

2006 Report on Critical Hospital Pharmacists Shortage in Newfoundland & Labrador

**Prepared by:
Hospital Steering Committee on Labour Market**

Committee Members

Rick Abbott

Renelle Bishop

Ted Dawe

Juan Edwards

Michael LeBlanc

Susan Gladney-Martin

Brad Payne

Gerry Peckham

Ken Walsh

July 2006

Executive Summary

In response to mounting concerns from hospital members regarding the inability to recruit and retain pharmacists (including pharmacy supervisors and managers) and the negative effect this is having on pharmacists and pharmacy programs, the Pharmacists' Association of Newfoundland and Labrador (PANL) established an ad hoc Hospital Steering Committee on Labour Market (the "Committee") to review and make recommendations to the Chief Executive Officers of the Regional Integrated Health Authorities.

The following document has been prepared by the Committee and outlines the issues of critical concern including recommended solutions. This document is structured in a similar format to the July 2003 Report from the Newfoundland and Labrador Health and Community Services Human Resources Sector Study (the "2003 HR Report"). The employment numbers, vacancies and projections outlined in the 2003 HR Report have been updated and lend validity to the current concerns regarding the recruitment and retention of hospital pharmacists.

Reports of a significant pharmacist shortage have been making news since the late 1990s. The shortage was attributed to an increase demand for pharmacists and an inability to meet that need. Today, the shortage persists as the pharmacist's role in patient care expands far beyond the traditional drug-dispensing function.^{2,3,7-11,27-37} The composition of the workforce has also changed and impacted the shortage.² With the majority of pharmacists now female (77 per cent), the inability to recruit pharmacists to cover maternity leave and part-time positions has further fueled the shortage.^{2,38,39}

While the overall supply of pharmacists nationally has increased over the past decade, this has been vastly outpaced by an unprecedented increase in demand.^{2,11,13,15,20,21,22} In the hospital sector, this demand has been fueled by the expanded role of the hospital-based pharmacist, "clinical pharmacist".^{2,3,27-37} The profession has embraced the concept of pharmaceutical care, which expands the hospital pharmacist role in providing medication therapy that continues through to the goal of improving patient outcomes.^{2,3} Clinical pharmacists are uniquely trained in the therapeutics and clinical pharmaceutical sciences thus

providing comprehensive drug management to hospitalized patients, physicians and other members of the multi-disciplinary health care team.²⁶ The hospital clinical pharmacist is responsible for pharmacokinetic drug monitoring, disease management for defined conditions, participating in multidisciplinary clinical care teams, consulting on drug utilization programs, supporting health services research on outcomes of care, improving patient safety, patient satisfaction, medication appropriateness, decreasing the likelihood of adverse drug reactions and adverse drug events and at the same time provides a significant economic impact by promoting appropriate and responsible use of medication within a publicly funded health care system.^{2-10,26-38}

The current shortage of pharmacists in North America has been termed “acute” by Federal Government agencies as its onset is relatively recent, its severity significant, and its occurrence not clearly expected.^{2,20} It is anticipated that this situation will continue for the foreseeable future. As of March 2006, the Regional Integrated Health Authorities (RIHA) in Newfoundland and Labrador had 19 vacancies (10 in Eastern, 6 Central and 3 in Labrador-Grenfell). Two of the vacancies in St Anthony have been vacant for two years and has resulted in the Newfoundland and Labrador Pharmacy Board removing the hospital pharmacy license. In total, 19 of the 85 approved hospital pharmacist positions were vacant in this Province, representing an alarming 22 per cent vacancy rate.

The current shortage in the Province is perceived as a “retention and recruitment” issue as opposed to a “recruitment and retention” issue as the loss of highly qualified, experienced clinical pharmacists has been crippling to the health care system and associated pharmacy services (e.g. Eastern Health has lost 15 experienced pharmacists in the last 16 months). All RIHAs have advertised for pharmacists in local and national newspapers and recruitment fairs with zero success. The Newfoundland and Labrador Health Boards Association RIHA Vacancies for Fiscal Year 2005/06 – Quarter 3 Report indicated an average vacancy period for pharmacists to be 70 months.

With more than 50 per cent of new graduates from Memorial University’s School of Pharmacy leaving the Province (63 per cent in 2006) and the remainder committing to jobs in the retail sector for higher salaries, benefits and signing bonus, the recruitment of new pharmacy

graduates into hospital has been very difficult. As well, the graduating Class of 2007 and 2008 will be cut in half to 20 and 17 students, respectively, as a result of changes in the pharmacy curriculum. Based on historical numbers, it is expected that only 7 to 9 pharmacists will stay in the Province from these classes. The total supply of graduates for 2003 to 2007 was reported in the 2003 HR Report as 133. However, actual numbers to date indicate a revised supply of only 88 graduates for this five-year period. Competition to recruit these new graduates has been fierce as hospitals compete with the retail sector locally and nationally and the public sector in the Maritimes. In the last two years, only one new graduate has taken a position within the public health care system in this Province.

The average starting salary for new pharmacy graduates is \$30/hour (\$62,400/year) for the local and Atlantic retail sector, plus signing bonuses of \$20,000 to \$30,000. The starting salary for a hospital pharmacist in this Province is \$24.36/hour (\$47,500/year). In PEI, new pharmacy graduates are placed on Step 5 of the hospital pharmacists' pay scale at \$44/hour (\$85,800/year). In Halifax, the Health Care Bargaining Unit pay rate starting salary for hospital pharmacists is \$32.58/hour (\$63,540/year) or higher. These pharmacists are currently in collective bargaining and have an existing clause in the current contract that provides additional pay increases if they can show they are not the highest paid in Atlantic Canada. Given this existing clause, it is expected their starting salary will approach or match PEI's \$44/hour. Other hospital boards in Nova Scotia are advertising starting salaries of \$41.53/hour (\$81,000/year) not including a \$20,000 sign-on bonus. Salaries in New Brunswick are on par with Nova Scotia and PEI.

While there seems to be some acceptance that the salaries in all professions are less in this Province than mainland counterparts, there is agreement that salaries have to be competitive and should be reasonable compared to Atlantic Canada. In the case of hospital pharmacists, there are obvious inequities. Nova Scotia, New Brunswick and PEI have all implemented labor market adjustments to their hospital pharmacists' salaries to ensure they are competitive with the community sector. The 2003 HR Report identified that of all the nursing and allied health groups studied in Newfoundland, the disparity between compensation levels in the community and public sector are the highest for pharmacists and that labor market adjustments may be needed with close annual monitoring required. This market adjustment

is warranted given the unprecedented 80 per cent (\$45,500 Newfoundland & Labrador versus \$85,800 PEI) higher starting salary between hospital pharmacists in this Province compared to those in the Maritime Provinces as well as those pharmacists in the community sector of this Province.

The 2003 HR Report also identified inadequate compensation as the primary factor impeding the recruitment and retention of management personnel, and this extends to non-management supervisory staff. The ability to fill current vacant management and supervisory positions has been extremely difficult. Pharmacists in non-management or non-supervisory positions have little incentive, financially or otherwise, to move into management positions. Throughout 2000 and 2001, pharmacists were successful in having their compensation levels adjusted through occupational reviews. However management personnel did not receive a similar adjustment, regardless of the fact that the managers and directors were also pharmacists. The net affect of these increases had no significant difference existing between the salary levels of management and director positions and bargaining unit positions. Health boards in many cases have to pay a differential bonus on top of the management salary in order to make the management pay scale higher than the bargaining unit scale. The availability of other benefits to bargaining unit employees (i.e. overtime, differentials and premiums) further decreases or often reverses the salary gap and results in bargaining unit pharmacists at all classification levels making a gross salary greater than the manager and/or director. Consequently, there is little or no financial incentive to leave a unionized position for a management position. Pay equity has also had an effect on staff pharmacists willing to take on unionized supervisory positions as the pay scales are now compressed since the pay equity adjustment has been incorporated into the HP pay scales. The fact that only the Clinical Pharmacist-I was the only position considered for pay equity adjustment further complicates the salary issue. Pharmacy, as a group, is a female dominated profession not just the Clinical Pharmacist-I position. Consequently, leadership positions (i.e. supervisors and manager) remain vacant with little chance of being filled. To compound matters, the pharmacists that are currently leaving hospital positions are the most experienced staff. Retention of experienced staff is a necessity in order to maintain a safe and effective delivery of pharmaceutical care services.^{4,5,6,22} This circumstance combined with an inability to fill vacant management and supervisory positions has led to the current crisis.

Of all the pharmacists registered in the Province, less than 15 per cent are employed as hospital pharmacists. This makes the pharmacy profession distinctive from nursing and all other Allied Health Professionals as the community sector has a major influence on the salaries paid to pharmacists in the hospital sector.^{1,11} Both community and government employment sectors have shown evidence of an increase in demand for pharmacists. An increase in demand in one sector affects the supply of pharmacists available in the other sector. Additionally, the demands facing hospital pharmacist are more urgent as the professional services provided are required immediately with a minimum turn around time. Prescriptions for hospitalized patients must be filled without delay with information and recommendations provided to ensure patient care is not affected. The vast majority of hospitalized patients receive drugs as their exclusive form of medical treatment. In an institutional setting, 89 per cent of medication incidents occur outside the pharmacy dispensary.^{22a} Studies have shown that 50% of Canadians do not take their prescription medications exactly as prescribed.^{22b} Each year, drug non-compliance is the cause of 10% of all hospital admissions, 25% of hospital admissions for the elderly, and 23% of all nursing home admissions. As well, adverse drug reactions are a leading cause of patient mortality.^{22c,22d} Medications are an important tool in the management of health, but if they are not used properly, they can cause serious harm. Hundreds of papers have shown that a pharmacist can make a significant difference in patient care.^{22e} Therefore, the services hospital pharmacists provide cannot be delayed or rescheduled. The distinctive and specific aspects of the pharmacy profession as well as technological advances, market changes and other professional opportunities have all contributed to a unique and dynamic employment market specific to hospital pharmacists.^{2,11}

Some of the concerns associated with the pharmacist shortage have been addressed by incorporating technological advances into practice to support the traditional dispensing functions of pharmacists. Utilizing and expanding the role of pharmacy technicians in traditional dispensing functions along with the formal certification programs developed for “Technician Order Entry” of prescriptions and “Chemotherapy Certification” has helped in coping with the present shortage. Considerable work has also gone into a Tech-Check-Tech program that will allow a second technician to check refilled unit dose packages prepared by

an automated unit dose packing machines. This program, which has been the standard of care for many years in Canada, will save several hours of pharmacists dedicated time per day for several FTEs.^{22f,22g} Unfortunately, Tech-Check-Tech regulations to date have not been approved by the Department of Health. As Tech-Check-Tech is not the total solution to the pharmacist shortage, it is however an important and integral component necessary to facilitate further operational efficiencies.

The workforce shortage reflects fundamental changes in population demographics, resulting changes in the marketplace and the evolution of the practice of pharmacy. These are factors that cannot be controlled. However, the fundamental elements driving the current retention and recruitment crisis of hospital pharmacists – an appropriate competitive salary and a change in the practice environment – can be.

The current shortage has intensified due to experienced pharmacists leaving the system as a result of job dissatisfaction due to the lack of clinical services or as a result of clinical services being cut as a consequence of the shortage. Hospital pharmacists see clinical practice as providing responsible and meaningful role and the dispensary function as a fundamental and essential role of the profession. With an absence of clinical roles, hospital pharmacists are leaving the public sector and moving to the community sector for considerably greater pay, benefits and patient interaction. Many experienced hospital pharmacists have also left the Province to accept hospital positions in Atlantic Canada for considerably more pay, benefits and clinical practice with direct patient care. The result is a hospital pharmacy environment with consistently high workloads and dissatisfaction leading to burnout and potential errors.^{1,2,11,14,20}

Canadian hospital pharmacists have decades of research and experience at their disposal to argue the pharmacist's role in assuring patient safety through decreased risk of medication errors.²⁻¹¹ Unfortunately, the pharmacist shortage has resulted in diminished clinical programs, which provide safe guards against medications errors. At the same time, the shortage is creating an environment conducive to such errors. Studies have shown a strong correlation between pharmacist shortages and patient safety.^{2,5-8,15} Immediate action is required in order to remedy the current hospital pharmacy crisis.

Health care leaders must be the driving force behind the changes and initiatives needed to reverse the current workforce shortage and prevent a crisis from becoming a disaster. Swift and immediate action is necessary to make changes that address the current shortage. Past experience with the previous reclassification of pharmacists has shown that when salaries are competitive with the community sector and reasonable compared to the Maritime Provinces, hospitals can attract quality candidates for vacant positions.

There is also a need for a system of ongoing monitoring of this situation as the national shortage will ultimately result in future action by the community sector and industry to fill vacant positions. A multidisciplinary approach consisting of leaders from hospital pharmacy and administration, the Pharmacists' Association and Government is recommended. A standing committee made up of members fully aware of the issues and consequences will need to provide direction on these important issues as the labour market goes through further changes in the coming years. Hospital and Government leaders must be the impetus behind changes and initiatives necessary to prevent the current pharmacists' shortage from gravely affecting patient care, patient safety and the public health system.

The following recommendations are a comprehensive set of actions that are intended to be simultaneously addressed:

1. A change in the starting salary of Clinical Pharmacist-I rate of pay equal to \$20,000 (42%) and in Clinical Pharmacist-II, Clinical Pharmacist-III, Clinical Pharmacy Specialist, Clinical Pharmacy Manager and Pharmacy Directors rate of pay equal to 42% applied to all pay scales and classification levels as pensionable income (to correct the existing compression issues).
2. Implementation of a bursary program for new graduates in the sum of \$20,000 with a two-year return-to-work agreement.
3. Implementation of a \$20,000 sign-on bonus for new staff recruited from the community sector or other parts of Canada with a two-year work commitment
4. A commitment to cover relocation expenses up to \$10,000 for pharmacists moving from other parts of the Province or country.
5. Provision for the recruitment of experienced pharmacists on appointment will be paid for their experience at a rate of one step of the appropriate collective

agreement pay scale for each one year of experience as a practicing pharmacist and experience in the form of clinical residency training program recognized as three years experience.

6. Implementation of a yearly professional allowance of \$2000 for all practicing pharmacists.
7. Implementation of a seat purchase program with the cooperation of the RIHA and MUN School of Pharmacy to secure a future supply of new graduates to the public sector.
8. The offer of contractual work to pharmacists and pharmacy managers at the time of retirement to stay within the workforce.
9. The approval and implementation of Tech-Check-Tech program including the addition of appropriate technical staff.
10. Immediate evaluation and support for leading edge technology that will not only save pharmacists time but improve patient care and patient safety (i.e. Barcode Technology, Physician Order entry).
11. The immediate restoration of a two-step differential between Clinical Pharmacist-I HP 37 pay scale, Clinical Pharmacist-II HP 38 (changed to HP 39), and Clinical Pharmacist-III/Clinical Pharmacy Specialist HP 40 (changed to HP41) pay scale.
12. Establishment of a liaison committee with PANL, Pharmacy Directors and Human Resources representatives from all Regional Integrated Health Authorities as well as a representative from the Department of Health & Community Services to act as a monitoring and review committee to over see the necessary changes and implement swift action plans if the retention and recruitment crisis continues.

These recommendations can be the foundation for a strong, sustained and committed effort to rebuild an integral component of our health care team. Potential consequences of not implementing appropriate actions to reverse the current shortage trend are:

- The cancellation of clinical pharmacy services that enhance patient care, prevent patient harm and ensure appropriate utilization of drugs thus saving money.^{2-11,15,26-36}
- Curtailment of specialized services such as chemotherapy preparation and centralized intravenous admixture services.
- Curtailment of chemotherapy and antibiotic home infusion services.

- Inability of hospital pharmacies to provide student preceptor support, clinical rotations, clinical lectures to the School of Pharmacy as well as legislated continuing professional education and education to special interest groups.
- Possible withdrawal of the Hospital Pharmacy License by the Newfoundland and Labrador Pharmacy Board.
- Possible negative outcome on hospital accreditation and the School of Pharmacy.
- Delayed implementation of new pharmacy services (i.e. methadone clinic, cardiovascular intensive care unit, medication reconciliation, etc.)
- Withdrawal of participation in multidisciplinary committees (i.e. Pharmacy and Therapeutics, Quality Assurance, Medication Safety, etc.)

TABLE OF CONTENTS

1.0	INTRODUCTION	1
1.1	<i>BACKGROUND.....</i>	1
2.0	ENVIRONMENT	8
3.0	WHO'S WHO	11
4.0	WORKFORCE SUPPLY	18
4.1	<i>NEW GRADUATES.....</i>	18
4.2	<i>FACULTY.....</i>	19
4.3	<i>PRECEPTORSHIP</i>	20
5.0	TRANSITION TO THE WORKPLACE.....	22
6.0	RECRUITMENT AND RETENTION	25
7.0	HEALTH OF PHARMACISTS.....	27
8.0	FORECAST: CLINICAL PHARMACISTS, MANAGERS AND DIRECTORS	29
9.0	SUMMARY	36
10.0	RECOMMENDATIONS	40
	REFERENCES.....	43

TABLE LISTING

<i>Table 3.1: Pharmacists Places of Registration.....</i>	12
<i>Table 3.2: Workforce Counts Employed by the Health Boards</i>	13
<i>Table 3.3: Health Boards Bargaining Units.....</i>	14
<i>Table 3.4: Vacancy Rates as per Regional Integrated Health Authorities</i>	15
<i>Table 3.5: Average Vacancy Period.....</i>	16
<i>Table 3.6: Provincial and National per Professional Ratios.....</i>	17
<i>Table 4.1: New Graduates</i>	18
<i>Table 7.1: Hospital Sick Leave Statistics</i>	28
<i>Table 8.1: Registered Pharmacist (March 2006).....</i>	29
<i>Table 8.2: School of Pharmacy Class Size</i>	32
<i>Table 8.3: Pharmacist projections from HCS Human Resources Sector Study (REVISED).....</i>	35

1.0 INTRODUCTION

In response to mounting concerns from hospital members regarding the inability to recruit and retain hospital pharmacists (including pharmacy supervisors and managers) and the negative effect this is having on pharmacists and pharmacy programs, the Pharmacists' Association of Newfoundland and Labrador (PANL) established an ad hoc Hospital Steering Committee on Labour Market (the "Committee") to review and make recommendations to the Chief Executive Officers of the Regional Integrated Health Authorities and government officials.

The following document has been prepared by the Committee and outlines the issues of critical concern including recommended solutions. This document is structured in a similar format to the July 2003 Report from the Newfoundland and Labrador Health and Community Services Human Resources Sector Study (the "2003 HR Report"). The employment numbers, vacancies and projections outlined in the 2003 HR Report have been updated and lend validity to the current concerns regarding the recruitment and retention of hospital pharmacists.

1.1 Background

Pharmacists are the health professional specifically trained in dispensing prescription medication and providing a growing number and range of pharmaceutical care services that are critical to high quality health care and medication use. The roles and responsibilities of pharmacists have expanded greatly in the past decade. Pharmacists in community settings have become increasingly involved in patient counseling and other activities separate and distinct from the traditional dispensing function. Pharmacists in hospital settings provide a much broader range of services than offered even ten years ago.^{2,3} The profession has embraced the concept of pharmaceutical care, which expands the hospital pharmacist's role in providing medication therapy that continues through to the goal of improved patient outcome.^{2,3} Hospital pharmacists are engaged in efforts to improve quality of drug use processes and to identify ways to reduce medications errors.²⁻⁸ This expanded role increases as medications become increasingly more complex and diverse and the potential for misuse continues to grow. In addition to counseling patients on the proper use of medications, the

role of today's hospital pharmacist includes clinical pharmacy responsibilities involving drug monitoring and disease management for defined conditions, participating in multidisciplinary clinical care teams, consulting on drug utilization programs, supporting health services research on outcome of care, providing drug information, patient education, formulary management, etc.^{9,10} New drugs are appearing on the market at a faster rate. Some of these new drugs have gained almost immediate widespread acceptance, requiring continual updating of the pharmacist's information base and monitoring ongoing skills in counseling patients and other members of health care teams.^{2,9}

Over time, pharmacy has experienced cycles of surplus and shortage like most other labor markets. The first indication of the current episode of shortage of pharmacists dates back to 1998 and 1999, when members of the Canadian Association of Chain Drugstores (CACDS) indicated that 1,000 pharmacist positions were unfilled among its members across Canada.^{11,12} Vacancy data from the hospital sector indicated another 150 positions were vacant in acute care settings.¹¹ According to an Ipsos Reid study commissioned by CACDS, the shortage for all community pharmacies had climbed to 2,000 - 3,500 as of the spring of 2001.¹³ In the July 2001 edition of *Drug Topics*, the shortage in the US was reported to have increased from 2,700 in 1998 to over 7,000 in 2000. Estimates from 2001 reports indicated that there were over 12,000 positions available in the US. The American Society of Health System Pharmacists estimated a moderate to severe shortage of staff at 90 per cent of its hospital pharmacies.¹⁵

Data collected from 2000 Eli Lilly Survey of Hospital Pharmacy in Canada indicated 150 vacant pharmacist positions in Canada's general-care hospitals with 100 beds or more. Vacancies at non-responding "general" hospitals and among special-care and small hospitals excluded from the survey were very conservatively estimated at another 150 positions, for a total of 300 vacancies in hospital pharmacist positions among Canada's more than 600 hospitals. A recent update in the Eli Lilly Survey (2004) indicated the number of vacancies in Canadian hospitals is more than 400. As of March 2006, the RIHA had 19 vacancies (10 in Eastern, 6 Central and 3 in Labrador-Grenfell). Two of the vacancies in St Anthony have been vacant for two years and has resulted in the Newfoundland and Labrador Pharmacy

Board removing the hospital pharmacy license. There were also 5 vacant positions with Memorial University's School of Pharmacy in March 2006.

While the overall supply of pharmacists nationally has increased over the past decade, this increase in supply, however, has been vastly outpaced by an unprecedented increase in demand.² The heightened demand has become increasingly evident in the past two years and has two major components:

1. A sharp increase in demand for pharmacists, as indicated by the increase in vacancy rates and difficulties in hiring; and,
2. An even sharper increase in the demand for pharmaceutical care services, as demonstrated by documented increases in prescription drug volume and in the expanded roles and responsibilities of today's pharmacists.

One measure of demand for pharmacists and their workload that has been consistently documented is the growth in prescription medication use and the volume of prescription drugs dispensed in drug stores and other community outlets.² The rapid growth in prescription volume that has taken place in recent years is clearly a major contributing factor to the current pharmacist shortage.^{2,11,13,16} It is crucial to understand why this growth has occurred. Prescription medication use has increased as more diseases and medical conditions are treated by medications. Other factors include the size and demographics of the population, the extent and nature of third-party prescription drug insurance as well as the introduction of new and innovative drugs has driven this increase.² Since 1996, the growth in prescription drug costs has set a new record. Not since World War II has drug spending escalated so rapidly for such a prolonged period. The latest figures published by the Canadian Institute of Health Information show that prescription only medications cost \$20 billion in 2005.^{17,18,19} Prescription drug expenditure is the second-largest and fastest growing category of health spending in Canada.¹⁹ This unprecedented growth in prescription volume is likely to continue as our population ages.

In October 2005, Human Resources and Skills Development Canada (HRSDC) commissioned a \$1.5 million, thirty-month project to study the short- and long-term human resources challenges facing the pharmacy sector as a result of the current shortage of pharmacists in Canada. The current shortage of pharmacists in North America has been termed “acute” by Federal Government agencies because its onset is relatively recent, its severity significant, and its occurrence not clearly expected.^{2,20}

Based on the evidence at hand:

- Recent rapid growth in prescription volume and strong market competition within the community dispensing industry are significant contributors to, and indicators of, *a rapid and persistent rise in demand* for pharmacists.
- Compensation packages currently being offered to pharmacists are consistent with commonly described efforts of employers facing a shortage. Systematic assessments of employers describe recent *higher salary increases for pharmacists and the use of other economic incentives* (signing bonuses, leases on automobiles, and reimbursement of relocation expenses).
- *Supply response to the changes in demand is constrained* by several factors locally including out migration of new pharmacy graduates to other parts of Canada and an expected 50 per cent decrease in School of Pharmacy class sizes for 2007 and 2008.

As of March 2006, 19 of the 85 approved clinical pharmacist positions including supervisory and management positions were vacant in this Province, representing an alarming 22 per cent vacancy rate. New pharmacy graduates are leaving the Province at a rate of more than 60% for the last several years. The remaining graduates are committed to jobs in the community sector for higher salaries, benefits and signing bonuses.

The average starting salary for new pharmacy graduates is \$30/hour (\$62,400/year) for the local and Atlantic community sector, plus signing bonuses of \$20,000 to \$30,000. The starting salary for a hospital pharmacist in this Province is \$24.36/hour (\$47,500/year). In

PEI, new pharmacy graduates are placed on Step 5 of the hospital pharmacists' pay scale at \$44/hour (\$85,800/year). In Halifax, the Health Care Bargaining Unit pay rate starting salary for hospital pharmacists is \$32.58/hour (\$63,540/year) or higher. These pharmacists are currently in collective bargaining and have an existing clause in the current contract that provides additional pay increases if they can show they are not the highest paid in Atlantic Canada. Given this existing clause, it is expected their starting salary will approach or match PEI's \$44/hour. Other hospital boards in Nova Scotia are advertising starting salaries of \$41.53/hour (\$81,000/year) not including a \$20,000 sign-on bonus.

Nova Scotia, New Brunswick and PEI have all implemented labor market adjustments to the salaries of pharmacists to make them competitive with the community sector market. The 2003 HR Report identified that of all the nursing and allied health groups studies in Newfoundland, the disparity between compensation levels in the community and public sector are the highest for pharmacists and that labor market adjustments may be needed with close annual monitoring required. This adjustment is warranted given the unprecedented 80 per cent (\$45,500 Newfoundland & Labrador versus \$85,800 PEI) higher starting salary between hospital pharmacists in this Province compared to those in the Maritime Provinces and those in the community sector of this Province. The 2003 HR Report also identified inadequate compensation as the primary factor impeding the recruitment and retention of management personnel, and this extends to non-management supervisory staff.

To compound matters, the pharmacists that are currently leaving hospital positions are the most experienced staff. Retention of experienced pharmacists is a necessity in order to maintain the safe and effective delivery of pharmaceutical care services. This combined with an inability to fill vacant management and supervisory positions have led to the current crisis. The American Hospital Association Commission on Workforce for Hospitals and Health System identified that providing incentives to older employees to shun retirement and to continue to work within the organization as the simplest short-term solution to the current labor shortage.²²

Of all the pharmacists registered in the Province, less than 15 per cent are employed as hospital pharmacists. This makes the pharmacy profession distinctive from nursing and all

other Allied Health Professionals as the community sector has a major influence on the salaries paid to pharmacists in the hospital sector.^{1,11} Both community and government employment sectors have shown evidence of an increase in demand for pharmacists. An increase in demand in one sector affects the supply of pharmacists available in the other sector. Additionally, the demands facing hospital pharmacist are more urgent as the professional services provided are required immediately with a minimum turn around time. Prescriptions for hospitalized patients must be filled without delay with information and recommendations provided to ensure patient care is not affected. The vast majority of hospitalized patients receive drugs as their exclusive form of medical treatment. In an institutional setting, 89 per cent of medication incidents occur outside the pharmacy dispensary.^{22a} Studies have shown that 50% of Canadians do not take their prescription medications exactly as prescribed.^{22b} Each year, drug non-compliance is the cause of 10% of all hospital admissions, 25% of hospital admissions for the elderly, and 23% of all nursing home admissions. As well, adverse drug reactions are a leading cause of patient mortality.^{22c,22d} Medications are an important tool in the management of health, but if they are not used properly, they can cause serious harm. Hundreds of papers have shown that a pharmacist can make a significant difference in patient care.^{22e} Therefore, the work cannot be delayed or rescheduled. The distinctive and specific aspects of the pharmacy profession as well as technological advances, market changes and other professional opportunities have all contributed to a unique and dynamic employment market specific to hospital pharmacists.^{2,11}

Working conditions in hospital pharmacies are deteriorating due to staff shortages.^{1,2,11,14,20} Short staffing means that the remaining pharmacists must be more closely tied to the dispensary instead of engaging in clinical practice on the hospital ward where their expertise is most valuable. Relief or casual pharmacists have been extremely difficult to recruit. Therefore, when there is sick leave, clinical services have to be cut to cover the increased workload. With long hours and an excessive number of prescriptions to fill, there is very little time for clinical services, the very aspect of the profession that provides the greatest benefit to health outcomes and provides the greatest job satisfaction for pharmacists. Hospital pharmacies are also coping with the shortage by requesting pharmacists to work overtime hours. Eastern Health currently has 3 schedules for their pharmacists: regular daily schedule,

regular daily overtime schedule and forced overtime schedule. Gander currently has a vacant pharmacy manager position and two vacant staff pharmacy positions. With a 50 per cent vacancy rate, there are only two pharmacists available to provide daily coverage 7 days a week (e.g. a work schedule of 11 days on and 3 days off). This leaves only one pharmacist on when the other is off or working the weekend. The identical situation will occur at Eastern Health's G. B. Cross Memorial Hospital in Clarenville as a pharmacist will be leaving the organization. This represents one-third of their pharmacy staff and will result in only two pharmacists providing daily coverage 7 days a week. There is currently a forced overtime schedule which can compromise patient care and safety.

The issue of quality of care as it pertains to pharmacists is particularly relevant at this time in light of the existing shortage. A 2000 Institute of Medicine report, "*To Err is Human: Building a Safer Health System*," as well as the "*Safer Health Care Now*" initiative noted the important role pharmacists play in reducing medication error.^{5,6} Both reports emphasized the importance of human factors – maintaining reasonable working hours, workloads and staffing ratios and avoiding distractions – in keeping errors to a minimum. With the unprecedented increase in drug diversity and complexity, medication error in the United States has reached alarming proportions.² Canadian experts indicate the same holds true in this country.⁶ Canadian hospital pharmacists have decades of research and experience at their disposal to argue for pharmacy's role in assuring patient safety through decreased risk of medication errors.¹¹ Unfortunately, the pharmacist shortage has taken away the clinical programs that provide safe guards against medications errors, and at the same time is setting up an environment conducive to pharmacists making errors. Studies have shown a strong correlation between pharmacist shortages and patient safety.^{2,5-8,15} Shortages in pharmacy staff may increase error hazards because of understaffed work shifts as well as the duration and volume of shifts due to scheduled and forced overtime.

2.0 ENVIRONMENT

The overall population of the Province is projected to continue to decline to about 502,000 in 2013 from 516,000.²³ This decline is irregular as urban areas have an increasing proportion of the overall population while most rural areas have seen population decreases. Despite overall population decline, the number of people over the age of 65 (the primary users of the health and community services system) will grow by 31 per cent in the next ten years. The out migration of younger people means a decrease in the availability of traditional supports for seniors and others requiring long-term care. Compared to the rest of Canada, the population of Newfoundland and Labrador has among the highest rates of circulatory diseases, cancer and diabetes. The Province ranks high on the risk factors of smoking, obesity, alcohol consumption and inactivity, which are strongly linked to many chronic diseases.⁴⁰

Statistics Canada reports that Newfoundland and Labrador's population consisted of 42 per cent rural (living in communities under 1000 persons) in 2001.²⁴ Considering community size and dispersion, Newfoundland and Labrador faces the greatest challenge of any Canadian province with respect to accessibility and sustainability of health services and the staffing of those services. The Royal Commission on the Future of Health Care in Canada identified treating health human resource planning as a separate policy exercise is one of the key barriers to reform.²⁵ Another planning consideration is the presence of variation. For example, variation in demographics, population needs, system efficiencies, system utilization, skill mix, team mix and absenteeism is common and ever-changing. Variation also exists between provinces, complicating benchmarking exercises. Given unique environments, variation is often quite appropriate but seriously challenges the planning process.

Some of the concerns associated with the pharmacist shortage have been addressed by incorporating technological advances into practice sites to support the traditional dispensing functions of pharmacists. In addition, the role of the pharmacy technician has been expanded to give pharmacists more time to spend with patients and reviewing more complex therapies. These developments may also ease the strain of an increased prescription load on the current medication use system, but additional pharmacists will continue to be needed. The

shortage in management candidates is also high, leading to concerns that the lack of quality managers could negatively impact the profession.

The push for safer patient care has resulted in changes to the profession.^{4,5,6} Pharmacists have the authority to intervene prior to the ordering of medications by a physician and at any time can question and refuse to comply with a physician's medication order if it is believed that the patient's treatment or safety may be compromised. The role of the hospital-based pharmacist is two fold. The pharmacist provides improved health outcomes for the patient and at the same time provides a significant economic impact by promoting appropriate and responsible use of medications within a publicly funded health care system.³

The pharmacist achieves this by:

1. Focusing on and promoting optimal medication use, avoidance or minimization of problems related to drug therapies and achievement of desired patient outcomes;
2. Educating physicians on appropriate prescribing for specific diseases to ensure ideal utilization of drugs (particularly high cost drugs);
3. Implementing programs to enhance adherence to specific prescribing guidelines to optimize medication use;
4. Providing specialized services to specific patient groups to optimize medication use and outcomes which in turn helps to decrease office, hospital and emergency room visits; and,
5. Developing and implementing programs to promote use of outpatient therapy, resulting in decreased institutional admissions and/or lengths of stay.

Turnover and shortages of qualified pharmacists raises some serious concerns for health care institutions. More particularly, institutions and Government administration need to be concerned with the quality of services offered. If the shortage of pharmacists continues and/or worsens clinical services stand to be compromised. To name a few:

- Clinical Oncology Services
- Clinical Nephrology Services
- Clinical Pharmacy for Outpatient HIV Services
- Infectious Disease/Antibiotic Utilization
- Intensive Care/Critical Care Services

A unique problem exists in hospital pharmacy, unlike other professions. There is an abundance of available positions but no applicants applying. The expansion of community pharmacies in large chain stores and supermarkets across the Province has further compounded the shortage. The competition for pharmacists has resulted in the community sector “raising the bar” with increased salaries and enhanced benefits. Governments in the other Atlantic Provinces have introduced some type of Labour Market Adjustment for all hospital pharmacists including pharmacy management.

3.0 WHO'S WHO

This section of the report provides information on the health care sector workforce in Newfoundland and Labrador. The health care workforce is comprised of 19,109 individuals in various occupations, including physicians. The workforce consists of three areas: primary occupation, ancillary occupation-clinical and ancillary occupation-systems. The primary occupation category consists of physicians, pharmacists, registered nurses, licensed practical nurses, managers, social workers, etc. This category has the greatest variety of highly educated, regulated and legislated professionals within the public health care sector. Primary occupations make up 61 per cent of the health care workforce, with registered nurses, licensed practical nurses and non-pharmacy managers accounting for 30 per cent of the total. Pharmacists (including pharmacy managers) consist of 0.7 per cent of the primary occupation group or 0.4 per cent of the entire health care sector workforce (Table 3.2).

The health care sector is divided into five bargaining units and management. The largest majority of pharmacists (more than 95 per cent) employed by the regional health boards are members of the Association of Allied Health Professionals (AAHP) or management. There is less than 5 per cent of the total number of hospital pharmacists employed by Labrador-Grenfell Regional Integrated Health Authority. These pharmacists are members of the Newfoundland and Labrador Association Public and Private Employees (NAPE) Health Professionals (Table 3.3). Pharmacists represent 9 per cent of AAHP's total membership.

Many groups have significant turnover rates and vacancy rates for the third quarter of 2005-2006 fiscal years. Managers, radiation therapist, audiologists, occupational therapists, psychologists, dental assistants and respiratory therapists all show significant vacancy rates. Audiologists have an average vacancy period of 44 months to recruit a new employee. However, this number is 60 per cent lower than the amount of time to recruit a pharmacist. On average it requires 70 months to recruit a pharmacist (Table 3.5). Hospital pharmacy showed 17 positions vacant for the fourth quarter of 2005-2006. This translates into 1,190 months of recruiting. Table 3.4 shows that over the past 3 years there has not been one quarter where hospital pharmacies were fully staffed.

It is important to note that comparisons of numbers for professionals between provinces should be viewed cautiously, due to differing scopes of practice, timeframes and definitions. For this reason the numbers for other provinces are included with this section. However, information comparing health care workers per capita in the Province is provided (Table 3.6). Contrary to information provided in the “*Reporting to the People of Newfoundland and Labrador First Minister’s Accord 2004*”, the national averages of professionals per capita indicates the Province typically has more pharmacists per capita than the Canadian average. To qualify this statement, it should be noted that the per capita number referred to represents all pharmacists registered in Newfoundland and Labrador. These pharmacists can be employed in the community sector by the Health Boards or other settings (Table 3.1). The average number of pharmacists in Newfoundland and Labrador employed by the health boards is 15 pharmacists per 100,000 population not 101 pharmacists.

Table 3.1: Pharmacists Places of Registration

Jurisdiction	Pharmacists practising in community	Pharmacists practising in hospital	Pharmacists in other settings
Alberta	N/A	N/A	N/A
British Columbia	2,485	583	873
Manitoba	864	237	54
New Brunswick	516	98	11
Newfoundland and Labrador	388	85	112
Northwest Territories	25	0	0
Nova Scotia	835	144	86
Nunavut	15	1	0
Ontario	7,150	1,455	1,229
Prince Edward Island	144	11	5
Quebec	4,763	1,038	989
Saskatchewan	881	178	118
Yukon	24	2	7
CANADA	18,090	3,832	3,484

Source: NAPRA (<http://www.napra.org/docs/0/86/363.asp>) January 2006

Note: Hospital Pharmacists represent 15 hospital pharmacists (including pharmacy managers) per 100,000 population. This number demonstrates that hospital pharmacists are in the same category as other allied health professionals and lower than clinical psychologists, physiotherapists and occupational therapists. As per Reporting to the People of Newfoundland and Labrador: First Minister’s Accord 2004 it was stated that these groups showed fewer positions than the Canadian average.

Table 3.2: Workforce Counts Employed by the Health Boards

Primary Occupation		Ancillary Occupations -Clinical		Ancillary Occupations- System	
Description	No.	Description	No.	Description	No.
Audiologist ¹	13	Audiology Technician ¹	2	Administrative/Clerical Support ^{1,5}	2284
Behaviour Management Specialist ¹	79	Cardiology Technician ¹	3	Biomedical Engineering ¹	20
Cardiology Technologist ¹	35	Combined Laboratory/X-ray Technician ¹	24	Dietary ¹	1053
Child Management Specialist ²	24	Community Service Worker ¹	14	Facilities ¹	437
Combined laboratory/x-ray Technologist ¹	14	Dental Technicians ¹	17	Housekeeping ¹	1328
Dietitian/Nutritionist ⁴	69	Medical Radiation Technician ¹	13	Information Systems	88
Dosimetrist ¹	4	Medical Laboratory Technician ¹	165	Laundry ¹	277
Electroneurophysiology Technol. ¹	12	MRT Support Staff ²	8	Materials Management ¹	387
Genetic Counsellor	7	MLT Support Staff ²	117	Medical Service Aide	229
Licensed Practical Nurse ^{1,4}	2701	Nuclear Medicine Technician ¹	6	Records ^{1,3}	102
Managers, clinical and non-clinical ¹	879	OT Support Worker ¹	28	Other (Ancillary System) ^{1,5}	19
Medical Laboratory Technologist ¹	366	Personal Care Attendant ¹	412		
Medical Physicist ¹	4	Pharmacy Technician ¹	98		
Medical Radiation Technologist ¹	256	Physiotherapy Assistant ¹	79		
Nuclear Medicine Technologist	13	Prosthetist-Orthotist Technician ¹	5		
Nurse Practitioner ²	51	Psychologist Assistant ¹	6		
Orthopedic Technologists ¹		Recreation Therapy Worker ¹	101		
Occupational Therapist ¹	101	Social Service Worker ¹	65		
Paramedic (private not included) ¹	131	Other (Ancillary Clinical) ^{1,3}	60		
Pharmacist (including management) ³	85				
Physicians - General Practitioners ¹	437				
Physician – Specialists (FFS) ^{1,10}	476				
Physiotherapist ¹	109				
Psychologist (Clinical) ⁴	59				
Prosthetist-Orthotist ¹	12				
Radiation Therapist (cancer treat.) ¹	15				
Recreation/Development Specialist ¹	28				
Registered Nurse ⁴	4916				
Respiratory Therapist ¹	75				
Social Worker ⁴	648				
Speech-Language Pathologist ¹	28				
Other Occupations ^{1,5}	15				
Totals	11,662		1,223		6,224
Grand Total	19,109				

Sources and Notes:

1. Source: Human Resources Indicator Report 1999 to 2003, Executive Summary (March 2003)
2. Source: Newfoundland & Labrador Health & Community Services Human Resource Planning Steering Committee, Final Report (July 03)
3. Source: National Association of Pharmacy Regulatory Authorities (January 2006)
4. Source: reporting to the People of Newfoundland and Labrador: First Minister's Accord 2004, Implementation Report 2005
5. Administrative support includes all clerks (admitting, ward, payroll & others), secretaries & other administrative staff excluding managers
6. "Other Occupations" includes assistant clinical microbiologists, cardio-pulmonary technologists, cardiovascular perfusion technologists, child care consultants, clinical biochemists, dentists, electrocardiograph technologists, management engineers, medical physicists, kinesiologists, music therapists, orthopists and pastoral care clinicians.
7. "Records" includes medical records technicians, medical records analysts, and medical records librarians.
8. "Other(Ancillary System)" includes aircraft dispatchers, aircraft maintenance engineers, pilots and students.
9. "Other (Ancillary Clinical)" includes beauticians, cardiovascular perfusion technicians, researchers, electrocardiogram (EKG) technicians, family support workers, financial assistance officers, homemakers, ophthalmologist assistants, and health educators.
10. FFS – Fee for Service

Table 3.3: Health Boards Bargaining Units

Bargaining Unit or Grouping	Total
AAHP (Association of Allied Health Professionals)	789
CUPE (Canadian Union of Public Employees)	2236
NAPE GS (Newfoundland and Labrador Association of Public and Private Employees General Services)	390
NAPE HP (NL and Labrador Association of Public and Private Employees Health Professionals)	11
NAPE HS (Newfoundland Labrador Association of Public and Private Employees Hospital Support)	7169
NAPE LX (Newfoundland Labrador Association of Public and Private Employees Laboratory and X-Ray)	901
NLNU (Newfoundland and Labrador Nurses' Union)	4915
Total	16,411

Source: HHR Indicator Report 1999 to 2003

The Clinical Pharmacist I, II, III and Specialists represent 9 per cent of the AAHP membership as per workforce counts represented in Table 3.2.

Table 3.4: Vacancy Rates as per Regional Integrated Health Authorities

All Quarters

Report #2
Provincial RIHA Vacancies Summary

1

Occupation Category	Occupation Name	Number of Vacancies Per Quarter									Average	
		2003/04			2004/05			2005/06				
		Q2 ¹	Q3 ²	Q4 ³	Q1 ⁴	Q2 ⁵	Q3 ⁶	Q4 ⁶	Q1 ⁷	Q2 ⁸		Q3 ⁹
Primary Occupations	Audiologist	4	4	3	2	2	2	2	5	2	2	3
	Behaviour Management Specialist	4	1	0	3	0	1	0	0	0	0	1
	Cardiology Technologist	0	0	0	1	1	2	3	1	1	2	1
	Child Management Specialist	0	0	0	0	0	0	0	0	0	1	0
	Clinical Psychologist	1	2	1	1	1	4	5	4	8	4	3
	Combined LX Technologist	0	1	2	1	0	0	0	2	0	0	1
	Dietitian/Nutritionist	2	2	1	0	4	1	2	0	0	1	1
	Electroencephalography Technologist	2	1	0	0	0	0	0	0	0	0	0
	Licensed Practical Nurse	3	14	11	18	12	20	20	33	50	48	23
	Manager	16	27	37	28	22	23	11	22	18	39	24
	Medical Laboratory Technologist	1	8	8	10	6	8	8	13	2	7	7
	Medical Radiation Technologist	3	9	4	4	6	7	2	15	6	10	7
	Nuclear Medicine Technologist	1	1	0	1	0	1	1	1	1	3	1
	Occupational Therapist	0	3	6	10	3	3	5	6	1	4	4
	Orthopaedic Technologist	0	0	1	0	0	1	2	1	1	2	1
	Other Occupations	1	0	0	0	1	1	0	1	2	0	1
	Pharmacist	5	7	4	2	4	4	4	6	2	7	5
	Physiotherapist	2	5	3	8	6	4	4	7	4	3	5
	Prosthetist-Orthotist	0	0	0	0	0	1	1	1	1	1	1
	Radiation Therapist	0	0	0	0	0	2	0	0	0	0	0
	Recreation/Development Specialist	0	1	1	0	1	0	0	1	1	3	1
	Registered Nurse	42	58	85	101	60	79	49	128	70	86	76
	Respiratory Therapist	0	0	2	2	2	2	0	5	5	3	2
	Social Worker	12	8	13	28	15	15	14	7	5	7	12
	Speech Language Pathologist	0	1	3	2	2	4	2	3	1	2	2
Primary Occupations Total		99	153	185	222	148	185	135	262	181	235	181
Ancillary Occupations - Clinical	Combined LX Technician	0	0	0	0	3	0	0	0	2	1	1
	Community Service Worker	0	1	1	2	3	3	4	2	4	2	2
	Dental Technician	1	1	1	1	1	1	1	1	1	1	1
	Medical Laboratory Assistant	0	0	0	0	0	11	0	7	1	7	3
	Medical Laboratory Technician	0	25	0	4	0	0	0	1	0	0	3
	Medical Radiation Technician	0	0	0	0	0	0	1	0	0	1	0
	Occupational Therapy Support Worker	0	0	1	2	3	1	1	2	1	1	1
	Other Occupations (Clinical)	1	0	0	67	1	2	0	1	0	2	7
	Paramedic	1	3	2	6	0	3	3	2	0	0	2
	Personal Care Attendant	0	3	3	2	6	4	1	2	10	9	4
	Pharmacy Technician	0	0	0	3	3	0	0	1	0	5	1
	Physiotherapy Assistant	1	1	2	4	2	1	0	1	4	3	2
	Prosthetist-Orthotist Technician	0	0	0	0	0	0	0	0	1	0	0
	Recreation Therapy Worker	0	1	2	9	9	1	3	3	6	1	4
	Social Service Worker	0	0	0	0	0	0	0	1	0	0	0
Ancillary Occupations - Clinical Total		4	35	12	100	31	27	14	24	30	33	31
Ancillary Occupations - System	Administration	15	42	30	33	17	20	18	32	27	21	26
	Biomedical Engineering	0	2	1	0	0	1	0	1	1	0	1
	Dietary	1	14	6	87	5	21	12	16	12	16	19
	Facilities	4	4	5	7	6	5	7	17	14	14	8
	Housekeeping	1	74	10	56	16	16	7	17	31	19	25
	Information systems	1	0	0	1	0	2	1	2	2	5	1
	Laundry	0	0	3	16	3	5	1	5	4	1	4
	Materials	1	9	4	7	1	3	2	2	5	4	4
	Medical Service Aide	0	0	0	0	0	5	2	4	0	4	2
	Other Occupations (System)	0	3	2	0	6	2	0	1	9	4	3
	Records	2	1	2	6	5	0	5	6	2	1	3
Ancillary Occupations - System Total		25	149	63	213	59	80	55	103	107	89	94
Total		128	337	260	535	238	292	204	389	318	357	306

Source: NLCHI

Table 3.5: Average Vacancy Period

Fiscal Year 2005/06 - Quarter 3
November 14, 2005


Report #1
RIHA Vacancies

1

Occupation Category	Occupation Name	Regional Integrated Health Authority					Employment Type			Employment Hours ³		Recruitment			
		ERIHA ¹	CRIHA	WRHA ²	LGRIHA	Occupation Total	Per Cent Permanent	Per Cent Temporary	Per Cent Casual	Per Cent Full Time	Per Cent Part Time	Per Cent Recruited Externally	Per Cent Difficult to Fill	Per Cent Intentionally Kept Vacant	Average Vacancy Period (months)
Primary Occupations	Audiologist			1	1	2	100%	0%	0%	100%	0%	100%	100%	0%	41
	Cardiology Technologist			1	1	2	100%	0%	0%	100%	0%	100%	100%	0%	4
	Child Management Specialist			1		1	0%	100%	0%	0%	100%	0%	0%	0%	0
	Clinical Psychologist	3		1		4	50%	50%	0%	75%	25%	100%	75%	0%	5
	Dietitian/Nutritionist	1				1	0%	100%	0%	100%	0%	0%	0%	0%	0
	Licensed Practical Nurse	43	3	2		48	8%	44%	48%	35%	17%	63%	54%	0%	1
	Manager	9	27		3	39	85%	13%	3%	95%	3%	51%	8%	10%	2
	Medical Laboratory Technologist	2	2		3	7	71%	29%	0%	43%	43%	43%	43%	0%	5
	Medical Radiation Technologist	8		1	1	10	50%	50%	0%	90%	10%	30%	20%	0%	1
	Nuclear Medicine Technologist	3				3	67%	33%	0%	100%	0%	100%	100%	0%	2
	Occupational Therapist	3		1		4	0%	100%	0%	25%	75%	75%	25%	0%	1
	Orthopaedic Technologist	2				2	100%	0%	0%	100%	0%	100%	100%	0%	1
	Pharmacist	6			1	7	71%	0%	29%	71%	0%	100%	100%	0%	70
	Physiotherapist	2		1		3	33%	67%	0%	33%	67%	100%	33%	0%	3
	Prosthetist-Orthotist	1				1	100%	0%	0%	100%	0%	100%	100%	0%	1
	Recreation/Development Specialist	3				3	33%	67%	0%	67%	33%	100%	33%	0%	2
	Registered Nurse	78	6	1	1	86	28%	44%	28%	55%	20%	35%	23%	5%	3
	Respiratory Therapist	3				3	67%	33%	0%	33%	67%	33%	0%	0%	0
	Social Worker	4	1	1	1	7	43%	57%	0%	100%	0%	43%	0%	14%	1
	Speech Language Pathologist	1			1	2	50%	50%	0%	50%	50%	100%	100%	0%	12
Primary Occupations Total		172	39	11	13	235	40%	38%	21%	62%	17%	52%	34%	4%	5
Ancillary Occupations - Clinical	Combined LX Technician		1			1	100%	0%	0%	100%	0%	100%	0%	0%	1
	Community Service Worker				2	2	0%	100%	0%	0%	0%	100%	100%	0%	17
	Dental Technician				1	1	100%	0%	0%	100%	0%	100%	100%	0%	44
	Medical Laboratory Assistant	7				7	29%	71%	0%	43%	57%	0%	0%	0%	2
	Medical Radiation Technician		1			1	0%	100%	0%	100%	0%	0%	0%	0%	1
	Occupational Therapy Support Worker	1				1	0%	100%	0%	0%	100%	100%	0%	0%	0
	Other Occupations (Clinical)	2				2	50%	50%	0%	50%	50%	50%	100%	0%	1
	Personal Care Attendant	7			2	9	0%	100%	0%	11%	78%	89%	11%	11%	7
	Pharmacy Technician	5				5	0%	100%	0%	100%	0%	0%	0%	0%	0
	Physiotherapy Assistant	3				3	33%	33%	33%	33%	33%	67%	0%	0%	3
	Recreation Therapy Worker		1			1	0%	100%	0%	0%	100%	100%	0%	0%	1
Ancillary Occupations - Clinical Total		25	3	0	5	33	18%	79%	3%	42%	45%	52%	18%	3%	6
Ancillary Occupations - System	Administration	15	6			21	19%	76%	5%	52%	48%	33%	5%	19%	2
	Dietary	11	4		1	16	13%	56%	31%	31%	56%	56%	6%	6%	3
	Facilities	12			2	14	21%	71%	7%	79%	0%	79%	14%	21%	3
	Housekeeping	18	1			19	0%	100%	0%	47%	53%	0%	0%	0%	2

Source: NLCHI

Table 3.6: Provincial and National per Professional Ratios

Health Professionals per 100,000 Population[†] 

	Physicians—2003			Registered Nurses—2003	Chiropractors 2003	Dental Hygienists 2003	Dentists 2003	Dietitians 2003	LPNs 2003	Medical Lab Technologists 2003	Medical Radiation Technologists 2003
	Total	GP/FP	Specialists								
N.L.	188	118	69	1044	9	15	31	27	523	78	56
P.E.I.	141	88	54	994	6	49	44	44	448	84	49
N.S.	209	111	98	907	10	50	53	43	323	92	56
N.B.	163	98	65	958	8	36	37	41	324	87	63
Que.	207	104	102	832	14	50	54	26	197	39	52
Ont.	177	85	92	693	27	61	62	20	209	59	46
Man.	177	92	85	861	20	50	49	27	207	87	52
Sask.	153	96	58	855	18	34	38	24	207	94	45
Alta.	183	99	84	755	26	55	55	23	150	70	50
B.C.	200	111	89	665	19	49	66	20	105	64	41
Y.T.	175	162	13	923	29	41	70	22	191	83	..
N.W.T.	102	69	33	978	..	31	104	28	232	47	..
Nun.	34	34	0	875	..	..	..	7	..	..	..
Canada	187	97	91	760	21	53	58	24	199	60	48

	Midwives 2003	Occupational Therapists 2003	Optometrists 2003	Pharmacists 2003	Physiotherapists 2003	Psychologists 2003	Registered Psychiatric Nurses 2003	Respiratory Therapists 2003
P.E.I.	..	25	11	108	38	20	◆	10
N.S.	..	29	9	108	54	41	◆	16
N.B.	0	30	13	80	58	41	◆	22
Que.	1	38	16	84	46	101	◆	37
Ont.	2	31	11	80	48	21	◆	17
Man.	3	37	8	94	50	14	82	20
Sask.	1	21	11	115	53	38	94	10
Alta.	1	35	11	100	54	52	36	27
B.C.	2	31	11	88	56	22	50	12
Y.T.	3	..	13	86	..	25	◆	..
N.W.T.	15	..	..	47	..	201	◆	..
Nun.	..	..	..	..	..	..	◆	..
Canada	1	33	12	87	49	45	54	22

Notes: † Data are preliminary as of December 2003 and are subject to change. Rates per 100,000 population.
 .. Information not available.
 ◆ Does not apply.

GP/FP includes certificants of the College of Family Physicians of Canada (CFPC), non-CFPC general practitioners, foreign-certified specialists and other non-certified specialists. *Specialists* includes certificants of the Royal College of Physicians and Surgeons of Canada or the College des médecins du Québec.

Sources: Southam Medical Database, CIHI.
 Health Personnel Database, CIHI.
 Regulated Nursing Databases, CIHI.
 Population Data: *Quarterly Demographic Statistics*, Statistics Canada, catalogue no.91-002-XIB, October–December, 2003.

Source: Canada's Health Care Provider's 2005 Chart Book, Canadian Institute for Health Information (CIHI)

4.0 WORKFORCE SUPPLY

4.1 New Graduates

Table 4.1 reflects the number of graduates from Memorial University's School of Pharmacy and how many of the graduates subsequently registered in the Province. As well, it indicates the changes in the number of hospital and community pharmacists registered in the Province.

Table 4.1: New Graduates

	2008	2007	2006	2005	2004	2003	2002	2001	2000
# New Grads	17	20	36	35	37	32	41	41	38
Female	11	17	28	22	30	23	26	27	22
Male	6	3	8	13	7	9	15	14	16
# New grads register in NL	Projected To be 7	Projected To be 8	13*	22	19	21	18	23	22
# New grads employed by health boards	N/A	N/A	N/A	1	0	0	1	0	0

Source: NLPB Annual Reports 2000 – 2005.

* Survey of 2006 Graduating Class

These statistics are important as they show that only about 50% of new graduates are staying in the Province. The distribution of employment of the class of 2005 upon graduation was as follows:

- Newfoundland & Labrador– 49%
- Nova Scotia – 3%
- PEI – 6%
- New Brunswick – 3%
- Ontario – 14%
- Alberta – 9%
- BC – 8%
- Further Education – 8%

The majority of graduates are obtaining employment in community pharmacy. In the class of 2005, only 1 of the 17 graduates remaining in Newfoundland obtained employment in a hospital pharmacy. This occurred despite comparable signing bonuses for both hospital and community pharmacy in the St. John's area. Retention of new graduates is based on a number of factors such as availability of full-time jobs, competitive salaries, spousal employment in the area and work requirements (i.e. on call requirements, nights, weekends, etc.). In the past, one of the attractions to hospital pharmacy for new graduates was the reduced number of weekends and evening shifts. However, with the present shortage in hospital pharmacy, the availability to continue with the past trend may be difficult to maintain. Table 4.1 indicates that the addition of 18 to 20 new graduates does not reflect an equivalent increase to the number of pharmacists practicing in the Province. For example, in 2002 despite 18 new pharmacy graduates, the number of practicing pharmacists increased by only 6 as a result of pharmacists either retiring or leaving the Province.

Another factor affecting the supply of pharmacists is the number of female pharmacists on staff. In 2004, the percentage of women graduating from pharmacy programs in Canada increased to 77 per cent. This is also reflected in those graduating from Memorial University's School of Pharmacy since 2003. With increasing numbers of female pharmacists, this may result in an increase in vacancies due to maternity leave. The final report of the 2000 National Pharmacist Workforce Study found that women tend to work 6 per cent fewer hours than their male counterparts with many preferring to work in part-time positions.^{2,39}

4.2 Faculty

Although challenges in recruiting new faculty at the School of Pharmacy has been cited as one factor in recent reductions in enrollments, an increasing number of pharmacists with Doctorates of Pharmacy (PharmD) has ensured that current positions are being filled.⁴¹ However, this represents a challenge to hospital pharmacies, as those with

PharmDs are often those practicing in hospitals. Hence, a new professor may mean a loss of a highly skilled hospital pharmacist.

The School of Pharmacy has just changed its curriculum from a two plus three-year program to a one plus four-year program. This will result in only half of the class 2007 and 2008 graduating. To accommodate this and to introduce several new initiatives, additional faculty will be needed. Unfortunately, the major recruitment pool for the School of Pharmacy has been hospital pharmacies. There are currently four vacant faculty positions for pharmacists and PharmD's with the School of Pharmacy.

4.3 Preceptorship

Preceptors are pharmacists who teach, support and evaluate pharmacy students in clinical settings.⁴¹ Approximately 50 per cent of a pharmacy student's education, is experiential (16 weeks) and requires a hospital pharmacist as a preceptor. In the past, the limited number of placements in the hospital environment has been a contributing factor to the decreased capacity of Memorial University's School of Pharmacy. In 2002, the School of Pharmacy reported that student intake was reduced with a lack of clinical preceptors as the major determining factor. A decrease in hospital pharmacists would further aggravate this situation.

In addition, a new program has been created at the School of Pharmacy. This program requires that one entire class be placed in hospital for a four-week interval during the summer session. This contrasts to past summer placements of 12 weeks of several students, often one per site. The impact of placing a full class will be a concern in the coming years.

To increase the support of the Preceptorship Program, several factors should be considered. First, support is required from educational institutions and employers through regular professional development workshops and recognition for services rendered. Second, more focus is needed on the creation of more clinical pharmacist

Report on Critical Hospital Pharmacists Shortage in Newfoundland and Labrador Hospitals

positions with direct patient care. With more positions, there will be more pharmacists available to accept students. The increase in clinical time will result in increased job satisfaction.

5.0 TRANSITION TO THE WORKPLACE

For the purposes of this report, two important issues related to new graduate preparedness for the community workplace warrant discussion. These include adequacy of orientation and perspectives on future workplace needs.

With regard to orientation, there is a dramatic difference in the length of the orientation period provided to hospital pharmacists as compared to pharmacists in the community sector. The expectation placed on the pharmacist in a community setting is that once graduation is complete and the pharmacist has successfully been licensed, they are able to work independently either immediately or shortly after being employed. This is in contrast to the hospital orientation period. For a new graduate, depending on the site, the hospital orientation period is generally 2 to 3 months. This is required due to the more complex nature of the workplace. The orientation involves training on the hospital computer system, which is more complex than those in community. However, there are other factors that influence the length of the orientation period.

1. Specialty training is required to prepare the pharmacist for work in a hospital setting. These areas include aseptic technique, intravenous preparation, as well as chemotherapy preparation.
2. Familiarity with hospital products that the pharmacist may not be exposed to while completing the pharmacy degree program or while working in a community setting.
3. Since most hospitals are teaching institutions, questions from medical and nursing staff are at a different level than those from the patients in a community setting. More time is required before a hospital pharmacist feels prepared to answer these questions adequately.
4. Educational experience at the School of Pharmacy and practical training that occurs during the studentship period better prepares the pharmacist to function

in a community setting. Pharmacists are generally more familiar with processes and routines occurring in a community pharmacy versus a hospital pharmacy.

5. A large percentage of hospital pharmacists work part-time in a community pharmacy. This allows the movement of hospital pharmacists to the community sector to be more fluid. This does not hold true in reverse scenarios.
6. Program curriculum does provide an adequate clinical base on which to build; however, from experience, new pharmacists generally are not fully prepared in the workplace for at least a year from their date of hire. For this reason, a clinical practice is not established until after that time.
7. Once a clinical area of interest has been established, another lengthy orientation is required for pharmacists that have not yet worked in a clinical setting.

Because of the extra time invested in the orientation process, excess turnover has a much greater impact on hospital pharmacy. A resignation means an investment time in the orientation of a new recruit. This is coupled with the fact that the average time to recruit a new pharmacist is 70 months. This creates yet another retention problem and additional workload for existing staff, which can affect patient safety and lead to a decrease in job satisfaction.

Pharmacy technicians can play an important role in alleviating some of the current excess demand for pharmacists. Utilizing and expanding the role of pharmacy technicians in traditional dispensing functions along with the formal certification programs developed for “Technician Order Entry” of prescriptions and “Chemotherapy Certification” has helped in coping with the present shortage. Considerable work has also gone into a Tech-Check-Tech program. This program has been the standard of care for many years in Canada.^{22f,22g} It allows a pharmacist to sign off on the initial new order when entered in the computer and dispensing the initial unit dose packet. However, the daily unit dose refills packaged by computer controlled automated unit

dose packaging machines could be done by the technician with a final check completed by a second technician as opposed to a pharmacist. This function will save several hours of pharmacists dedicated time per day and would assist in alleviating some of the pressure caused by the pharmacist shortage. The greatest benefits of Tech-check-Tech can be seen when pharmacies are fully staffed. An average of 2 hours a day could be made available to devote to clinical direct patient care functions. Although this is not the total solution to the pharmacist shortage, it is an important integral component necessary to provide needed operational efficiencies. A proposal for approval of Tech-check-Tech was submitted to the provincial Department of Health and Community Services in the fall of 2005, including 6 months of quality assurance documentation indicating 100% accuracy in orders checked by a second technician. To date, Tech-Check-Tech regulations have not been approved. It is imperative that the Department of Health and Community Services approve this as soon as possible as this program is a necessity in terms of staffing given the current crisis. A higher level of Technician classification is also a must to make this successful.

6.0 RECRUITMENT AND RETENTION

To be successful, hospital pharmacies must continue to attract highly qualified clinicians and develop strategies to retain them within the public sector. Over the past ten years, there has been a restriction in Government spending. However, pharmacy staffing needs continue to increase. These increases in pharmacy staffing are more commonly associated with pharmacists' participation in more advanced practice rather than workload adjustments. In order to solve the workforce crisis, hospitals need to recruit new pharmacists into the organization. But the overall situation will not improve if pharmacists leave as fast or faster than new pharmacists can be recruited.

The current shortage in the Province is perceived as a “retention and recruitment” issue as opposed to a “recruitment and retention” issue as the loss of highly qualified, experienced clinical pharmacists has been crippling to the health care system and associated pharmacy services (e.g. Eastern Health has lost 15 experienced pharmacists in the last 16 months). Retention is as important if not more important than recruitment. All RIHAs have advertised for pharmacists in local and national newspapers and recruitment fairs with zero success. The Newfoundland and Labrador Health Boards Association RIHA Vacancies for Fiscal Year 2005/06 – Quarter 3 Report indicated an average vacancy period for pharmacists to be 70 months.

As a result of the shortage, hospital pharmacists have been forced to work overtime, resulting in increased stress from working longer hours with increased workloads and reduced clinical services. A recent survey conducted by the Hospital Steering Committee on Labour Market for this report reveals the quality of work life of hospital pharmacists, including pharmacy managers and directors is beginning to suffer as a result of the current crisis. The following is a summary of the survey results:

- 95.8 per cent of respondents felt that current salaries and benefits offered to hospital pharmacists are not competitive;

- 91.5 per cent of respondents were approached by another employer in the last 12 months with offers of employment – 52.1 per cent of those received offers were within the Province (55.4 per cent coming from community pharmacies);
- 48.9 per cent of responding pharmacists have approached another employer expressing interest of employment;
- 40.6 per cent of hospital pharmacists would consider a management position if the salary was appropriate and competitive;
- 34 per cent of respondents indicated that their current work schedule does not provide a satisfying balance between work and personal life;
- 89.4 per cent responded that if offered a retention bonus they would be more likely to stay in their current job;
- 38.3 per cent indicated they were satisfied with their current job; and,
- Two most important factors that would influence a decision to stay in a current hospital pharmacy position was a competitive salary and benefits and the ability to maintain a clinical practice.

Employees leave organizations for many reasons, but most often they leave because individual needs are not being met. However, the fundamental needs that are not being met for hospital pharmacists (i.e. compensation and clinical practice environment) are the same fundamental issues impeding recruitment efforts.

7.0 HEALTH OF PHARMACISTS

Considerable capacity of the workplace is lost when employees are absent from the workplace for reasons such as sickness, injury or other leave. National data from the Canadian Institute for Health Information reveals that:

- Since 1987, the average number of work days lost in Canadian health occupations due to illness or disability is twice the total workforce average;
- The health workforce is 1.5 times more likely to miss work due to illness and disability than the total workforce;
- Reducing Canadian health workers' absenteeism to total Canadian workforce absenteeism equates to 13,700 full-time equivalents less in 2000; and,
- In 2000, the Newfoundland and Labrador full-time workforce in health occupations was absent due to illness or disability 8.6 percent of each week. The figure for the national sector is 7.2 percent.

The Newfoundland and Labrador Health Boards Association Sick Leave Analysis of 2001 data showed \$10.52 million was paid to those using sick leave. An additional \$5.11 million was paid to those providing sick leave relief or 48 per cent replacement (remembering that relief can be paid at a rate higher than the straight rate of pay). Pharmacists have historically taken very little sick time as a professional group, and there is very limited sick leave relief because there are so few casual pharmacists available. The hospital pharmacy hourly rate is considerably less than the rate for community pharmacy relief. As a result, when pharmacists are sick the remaining pharmacists are left with coping with the extra workload.

Table 7.1 illustrates sick leave and sick leave relief for unionized pharmacists for the various hospitals.

Table 7.1: Hospital Sick Leave Statistics

Hospital		2002/03	2003/04	2004/05
General Hospital – Health Sciences Center	Sick Leave hrs – Union Positions	1,168	2,078	918
	Sick Leave relief hrs - Union Positions	4*	148*	0
Janeway Child Health Center	Sick Leave hrs - Union Positions	256	490	102
	Sick Leave relief hrs - Union Positions	0	0	0
St. Clare's Mercy Hospital	Sick Leave hrs - Union Positions	542	399	663
	Sick Leave relief hrs - Union Positions	0	0	0
Waterford Hospital	Sick Leave hrs - Union Positions	104	111	78
	Sick Leave relief hrs - Union Positions	0	30	0
Carbonear General Hospital	Sick Leave hrs - Union Positions	45	342	38
	Sick Leave relief hrs - Union Positions	0	0	0
Burin Peninsula Health Care	Sick Leave hrs - Union Positions	168	7	58
	Sick Leave relief hrs - Union Positions	23	0	0
G. B. Cross Memorial	Sick Leave hrs - Union Positions	30	293	79
	Sick Leave relief hrs - Union Positions	0	0	0
James Paton Memorial	Sick Leave hrs - Union Positions	53	51	132
	Sick Leave relief hrs - Union Positions	0	0	0
Central NF Regional Health	Sick Leave hrs - Union Positions	76	127	228
	Sick Leave relief hrs - Union Positions	0	0	0
Western Memorial Hospital	Sick Leave hrs - Union Positions	194	686	241
	Sick Leave relief hrs - Union Positions	10*	77*	8*
Sir Thomas Roddick	Sick Leave hrs - Union Positions	66	15	23
	Sick Leave relief hrs - Union Positions	2*	0	0
Charles L. LeGrow	Sick Leave hrs - Union Positions	8	0	0
	Sick Leave relief hrs - Union Positions	0	0	0
Labrador Health Center	Sick Leave hrs - Union Positions	0	490	0
	Sick Leave relief hrs - Union Positions	0	0	0

* Most of the Health Authorities have been unable to recruit casual pharmacists. The salary is not competitive with relief work available in community pharmacy. As a result, when sick leave, family leave, bereavement leave etc. is required, the remaining pharmacists work harder to deal with the workload. Sometimes they are also required to work extra nights, weekends and on-call to accommodate various types of leave. Clinical Pharmacy programs are often withdrawn to deal with the extra workload.

Source: Sick Leave data retrieved from Department of Health, Dave Adey.

8.0 FORECAST: CLINICAL PHARMACISTS, MANAGERS AND DIRECTORS

This section of the report provided forecasts for several groups including pharmacists and pharmacy managers with recommendations for sustaining the present workforce. It was reported that Newfoundland and Labrador has about 585 pharmacists in total. This number, however, included registered non-practicing pharmacists as well as registered pharmacists who resided in other provinces. As of March 2006, there were 473 registered pharmacists in active practice in Newfoundland and Labrador, 85 of which worked within the health boards. This included those in management and director positions. It is important to note that from the time the original report was written in 2002 to March 2006, the total number of practicing pharmacists registered increased by only 6.

Table 8.1: Registered Pharmacist (March 2006)

Number of Pharmacists working in community drug stores	388
Number of hospital pharmacists including managers, directors	85
Number of registered non-practicing pharmacists	51
Number of registered pharmacists in other practice settings such as administration, wholesale, owners not practicing, School of Pharmacy	75
Total # of Pharmacists registered with NL Pharmacy Board	599

The ability of health boards to recruit and retain pharmacists at all levels continues to be greatly affected by external market forces including salary and signing bonuses offered in the community sector and from the public and community sector in other provinces. It was reported in 2003 that of all the groups studied, the disparity between compensation

levels in the community sector and the public service are the highest for pharmacists, including pharmacy managers and directors.¹ It was also reported that inadequate compensation has been identified as a primary factor impeding the recruitment and retention of management personnel and this extends to our non-management supervisory positions.¹ These observations are still the case with the gap in salaries even greater coupled with more vacancies. There is currently an unprecedented

\$20,000 to \$33,500 difference in starting salaries between hospital pharmacists in the Province and hospitals in the Maritime Provinces. Hospital pharmacists in Newfoundland and Labrador are offered a starting salary of \$24.36/hr, with a top salary after 7 years service of \$31.08/hour. Salaries in the Maritime Provinces are in the range of \$39.35/hour and reach as high as \$44/hour with 6 years experience. However, upscale hiring at Step 5 or 6 is prevalent. This 80 per cent (\$45,500 Newfoundland & Labrador versus \$85,800 PEI) higher starting salary is unprecedented and does not exist for other comparable hospital professionals such as nurses, social workers, physiotherapists, etc. Additionally, retention continues to suffer in all health boards not only due to the scope of practice issues (lack of clinical positions) but because the salaries and signing bonuses offered at the local community level and in other jurisdictions in the Maritime Provinces are luring away experienced hospital pharmacists. Most of the recent resignations in the RIHA have been pharmacists on Step 7 of the HP pay scale, who have left for \$15,000 to \$20,000 pay increases as well as \$10,000 to \$20,000.00 sign-on bonuses.

Within the Health Boards, delegation of duties to pharmacy technicians has been a priority over the last few years (i.e. pharmacist supervised technician order entry, intravenous compounding as well as Chemotherapy preparation). Considerable work has also gone into a Tech-Check-Tech program that will allow a second technician to check refilled unit dose packages prepared by an automated unit dose packing machines. This program will save several hours of pharmacists dedicated time per day for several FTEs. Unfortunately, Tech-Check-Tech regulations to date have not been approved by the Department of Health. Although Tech-Check-Tech is not the total solution to the pharmacist shortage, it is however an important and integral component necessary to facilitate further operational efficiencies.

The 2003 HR Report indicated that overall Newfoundland and Labrador has a better population per professional ratio than the national average. This, however, may be misleading for a number of reasons, including the fact that the number of registered pharmacists was over reported in the original report by approximately 25 per cent more

than the actual number of practicing pharmacists. The original report also pointed out a number of limitations associated with interpreting population per professional ratio data due to the fact that population figures only reflect gross numbers and not the age/gender distribution. The population out-migrating from Newfoundland and Labrador tends to be young, resulting in an older provincial population. An older population uses more health services than a younger one. Therefore as the population decreases, the ratios decrease, leaving one with an impression of a situation improving more quickly than it actually is. Additionally, overall population numbers do not reflect age, health status, population density, or patterns of utilization. Census data only represents best estimates of population, and there are many factors impacting its accuracy. As well, the “baby boomers” are currently in their mid-fifties. An aging population combined with an increasing array and complexity of drug therapies will increase the demands on community and hospital pharmacy services. The net result over the next 10 to 20 years will be an unprecedented growth in demand for prescription drugs. All these factors collectively make it difficult to use population per professional ratio to benchmark health board requirements. The 2003 HR Report acknowledged that pharmacists in the community sector were outside the scope of the study and that community sector pharmacists dominated the group in terms of overall numbers. This made it difficult to forecast supply and demand figures for health boards alone, which as stated earlier complicates the validity of the population per professional ratio.

Approximately 40 pharmacists graduate from Memorial University’s School of Pharmacy annually. This number had been recently restricted by the availability of faculty and clinical placements. There were 41 graduates in 2002, and at the time of the 2003 HR Report, there were 32 projected for 2003 and 38 for 2004. The majority of the seats (25 to 30) are reserved for Newfoundland and Labrador students. However, Newfoundland and Labrador students can also compete for the remaining seats. Approximately 10 or less may therefore be out-of-province students none of whom have remained in the Province to work since the publication of the 2003 HR Report.

It is important to note that the actual number of graduating pharmacists available to work in the Province is substantially less than what was reported and projected in the 2003 HR Report. More accurate numbers are outlined in Table 8.2, which includes the number of new graduates that wrote the licensing exam and stayed in the Province to work. The 2003 HR Report estimated 133 as the graduate supply for 2003 to 2007. Actual numbers that stayed in the Province from 2003 to 2006 (2006 numbers taken directly from a survey of the graduating class), plus a projection of 2007 graduates staying in the Province, indicates the revised estimate to be 82, which is considerably less than the 133 graduates outlined in the 2003 HR Report.

Table 8.2: School of Pharmacy Class Size

Year	Class size	Grads from Newfoundland	Grads from outside province	Number of grads that stayed in the Province to practice
2003	32	24	8	21
2004	37	32	5	19
2005	35	29	6	22
2006	36	30	6	13
2007	20	17	3	Projected 7
2008	17	16	1	Projected 6

Pharmacists continue to hold mostly full-time positions. However, with a female dominated profession, the desire for young mothers to work part time or job share has effectively decreased the number of pharmacists available to fill the vacancies. Absenteeism was reported to be low in the pharmacy group.¹ Retirement projections (including pharmacists in management positions), indicate two managers and one senior pharmacist retiring from health board positions (based on eligibility for early retirement at age 55) before the summer of 2006. Another 5 pharmacists will be eligible for retirement in the next 3 to 5 years. This includes managers as well as senior supervisory personnel. In the recent survey conducted by the Hospital Steering Committee on Labour Market, the average age of a hospital pharmacist is 45 years.

The ability to fill current vacant management and supervisory/supervisory positions has been extremely difficult. Pharmacists in non-management or non-supervisory positions have little incentive, financially or otherwise, to move into management positions. As

indicated in the 2003 HR Report, inadequate compensation has been identified as a primary factor impeding the recruitment and retention of management personnel. Throughout 2000 and 2001, pharmacists as well as other selected unionized health professional groups were successful in having their compensation levels adjusted through occupational reviews, but management personnel did not received a similar adjustment regardless of the fact that the managers/directors were also pharmacists. The net affect of these increases is that no significant difference exists between the salary levels of management and director positions and bargaining unit positions. Health boards in many cases have to pay a differential bonus on top of the management salary in order to make the management pay scale higher than the bargaining unit scale. The availability of other benefits to bargaining unit employees (i.e. overtime, differentials and premiums) further decreases or often reverses the salary gap and results in bargaining unit pharmacists at all classification levels making a gross salary greater than the manager and/or director. Consequently, there is little or no financial incentive to leave unionized positions for management positions. Pay equity has also had an effect on staff pharmacists willing to take on unionized supervisory positions as the pay scales are now compressed since the pay equity adjustment has been incorporated into the HP pay scales. The fact that only the Clinical Pharmacist-I was considered for pay equity adjustment further complicates the salary issue. Pharmacy, as a group, is a female dominated profession not just the Clinical Pharmacist-I position. Consequently, leadership positions (i.e. supervisors and manager positions) remain vacant with little chance of being filled.

An effort has been made by Health Boards to compete for new pharmacy graduates and experienced pharmacists by offering bursaries and sign-on bonuses. In 2001, six bursaries of \$3,000 were offered to new graduates and one was accepted. In 2002, five were offered and two accepted. These bursaries originated with the Newfoundland and Labrador Health Boards Association residual funds from other bursary programs and not part of the formal programs. In the last couple of years, bursaries and sign-on bonuses for pharmacy positions with the Health Boards have ranged from \$5,000 to \$10,000. A strategy needs to be developed to increase bursaries and sign-on bonuses

to match the \$20,000 minimum being offered in the community and the Maritime Provinces and retention bonuses in the range of \$20,000 or higher to retain current pharmacists. The alternative would be to provide a market adjustment in hourly salary in a similar fashion as PEI and New Brunswick to bring the starting salaries to a competitive level and the top of the scale at a level to retain experienced pharmacists.

In the 2003 HR Report, the Health Board's turnover of pharmacists was 11 to 14 per cent, with about two-thirds of the positions filled externally. This percentage has improved as a result of the last reclassification of hospital pharmacists. However, market forces as well as a lack of annual increases (resulting from a wage freeze) has brought the profession to critical levels. As of March 2006, the RIHA had 19 vacancies (10 in Eastern, 6 Central and 3 in Labrador-Grenfell). There has not been any pharmacy service in St Anthony as the two positions have been vacant for the last 2 years. Annual Health Board requirements were estimated to be between five and seven, however the requirements are much higher than that with 19 vacancies reported.

Recommendations, in the 2003 HR Report, for better recruitment and retention techniques were reported to be important for pharmacists, including managers and directors, and this continues to be the case. Significant market adjustments in salary are now needed to retain current staff, attract new staff to front line positions and attract experienced staff to supervisory and management positions. If this is not addressed in the short term, current clinical positions will be cut in order to maintain enough pharmacists to handle dispensary functions only. If clinical positions are cut, it is expected that staffing shortages will increase as pharmacists move to the community sector for more money. Further erosion in services could result in the inability to prepare cancer drugs or specialized aseptic infusion solutions such as Total Parenteral Nutrition. Loss of clinical positions would also impact the School of Pharmacy in terms of placement for students to complete the experiential component of their program. This would certainly have an effect of accreditation for both hospitals and the School of Pharmacy.

Table 8.3: Pharmacist projections from Health and Community Services Human Resources Sector Study (REVISED)

PHARMACISTS ESTIMATES>>>	BOARD LEVEL From 2003 Report	Actual 2006 Board Level	PROVINCIAL LEVEL From 2003 Report	Actual 2006 Provincial Level
Workforce (number of Hospital Pharmacists employees including managers and Directors)	81	85	585	388 Community Pharmacists +85 Hospital Pharmacists 473³
Vacancies (number as of November 2002)	5	19	unknown	19
Projected Retirements¹ (number achieving early retirement, 2003 to 2007)	3	See Actual 2006 Provincial Level	Unknown	3 as of June 06 + additional 5 by 2010
Total Requirements² (total supply required 2003 to 2007)	25 to 35	No change	Unknown	17 immediately and an additional 25 over the next 4 years
Total Graduate Supply (number from 2003 to 2007) In the 2003 report this was based on a estimated 70 per cent retention rate of new graduates recognizing that there will be a much lower retention rate for non-Newfoundland and Labrador students. There are also an unknown number of others entering the workforce besides graduates from Newfoundland and Labrador. Actual retention rate from 2004 to 2006 has averaged less then 50%	-	-	133	82 Note: Not all NL pharmacists that graduate each year stay in the Province. Typically 1/3 of the graduating class will not write the NL license exam. Revised numbers using data from 2003 to 2006 and projected numbers for 2007 equals a 2003 to 2007 Supply of 82 Graduates. Additional factor that must be considered in 2007 and 2008 - class size will be reduced to 20 graduates each year due to a change in the program.
Total Other Supply (number other than graduates 2003 to 2007)			Unknown	Continues to be unknown – expected to be zero
Potential Surplus (+) or Gap (-) (cumulative 2003 to 2007)	Unknown	Negative gap	Unknown	Expect negative gap

Notes:

1. Most employees in this group will be eligible for early retirement and it was felt that these estimates better reflect exits from the system than the assumption of retirement at age 58. Also includes managers.
2. Total requirements based on historical turnover rates, the number of external hires, and retirements expected in the next five years.
3. See Table 8.1

9.0 SUMMARY

Hospital pharmacists are predominately female with an average age less than 45 years. Students graduating from Memorial University's School of Pharmacy are predominately female (77 per cent). Pharmacists work primarily in the community sector (85 per cent) with only 15 per cent working in a hospital pharmacy setting. This makes the pharmacy profession unique in that the community sector has a major influence on the salaries paid to pharmacists in the hospital sector. Both community and government employment sectors for pharmacists has shown an increase in demand for pharmacists. An increase in demand for pharmacists in one sector affects the supply of pharmacists available in the other sector. Technological advances, market changes and other professional opportunities have also contributed to a dynamic employment market for hospital pharmacists, which are unique and specific to this profession.

The pharmacy profession is currently in an acute shortage that intensifies dramatically over the projected forecast period. Continued growth in the community sector will place strain on the public sector given the nature of the work as well as the expanding scope of practice and alternative employment opportunities outside the traditional workforce. The magnitude of the gap between supply and demand will require a combination of an aggressive retention and recruitment strategies and alternative models of practice to ensure a stable workforce. Current gaps in supply are projected to continue because of retention and recruitment difficulties combined with a high turnover rate and salaries that are not competitive at the bottom or top end of the salary scales. Additionally, the School of Pharmacy has only enrolled half a class for 2007 and 2008, and it is expected that only 6 to 7 graduates will stay in the Province (based on historical numbers) for both these graduating years. In April 2006, 36 pharmacy students graduated and all have signed contracts in place. Of the 36 graduates, only 13 will be staying in the Province to practice.

It was reported in the 2003 HR Report that of all the groups studied, the disparity between compensation levels in the community sector and the public service are the

highest for pharmacists (including pharmacy managers and directors). It was also reported that inadequate compensation has been identified as a primary factor impeding the recruitment and retention of management personnel and this extends to our non-management supervisory positions.

The ability to fill current vacant management and supervisory positions has been extremely difficult. Pharmacists in non-management or non-supervisory positions have little incentive, financially or otherwise, to move into management positions. As outlined in the 2003 HR Report, inadequate compensation has been identified as a primary factor impeding the recruitment and retention of management personnel. Throughout 2000 and 2001, pharmacists as well as other selected unionized health professional groups were successful in having their compensation levels adjusted through occupational reviews. However management personnel did not receive a similar adjustment, regardless of the fact that the managers and directors were also pharmacists. The net affect of these increases was there were no significant difference existing between the salary levels of management and director positions and bargaining unit positions. The availability of other benefits to bargaining unit employees (i.e. overtime, differentials and premiums) further decreases or often reverses the salary gap. Consequently, there is little or no financial incentive to leave unionized positions for management positions. Pay equity has also had an effect on staff willing to take on unionized supervisor positions as the pay scales are now compressed since the pay equity adjustment has been incorporated into the HP pay scales. The fact that only the Clinical Pharmacist-I was considered for pay equity adjustment further complicated the salary issue. Pharmacy, as a group, is a female dominated profession not just the Clinical Pharmacist-I position. Consequently, leadership positions (i.e. supervisors and manager positions) remain vacant with little chance of being filled.

Salaries in the local community and the public and community sectors in the Maritime Provinces are 80 per cent higher than the Province's public sector. Salaries start at \$35/hour and reach as high as \$44/hour not including \$20,000 to \$30,000 sign-on bonuses. This 80 per cent (\$45,500 Newfoundland & Labrador versus \$85,800 PEI)

higher starting salary is unprecedented and does not exist for other comparable hospital professionals such as nurses, social workers, physiotherapists, etc. Additionally, retention continues to suffer within all Health Boards not only due to scope of practice issues (lack of clinical positions) but because of the salary and sign-on bonuses offered in the local community and other jurisdictions in the Maritime Provinces. As of March 2006, there were 19 vacancies within the Health Boards with an astonishing 70-month recruitment period. This does not include the numerous vacancies reported in the community sector in the Province.

Recommendations to improve recruitment and retention provided in 2003 HR Report are critical, for all areas, to avoid shortages. Efforts to have pharmacists work to their full scope of practice (i.e. clinical pharmacy) must be a priority. Labor market adjustments to salaries are urgently required to retain pharmacists and attract new graduates and experienced pharmacists. It is critical that salary compression between staff pharmacists, pharmacy supervisors, pharmacy managers and directors be addressed and resolved in order to fill our leadership positions in the hospitals. Swift and immediate actions are necessary for hospitals and the health system to make changes that address the current shortage. Past experience with the previous reclassification of pharmacists has shown that when salaries are competitive with the community sector and reasonable compared to the Maritime Provinces, hospitals can attract highly qualified candidates to fill vacant positions.

There is also a need for a system of ongoing monitoring of this situation as the national shortage will ultimately result in future action by the community sector and industry to fill vacant positions. A multidisciplinary approach consisting of leaders from hospital pharmacy and administration, the Pharmacists' Association and Government is recommended. A standing committee made up of members fully aware of the issues and consequences will need to provide direction on these important issues as the labour market goes through further changes in the coming years. Hospital and Government leaders must be the impetus behind changes and initiatives necessary to

prevent the current pharmacists' shortage from gravely affecting patient care and the public health system.

10.0 RECOMMENDATIONS

The following recommendations are a comprehensive set of actions that are intended to be simultaneously addressed:

1. A change in the starting salary of Clinical Pharmacist-I rate of pay equal to \$20,000 (42%) and in Clinical Pharmacist-II, Clinical Pharmacist-III, Clinical Pharmacy Specialist, Clinical Pharmacy Manager and Pharmacy Directors rate of pay equal to 42% applied to all pay scales and classification levels as pensionable income (to correct the existing compression issues).
2. Implementation of a bursary program for new graduates in the sum of \$20,000 with a two-year return-to-work agreement.
3. Implementation of a \$20,000 sign-on bonus for new staff recruited from the community sector or other parts of Canada with a two-year work commitment
4. A commitment to cover relocation expenses up to \$10,000 for pharmacists moving from other parts of the Province or country.
5. Provision for the recruitment of experienced pharmacists on appointment will be paid for their experience at a rate of one step of the appropriate collective agreement pay scale for each one year of experience as a practicing pharmacist and experience in the form of clinical residency training program recognized as three years experience.
6. Implementation of a yearly professional allowance of \$2000 for all practicing pharmacists.
7. Implementation of a seat purchase program with the cooperation of the RIHA and MUN School of Pharmacy to secure a future supply of new graduates to the public sector.
8. The offer of contractual work to pharmacists and pharmacy managers at the time of retirement to stay within the workforce.
9. The approval and implementation of Tech-Check-Tech program including the addition of appropriate technical staff.
10. Immediate evaluation and support for leading edge technology that will not only save pharmacists time but improve patient care and patient safety (i.e. Barcode Technology, Physician Order entry).

11. The immediate restoration of a two-step differential between Clinical Pharmacist-I HP 37 pay scale, Clinical Pharmacist-II HP 38 (changed to HP 39), and Clinical Pharmacist-III/Clinical Pharmacy Specialist HP 40 (changed to HP41) pay scale.
12. Establishment of a liaison committee with PANL, Pharmacy Directors and Human Resources representatives from all Regional Integrated Health Authorities as well as a representative from the Department of Health & Community Services to act as a monitoring and review committee to over see the necessary changes and implement swift action plans if the retention and recruitment crisis continues.

These recommendations can be the foundation for a strong, sustained and committed effort to rebuild an integral component of our health care team. Potential consequences of not implementing appropriate actions to reverse the current shortage trend are:

- The cancellation of clinical pharmacy services that enhance patient care, prevent patient harm and ensure appropriate utilization of drugs thus saving money.²⁻
11,15,26-36
- Curtailment of specialized services such as chemotherapy preparation and centralized intravenous admixture services.
- Curtailment of chemotherapy and antibiotic home infusion services.
- Inability of hospital pharmacies to provide student preceptor support, clinical rotations, clinical lectures to the School of Pharmacy as well as legislated continuing professional education and education to special interest groups.
- Possible withdrawal of the Hospital Pharmacy License by the Newfoundland and Labrador Pharmacy Board.
- Possible negative outcome on hospital accreditation and the School of Pharmacy.
- Delayed implementation of new pharmacy services (i.e. methadone clinic, cardiovascular intensive care unit, medication reconciliation, etc.)
- Withdrawal of participation in multidisciplinary committees (i.e. Pharmacy and Therapeutics, Quality Assurance, Medication Safety, etc.)

REFERENCES

1. Newfoundland and Labrador Health and Community Services Human Resource Planning Steering Committee; Health and Community Services Human Resource Sector Study 2003 Report; July 2003
2. Health Resources and Services Administration. The Pharmacists Workforce: A study of the supply and demand for pharmacists. Rockville, MD: Department of Health and Human Services; 2000 December
3. Hatoum HT, Catizone C, Hutchinson RA, et al. An eleven-year review of the pharmacy literature: documentation of the value and acceptance of clinical pharmacy. DICP. 1986;20:33-41.
4. Graham, Karen. Counting the cost of errors. Hospital Pharmacy Practice, January/February; 1997
5. Kohn LT, Corrigan JM, Donaldson MS. To Err is Human. Washington, DC: National Academy Press; 2000.
6. The Institute for Healthcare Improvement 100K Lives Campaign: Safer Health Care Now, Targeting Safer Health Care in Canada; December 2004; www.saferhealthcarenow.ca
7. L.L. Leape, D.J. Cullen, M.D. Clapp et al, "Pharmacist Participation on Physician Rounds and Adverse Drug Events in the Intensive Care Unit," Journal of the American Medical Association 282 (July 21, 1999): 267-70.
8. S.N. Kucukarslan, M. Peters, M. Mlynarek, D.A. Nafziger, "Pharmacists on Rounding Teams Reduce Preventable Adverse Drug Events in Hospital General Medicine Units," Archives of Internal Medicine 163 (September 22, 2003): 2014-18.
9. Wachter RM, Goldman L. The hospital pharmacist movement 5 years later. JAMA. 2002;287:487-494.
10. Keely JL: American College of Physicians-American Society of Internal Medicine. Pharmacist scope of practice. Ann Intern Med. 2002;136:79-85.
11. A Situational Analysis of Human Resource Issues in the Pharmacy Profession in Canada. Human Resources Development Canada, July 2001
12. McLeod C. Pharmacy Struggles with Shortage. Pharmacy Post 2000. www.pharmacyconnects.com
13. Ipsos-Reid Survey: Pharmacist Shortages-A Warning Signal for Canadians. Canadian Association of Chain Drug Stores (CACDS), November 2001. www.cacds.com
14. Critical Shortage of Pharmacists, British Columbia Pharmacy Association Position Statement, October 17, 2002
15. Hendren J. The Associated Press. Worked to Death: Pharmacist Shortage Leads to Fatal Errors. February 14, 2000
16. Kenreign CA, Wanger LT. The Pharmacist Shortage: Where Do We Stand? Expert Column Medscape, 01/13/2006. www.medscape.com
17. Canadian Institute for Health Information. Drug Expenditure in Canada 1985 to 2004. Ottawa: The Institute 2005

Report on Critical Hospital Pharmacists Shortage in Newfoundland and Labrador Hospitals

18. University of British Columbia Centre for Health Services and Policy Research. Mapping Drug Spending: A Tale of Two Atlases. 2005 www.chspr.ubc.ca
19. Centre for Health Services and Policy Research. The Canadian Rx Atlas. December 2005. www.chspr.ubc.ca
20. White SJ. Pharmacy Work Force Shortage: Implications for Practice. American Society of Health System Pharmacists. October 13, 2002. www.ashp.org/practicemanager/leadershipdev/white/pdf
21. Furlong V. Pharmacy Human Resources Study gets Underway. Pharmacy Practice October 2005, Vol 21, No 10. www.pharmacyconnects.com
22. American Hospital Association Commission on Workforce for Hospitals and Health Systems. In our Hands: How Hospital Leaders can Build a Thriving Workforce. April 2002*
- 22a. JAMA 1995 Jul 5;274(1):29-34
- 22b. Coombs RB et al. Health Promotion Research. Review of the Scientific Literature on the Prevalence, Consequences, and Health Costs of Noncompliance & Inappropriate Use of Prescription Medication in Canada. University of Toronto Press, 1995
- 22c. Manasse HR Jr. Medication use in an imperfect world: drug misadventuring as an issue of public policy. Part 1. Am J Hosp Pharm 1989; 46: 928-44
- 22d. Lazarou J, Pomeranz B, Corey P. Incidence of adverse drug reactions in hospitalized patients. JAMA 1998; 279(15): 1200-5
- 22e. McLean WM. Pharmaceutical Care Evaluated: The Value of Your Services. CPJ 1998; 131(4): 34-40
- 22f. 2003/2004 Lilly Hospital Pharmacy in Canada Report
- 22g. Information Paper on the Role of the Pharmacy Technicians, CSHP 2001
23. Government of Newfoundland and Labrador Economics Research and Analysis Division, Department of Finance. <http://www.nfstats.gov.nf.ca/quickfacts/> (March 16, 2003)
24. Statistics Canada <http://www.12stat.com/english/census01/products/standar/popdwell/table-ur-ps.com>. (April 21, 2003)
25. Building on Values: The Future of Health Care in Canada. Final Report, Roy J Romanow Commission, November 2002. <http://www.hc-sc.gc.ca/english/pdf/romanowpdfs/hcc-final-report.pdf>
26. Kaboli; PJ, Hoth AB, McClimon BJ, Schnipper JL, Clinical Pharmacists and Inpatient Medical Care, A Systematic Review. ARCH Intern Med. 2006; Vol 166, 955-964
27. Bates DW, Cullen DJ, Laird N, et al; ADE Prevention Study Group. Incidence of adverse drug events and potential adverse drug events: implications for prevention. JAMA. 1995; 274:29-34.
28. Beney J, Bero LA, Bond C. Expanding the roles of outpatient pharmacists: effects on health services utilization, costs, and patient outcomes. Cochrane Database Syst Rev. 2000.C000336.
29. Carter BL, Helling DK. Ambulatory care pharmacy services: the incomplete agenda. Ann Pharmacother. 1992; 26:701-708.
30. Hatoum HT, Akhras K. 1993 Bibliography: a 32-year literature review on the value and acceptance of ambulatory care provided by pharmacists. Ann Pharmacother. 1993; 27:1106-1119.

Report on Critical Hospital Pharmacists Shortage in Newfoundland and Labrador Hospitals

31. Singhal PK, Raisch DW, Gupchup GV. The impact of pharmaceutical services in community and ambulatory care settings: evidence and recommendations for future research. *Ann Pharmacother.* 1999;33:1336-1355.
32. Tett SE, Higgins GM, Armour CL. Impact of pharmacist interventions on medication management in the elderly: a review of the literature. *Ann Pharmacother.* 1993;27:80-86.
33. Jenkins MH, Bond CA. The impact of clinical pharmacists on psychiatric patients. *Pharmacotherapy.* 1996;16:708-714.
34. Kane SL, Weber RJ, Dasta JF. The impact of critical care pharmacists on enhancing patient outcomes. *Intensive Care Med.* 2003;29:691-698.
35. Schumock GT, Meek PD, Ploetz PA, Vermeulen LC. Economic evaluations of clinical pharmacy services 1988-1995. *Pharmacotherapy.* 1996;16:1188-1208.
36. Willett MS, Bertch KE, Rich DS, Ereshefsky L. Prospectus on the economic value of clinical pharmacy services: a position statement of the American College of Clinical Pharmacology. *Pharmacotherapy.* 1989;9:45-56.
37. Pickard AS, Johnson JA, Farris KB. The impact of pharmacist interventions on health-related quality of life. *Ann Pharmacother.* 1999;33:1167-1172.
38. Health Trends in Canada, 1995 to 2004. Canadian Institute for Health Information. CIHI 2006, page 156
39. Midwest Pharmacy Workforce Research Consortium. Final report of the National Pharmacists Workforce Study: 2000. www.aacp.org/site/page-asp
40. Newfoundland and Labrador Centre for Health Information September 2002
41. Health and Community Services Human Resource Sector Study, 2005