Registered Nurse Workforce Model Report Newfoundland and Labrador

January 13, 2014

Executive Summary

Several factors contributed to the need for a Registered Nurse Workforce Model including but not limited to:

- Implementation of strategic changes to health services;
- Need to estimate future required educational seat capacity;
- On-going work to improve Registered Nurse utilization throughout the system; and
- A 2011 proposal for a Satellite Option of the Bachelor of Nursing (Collaborative) Program in Grand Falls-Windsor.

To ensure stakeholder involvement and general consensus on future directions, a Registered Nurse Workforce Model Working Group (Working Group) was formed with representation from the Department of Health and Community Services (three members); Department of Advanced Education and Skills (one member); Schools of Nursing (one member from the Centre for Nursing Studies representing all three schools); four Regional Health Authorities (one member each); and the ARNNL (one member).

The Working Group used a methodology developed to produce provincial models for Social Workers, Licensed Practical Nurses, Medical Laboratory Technologists, and Dietitians.

The entire provincial workforce of 6,340 Registered Nurses was considered in this analysis, noting that 5,518 or 87 per cent reported a Regional Health authority as their employer. The Registered Nurse workforce includes Nurse Practitioners and Clinical Nurse Specialists who provide advanced nursing practice; faculty who teach in schools of nursing; and Registered Nurses who are managers and administrators in the health system.

This report provides Registered Nurse labour market projections from 2013 to 2027. It is noted however, that it is impossible to accurately predict all factors that contribute to workforce dynamics.

Key assumptions and conclusions in this report include:

- Workforce modeling cannot predict future labour market trends with certainty;
- Registered Nurse retirements are expected to peak in the year 2022 as the last remaining members of the baby boom generation exit the system;
- Several Registered Nurse sub-groups with the highest average ages should be monitored for the purpose of succession planning;
- There are significant opportunities to improve Registered Nurse productivity;
- Measures to improve system sustainability and increase Registered Nurse utilization may slow future growth;
- Registered Nurse educational capacity in NL is comparable to the average among all provinces;
- The PhD in Nursing Program at Memorial University is an important source of faculty members for the provincial Schools of Nursing;
- For the given assumptions and estimates presented in this report, a surplus of Registered Nurses is projected from present to 2017;
- A gap of seven Registered Nurses is projected for the year 2018, growing to 55 in 2027;
- Current information and analysis does not support further educational seat increases in Corner Brook;

- Potential educational seat increases may best serve provincial supply if applied to St. John's, or established as a new program in Central Health. In the latter case, a cost-benefit analysis is required;
- Addressing a gap in 2018 may require increased intake in 2015;
- Preliminary results suggest 56 more educational seats may be needed to address projected gaps, however the model should be refreshed with an additional year's data before a decision on educational seat capacity is made; and
- Given the complexity of adding educational seats, preliminary planning for educational seat increases should begin as soon as possible, recognizing that a decision on actual educational seat increases may not be needed until 2015, or possibly later. Such planning would not constitute a commitment to fund additional educational seats or other requirements such as the associated infrastructure, clinical placements, etc.

This report provides seven recommendations:

1. Explore opportunities to increase Registered Nurse productivity.
2. Review and strengthen existing attendance management programs in Regional Health Authorities.
3. When available, build on the evaluation results of the Injury Prevention Pilot Project in Long Term Care to reduce Registered Nurse injuries in other areas.
4. Maintain strong recruitment through continued offering of bursaries, signing bonuses, and other incentive programs with associated return-in-service commitments.
5. Refresh the Registered Nurse Workforce Model in 2014 to determine if educational seat increases are warranted. Analysis should determine the number of educational seats required, their timing, and the viability of establishing a program in Central Newfoundland.
6. Consider preliminary planning for educational seat increases to 1) identify order-of-magnitude costing and 2) mitigate other potential issues such as instructor availability, clinical placements limitations, and physical space. Such planning could lay the groundwork for a potential educational seat increases in 2015 or later, but would not constitute a commitment to fund additional educational seats or other requirements such as the associated infrastructure, clinical placements, etc.
7. Monitor workforce trends of selected groups of Registered Nurse, including but not limited to: midwives; Registered Nurses in management and supervisory positions; and Registered Nurses in faculty positions, in order to anticipate and plan for potential vacancies.

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1. Background

Registered Nurses (RNs) are regulated by the Association of Registered Nurses of Newfoundland and Labrador (ARNNL).

RNs are health care professionals who work autonomously and in collaboration with other health professionals. RNs enable individuals, families, groups, communities and populations to achieve their optimal level of health. RNs coordinate health care, deliver direct services and support clients in their self-care decisions and actions in situations of health, illness, injury and disability in all stages of life. RNs contribute to the health-care system through their work in direct practice, education, administration, research and policy in a wide array of settings. As the only category of nursing provider authorized to practice autonomously, regardless of the complexity of care or predictability of outcome, the RN is the most diversified worker in health care and the one most linked to holistic and non-fragmented care (Source: Canadian Nurses Association, 2003 and 2007).

Several factors contributed to the need for an RN Workforce Model including but not limited to:

- Implementation of strategic changes to health services;
- Need to estimate future required educational seat capacity;
- On-going work to improve RN utilization throughout the system; and
- A 2011 proposal for a Satellite Option of the BN (Collaborative) Program in Grand Falls-Windsor.

A Registered Nurse Workforce Model Working Group was formed by the Department of Health and Community Services to guide the development of the model and report presented here. The Terms of Reference are provided in Appendix A.

2. Model Scope

The entire provincial RN workforce was considered in this analysis. A total of 6,340 nurses obtained practicing licenses in registration year 2012/13 (April 1, 2012 to March 31, 2013). Of those 6340 RNs, 5,518 or 87 per cent reported a Regional Health Authority (RHA) as their employer. A provincial approach to workforce modelling is necessary because supply and demand considerations affect the entire workforce regardless of the employer.

The RN workforce also includes Nurses Practitioners (NP) and Clinical Nurse Specialists (CNS) who provide advanced nursing practice; faculty who teach in schools of nursing; and RNs who are managers and administrators in the health system. Many RNs are employed in roles which may not stipulate that an applicant be an RN, for example, positions in administration, quality and risk, information technology, and research trials. There are unique implications on the supply and demand of RNs for these positions.

Because of their comprehensive knowledge base and understanding of both system and client characteristics, RNs are employed in numerous roles in the health system including direct care giver, educator, administrator, manager, researcher, consultant, policy maker, and in a wide array of settings including community, home care, hospitals, nursing homes, physician offices, industry, educational institutions and government.

Licensed Practical Nurses (LPNs) and Personnel Care Attendants (PCAs) are not included in the scope of the RN workforce model, however it is important to note that the presence or absence of other staff in the team strongly impacts RN utilization. This and other external factors are discussed in relevant sections.

3. Limitations

Limitations of workforce modeling include:

- Balancing supply and demand at the provincial level does not guarantee that all positions will be filled. Experience shows that many vacant positions are difficult-to-fill. Targeted recruitment and retention approaches are important, especially in rural and remote areas;
- The results presented are not forecasts; they are scenarios based on averages and assumptions. It is impossible to accurately predict all factors that contribute to workforce dynamics;
- Demand scenarios reflect employer's need for RNs. Employer requirements for RNs do not necessarily reflect population needs in that there are always opportunities to improve alignment of services. Such realignment could result in a need for more (or fewer) positions;
- This model does not account for opportunities to improve RN utilization and productivity[1]. General discussion and recommendations are included; however a full analysis of utilization issues is beyond the scope of this report. Utilization factors include team mix, scope of practice issues, scheduling/deployment, work flow, injury rates, etc.; and
- RN data provided in this report are counts of practicing licenses. Practicing licenses are used as a proxy for the RN workforce; however RNs may have a practicing license yet be unemployed. Also, a count of practicing licenses does not reflect job types (i.e. temporary or permanent, part time or full time) or work patterns (i.e. earned hours and incidence of overtime, callback, sick leave, etc.) or how either may vary throughout the year. Finally, an RN's licensure status may change; part of the year may be non-practicing, while part may be practicing. The RN's last registration status in a particular registration year is recorded in the database for that year. Note that only practicing licenses were analyzed as part of this report. The term "workforce" in the context of this report generally means the number of practicing licenses issued in a particular year.

4. Methodology

The methodology presented here undertakes a full analysis of supply (i.e. all workforce entries and exits are considered) and simplified estimates for growth or decline in workforce demand, based on past patterns of growth or decline and careful consideration of strategic changes in the health care system, either planned or underway.

The Working Group methodology is based on a framework developed to produce provincial models for Social Workers, LPNs, Medical Laboratory Technologists, and Dietitians in Newfoundland and Labrador (NL), and provides consistent analysis across several health occupations.

[1] Productivity is generally considered as the ratio of outputs to inputs. In health care, outputs should reflect quantity and quality of care; inputs include staff, equipment, and capital resources.

Core data were obtained from the ARNNL. Further detailed data were gathered from RHAs, the Department of Health and Community Services Teledata System (financial and statistical RHA reporting system), and the Canadian Institute for Health Information (CIHI). Sources are noted throughout the report.

Stakeholder involvement was critical for model development. Assumptions and estimates must be reasonable from a variety of standpoints. Working Group member organizations included:

- Four Regional Health Authorities;
- Department of Health and Community Services;
- Department of Advanced Education and Skills;
- Centre for Nursing Studies (CNS) representing the three provincial nursing schools; and
- Association of Registered Nurses of Newfoundland and Labrador (ARNNL);

The workforce model considers demand in two components: replacement and expansion. Replacement demand considers basic turnover and the need to replace existing staff. Expansion demand refers to potential workforce growth (or decline). All RN supply is considered, including new graduates and experienced workers, both from within the province and from external sources. All factors were combined in a spreadsheet and projected over several years to determine potential gaps. Various scenarios were tested to measure impact of different strategies.

It is recognized that the province's post-secondary education system seeks to train students for employment in the province, but students can include residents of the province and others from outside the province. It is the individual's choice where to work upon graduation.

Recommendations were developed to reflect short and long term opportunities to stabilize the RN workforce in the province.

5. Registered Nurse Workforce

Unless otherwise noted, data in this report are workforce counts[2].

5.1. Provincial Workforce

Statistics from the ARNNL provided in Table 1 show that the current number of practicing licenses (licensure year 2012/13) is 6,340. The assumption used in the model for future trends is discussed in Section 6.2 on page 28.

[2] Data obtained from the ARNNL represent the count of individuals obtaining a practicing license at any time in the licensure year referenced.

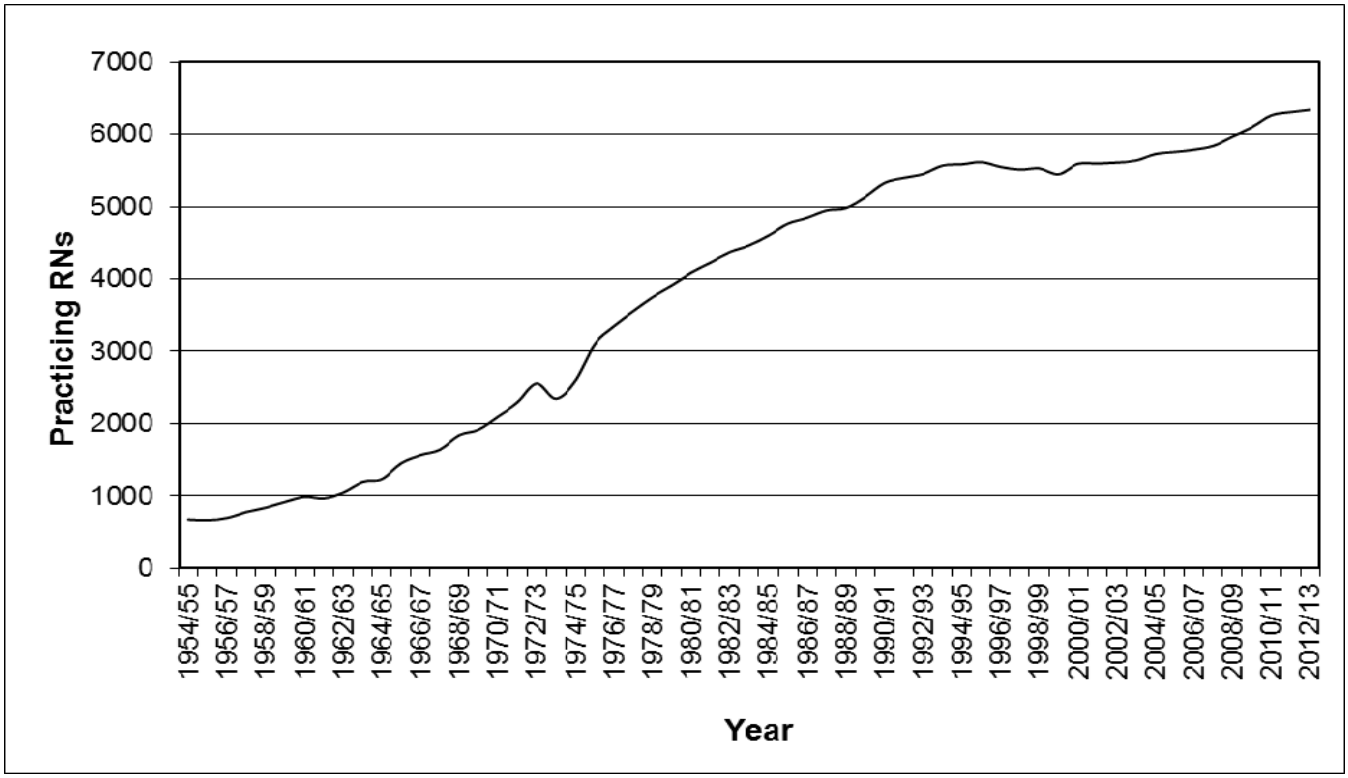
Table 1. Provincial RN Workforce Historical Trends.

Licensure Year	RN Count	Per Cent Change[1]	Licensure Year	RN Count	Per Cent Change[1]	Licensure Year	RN Count	Per Cent Change[1]
1954/55	673	-	**1974/75**	2,589	10.5%	**1995/96**	5,617	0.6%
1955/56	663	-1.5%	**1975/76**	3,094	19.5%	**1996/97**	5,549	-1.2%
1956/57	696	5.0%	**1976/77**	3,347	8.2%	**1997/98**	5,511	-0.7%
1957/58	779	11.9%	**1977/78**	3,554	6.2%	**1998/99**	5,528	0.3%
1958/59	840	7.8%	**1978/79**	3,751	5.5%	**1999/00**	5,447	-1.5%
1959/60	920	9.5%	**1978/80**	3,911	4.3%	**2000/01**	5,592	2.7%
1960/61	990	7.6%	**1980/81**	4,087	4.5%	**2001/02**	5,596	0.1%
1961/62	967	-2.3%	**1981/82**	4,228	3.4%	**2002/03**	5,609	0.2%
1962/63	1,047	8.3%	**1982/83**	4,371	3.4%	**2003/04**	5,637	0.5%
1963/64	1,194	14.0%	**1983/84**	4,464	2.1%	**2004/05**	5,727	1.6%
1964/65	1,233	3.3%	**1984/85**	4,602	3.1%	**2005/06**	5,756	0.5%
1965/66	1,453	17.8%	**1985/86**	4,765	3.5%	**2006/07**	5,787	0.5%
1966/67	1,565	7.7%	**1986/87**	4,846	1.7%	**2007/08**	5,840	0.9%
1967/68	1,640	4.8%	**1987/88**	4,948	2.1%	**2008/09**	5,969	2.2%
1968/69	1,840	12.2%	**1988/89**	4,980	0.6%	**2009/10**	6,097	2.1%
1966/70	1,916	4.1%	**1989/90**	5,134	3.1%	**2010/11**	6,262	2.7%
1970/71	2,097	9.4%	**1991/92**	5,397	3.8%	**2011/12**	6,307	0.7%
1971/72	2,292	9.3%	**1992/93**	5,452	1.3%	**2012/13**	6,340	0.5%
1972/73	2,558	11.6%	**1993/94**	5,568	2.1%			
1973/74	2,344	-8.4%	**1994/95**	5,584	0.3%			

Source: Association of Registered Nurses of Newfoundland and Labrador.
Notes:

1. Per cent change refers to the per cent growth or decline, as compared to the previous year.

Figure 1. Provincial RN Workforce Historical Trends.



Source: Association of Registered Nurses of Newfoundland and Labrador.

The average workforce growth from 1954/55 to 2012/13 has been 4.1 per cent each year, however there is a large range, from -8.4 per cent decline (years 1972/73 to 1973/74) to 19.5 per cent growth (years 1974/75 to 1975/76).

RNs in NL have higher rates of full-time employment and lower rates of part-time employment, than the Canadian average. Rates of casual employment are almost identical as the Canadian average:

Table 2. RNs in NL and Canada: Employment Status.

Employment Status (2012)	NL (%)	Canada (%)
Full-time	74.4	59.1
Part-time	13.3	29.3
Casual	12.3	11.5
Total	**100.0**	**100.0**

Source: CIHI Regulated Nurses 2012 Summary Report.

The number of hours worked in each of the categories shown in Table 2 is not available and data should be interpreted with caution. All data reported from CIHI are 2012 licensure data provided annually from provincial regulatory bodies and only consider the first six months of the licensure year. Additionally, these data are cleaned to remove potential duplicates, and mapped to common categories for comparison purposes, by CIHI. Results should therefore be interpreted with caution; full explanation of data reliability and limitations are provided in the document "Regulated Nurses 2012 Methodology Guide"[3].

RNs in NL were distributed more strongly in hospitals in 2012 than the Canadian average:

Table 3. RNs in NL and Canada: Place of Work.

Place of Work (2012)	NL (%)	Canada (%)
Hospital	66.2	61.6
Community Health Agency	13.9	15.4
Nursing Home/LTC Facility	8.2	9.6
Other Place of Work	11.7	13.3
Total RN Workforce	**100.0**	**100.0**

Source: CIHI Regulated Nurses 2012 Summary Report.

There was a higher per cent of RNs in NLworking in managerial positions in 2012 than the Canadian average:

Table 4. RNs in NL and Canada: Position.

Position (2012)	NL (%)	Canada (%)
Managerial Positions (see note 1)	11.0	6.8
Staff/Community Health Nurse	75.8	76.8
Other Positions	13.2	16.4
Total RN Workforce	**100.0**	**100.0**

Source: CIHI Regulated Nurses 2012 Summary Report.
Note 1: CIHI's definition of Managerial Positions includes coordinator, head nurse, and team leader. It may include unionized positions.

Comparing education levels, the RN workforce in NL has a higher per cent at the baccalaureate level than Canada, and lower per cents at the diploma, masters, and doctorate levels:

Table 5. RNs in NL and Canada: Level of Education.

Level of Education (2012)	NL (%)	Canada (%)
Diploma	49.6	54.6
Baccalaureate	47.0	41.3
Masters/Doctorate	3.5	4.2
Total RN Workforce	**100.0**	**100.0**

Source: CIHI Regulated Nurses 2012 Summary Report.

[3] Available for download at http://www.cihi.ca/.

A higher per cent of RNs in NL were Canadian-trained in 2012 than the Canadian average:

Table 6. RNs in NL and Canada: Location of Graduation.

Position (2012)	NL (%)	Canada (%)
Canadian Trained	98.1	91.8
Internationally Trained	1.9	8.2
Total RN Workforce	**100.0**	**100.0**

Source: CIHI Regulated Nurses 2012 Summary Report.

On an RN per 100,000 population basis, NL had 53 per cent more RNs than the Canadian average in 2012. This gap has widened since 2008, when NL had 44 per cent more:

Table 7. RNs in NL and Canada: RNs per 100,000 Population.

Year	RNs per 100,000 Population		Per Cent More in NL (%)
	NL	Canada	
2008	1,130	786	43.8
2009	1,144	790	44.8
2010	1,175	787	49.3
2011	1,180	785	50.3
2012	1,193	779	53.1

Source: CIHI Regulated Nurses 2012 Summary Report.

The Maritime Provinces' combined ratio was 1032 RNs per 100,000 Population in 2012, or 32 per cent more than the Canadian average.

There are several limitations associated with interpreting professional per population ratios. The population (denominator) only reflects gross numbers and not the age/gender distribution of the population. Additionally, population numbers do not reflect health status, population density, or patterns of utilization of health services. The number of professionals (numerator) does not reflect scope of practice, utilization, workload, skill mix, casualization, team mix, core staffing requirements availability of support staff, distribution of personnel, or the sector to which they belong (i.e. public versus private sector RNs). Core staffing requirements in rural and remote locations are a significant factor in determining the required number of health professionals.

Professional per population ratios should be viewed with caution particularly in a sparsely distributed population, as is the case in NL.

5.2. Regional Health Authority Workforce

RHAs employed 87 per cent of all RNs in the province (5,518) in 2012/13. Detail by RHA is provided in Table 8:

Table 8. RNs by Employer 2012/13.

Employer (2012/13)	Count	Per Cent
Eastern Health	3,541	56%
Western Health	835	13%
Central Health	753	12%
Labrador-Grenfell Health	389	6%
Total	**5,518**	**87%**
Other Employer or Unknown	822	13%
Grand Total	**6,340**	**100%**

Source: Association of Registered Nurses of Newfoundland and Labrador.

5.3. Demographics

CIHI reports that in 2012 the average age of the RN workforce in was 42.8 years while the Canadian average was more than two years older at 45.2 years. Compared to Canada, RNs in NL have a smaller per cent in the 60+ years old category:

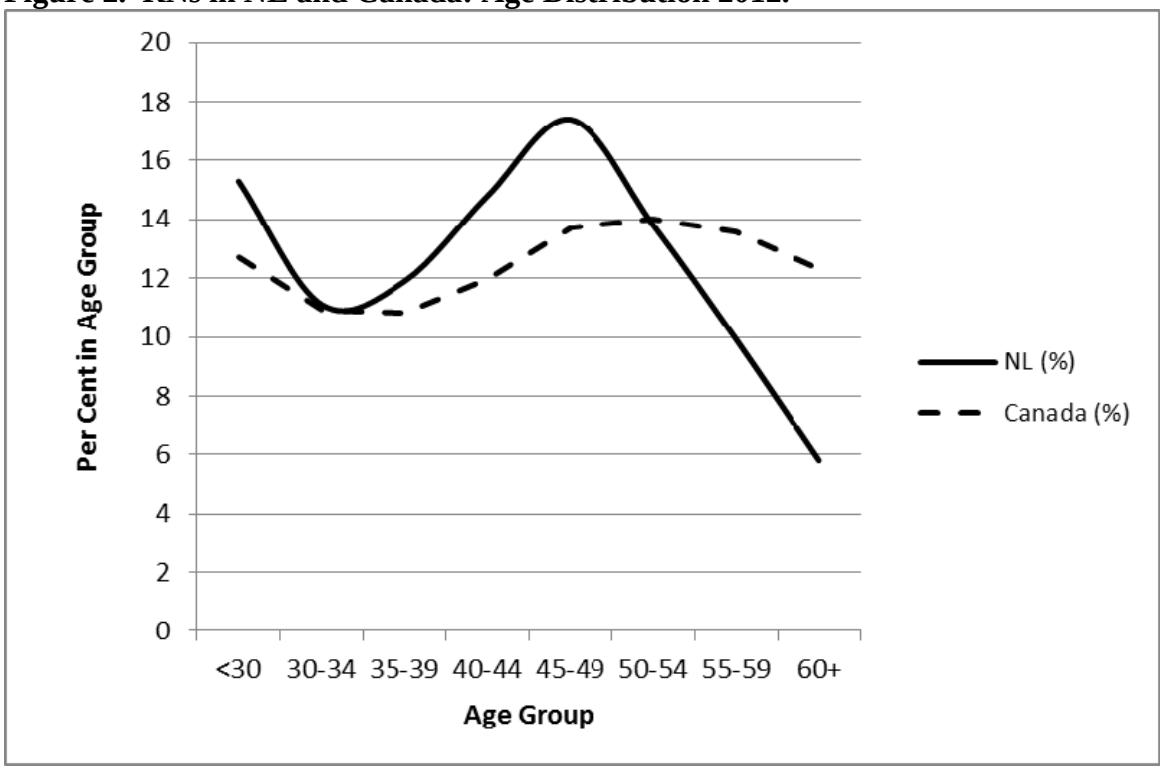
Table 9. RNs in NL and Canada: Age Distribution.

Age Group (2012)	NL (%)	Canada (%)
<30	15.3	12.7
30-34	11.1	10.9
35-39	11.9	10.8
40-44	14.8	12.0
45-49	17.4	13.7
50-54	13.8	14.0
55-59	9.9	13.6
60+	5.8	12.3
Total	**100.0**	**100.0**

Source: CIHI Regulated Nurses 2012 Summary Report.

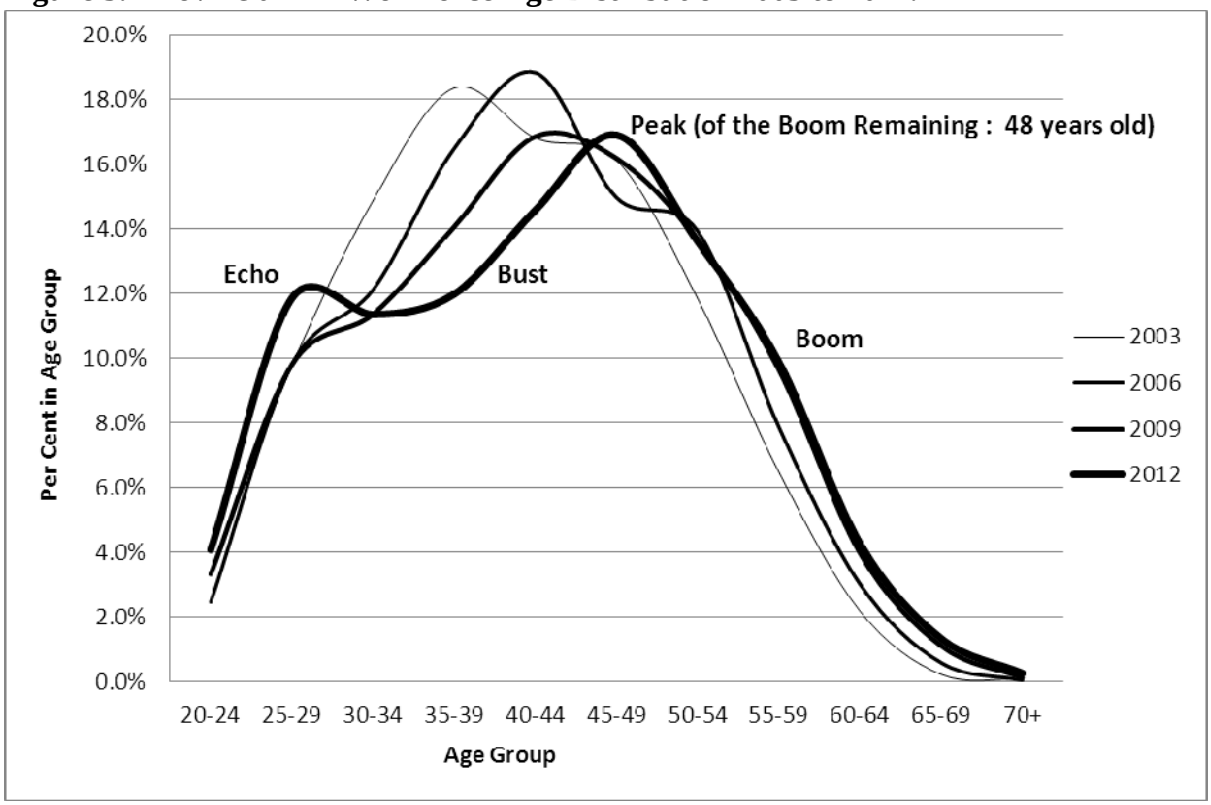
The 2012 RN age distributions for NL versus Canada are shown in Figure 2:

Figure 2. RNs in NL and Canada: Age Distribution 2012.



The changing age distribution for NL RNs is shown in Figure 3:

Figure 3. Provincial RN Workforce Age Distribution 2003 to 2012.



Source: Association of Registered Nurses of Newfoundland and Labrador.

The "Boom" in Figure 3 refers to the post-war "Baby Boom" generation born between 1947 and 1966 (47 to 66 years old in 2013). The "Peak" shows the last of the Baby Boom generation while the "Bust" shows the RNs born between 1967 and 1979. The "Bust" reflects declining birth rates in the 1960s and 1970s.

Over the 1980s and 1990s the Boomers had children, named the "Echo Boom". The "Echo" generation started in 1980 (33 years old in 2013) and peaked in 1991 (22 years old in 2013).

> *"The Boom, Bust and Echo demographic profile, which accounts for almost the entire Canadian workplace today, continues to provide opportunities and challenges for employees, organizations and society".*[4]

Considering 2012 data, the "Boom" dominates at an approximate age of 48, for those remaining in the workforce.

The workforce model assumes an average age of retirement of 58 years. This assumption is based on anecdotal evidence, pension eligibility, and the current age distribution of RNs.[5] Given an assumed average age of 58 years for retirement from work, retirements for the last of the "Boom" may be expected to peak in about 10 years (approximately in year 2022). After 2022 retirement rates may decline. A breakdown of average age by position is shown in Table 10:

[4] David K. Foot, Downloaded from http://www.footwork.com/vital_en.asp November 26, 2013. David K. Foot is Professor Emeritus of Economics at the University of Toronto and demographics expert.

[5] Data from Pensions Division of the Department of Finance, Government of NL, indicate that the average age of retirement for all members participating in the Public Service Pension Plan (PSPP), from 2009 to 2012, was 59.4 years old. For all members participating in the PSPP and working within RHAs only, the average age for the same timeframe was 58.8 years. The average age of retirement for RNs only was not available.

Table 10. RNs in Related Positions: Average Age.

Position 2012/13 (see note 1)	RN Count	Average Age
Nurse Midwife	5	53.8
Executive (CNO, CEO, COO, VP, ED)	24	53.3
Supervisor	39	51.8
Director / Assistant Director (2nd in command)	70	51.5
Researcher	23	49.7
Consultant	63	49.6
Coordinator	250	49.0
Other Position	329	48.9
Clinical Nurse Specialist	36	47.2
Manager / Assistant Manager / Head Nurse	301	47.1
Instructor / Professor / Educator	254	46.8
Nurse Practitioner	118	46.3
Office / Occupational Health Nurse	74	45.2
Blank/unknown	62	44.0
No position	10	41.7
Staff Nurse / Community Health Nurse	4,682	40.7
Total	**6,340**	**42.6**

Source: Association of Registered Nurses of Newfoundland and Labrador.
Notes:
1. Position names are as provided in licensure data.

As one might expect, RNs in senior positions tend to be older.

Compared to Canadian averages, RNs in NL have a lower percentage of males in the workforce:

Table 11. RNs in NL and Canada: Gender.

Gender (2012)	NL (%)	Canada (%)
Male	5.8	6.8
Female	94.2	93.2
Total RN Workforce	**100.0**	**100.0**

Source: CIHI Regulated Nurses 2012 Summary Report.

5.4. Vacant Positions

Since October 2008, RN position vacancies in RHAs have been as follows:

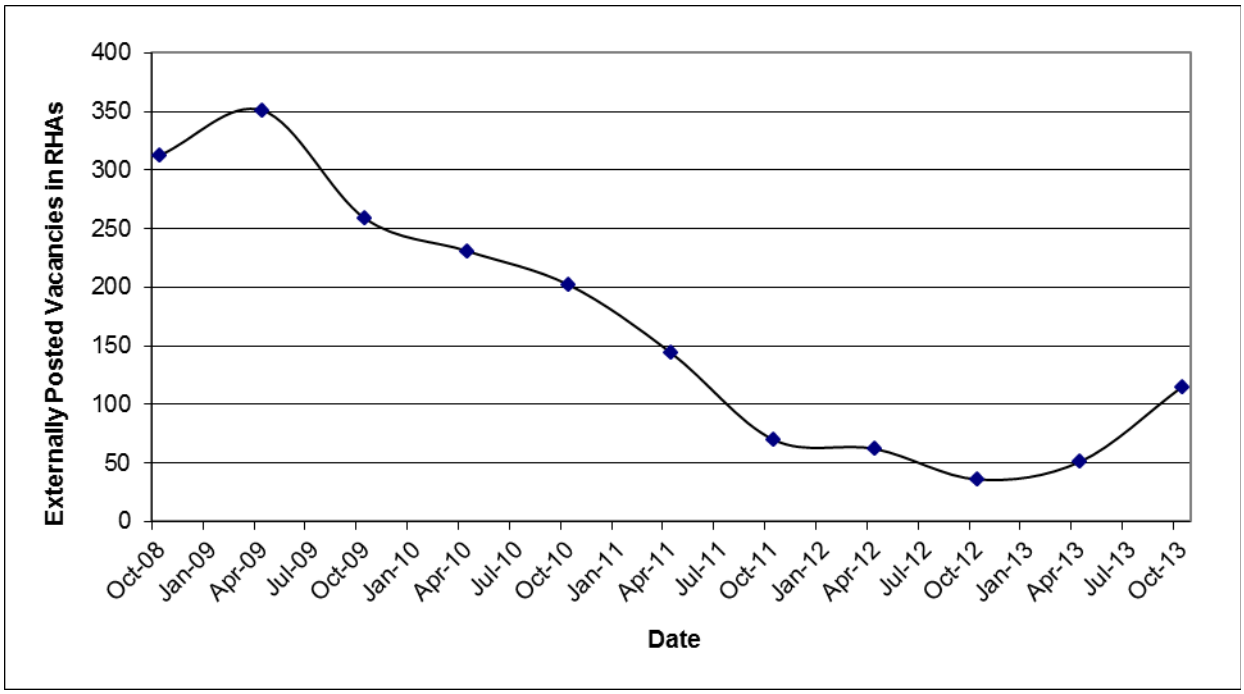
Table 12. RN Vacancies in RHAs.

Date	Vacancies
October 1, 2008	313
April 1, 2009	351
October 1, 2009	259
April 1, 2010	231
October 1, 2010	202
April 1, 2011	144
October 1, 2011	70
April 1, 2012	62
October 1, 2012	36
April 1, 2013	51
October 1, 2013	115
Average	**166.7**

Source: Department of Health and Community Service Vacancy Survey.

These data are shown in Figure 4:

Figure 4. RN Vacancies in RHAs.



Source: Department of Health and Community Service Vacancy Survey.

The downward trend may be due to pay raises in the last collective agreement, strong recruitment initiatives, fewer positions being available outside of the province, or other factors. The last two surveys of April 1 and October 1 2013 show increased numbers of vacancies although almost three-quarters of those positions were casual or temporary.

On average, 166.7 RN bargaining unit positions were posted externally by RHAs in each time period. The majority of these postings were for permanent full-time positions including float positions.

Internal recruitment postings reflect normal turnover and movement within an organization, and are not included in this analysis. External recruitment postings do not reflect all staffing needs and only represent a proportion of total health system vacant positions. It is also possible that a position may be vacated for a period of time due to illness / injury / other leave, and the RHA will not advertise the position. Rather, the RHA may choose to backfill the position with relief staff or overtime.

The average vacancy rate for RNs is 3.0 per cent, or the average number of vacant positions (166.7) divided by a workforce of 5,518. On October 1, 2013 the vacancy rate was 2.1 per cent, or 115 divided by 5,518.

For the 115 bargaining unit vacancies posted external to the RHA positions as of October 1, 2013:

- Eastern Health had 45; Central Health had 34; Western Health had 3; and Labrador-Grenfell Health had 33;
- 44 per cent were for full-time positions including both permanent full-time (26 per cent) and temporary full-time (18 per cent). 4 percent were part-time positions including both permanent part-time (2 per cent) and temporary part-time (2 per cent); and 52 per cent of positions were casual; and
- RHAs indicated that the majority of postings were as a result of temporary relief (47 per cent). Other major contributors were: internal transfers (18 per cent); new positions (17 per cent); resignations (8 per cent) and maternity leave (4 per cent). Trends over the past several years show that internal transfers is the top reason for RN external recruitment postings; however, in October 2013, RHAs reported more vacancies due to temporary relief pool replacements than have been reported in any previous year.

Balancing workforce supply and demand generally involves long term decisions, while the number of vacant positions can change daily for any number of reasons. For these reasons, the average number of vacant positions is not factored into the workforce model.

5.5. Focus on: Faculty Members

In August 2013, the three NL Schools of Nursing indicated the following number of faculty members by employment status:

Table 13. Faculty Members and Employment Status (Schools of Nursing).

Employer	Employment Status			
	Full-time	Casual	Part-time	**Total**
Centre for Nursing Studies	52	29	0	**81**
Memorial University School of Nursing	36	15	8	**59**
Western Regional School of Nursing	19	5	1	**25**
Total	**107**	**49**	**9**	**165**

Source: NL Schools of Nursing.

To use the data from the ARNNL registration database it was necessary to identify all faculty members. Many faculty members are part-time or casual and may self-report a different employer, making it difficult to isolate them in the ARNNL registration database. All RNs reporting one of the three schools as their employer were identified. The result shown in Table 14 (143 people) is smaller than the data reported by the three Schools of Nursing in Table 13 (165 people) but may be considered a representative sample, and suitable for the purpose of this Section.

Faculty member employer and employment status are shown in Table 14:

Table 14. Faculty Member Employer and Employment Status (Registration Data).

Employer	Employment Status			
	Full-time	Casual	Part-time	**Total**
Centre for Nursing Studies	47	23	6 (see note 1)	**76**
Memorial University School of Nursing	41	2	2	**45**
Western Regional School of Nursing	20	1	1	**22**
Total	**108**	**26**	**9**	**143**

Source: Association of Registered Nurses of Newfoundland and Labrador.
Note 1: There are currently no part time positions at the Centre for Nursing Studies, (personal communications Anne Marie Tracey December 6, 2013).

The prevalence of casually employed faculty members presents a challenge for continuity of teaching resources.[6]

Faculty members' average age by employer is shown in Table 15:

Table 15. Faculty Member Average Age by Employer.

Employer	Average Age
Memorial University School of Nursing	53.5
Western Regional School of Nursing	53.0
Centre for Nursing Studies	49.3
Total	**51.2**

Source: Association of Registered Nurses of Newfoundland and Labrador.

Memorial University School of Nursing has the oldest average age for faculty members among the three schools of nursing.

Faculty members by place of education are shown in Table 16:

Table 16. Faculty Member Place of Education.

Place of Education	Number	Per Cent
NL	92	84%
Other Province	13	12%
Other Country	6	4%
Total	**111**	**100%**

Source: Association of Registered Nurses of Newfoundland and Labrador.

[6] Personal communications Sharon Fitzgerald June 19, 2013.

As with the general RN population, the three schools of nursing have a strong reliance on NL graduates as a source of faculty members.

Faculty members by highest level of education are shown in Table 17:

Table 17. Faculty Member Highest Level of Education.

Education	Number	Per Cent
Masters	64	45%
Baccalaureate	32	22%
Masters (non-nursing)	25	17%
PhD	12	8%
PhD (non-nursing)	5	3%
Diploma (see note 1)	5	3%
Total	**143**	**100%**

Source: Association of Registered Nurses of Newfoundland and Labrador.
Note 1: This figure may be over-stated; caution is noted (personal communications Anne Marie Tracey December 6, 2013).

The schools of nursing in NL have raised concerns about their ability to attract and retain faculty members to replace those exiting the system. Potential increases to educational seat capacity may be hampered by faculty availability.

As of April 18, 2013, the Centre for Nursing Studies reported that they had one PhD-prepared faculty member, four engaged in PhD study, three applying to begin PhD programs in September 2013, one taking PhD courses in preparation of applying, and several other faculty members contemplating a PhD program.[7]

The PhD in Nursing Program at Memorial University is four years in length (full time). Depending on capacity and other factors, the Program admits a new cohort of four students every second year. Four students were accepted in 2013 and the earliest these students will graduate is May 2017. A new cohort of four PhD students may be admitted in September 2015. Consequently, the maximum steady-state output of graduates averages four every two years, starting in 2017, or an average of two annually. This Program is an important source of faculty members for the provincial Schools of Nursing.

5.6. Focus on: Nurse Practitioners

Nurse practitioners (NPs) are RNs with advanced educational preparation. NPs perform a range of health services that require a high level of autonomy in decision-making and accountability for health outcomes. They are competent to autonomously diagnose, order, and interpret diagnostic tests, prescribe pharmaceuticals, and perform specific procedures within their legislated scope of practice. NPs work throughout the province work in a variety of settings including community clinics, emergency departments, specialty acute care settings, long-term care, the offshore oil industry, and in many rural areas

[7] Personal communications Anne Kearney, Centre for Nursing Studies, April 18, 2013.

In 2008, NL had 20 NPs per 100,000, or four times the Canadian average of 5 NPs per 100,000. In 2012, the gap had narrowed, but NL still has more than 2.5 times the Canadian average at 23 per 100,000 versus Canada at nine per 100,000.

Note that all data are for registration year 2012/13.

The number of NPs by employer and employment status are shown in Table 18:

Table 18. NP Employer and Employment Status.

Employer	Employment Status			
	Full-time	Casual	Part-time	**Total**
Eastern Health	43	2	3	**48**
Central Health	22	2	1	**25**
Labrador-Grenfell Health	12	2	0	**14**
Western Health	11	0	0	**11**
Other Employer	23	1	1	**25**
Total	**111**	**7**	**5**	**123**

Source: Association of Registered Nurses of Newfoundland and Labrador.

The majority of NPs reported having full-time positions.

NP average age by employer is shown in Table 19:

Table 19. Nurse Practitioner Average Age by Employer.

Employer	Average Age
Labrador-Grenfell Health	54.4
Other Employer	46.4
Central Health	45.5
Western Health	45.1
Eastern Health	44.5
Total	**46.3**

Source: Association of Registered Nurses of Newfoundland and Labrador.

Labrador-Grenfell Health has the oldest average age for NPs among employers.

NPs by place of education are shown in Table 20:

Table 20. NPs by Place of Education.

Place of Education	Number	Per Cent
NL	113	92%
Other Province	10	8%
Total	123	100%

Source: Association of Registered Nurses of Newfoundland and Labrador.

As with the general RN population, the province has a strong reliance on NL graduates as a source of NPs.

NPs by employer and highest level of education are shown in Table 21:

Table 21. NPs by Employer and Highest Level of Education.

Employer	Baccalaureate	Baccalaureate Other	Diploma	Masters	Masters Other	Total
Eastern Health	11	0	16	20	1	**48**
Central Health	10	1	13	1	0	**25**
Labrador-Grenfell Health	3	1	7	2	1	**14**
Western Health	6	0	5	0	0	**11**
Other Employer	6	0	8	6	5	**25**
Total	**36**	**2**	**49**	**29**	**7**	**123**

Source: Association of Registered Nurses of Newfoundland and Labrador.

Most Masters-prepared NPs are employed with Eastern Health.

NPs by position are shown in Table 22:

Table 22. NPs by Position.

Position	Total
Nurse Practitioner	117
Instructor / Professor / Educator (see note 1)	2
Manager / Assistant Manager / Head Nurse	2
Staff Nurse / Community Health Nurse	1
Supervisor	1
Total	**123**

Note 1: This figure may be under-stated; caution is noted (personal communications Anne Marie Tracey December 6, 2013).
Source: Association of Registered Nurses of Newfoundland and Labrador.

The majority of NPs are working in NP positions.

Since October 2008, NP position vacancies in RHAs have been as follows:

Table 23. NP Vacancies in RHAs.

Date	Vacancies
October 1, 2008	14
April 1, 2009	12
October 1, 2009	12
April 1, 2010	12
October 1, 2010	17
April 1, 2011	18
October 1, 2011	10
April 1, 2012	9
October 1, 2012	9
April 1, 2013	13
October 1, 2013	11
Average	**13**

Source: Department of Health and Community Service Vacancy Survey.

For the 11 bargaining unit vacancies posted external to the RHA as of October 1, 2013:

- Eastern Health had 4; Central Health had 1; Western Health had 2; and Labrador-Grenfell Health had 4 (note that 2 of these 4 vacancies in Labrador-Grenfell Health were in community clinics where a regional nurse or a NP could fill these positions);
- 64 per cent were for full-time positions including 5 permanent full-time (46 per cent) and 2 temporary full-time (18 per cent). 1 temporary part-time position represented 9 per cent of the external recruitment postings; and 3 casual (27 percent); and
- RHAs indicated that 4 postings were as a result of temporary relief and 4 were the result of internal transfers. All other positions were the result of resignations, leave of absence and other. Trends over the past few years show that resignations, new positions and internal transfers were the primary reasons for NP vacancies.

The last cohort of six Bachelor-prepared NPs graduated on May 31, 2013 through Memorial University. The Program has now transitioned to the Master of Nursing Nurse Practitioner Program.

The Master of Nursing - Nurse Practitioner Option began in January 2013 and is offered through Memorial University School of Nursing, in collaboration with the Centre for Nursing Studies. The Program consists of 12 courses, and students may complete the Program full time in two years over six semesters; or part time over 10 semesters. The first class of students will graduate from this Program in October 2014. The Program is offered through distance education, which allows RNs to advance their education while continuing to work.

The Program offers two streams of practice: 1) Family/All Ages and 2) Adult. Annual intake is between 12 and 16 students, which depends on their status i.e. full time or part time students. Approximately three-quarters of students are choosing the Family/All Ages stream.

6. Demand

For the purpose of this document, demand is defined:

Demand: Employer requirements for qualified workers.

Demand is considered in two components:

1. Replacement Demand: Employer requirements for qualified workers to replace those leaving the organization to sustain the current workforce.

2. Expansion/Contraction Demand: Employer requirements for qualified workers stemming from projected growth (or decline) in the workforce size.

6.1. Replacement Demand

Replacement demand is simply the number of qualified workers an employer needs to replace those leaving the organization. This should not be confused with relief staff for day-to-day scheduling issues. If replacement demand is met, the workforce will be sustained, but growth or decline in overall workforce numbers will not be considered. This Section examines replacement demand only, which can be equated to turnover.

To determine turnover at the provincial level, record-level data from the ARNNL were analyzed. In each transition from one licensure year to the next, there are three possibilities; individuals may:

1) Carry over from year 1 to year 2 (renewal)
2) Not carry over from year 1 to year 2 (exit)
3) Show up in year 2 and not in year 1 (entry)

Exits include people who do not register in the subsequent year for any number of reasons such as leaving the workforce to raise a family, leaving the workforce to go to another jurisdiction, retirement, death, etc. Entries include those obtaining licensure for the first time, and those who reactivate an existing licensure number. Data for nine transitions from one licensure year to the next are provided in Table 24:

Table 24. Provincial RN Workforce Transitions: Counts.

Licensure Year		Workforce Counts					
Year 1	Year 2	Year 1	Renewals from Year 1 to Year 2	Exits from Year 1	Entries to Year 2	Net Change	Year 2
A	B	C	D	E	F	G	H
1997/98	1998/99	5,510	5,145	365	383	18	5,528
1998/99	1999/00	5,528	5,209	319	238	-81	5,447
1999/00	2000/01	5,447	5,222	225	370	145	5,592
2000/01	2001/02	5,592	5,291	301	305	4	5,596
2001/02	2002/03	5,596	5,303	293	307	14	5,610
2002/03	2003/04	5,610	5,309	301	320	19	5,629
2003/04	2004/05	5,629	5,347	282	393	111	5,740
2004/05	2005/06	5,740	5,419	321	335	14	5,754
2005/06	2006/07	5,754	5,438	316	349	33	5,787
2006/07	2007/08	5,787	5,474	313	369	56	5,843
2007/08	2008/09	5,843	5,601	242	368	126	5,969
2008/09	2009/10	5,969	5,734	235	363	128	6,097
2009/10	2010/11	6,097	5,854	243	408	165	6,262
2010/11	2011/12	6,262	5,945	317	362	45	6,307
2011/12	2012/13	6,307	5,969	338	371	33	6,340
Average		**5,778**	**5,484**	**294**	**349**	**55**	**5,833**

Source: Association of Registered Nurses of Newfoundland and Labrador.

An example is provided to illustrate the transition from one licensure year to the next: In licensure year 2002/03, there were 5,610 RNs. Of these, a 5,309 renewed their license in 2003/04, while 301 RNs did not register in 2003/04. A total of 320 registered in 2003/04 that were not registered in 2002/03 (though they may have been in earlier years). The net change of 19 brought the total count of RNs to 5,629 in 2003/04. Using column labels: C= D + E and G = F – E and H= C + G.

Up to and including registration year 2006/07, new graduates were required to obtain practicing licenses in the province regardless of their intention to stay or leave. Long-term average graduate retention is about 75 per cent; therefore in 2006/07 and earlier, practicing licenses as a proxy for the provincial RN workforce would overstate the size of the RN workforce. These practicing licenses over-state entries to the RN workforce, and over-state exits. If used without correction, replacement demand would be over-stated, as would graduate retention rates[8].

To correct for this, all new graduates who obtained a practicing license in 2006/07 and earlier, and did not renew their practicing license in the year following their initial registration, were removed from the database (their initial registration only). Some new graduates who obtained practicing licenses in their graduation year did choose to remain in the province, however if they did not renew in the following year, they were also removed. Analysis of retention rates show that second year retention rates are only slightly less than first year retention rates, therefore this deletion is thought to introduce minimal error to the model.

Table 25. Provincial RN Workforce Transitions: Counts (corrected).

Licensure Year		Workforce Counts					
Year 1	Year 2	Year 1	Renewals from Year 1 to Year 2	Exits from Year 1	Entries to Year 2	Net Change	Year 2
A	B	C	D	E	F	G	H
1997/98	1998/99	5,510	5,145	~~365~~[1]	305	-60	5,450
1998/99	1999/00	5,450	5,209	241	224	-17	5,433
1999/00	2000/01	5,433	5,222	211	333	122	5,555
2000/01	2001/02	5,555	5,291	264	280	16	5,571
2001/02	2002/03	5,571	5,303	268	258	-10	5,561
2002/03	2003/04	5,561	5,309	252	268	16	5,577
2003/04	2004/05	5,577	5,347	230	312	82	5,659
2004/05	2005/06	5,659	5,419	240	273	33	5,692
2005/06	2006/07	5,692	5,438	254	286	32	5,724
2006/07	2007/08	5,724	5,474	250	369	119	5,843
2007/08	2008/09	5,843	5,601	242	368	126	5,969
2008/09	2009/10	5,969	5,734	235	363	128	6,097
2009/10	2010/11	6,097	5,854	243	408	165	6,262
2010/11	2011/12	6,262	5,945	317	362	45	6,307
2011/12	2012/13	6,307	5,969	338	371	33	6,340
Average		**5,747**	**5,484**	**256**[2]	**319**[3]	**55**	**5,803**

Source: Association of Registered Nurses of Newfoundland and Labrador (corrected).
Notes:

1. This figure is excluded from the calculated average because it could not be corrected. It could not be corrected because new graduates obtaining licenses in the previous year could not be identified, as licensure year 1996/97 data were not available.
2. From 1998/99 to 2011/12(excluding 1997/98) there were 3585 exits (corrected).
3. From 1998/99 to 2012/13 there were 4780 entries (corrected).

Data are shown as per cents in Table 26:

[8] Graduate retention rates are fully detailed in Section 7.1 on page 32.

Table 26. Provincial RN Workforce Transitions: Per Cent (corrected).

Licensure Year		Workforce Counts			
Year 1	**Year 2**	**Renewals**	**Exits**	**Entries**	**Net Change**
1997/98	1998/99	93.4%	~~6.6%~~[1]	5.6%	-1.1%
1998/99	1999/00	95.6%	4.4%	4.1%	-0.3%
1999/00	2000/01	96.1%	3.9%	6.1%	2.2%
2000/01	2001/02	95.2%	4.8%	5.0%	0.3%
2001/02	2002/03	95.2%	4.8%	4.6%	-0.2%
2002/03	2003/04	95.5%	4.5%	4.8%	0.3%
2003/04	2004/05	95.9%	4.1%	5.6%	1.5%
2004/05	2005/06	95.8%	4.2%	4.8%	0.6%
2005/06	2006/07	95.5%	4.5%	5.0%	0.6%
2006/07	2007/08	95.6%	4.4%	6.4%	2.1%
2007/08	2008/09	95.9%	4.1%	6.3%	2.2%
2008/09	2009/10	96.1%	3.9%	6.1%	2.1%
2009/10	2010/11	96.0%	4.0%	6.7%	2.7%
2010/11	2011/12	94.9%	5.1%	5.8%	0.7%
2011/12	2012/13	94.6%	5.4%[2]	5.9%	0.5%
Average		**95.4%**	**4.4%**	**5.5%**	**0.9%**

Source: Association of Registered Nurses of Newfoundland and Labrador (corrected).
Note:

1. This figure is excluded from the calculated average because it could not be corrected. It could not be corrected because new graduates obtaining licenses in the previous year could not be identified, as licensure year 1996/97 data were not available.
2. Timing of collective agreements may have had an effect on turnover. Anecdotal evidence suggests that the pay increases realized in the 2008-2012 collective agreement with the NL Nurses' Union (NLNU) means many RNs may choose to work the full year following the end of the current agreement, in order to maximize earnings and resulting pension amounts upon retirement. The last salary increase of four per cent happened on July 1, 2011 therefore the apparent spike of 5.4 per cent shown in Table 26 may reflect higher turnover in the months following July 2012.

Exits shown in Table 26 represent a provincial turnover rate of 4.4 per cent. Exits broken down by year and employers are shown in Table 27 :

Table 27. Exits by Employer.

Year	Eastern Health		Central Health		Labrador-Grenfell Health		Western Health		Other Employer		Not Reported		Total	
	Exits	RNs	Exits	RNs	Exits	RNs	Exits	RNs	Exits	RNs	Exits	RNs	Exits	RNs
1998	116	3,129	24	682	22	333	22	698	38	491	19	117	241	5,450
1999	107	3,121	22	673	16	313	14	700	38	519	14	107	211	5,433
2000	135	3,250	21	704	22	325	30	712	49	503	7	61	264	5,555
2001	142	3,278	32	716	24	323	20	710	34	466	16	78	268	5,571
2002	140	3,206	26	729	25	308	19	741	31	492	11	85	252	5,561
2003	107	3,158	28	756	13	303	31	762	37	533	14	65	230	5,577
2004	108	3,168	39	764	22	329	30	773	27	545	14	80	240	5,659
2005	130	3,207	30	749	10	321	32	772	39	568	13	75	254	5,692
2006	130	3,213	38	747	12	331	28	766	35	600	7	67	250	5,724
2007	117	3,266	24	746	11	342	29	762	45	623	16	104	242	5,843
2008	122	3,350	25	750	13	353	20	777	44	665	11	74	235	5,969
2009	117	3,400	21	758	19	368	24	794	42	673	20	104	243	6,097
2010	141	3,538	31	770	26	386	42	822	58	669	19	77	317	6,262
2011	163	3,564	39	774	18	378	47	806	50	705	21	80	338	6,307
Avg.	**127**	**3,275**	**29**	**737**	**18**	**337**	**28**	**757**	**41**	**575**	**14**	**84**	**256**	**5,764**

Source: Association of Registered Nurses of Newfoundland and Labrador.

The calculated turnover rate is shown in Table 28:

Table 28. Turnover Rates by Employer.

Year	Eastern Health	Central Health	Labrador-Grenfell Health	Western Health	Other Employers	Not Reported	Total
1998	3.7%	3.5%	6.6%	3.2%	7.7%	16.2%	4.4%
1999	3.4%	3.3%	5.1%	2.0%	7.3%	13.1%	3.9%
2000	4.2%	3.0%	6.8%	4.2%	9.7%	11.5%	4.8%
2001	4.3%	4.5%	7.4%	2.8%	7.3%	20.5%	4.8%
2002	4.4%	3.6%	8.1%	2.6%	6.3%	12.9%	4.5%
2003	3.4%	3.7%	4.3%	4.1%	6.9%	21.5%	4.1%
2004	3.4%	5.1%	6.7%	3.9%	5.0%	17.5%	4.2%
2005	4.1%	4.0%	3.1%	4.1%	6.9%	17.3%	4.5%
2006	4.0%	5.1%	3.6%	3.7%	5.8%	10.4%	4.4%
2007	3.6%	3.2%	3.2%	3.8%	7.2%	15.4%	4.1%
2008	3.6%	3.3%	3.7%	2.6%	6.6%	14.9%	3.9%
2009	3.4%	2.8%	5.2%	3.0%	6.2%	19.2%	4.0%
2010	4.0%	4.0%	6.7%	5.1%	8.7%	24.7%	5.1%
2011	4.6%	5.0%	4.8%	5.8%	7.1%	26.3%	5.4%
Average	**3.9%**	**3.9%**	**5.4%**	**3.7%**	**7.0%**	**17.2%**	**4.4%**

Source: Association of Registered Nurses of Newfoundland and Labrador.

Among RHAs, average turnover rates varied from a low of 3.7 per cent in Western Health to 5.4 per cent in Labrador-Grenfell Health. Turnover is higher for "Other Employers" at 7.0 per cent.

Turnover data were requested from RHAs. Results are shown in Table 29:

Table 29. Turnover Rates by RHA.

Year	Eastern Health	Central Health	Labrador-Grenfell Health	Western Health	Average
2010	4.2%	2.8%	6.8%	4.3%	**4.2%**
2011	5.5%	4.9%	8.0%	5.5%	**5.6%**
2012	4.6%	5.2%	9.3%	7.1%	**5.4%**
Total	**4.8%**	**4.3%**	**8.0%**	**5.6%**	**5.1%**

Source: Regional Health Authorities.

Average turnover shown in Table 29 (5.1 per cent) is larger than average turnover shown in Table 28 (4.4 per cent) because of differences in the method for calculating turnover. RHA turnover is calculated based on the number of separations from the organization whereas provincial turnover is based on the number of practicing licenses that do not get renewed. Therefore, if an RN leaves one RHA to work for another it shows up as a separation at the RHA level but not at the provincial level.

The workforce model described in this report is concerned with supply and demand balance at the provincial level. For this reason a turnover rate of 4.4 per cent is used to represent replacement demand in the model.

Comparing NL-educated RNs to all other RNs, exit and turnover data are shown in Table 30:

Table 30. Turnover Rates by Place of Education.

Place of Education	Total Exits 1998 to 2011	Total Workforce 1998 to 2011	Turnover
Other and Not Stated	656	6,591	10.0%
NL Educated	2,929	74,109	4.0%
Totals	**3,585**	**80,700**	**4.4%**

Source: Association of Registered Nurses of Newfoundland and Labrador.

Turnover rates for non-NL educated RNs are more than twice that of NL-educated RNs. This suggests a focus on self-sufficiency for RN supply is preferable.

Verifications

A subset of the total turnover is the group that leaves the province to find employment elsewhere. The total number seeking employment outside of the province is reflected in the number of requests received by the ARNNL for license verification. Historical data are shown in Table 31:

Table 31. Total Verifications Sent by ARNNL.

Verification Sent to:	2006/07		2007/08		2008/09		2009/10		2010/11		2011/12		2012/13	
	#	%	#	%	#	%	#	%	#	%	#	%	#	%
Alberta	65	34.2	49	39.2	40	24.1	26	20.5	16	19.8	39	29.1	76	38.2
Ontario	25	13.2	10	8.0	9	5.4	11	8.7	12	14.8	10	7.5	33	16.6
Northwest Territories/Nunavut	39	20.5	29	23.2	17	10.2	30	23.6	17	21.0	20	14.9	20	10.1
Nova Scotia	26	13.7	10	8.0	13	7.8	14	11.0	11	13.6	23	17.2	15	7.5
Saskatchewan	4	2.1	1	0.8	1	0.6	1	0.8	1	1.2	4	3.0	12	6.0
British Columbia	6	3.2	6	4.8	10	6.0	6	4.7	2	2.5	5	3.7	10	5.0
Manitoba	1	0.5	1	0.8	4	2.4	9	7.1	4	4.9	12	9.0	8	4.0
United States	13	6.8	16	12.8	13	7.8	10	7.9	8	9.9	1	0.7	8	4.0
Other[2]	2	1.1	0	0.0	2	1.2	0	0.0	0	0.0	4	3.0	7	3.5
Not Stated	0	0.0	0	0.0	49	29.5	7	5.5	7	8.6	11	8.2	6	3.0
New Brunswick	7	3.7	3	2.4	3	1.8	7	5.5	3	3.7	3	2.2	2	1.0
Yukon	1	0.5	0	0.0	3	1.8	2	1.6	0	0.0	0	0.0	2	1.0
Prince Edward Island	1	0.5	0	0.0	2	1.2	3	2.4	0	0.0	2	1.5	0	0.0
Quebec	0	0.0	0	0.0	0	0.0	1	0.8	0	0.0	0	0.0	0	0.0
# Verifications[3]	190		125		166		127		81		134		199	
# Members[4]	185		119		149		121		77		122		170	
Exits in subsequent year[5]	113	61.1	44	37.0	57	38.3	35	28.9	30	39.0	64	52.5	--[6]	--

Source: Association of Registered Nurses of Newfoundland and Labrador.

Notes:

1. Data are sorted by requests for verification by location in 2012/13 in descending order.
2. Other includes Australia, New Zealand and Canadian Forces (Ottawa).
3. # Verifications is the number of verifications for practicing members with a current license (in the applicable year).
4. # Members is the number of members who requested verifications. This is lower than the total number of verifications because members can request more than one verification per year.
5. Exits in subsequent year are the number of members who lapsed membership or renewed to non-practicing in the registration year following the verification request. Interpret "exit" with caution as members may have left (i.e., lapsed/renewed to non-practicing) for reasons other than leaving the jurisdiction.
6. Exits for 2012/13 were not available.
7. Members receive one free verification per licensure year.

The average number of verifications over the timeframe shown was 146 per year. The average number of requesting individuals was 135 annually (one individual can make multiple requests) while the average number of RNs exiting in the following year (for the years available) was 57. An average of 43 per cent of those RNs requesting verifications leave the workforce in the subsequent year.

Considering an average of 6,086 RNs in the timeframe shown, 57 exits represents about 0.9 per cent of the workforce. Also, for the timeframe shown, the average number of annual exits was 256 each year, therefore 57 exits represents about 22 per cent of the average turnover.

Retirements

The RN workforce is aging and retirement trends are increasing. It is necessary to consider and incorporate these trends yet data on exact numbers of retirements in the past are not readily available i.e. it is not possible to isolate these individuals' data from general turnover data.

Exit surveys are conducted by the ARNNL but cannot be used to identify retirements accurately because responses are not considered representative of the group that exited.

Analysis presented here involves artificially retiring every individual as they turn 58 and determining the linear trend. If this trend is flat, retirements are not increasing in number and no further adjustment to turnover is required. If the trend is rising, turnover is "ramped" slightly to account for more exits, assuming all the other components of turnover will remain constant.

In 2012, there were 592 RNs aged 58 years or older and still working, however these individuals are not considered in the trending of retirements because they represent a permanent "wave" that will turnover rapidly at the individual level, but collectively the number might be expected to remain stable. In other words, as a member of this "wave" (still working and older than 58 years) retires, another may take their place from the under-58 cohort, and it would be false to reduce the "wave" to 0.

The number of RNs already 58 years old or turning 58 years old in the future, by year, are shown in Table 32:

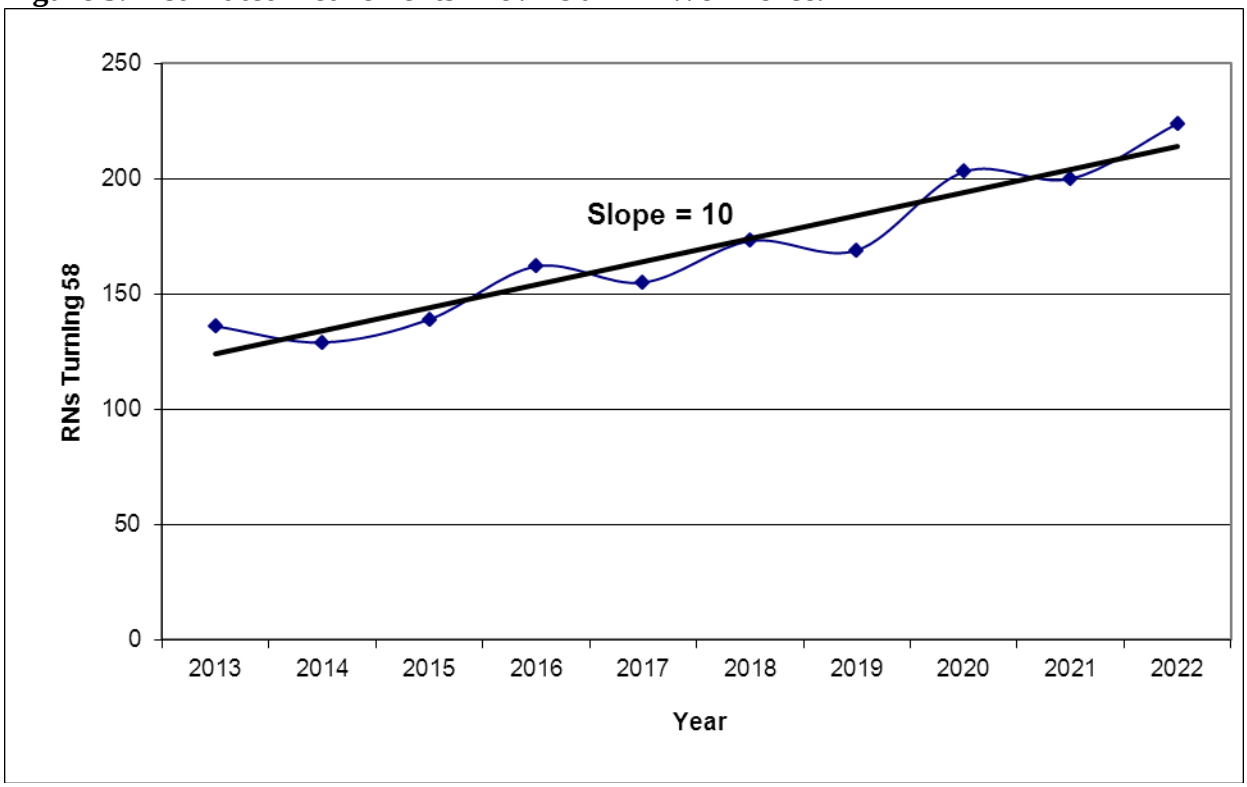
Table 32. Estimated Retirements Provincial RN Workforce.

Year	Number of RNs Turning 58 Years Old
2012 or earlier	592
2013	136
2014	129
2015	139
2016	162
2017	155
2018	173
2019	169
2020	203
2021	200
2022	224
2023	219
2024	217
2025	211
2026	178
2027	204
2028 or later	3,029
Total	**6,340**

Source: Association of Registered Nurses of Newfoundland and Labrador.
Note 1: This is provided to quantify the group of RNs already 58 or older as described before the table. These RNs held licenses in 2012/13.

As discussed, retirements are estimated to peak in 2022. Figures from 2013 to 2022 are shown in Figure 5:

Figure 5. Estimated Retirements Provincial RN Workforce.



Source: Association of Registered Nurses of Newfoundland and Labrador.

It is clear that retirement trends are increasing. To incorporate into the model as discussed, the slope of the line indicates an incremental change of 10 more RNs than in the previous year. For example, if 150 retire in one year, one might expect (on average) that 160 would retire in the next year, 170 in the year following, etc. The model uses a factor of 10 to "ramp" turnover during the timeframe examined. Note that the demographics of the workforce will continually change as RNs of various ages enter and depart the workforce. For the purpose of an RN workforce model, it is assumed that retirements peak by 2022.

RHAs were asked to provide the number of RN retirements in 2012 and the projected number for 2013. RHAs indicated that there were 85 retirements in 2012, and an estimated 122 were projected to retire in 2013. Registration data show that 130 RNs turned 58 years old in 2012 and 136 RNs turned 58 in 2013.

Pension eligibility has been shown in the past to understate actual retirement trends; i.e. many will not achieve full eligibility due to time taken for family reasons, late starters in the workplace, etc. Additionally, occupational data associated with pension eligibility are unreliable. For example, data obtained from the Department of Finance Pensions Division for the RN workforce was sampled for accuracy, and was found to contain some records for individuals who are not RNs (note that a person's occupation is not required for the calculation of pension eligibility). Data collected were for those RNs participating in the Public Service Pension Plan (PSPP). There were a total of 5,507 records provided for calendar year 2011. For each record, the date of normal and early retirement was included. Definitions for early and normal retirement are as follows:

Normal Retirement

- Age 65 with at least five years of service.

Early retirement (no reduction in pension)

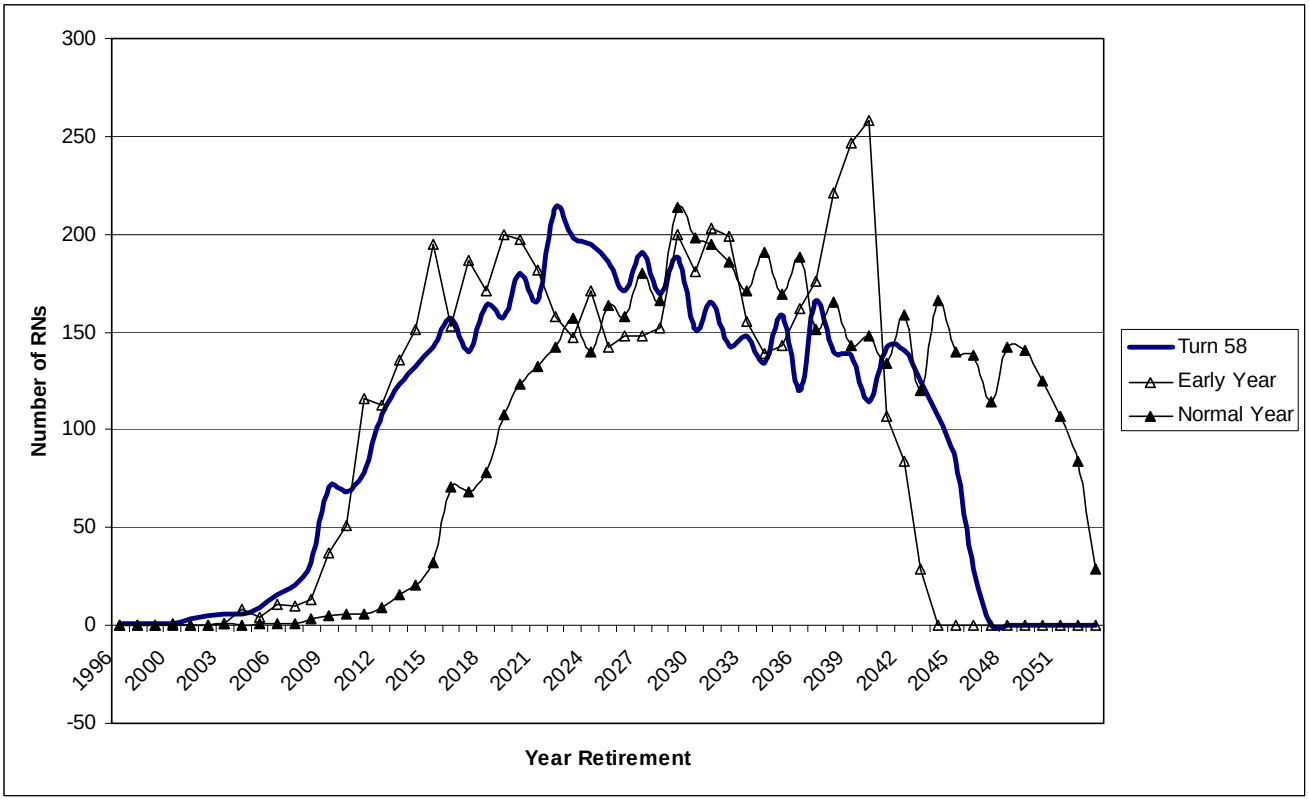
- Age 55 with at least 30 years of service.
- Age 60 with at least five years of service.

Early retirement (with reduction in pension)

- Age 50 with at least 30 years of service. Pension reduced by 0.5 per cent (0.005) per month for every month that age is under age 55. Maximum reduction is 30 per cent.
- At least age 55 with less than 30 years of service, with an age plus service combination of 85. Pension is reduced by 0.5 per cent (0.005) per month for every month age is under age 60.

Using the data provided, the number of RNs reaching 58 years of age in each year was calculated. Three lines were plotted (the number turning 58, the number reaching date of normal retirement, and the number reaching date of early retirement) below in Figure 6:

Figure 6. Provincial RN Workforce Pension Eligibility Trends.



Source: Calculated from Association of Registered Nurses of Newfoundland and Labrador data (those turning 58) and Pensions Division, Department of Finance, Government of Newfoundland and Labrador (data on date of normal and early retirement).

The “normal year” trend is a mirror of the “turn 58” trend, advanced by seven years, as the definition states eligibility as age 65 with at least five years of service. The “turn 58” trend closely follows the “early year” trend. Note that members of the Government Money Purchase Pension Plan (GMPP) are not shown. Given the method presented here that estimates the trend in retirement, as opposed to the absolute number of retirements, the trends shown by “early year” and “normal year” in Figure 6 match the trend shown in Figure 5, between the years 2013 and 2023.

Maternity Leave

The effect of maternity leave on labour market demand was raised by the Working Group. Maternity leave data for RHAs are shown in Table 33:

Table 33. RHA RN Maternity Leaves (unionized RNs only).

Employer (2011/12)	RN Count	Maternity Leaves 2009/10	Maternity Leaves 2010/11	Rate per RN 2010/11
Eastern Health	3,644	88	111	3.0%
Western Health	828	30	21	2.5%
Central Health	774	56	54 (see note 1)	7.0%
Labrador-Grenfell Health	378	14	15	4.0%
Total	**5,624**	**188**	**201**	**3.6%**

Source: Regional Health Authorities.
Note 1: Central Health reports that maternity leaves are a significant factor that results in difficult-to-fill vacancies, especially in rural sites, due to recruitment issues regarding replacement staff (personal communications Trudy Stuckless December 12, 2013).

The number of maternity leaves cannot be determined from the ARNNL database; when an RN takes this leave, the RN is recorded as having a practicing license. In the following registration year the RN may obtain a non-practicing license for the time remaining in the leave, but when they return to work, their status is changed back to practicing and this is what is recorded in the permanent year end record.

It is assumed here that maternity leaves are a relatively constant per cent of the workforce each year and although they require replacement, it is a steady exit/return scenario. In case where an RN takes extended maternity leave, they will be captured as an exit and as an entry (if they return) as described in Section 7 Supply.

To summarize, the model assumes a continued rate of 4.4 per cent turnover for the workforce model with an incremental retirement rate of 10 RNs annually.

6.2. Expansion Demand

Workforce growth (or decline) is an important factor and has many contributing factors. For example, changing skill mix, the availability of provincial or federal funding for specific initiatives, competing priorities for new positions, and new roles for RNs, are all examples of factors that change the system's requirements for RNs and the overall size of the workforce.

Average historical growth rates vary by profession. For example, the Social Work workforce has been growing in number at a rate of about 3.0 per cent (average annual compounding growth) for the past fifteen years. In contrast, from 2002 to 2011 the LPN workforce has experienced declining membership at a rate of 1.0 annually.

As with all occupations, opportunities for improved workforce utilization (scope of practice, team mix, workflow, etc.) have the potential to stem some of this growth however there is usually no evidence to suggest that growth will not continue in the future. Trends in population needs for health services are widely accepted to be steadily growing, due to an aging population.

The importance of workforce utilization is acknowledged and discussed in more detail later in this report. For the purposes of a workforce model and long-term decision making, an assumption(s) on workforce growth or decline is required, regardless of potential inefficiencies or misalignments. Several factors contribute to the need for more or fewer RNs in the future. For example:

- Strategic goals for the health care system, and a variety of initiatives to meet those goals, could influence the need for RNs:
    - Gaining Ground: A Provincial Cancer Control Policy Framework for Newfoundland and Labrador;
    - Improving Health Together: A Policy Framework for Chronic Disease Prevention and Management in Newfoundland and Labrador;
    - Close to home: A Strategy for Long-Term Care and Community Support Services;
    - Healthy Aging Policy Framework;
    - Provincial Wellness Plan;
    - A Strategy to Reduce Emergency Department Wait Times; and
    - A Strategy to Reduce Hip and Knee Joint Replacement Surgery Wait Times.
- Additional long-term care beds: The new long-term care facility in St. John's will have an additional 90 beds requiring an estimated additional 5.75 RN FTEs in 2014 and new protective care bungalows in Clarenville will have 12 beds and require an estimated 0.3 RN FTEs.[9] Labrador-Grenfell Health will be increasing the number of long-term care beds in the Labrador West Health Centre from 6 to 14 in 2014, and a new 20-bed expansion to the long-term care facility in Happy Valley-Goose Bay (completion date to be determined). [10]
- Funding for new positions: Many of the positions approved from 2005 to 2008 were related to public health and home care. In the future, growth may be expected in Dialysis and Mental Health. A summary of new positions added in RHAs from 2005/6 to 2013/14 is as follows:

Table 34. Funding for New RN Positions in RHAs 2005/06 to 2013/04.

Fiscal Year	New Positions in RHAs (Approximate)
2005/06	15
2006/07	103
2007/08	58
2008/09	27
2009/10	20
2010/11	16
2011/12	22
2012/13	22 (See note 1)
2013/14	8
Average	32.3

Source: Department of Health and Community Services.
Notes:
1. Six positions in 2012/13 were approved for a pilot program of two-year duration only.

- Federal funding: For example, the federal government provided $5.5 billion over 10 years (2004/05 to 2013/14) through the Wait Times Reduction Transfer to assist provinces and territories in their respective strategies to reduce wait times. More RN positions were established in NL as a result. No similar investments are anticipated in the short term; and

[9] Personal communications Glenda Compton, Regional Director, Long Term Care, Eastern Health November 26, 2013.
[10] Personal communications Barbara Molgaard-Blake, VP People and Information, Labrador-Grenfell Health December 12, 2013.

- Private sector positions: New positions may also be established, or eliminated, in the private sector.[11]

RHAs were asked to identify the drivers of demand for RNs in their regions, noting that these drivers can increase or decrease demand. RHAs indicated several drivers of demand that have led to growth in RN positions over the past 10 years including:

- Dialysis
- Infection prevention and control
- Public health
- Quality improvement and patient safety
- Telehealth
- Educational program expansion (Practical Nursing Program at the College of the North Atlantic, Personal Care Attendant and Paramedic Programs at private colleges)
- Mental health and addictions
- Patient navigation
- Employee wellness/workplace health and safety
- Clinical information systems (Meditech electronic charting, minimum dataset tools for long-term care, community, mental health, etc.)
- Utilization management and clinical efficiencies
- Private practice physician services (i.e. women's health clinics, psychiatry, internal medicine)
- Private research companies; for example, a private research office opened in Grand Falls-Windsor in 2011 and were seeking two RNs for research assistant positions
- Wound and skin management
- Breast feeding and lactation consultants
- Diabetes education/chronic disease management
- Risk management
- Recruitment and retention of internationally trained nurses
- MRI and interventional radiology
- Breast Screening Program
- Cervical Screening Program

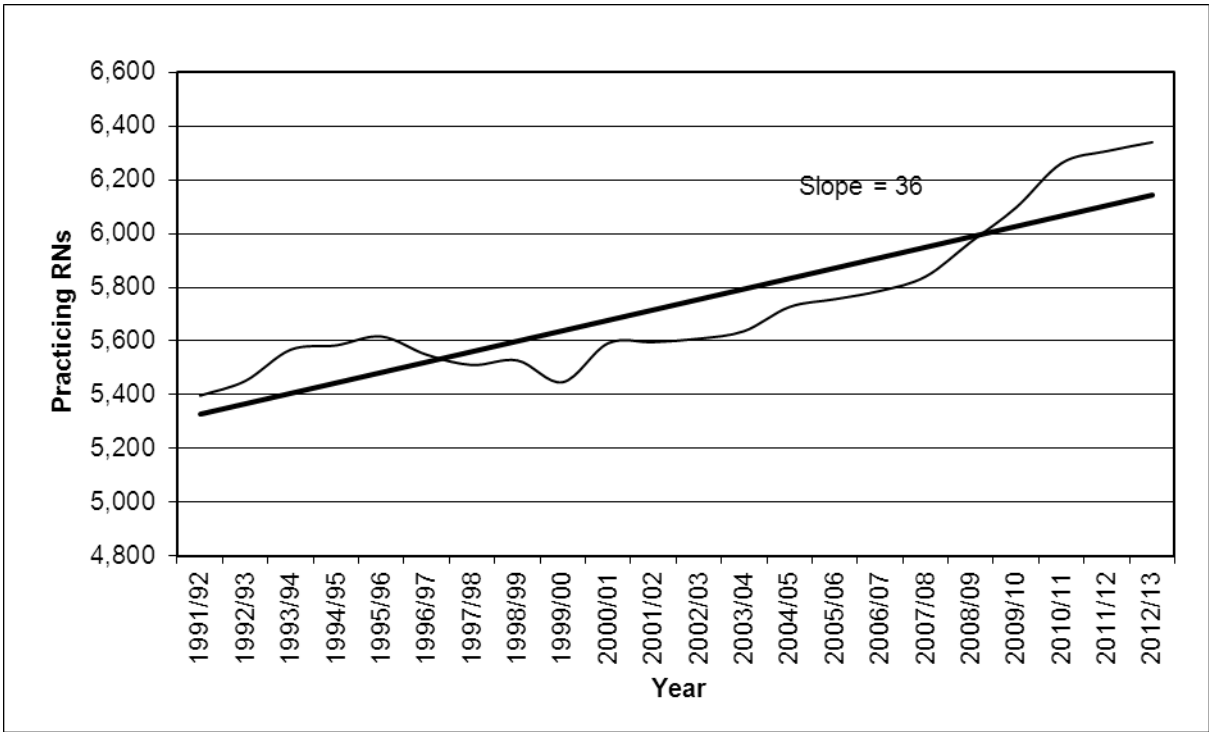
Program changes that have decreased demand for RNs include expanded scope of practice of LPNs and Paramedics. Finally, the introduction of a new Model of Nursing Clinical Practice in NL may be reducing demand for RNs in some areas but increasing it in others, but a final evaluation is not yet available.[12]

Historical Growth

In NL, historical workforce figures for RN workforce counts were provided earlier in Table 1. The last 10 years are plotted in Figure 7:

[11] Growth from 1997 to 2012 has been slow at 0.1 per cent compounding annually, shown in Table 35 on page 32.
[12] The model is an adaptation of the Ottawa Hospital Model for Nursing Clinical Practice, which organizes the delivery of nursing care among different categories of nursing personnel, resulting in Registered Nurses and Licensed Practical Nurses assuming the full scope of decision making for their patient assignments.

Figure 7. Provincial RN Workforce Counts.



Source: Association of Registered Nurses of Newfoundland and Labrador.

Figure 7 indicates that since 1991 the provincial RN workforce has been increasing in number at an average of 36 each year. This equates to 0.8 per cent growth, compounding annually. The Working Group noted that in recent years many new RN positions have not been what are traditionally known as "bedside" positions.

Considering the period 1997 to 2012, RNs grew in number by 0.9 per cent compounding annually. Growth by employer is shown in Table 35:

Table 35. RN Workforce Growth 1997 to 2012 by Employer.

Employer	RN Workforce 1997	RN Workforce 2012	Annual Growth (Compounding)
Eastern Health	3,050	3,541	1.0%
Central Health	650	753	1.0%
Western Health	686	835	1.3%
Labrador-Grenfell Health	315	389	1.4%
Other Employer or Unknown	809	822	0.1%
Total	**5,510**	**6,340**	**0.9%**

Source: Association of Registered Nurses of Newfoundland and Labrador.

Historical RN workforce growth in Canada between 1980 and 1993 was approximately 3.3 per cent. Growth flattened between 1993 and 2002, reflecting a period of fiscal restraint in health care spending that also affected the growth in the number of health care providers, resulting in an average annual growth rate of the RN workforce of approximately -0.2 per cent. The average annual growth rate between 2002 and 2008 was approximately 2.1 per cent. Overall, from 1980 to 2008, the average growth rate was 1.9 per cent compounding annually, increasing from about 155,000 RNs in 1980 to about 262,000 in 2008.[13]

In NL, the average annual growth rate between 2002 and 2008 was approximately 1.4 per cent, growing from 4,087 to 5,969 RNs.

Over the same time frame of 1980 to 2008, the RN workforce in the United States grew from about 1,662,000 to 3,063,000 RNs or an equivalent increase of about 2.2 per cent compounding annually. [14]

Projected Growth

The United States Department of Labour, Bureau of Labour Statistics projects an overall increase in the number of RNs, from 2010 to 2020 of 26 per cent[15]. This equates to a rate of about 2.3 per cent compounding annually.

In Canada, over the same timeframe (2010 to 2020) Human Resources and Skills Development Canada (HRSDC) projected a slightly lower increase of 2.1 per cent compounding annually, or an overall increase of about 24 per cent.[16]

Additionally, proposed health care reform in the United States may have effect on Canada. The Canadian Nurses Association indicates "According to the forecasting projections done in 2009, we are currently short approximately 22,000 registered nurses in Canada. The shortage stands to be exacerbated by health-care reform in the U.S., where more than 30 million Americans who are currently uninsured are expected to have access to health care, increasing the demand for internationally educated health-care professionals, especially those educated in Canada, largely due to proximity, and similarities in language and culture."[17]

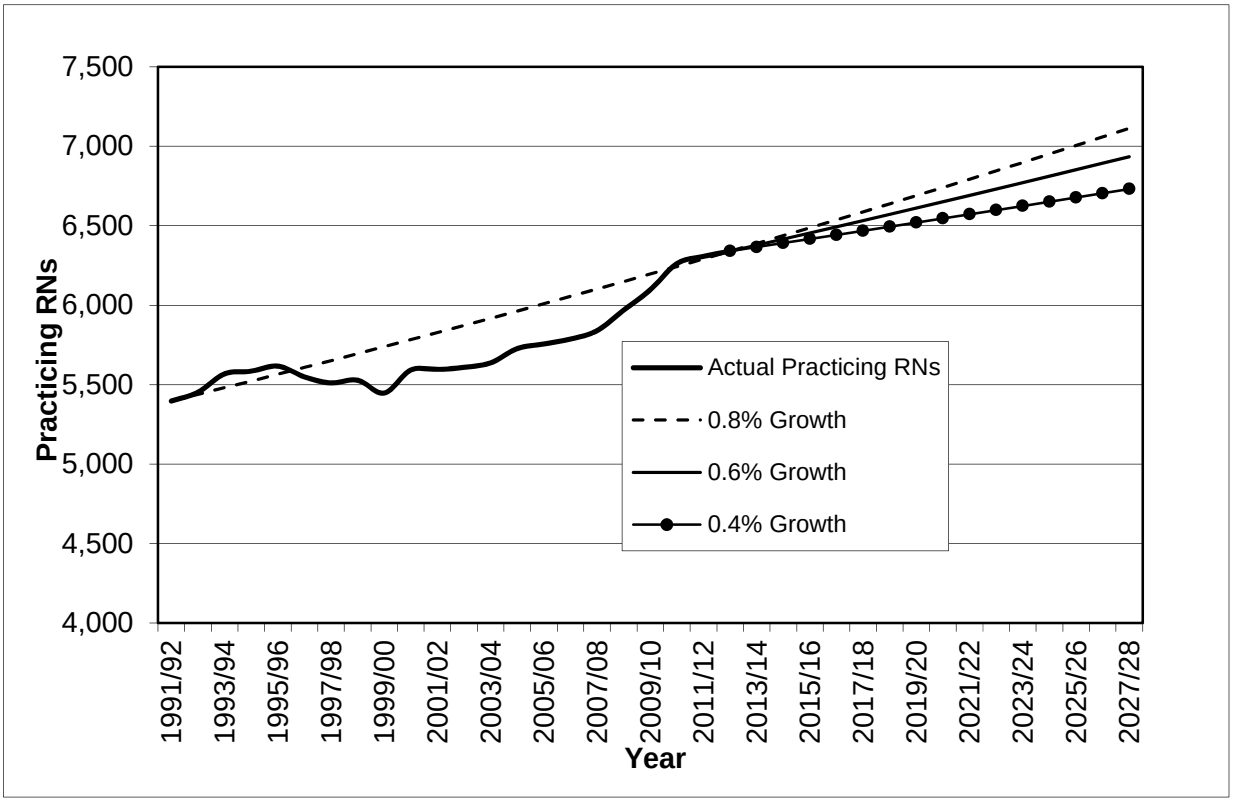
In NL, the Provincial Government's Department of Advanced Education and Skills publication "Outlook 2020" indicated that over the next decade for "nurse supervisors and registered nurses, and other technical occupations in health care (except dental) ... Excess labour demands are anticipated and recruitment pressure in these occupations is anticipated to be strong as a result of new jobs and job openings from retirements, high skill requirements and strong competition from other jurisdictions." [18]

[13] Canadian Institute for Health Information, Regulated Nurses, Canadian Trends 2004 to 2008, downloaded October 30, 2012 from https://secure.cihi.ca/free_products/regulated_nurses_2004_2008_en.pdf.
[14] American Nurses Association Fact Sheet, downloaded October 30, 2012 from http://nursingworld.org/NursingbytheNumbersFactSheet.aspx.
[15] United States Department of Labor, Bureau of Labor Statistics, downloaded from http://www.bls.gov/ooh/Healthcare/Registered-nurses.htm October 30, 2012.
[16] Human Resources and Skills Development Canada Canadian Occupational Projection System (COPS) downloaded October 30, 2012 from http://www23.hrsdc.gc.ca/w.2lc.4m.2@-eng.jsp?fbc=Y.
[17] Canadian Nurses Association, downloaded from http://23072.vws.magma.ca/Elections2011/lev3/1_1-tackling_shortage.html October 30, 2012.
[18] Government of Newfoundland and Labrador Department of Advanced Education and Skills, "Outlook 2020" downloaded from http://www.aes.gov.nl.ca/publications/LMOutlook2020.pdf October 30, 2012.

Figure 8 shows actual RN workforce numbers 1991 to 2012, and three scenarios for workforce growth to 2027:

1. The trend if growth experienced since 1991 continues, or 0.8 per cent compounding annually;
2. An assumed growth rate of 0.4 per cent compounding annually (half of historical growth rate); and
3. An assumed growth rate of 0.6 per cent compounding annually (three quarters of historical growth rate).

Figure 8. Historical and Projected RN Workforce Growth Scenarios.



Source: Calculated from Association of Registered Nurses of Newfoundland and Labrador data.

Numerically, these scenarios are shown in Table 36.

Table 36. Projected RN Workforce Growth Scenarios.

Year	Annual Compounding Growth Scenarios		
	0.8%	0.6%	0.4%
2012/13	6,340	6,340	6,340
2013/14	6,389	6,378	6,365
2014/15	6,438	6,416	6,391
2015/16	6,488	6,455	6,416
2016/17	6,538	6,494	6,442
2017/18	6,588	6,532	6,468
2018/19	6,639	6,572	6,494
2019/20	6,690	6,611	6,520
2020/21	6,742	6,651	6,546
2021/22	6,793	6,691	6,572
2022/23	6,846	6,731	6,598
2023/24	6,898	6,771	6,625
2024/25	6,952	6,812	6,651
2025/26	7,005	6,853	6,678
2026/27	7,059	6,894	6,704
2027/28	7,113	6,935	6,731

At the time of writing, RHAs are implementing operational improvements that will result in a decrease in RN positions. These targets are discussed in more detail in Section 6.3 Workforce Utilization.

For the purpose of the RN workforce model, the Working Group felt a growth scenario of 0.6 per cent compounding annually was appropriate. A summary showing various modeling scenarios, including several different growth rates, is shown in Table 51 on page 50.

6.3. Workforce Utilization

Before concluding a discussion on demand it is important to highlight opportunities for improved workforce utilization. Improving utilization could lessen the need for more RNs. For example, decreasing absenteeism rates would lower the need for relief staff. This Section briefly discusses opportunities to better utilize the existing RN workforce.

Sick Leave, Injury Leave, and Relief

There are opportunities to improve the efficiency and productivity of the current RN workforce. Focus on staffing and scheduling practices, utilization of support staff, work processes, illness/injury rates, and other areas could yield significant improvements. For example, lost time due to illness and injury, and resources required to replace those RNs on benefit leave, represents significant cost. Selected earnings for all RHAs are shown in Table 37. The data provided are shown in terms of full-time equivalents (FTEs); one FTE is assumed to be 1,950 earned hours, recognizing that the normal year for Public Health Nurses is 1,820 earned hours.

Table 37. RHA RNs Selected Earnings 2012/13.

Earning (unionized RNs only)	Hours	Dollars	Full-Time Equivalents (FTEs)
Sick Benefit (leave taken)	487,109	$18,634,394	250
Injury Benefit (leave taken)	129,766	$1,827,926	67
Sub Total	**616,875**	**$20,462,320**	**316**
Sick Relief (worked) see note 1 and 2	272,413	$9,634,098	140
Injury Relief (worked) see note 1 and 2	43,825	$1,562,835	22
Sub Total	**316,238**	**$11,196,933**	**162**
Total	**933,113**	**$31,659,253**	**479**

Source: Department of Health and Community Services.
Notes:

1. Not all sick and injury benefit leave requires relief.
2. Table 37 does not include relief provided through overtime or callback.

The total paid FTEs in leave taken due to sick and injury benefit amounts to more than 316 FTEs, or about seven per cent of the estimated FTE RNs in RHAs. Including FTEs for relief purposes, the total FTE related to illness and injury is 479 FTE, or more than 930,000 paid hours amounting to almost $32 million in fiscal year 2012/13. Further costs are incurred through overtime and callback, much of it related to the provision of relief.

The Statistics Canada Labour Force Survey on Work Absences (2011) showed the average RN in Canada was absent 15.8 days annually.[19] These absences were due to illness or disability, and personal or family responsibilities. In comparison, the average full time RN in this province was absent 17.1 days in 2011.[20] This was comprised of 1.8 days of family leave and 15.3 days of sick leave.

The cost of absenteeism includes the direct payment of wages and benefits paid during the absence, but also include costs associated with relief staffing, scheduling, re-training, lost productivity, diminished morale, and increased turnover.

Many workplace injuries result in lost time. Data from the Workplace Health Safety and Compensation Commission in NL for 2008 to 2012 indicates that RNs accounted for 13 per cent of all lost time claims in the “Health care and social services” which includes all hospitals, nursing homes, social services, day care services, physicians' offices, and health and community services, or about 36,700 employees.

[19] Downloaded from http://www.statcan.gc.ca/pub/75-001-x/2012002/tables-tableaux/11650/tbl-4-eng.htm#n_1 June 19, 2013.
[20] Department of Health and Community Services data.

Table 38. Lost-time Claim Statistics, Health Care and Social Services, 2008-2012

Lost-time Claims 2008-2012 Statistic	Number One Category	Per cent of Total Lost-time Claims
Nature of Injuries	Sprains, strains, tears, unspecified	52%
Parts of Body Injured	Multiple body parts (see note 1)	21%
Type of Accidents	Overexertion in lifting	16%

Source: Workplace Health Safety and Compensation Commission (WHSCC). Industry Fact Sheet 2012 downloaded November 29, 2013.
Notes:

1. The second top "Parts of Body Injured" was "Lumbo-sacral region" at 11 per cent.

Statistics shown in Table 38 reflect a strong connection between patient/resident handling and lost-time claims. A pilot project to reduce lost-time injuries related to patient/resident handling among nursing staff in ten long-term care sites throughout the province is currently underway.

Beyond lost time/costs associated with benefits paid to RNs injured on the job, and relief staff, the human cost is significant. Injuries often result in disabling and chronic conditions which can reduce personal income, end careers, and affect personal lifestyles. Partners, children and other family of injured workers are negatively affected.

Scope of Practice

One objective of the collective agreement with NLNU of June 30, 2009 was "enhanced senior level collaboration between NLNU, Government and Health Authorities".[21] The agreement initiated the creation of a tri-partite committee called the Senior Joint Quality Worklife Committee (SJQWC) to address provincial, system wide nursing practice and patient care issues. The SJQWC established the Provincial Nursing Duties Working Group.

The mandate of the Working Group was to examine duties currently being performed by RNs that may detract from patient/resident/client care. The Final Report of the Provincial Nursing Duties Working Group, NL, July 8, 2011, provided six recommendations for better alignment of RN skills with patient/resident/client needs including (paraphrased):

1. Each RHA establish a Nursing Duties Working Group, chaired by the Chief Nursing Officer for that RHA;
2. Improve alignment of resources to needs;
3. Clarify roles and duties;
4. Review work processes;
5. Improve infrastructure; and
6. Investigate a business case for more support staff.

In October 2013, Eastern Health indicated there has been progress in this area; a toolkit has been developed for use by all staff and has been well-received; a time study tool has been piloted in five areas; and there have been improvements at the unit level including modified hours for support workers, streamlined telephone answering processes, and other positive changes. Western Health also reports progress. Materials will be shared among RHAs.

[21] Downloaded from http://www.nlnu.ca/uploads/Provincial_CA.pdf December 12, 2013.

Implementation of these recommendations could slow the need to grow the RN workforce by improving utilization of existing RNs.

Operational Improvements

To identify operational improvements, RHAs engaged the Health Care Management Group (HCM), to benchmark themselves with organizations of similar size, staff composition, and geography across Canada. As a result of this work, targets were established for FTE reductions across all four RHAs. These targets are being achieved through a variety of approaches including:

- Reduced Hours of Work (less hours of work for temporary employees and less overtime for permanent employees);
- Attrition (not replacing an employee when they leave the organization);
- Vacant Positions (not filling a vacant position); and
- Hires (some hires are required to achieve operational improvements).

The net change from these initiatives is a targeted reduction of 961 FTEs. An estimated 23 per cent of the total is RN FTEs. This may serve to slow future growth in the RN workforce.

Model of Nursing Clinical Practice

In early 2010, the Department of Health and Community Services provided funding for provincial implementation of the Model of Nursing Clinical Practice (MoNCP). In 2010, Central Health commenced implementation of this model. The other three RHAs commenced implementation in 2011. The MoNCP has realized several positive outcomes with implementation, including improved patient care, organizational climate (safety and equity), nurse satisfaction, interest in continuing education, leadership, and decreased vacancy rates, turnover rate, nurse burnout, and nurse absenteeism. The work is on-going and serves to improve RN utilization in a number of areas.

Finally, the manner in which RNs are employed, including team mix, can change demand. For example, more part time positions and larger casual pools means more RNs are needed to meet same demand. On the other hand, stronger deployment of LPNs in community health could lessen the demand for RNs.

The larger question of how and where services are delivered is beyond the scope of this report. Any changes to the health and community services system in this regard will affect demand for RNs.

In summary, there are opportunities to introduce or strengthen programs and policies that reduce absenteeism, reduce lost time injuries, optimize the use of RN scope of practice, and generally improve the utilization of RNs in the health system. Such opportunities fit well with increasing pressures to ensure health system sustainability. Gains realized through improved utilization of RNs are not incorporated directly into the model. Gains in this area could be redirected into providing more or improved services. Though not discussed at length in this report, this is an important area for consideration.

6.4. Demand Summary

A summary showing the total RN demand projections for the period 2012 to 2027 for a growth scenario of 0.6 per cent compounding annually is shown in Table 39:

Table 39. RN Demand Projections 2012 to 2027 (0.6% Growth).

YEAR	WORKFORCE	*DEMAND*			
		Replacement	Incremental Retirements	Expansion	**Total Demand**
Reference:	*Section 6.2 Page 28*	*Section 6.1 Page 18*	*Section 6.1 Page 18*	*Section 6.2 Page 28*	
A	**B**	**C**	**D**	**E**	**F=C+D+E**
2012	6,340	-	-	-	**-**
2013	6,378	281	10	38	**329**
2014	6,416	282	20	38	**341**
2015	6,455	284	30	38	**353**
2016	6,494	286	40	39	**364**
2017	6,532	287	50	39	**376**
2018	6,572	289	60	39	**388**
2019	6,611	291	70	39	**400**
2020	6,651	293	80	40	**412**
2021	6,691	294	90	40	**424**
2022	6,731	296	100	40	**436**
2023	6,771	298	100	40	**438**
2024	6,812	300	100	41	**440**
2025	6,853	302	100	41	**442**
2026	6,894	303	100	41	**444**
2027	6,935	305	100	41	**447**

Note:

1. Incremental retirement is projected to peak in 2022 as described in Section 6.1 page 18.

7. Supply

For the purpose of this document, supply is defined as:

Supply: Source of qualified workers.

All sources of RNs are broken down into six categories:

Table 40. RN Supply: Categories.

	Obtaining a Practicing License for First Time		Re-activating a Practicing License
	New Graduate	Experienced RN	
Educated in NL	I	III	V
Educated Outside NL	II	IV	VI

Note that each entry (and exit) is treated as an independent occurrence. For example, a new graduate may obtain a practicing license upon graduation (one entry in category 1), renew for five subsequent years, have an absence of two years, and then return to the workforce (one entry, category 5).

The source of RN supply is broken down in this manner to organize the discussion in the report and identify model inputs. These six categories are discussed in the report as follows:

Report Section	Page	Category	Description
7.1 Internal Supply	40	I	New graduates from the NL program, first time entries to NL.
7.2 External Supply	45	II, III, IV	New graduates from outside of the province and/or experienced RNs, first time entries to NL.
7.3 Returning Supply	46	V, VI	RNs reactivating a practicing license after an absence of one year or more.

From 1998/99 to 2012/13, there were 4,780 entries (sum of column F in Table 25 page 20). This figure is corrected as described earlier. These entries are broken down as follows:

Table 41. RN Supply: Counts and Per Cents by Category.

	Obtaining a Practicing License for First Time		Re-activating a Practicing License	Total
	New Graduate	Experienced RN		
Educated in NL	2,217 (46%)	209 (4%)	1,468 (31%)	**3,894 (81%)**
Educated Outside NL	201 (4%)	527 (11%)	158 (3%)	**886 (19%)**
Total	**2,418 (51%)**	**736 (15%)**	**1,626 (34%)**	**4,780 (100%)**

7.1. Internal Supply

Internal supply refers to new graduates from Bachelor of Nursing (Collaborative) Programs in NL obtaining a practicing license in this province for the first time, or Category I shown in bold in the table below:

	Obtaining a Practicing License for First Time		**Re-activating a Practicing License**
	New Graduate	Experienced RN	
Educated in NL	**I**	III	V
Educated Outside NL	II	IV	VI

The RN educational preparation for entry to practice from 1903 to 1995 was a Diploma of Nursing offered by:

1. General Hospital School of Nursing (St. John's 1903-1995);
2. S.A. Grace General Hospital School of Nursing (St. John's 1924-1995);
3. St. Clare's Mercy Hospital School of Nursing (St. John's 1939-1995); and
4. Western Memorial Regional Hospital (WMRH) School of Nursing (Corner Brook 1969-1995)

In 1965 Memorial University established a BN Program (1965-1995) to prepare generic/basic students for entry to practice. In preparation for the profession's change in educational requirement for entry into nursing practice from a Diploma in Nursing to a BN degree by the year 2000, faculty from all five schools of nursing developed a four year BN (Collaborative) Program which was approved for delivery in September 1996. At the same time the three St. John's Diploma Schools of Nursing were consolidated into a single school, the Centre for Nursing Studies (1996) under the auspices of the Health Care Corporation of St. John's which later became Eastern Health Authority.

At that time, the WMRH School of Nursing changed its name to Western Regional School of Nursing reflecting changes to the parent organization now known as Western Health Authority. Since 1996 the BN (Collaborative) Program has been offered under a consortium agreement between the Memorial University School of Nursing (MUNSON), the Centre for Nursing Studies (CNS) and the Western Region School of Nursing (WRSON). The BN degree is conferred by Memorial University to graduates of all three Schools of Nursing. As per the *Registered Nurse Act,* the BN (Collaborative) Program must meet ARNNL Standards for Nursing Education. The Program was granted accreditation from the Canadian Association of University Schools of Nursing in 2008 for 7 years, the highest accreditation level achievable in the country. Approval and accreditation is due for review in 2015.

In 2005 the Government of NL's, Foundation for Success: White Paper on Public Post-Secondary Education, directed "the Departments of Education and Health and Community Services, in conjunction with the Schools of Nursing and appropriate stakeholders, to discuss implementing a consolidated model that provides for the administration of nursing education, including continuing education and other programs such as the Practical Nursing Program and the Nurse Practitioner Program within Memorial University." Discussions continue for the consolidation of nursing education under the Memorial University system.

When the new BN (Collaborative) Program commenced in 1996, the Diploma in Nursing programs were phased out with the last diploma class graduating in 1998. The generic BN Program was also phased out with the last class graduating in 1999. In 1999 there were only 40 graduates from the generic BN Program as there was a gap year of graduates during the transition to the new Program.

The BN (Collaborative) Program admitted its first class, of approximately 220 students, in 1996 and had its first graduates in 2000.

In 2008, the number of funded educational seats in the BN (Collaborative) Program was increased from 255 to 291 with the addition of:

1. 16 New LPN Bridging Program seats. CNS, MUNSON and WRSON collaborated to develop an LPN Bridging Program that enables graduates of current Practical Nursing Programs to enter the second year of the BN (Collaborative) Program. Qualified LPNs take the Bridging Semester, consisting of two Bridging Nursing courses, and other required non-nursing courses. 16 additional educational seats were funded at the CNS for this program offering.
2. 8 Fast Track BN (Collaborative) Program seats. An additional 8 educational seats were added to the Memorial University Cohort for a total of 40 Fast Track seats (32 at MUNSON and eight at WRSON). This Program allows students with significant non-nursing course work completed prior to entry to complete the Program in two years of consecutive semesters.
3. 12 BN seats. 10 educational seats were added to the regular stream BN (Collaborative) Program at WRSON and 2 educational seats were added at MUNSON. Current BN seat capacities are 53 (MUNSON), 121 (CNS), 61 (WRSON) totaling 235.

A summary of total current educational seat capacity is shown in Table 42:

Table 42. New Graduate Supply NL Schools of Nursing 2013.

School	Fast-Track (2 Years)	LPN Bridging (3 Years)	Regular Stream (4 Years)	Total
MUNSON	32	0	53	**85**
CNS	0	16	121	**137**
WRSON	8	0	61	**69**
Total	**40**	**16**	**235**	**291**

Source: NL Schools of Nursing.

The Integrated Nursing Access Program commenced in January 2005 with an enrolment of 19 students from Northern Labrador. This five year Program, led by the WRSON, recognized the unique challenges facing Aboriginal persons who wish to pursue a career in nursing. The Program encompassed the Inuit culture including health beliefs and language implications. Three years were offered in collaboration with the College of the North Atlantic in Happy Valley-Goose Bay and consisted of high-school equivalency courses for nursing, and first and second year of the BN (Collaborative) Program. The third and fourth years of the BN (Collaborative) Program were completed at WRSON in Corner Brook. Seven students graduated from the Program.

A similar initiative (producing diploma-prepared graduates) was offered in:

- 1992 resulting in seven graduates in 1995 and two in 1996;
- 1993 resulting in three graduates in 1996; and
- 1994 resulting in one graduate in 1997.

Past trends of nursing program capacities, applicants, enrollments and new graduates, are shown in Table 43.

Table 43. Nursing Program Capacity, Applicants, Enrollments, and Graduates 1991-2012.

Year	Program Capacity (Approved Seats)			Applicants			Enrollments			Graduates		
	Dip.	BN	Total	Dip.	BN	Total	Dip.	BN	Total	Dip.	BN	Total
1991	339	50	389	1,647	99	1,746	339	50	389	243	25	**268**
1992	326	50	376	1,879	73	1,952	326	45	371	252	47	**299**
1993	314	50	364	1,744	96	1,840	314	51	365	260	44	**304**
1994	246	50	296	1,046	100	1,146	246	51	297	249	27	**276**
1995	244	50	294	926	107	1,033	244	52	296	227	31	**258**
1996	x	223	223	x	419	419	x	221	221	241	41	**282**
1997	x	223	223	x	416	416	x	221	221	211	45	**256**
1998	x	223	223	x	399	399	x	221	221	198	49	**247**
1999	x	223	223	x	482	482	x	226	226	x	40	**40**[22]
2000	x	223	223	x	556	556	x	227	227	x	163	**163**
2001	x	223	223	x	493	493	x	223	223	x	162	**162**
2002	x	255	255	x	557	557	x	244	244	x	176	**176**
2003	x	255	255	x	607	607	x	255	255	x	181	**181**
2004	x	255	255	x	620	620	x	255	255	x	222	**222**
2005	x	255	255	x	582	582	x	244	244	x	197	**197**
2006	x	254	254	x	644	644	x	251	251	x	190	**190**
2007	x	258	258	x	674	674	x	254	254	x	213	**213**
2008	x	291	291	x	674	674	x	286	286	x	214	**214**
2009	x	290	290	x	643	643	x	285	285	x	206	**206**
2010	x	290	290	x	797	797	x	294	294	x	226	**226**
2011	x	291	291	x	726	726	x	289	289	x	231	**231**
2012	x	291	291	x	692	692	x	291	291	x	259	**259**

Source: Program Capacity: Association of Registered Nurses of Newfoundland and Labrador, Annual Reports, (1991-2012). Applicants and enrollments: Sharon Peach, BN Consortium Office, personal communications, (July, 2012). Graduates: Elaine St. Croix, Memorial University School of Nursing, personal communications, (July 2012); Linda Norman-Robbins, Western Regional School of Nursing, personal communications, (July 2012), Gail Piercey, Centre for Nursing Studies, personal communications, (July 2012). Updates were obtained for 2011 and 2012 from the three Schools of Nursing. Figures may be subject to further revision and confirmation.

Note that program capacity, applicants and enrollments are for the stated year. The number of graduates is also for the stated year, but these individuals generally entered the Program four years earlier (for the BN (Collaborative) Program) or three years earlier (for the Diploma of Nursing Program). Comparing the enrollments to the graduates in the related (lagging) year facilitates a calculation of program attrition. Data for the BN (Collaborative) Program are shown in Table 44:

[22] The Diploma Nursing programs had their last graduating classes in 1998. The new BN Program had their first graduates in 2000. As a result, there were only 40 graduates in 1999.

Table 44. Nursing Program Enrollments, Graduates, and Attrition.

Enrollments 1996 to 2008	Graduates 2000 to 2012	Program Attrition
3,128	2,640	15.6%

For graduating years 2000 to 2012, attrition from the starting enrollment (1996 to 2008) has averaged 15.6 per cent. Examining the last ten years of graduates from the BN (Collaborative) Program, average attrition has been 13.2 per cent. It is unknown if this improved attrition rate will continue. The workforce model assumes an average program attrition rate of 15 per cent. Comparative data are not readily available from other jurisdictions however anecdotal evidence suggests this may be a reasonable attrition rate.

To determine the average retention of new graduates, it is necessary to compare the number of new graduates to the number of practicing licenses issued. Up to the registration year 2006, new graduates were required to obtain a practicing license regardless of their intention to practice in the province. This meant that it was unknown if the new graduate remained to practice in the province, until the second registration year following graduation. In registration year 2007, the policy changed and new graduates were required to obtain a practicing license only if they intended to practice in the province. The data are shown in Table 45:

Table 45. New Graduates: First and Second Year Retention Rates.

Year		Number of Graduates Year 1	Number of Graduates Receiving a Practicing License Year 1		Number of Graduates Receiving a Practicing License Year 2	
Year 1	Year 2	Number	Number	Per Cent	Number	Per Cent
1998	1999	247	239	97%	161	65%
1999	2000	40	40	100%	26	65%
2000	2001	163	162	99%	125	77%
2001	2002	162	159	98%	134	83%
2002	2003	176	175	99%	126	72%
2003	2004	181	179	99%	127	70%
2004	2005	222	217	98%	136	61%
2005	2006	197	199	101%	137	70%
2006	2007	190	183	96%	120	63%
2007	2008	213	175	82%	162	76%
2008	2009	214	166	78%	158	74%
2009	2010	206	165	80%	161	78%
2010	2011	226	203	90%	196	87%
2011	2012	231	194	84%	-	-

Source: Calculated from Association of Registered Nurses of Newfoundland and Labrador data.

The effect of the policy change is shown in the year 2007 onward (shown underlined in Table 3); years 2006 and earlier have about 100 per cent of new graduates receiving a practicing license[23] while 2007

[23] The number varies slightly as some new graduates may experience delays in obtaining a practicing license (i.e. and did not obtain one in the year they graduated but did for a subsequent year) or may not seek one at all.

and later is a more accurate reflection of how many new graduates remained to practice in the province. The average first-year retention since 2007 has been 83 per cent.

For the workforce model, an assumption is needed for average long-term graduate retention in the future. Anecdotal evidence suggests that recent retention rates have been exceptional for a variety of reasons, including the increases provided in the latest collective agreement and the availability of recruitment incentives. To determine the long-term average graduate retention rates, second-year retention rates are used to estimate first year retention rates for the years 2006 and earlier.

Comparing similar years, the average first year retention for 2007 to 2010 is 82 per cent. The average second year retention for the same time period is 79 per cent. Assuming that second year retention lags first year retention by an average of three per cent (82 – 79), and calculating the average for second year retention from 1998 to 2010 of 72 per cent, then the average first year retention rate for the years 1998 to 2010 is estimated to be 72 + 3 = 75 per cent.

For the purpose of the workforce model, a first year retention rate of 77 per cent is used. This rate reflects the Working Group's long-term expectation for new graduate retention which is slightly higher than the past average. This reflects improved retention through continued offering of recruitment incentives to students and experienced nurses.

Given 15 per cent attrition (or 85 per cent class retention), and an average of 77 per cent retention, the current capacity of 291 educational seats will, in the context of the model, yield an effective supply (RNs that actually join the provincial workforce) of 291 x 0.85 x 0.77 = 190 RNs.

Comparison of the number of graduates from NL to other provinces is made possible by expressing the number of graduates as a per cent of the workforce they serve to replenish and grow. This measure is called the Training Capacity Indicator:

Table 46. Training Capacity Indicator 2011.

Province	Workforce	Graduates	Training Capacity Indicator
AB	30,221	1,688	5.6%
BC	30,151	1,449	4.8%
MB	12,090	541	4.5%
ON	94,723	4,212	4.4%
PEI	1,517	67	4.4%
SK	9,896	387	3.9%
NL	6,050	222	3.7%
NB	8,218	263	3.2%
NS	9,285	291	3.1%
QC	67,111	1,212	1.8%
Total	**269,262**	**10,332**	**3.8%**

Source: CIHI Report Canada's Health Care Providers, 1997 to 2011, A Reference Guide and Canada's Health Care Providers, 2011 Provincial Profiles: A Look at 27 Health Professions.

The Training Capacity Indicator reflects the current number of graduates, not increases expected in the future. For example, Quebec has increased its intake of students which will result in increased number of graduates in the next few years.

The data show that NL is just under the average among all provinces, in terms of RN educational capacity. Given that NL has the youngest RN workforce in Canada and likely has lower retirement rates than other jurisdictions, this implies NL's education supply may be reasonable. There are however many other factors to consider when determining an appropriate educational seat capacity, as described in this report, and the Training Capacity Indicator should be viewed as supplementary information only.

7.2. External Supply

External supply refers to new graduates from outside the province and experienced RNs (regardless of where they were educated), obtaining practicing licenses in this province for the first time, represented by Categories II, III, and IV shown in bold in the table below.

	Obtaining a Practicing License for First Time		**Re-activating a Practicing License**
	New Graduate	Experienced RN	
Educated in NL	I	**III**	V
Educated Outside NL	**II**	**IV**	VI

Detail by Category, over the years available, is shown in Table 47 below:

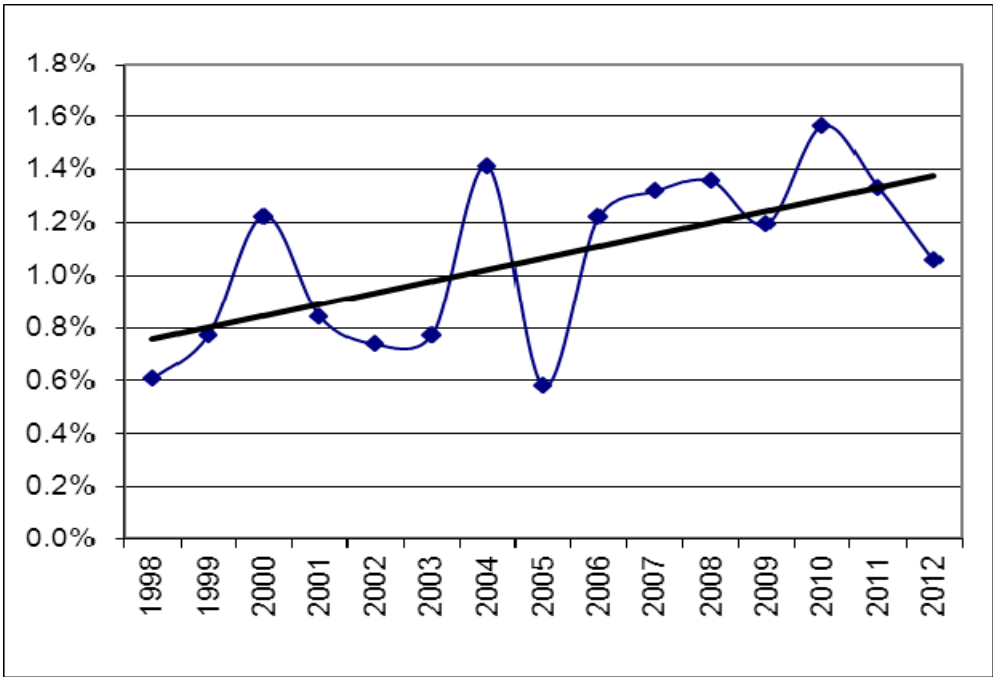
Table 47. External Supply to the RN Workforce.

Year	Workforce	Category			Total	As a Per Cent of the Workforce
1997	5,510	**II**	**III**	**IV**	-	-
1998	5,450	8	6	19	**33**	0.6%
1999	5,433	9	6	27	**42**	0.8%
2000	5,555	16	15	37	**68**	1.2%
2001	5,571	12	7	28	**47**	0.8%
2002	5,561	12	4	25	**41**	0.7%
2003	5,577	16	6	21	**43**	0.8%
2004	5,659	31	9	40	**80**	1.4%
2005	5,692	8	6	19	**33**	0.6%
2006	5,724	5	39	26	**70**	1.2%
2007	5,843	11	22	44	**77**	1.3%
2008	5,969	10	31	40	**81**	1.4%
2009	6,097	14	23	36	**73**	1.2%
2010	6,262	23	11	64	**98**	1.6%
2011	6,307	15	7	62	**84**	1.3%
2012	6,340	11	17	39	**67**	1.1%
Average		**13**	**14**	**35**	**62**	**1.1%**

Source: Calculated from Association of Registered Nurses of Newfoundland and Labrador data.

The total number of external-source RNs has been tracking upwards since 1998 as shown in Figure 9:

Figure 9. External Supply to the RN Workforce.



Source: Calculated from Association of Registered Nurses of Newfoundland and Labrador data.

Whether or not the trend of an increasing external supply will continue is unknown. For the purpose of the workforce model, an estimate of the equivalent of 1.2 per cent entering the RN workforce annually as external supply is assumed. This is slightly higher than the average of 1.1 per cent shown in Table 47, to reflect the upwards trend shown in Figure 9.

7.3. Returning Supply

Returning supply refers to any RN re-activating a practicing license from an absence of one year or more, regardless of where they were educated. These RNs are Categories V and VI shown in bold in the table below.

	Obtaining a Practicing License for First Time		**Re-activating a Practicing License**
	New Graduate	Experienced RN	
Educated in NL	I	III	**V**
Educated Outside NL	II	IV	**VI**

These RNs exit the workforce for many reasons; to raise children, care for another person, pursue further education, to move, or some other reason. These RNs are included in turnover figures and when they return to the workforce, must be considered as a source of supply. Further breakdown of Categories V and VI is shown in Table 48:

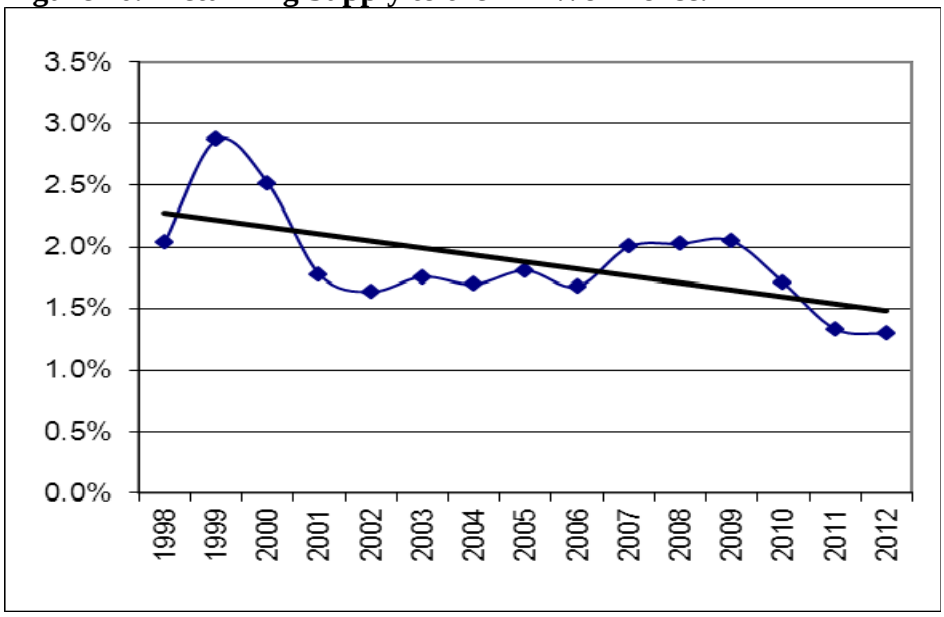
Table 48. Returning Supply to the RN Workforce.

Year	Workforce	Category		Total	As a Per Cent of the Workforce
1997	5,510	V	VI	-	-
1998	5,450	100	11	**111**	**2.0%**
1999	5,433	141	15	**156**	**2.9%**
2000	5,555	127	13	**140**	**2.5%**
2001	5,571	90	9	**99**	**1.8%**
2002	5,561	80	11	**91**	**1.6%**
2003	5,577	89	9	**98**	**1.8%**
2004	5,659	84	12	**96**	**1.7%**
2005	5,692	96	7	**103**	**1.8%**
2006	5,724	86	10	**96**	**1.7%**
2007	5,843	111	6	**117**	**2.0%**
2008	5,969	109	12	**121**	**2.0%**
2009	6,097	116	9	**125**	**2.1%**
2010	6,262	94	13	**107**	**1.7%**
2011	6,307	74	10	**84**	**1.3%**
2012	6,340	71	11	**82**	**1.3%**
Average		**98**	**11**	**108**	**1.9%**

Source: Calculated from Association of Registered Nurses of Newfoundland and Labrador data.

Trends in the total number of returning-source RNs since 1998 are shown in Figure 10:

Figure 10. Returning Supply to the RN Workforce.



Source: Calculated from Association of Registered Nurses of Newfoundland and Labrador data.

The future trends for returning supply is unknown. For the purpose of the workforce model, an estimate of the equivalent of 1.7 per cent entering the RN workforce annually as returning supply is assumed.

7.4. Supply Summary

A summary showing total RN supply projections (assuming a growth rate of 0.6 per cent, graduate retention of 77 per cent, and a constant provincial educational seat capacity of 291 seats) for the period 2012 to 2027 is shown in Table 49. Note that external supply and returning supply factors are tied to the size of the workforce:

Table 49. RN Supply Projections 2012-2027 (0.6% Growth, Existing Seat Capacity).

YEAR	WORKFORCE	*SUPPLY*				
		Internal		External	Returning	**Total Supply**
Reference:	*Section 6.2 Page 28*	*Section 7.1 Page 40*		*Section 7.2 Page 45*	*Section 7.3 Page 46*	
A	**B**	**Seats**	**G**	**H**	**I**	**J=G+H+I**
2012	6,340	291	-	-	-	-
2013	6,378	291	190	77	108	**375**
2014	6,416	291	190	77	109	**377**
2015	6,455	291	190	77	110	**378**
2016	6,494	291	190	78	110	**379**
2017	6,532	291	190	78	111	**380**
2018	6,572	291	190	79	112	**381**
2019	6,611	291	190	79	112	**382**
2020	6,651	291	190	80	113	**383**
2021	6,691	291	190	80	114	**384**
2022	6,731	291	190	81	114	**386**
2023	6,771	291	190	81	115	**387**
2024	6,812	291	190	82	116	**388**
2025	6,853	291	190	82	116	**389**
2026	6,894	291	190	83	117	**390**
2027	6,935	291	190	83	118	**392**

A summary table comparing projected RN supply (using current educational seat capacities) and projected RN demand for 0.6 per cent growth is shown next in Section 8.

8. Provincial Workforce Model

Given a growth rate of 0.6 per cent annually, existing educational seat capacity, and other assumptions described in this report, the following scenario compares supply and demand to 2027:

Table 50. RN Projections 2012-2027 (0.6% Growth, Existing Seat Capacity).

YEAR	WORKFORCE	*DEMAND*				*SUPPLY*					*PROJECTED GAP*
		Replacement	Incremental Retirements	Expansion	**Total Demand**	Internal		External	Returning	**Total Supply**	***(In each year. positive value means surplus)***
Reference:	*Section 6.2 Page 28*	*Section 6.1 Page 18*	*Section 6.1 Page 18*	*Section 6.2 Page 28*	*Table 39 Page 38*	*Section 7.1 Page 40*		*Section 7.2 Page 45*	*Section 7.3 Page 46*	*Table 49 Page 48*	
A	**B**	**C**	**D**	**E**	**F=C+D+E**	**Seats**	**G**	**H**	**I**	**J=G+H+I**	**K=J-F**
2012	6,340	-	-	-	**-**	291	-	-	-	-	**-**
2013	6,378	281	10	38	**329**	291	190	77	108	**375**	**47**
2014	6,416	282	20	38	**341**	291	190	77	109	**377**	**36**
2015	6,455	284	30	38	**353**	291	190	77	110	**378**	**25**
2016	6,494	286	40	39	**364**	291	190	78	110	**379**	**14**
2017	6,532	287	50	39	**376**	291	190	78	111	**380**	**4**
2018	6,572	289	60	39	**388**	291	190	79	112	**381**	**-7**
2019	6,611	291	70	39	**400**	291	190	79	112	**382**	**-18**
2020	6,651	293	80	40	**412**	291	190	80	113	**383**	**-29**
2021	6,691	294	90	40	**424**	291	190	80	114	**384**	**-40**
2022	6,731	296	100	40	**436**	291	190	81	114	**386**	**-51**
2023	6,771	298	100	40	**438**	291	190	81	115	**387**	**-51**
2024	6,812	300	100	41	**440**	291	190	82	116	**388**	**-52**
2025	6,853	302	100	41	**442**	291	190	82	116	**389**	**-53**
2026	6,894	303	100	41	**444**	291	190	83	117	**390**	**-54**
2027	6,935	305	100	41	**447**	291	190	83	118	**392**	**-55**

The Working Group ran the model for a range of assumptions regarding growth and new graduate retention. Growth was considered in a range of 0.4 to 0.8 per cent compounding annually, in increments of 0.1 per cent. Similarly, a range of new graduate retention from 75 to 80 per cent was considered, in increments of one per cent. Results were sorted according to the timing and magnitude of the resulting gap, with scenario 1 having the smallest gap and scenario 15 having the largest. Results are shown in Table 51:

Table 51. RN Model Gaps for Growth and New Graduate Retention.

Scenario	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
Workforce Growth	**0.4%**	**0.5%**	**0.4%**	**0.4%**	**0.5%**	**0.6%**	**0.5%**	**0.7%**	**0.6%**	**0.6%**	**0.8%**	**0.7%**	**0.7%**	**0.8%**	**0.8%**
New Graduate Retention	**80%**	**80%**	**77%**	**75%**	**77%**	**80%**	**75%**	**80%**	**77%**	**75%**	**80%**	**77%**	**75%**	**77%**	**75%**
2013	67	61	60	55	53	54	48	48	47	42	41	40	35	34	29
2014	57	50	49	44	43	43	38	37	36	31	30	29	24	23	18
2015	46	39	39	34	32	33	27	26	25	20	19	18	13	12	7
2016	36	29	28	23	21	22	16	15	14	9	8	7	2	0	**-5**
2017	25	18	18	13	11	11	6	4	4	**-1**	**-3**	**-4**	**-9**	**-11**	**-16**
2018	15	7	7	2	0	0	**-5**	**-7**	**-7**	**-12**	**-15**	**-15**	**-20**	**-22**	**-27**
2019	4	**-3**	**-3**	**-8**	**-11**	**-11**	**-16**	**-18**	**-18**	**-23**	**-26**	**-26**	**-31**	**-33**	**-38**
2020	**-6**	**-14**	**-14**	**-19**	**-21**	**-22**	**-26**	**-29**	**-29**	**-34**	**-37**	**-37**	**-42**	**-45**	**-49**
2021	**-17**	**-25**	**-24**	**-29**	**-32**	**-32**	**-37**	**-40**	**-40**	**-45**	**-48**	**-48**	**-53**	**-56**	**-61**
2022 (peak retirements)	**-27**	**-35**	**-35**	**-40**	**-43**	**-43**	**-48**	**-51**	**-51**	**-56**	**-60**	**-59**	**-64**	**-67**	**-72**
2023	**-28**	**-36**	**-35**	**-40**	**-43**	**-44**	**-48**	**-52**	**-51**	**-56**	**-61**	**-60**	**-65**	**-68**	**-73**
2024	**-28**	**-37**	**-36**	**-41**	**-44**	**-45**	**-49**	**-53**	**-52**	**-57**	**-62**	**-61**	**-66**	**-70**	**-74**
2025	**-29**	**-37**	**-36**	**-41**	**-45**	**-46**	**-50**	**-55**	**-53**	**-58**	**-63**	**-62**	**-67**	**-71**	**-76**
2026	**-29**	**-38**	**-37**	**-42**	**-45**	**-47**	**-50**	**-56**	**-54**	**-59**	**-65**	**-63**	**-68**	**-72**	**-77**
2027	**-30**	**-39**	**-37**	**-42**	**-46**	**-48**	**-51**	**-57**	**-55**	**-60**	**-66**	**-64**	**-69**	**-73**	**-78**

The inflection point between surplus and gap is shown as a bold line dividing the table from right to left. Given the ranges described, a supply/demand gap could start as early as 2016 (scenario 15) or as late as 2020 (scenario one). The Working Group choose scenario nine as the representative scenario for this report. In scenario nine, a gap is projected in 2018 of -7 RNs, growing to -55 in 2027.

The “baby boom” generation is expected to experience peak retirements in about 2022, after which the number of retirements will decrease until the “echo” generation again begins to approach the assumed 58 years old, perhaps in 30 years or so, but the peak may be considerably lower.

After 2022, the model holds retirement level at a constant level although they may decrease slightly. The Working Group targeted the gap of between -29 to -40 shown for the years 2020 and 2021 (scenario nine) for correction. This corresponds with assumptions in scenario nine of 0.6 per cent growth and 77 per cent retention. The reason for not targeting the largest gap for the peak retirement year of 2022 is to avoid establishing over-capacity for the post-peak period.

Assuming that corrective action is solely through educational seat increases, the number of seats required must be higher than the projected gap, to account for program attrition losses, and new graduate non-retention. A range of 29 to 40 new graduates retained requires 44 to 61 additional educational seats. Addressing the gap with other measures may reduce the number of educational seats needed and delay when they may be required.

The scenario shown in Table 52 adds eight educational seats in 2015, and an additional educational 16 seats in each of 2016, 2017 and 2018 for a total of 56 new educational seats.[24] Effective increase in new graduates comes four years later, and reflects program attrition of 15 per cent and new graduate retention of 77 per cent.

[24] Educational seats are added in multiples of eight to match student to professor ratios.

Table 52. RN Projections 2012-2027 (0.6% Growth, Increased Seat Capacity).

YEAR	WORKFORCE	*DEMAND*				*SUPPLY*					*PROJECTED GAP (In each year. positive value means surplus)*
		Replacement	Incremental Retirements	Expansion	Total Demand	Internal		External	Returning	Total Supply	
Reference:	*Section 6.2 Page 28*	*Section 6.1 Page 18*	*Section 6.1 Page 18*	*Section 6.2 Page 28*		*Section 7.1 Page 40*		*Section 7.2 Page 45*	*Section 7.3 Page 46*		
A	**B**	**C**	**D**	**E**	**F=C+D+E**	**Seats**	**G**	**H**	**I**	**J=G+H+I**	**K=J-F**
2012	6,340	-	-	-	**-**	291	-	-	-	-	**-**
2013	6,378	281	10	38	**329**	291	190	77	108	**375**	**47**
2014	6,416	282	20	38	**341**	291	190	77	109	**377**	**36**
2015	6,455	284	30	38	**353**	299 (8 more)	190	77	110	**378**	**25**
2016	6,494	286	40	39	**364**	315 (16 more)	190	78	110	**379**	**14**
2017	6,532	287	50	39	**376**	331 (16 more)	190	78	111	**380**	**4**
2018	6,572	289	60	39	**388**	347 (16 more)	196	79	112	**386**	**-2**
2019	6,611	291	70	39	**400**	347	206	79	112	**398**	**-2**
2020	6,651	293	80	40	**412**	347	217	80	113	**410**	**-3**
2021	6,691	294	90	40	**424**	347	227	80	114	**421**	**-3**
2022	6,731	296	100	40	**436**	347	227	81	114	**422**	**-14**
2023	6,771	298	100	40	**438**	347	227	81	115	**423**	**-15**
2024	6,812	300	100	41	**440**	347	227	82	116	**425**	**-16**
2025	6,853	302	100	41	**442**	347	227	82	116	**426**	**-17**
2026	6,894	303	100	41	**444**	347	227	83	117	**427**	**-17**
2027	6,935	305	100	41	**447**	347	227	83	118	**428**	**-18**

Increased educational seat capacity, and corresponding increases in new graduated retained, are shown underlined. For the current assumptions and potential corrective action, increased admissions are not required until 2015, or possibly later. Therefore a decision on educational seat increases is not required immediately; however some planning should proceed as if this were the case. In this way, potential future costs, faculty requirements, physical space needs, clinical placements, and other factors can be anticipated. Some factors will require long term planning, while others may be quite simple. The model should be refreshed with an additional year's data before a decision on increased educational seat capacity is made.

9. Regional Analysis

The following regional analysis examines the origins of the RN workforce in terms of their source of education and provincial distribution. It is included here as a preliminary assessment, from a demand perspective only, of the potential for a Satellite Option of the BN (Collaborative) Program to serve the central region of the province.

Analysis was completed on where RNs were educated versus where they work. Data are shown in Table 53:

Table 53. Source of RN Education versus Employer 2012.

School Location	Employer					
	EH	CH	WH	LGH	Other Employer	**Total**
St. John's (MUNSON and CNS)	3,193	515	154	161	588	**4,611**
Corner Brook (CNS)	121	172	615	121	112	**1,141**
Other Canadian	177	53	59	70	109	**468**
IEN	50	13	7	37	13	**120**
Total	**3,541**	**753**	**835**	**389**	**822**	**6,340**

Source: Association of Registered Nurses of Newfoundland and Labrador.

The same data are expressed as a percentage in Table 54. This shows what percentage of employees was educated in each school location.

Table 54. Source of RN Education versus Employer 2012 (per cent).

School Location	Employer					
	EH	CH	WH	LGH	Other Employer	**Total**
St. John's (MUNSON and CNS)	**90%**	**68%**	18%	**41%**	**72%**	**73%**
Corner Brook (CNS)	3%	23%	**74%**	31%	14%	**18%**
Other Canadian	5%	7%	7%	18%	13%	**7%**
IEN	1%	2%	1%	10%	2%	**2%**
Total	**100%**	**100%**	**100%**	**100%**	**100%**	**100%**

The majority of the workforce for Eastern Health and Western Health came from their respective schools of nursing at 90 per cent and 74 per cent respectively. Central Health relies most heavily on graduates from St. John's (31 per cent). Similarly, Labrador-Grenfell Health relies on St. John's first at 41 per cent, Western Health second at 31 per cent, and other Canadian schools at 18 per cent.

The data suggest that St. John's and Corner Brook meet 91 per cent of provincial demand (73 per cent plus 18 per cent respectively).

Assuming that the total provincial educational seat capacity (291) is meeting 91 per cent of demand allows a conversion of the figures to equivalent educational seat capacities i.e. the calculated capacity to meet the proportions would be 233 educational seats in St. John's and 58 seats in Corner Brook (total 291 seats). In this manner, the total theoretical number of educational seats required by each employer, and supplied by each school, is revealed. Note that the 24 educational seats from "Other Canadian" and six from "IEN" sources are fictitious.

Table 55. Source of RN Education versus Employer 2012 (Seat Equivalents).

School Location	Employer					
	EH	CH	WH	LGH	Other Employer	**Total**
St. John's (MUNSON and CNS)	162	26	8	8	30	**233**
Corner Brook (CNS)	6	9	31	6	6	**58**
Other Canadian	9	3	3	4	6	**24**
IEN	3	1	0	2	1	**6**
Total	**179**	**38**	**42**	**20**	**42**	**321**

Actual educational seat capacity in St. John's and Corner Brook is 222 and 69 respectively (compared to 233 and 58 calculated, respectively). It appears that Corner Brook has more than enough capacity to meet its own needs, with remaining capacity serving other employers. Conclusions that can be drawn from this analysis are as follows:

1. No further educational seat increases should be considered for Corner Brook; and
2. Increases in educational seat capacity should either be applied to current educational seat capacity in St. John's, or established as a new program in Central Health, if deemed cost-effective.

A program in Central Health would presumably supply Central Health with three-quarters of its needs (as the Corner Brook program currently does for Western Health) and may better balance the provincial supply/demand picture. For example, Central Health's reliance on St. John's and Corner Brook would decrease, and conversely, added capacity may also help support Labrador-Grenfell Health and other employers. Over time, the system would establish new supply equilibrium.

The possibility of establishing a school of nursing (or some portion of a program) in Central Health depends on several factors. Some of these include:

1. Projected demand;
2. Minimum capacity required for viability;
3. Availability of funding; and
4. Availability of instructors, infrastructure, and suitable clinical placements.

An analysis of these factors is beyond the scope of this report.

10. Conclusions

Conclusions from this report include:

1. Workforce modeling cannot predict future labour market trends with certainty;
2. RN retirements are expected to peak in the year 2022 as the last remaining members of the baby boom generation exit the system;
3. Several RN sub-groups with the highest average ages should be monitored for the purpose of succession planning;
4. There are significant opportunities to improve RN productivity;
5. Measures to improve system sustainability and increase RN utilization may slow future growth;
6. RN educational capacity in NL is comparable to the average among all provinces;
7. The PhD in Nursing Program at Memorial University is an important source of faculty members for the provincial Schools of Nursing;
8. For the given assumptions and estimates presented in this report, a surplus of RNs is projected from present to 2017;
9. A gap of seven RNs is projected for the year 2018, growing to 55 in 2027;
10. Current information and analysis does not support further educational seat increases in Corner Brook;
11. Potential educational seat increases may best serve provincial supply if applied to St. John's, or established as a new program in Central Health. In the latter case, a cost-benefit analysis is required;
12. Addressing a gap in 2018 may require increased intake in 2015;
13. Preliminary results suggest 56 more educational seats may be needed to address projected gaps, however the model should be refreshed with an additional year's data before a decision on educational seat capacity is made; and
14. Given the complexity of adding educational seats, preliminary planning for seat increases should begin as soon as possible, recognizing that a decision on actual educational seat increases may not be needed until 2015, or possibly later. Such planning would not constitute a commitment to fund additional educational seats or other requirements such as the associated infrastructure, clinical placements, etc.

11. Recommendations

Recommendations that follow are grouped into three strategic directions to manage demand; maintain supply; and monitor and plan:

Manage Demand

Recommendation 1: Explore opportunities to increase RN productivity.

Recommendation 2: Review and strengthen existing attendance management programs in RHAs.

Recommendation 3: When available, build on the evaluation results of the Injury Prevention Pilot Project in Long Term Care to reduce RN injuries in other areas.

Maintain Supply

Recommendation 4: Maintain strong recruitment through continued offering of bursaries, signing bonuses, and other incentive programs with associated return-in-service commitments.

Monitor and Plan

Recommendation 5: Refresh the RN Workforce Model with an additional year's data in 2014 to determine if educational seat increases are warranted. Analysis should determine the number of educational seats required, their timing, and the viability of establishing a program in Central Newfoundland.

Recommendation 6: Consider preliminary planning for educational seat increases to 1) identify order-of-magnitude costing and 2) mitigate other potential issues such as instructor availability, clinical placements limitations, and physical space. Such planning could lay the groundwork for a potential educational seat increases in 2015 or later, but would not constitute a commitment to fund additional educational seats or other requirements such as the associated infrastructure, clinical placements, etc.

Recommendation 7: Monitor workforce trends of selected groups of RNs, including but not limited to: midwives; RNs in management and supervisory positions; and RNs in faculty positions, in order to anticipate and plan for potential vacancies.

12. Appendix A: Terms of Reference

Registered Nurse Workforce Model Working Group (Working Group)

Background

- There are about 6300 RNs employed provincially; 5251 of which were employed by RHAs, representing 83 per cent of the total workforce.
- Undertaking workforce modeling is an important mandate of the Health Workforce Planning Division. The Department of Health and Community Services requires evidence to support decision-making that will stabilize the RN workforce over the next decade.

Scope

- The entire provincial RN workforce.
- A workforce model is not a workforce plan, and is not an advocacy paper for additional positions or new service delivery models; however it will discuss and incorporate factors that affect the Supply/Demand balance. For example, the report may incorporate discussion on evolving population health needs, evolving service delivery models, and opportunities to improve productivity.
- Collective bargaining issues including compensation and benefits are generally not within the scope of these Terms of Reference.

Objective

- To develop a comprehensive RN Workforce Model that incorporates all relevant Supply and Demand factors and makes recommendations for addressing anticipated trends, to ensure stability in the Registered Nurse workforce. Supply and Demand factors include:

Replacement Demand (How many RN hires are needed to simply maintain the current workforce)
• Workforce requirements stemming from projected turnover. Turnover includes all employee separations, including retirements.
Expansion Demand (How many more [or less] RNs will be required to meet changing population needs and changing service delivery models)
• Workforce requirements stemming from projected growth (or decline) in workforce size; • Incorporate limited discussion on changing population health needs, changing service delivery models, opportunities to improve productivity.
Supply (Sources of RN hires)
• Supply figures including all graduates, all provincial programs, (also considers attrition and graduate retention rates) and supply from outside the province. Also includes those re-entering the workforce.

Deliverables

- A written report including recommendations related to any or all of the Supply and Demand Factors listed above, and a spreadsheet-based model.

Reporting Structure and Communications

- The Working Group reports to, and provides deliverables to, the Assistant Deputy Minister of the Professional Services Branch of the Department of Health and Community Services.

Membership

Department of Health and Community Services

- **Heather Hanrahan** Director Health Workforce Planning, Department of Health and Community Services (Chair)
- **Anita Ludlow** Provincial Chief Nurse (replaced by **Bev Griffiths**)
- **Andrew Wells** Manager Health Workforce Planning, Department of Health and Community Services
- **Denise French** Administrative Support Department of Health and Community Services

Department of Advanced Education and Skills

- **Mark Hunter** Post-Secondary Policy and Program Specialist, Department of Advanced Education and Skills

Schools of Nursing

- **Sharon Fitzgerald** Associate Director, Centre for Nursing Studies (replaced by **Anne Marie Tracey**)

Association of Registered Nurses of Newfoundland and Labrador

- **Pegi Earle** Executive Director, Association of Registered Nurses of Newfoundland and Labrador (replaced by **Lynn Power**)

Regional Health Authorities

- **Eastern Health: Katherine Chubbs** VP and Chief Nursing Officer
- **Central Health: Trudy Stuckless** VP Professional Standards and Chief Nursing Officer
- **Western Health: Rob Kenny** VP Human Resources & Organizational Development
- **Labrador-Grenfell Health: Barbara Molgaard Blake** VP People and Information Services

Governance

- Working Group is chaired by H. Hanrahan.
- Alternates to be identified and required if member absent for a meeting.

Roles and Responsibilities

- The chair is responsible for meeting agendas, keeping the discussion focused within the scope of the project, and adherence to timelines.
- All members are responsible for representing the interests of their organization, reviewing materials, providing constructive feedback, and deliverables.
- A. Wells is responsible for report and workforce model development under the direction of the Working Group.

Schedule

- Meeting will occur each month, starting March 9, 2012. Out of town members may participate by conference call.

Constraints

- Future population health needs and service delivery models are determined by a host of influences including social, economic, political, geographic, and other factors. Precise determination of demand for RNs in this regard is not possible. Discussion on probable directions will be included in the report and factored into the model where possible.

Revision Date

- March 5, 2012.