who had been seeing [the NP for ten years and my name was on the file, but I'd never seen them." (physician)*

With a *scope-based focus*, the NP primarily saw a broad-based primary care patient population and consulted or collaborated with the physician mainly with respect to issues beyond the NP's scope of practice.

***Practice Model by Type of Setting***

Although there was some variability, the type of practice model in place was generally associated with the type of practice setting. The distribution of type of model by practice setting is summarized in Exhibit 144.

**Exhibit 144: Number and type of practice models by type of setting**

| Setting Type/Type of Sponsoring Organization | Collaborative | | | Consultative | | |
|---|---|---|---|---|---|---|
| | Cond. | Pop. | Scope | Cond. | Pop. | Scope |
| Community Health Centres | | 2 | 4 | | | |
| Fee-for-service physician practices | 1 | 1 | 1 | | | 1 |
| Primary Care Networks | 2 | | | | | |
| Long-term care facilities | 1 | | | | 1 | |
| VON | | | 1 | | | 1 |
| Public Health Units | | | | | 1 | 1 |
| Community Care Access Centres | | | | | 1 | |
| Emergency departments | | 3 | | | | |
| Aboriginal Health Access Centres | | 1 | | | 2 | |
| Community agencies/organizations | | | | | 2 | |

## Findings from the Site Visits – Key Themes Related to Integration

A second objective of the site visits was to identify barriers and facilitators to integrating primary health care NPs into the health care system as a whole and to understand the key issues related to integration. Several themes emerged related to integration and are discussed in this section. The key themes include:

- Shared vision for the primary health care NP role and role alignment;
- Role definition and clarity;
- Team dynamics;
- Resources;
- Scope of practice issues;
- Integration of primary health care NPs into the health care system; and
- Facilitators and barriers.

## Shared Vision for the Primary Health Care NP Role and Role Alignment

A shared "vision" for the practice – common values, an understanding of mission and desired outcomes and the alignment of the primary health care NP role with that vision was identified as an important factor by physicians, NPs and other members of the care team in relation to successful integration of the NP. This was more important in a collaborative-based practice model as there was a stronger team structure with the MD and other providers, as well as an on-going relationship with the practice.

The shared vision can begin forming when an organization makes an application for a funded position for a primary health care NP. Obtaining funding for an NP requires that an organization:

- Identifies patient needs which can be filled by a NP; and
- Has an understanding of the scope of practice and contributions that a NP can provide.

"*In two neighbourhoods in our community there is a high concentration of residents who are poor with a high level of unemployment and we know those factors all cause more health problems. It is impossible to find a family doctor in this community. I strongly believe in the role of NPs and so when we heard about the (Ministry of Health and Long Term Care) RFP process we knew this would be a way of filling this need and getting a NP for our unit" (NP)*

In many cases, we observed that the need for an NP and the expected role were well thought out by communities and sponsoring agencies prior to a funding submission. In these settings, a well articulated vision for the primary health care NP role facilitated integration.

To some extent, the length of time an NP has been in the setting was related to the development of a shared vision for the NP role. At some sites, the NP was a long-standing member of the health care team and the organizational vision regarding the need and role for the NP was well established. In other cases, adding an NP to the team was a relatively new phenomenon and in those cases having an internal advocate to articulate the vision for the NP to the team was useful to facilitate integration. In one setting, the sponsoring organization conducted a public advertising campaign for one year prior to the introduction of the NP. As a result, those in the setting felt the acceptance of the NP was high and less confusion existed in relation to her role.

*"Our community's physician search committee included someone who had previously worked with an NP and it was he who suggested that the local District Health Council explore the option of recruiting an NP (given we were not having much luck recruiting an MD). The DHC approached the local Executive Director of a community agency to work with them on a proposal to the Ministry. This Director had always been interested in the NP role and it was she who developed and promoted a clear vision for how NPs could be integrated into our local community clinic, the local hospital emergency and other sites." (NP)*

In consultative practice models, the definition of the NP role was well understood because the "contractual" nature of the relationship with the MD required a clear definition of mutual roles and expectations.

Development of the vision for the primary health care NP included identifying community needs, assessing who could best meet those needs, and educating the team and community about the roles NPs could play.

Fifty-five percent (55%) of NPs responding to the NP survey reported that orientation of physician and other staff occurred upon their arrival. NPs in these settings were more likely to be satisfied with:

- their opportunities for professional growth
- their social contact at work
- their professional interaction
- recognition of their work by superiors

Seventy-five percent (75%) of NPs surveyed reported that they are able to deliver care in the way they like. This variable was highly predictive of many of the satisfaction outcomes.

"*I would be interested in knowing what the Ministry vision for nurse practitioners is? Are they to be the providers of primary care to the population as a whole or are they only meant to go where doctors don't want to go." (physician)*

*"For nurse practitioners to be integrated into the health care system there has to be a provincial strategy to make them responsible for primary care in all communities. It should be compulsory to have a NP when these family health networks are being established." (manager)*

Primary care reform is a government priority, but there is some lack of clarity about primary care delivery in relation to the NP role. Some indicated that a uniform provincial vision for primary care and the role of the NP in that vision was required. Specific views of the vision for NPs included provision of care to individuals in under-serviced areas, increased access to primary care, mitigating the physician shortage, and improved cost-effectiveness.

Some site visit participants suggested that if a provincial vision for the NP role was identified and publicized, more organizations would consider introducing NPs.

**Summary of Facilitators for Developing a Shared Vision**

- Organizations clearly articulate their mission, values and expected outcomes for the practice in relation to the NP role
- Funded organizations and communities assess the needs of the patient population to ensure that the NP role is aligned with these needs
- The type of provider that can best meet patient needs was identified
- All care team members and key external stakeholders are oriented to and understand the vision for the NP position, role and scope practice

## Role Definition and Clarity at the Practice Level

Clearly defining the primary health care NP role at the site or practice level was one of the most important facilitators to integration of the NP identified during the site visits. It was suggested that to integrate the role of the primary health care NP, organizations need to:

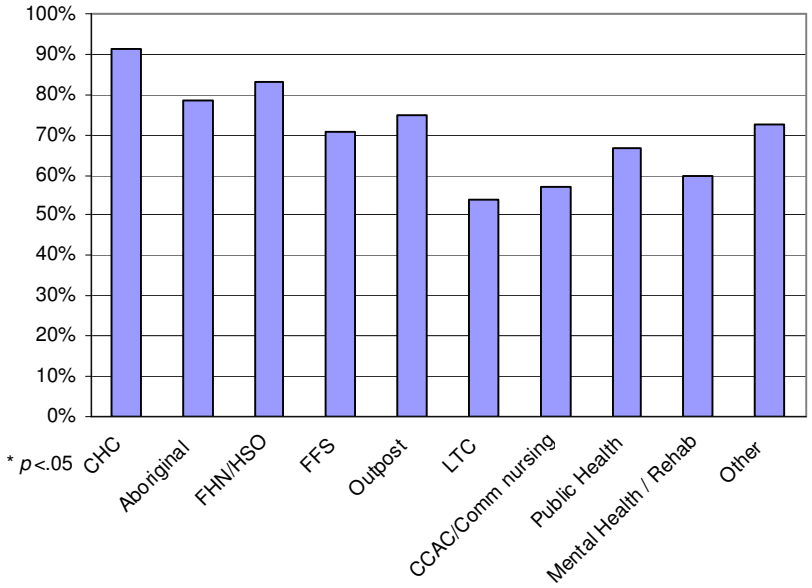
- Clearly identify the role they want the NP to play within the organization;
- Ensure that other team members are educated about the role; and
- Ensure that the NP is supported by appropriate policies, procedures and resources to achieve that role.

The NP survey found that 80% of NPs say their role is clearly defined. In addition, NPs whose roles are clearly defined are more likely to:

- Work within their full scope of practice (85% vs. 65%);
- Not to be limited to certain types of patients (22% with clearly defined roles vs. 46% with poorly defined roles); and
- Spend more time on clinical work and less on non clinical and clerical work.

The percentage of NPs with a clearly defined role varies by type of setting. These findings are presented in Exhibit 145.

**Exhibit 145: Percentage of NPs who identified their role was clearly defined by type of setting**




***Role Definition***

NPs, physicians and other members of the health care team expressed dissatisfaction when the NP's role was poorly understood and communicated. In one case, the NP reported that she was somewhat disappointed with her role and this in part was related to the fact that the role was not well defined or structured prior to her accepting the position. It was also noted in one large practice site that the NP role could not become effectively integrated given that one full-time NP was shared across multiple sites and was working with more than a dozen physicians. At this site, a review and realignment of the role was undertaken limiting the number of sites and physicians that would be working with the NP in the future. In addition, the NP developed a realistic outline of the role and activities that could be provided for the identified sites/physicians with support from the physicians.

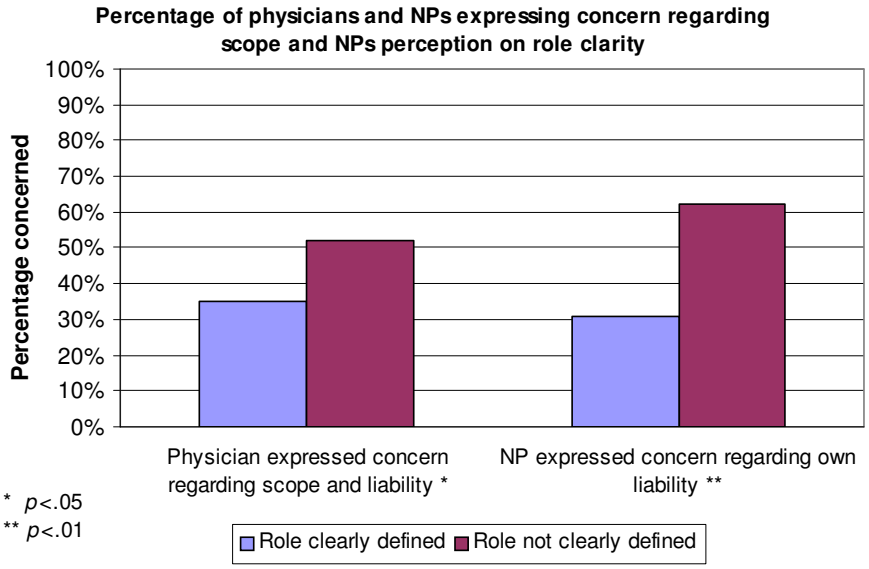
Role definition and clarity needs to occur at the level of the sponsoring organization, site care team and community. In some cases, there may be a strong understanding of the NP role at the level of the sponsoring organization, but this is not shared with the practice team. Given the number and variety of arrangements between the MoHLTC and sponsoring organizations, it is important to ensure that the sponsoring organization plans for NP integration into the site health care team. We observed in some cases that the health care team who would eventually be working with the NP was not involved in the application process and experienced some significant challenges understanding the role when the NP joined the team.

The importance of educating other team members and members of the community about the NP's role was emphasized at sites where the NP was a recent addition to the team. It also proved important to orient all new members of the team to the NP's role on the existing team. The degree and ease of

acceptance of the NP appeared related to a clear understanding of the NP scope and methods of practice. Education was required for members of the team within the organization where the NP worked, as well as for community partners. In some cases, the education of others with respect to the NP role was undertaken by organizational managers and in other cases the NP took an active role in this function.

The NP survey results indicate that lack of role clarity plays an important role in the NP's perception of physicians concerns about liability. The following data suggest that more concern about MD and NP liability is associated with lack of role clarity.

**Exhibit 146: Concern about scope and NP role clarity**




***Methods of Defining the Role***

There were various methods for defining the NP's role and responsibilities. Examples of effective approaches include:

- The site director identified a need for primary care in the community that could be met by an NP. The organization formed a steering committee with their own managers and three external NP experts to help describe the role and supports required. When that was complete they applied for funding and subsequently recruited a NP who has been successful and well accepted into the role.
- The organization had a general idea of what they wanted the NP to do. They recruited a NP and, within a few broad parameters, let her develop the role. The NP conducted her own needs assessment; defined her role and policies and procedures. The role is now well accepted, well utilized and appreciated within the organization.
- In one long-term care setting, the NP developed a formal contract with all physicians associated with the centre which detailed all activities and tasks within the NP's scope of practice that would be applicable to the particular site. Each contract described the scope of activities that the NP would

provide (including medical directives) for patients under the care of each physician and was reviewed and updated/renewed annually.

- Various methods for general orientation and education were identified including: the development of brochures and written material for community partners; meeting with local physicians and their office staff; writing descriptions of the role and services for publication in community newspapers; appearances on community television programs; and speaking at service clubs, churches and other local organizations.
- In a few sites where the NP role was new to the practice setting, the NP took primary responsibility for completing a needs assessment and assessing practice style and readiness of other team members to support the integration of a NP. In one case, the NP developed a comprehensive plan of action for promoting and integrating the NP role according to her vision of how it could be implemented to its fullest scope and in response to the needs of her primary clients, the physicians and other team members. In another site, the NP was able to have dedicated time before initiating her clinical caseload to complete a needs assessment and meet with providers within her practice setting and in the community to ensure the effective development of her role.

*"A good medical secretary is critical to the NP working effectively in primary care, she will do the initial triage and will book appointments and schedules and organizes the day." (NP)*

*"It's very important to establish a rapport at the beginning, be very clear about what the roles and responsibilities are. That's probably where problems can arise." (NP)*

It was also seen as imperative to ensure other members of the health care team and administrative staff at the practice site had an understanding of the scope of the NP's role and how it fitted within the organization's service delivery model (especially if role was new to the site). In many primary care sites, the office manager/receptionist performs an important role in the initial triage and prioritizing and scheduling patients with either the NP or physician or even directing them to the local emergency. It is important to involve these key members in information and education sessions about the NP's role.

Nurses should also be involved in education and information sessions related to the development and implementation of the NP role. It was noted that in many settings tensions had arisen between the NP and the nurses involved in initial triage. Clarification and support from the manager were required to reaffirm respective roles and responsibilities.

In one setting, the NP actively sought to understand the needs of the nursing staff and developed a strategy to develop her role based on their needs, as well as the client's. She solicited input and feedback on her performance from these key people and won the support of the nursing staff when she showed flexibility in meeting their needs.

For an organization hiring an NP for the first time, a development period is required. Several sites identified that two to three months is required from the time the NP is hired until they start seeing clients. Even when the role is well "scoped" out, time is required to educate the team, educate physicians and obtain necessary resources.

Where the NP role is established, it is important that new staff coming into the organization are given an appropriate orientation so that they fully understand the NP's role. One site had a two-week orientation period that included an introduction to the NP role. This was reported to be effective in ensuring the continued successful integration of NPs (as well as other professionals) into the organization.

***Alignment of NP Skill and Experience with Role***

Role clarity also played an important role in successful integration with respect to matching the NP skill and experience mix with practice expectations. Ideally the role the NP will play is well defined by the organization before an NP with the appropriate mix of skills and experience is recruited into the position. Sites where the NP was integrated more successfully had spent time meeting with stakeholders and managers to identify what client needs could be met by the NP, and then recruited a NP with the specific skill and experience mix to fill the specified role. In some sites, vacancies for NPs remained while the role of the NP was still being developed.

Many sites suggested that this "fit" between NP skill mix and experience and practice settings' needs would become more important as the types of settings where NPs practice become more diverse, more NPs are expected to work in under-serviced areas and the requirements for nurses applying for NP educational programs change. In response to this last issue, many NPs and MDs have suggested that NPs should be prepared at the Master's level.

**Summary of Facilitators for Role Clarity**

- Time is spent identifying the patient needs the NP is expected to meet
- Understanding of health care team members' practice styles and readiness for integrating the NP role
- NP roles are identified in writing and circulate and discuss it widely to team members to obtain buy-in to the position and provide education about the role
- Allow NP time to establish a rapport with physicians and other members of the health care team to allow them to become familiar with their mutual practice styles

## Team Dynamics

In addition to the initial time spent developing the role of and vision for the NP, on-going review of the methods by which the team interacts with the NP is crucial to the development of positive relationships and integrating the NP into the practice setting.

Organizations where NPs were successful team members devoted time to dealing with team issues. Various sites did this in different ways. On the whole, larger organizations had developed structured approaches through regularly scheduled team meetings. The frequency varied from weekly to monthly to three or four times per year, but in all cases there was a formal effort to review roles, policies related to client needs, the responsibilities of each team member and to develop alternate ways of conducting

business if necessary. One site reported that frequent meetings allowed problems and stress points to get discussed in a timely way. This was seen as a success factor for the team concerned.

Key enablers for successful teams with an integrated NP role included the following:

- Respect for one another;
- An environment for open and frank discussion;
- Easy conflict resolution;
- All team members understand each other's role;
- Team members are willing to help each other; and
- Institutional memory of the organization's collaborative culture.

*"[There is a] need to be team players, to give and take, to respect the other players' expertise. There is a lot of transparency here. My premise is that you can't deal with something if its covert. It has to be on the table and everyone has to know its out there." (manager)*

"*Traditionally the nurse practitioners at this centre have done wellness care but there is a desire by all team members to have a more holistic approach to client care so that physicians look after some well clients as well as some complex clients and nurse practitioners take a larger role in managing the care of clients with chronic conditions*." *(manager)*

"*The nurse practitioner here does an initial assessment on all new clients but we are reviewing this as we are finding that her workload is increasing now to the point that this may interfere with her ability to do other things." (manager)*

In smaller practices, meetings to review team functioning were conducted on an ad hoc basis. This was satisfactory for some NPs, but others reported that it was difficult to get people together to review team functioning when time was not specifically scheduled for this and therefore issues were not always resolved in a timely way.

In some cases, the sponsoring organization reported that as a result of these site visit meetings they were reviewing their practice models.

In larger organizations, the practice style of the clinical director or manager was often a key aspect for the successful functioning of the team. At one site we heard that a key aspect to the team working well was the facilitating style of the clinical director who was seen as being "low key," but good at listening and problem solving.

In terms of team dynamics, we heard from some sites that changes need to be made to medical curricula so that students are made aware of NPs and their role. In addition, NPs could benefit from learning about their role in relation to the physician's role. It was suggested that at present, everyone is educated in different silos and are not aware of the role of other members of the health care team. One solution posed was to incorporate more opportunities for NP and MD students to work together during their basic education.

***Distribution of Workload between the Physician and the NP***

*"I sometimes feel other team members want me to shorten my visit times so I could see more patients. I have to keep reminding them of the "nursing" part of my nurse practitioner role. My added value to this practice is related to the health promotion and education aspect of my role. They are starting to see the benefits of my holistic approach and impact of interventions in some of the most complex clients within the practice – who cannot be attended to adequately in a 15 minute visit." (NP)*

A very sensitive topic between NPs and physicians is related to the distribution and expectations of the work between these two providers. At a few sites, there was clearly a difference of opinion regarding sharing responsibility for patient care, time allocation and work distribution. Some of these issues centred on on-call activities, hours of work, patient encounter time, MD time required to consult with/support the NP, and distribution of NP time between education, teaching and direct patient care. However, on the whole, there was a good understanding of work and time allocation.

In general, concerns about work and time allocation were more frequently expressed by physicians who worked in fee-for-service settings. This concern often reflected the lack of physician remuneration for collaboration with the NP. Where MDs were compensated for consultation with the NP, these issues were less of a concern. Other concerns included:

- NP practice focus on more "well" and less complex cases thus re-distributing the physicians' patient mix to a more complex patient group. Several physicians stated that a physician's practice works best when there is a mix of client types.
- An increase in physician workload based on the time required to consult and collaborate with NPs

*"I took time to get to know [the physicians'] practice styles. Their collaboration has improved over time, but it shouldn't just be me collaborating. They've come a long way, but at the same time I would have to say that the NP has put a lot of time into shaping the relationship but now its going on year three and the NP shouldn't have to put so much effort in." (NP)*

In emergency departments where an alternate payment plan exists, usually the volume of patients the NP sees is not "counted" as part of the emergency department volume. As a result, it is a significant challenge to manage volume and physician resources so that any additional MoHLTC funded MD positions are not jeopardized based on lower than actual reported volume.

Comments from physicians included:

- *"I like to see some healthy clients. A lot of my practice is elderly clients with chronic conditions who are not going to get better. At the end of the day I enjoy my work a lot more if I see a mix of patients who are healthy, patients who have a sore throat and I can fix it and bring almost immediate relief, and more complex clients that are challenging and need physician expertise but who are going to be there day in and day out. If the nurse practitioners do all the wellness care and all the minor things then all that I will be doing is dealing with clients you cannot do that much for."*

- *"Our care becomes very fragmented. Usually the nice things are the well babies, the sore throats etc and that is totally taken away from us, it takes away the niceness of family practice."*

- *"My office is always full and a lot of clients need a lot more time than what the fee schedule allows. If I can balance my work with some patients with a fast turn around time then I can spend more time with the complex patients and still make a decent wage."*

- *"Nurse practitioners are resented in this community because they see the easy patients, they do not do on-call or have hospital duties and they make a salary that is not that much different than the family docs."*

- *"I have lots of clients who are in need of health teaching and health promotion and could use the services of a nurse practitioner but who is going to pay for that? Granted it will give clients more access to that kind of care but my workload will not be changed in any way."*

- *"A family physician in this community earns approximately $100,000 to $120,000 per year for a workload that includes 12 hour days where 50 to 60 patients are typically seen in a day with on-call and hospital duties included. Nurse practitioners earn about $70,000 for seeing 10 to 12 patients a day and that ends after 8 hours. So the nurse practitioners have about one quarter of the workload for about two thirds to three quarters of the pay."*

- *"The presence of the nurse practitioner allows me to practice using the skills and expertise that I have. The nurse practitioner looks after the minor problems and wellness care and I do the more complex patients and that is the way the system should work."*

- *"I would like to clone the NP. She sees clients with problems that take a long time and that I don't have time for and they love her. They like the fact that she talks to them more and spends more time with them."*

- *" The NP can do almost 95% of what the physicians do at this particular site – they are a very cost effective way to deliver primary care."*

Comments heard from NPs and managers included the following:

- *"In this community there are not enough doctors and they do not have time to provide prenatal care or health teaching. This is the type of service that patients want and would not get if the nurse practitioner was not around."*

- *"There is a need for primary care in this community. Many families do not have a family doctor. There is no reason why nurse practitioners could not work in the walk in clinics—the patients that come to that sort of facility are almost always within the NP scope of practice but it is easy money for the doctors and they will not let a nurse practitioner work there."*

***The Role of the NP in Relation to Other Members of the Health Care Team***

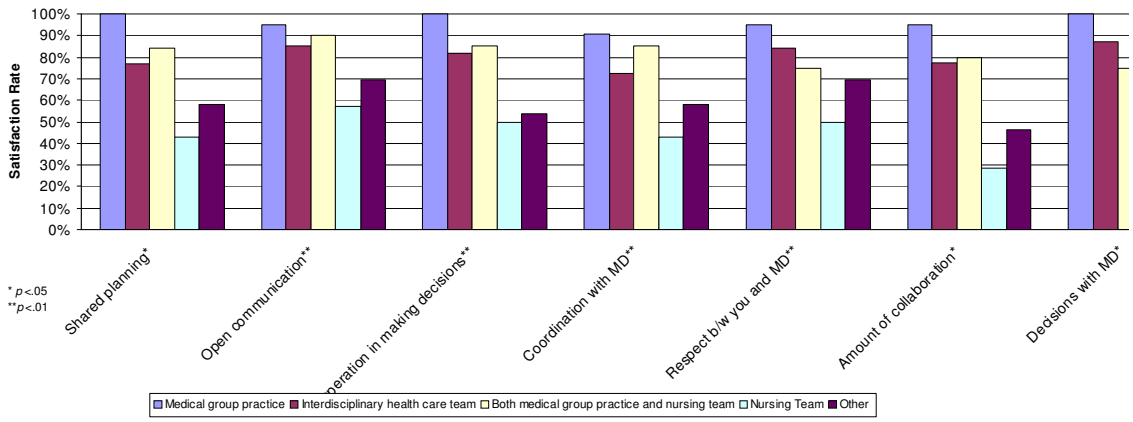
In almost all cases where an NP was part of a multidisciplinary team the rest of the team accepted the NP role and expertise, and referrals were made between team professionals.

At one site the NP noted that she believed the team supported her role due to the fact that the NP could "diagnose according to the medical model and practice/treat according to a nursing model".

Challenges with other care team members were most often related to role expectations and the lack of role clarity between RNs and the NP. The challenges centred on:

- NP expectations that RNs should support the NP's daily activities in a similar fashion to the MD. This most often occurred in Primary Care Networks, CHCs and fee-for-service settings;
- RN expectations that NPs should contribute to nursing care activities when needed; and
- This need for mutual role clarity is of importance when the findings from the NP survey are considered in relation to the source of referrals to the NP. Exhibit 147 provides a summary of referral sources.

**Exhibit 147: Source of referral to the NP**




- *"The nurse practitioner has added a dimension to our practice that we did not have before. It is a nice link between the role of a nurse and the role of the physician." (social worker)*

- *"The nurse practitioner provides that higher level of expertise and skill that is invaluable to us (nursing staff). This expertise is now readily available and accessible to us – whereas in the past we would have had to call the physician – who is not on site daily like the NP is". (RN)*

- *"The way to better integrate nurse practitioners into the health system is to fund more of them. Once you have worked with them the benefits of the type of work they do are obvious."(manager)*

- *"A lot of the residents in this community do not have a family physician. If we did not have the nurse practitioner we would have no access to any of the routine health care that most families need." (social worker-counsellor)*

*"This is a small town and I know most of the residents who see the nurse practitioner and they tell me in the coffee shop or at the arena how much they appreciate her and that they like the way she spends extra time with them." (physician)*

*"In our homeless outreach program – patients prefer to see the NP. Many have had negative experiences in the past with older, more traditional physicians and feel that the NP has been more accepting of them and not judgmental." (physician)*

***NPs and Clients***

On the whole, interviewees at the site visits reported that patients accepted the role of NPs and appreciated the time NPs spent with them. It was reported that initially, patients did not understand the role but once they had been assessed and treated by an NP, there were few concerns about the care provided.

**Summary of Facilitators for Teamwork**

- Develop consistent, clear messaging about NP role
- Communicate the need for mutual flexibility in relation to roles
- Establish congruity between NP role and needs of the practice's patients
- Provide organizational support for the development of trusting relationships between MD, NP and other members of the health care team
- Promote frequent communication among team members including early resolution of any problems/issues
- Physician remuneration for consultation with the NP

## Resources

Human, capital and financial resources are required to support NPs' work. These include:

- Funding for salary and benefits (including vacation), overhead expenses, space and equipment, medical supplies and administrative services sufficient to support the work of NPs;
- Support for travel between multiple sites or homes visits;
- Capital replacement costs;

- Patient/resident education materials;
- Information technology and decision support;
- On-call reimbursement;
- A sufficient supply of NPs so that recruitment efforts result in appropriate candidates;
- Access to continuing educational resources for NPs; and
- Access to peer support, especially for those who work independently and in geographically remote areas.

***Wage Disparity***

The majority of NPs interviewed were dissatisfied not so much with the base salary paid to NPs but rather with:

"*Many nurse practitioners are experienced nurses from hospital settings who went back to school but there is little difference between what a nurse in a hospital is getting and what the NP is getting. There is no wage incentive to become a nurse practitioner.*"

*"There needs to be a pay grid with an established method for advancing through the grid like the ONA scale in hospitals."*

*"I would equalize funding across the province - so that salaries for NPs are comparable."*

*"The pay that NPs get in CHC is lower than some of the positions funded more recently in other settings but who are doing much the same kind of work."*

*"The community sector is not able to compete with the salaries and benefits offered to NPs in acute care settings."*

*"There needs to be recognition of the level of experience that NPs bring to projects … compensation is lacking, its less than I'd get paid as a RN in a hospital (I would be the top level). I've taken a risk, committed to a project without a guaranteed future. It's a trend in nursing which I'm tired of."*

- Inequity of salaries for NPs across the province for similar MoHLTC funded positions. This situation was the result of sponsoring organizations:
  - allocating some of the MoHLTC funding for NP salary to other costs;
  - providing additional salary incentives to attract NPs;
  - requiring NPs to pay additional funds other than those from MoHLTC for overhead and other operating expenses;
- Lack of yearly cost of living or other adjustments;
- Lack of incentives and relocation costs to recruit NPs to under-serviced areas; and
- New NP positions funded at a different level than the current positions.

This observation is supported by the responses from the NP survey in relation to NP salary.

**Exhibit 148: NP satisfaction with salary**

| | |
|---|---|
| Very Satisfied | 3.9 |
| Satisfied | 32.9 |
| Minimally Satisfied | 28.1 |
| Minimally Dissatisfied | 8.7 |
| Dissatisfied | 19.9 |
| Very Dissatisfied | 6.5 |

In addition, the survey data showed that:

- Fifty-eight percent (58%) of NPs have travel costs; of those71% have these costs reimbursed;
- Seven percent pay a fee for medical or computer equipment;
- Six percent pay a fee to use support staff; and
- Seven percent pay a fee to use office space.

The NPs interviewed during the site visits were on the whole experienced nurses. Many of them were also experienced as NPs, although they may have been employed at the sites visited for a relatively short period. The level of experience of these NPs also led to some dissatisfaction in relation to the following:

- In most organizations, there is no established pay scale or organized way of moving through a pay grid. NPs are assigned a specific pay rate and in their opinion there is a disparity in wage rates among the sites unrelated to skills and experience. Their perception is that NPs who work in hospital settings receive more pay than those who work in community health settings. Among the NPs interviewed, wages ranged from $58,000 to $80,000, a range of over $20,000. NPs would like a pay grid with a defined method of moving through the pay scale.
- The NPs reported that the pay and benefits they receive does not reflect any increment over the pay senior nurses in hospitals receive although their responsibilities and educational requirements are greater. In some cases, they had lost benefits such as vacation by assuming the NP role.

Some physicians and NPs noted that any change in salaries would have to be carefully assessed so that NPs did not “price themselves out of the market.”

***Overhead Expenses***

There was dissatisfaction with the amount of funding designated for overhead payments. This was most strongly felt in settings where MDs had overhead responsibilities. Most sites reported that their overhead expenses related to NPs exceeded the $10,000 allocated by the Ministry for this purpose. Some sites reported that the NP position was not sustainable unless additional money was received for overheads, including monies for secretarial support and a consultation fee for physicians.

Some sites also indicated that funding for vacation replacement should be included in overhead allocation for NPs. At one site, the only community clinic in the town closes when the NP is on holiday or off sick.

Site visit participants reported that overhead expenses exceeded MoHLTC funding due to the additional administrative support required, notably a receptionist / secretary to book appointments and register clients for the NP. In some sites, the cost of this support has been mitigated by having the NP book his or her own appointments with clients. NPs report that a significant amount of time is spent on administrative activities such as calling for test results or arranging referral appointments. Exhibit 149 provides a summary of NP survey responses in relation to time spent on specific activities.

**Exhibit 149: Percent of NP time spent on specific services**

| | Mean percentage of time spent on service (n) | | Percentage of NPs who spend 50% or more of their time providing service |
|---|---|---|---|
| **Services** | | | |
| Wellness care | 37.93 | (225) | 38.2 |
| Administration | 32.50 | (8) | 25.0 |
| Care of minor acute illness | 31.93 | (219) | 22.4 |
| Prenatal/newborn | 28.33 | (3) | 33.3 |
| Monitoring of chronic illness | 24.89 | (204) | 15.2 |
| Care of major acute illness | 10.56 | (133) | 3.8 |
| Counselling/education | 10.43 | (7) | 0.0 |
| Social Support Work | 8.00 | (1) | 0.0 |
| Care of palliative patients | 4.92 | (59) | 0.0 |

While all sites reported they had sustained additional expenses related to the NP, it appeared as though larger organizations had an increased ability to absorb the additional overhead costs by accessing other sources of funds. However, one large organization reported that the NP position might not be continued because of difficulties finding the additional $20,000 for overheads required to support the position. Overhead expense issues were most frequently cited in fee-for-service practices, Primary Care Networks and community organizations where a major barrier to the integration of the NP was the additional costs incurred for overhead. Physicians who worked with NPs in these settings supported the NP role, but stated they did not gain financially from an NP and therefore thought it should not be up to them to provide extra funding for the position.

NPs' comments included:

- *"Off the top of my head my expenses are as follows: $600 per month for rent, $150 per month for computer/phone/fax, $2000 per year for professional and insurance fees and I pay my receptionist/secretary $11,000 per year for two days per week of work. The rest of the time I book my own appointments. This does not include the cost of supplies. I am expected to be responsible for my own overhead so it comes out of my salary."*

- *"The NP is not sustainable in this community because right now the community is doing fund raising to support the administrative costs of the practice. It takes a lot of bake sales and car washes to pay for a secretary for a year."*

- *"I have agreed to pay $16,800 per year for overhead expenses to help cover my practice costs."*

From a physician:

- *"The Ministry of Health does not provide any payment to physicians for overhead and they pay $10,000 for the nurse practitioner. If the $10,000 is not adequate to cover expenses it is not reasonable to expect the physicians to pay the additional cost."*

***NP Supply***

There were varying reports among the sites about the adequacy of the supply of NPs. This variation was not just related to geography or practice setting, although northern communities more consistently reported that there was an insufficient supply of NPs.

The perception exists that some settings, because of their structure or historical role, are more desirable and more easily able to recruit NPs. In one setting, an NP had taken a locum position based on an extreme NP shortage in that setting. The NP took a leave of absence from a regular position to accommodate this locum position.

In communities where specific qualifications were required (e.g., ability to speak French or previous experience in primary care) recruitment was more difficult, with some centres reporting they had positions funded that they could not fill. In other cases, organizations had difficulty recruiting and retaining NPs because there was a high turnover of NPs choosing more desirable positions and salaries. Recruitment challenges were also experienced in both urban centres such as Toronto and northern centres such as Thunder Bay.

At one site, an NP expressed frustration that when she talks to nurses, many do not want to become NPs because of the high cost of education to become an NP. These costs include loss of income and tuition.

Other sites reported that they had many NP candidates to choose from and that if funding were available they could and would hire more.

Concern was expressed by one health care provider that the MoHLTC was addressing a physician shortage by hiring NPs: "… *if the Ministry thinks they can forego physicians by hiring NPs, it puts a tremendous pressure on physicians. I think we really can't underestimate the value of NPs but we need to remember that they need to refer to physicians. I fear that the Ministry sees NPs as a cost saving measure and not a health care expansion measure".*

***NP Activity***

Across sites, NPs reported a wide variation in both the volume and type of activities they undertook. In all cases, this level of activity appeared to be a negotiated situation between the NP and the site sponsor or clinical manager.

Site or clinical managers reported that they would find it very helpful to have a "benchmark" report from the MoHLTC to help them determine an appropriate level of NP activity. This requirement also results from a desire to be accountable for NP resources and develop the ability to report to the community and funders regarding spending for NPs.

NPs are generally keeping encounter information as requested by the MoHLTC. In some situations, NPs are developing their own site-specific data collection tools in order to assist in reporting to local funders or clinical managers. Most NPs commented on the usability of the information submitted to the MoHLTC since in most cases, the information did not reflect their true activity. In some sites (for example, many CHCs), NP activity is rolled up into total clinic activity and thus the NP activity cannot be tracked separately.

Access to the appropriate technology to collect and analyze information related to practice activity varies between sites. Many NPs keep paper records of patient encounters, while others have on-site access to a computer and the Internet.

Many NPs spoke of their interest in evidence-based practice, sharing best practices among NP colleagues, participating in research and making more referrals among NPs. Appropriate technology would support this objective.

**Summary of Resource Facilitators**

- Adequate funding for NP salary and overhead costs such that the NP does not have to supplement overhead from his or her salary
- Allocated funds for NP continuing education
- Congruence of NP salaries among settings
- Standardized collection of information to support planning

## Scope of Practice Issues

*"Today I called a gynaecologist to refer a client. They said they needed a family physicians referral. I told them the client did not have a family physician--which is not unusual in this community-- so they told me the client would have to go to emergency to get a referral. That means the client was required to make*

*e two visits for the same problem. Does that sound efficient to you?"(NP)*

*"One thing that irritates me about working with the nurse practitioner is the need for us to sign for their referrals to specialists. For many clients it is a straightforward decision but if I have to sign for this it means that if I am doing things properly I have to assess the client all over again. If I just sign then I feel like I am playing games. Then when the report comes to me I end up reviewing it before I realize it should go to the nurse practitioner". (family physician)*

Those who work with NPs generally understand the scope of practice of NPs. However, NPs made a number of comments about issues related to their current scope of practice and the impact these issues had on developing a more integrated role.

### *Referrals*

The requirement to have physicians sign most of the referrals to specialists is seen as an unnecessary requirement by NPs and physicians alike. Many NPs suggested that one of the main reasons they refer patients to family physicians is to obtain a referral to a specialist. This is seen as time consuming, causative of fragmented or duplicated care as well as being costly and inefficient. In some cases where there is a high level of mutual trust between the NP and the physician, the NP and the physician have worked out an arrangement where the NP signs referrals for certain common conditions on behalf of the physician, and the physician never actually sees the client. In other cases, the specialist accepts a referral from the NP and thus defers the referral fee.

In circumstances where the patient has no family physician, a referral to a specialist becomes even more challenging.

### *Ordering of Drugs and Laboratory Tests*

*"A big barrier I find is our drug list, a lot of these people are chronic and we can't reorder diabetic medicines etc. Everything here is diabetes. That's frustrating. It would be nice to have a larger drug list to order from." (NP)*

*"NP scope is somewhat limited related to prescription of psychotropics and anti-depressants – if this scope could be expanded that would be great – in Michigan NPs can prescribe these types of drugs"*

*"I think [NPs] could do more – prescribing, they should be able to manage blood pressure problems, should be able to administer drugs and manage, also diabetes." (physician)*

During the site visits, we heard a number of comments related to the types of drugs and laboratory tests NPs are allowed to order. One concern was that the drugs approved for NPs to order were listed by name instead of by classification. A preferred approach that would be more time efficient would be to list approved drugs by classification. An inadequate process for updating the list of approved drugs has resulted in inadvertent omissions in updates. As a consequence, NPs have had to follow-up to obtain additional documentation in order to maintain authority to prescribe approved drugs.

Other concerns related to the fact the some common laboratory tests and drugs were not included in the approved list for NPs, causing an unnecessary restriction to their practice. This was reported as particularly problematic when it came to managing

and monitoring some chronic conditions such as diabetes and asthma. It was noted that the current list should include those diagnostic tests and drugs that are needed in order to diagnose and manage conditions within NPs' scope of practice. For example, currently NPs are unable to order standard pre-natal tests such as the rubella titer.

Orientation of local laboratories, diagnostic imaging centres and hospital departments is in some cases an important facilitator to the NP accessing laboratory and radiology reports. In many cases, even though the NP is requesting a test within his or her scope, the results are sent directly to the physician.

In cases where the local hospital is the resource for laboratory and radiology, there are often a number of internal hospital approvals required for the NP to access these services. In some cases, these approvals have taken years to go through multiple committee reviews and approvals. This has also been the case with the time required to approve medical directives required for employing emergency department NPs and long-term care NPs where the sponsoring organization is an acute care hospital.

***Access to Information about an Acute Care Patients and Hospital Admission Privileges***

Limitations related to hospital admission privileges were also mentioned by many NPs who are unable to admit a patient, obtain information on care provided during the acute care stay (diagnostic tests results etc) or access the discharge summary notes. This concern was most often expressed by NPs who did not have regular access to an MD for consultation and collaboration and whose patients required hospital-based care.

Most NPs emphasized that the most pressing issue for them related to lack of access to patient information. This was a more significant issue in practices where the NPs were providing primary care to "orphan" clients, resulting in the fragmentation of service and care delivery. NPs were also frustrated by the fact that discharge summaries and notes were directed to physicians in their collaborative practices even though the NP had made the initial recommendation to refer the patient.

Most NPs acknowledged that hospital emergency department staff and physicians were open to accepting referrals from NPs and were often appreciative when NP called ahead and provided referral information.

***Liability Issues***

Concerns related to insurance coverage of NPs were also put forward by a number of sites. Currently, most NPs have purchased a policy, which is referred to as "claims-made" liability insurance, through the Registered Nurses Association of Ontario's (RNAO) Nurse Insure Program. This insurance coverage is limited to the time period during which is the NP is in active practice at a site.

Questions arose regarding the scope of a site's responsibility when a legal suit is lodged after an NP has left the practice. This is because people have up to seven years from the date of service to pursue a claim.

NPs who are members of the RNAO (estimated to be 90%) also have automatic "occurrence-based" liability coverage through the Canadian Nurses Protective Society (CNPS). This type of coverage continues after the NP has left a site. Recently, the MoHLTC facilitated consultations between the CNPS and nursing stakeholder groups to review the limit of the occurrence-based coverage. These consultations resulted in an increase in coverage from $1 million to $2 million.

***NP Orientation***

For many new RN(EC)s, their first position after graduation was their first time practising independently within the full scope of practice. Many indicated that it took six months to a year to become fully comfortable in their new role. During this time, they required greater assistance from the physician and other members of the team and in-service training. Some have suggested that this learning curve should be accounted for and that internships should be considered.

**Summary of Facilitators Related to Scope of Practice Issues**

- Good communication channels with pharmacies, laboratories and diagnostic imaging centres to facilitate referrals and timely and appropriate return of results
- Established physician trust and co-operation in terms of specialist referrals

## Integration of Primary Health Care NPs into the Ontario Health Care System

"*There is great variation in the skill set among nurse practitioners. When you hire a family physician you can be fairly confident that he/she has a specific set of clinical skills that were developed in medical school. This does not seem to be the case with nurse practitioners".*

*"If I was to advise an organization who was considering hiring a NP I would tell them to figure out what needs they wanted the NP to meet and then recruit carefully as there is quite a range of skills among nurse practitioners."*

*"The NP educational programs should have an internship in a clinical setting where everyone would achieve the same clinical skills. The NPs all seem to have the same expertise in communication skills, interviewing and a holistic approach to clients but their clinical skills are quite different."*

*"NPs need experience. It takes two to three years full time to feel competent in the role. Training does not do it all."*

We heard from several sites that the individual NP who held the position in part shaped the NP role. This was seen as both a facilitator and, in some cases, barrier.

In many sites the team was particularly supportive of "their" NP. They indicated that the specific skills or personality of the NP they worked with were instrumental in the acceptance of the role within the organization and the high degree of satisfaction of the clients and tem with the NP role. While this is positive for the particular individual concerned, there seems to be doubt that the skills that "their" NP contributes can be applied to NPs in general. This is likely a public education issue. Once the role that NPs play is more widely understood by the population in general, the particular skills that an NP brings may be better accepted as a factor of the profession rather than an individual.

***Skill Set***

We heard from many physicians and NPs that there was wide variation in the skill sets of NPs. Given that professional trust is a facilitator to an effective clinical decision making relationship between the MD and NP, the NP skill set is very important. Many MDs and NPs spoke of a learning curve required to determine the skills required for a particular position and the challenges of recruiting a NP to meet those requirements. MDs spoke of the need to have an understanding of the basic skill set that could be expected from NPs.

In one northern practice, setting it was suggested that a cultural component ought to be introduced into the NP training programs.

***Public Education***

In terms of integrating NPs into the health care system as a whole, we heard that where a NP was working there was no doubt about the positive contribution they made to patient care. When NPs are part of a practice setting their role is appreciated and on the whole accepted by the public and other team members.

When NPs were asked for their general comments regarding integration, many felt that a better understanding of their potential contribution would result in greater use of their services. Comments heard included:

- *"The best way to promote integration of NPs into the health care system as a whole would be to fund more positions. Once an organization has used a NP they are sold on their contribution."*
- *"Many communities do not know how to apply for a nurse practitioner or what role they play. If communities knew about their role in primary care they would be more widely used."*
- *"The Ministry should make it easier for communities to hire NPs especially communities where there is a lack of primary care. For many communities finding the money to pay for a NP is one burden but the other thing is they don't know how to apply and what a NP can add."*
- *"The Ministry should advertise the NP role more in their public service announcements. For instance now when you hear all these public announcements on SARS the ad could say contact your family physician or nurse practitioner if you have questions."*
- *"It is such a barrier when you have people in the community who don't do their job or aren't the right person for the job. You need a dynamic person as a Community Health Resource (CHR). It's the communication between us and the CHR that really makes it work. If you don't have a good CHR, you don't have patients." (Aboriginal Health Access Centre)*

**Summary of Facilitators Related to Integration of NPs into the Health Care System**

- Understanding and promotion of NP skills sets and competencies
- Support of the NP role by others in the setting with relation to the patients
- NP outreach activities in the community

## Facilitators and Barriers to Integration

One of the objectives of the site visits was to identify the barriers to be overcome and the facilitators to encourage in order to better integrate the role of the NP into practice settings.

In general, the barriers and facilitators were very similar for collaborative-based practices and consultative-based practices.

The barriers and facilitators identified during the site visits are presented in the following table, as well as the rank of the facilitator and barrier from the NP survey.

**Exhibit 150: Comparison of barriers and facilitators identified by the site visits and the NP survey**

| **Facilitators Identified During the Site Visits and NP Survey** | | |
|---|---|---|
| | **Site Visits** | **NP Survey (rank)** |
| Role clarity | ¤ | |
| Manager's leadership style | ¤ | |
| NP skills acquired outside of formal NP education | ¤ | 2 |
| NP/MD relationship | ¤ | 1 |
| Team support for the role | ¤ | 4 |
| Practice model | ¤ | 3 |
| Shared/common vision | ¤ | |
| Ability to consult with other NPs | ¤ | |
| NP confidence and style | ¤ | 6 |
| Openness to innovation at the practice setting level | ¤ | |
| **Barriers Identified During the Site Visits and NP Survey** | | |
| | **Site Visits** | **NP Survey (rank)** |
| Overhead costs | ¤ | 3 |
| Salary inequity | ¤ | 3 |
| Payment for physician consultation | ¤ | 3 |
| Number of MDs the NP works with | ¤ | |
| Legislative barriers | ¤ | 1 |
| Liability | ¤ | |
| Lack of team acceptance of the role | ¤ | 10 |
| Inadequate administrative support | ¤ | |
| Working in isolation | ¤ | 6 |

# 7. Results of a Survey of Ontarians and Patients

## Introduction

This Chapter summarizes the results of two surveys. The first was a telephone survey of 328 Ontarians who were contacted as part of a national survey, the Health*Insider*. Questions were asked about awareness, use of and satisfaction with NPs as part of a large national public opinion survey on health issues.

The second survey was a self-complete survey distributed to patients who had seen an NP over a two-week period at selected practice settings across the province where site visits had been made. Two hundred and sixty patients responded to this survey.

The survey responses indicate high levels of satisfaction among those respondents who have accessed NPs for health care services. Both surveys found females more likely than males to use NP services. The majority of patients who had seen an NP at site visit settings and who completed surveys were higher income individuals in good health. Results from the Health*Insider* indicated a higher level of familiarity with NPs among these groups.

The findings also indicate a lower level of awareness of NPs and their role than might be expected. This finding leads to a recommendation for the MoHLTC to provide more consumer education in relation to the NP role. This is of great importance given the introduction of more NPs into the provincial health care system.

## Health*Insider* Survey – Fall/Winter 2002

### Methods

IBM Business Consulting Services' National Survey Centre in Ottawa administered the survey by telephone to a random sample of Ontarians. Questions about awareness, use of and satisfaction with NP services were asked.

The results are based on a probability sample of 328 Ontarians, 15 years and older. The survey was conducted by telephone between Wednesday October 16, 2002 and Saturday, November 2, 2002. The margin of error for this research is 4.7%.

The sample was generated using a stratified two-stage random sampling technique. The province was allocated a quota, then stratified into five community sizes. The provincial quota was then distributed among community strata according to their contributions to the provincial population. In addition, separate strata were allocated for Toronto.

At the first stage of sampling, households were selected from a stratum using random digit dialing (RDD). At the second stage of sampling, one eligible respondent was chosen from each household identified by a selected telephone number using the Troldahl-Carter technique. This technique ensures that the sample accurately represents the eligible population according to its age and sex structures.

### Exhibit 151: Sample composition

**Community Size**

| Community size | Total | Proportion | Sample weighted | Sample unweighted |
|---|---|---|---|---|
| 100,000+ | 3,132,955 | 36.69% | 120 | 120 |
| 30,000-99,999 | 573,960 | 6.72% | 22 | 22 |
| 10,000-29,999 | 398,750 | 4.67% | 15 | 15 |
| 5,000-9,999 | 312,760 | 3.66% | 12 | 12 |
| < 5,000 | 714,545 | 8.37% | 27 | 27 |
| Toronto | 3,405,620 | 39.89% | 131 | 132 |

**Age**

| Age | Total | Proportion | Sample weighted | Sample unweighted |
|---|---|---|---|---|
| 15 to 25 | 3,615,700 | 33.6% | 110 | 50 |
| 25 to 44 | 3,496,210 | 32.5% | 107 | 120 |
| 45 to 64 | 2,307,565 | 21.5% | 70 | 113 |
| 65 and over | 1,334,100 | 12.4% | 41 | 45 |

**Gender**

| Gender | Population | Proportion | Sample weighted | Sample unweighted |
|---|---|---|---|---|
| Male | 5,257,910 | 48.9% | 209 | 134 |
| Female | 5,495,665 | 51.1% | 219 | 194 |

**Ontario Sample**

| Population | Proportion | Sample weighted | Sample unweighted |
|---|---|---|---|
| 8,539,350 | 37.32% | 995 | 428 |

To achieve the desired sample, 1,515 valid interview attempts were made with 1,087 refusals.

## Findings

***Awareness of and Willingness among Ontarian Respondents to Use NPs***

Forty six percent (46%) of respondents in Ontario reported that they had heard of a health provider called an NP.

Respondents were then told that "a nurse practitioner is a registered nurse who has advanced knowledge, and diagnostic and treatment skills gained through additional education. She or he can provide services in health promotion, prevention of disease and injury, care of acute and chronic illnesses and rehabilitation. Nurse practitioners can conduct screening tests and procedures, order certain laboratory tests and x-rays, make a diagnosis and treat certain illnesses, and prescribe drugs for minor illnesses."

Subsequently respondents were asked whether they would be willing to consult an NP. The majority of respondents (67%) felt they would be willing to see an NP for support and advice on maintaining their health and well being. Almost the same percentage, 69%, said they would be willing to see an NP instead of a doctor for minor illness, such as colds, sore throats and allergies. However, less than one in ten Ontario respondents reported they had received care or advice from an NP in the past 12 months.

**Exhibit 152: Awareness of, willingness to use, and use of NPs by Ontario Respondents (n=428)**

| | Yes (%) | No (%) | Still unsure of NP role (%) | Total (%) |
|---|---|---|---|---|
| Heard of NP | 45.6 | 54.4 | | 100.0 |
| Willing to see NP for support | 67.4 | 31.6 | 1.0 | 100.0 |
| Willing to see NP instead of MD | 68.6 | 30.8 | 0.6 | 100.0 |
| Received Care from an NP in past 12 months | 7.7 | 92.3 | | 100.0 |

***Familiarity with NPs among Ontarian Respondents***

Ontarian respondents living in moderate sized communities were more likely to have heard of an NP compared to those living either in small or large communities. Respondents 45 to 64 years of age were the most likely to have heard of an NP; 68% of this age group had heard of an NP compared to approximately half of individuals between 25 to 44 and 65 and over, and one-quarter of those 15 to 24.

Female respondents were more likely than males and individuals with a partner were two times as likely as those who were single to have heard of an NP. Individuals who had attained a post-secondary education were more likely than those who had had a secondary education or less to have heard of an NP. As well, respondents who earned $50,000 or more annually were more likely to have heard of an NP compared to those who earned less. Finally, respondents with a chronic illness were more likely to have heard of an NP than those who did not have a chronic illness.

***Willingness of Ontarian Respondents to See an NP for Support and Advice on Maintaining their Health and Well-Being***

Respondents who reported their health as excellent or good were more likely to be willing to see an NP for support and advice on maintaining their health and well being than those who reported their health as poor or fair.

***Willingness of Ontarian Respondents to See an NP Instead of an MD***

Ontario respondents 45 to 64 years of age were the most willing to see an NP instead of a doctor for minor illnesses such as colds, sore throats and allergies (82%). This was followed by 75% of those 25 to 44, and 63% of those 65 and older. Individuals under 25 years of age were the least willing to see an NP instead of an MD but even then, over half of this age group was willing to do so (58%). Females were more likely than males to be willing to see an NP instead of an MD.

Individuals who reported their health as either excellent or good were more likely to be willing to see an NP instead of an MD compared to those who felt their health was either poor or fair.

***Care Received from an NP in the Past 12 Months by Ontarian Respondents***

Females were over three times more likely than males to have received care from an NP in the past 12 months.

**Exhibit 153: Demographic characteristics of Ontario respondents who had heard of an NP, were willing to see an NP, or had received care from an NP**

| | Percentage Heard of NP | Percentage Willing to see NP for support | Percentage Willing to see NP instead of MD | Percentage Received Care from a NP past 12 months |
|---|---|---|---|---|
| **Community size** | | | | |
| < 5,000 | ***53.1*** | 81.8 | 66.7 | 9.4* |
| 5,000-99,999 | ***63.5*** | 68.3 | 69.4 | 8.1* |
| 100 000+ | ***41.5*** | 66.7 | 69.3 | 7.5* |
| **Age Group** | | | | |
| 15-24 | ***25.0*** | 62.7 | ***57.8*** | 5.9* |
| 25-44 | ***51.1*** | 65.1 | ***74.6*** | 9.6* |
| 45-64 | ***67.7*** | 77.0 | ***81.5*** | 7.7* |
| 65+ | ***52.0*** | 75.0 | ***63.3*** | 8.0* |
| **Gender** | | | | |
| Male | ***36.6*** | 64.6 | ***64.1*** | ***3.9*** |
| Female | ***56.0*** | 72.3 | ***74.7*** | ***12.1*** |
| **Marital Status** | | | | |
| No Partner | ***31.7*** | 67.8 | ***63.5*** | 6.7 |
| Partner | ***62.7*** | 67.8 | ***75.3*** | 9.3 |
| **Education** | | | | |
| Less than secondary | ***42.9*** | ***42.9**** | ***28.6**** | 15.4* |
| Secondary | ***35.1*** | ***65.2**** | ***58.7**** | 6.8* |
| Post-secondary | ***55.9*** | ***72.5**** | ***81.3**** | 8.2* |

| | Percentage Heard of NP | Percentage Willing to see NP for support | Percentage Willing to see NP instead of MD | Percentage Received Care from a NP past 12 months |
|---|---|---|---|---|
| **Employment** | | | | |
| Not working | 41.6 | 71.3 | 64.1 | 10.1 |
| Working | 48.2 | 65.8 | 72.2 | 6.0 |
| **Income** | | | | |
| < $20,000 | ***31.6*** | 69.1 | 63.0 | 10.5* |
| $20,000-$49,999 | ***41.8*** | 65.9 | 69.9 | 3.9* |
| $50,000 + | ***58.2*** | 69.2 | 75.5 | 8.6* |
| **Health** | | | | |
| Poor/Fair | 45.8 | ***55.9*** | ***55.9*** | 12.5 |
| Excellent/Good | 45.6 | ***70.1*** | ***71.2*** | 7.0 |
| **Chronic** | | | | |
| Yes | ***55.4*** | 67.8 | 67.9 | 10.4 |
| No | ***38.3*** | 68.6 | 69.9 | 5.7 |

Bolded and italicized cells are significant p<0.05
* cells have expected counts of less than 5 and therefore cannot use chi-square result

***Satisfaction of Ontarian Respondents with Visits to NPs in the Past 12 Months***

Among the eight percent of Ontario respondents (n = 33) who had seen an NP in the past 12 months, overall satisfaction was extremely high. Only two percent felt dissatisfied with the treatment and care they received from the NP and with the amount of time the NP spent with them. All respondents were satisfied with the way the nurse spoke to and listened to them.

**Exhibit 154: Satisfaction with visits to NPs in the past 12 months by Ontario respondents (n=33)**

| | Percentage Very satisfied | Percentage Somewhat satisfied | Percentage Somewhat dissatisfied | Percentage Very dissatisfied |
|---|---|---|---|---|
| Satisfaction with care or advice received from NP | 54.9 | 43.3 | 0.0 | 1.9 |
| Satisfaction with the way the nurse spoke and listened to you | 71.2 | 28.8 | 0.0 | 0.0 |
| Satisfaction with amount of time spent with you | 69.3 | 28.6 | 2.1 | 0.0 |

As seen in Exhibit 154, due to the overwhelming satisfaction with the care that Ontarian respondents had received from NPs in the past 12 months - coupled with the small sample size of those who had used an NP in the past 12 months (n=33) - all cross-tabulations had a p value of > 0.05 or a p-value could not be computed.

**Exhibit 155: Satisfaction of Ontarian respondents with interaction with NPs**

| | Satisfaction with NP care or advice (%) | Satisfaction with way NP spoke and listened to them (%) | Amount of time NP spent with them (%) |
|---|---|---|---|
| **Community size** | | | |
| < 5,000 | 100.0* | 100.0* | 100.0* |
| 5,000-99,999 | 100.0* | 100.0* | 100.0* |
| 100,000+ | 96.0* | 100.0* | 96.0* |
| **Age Group** | | | |
| 15-24 | 100.0* | 100.0* | 100.0* |
| 25-44 | 100.0* | 100.0* | 100.0* |
| 45-64 | 85.7* | 100.0* | 100.0* |
| 65+ | 100.0* | 100.0* | 80.0* |
| **Gender** | | | |
| Male | 100.0 | 100.0 | 100.0 |
| Female | 95.8 | 100.0 | 95.8 |
| **Marital Status** | | | |
| No Partner | 100.0 | 100.0 | 100.0 |
| Partner | 94.4 | 100.0 | 94.1 |
| **Education** | | | |
| Less than secondary | 100.0* | 100.0* | 100.0* |
| Secondary | 100.0* | 100.0* | 92.9* |
| Post-secondary | 94.1* | 100.0* | 100.0* |
| **Employment** | | | |
| Not working | 94.4 | 100.0 | 94.4 |
| Working | 100.0 | 100.0 | 100.0 |
| **Income** | | | |
| <$20,000 | 100.0* | 100.0* | 83.3* |
| $20,000-$49,999 | 100.0* | 100.0* | 100.0* |
| $50,000+ | 100.0* | 100.0* | 100.0* |
| **Health** | | | |
| Poor/Fair | 87.5 | 100.0 | 87.5 |
| Excellent/Good | 100.0 | 100.0 | 100.0 |
| **Chronic** | | | |
| Yes | 100.0 | 100.0 | 94.7 |
| No | 100.0 | 100.0 | 100.0 |

Bolded and italicized cells are significant p<0.05

* cells have expected counts of less than 5 and therefore cannot use chi-square test

# Patient Survey

## Methods

Twenty-seven (27) sites representing the following types of settings participated in site visits.

- Community Health Centres;
- Fee-for-service physician practices;
- Primary Care Networks;
- Long-term care facilities;
- VON;
- Public Health Units;
- Community Care Access Centres;
- Emergency departments; and

- Aboriginal Health Access Centres.

Working with the site primary contact and through identification of the most appropriate recruitment strategy for each site, we made arrangements to have surveys distributed to patients who had seen an NP over a two-week period. Opportunities were provided to have patients participate in a focus group if this approach was preferred. One focus group was held with social workers who were responsible for children in care of the Crown.

All sites were informed that IBM Consulting Services had been given external ethics approval for the patient survey. Two sites conducted an additional internal ethics approval process prior to agreeing to distribute surveys to patients.

Each patient received a recruitment package that included:
- Information sheet and consent form approved by the Institutional Review Board Services;
- The patient survey; and
- A stamped addressed envelope for return to IBM.

Patients were given a choice in the cover information letter to either complete the survey at the time of the visit and return it to a drop box at the site (in a sealed envelope) or to take it home and return it by mail using a stamped addressed envelope. Copies of patient survey information, consent form and survey may be found in Appendix I.

## Description of the Sample

Two hundred and sixty individuals who were seen by an NP completed this survey. Almost three-quarters (73%) of the respondents were women, and about one-third (36%) were 65 years and over. The majority of individuals who had seen an NP had finished at least some post-secondary education, and half earned an income over $50,000 a year. Two-thirds felt their health was either excellent or good.

**Exhibit 156: Demographics of individuals who had seen an NP**

| | N = 260 | Percent (%) |
|---|---|---|
| **Gender** | | |
| Male | 70 | 26.9 |
| Female | 190 | 73.1 |
| **Age** | | |
| <25 | 39 | 15.1 |
| 25-44 | 60 | 23.3 |
| 45-64 | 67 | 26.0 |
| 65+ | 92 | 35.7 |
| **Education** | | |
| Completed high school or less | 97 | 40.6 |
| Completed at least some post-secondary education | 142 | 59.4 |
| **Income** | | |
| <$20,000 | 53 | 20.4 |

| | N = 260 | Percent (%) |
|---|---|---|
| $20,000 to $49,999 | 75 | 28.8 |
| $50,000+ | 132 | 50.8 |
| **Health** | | |
| Excellent/Good | 174 | 67.2 |
| Fair/Poor | 85 | 32.8 |

The ages of males and females who were seen by an NP varied. Males 65 and over were most likely to have seen an NP, while females 25 to 44 were most likely to have done so.

## Findings

These findings are not representative of all Ontarians who see an NP but rather the perspectives of a non- random sample of patients who were willing to complete a survey at the selected sites. Because we were not able to keep track of the number of surveys distributed, we cannot provide a response rate. Therefore, we are not able to calculate the number who failed to return the survey; there is the potential bias that those who did not return the survey were unhappy with the NP and chose not to complete and return a survey.

The type of site is not identified in the results given the small number of responses for some types of sites and the preference of sites to not be identified.

### *Initial Recommendation to Visit an NP*

When asked how it came to be that they were seeing an NP, about one-third (30%) of respondents indicated that they had made this decision themselves and about one-quarter (23%) identified their physician as recommending the NP.

**Exhibit 157: Individual who first recommended seeing an NP**

| | N | Percent (%) |
|---|---|---|
| Decided to see NP themselves | 78 | 30.4 |
| Their doctor | 58 | 22.6 |
| Receptionist | 48 | 18.7 |
| Someone else in the office | 45 | 17.5 |
| Other | 27 | 10.5 |
| Family or friends | 16 | 6.2 |

* Percent does not total 100% because some individuals chose more than one response

The initial recommendation to use an NP varied by gender and age. Females were more likely than males to have visited an NP through self-referral or a recommendation from family or friends. Males were more likely to have used the recommendation of others (doctor, receptionist or someone else in the office) for their first visit. Individuals under 25 were more likely than those who were older to have initially visited an NP through either self-referral or through a recommendation from family or friends whereas individuals 65 and over were more likely to have used the recommendation of others for their first visit.

### *Visits to an NP in the Preceding 12 Months*

The average number of visits to an NP in the past 12 months among respondents was 5.9 with a range of 1 to 52. Approximately half had seen an NP between one and three times in the past year. Three in ten had seen an NP more than six times.

**Exhibit 158: Number of visits to an NP in the past 12 months**

| | N | Percent (%) |
|---|---|---|
| 1 | 42 | 16.9 |
| 2 | 46 | 18.5 |
| 3 | 37 | 14.9 |
| 4 | 30 | 12.1 |
| 5 | 20 | 8.1 |
| ≥6 | 73 | 29.4 |

Twenty-nine percent (29%) of respondents had accompanied a family member or someone in their care to see an NP in the past 12 months. Individuals between the ages of 25 and 44 were more likely to have accompanied someone to see an NP compared to individuals both younger and older.

### *Most Recent Visit to an NP*

Just over four in ten respondents had scheduled their current visit to the nurse practitioner themselves because they wanted to see the NP. Twenty-two percent had made the appointment on the doctor's or other health care provider's recommendation; 12% scheduled the appointment with the NP because their doctor was unavailable.

**Exhibit 159: Method for scheduling an appointment with the NP visit on most recent visit**

| Method of scheduling | N | Percent (%) |
|---|---|---|
| Wanted to see the NP and made an appointment themselves | 106 | 41.7 |
| Other | 54 | 21.3 |
| The doctor was not available | 31 | 12.2 |
| Another health care provider suggested making the appointment to see the NP | 30 | 11.8 |
| Doctor requested the appointment to see the NP | 27 | 10.6 |
| The receptionist suggested an appointment to see the NP | 16 | 6.3 |

* Percent does not total 100% because some individuals chose more than one response

There were various reasons for the most recent visit to the NP. The most frequent reasons were to receive general health information or ask questions about health issues, to receive care for a minor illness, to check or renew prescription medications, and for monitoring a chronic condition.

**Exhibit 160: Main reason for most recent visit to NP**

| Reasons | N | Percent (%) |
|---|---|---|
| General information about health or to ask questions about health | 59 | 23.6 |
| Other | 54 | 21.6 |
| Care for minor illness such as a cold or sore throat | 43 | 17.2 |
| Check or renew my prescription medication | 22 | 8.8 |
| Monitor an ongoing condition such as diabetes or asthma | 22 | 8.8 |
| Annual or general check up | 21 | 8.4 |
| Specific test such as a Pap test or prostate test | 18 | 7.2 |
| Pregnancy care | 9 | 3.6 |
| Check-up for my baby | 9 | 3.6 |
| Diet and lifestyle counselling | 7 | 2.8 |
| Accompany a relative | 6 | 2.4 |
| Support or counselling | 4 | 1.6 |
| Arrange to see another health care provider such as a dietician or psychologist | 2 | 0.8 |
| Participate in a group activity | 0 | 0.0 |

* Percentage does not total 100% because some individuals chose more than one response

***Perceived Benefits of NPs***

The top three benefits to respondents of seeing an NP were that the NP spent time to answer and address all concerns and questions, the quality of care was excellent, and the NP was easy to talk to.

**Exhibit 161: Benefits of seeing an NP**

| Benefits | N | Percent (%) |
|---|---|---|
| The NP spends time with me to answer my questions or address my concerns | 221 | 85.7 |
| The quality of care the NP provides is excellent | 214 | 82.9 |
| The NP is easy to talk to | 204 | 79.1 |
| The NP gives support and information about how to look after my health condition or problem | 197 | 76.4 |
| I am able to see the NP quickly when I have a health problem | 183 | 70.9 |
| I do not have to travel as far as I did in the past to see a health professional when I have a health problem | 91 | 35.3 |
| The NP helps me find out where to get help from other services in the community | 77 | 34.1 |
| Other | 46 | 17.8 |
| The NP makes home visits or provides care in the home | 45 | 17.4 |
| The NP is available after regular office hours | 33 | 12.8 |

* multiple response option

Individuals visiting an NP were asked about their level of satisfaction with various aspects of their care. Almost all respondents were either very satisfied or somewhat satisfied with the care or advice they received from their NP, the amount of time the NP spent with them and the way the NP spoke and listened.

Ninety-four percent (94%) of respondents were satisfied with the availability of the NP; 94% were satisfied with the waiting time for an appointment with the NP compared to only 61% who were satisfied with the waiting time for an appointment with the doctor. Ninety-eight percent (98%) of respondents were satisfied with how the professionals in the health centre worked together to help with health problems.

**Exhibit 162: Satisfaction with the care provided by NPs**

| | Very Satisfied | Somewhat Satisfied | Somewhat Dissatisfied | Very Dissatisfied |
|---|---|---|---|---|
| The way the NP speaks and listens. | 91.0 | 8.2 | 0.4 | 0.4 |
| Amount of time the NP spends with the patient | 88.0 | 11.6 | 0.0 | 0.4 |
| Care or advice received from the NP | 87.1 | 12.5 | 0.0 | 0.4 |
| The availability of the NP | 78.8 | 14.7 | 5.6 | 0.9 |
| How the professionals in this centre work together to help with health problems | 77.0 | 20.9 | 1.7 | 0.4 |
| Waiting time for an appointment with the NP | 72.6 | 21.5 | 3.8 | 2.1 |
| Waiting time for an appointment with the doctor | 30.5 | 30.1 | 21.7 | 17.7 |

***Concerns with NP Visits***

Only seven respondents (2.7%) felt there were things they did not like about seeing the NP. The main reason appeared to be lack of clarity about the NP's role, knowledge, education or training. Two respondents felt that they could not choose to see their doctor rather than the NP. One was concerned that their doctor would not be aware of their health and their concerns.

**Exhibit 163: Concerns with NP visits**

| Concerns | N=7 |
|---|---|
| I am not clear about the NP's knowledge, education or training | 3 |
| I do not feel that I can choose to see my doctor rather than the NP | 2 |
| I am concerned that my doctor will not be aware of everything about my health and about my concerns | 1 |
| I am not clear about the NP's role | 1 |
| Other | 4 |

* multiple response option

## Summary

The majority of respondents had seen an NP more than once in the past year, with 30% seeing the NP six or more times. The use of NPs was more frequent among females and those 65 and over. Individuals who had attained a higher level of education or higher incomes were also more likely to use the services of NPs.

Individuals had many sources of referral to NPs, including themselves, their physicians, family and friends. The highest percentage of respondents reported that they used self-referral for their first visit to an NP; this was followed by a recommendation from a physician.

There was a wide variety of reasons for the current visit to the NP; the main reasons were to receive general health information or to ask questions, to receive care for a minor illness or chronic illness, and to check or renew prescription medications.

There were many methods for scheduling the current appointment with the NP. Just over four in ten had made the appointment for the most recent visit to the NP themselves because they wanted to see the NP. Only 12% made the appointment because the doctor was not available.

Overall, respondents were satisfied with their experiences with NPs. Only seven respondents felt there were things they did not like about NPs. The most frequently reported concern was lack of clarity about the NP's role, knowledge, education and training.

# 8. Limitations and Confounders

Wherever possible, the researchers attempted to minimize the degree of sampling error and selection bias by designing a systematic study with significant input from the steering committee. In addition, where possible, the researchers attempted to control any other known confounders in the analysis. However, several confounders and limitations to the NP and physician surveys were identified. This chapter highlights the identified confounders and limitations and treatment of the issues.

## NP Surveys

Prior to administering the NP survey, the questionnaire was pre-tested for length, clarity, language and comprehensiveness of response options by a group of seven NPs. Suggestions for change were incorporated into the survey. In addition, the survey was reviewed by the project executive for content. The survey also utilized, where possible pre-existing questions. Although the pre-testing of the questionnaire allowed the researchers to clarify the questionnaire prior to distribution, there may have been some questions that respondents found unclear. This is particularly true in mail-in surveys where respondents cannot immediately clarify questions. To avoid bias in the constructs, the researchers removed those questions from the multivariate analysis.

The questionnaire was designed predominately as a closed-ended survey with a well-designed form for the respondent. Closed-ended questionnaires provide some advantages in that they may prompt the respondent to remember responses that might otherwise be forgotten and they are in accordance with the principle that specific questions are better than general ones. However, open-ended questions may be more effective when the survey is exploratory or questions are sensitive. To create a balance, the team created questions that were closed ended but provided an opportunity to provide comments. A substantial number of questions were re-coded to include these comments in the database.

Mail-in surveys are also typically subject to response bias and low response rates. The NP survey however, was well publicized and supported by the MoHLTC. As a result, the response rate for this questionnaire was 77%. In addition, in reviewing the data, there was significant variation in the responses indicating that the survey reflects a wide range of NP opinions and perspectives.

In order to gain information related to a wide variety of domains, while identifying important respondent characteristics, the number of questions in the survey was substantial at 86 questions and 19 pages in length. To verify that questions occurring later in the survey were not prone to under-reporting, the researchers examined the portion of missing responses for each question on the survey and did not find evidence of a trend.

## Physician Surveys

The two physician surveys were pre-tested by eight physicians, four of whom work with NPs (survey A) and four of whom do not work with NPs (survey B). Again, suggestions for change were incorporated into the surveys. In addition, the surveys were reviewed by the project executive for content. The surveys

were developed in part, to ask questions similar to those asked of the NPs. Therefore, many of the questions from the NP survey were duplicated, allowing the researchers to refine the physician surveys based on the results of the NP survey. However, as with the NP survey, the physician survey was a mail-in survey and therefore physicians could not obtain immediate clarification on questions if required.

The MDs who work with NPs could not be clearly identified. Therefore, the research team attempted to reach this population through two methods. First, the project team telephoned all sites with MoHLTC funded NP positions and requested information on the physician names and addresses for those physicians working with NPs. This information was provided by some but not all sites. In addition, all site visit sponsors were asked to distribute the physician surveys to physicians on behalf of the project. The project team also generated a random sample of physicians through the Ontario College of Family Physicians. Given that some of the physicians who were randomly selected may in fact work with NPs, copies of both survey A and survey B were included in the physician package. Although several methods were employed to reach all study physicians, the sampling frame may not have covered the entire physician population that works with NPs. To minimize the influence of selection bias on the findings, the site visit findings were used to validate the survey findings. The research team was not however, able to obtain information on non-respondents.

Typically, physicians represent a population that is over-surveyed and hence the response rate to physician questionnaires is generally very low. To overcome this limitation, physicians were offered an honorarium for survey completion ($100 for completion of survey A; $50 for completion of survey B).

## Analysis

The analytical methods employed in this study were designed to minimize the degree of bias in the estimates and findings. However, some of the survey variables analyzed had very small cell counts. Wherever possible, the research team aggregated “like” responses to increase the sample size; however, this was not always possible. As a result, the analysis may not have identified all possible variables that have a significant and substantive effect on the integration process. The researchers also investigated variables that were not significant but had a substantive effect on the dependent variable. Where other analysis supported inclusion of these variables they were added to the final regression model. The analysis was also reviewed by the data analysis working group to provide face validity to the findings. Regardless however, the findings of this analysis should be put in context with the qualitative site visit analysis.

The analysis was also constrained by the questions and responses provided in the survey. Although the surveys were comprehensive, in some instances respondents indicated the response “other” without providing any further specification. In addition, important questions may not have been asked of the respondents. However, the research team designed the survey tools based on the literature and pre-existing tools that should minimize this bias.

Finally, as this is the first study of its kind to apply the composite scores in regression to predict NP integration, it is difficult to evaluate the overall integrity of the results. Replication of this work in other jurisdictions will increase the validity and reliability of the findings.

# 9. Conclusions and Recommendations

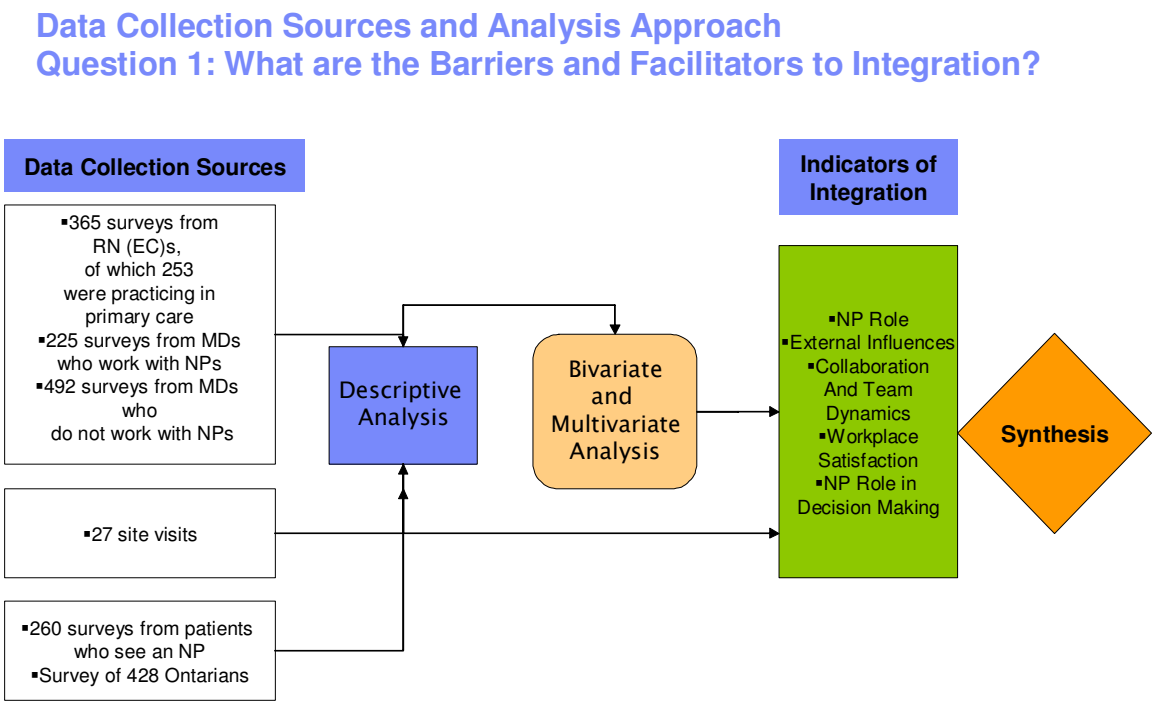
## Data Collection Sources and Analysis Approach for the Two Research Questions

The primary focus of the Primary Health Care NP Integration Study was to determine how best to integrate primary health care nurse practitioners into Ontario's health care system and specifically into various settings. The key questions to be answered by the study were:

1. What barriers must be overcome and what facilitators must be encouraged to further integrate NPs into specific practice settings?
2. What can be learned about the practice models in which NPs function, specifically, which models do not work well and why and which models work best to support integration of NPs?

The following exhibit summarizes the sources for data collection and the analysis undertaken to address the first question.

**Exhibit 164: Data collection sources and analysis approach**



## Barriers to Integration

The key findings in relation to the barriers to integration were:

***NP Role within the Practice Setting***

- Lack of NP involvement in the definition of the role for a specific setting;
- NP lack of previous related experience; and
- NP has a limited role.

***External Influences***

- MD and NP concern about liability – this is associated with a lack of role clarity, NP involvement in developing the position description, length of time of prior RN experience, satisfaction with communication, collaboration and NP concerns regarding NP liability insurance;
- Legislative barriers such as the Public Hospitals Act; and
- Limitations of funding.

***Collaboration and Team Dynamics***

- Resistance from health care providers outside of the practice;
- Structure of the MD/NP working relationship;
- NP practices in isolation; and
- Lack of understanding from the public about the NP role.

***Workplace Satisfaction***

- Lack of NP access (financial and time) to continuing education; and
- MD concern about inadequate funding for NP salary and NP-related overhead.

***Decision Making***

- NP role is narrowly defined; and
- NP is a member of a union.

## Facilitators to Integration

The key findings in relation to facilitators to integration were:

***NP Role within the Practice Setting***

- NP involvement in developing position description;
- More NP time spent on clinical vs. non-clinical activities;
- NP role is clearly defined;
- NP has previous related work experience; and
- Patients are referred from outside the practice setting.

***External Influences***

- NPs who deliver care in the way they prefer are more likely to work to the full scope of practice.

***Collaboration and Team Dynamics***

- Acceptance by MD and MD positive attitude toward NP role;
- Open communication and co-operation about patient care, mutual respect, trust in decision making; and
- MD and NP agree on structure of the working relationship.

***Workplace Satisfaction***

- NP role is clearly defined;
- Care is delivered in a manner preferred by the NP; and
- NP is primary provider for greater proportion of his/her patients.

***Decision-Making***

- NP involved in developing the position description; and
- Care is delivered in a manner preferred by NP.

***Characteristics of MDs who are more likely to work with NPs***

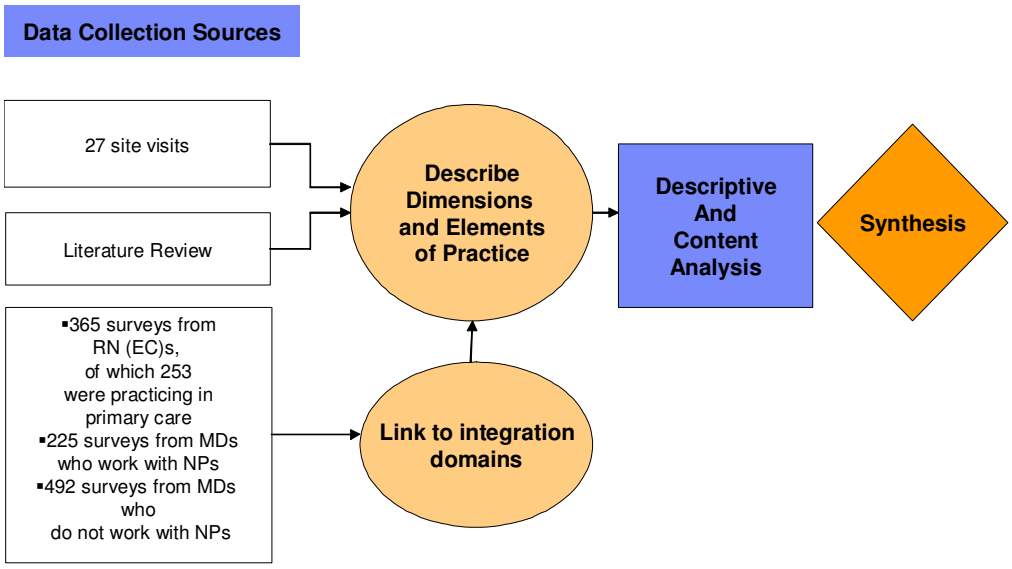
Responses from physicians indicated that MDs who are more likely to work with NPs have the following characteristics:

- Have previous or current experience working with an NP;
- Have support from community and patients;
- Work in HSO/FHN/PCN and emergency settings (less likely if fee-for-service setting);
- View prevention/wellness care, health promotion and patient education as valuable NP services (this is for MDs not currently working with an NP);
- View psychosocial support and counselling, linkage to the community and monitoring chronic illness as valuable NP services (this is for MDs currently working with an NP);
- View NP expertise and education as key facilitators; and
- See the structure of the working relationship as important.

The following exhibit summarizes the sources for data collection and the analysis undertaken to address the second question.

**Exhibit 165: Data collection sources and analysis approach**

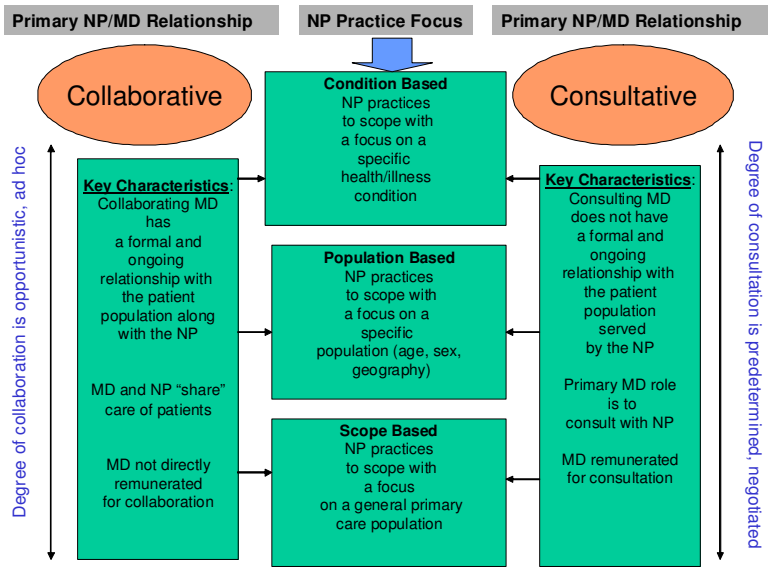
## Data Collection Sources and Analysis Approach
## Question 2: What can be learned about Practice Models?




The key findings related to this question are summarized in Exhibit 166.

**Exhibit 166: What can be learned about the practice models in which NPs function?**

## Key Findings from Research Question 2: What can be learned about the practice models in which NPs function? Which models do not work well and why and which models work best to support integration of NPs?




**Key Facilitators:**
- Shared vision for the NP role
- Alignment of the role with the practice setting
- Role definition and clarity with practice team
- Alignment of NP skills and experience with role
- Positive team dynamics
- Physician remuneration for consultation with NP
- Adequate funding for overhead
- Communication channels with external allied health professionals

There were a number of lessons learned from different practice settings, including:

- NPs working in Community Health Centres and Health Service Organizations were more likely to practice to their full scope; NPs working in fee-for-service settings were least likely to practice to full scope.
- NPs working in Community Health Centres, Health Service Organizations and outposts reported the lowest percentages of limited practices.
- NPs working in outposts were most likely to participate in on-call activities.
- NPs in outposts, mental health and rehabilitation and Family Health Network and Health Service Organization settings were most likely to refer patients to specialists.
- No significant differences existed between practice settings related to liability.
- More NPs working in fee-for-service settings were involved in developing their position description than in other settings.
- The NP role was less defined in long-term care facilities and Community Care Access Centres.
- Satisfaction levels varied across practice settings:
  - NPs in long-term care settings and in other settings not defined in the survey (e.g., community cardiovascular care, self-employed, student health services, private school medical clinic) reported higher levels of satisfaction on scope of practice, role in decision making and workplace satisfaction.
  - NPs in emergency settings reported higher levels of satisfaction on workplace satisfaction and collaboration and team dynamics.

- NPs in public health units reported lower levels of satisfaction on scope of practice.

### Results of a Survey of the Public and Patients

Forty-six percent (46%) of Ontario residents reported that they had heard of a health provider called an NP (Exhibit 153). Upon explanation of the NP role, two-thirds said they would be willing to see an NP for wellness care and for treatment of minor illnesses. Of those who had seen an NP in the past 12 months, satisfaction rates were high. Both the patient and the public surveys found females are more likely than males to use NP services. The majority of patients who had seen an NP at site visit settings and who completed surveys were higher income individuals in good health. Results from the Health*Insider* survey of the public indicated a higher level of familiarity with NPs among these groups.

When asked what they liked about seeing an NP, patient survey respondents indicated the following: the amount of time the NP spent with them; the quality of care they received; the ease with which they were able to speak to the NP; and the information given about their health condition.

The findings also indicated a lower level of awareness of NPs and their role than might be expected. This finding leads to a recommendation for the MoHLTC to provide more consumer education in relation to the NP role. This is of great importance given the introduction of more NPs into the provincial health care system.

## Recommendations

We note in brackets next to each of the recommendations the key data that support the recommendations. The identified exhibits are not all inclusive but give an indication of key data that support the recommendations. Many of the recommendations are based on multi-variate analysis which looks at the relationships between variables and it is, therefore, difficult to identify one particular variable that explains each recommendation.

### Accountability for Implementation of Recommendations

1. The Joint Provincial Nursing Committee (JPNC) to prioritize, develop a timetable, and assign responsibility for the implementation of the recommendations contained in this report.

2. The Nursing Secretariat to be accountable for facilitating an evaluation in two years time to examine the extent to which the recommendations in this report are implemented and the impact of that implementation.

### Shared Vision and Role Alignment

3. MoHLTC, Council of Ontario University Programs in Nursing (COUPN), stakeholder organizations and associations to develop a joint statement related to the vision for NPs in the province. This

vision statement should be broadly disseminated to health organizations, providers and the public. (See Site Visit Summary, Chapter 6.)

4. MoHLTC to encourage organizations with funded NP positions to articulate their mission, vision and team strategy. This could be a requirement in the proposal process for sites to have a funded NP. (See Site Visit Summary, Chapter 6.)

5. Educational institutions, with the support of MoHLTC, to plan opportunities for NPs, physicians and other allied health care professionals to learn about respective roles during professional training. (See Analysis of NP and MD Surveys, Chapter 5, Exhibit 53, Site Visit Summary, Chapter 6.)

6. COUPN, with the support of MoHLTC, to plan for internship opportunities for NPs that build on the basic NP education and recognize the transition from novice to expert. These opportunities should also recognize the differences in skills and experiences across practice settings. (See Analysis of NP and MD Surveys, Chapter 5, Exhibits 42, 52 and 55, Site Visit Summary, Chapter 6.)

## NP Role Clarity

7. MoHLTC to require that funding proposals for NP positions include a needs assessment and clear definition and description of the proposed NP role at that site. (See Analysis of NP and MD Surveys, Chapter 5, Exhibits 35, 61, 130 and 139, Site Visit Summary, Chapter 6.)

8. MoHLTC, in collaboration with stakeholder groups, to develop an orientation package for sites funded for an NP. The package could include specific information about NP skill sets and guidelines for education and orientation to the NP role for all members of the health care team. (See Analysis of NP and MD Surveys, Chapter 5, Exhibits 35, 49, 73, 130, 135 and 139, Site Visit Summary, Chapter 6.)

9. NPs to be included by the funded sites in defining their role and level of autonomy, taking into consideration their skills and experience as part of the introduction of the NP into the practice setting. (See Site Visit Summary, Chapter 6.)

10. NP role definition to be reviewed and updated by sites funded for an NP on an annual basis or as needed to ensure patient needs, other team members' roles and practice focus are aligned. (See NP and MD Surveys, Chapter 5; Exhibits 21, 130, 135, 137 and 139, Site Visit Summary, Chapter 6.)

## Team Dynamics

11. MoHLTC to work with stakeholders to create a venue/forum for sharing best practices related to team collaboration in sites funded for an NP. (See Analysis of NP and MD Surveys, Chapter 5, Exhibits 101, 102 and 110, Site Visit Summary, Chapter 6.)

12. MoHLTC to remunerate MDs for consultation and collaboration with the NP unless the funding mechanism of a setting (e.g., CHC) already includes this remuneration. The MoHLTC and OMA should work to determine the most appropriate rate to be paid to physicians for formal and informal collaboration and consultation with the NP. (See Analysis of NP and MD Surveys, Chapter 5, Exhibit 86, Site Visit Summary, Chapter 6.)

13. MoHLTC and hospitals to review the impact of NPs on emergency department volumes and the associated impact on MD positions funded through Alternate Payment Plans. (See Analysis of NP and MD Surveys, Chapter 5, Exhibit 121, Site Visit Summary, Chapter 6.)

14. Practices creating an NP role for the first time to be given one-time funding from the MoHLTC to support the costs associated with orientation, role definition, team building exercises and conflict resolution. Knowledge created through this process should be transferred when other NPs/team members join the practice. (See Key Findings of Analysis of NP and MD Surveys, Chapter 5, Site Visit Summary, Chapter 6.)

## Resources

15. To facilitate planning and monitoring, the MoHLTC to develop with the program areas and selected stakeholders, standard information collection and reporting mechanisms regarding NP human resources and activity. This information could be used to facilitate planning for resource allocation, NP education and to support the development of performance measures. (See Analysis of NP and MD Surveys, Chapter 5, Exhibits 55 and 110, Site Visit Summary, Chapter 6.)

16. MoHLTC to identify a co-ordinating body for NP human resources planning and monitoring. (See Analysis of NP and MD Surveys, Chapter 5, Exhibits 12 and 13.)

17. MoHLTC to develop a centralized process to maintain current information about funded NP positions. (See Key Findings of Analysis of NP and MD Surveys, Chapter 5).

18. In relation to NP salary and benefits: (See Analysis of NP and MD Surveys, Chapter 5, Exhibits 40, 41, 55, 86, 110, 126 and 127)

    a. MoHLTC to oversee the development of a policy for a stable funding mechanism for NP positions.

b. In conjunction with selected stakeholders, MoHLTC to develop guidelines for sites to use in relation to salary equity.

c. MoHLTC to develop a plan to align salaries between newly funded positions and current positions.

d. MoHLTC to develop a long-term plan for funding to account for cost of living and other increases.

e. MoHLTC to re-examine the amount allocated to sites for overhead costs to ensure comprehensive and appropriate coverage.

19. MoHLTC and selected partners to develop NP activity benchmarking and disseminate this information to sites with funded NP positions. ( See Analysis of NP and MD Surveys, Chapter 5, Exhibits 21 and 34)

## NP Scope of Practice

20. MoHLTC to consult with medical and nursing associations in relation to billing rules within Ontario's Schedule of Benefits related to the issue of allowing a specialist to be paid when a referral comes from an NP. (See Analysis of NP and MD Surveys, Chapter 5, Exhibits 31, 32 and 62, Site Visit Summary, Chapter 6.)

21. Consistent with the RHPA, MoHLTC to consult with nursing and medical associations and regulatory bodies to develop a review process related to approved drugs NPs can prescribe and laboratory tests that NPs can order. This is intended to improve and streamline the process and ensure inclusion of tests and drugs to manage conditions within the NP's scope of practice. (See Site Visit Summary, Chapter 6.)

22. Nursing associations to develop a process to ensure the timely dissemination of information to NPs about updates to the list of approved drugs. This list to categorize drugs by name and classification. (See Site Visit Summary, Chapter 6).

23. MoHLTC, with the appropriate stakeholders and institutions, to develop a process that facilitates the flow of information between care sectors (e.g., hospital, long-term care facility) and allows for NP involvement in patient care as it relates to continuity. (See Site Visit Summary, Chapter 6.)

24. Nursing and medical associations to disseminate information to NPs, physicians and interested stakeholders about current NP liability coverage and implications for each professional group. (See Analysis of NP and MD Surveys, Chapter 5, Exhibits 33, 34 and 131 to 133, Site Visit Summary, Chapter 6.)

25. In the Fall of 2002, relevant stakeholders, including nursing and medical associations, respective protective agencies and MoHLTC began a collaborative review of the restrictions related to NP liability protection that was resolved in June 2003. It is recommended that the implementation of the outcomes of this review be monitored by the involved stakeholders. (See page 18 and 37, Analysis of NP and MD Surveys, Chapter 5, Exhibits 33, 34 and 131 to 133)

## Recommendations – System Integration of the NP

26. MoHLTC, in collaboration with NP stakeholder groups, to develop a public education program about NPs and their role in primary health care. This program will include guidelines and best practices for community education programs about the NP role. (See Analysis of NP and MD Surveys, Chapter 5, Exhibits 101 and 102, Site Visit Summary, Chapter 6.)

27. MoHLTC and NP stakeholder groups to facilitate the development of a best practices information clearing house related to community/organization/health setting education and/or orientation to the NP role. This information should be integrated with other initiatives related to best practices for primary health care delivery. (See Key Findings of Analysis of NP and MD Surveys, Site Visit Summary, Chapter 6.)

28. MoHLTC and the Council of Ontario University Programs in Nursing (COUPN) to review strategies for increasing the educational preparedness of the NPs including longer clinical practica, addition of an internship year, raising the level of the PHCNP educational program to a Master's level, increasing the length of the educational program, and increasing the emphasis on and access to continuing education. (See Analysis of MD and NP Surveys, Chapter 5, Exhibits 42 and 55, Site Visit Summary, Chapter 6.)

29. MoHLTC and COUPN, in consultation with nursing associations, to develop an educational strategy that would respond to the basic and on-going education needs of NPs related to specific primary health care clinical practice areas. (See Analysis of MD and NP Surveys, Chapter 5, Exhibits 42 and 55)



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