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Workforce Planning for Pharmacists and Pharmacy Technicians in New Brunswick

Canadian Pharmacists Association New Brunswick Pharmacists' Association



August 16, 2023

Final Report Submitted to Project Advisory Committee

healthintelligenceinc. and associates



Health Intelligence Inc. confirms no actual, perceived, or potential conflict of interest with either of Canadian Pharmacists Association or New Brunswick Pharmacists' Association

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Note to Reader

This report is aligned with the Workforce Planning for Pharmacists and Pharmacy Technicians in New Brunswick: Environmental Scan (February 25, 2023).

The scan provides both context and detail that supplement the information and analyses presented in this report; there is value in cross-referencing between the report and the scan. As well, where most relevant, key abstractions from the scan have been included in the report

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Workforce Planning for Pharmacists and Pharmacy Technicians in New Brunswick

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Letter of Introduction and Key Point Summary

Canadian Pharmacists Association

New Brunswick Pharmacists' Association

<u>Joelle Walker</u> Vice President, Public and Professional Affairs <u>Kelsey Skromeda</u> Manager, Policy and Research <u>Janet MacDonnell</u> Director, Professional Affairs Anne Marie Picone Interim Executive Director

Attached is the <u>final report</u> of Health Intelligence and associates on Workforce Planning for Pharmacists and Pharmacy Technicians in New Brunswick. Using our adjusted population needs-based methodology, this report has progressed through the phases of a project charter, qualitative and quantitative acquisitions and analyses, and a detailed <u>Environmental Scan</u>, underpinned by a <u>Data Compendium</u> that has been provided as a companion document. The Environmental Scan and Data Compendium are important documents; the comprehensive information in these files is not replicated in this report, but is cross-referenced or emphasized where appropriate.

The data that inform the report have been acquired with careful attention to validation and harmonization. The merger of data with informed qualitative observations is the basis of assessing the current state in New Brunswick and forecasting the future state in a ten-year rolling model.

<u>Compelling evidence reveals a shortage of pharmacists and pharmacy technicians in New Brunswick</u>. This will become <u>progressively severe without intervention</u>. The base case provided in the forecasting model is the foundation of the plan and will be applied in the initiation of its implementation. The base case reflects the most likely outcomes using information that aligns with the current state. Subsequent movement away from the base case towards the low case or the high case would reflect new information that is realized during the forecast period.

Exacerbating the current and future shortages are a relatively high burden of illness in the province, an aging population, and a changing scope of practice. Solutions will need to move past essential recruitment and retention initiatives and incorporate a shift in primary care delivery models that maximize the skills of pharmacy professionals and the potential of pharmacy in improving access to care such as pharmacy-led clinics or multidisciplinary and collaborative primary care teams.

We have benefited substantially from the willingness of diverse stakeholders and expert resources who shared their perspectives and insight, and from the support provided by the project management and the oversight and technical committees.

While these diverse contributions have been invaluable, there should not be any attribution. The acquisition, collation, harmonization, and analyses of the data have been the responsibility of the consultancy alone. Transforming an environmental scan into an evidence-based workforce plan that is driven by measurement necessitates a fundamental shift in contextual thinking. Inevitably, there will be variation in the comfort with and capacity for change, whether as a political leader, senior administrator, funder, manager, or provider. However, the hallmark of this study has been wide support for change.

This plan is the beginning of a journey, not the end.

A key point summary of the report follows this letter of introduction.

Respectfully submitted on behalf of the consultancy,

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Key Point Summary of the Report

(non-prioritized)

- The recommendations and ten-year rolling forecast of workforce planning for pharmacists and pharmacy technicians in New Brunswick are developed through the application of our Adjusted Population Needs-Based Model (APNM) with the integration of qualitative and quantitative data and analytics. Companion files have been provided as an <u>Environmental Scan</u> and a <u>Data Compendium</u>.
- 2. The <u>logic model</u> is progressive:
 - Tabulation of the current supply by health zone
 - Incorporation of hours of work and work status
 - Future supply and planning adjustment for work status by % FTE impact and age, separation adjustment, and geography and mobility
 - Benchmarking
 - Age- and gender-weighted population forecasts
 - Relative burden of illness in New Brunswick
 - Aggregated pharmacy prescription claims and payments
 - Further development and uptake of collaborative and/or alternative models of care in New Brunswick health care
 - Impact of an increasing scope of practice
- 3. The strengths and weaknesses of the model are provided in section 1.8 of the report
- 4. Forecasting the rolling ten-year scenarios includes a <u>base case</u> scenario (most likely assumptions and variables) and low case and high case scenarios.
- 5. Compelling evidence reveals a <u>shortage of pharmacists and pharmacy technicians</u> in New Brunswick. This will become progressively severe without intervention. Exacerbating the future shortages are a relatively high burden of illness in the province, an aging population, and a changing scope of practice. The base case ten year forecast shows:
 - The province must recruit 27.0 FTE pharmacists per year and 6.0 pharmacy technicians per year to replace the FTEs that will retire or leave
 - The province must recruit another 67.0 FTE pharmacists per year and 44.0 FTE pharmacy technicians per year to meet changing population health and scope needs

- The total annual recruitment needs are 94.0 FTE pharmacists and 50.0 FTE pharmacy technicians per year (**note** that the current annual recruitment of pharmacists is approximately 51.0 FTE, and of pharmacy technicians is approximately 16.0 FTE)
- 6. The base case forecast increase is contingent on continued and accelerated reform of primary health care, hinging on broadening support for and uptake of expanded scope of practice, pharmacist-led delivery of primary care, as well as the growth of primary care collaborative teams.
- 7. The increase from 22 to 30 seats in the fall of 2023 in the pharmacy technician program at the New Brunswick Community College is a significant positive initiative. The addition of a pharmacist program at the University of New Brunswick must be given serious consideration to reduce the heavy reliance on recruitment from the Dalhousie University program. Health care in Nova Scotia is experiencing pressures that are similar to those in New Brunswick as outlined in this report, making continued reliance on recruitment from Dalhousie University an increasingly risky strategy.
- 8. Supply needs reflect attrition, replacement, needs, and models of care.
- 9. The percentage of unilingual or bilingual French-speaking pharmacists and pharmacy technicians matches or exceeds the percentage of the population who declare French as their first official language, except in the Campbellton-Miramichi economic region where there is a four percent (7.0 FTE) deficit in French-speaking pharmacists.
- 10.<u>Solutions</u> will need to move past essential recruitment and retention initiatives and incorporate a shift in primary care delivery models that maximize the skills of pharmacy professionals and the potential of pharmacy in improving access to care, such as through pharmacy-led clinics or multidisciplinary and collaborative primary care teams.These solutions are found in 21 recommendations, organized among six categories:
 - Transition to implementation
 - Stakeholder engagement
 - Workforce planning methodology
 - Maintaining the workforce planning model
 - Maintaining the workforce planning data
 - Influencing and managing the future supply of pharmacy professionals



1.1 Overview

The following schematic summarizes the study and the derivation of the final report and recommendations



Exhibit 1-01 Project Overview Schematic



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1.2 Forecast Period

This report includes a ten-year workforce forecast for the period <u>2022-2023 to 2032-2033</u> with 2023-2024 being forecast year one (F1) and 2032-2033 being forecast year ten (F10). Fiscal year 2022/23 (April 1, 2022 to March 31, 2023) is the base year or forecast year zero (F0) of the forecast period.

1.3 Scope

The scope of work includes licensed pharmacists and pharmacy technicians.

1.4 Current Supply

The supply of pharmacists and pharmacy technicians in New Brunswick for the fiscal year April 1, 2022 to March 31, 2023 is tabulated in the following exhibit.

Location.	Supply of Pharmacis	Supply of Pharmacists and Pharmacy Technicians 2022 - 2023							
Location	FTE Total	Count Total	Ratio FTE / Count						
Pharmacists									
Acadie-Bathurst	75.2	82.0	0.92						
Beauséjour	272.4	298.0	0.91						
Fredericton & River Valley	178.6	195.0	0.92						
Fundy Shore & Saint John	195.4	215.0	0.91						
Madawaska & Northwest	39.8	43.0	0.93						
Miramichi	50.4	56.0	0.90						
Restigouche	32.8	36.0	0.91						
Pharmacist Total	844.6	925.0	0.91						
Pharmacy Technicians									
Acadie-Bathurst	22.6	23.0	0.98						
Beauséjour	89.6	94.0	0.95						
Fredericton & River Valley	48.0	50.0	0.96						
Fundy Shore & Saint John	51.0	53.0	0.96						
Madawaska & Northwest	6.8	8.0	0.85						
Miramichi	14.0	14.0	1.00						
Restigouche	16.6	17.0	0.98						
Pharmacy Technician Total	248.6	259.0	0.96						
Totals	1,093.2	1,184.0	0.92						

Exhibit 1-02 Supply of Pharmacists and Pharmacy Technicians April 1, 2022 to March 31, 2023

Workforce Planning for Pharmacists and Pharmacy Technicians in New Brunswick

The supply was <u>further segmented by zone</u> to enable forecast modeling at that level of detail. Population data (Statistics Canada) by health zone was also obtained to enable zone level forecast modeling.

In Exhibit 1-02, individuals were assigned a <u>full-time equivalency (FTE) value</u> based on their work status (fulltime, part-time, and casual). Full-time individuals were assigned an FTE of 1.0, part-time an FTE value of 0.6 (3 shifts per week), and casual an FTE value of 0.2 (1 shift per week). These FTE assignments were reinforced by the results of a New Brunswick pharmacy professionals' survey for this project, conducted by CPhA and NBPA, with support from the New Brunswick College of Pharmacy.

Questions 7 and 8 of the survey provided respondent data on hours worked per week as well as work status (full-time 1 location, full-time 2 or more locations, part-time, and casual).





Eighty percent (80%) of pharmacists work full-time, 18% part-time, and 2% casual. Ninety-two percent (92%) of pharmacy technicians work full-time, 6% part-time, and 2% casual. These percentages are consistent across health zones for both pharmacists and pharmacy technicians with the exception of Miramichi where 76.8% of pharmacists are full-time and 100% of pharmacy technicians are full-time.

Exhibit 1-04 Work Status by Position and Zone

		Coι	ints			Percentages				
Location	Casual	Full- Time	Part- Time	Total	Casual	Full- Time	Part- Time	Total		
Pharmacists										
Acadie-Bathurst	2	67	13	82	2.4%	81.7%	15.9%	100.0%		
Beauséjour	6	240	52	298	2.0%	80.5%	17.4%	100.0%		
Fredericton & River Valley	3	157	35	195	1.5%	80.5%	17.9%	100.0%		
Fundy Shore & Saint	5	171	39	215	2.3%	79.5%	18.1%	100.0%		
John										
Madawaska & Northwest	1	36	6	43	2.3%	83.7%	14.0%	100.0%		
Miramichi	1	43	12	56	1.8%	76.8%	21.4%	100.0%		
Restigouche	1	29	6	36	2.8%	80.6%	16.7%	100.0%		
Pharmacist s	19	743	163	925	2.1%	80.3%	17.6%			
Pharmacy Technicians										
Acadie-Bathurst	0	22	1	23	0.0%	95.7%	4.3%	100.0%		
Beauséjour	2	85	7	94	2.1%	90.4%	7.4%	100.0%		
Fredericton & River Valley	1	46	3	50	2.0%	92.0%	6.0%	100.0%		
Fundy Shore & Saint	1	49	3	53	1.9%	92.5%	5.7%	100.0%		
John										
Madawaska & Northwest	1	6	1	8	12.5%	75.0%	12.5%	100.0%		
Miramichi	0	14	0	14	0.0%	100.0%	0.0%	100.0%		
Restigouche	0	16	1	17	0.0%	94.1%	5.9%	100.0%		
Pharmacy Technicians	5	238	16	259	1.9%	91.9%	6.2%	100.0%		
Totals	43	1,724	342	2,109	2.0%	81.7%	16.2%	100.0%		

New Brunswick College of Pharmacists

		Regis	tered	% Change Over 2019			
Current Practice Register	2019	2020	2021	2022	2020	2021	2022
Active Pharmacists	819	854	913	956	4.3%	11.5%	16.7%
Life Member	2	2	2	9			
Conditional	1	1	2	24			
Non-Active	63	40	36	0	-36.5%	-42.9%	
Lapsed	25	25	4	0		-84.0%	
Retired	19	8	5	0	-57.9%	-73.7%	
Pharmacist Totals	929	930	962	989	10.0%	3.6%	6.5%
Active Pharmacy Technicians	225	234	247	263	4.0%	9.8%	16.9%
Conditional	1	1	1	3			
Non-Active	13	5	3	0	-61.5%	-76.9%	
Pharmacy Technician Totals	239	240	251	266	0.4%	5.0%	11.3%
Total	1,168	1,170	1,213	1,255	0.2%	3.9%	7.4%

Exhibit 1-05 Changes in Register 2019 - 2022

New Brunswick College of Pharmacists

The current practice register has increased by 16.7% for active pharmacists between 2019 and 2022 (55.0 FTE or 5.6% per annum) and by 16.9% (15.0 FTE or 5.6% per annum) for active pharmacy technicians over the same time period.

Exhibit 1-06 Work Status by Position and Zone

		Coι	ints			Percentages				
Location	Casual	Full- Time	Part- Time	Total	Casual	Full- Time	Part- Time	Total		
Pharmacists										
Acadie-Bathurst	2	67	13	82	2.4%	81.7%	15.9%	100.0%		
Beauséjour	6	240	52	298	2.0%	80.5%	17.4%	100.0%		
Fredericton & River Valley	3	157	35	195	1.5%	80.5%	17.9%	100.0%		
Fundy Shore & Saint	5	171	39	215	2.3%	79.5%	18.1%	100.0%		
John										
Madawaska & Northwest	1	36	6	43	2.3%	83.7%	14.0%	100.0%		
Miramichi	1	43	12	56	1.8%	76.8%	21.4%	100.0%		
Restigouche	1	29	6	36	2.8%	80.6%	16.7%	100.0%		
Pharmacist s	19	743	163	925	2.1%	80.3%	17.6%			
Pharmacy Technicians										
Acadie-Bathurst	0	22	1	23	0.0%	95.7%	4.3%	100.0%		
Beauséjour	2	85	7	94	2.1%	90.4%	7.4%	100.0%		
Fredericton & River Valley	1	46	3	50	2.0%	92.0%	6.0%	100.0%		
Fundy Shore & Saint John	1	49	3	53	1.9%	92.5%	5.7%	100.0%		
Madawaska & Northwest	1	6	1	8	12.5%	75.0%	12.5%	100.0%		
Miramichi	0	14	0	14	0.0%	100.0%	0.0%	100.0%		
Restigouche	0	16	1	17	0.0%	94.1%	5.9%	100.0%		
Pharmacy Technicians	5	238	16	259	1.9%	91.9%	6.2%	100.0%		
Totals	43	1,724	342	2,109	2.0%	81.7%	16.2%	100.0%		

New Brunswick College of Pharmacists

1.5 Future Supply

Exhibit 1-07 2022 Active Pharmacists by University/Country of Graduation

University/Country of graduation	<u>Count</u>	<u>%</u>
Dalhousie University Count	614	64.2%
Memorial University of Newfoundland Count	78	8.2%
Université de Montréal Count	68	7.1%
Université Laval Count	68	7.1%
University of Toronto Count	25	2.6%
University of Alberta Count	10	1.0%
University of Saskatchewan Count	8	0.8%
University of British Columbia Count	7	0.7%
University of Waterloo Count	5	0.5%
University of Manitoba Count	<u>1</u>	<u>0.1%</u>
Subtotal	<u>884</u>	<u>92.5%</u>
India Count	19	2.0%
Egypt Count	14	1.5%
USA Count	12	1.3%
Great Britain Count	6	0.6%
Philippines Count	4	0.4%
South Africa Count	4	0.4%
Iran Count	3	0.3%
Nigeria Count	2	0.2%
South Korea Count	2	0.2%
Argentina Count	1	0.1%
Germany Count	1	0.1%
Israel Count	1	0.1%
Jordan Count	1	0.1%
Romania Count	1	0.1%
Senegal Count	<u>1</u>	<u>0.1%</u>
Subtotal	<u>72</u>	<u>7.5%</u>
TOTAL	956	100%

92.5% of active pharmacists in 2022 are graduates of a Canadian university and 7.5% are graduates of a foreign university. 64.2% are graduates of Dalhousie University.

(Note: Similar data for pharmacy technicians are not available)

Exhibit 1-08 <u>Annual Recruitment by University/Country of Degree</u> (three-year historic average based on 2022 roster of pharmacists)

University / Country of Degree	Annual Recruitment	Percentage
Dalhousie University	32	62.8%
Memorial University	4	9.3%
Université de Montreal	3	7.0%
Université Laval	2	4.7%
Other Canadian Universities	5	9.3%
Subtotal	46	92.0%
Foreign Universities	4	8.0%
Total	51	100.0%

Annual recruitment is 51 per year, or 510 across the ten-year forecast period.

Data similar to the preceding table are unavailable for pharmacy technicians; however, data analysis reveals an average total of 16.0 FTE new pharmacy technicians per year for the period 2019-2022. Recruitment of pharmacy technicians is anticipated to increase significantly as the Saint John-Moncton program at the New Brunswick Community College increases its capacity from 22 to 30 (fall 2023). As well, there is a small French language-based program in Campbellton (four students in 2022). The future supply of pharmacy technicians is projected at 26.0 FTE per annum when factoring in the revised capacities.

The future supply of pharmacists and pharmacy technicians is a function of two key variables.

The <u>dominant variables</u> are the <u>number</u> of graduates (Canadian citizens) of Canadian pharmacy and pharmacy technician school-administered programs, and <u>international graduates through foreign recruitment policy and practice</u>.

<u>Foreign supply and recruitment</u> is a function of provincial policy and regional recruitment services rather than a statistical forecast. There has been growth in the supply of international pharmacist graduates (IPG) since 2016; however, the number of IPGs becoming licensed each year has declined between 2016 and 2020.

Notable is that the number of graduates from <u>Canadian schools</u> has not kept pace with population growth, let alone the impact of an aging population. The growth of graduates since 2011 is 9.9% compared to a population

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growth of 14.3% for a <u>30% difference/shortfall</u>. The aging population adds a <u>further 10-15%</u> of need to the outlook (see <u>population</u> in subsequent section).

The impact of the <u>Doctor of Pharmacy (Pharm.D)</u> requirement on future graduates and international graduates is uncertain and could potentially reduce the number of graduates. As the transition to PharmD in Canada is recent, it is difficult to ascertain the full impact at this time. Some faculties are not filling all seats, and there has been a reduction for Manitoba and Dalhousie, possibly due to higher costs and changing admissions requirements. Dalhousie University is the last school of pharmacy in North America to move to a Pharm.D program. In 2021-2022, <u>national enrolment</u> for schools of pharmacy has decreased by 3.8% compared to 2019 and by 1.9% compared to 2020.

Voor		Pharm	acy Technicians	Pharmacists					
fear	Total	Inflow	Growth year-over-year	Pharmacists ear Total Inflow Growth 30,061 30.917 856 30.917 30,917 856 31,760 843 32,333 573 32,583 250 33,880 1,297 4000000000000000000000000000000000000	Growth year-over-year				
2016	6,601	2,252		30,061					
2017	7,339	738	11%	30.917	856	2.8%			
2018	8,185	846	12%	31,760	843	2.7%			
2019	8,864	679	8%	32,333	573	1.8%			
2020	9,564	700	8%	32,583	250	1.0%			
2021	9,913	349	4%	33,880	1,297	4.0%			
		Annual	Growth = 10.0%	Annual Growth $= 2.5\%$					

Exhibit 1-09 Pharmacy Technicians and Pharmacists in Canada 2016 - 2021

Canadian Institute or Health Information

The number of pharmacy technicians nationally has grown by 10% per annum between 2016 and 2021, while the number of pharmacists has grown by 2.5% per annum over the same time frame. In New Brunswick, both pharmacy technicians and pharmacists have grown by 5.6% per annum between 2019 and 2022. The growth of pharmacists in New Brunswick significantly exceeds the national average of 2.5% per annum, with the principle source of recruitment being Dalhousie University. The ability to maintain this recruitment will be strained with the increased demand for new models of primary care delivery (primary health-care reform), including pharmacist-led primary care services and the expansion of collaborative and team-based models of care

As referenced in the Environmental Scan, technology is anticipated to be a factor that may influence workforce planning, specifically the increased efficiencies that can be achieved by site-specific technology and automation, the impact of central fill pharmacies, and virtual care.

1.5.1 Notes on French Language Pharmacy Services

In 2023, the <u>University of Ottawa</u> is initiating a new undergraduate Doctor of Pharmacy (Pharm.D) in French. Studies conducted as part of the development of the program have shown a clear lack of pharmacists able to express themselves in French in minority settings across the country, especially in the Atlantic provinces. Given the growing importance of the pharmacist's role in primary care, Francophone and bilingual pharmacists are key players to help solve problems related to access to care in French.

The Environmental Scan provided <u>important information with respect to the criticality of addressing French-</u> <u>language services as an integral part of pharmacy care in New Brunswick</u>. As well, representative tables in the scan provide additional information regarding the need for Francophone pharmacy services.

The following abstracted key points support this need.

- Through an agreement with the government of New Brunswick, Laval University and the University of Montreal both allocate three seats in their pharmacy programs for Francophone students from New Brunswick.
- In New Brunswick, while there are two alternating pharmacy technician programs in English (NBCC) with 22 available seats in each (alternating Saint John and Moncton) and expanding to 30 seats in the fall 2023, there is only one French pharmacy technician program one program offered in Campbelltown as a one-year program with 20 available seats. Seats in the French program have not been filled for several years, with only four seats filled in 2022.
- The 2021 census established that 42% of the population have knowledge of French and 30% speak French as their first official language.
- The highest proportions of French-speaking people are found in the Campbellton-Miramichi (61%), Edmundston-Woodstock (49%), and Moncton-Richibucto (38%) economic regions; English is predominant in Saint John-St. Stephen and Fredericton-Oromocto economic regions.
- In 2021, Diaz Pinsent Mercier Research Inc. determined that:
 - 81% of Francophones in Atlantic Canada prefer to use French when interacting with health services.
 - 51% of Francophones in Atlantic Canada regularly request health services in French.
- In 2020, Leger determined that 50% of Francophones outside Quebec have no access to French-speaking pharmacists (28% have full access).

- With regional variation, the <u>French language</u> is a key variable in accessing and receiving health-care services; Francophones are disadvantaged in access to health-care services in the Campbellton-Miramichi economic region.
- Vitalité Health Network (the regional Francophone health authority) has a current deficit of 40 pharmacy technicians and 30 pharmacists. Likely, there are many more deficits within community and other pharmacy settings.
- The percentage of pharmacists and pharmacy technicians who are bilingual exceeds the percentage of the population who declare French as their first official language in all economic zones except Campbellton-Miramichi where 61% declare French as their first official language while 57% of pharmacists are bilingual or speak only French. Seven more French-speaking pharmacists are needed in this economic zone to address the population language needs. Further research into the supply of Francophone professionals and access to French pharmacy services in New Brunswick is necessary, and language considerations must be a priority in workforce planning initiatives in the province.

Exhibit 1-10 Language Spoken by Pharmacists and Pharmacy Technician (2022) Compared to First Official Language of the Populations (2021)

		COUNT						LANGUAGE PERCENTAGE					POPULATION PERCENTAGE*			
Profession	Economic Region	<u>English</u> <u>Only</u>	<u>Bilingual</u> (English/ <u>French)</u>	<u>French</u> Only	<u>Total</u>	<u>English</u> <u>Only</u>	<u>Bilingual</u> (English/ <u>French)</u>	<u>French</u> Only	<u>Total</u>	<u>English</u> <u>Only</u>	<u>Bilingual</u> (English/ <u>French)</u>	<u>French</u> Only	<u>Total</u>			
Pharmacist	CampbelltonMiramichi	97	115	14	226	43%	51%	6%	100%	38%	1%	61%	100%			
Pharmacist	EdmundstonWoodstock	11	34	5	50	22%	68%	10%	100%	50%	1%	49%	100%			
Pharmacist	FrederictonOromocto	136	32		168	81%	19%	0%	100%	93%	1%	7%	100%			
Pharmacist	MonctonRichibucto	135	162		297	45%	55%	0%	100%	60%	1%	38%	100%			
Pharmacist	Saint JohnSt. Stephen	184	30	1	215	86%	14%	0%	100%	97%	0%	3%	100%			
Pharmacist	<u>TOTAL</u>	<u>563</u>	<u>373</u>	<u>20</u>	<u>956</u>	<u>59%</u>	<u>39%</u>	<u>2%</u>	<u>100%</u>	<u>69%</u>	<u>1%</u>	<u>30%</u>	<u>100%</u>			
	PERCENTAGE	<u>59%</u>	<u>39%</u>	<u>2%</u>	<u>100%</u>											
Pharmacy Technician	CampbelltonMiramichi	17	36	4	57	30%	63%	7%	100%	38%	1%	61%	100%			
Pharmacy Technician	EdmundstonWoodstock	3	10	2	15	20%	67%	13%	100%	50%	1%	49%	100%			
Pharmacy Technician	FrederictonOromocto	40	3	0	43	93%	7%	0%	100%	93%	1%	7%	100%			
Pharmacy Technician	MonctonRichibucto	45	48		93	48%	52%	0%	100%	60%	1%	38%	100%			
Pharmacy Technician	Saint JohnSt. Stephen	51	6		57	<u>89%</u>	<u>11%</u>	<u>0%</u>	<u>100%</u>	<u>97%</u>	<u>0%</u>	<u>3%</u>	<u>100%</u>			
Pharmacy Technician	TOTAL	<u>156</u>	<u>103</u>	<u>6</u>	<u>265</u>	<u>59%</u>	<u>39%</u>	<u>2%</u>	<u>100%</u>	<u>69%</u>	<u>1%</u>	<u>30%</u>	<u>100%</u>			
	PERCENTAGE	<u>59%</u>	<u>39%</u>	<u>2%</u>	<u>100%</u>											
		*First offi	cial language	spoken f	or the tot	al population	excluding in	stitutional res	sidents - 100	% data						

1.5.2 Work Status Adjustment

<u>Work status adjustment</u> adjusts the forecasting for temporary leaves of absence from work, including reasons such as health, family, education, research, maternity/paternity responsibilities.

The following exhibit illustrates <u>FTE work status adjustment</u> is incorporated in the forecast model at an individual level by % FTE impact and age (age is adjusted annually over the ten-year forecast period).

Exhibit 1-11 Work Status Adjustment by % FTE Impact and Age



1.5.3 Separation Adjustment

<u>Separation adjustment</u> is departure from the active roster due to retirement, slowing productivity with age, and other attrition (death, change from active-clinical to active-non-clinical). Decreased productivity is measured, as a proxy, by the change in predicted FTE value for pharmacists and pharmacy technicians moving from age 25 years to 65 years. The separation adjustment is age-specific from age 25 years to 65 years and is applied to individuals at the same age rates for both pharmacists and pharmacy technicians.

Pharmacist- Acadie- Bathurst	Pharmacist- Beauséjour	Pharmacist- Fredericton & River Valley Area	Pharmacist- Fundy Shore & Seint John	Pharmacist- Madawaska & Northwest	Pharmacist- Miramichi	Pharmacist- Restigouche	Pharmacy Technician- Acadle- Bethurst	Pharmacy Technician- Beaus-Ejour	Pharmacy Technician- Fredericton & River Valley Area	Pharmacy Technician- Fundy Shore & Saint John	Pharmacy Technician- Madawaska & Northwest	Pharmacy Technician- Miramichi	Pharmacy Technician- Restigouche	TOTAL
19	44	35	47	7	12	6	10	22	10	10	0	5	7	234
25	104	61	59	14	19	11	12	27	16	15	1	0	9	373
17	86	46	44	12	15	8	1	23	13	17	5	0	1	288
15	46	31	51	9	5	7	0	20	10	10	2	8	0	214
4	9	13	8	1	4	2	0	2	1	1	0	1	0	46
2	9	9	6	0	1	2	0	0	0	0	0	0	0	29
82	298	195	215	43	56	36	23	94	50	53	8	14	17	1184
23%	15%	18%	22%	16%	21%	17%	43%	23%	20%	19%	0%	36%	41%	20%
30%	35%	31%	27%	33%	34%	31%	52%	29%	32%	28%	13%	0%	53%	32%
21%	29%	24%	20%	28%	27%	22%	4%	24%	26%	32%	63%	0%	6%	24%
18%	15%	16%	24%	21%	9%	19%	0%	21%	20%	19%	25%	57%	0%	18%
5%	3%	7%	4%	2%	7%	6%	0%	2%	2%	2%	0%	7%	0%	4%
2%	3%	5%	3%	0%	2%	6%	0%	0%	0%	0%	0%	0%	0%	2%
100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
	Pharmacist- Acadie- Bethurst 19 25 17 15 4 2 8 2 8 2 8 2 8 2 30% 2 1% 18% 5% 25% 100%	Pharmacisi- Bethurst Pharmacisi- Beauséjour 19 44 25 104 17 86 15 46 4 9 28 9 82 298 10 15% 30% 35% 21% 29% 18% 15% 5% 3% 100% 100%	Pharmacist- Acadie- Bathurst Pharmacist- Fredericton 8 River Beauscipur Pharmacist- Fredericton 8 River 8 River 9 Riv	Pharmacist- Acadie- Bathurst Pharmacist- fredericton & River Pharmacist- fredericton & River Pharmacist- science 19 44 35 47 25 104 61 59 17 86 46 44 15 46 31 51 4 9 13 88 2 9 9 6 82 298 195 215 10 10 10 10 23% 15% 18% 22% 30% 35% 31% 27% 30% 35% 16% 24% 18% 15% 16% 24% 5% 3% 7% 4% 100% 100% 100% 30%	Pharmacist- Acadie- Bethurst Pharmacist- Fredericton Pharmacist- Fundy Shore Pharmacist- Madawaska 19 44 35 47 7 25 104 61 59 14 17 86 46 44 12 115 46 31 51 9 115 46 31 51 9 115 46 31 51 9 116 9 13 8 11 117 86 46 31 51 9 115 46 31 51 9 16 0 110 9 13 8 11 16 10 10 10 10 10 10 10 10 10 10 10 10 10 10 10 100% 100% 100% 100% 100% 100% 100% 100% 100% 100% 100% 100% 100% 100	Pharmacist- Acadie- Bathurst Pharmacist- Fredericton Pharmacist- Fundy Shore Pharmacist- Madawaska Pharmacist- Madawaska Pharmacist- Madawaska 19 44 35 47 7 12 19 44 35 47 7 12 19 44 35 47 7 12 101 64 59 14 19 117 86 46 44 12 15 115 46 31 51 9 5 115 46 31 51 9 5 116 29 9 6 0 1 118 2188 118 14 3 56 118 155 188 226 165 21% 123 155 18% 226 165 21% 123 155 18% 226 165 21% 123 155 18% 24% 21%	Pharmacist- Acadie- BathurstPharmacist- Fredericton & River Valley AreaPharmacist- Fundy Shore Acadawaska & NorthwestPharmacist- Madawaska & NorthwestPharmacist- Meramichi19443547712625104615914191117864644121581546315195749138814229960128229819521543563623829819521543563623815%18%22%16%21%17%30%35%31%27%33%34%31%21%29%24%20%28%27%22%18%15%16%24%21%9%19%5%33%7%4%2%7%6%100%100%100%100%100%100%100%	Pharmacist Acadie- BetwardPharmacist- Fredericton Valley AreaPharmacist- Fundy Shore Fundy Shore Saliet Fundy Shore Saliet Indeawaska Saliet Saliet Saliet Saliet MiramichiPharmacist- RestigouchPharmacist- Betwistict- Betwistict- BathurstPharmacist- RestigouchPharmacist- Betwistict- BathurstPharmacist- Betwistict- BathurstPharmacist- RestigouchPharmacist- BathurstPharmacist- Bat	Pharmacist Acadie BethurstPharmacist Frederictor Nulley ArcsPharmacist Nundawaska & NorthwestPharmacist Pharmacist RestigouchePharmacy Acadie BethurstPharmacy Technician- BethurstP	Pharmacisi- Pharmacisit Rederictor BeausigiourPharmacisit- Finderictor & River & Sint John Edundy Shore & Sint John Sociality AreaPharmacisit- Pharmacisit Pharmacisit- MiramichiPharmacisit- Pharmacisit- Pharmacisit- Restiguedee RestiguedeePharmacy Technician- Irederictor & River Beausitiour (NiramichiPharmacy Technician- RestiguedeePharmacy Technician- Irederictor & River Beausitiour (NiramichiPharmacy Technician- RestiguedeePharmacy Technician- Irederictor & River & River & NiramichiPharmacy Technician- Restiguedee100401 <td>Pharmacish Acadies Betward Betward Betward BetwardPharmacish FindyShore Midawaska A Rothwish Miramichi Mi</td> <td>Pharmacisi- Acadie- Betwardie- Betwardie- Betwardie- Betwardie- Betwardie- Betwardie- S NorthwestPharmacisi- Pharmacisi- Pharmacisi- S NorthwestPharmacisi- Pharmacisi- Pharmacisi- S NorthwestPharmacisi- Pharmacisi- Pharmacisi- S NorthwestPharmacisi- Pharmacisi- Pharmacisi- S NorthwestPharmacisi- Pharmacisi- Technician- S NorthwestPharmacisi- Pharmacisi- Technician- S NorthwestPharmacisi- Technician- S NorthwestPharmacisi- Technician- S NorthwestPharmacisi- Technician- S NorthwestPharmacisi- Technician- S NorthwestPharmacisi- Technician- S NorthwestPharmacisi- Technician- S NorthwestPharmacisi- Technician- S NorthwestPharmacisi- Technician- S NorthwestPharmacisi- Technician- S NorthwestPharmacisi- S NorthwestPharmaci</br></br></br></br></td> <td>Pharmacist- Recalling Betward Betward BetwardPharmacist- Fundy Shore S Sini LiewPharmacist- Nadawaska Netward Netward Netward NiramickiPharmacist- Pharmacist- RestigouckiPharmaci</td> <td>Pharmacistic Acadie BeausojicovPharmacistic Pharmacistic Nendetwistik Nendetwist</td>	Pharmacish Acadies Betward Betward Betward BetwardPharmacish FindyShore Midawaska A Rothwish Miramichi Mi	Pharmacisi- Acadie- Betwardie- Betwardie- Betwardie- Betwardie- Betwardie- Betwardie- S NorthwestPharmacisi- 	Pharmacist- Recalling Betward Betward BetwardPharmacist- Fundy Shore S Sini LiewPharmacist- Nadawaska Netward Netward Netward NiramickiPharmacist- Pharmacist- RestigouckiPharmaci	Pharmacistic Acadie BeausojicovPharmacistic Pharmacistic Nendetwistik Nendetwist

Exhibit 1-12 Pharmacist and Pharmacy Technicians Age Cohorts 2022

The average age of <u>pharmacists</u> in New Brunswick is 41.1 years, <u>pharmacy technicians</u> 38.8 years, and <u>combined</u> 40.6 years.

The <u>ratio of FTE-to-head count by age cohort</u> follows an upward progression from under age 30 years to the 55 to 59 years age cohort, before tapering off to eventual retirement. This progression is consistent with other studies on workload as a health professional moves through each age cohort, eventually to full retirement. The ratios in the age cohort progression are modeled into future supply at an individual provider level, not a cohort level.

The separation rate variable captures the changes in service provision that accompany changes in age. <u>Physician</u> <u>data are robust</u> in this regard and demonstrate a familiar pattern. In the absence of pharmacist- and pharmacy technician-specific separation rate tables, the forecast model uses physician separation data gathered through physician resource and clinical services plans completed by Health Intelligence and associates in nine provinces and territories over the past 11 years.

The <u>forecast model assumes a default full retirement</u> at age 65 years. Individuals aged 66 years or older in 2022 have been <u>removed from the FTE calculations</u> on the assumption they will not be practising actively beyond the first year or two of the ten-year forecast. There will be exceptions to this rule; however, in the interests of methodology consistency, the rule has been applied uniformly. In 2022 only two percent (29 or 2%) of individuals are greater than 65 years of age.

Exhibit 1-13 Separation Adjustment



1.5.4 Geography and Mobility

The <u>two constituent elements of geography and mobility</u> are essential variables in workforce planning for health professionals. The challenge in this study is the absence of reliable data with respect to both variables for pharmacists and pharmacy technicians in New Brunswick. This does not diminish the potential impact of geography and mobility; rather, until such data become available, it necessitates the development of a reasonable and conservative proxy (that can be adjusted once replacement data are acquired).

<u>Net Inter-Provincial Migration (NIPM)</u> is the net number of health providers leaving and returning to the province annually. The five-year (2017-2021) annual average inter-provincial net migration for registered nurses (source: CIHI) for New Brunswick was a positive 3.58% (forty-two per annum). The forecast model has applied fifty percent (1.79%) of the registered nurse net inflow in the base case scenario. No data were available for pharmacists and pharmacy technicians. The model assumes pharmacists and pharmacy technicians had interprovincial migration similar to registered nurses, namely 50% of 3.58%. Fifty percent (50%) of the full rate of 3.58% was applied to be conservative on the impact of this variable on the forecast model.

Base case scenario is positive 1.79%

Low case scenario is positive 1.61%

High case scenario is positive 1.97%

<u>Return from Abroad (RFA)</u> is the net human resources returning from abroad to work in New Brunswick. The annual number of registered nurses, pharmacists, and pharmacy technicians returning from abroad to practice in New Brunswick is not available. For physicians in New Brunswick, net of those leaving the province to practice abroad, is negligible with two arriving and two leaving per annum in 2021 (source: CIHI).

The <u>combined effect of NIPM and RFA</u> is the same as NIPM alone:

Base case scenario is positive 1.79% Low case scenario is positive 1.61% High case scenario is positive 1.97%

1.5.5 Benchmarking

<u>External benchmarks from Canadian Institute for Health Information (CIHI) data</u> for pharmacists and pharmacy technicians were compared to the current state in New Brunswick. CIHI benchmarks are updated annually and, typically, are a maximum of two years in arrears. CIHI data are a good source of benchmarks because they are Canadian-based, follow a strict process for collection and validation from provincial Colleges, and are in the public domain. CIHI-sourced data include both public and private sector professionals.

Benchmarks must be used with caution. These require careful analysis and evaluation prior to application within a model.

The <u>base case</u> scenario uses the <u>pharmacist</u> Canadian average population per 1.0 head count of 859. In New Brunswick, the average population per 1.0 head count is 867, which aligns reasonably closely with the national average. The Maritime average population per 1.0 head count is 758 and was applied to the <u>high case</u> scenario. The New Brunswick average population per 1.0 head count of 867 was applied in the low case scenario.

The <u>base case</u> scenario uses the <u>pharmacy technician</u> Canadian average population per 1.0 head count of 2,905. The New Brunswick average population per 1.0 head count is 3,252 and was applied in the <u>low case</u> scenario. The Prince Edward Island average population per 1.0 head count is 2,243 and was applied to the <u>high case</u> scenario.

Popu	lation per Pharmacist and Pharmacy	Technician,	2020				
			PHAR	MACIST	PHARMACY		
			TOTAL	POP./	TOTAL		
YEAR	Provinces/territories with available data	POP.	(Count)	Pharmacist	(Count)	POP./PT	
2020	Newfoundland and Labrador	522,000	756	691	206	2,534	
2020	Prince Edward Island	166,000	215	771	74	2,243	
2020	Nova Scotia	985,000	1,399	704	212	4,646	
2020	New Brunswick	787,000	908	867	242	3,252	
2020	Quebec	8,585,000	9,581	896	u/a	u/a	
2020	Ontario	14,774,000	16,370	903	5,194	2,844	
2020	Manitoba	1,389,000	1,674	830	212	6,552	
2020	Saskatchewan	1,081,000	1,513	714	382	2,830	
2020	Alberta	4,437,000	5,595	793	1,703	2,605	
2020	British Columbia	5,176,000	5,942	871	1,688	3,066	
2020	Provinces/territories with available data	37,902,000	44,132	859	10,092	2,905	
Source	CIHI						

Exhibit 1-14

Population per Pharmacist and Pharmacy Technician by Jurisdiction 2020

	Exhibit 1-15	
New Brunswick Population	per Pharmacist and Pharmacy	/ Technician 2022

	Denulation	Pharr	nacists	Pharmacy Technicians		
Health Zone	Population	n	Ratio	n	Ratio	
Acadie-Bathurst	78,303	82	955	23	3,404	
Beauséjour	224,021	297	754	94	2,383	
Fredericton & River Valley	186,650	195	957	50	3,733	
Fundy Shore & Saint John	182,570	215	849	54	3,381	
Madawaska & Northwest	47,775	43	1,111	8	5,972	
Miramichi	44,661	56	798	14	3,190	
Restigouches	25,250	36	701	17	1,521	
Totals	789,230	924	854	260	3,040	

The New Brunswick population-per-pharmacist and population-per-pharmacy technician reveal Madawaska & Northwest and Fredericton & River Valley with the highest ratios compared to the provincial averages of 854 population-per-pharmacist and 3,040 population-per-pharmacy technician. In the forecast model benchmark variable, these two health zones have the highest positive adjustment (consistent with this table).

1.6 Population

The <u>forecast change in population</u> is applied to the 10-year forecast of workforce FTE requirements to adjust for that change in population needs in combination with the relative burden of illness factor. The <u>forecast</u> <u>population is adjusted</u> for relative age and gender according to relative health resource consumption (<u>resource intensity weights</u> - RIWs). This adjustment is necessary to incorporate the aging of the population which generates a greater need for health services.







The <u>New Brunswick population in 2022</u> was 805,030. The medium growth forecast population for 2032-2033 is 843,655. The provincial medium population forecast by 2032/33 on an <u>age- and gender-weighted</u> basis is 903,692 which is 60,037 (7.1%) <u>higher than on an unweighted basis</u>. This difference in population forecasts is important when projecting future health human resource FTE requirements. <u>The forecast model uses age- and gender-weighted population forecasts for the low, base, and high case scenarios</u>.

		2022	
	Female -	Male -	Total -
Age	Féminin	Masculin	Totaux
0 - 4	16,482	17,227	33,709
5 - 9	18,949	19,879	38,827
10 - 14	20,417	21,265	41,682
15 - 19	20,290	20,744	41,034
20 - 24	21,421	23,660	45,081
25 - 29	21,969	23,752	45,720
30 - 34	23,024	23,475	46,500
35 - 39	24,215	23,940	48,155
40 - 44	24,732	24,450	49,182
45 - 49	26,139	26,132	52,271
50 - 54	27,247	27,390	54,637
55 - 59	32,120	31,602	63,721
60 - 64	32,138	31,403	63,541
65 - 69	29,835	28,245	58,080
70 - 74	25,727	23,872	49,600
75 - 79	17,154	15,601	32,755
80 - 84	11,456	9,291	20,747
85 - 89	7,392	4,826	12,218
90+	5,388	2,161	7,549
TOTAL	406.095	398.915	805.010

Exhibit 1-17 Unweighted Population in New Brunswick 2022

	Lov	w-Gro	wth I	Proje	ction	(000	s)	Medi	Medium Growth Projection (000s)				Hig	High Growth Projection (000s)							
Year	1	2	3	4	5	6	7	1	2	3	4	5	6	7	1	2	3	4	5	6	7
21/22	789.2	6.1	8.6	6.1	0.3	2.5	0.9	789.2	6.3	8.3	6.5	0.3	2.5	1.4	789.2	6.5	8.0	6.6	0.2	2.5	1.6
22/23	795.9	6.1	8.8	5.1	0.4	2.2	0.5	797.5	6.4	8.5	6.1	0.3	2.2	0.9	798.4	6.7	8.0	6.3	0.2	2.2	1.5
23/24	800.5	6.0	8.9	5.3	0.4	1.8	0.2	804.3	6.4	8.5	6.3	0.4	1.8	0.6	806.8	6.5	8.0	6.6	0.3	1.9	1.3
24/25	804.6	6.0	8.9	5.4	0.5	1.5	0.1	810.6	6.5	8.5	6.3	0.4	1.5	0.4	815.0	6.9	8.1	6.7	0.3	1.5	1.1
25/26	808.2	6.0	9.0	5.0	0.5	1.1	-0.1	816.4	6.5	8.6	6.4	0.4	1.2	0.3	822.8	7.0	8.3	6.8	0.3	1.2	0.8
26/27	810.8	5.9	9.1	4.8	0.5	0.8	-0.2	821.7	6.6	8.7	6.4	0.4	0.8	0.2	830.0	7.1	8.4	6.9	0.3	0.8	0.6
27/28	812.6	5.9	9.3	4.7	0.5	0.4	-0.2	826.6	6.6	8.9	6.4	0.4	0.5	0.1	836.7	7.1	8.5	7.0	0.3	0.5	0.4
28/29	813.7	5.9	9.4	4.5	0.5	0.1	-0.2	830.8	6.6	9.0	6.4	0.4	0.1	0	842.9	7.2	8.7	7.2	0.3	0.1	0.2
29/30	814.1	5.9	9.6	4.4	0.5	-0.3	-0.2	834.5	6.7	9.2	6.3	0.4	-0.3	0	848.6	7.3	8.8	7.3	0.4	-0.3	0.1
30/31	813.9	5.9	9.7	4.4	0.5	-0.6	-0.2	837.7	6.7	9.3	6.3	0.4	-0.6	0	853.7	7.4	9.0	7.4	0.4	-0.6	0
31/32	813.1	5.9	9.9	4.3	0.5	-0.6	-0.2	840.3	6.8	9.5	6.2	0.4	-0.7	0	858.5	7.4	9.1	7.5	0.4	-0.7	0
32/33	812.2	5.9	10.0	4.2	0.5	-0.6	-0.2	842.7	6.8	5.7	6.1	0.4	-0.7	0	863.2	7.5	9.3	7.6	0.4	-0.7	0
А	812,200					842,700						86	3,20	0							
В	874,800				903,700 923,300			0													
С	62,550						6(),99()			60,070									
			7	7.7%						7	7.2%						7	7.0%			

Exhibit 1-18 <u>New Brunswick Population Scenarios 2032-2033</u>

1 = Population at beginning of period (,000s)

Statistics Canada

- 2 = Births
- 3 = Deaths
- 4 = Immigration
- 5 = Net Emigration
- 6 = Net Inter-Provincial Migration
- 7 = Net Non-Permanent Residents
- $\mathsf{A} = \mathsf{Actual} \; \mathsf{Population}$

 $\mathsf{B}=\mathsf{Age}\text{-}$ and gender-adjusted weighted population

C = Difference between actual and adjusted populations

D = Percentage difference between actual and adjusted populations

Workforce Planning for Pharmacists and Pharmacy Technicians in New Brunswick

Exhibit 1-19 <u>New Brunswick Age- and Gender-Weighted Population Forecast by Scenario 2022-2023 to 2032-2033</u>

		FO	F1	F2	FB	F4	Б	F6	67	F8	F9	F10	% Annual
		2022/2023	2023/2024	2024/2025	2025/2026	2026/2027	2027/2028	2028/2029	2029/2030	2030/2031	2031/2032	2032/2033	Change
ZONE	Low Growth												
Beauséjour		240,912	241,885	242,853	243,824	244,799	245,779	246,762	247,749	248,740	249,735	250,734	0.41%
Fundy Shore	& Saint John	196,336	197,129	197,917	198,709	199,504	200,302	201,103	201,907	202,715	203,526	204,340	0.41%
Fredericton	& River Valley Area	200,723	201,534	202,340	203,150	203,962	204,778	205,597	206,419	207,245	208,074	208,906	0.41%
Madawaska	& Northwest	51,377	51,379	51,379	51,379	51,379	51,379	51,379	51,379	51,379	51,379	51,379	0.00%
Restigouche		27,154	27,155	27,155	27,155	27,155	27,155	27,155	27,155	27,155	27,155	27,155	0.00%
Acadie-Bath	turst	84,206	84,210	84,210	84,210	84,210	84,210	84,210	84,210	84,210	84,210	84,210	0.00%
Miramichi		48,028	48,030	48,030	48,030	48,030	48,030	48,030	48,030	48,030	48,030	48,030	0.00%
	TOTAL	848,737	851,322	853,884	856,457	859,039	861,632	864,236	866,850	869,474	872,109	874,754	0.31%
20115	Martine Court												
ZUNE	Medium Growth	242.012	242.044	244240			202.000	254.024	200.040	250.210	200.022	240.032	0.031/
Beausejour		240,912	243,866	246,368	248,723	250,928	252,985	254,921	256,645	258,218	259,637	260,872	0.83%
Fundy Shore	& Saint John	196,336	198,743	200,783	202,701	204,499	206,174	207,753	209,158	210,439	211,596	212,602	0.83%
Frederiction	& River Valley Area	200,723	203,185	205,269	207,231	209,069	210,782	212,395	213,832	215,142	216,324	217,353	0.83%
Madawaska	& Northwest	51,377	51,545	51,814	51,945	52,042	52,104	52,159	52,127	52,082	52,004	51,889	0.10%
Restigouche		27,154	27,296	27,384	27,454	27,505	27,538	27,556	27,550	27,526	27,485	27,424	0.10%
Acadie-Bath	nurst	84,206	84,547	84,922	85,138	85,296	85,398	85,454	85,435	85,361	85,234	85,045	0.10%
Miramichi		48,028	48,280	48,436	48,560	48,650	48,708	48,740	48,729	48,687	48,615	48,507	0.10%
	TOTAL	848,737	857,663	864,976	871,752	877,989	883,689	888,959	893,476	897,455	900,896	903,692	0.65%
ZONE	High Growth												
Beauséjour		240,912	244,103	247,056	249,954	252,736	255,339	257,793	260,098	262,252	264,224	266,107	1.05%
Fundy Shore	& Saint John	196,336	198,936	201,343	203,705	205,972	208,093	210,093	211,971	213,727	215,334	216,868	1.05%
Fredericton	& River Valley Area	200,723	203,382	205.842	208,257	210,575	212,743	214,788	216,708	218,503	220,146	221,715	1.05%
Madawaska	& Northwest	51,377	51,542	51,649	51,738	51,796	51,811	51,791	51,737	51,649	51,522	51,375	0.00%
Restigouche		27,154	27,372	27,560	27,740	27,904	28,047	28,170	28,276	28,363	28,429	28,485	0.49%
Acadle-Bath	urst	84,206	84,882	85,467	86,024	86,534	86,975	87,359	87,686	87,957	88,162	88,333	0.49%
Miramichi		48,028	48,414	48,747	49,065	49,356	49,607	49,826	50,013	50,168	50,285	50,382	0.49%
	TOTAL	848,737	858,631	867,665	876,484	884,872	892,615	899,821	906,488	912,618	918,103	923,265	0.88%

Exhibit 1-20 Provincial Age- and Gender-Weighted Population Forecast by Scenario 2022-2023 to 2032-2033



Provincial Age/Gender Weighted Population Growth by Scenario

The rate of population medium forecast growth declines over the forecast years. The age- and gender-weighted annual percentage change declines from 1.05% in 2023/24 to 0.3% in 2032/33.

There is some variability in population forecasts based on the low, medium, and high growth-weighted scenarios. The high growth scenario (923,265 weighted, 843,655 unweighted) is 5.5% higher than the low growth scenario. The medium growth scenario (903,692 weighted, 191,300 unweighted) is 3.3% higher than the low growth scenario. The forecast model generates low, base (medium growth), and high case scenarios using multiple variables including the weighted population growth scenarios.

By including both absolute changes in population growth and the relative burden of illness, the forecast model ensures forecasts recognize and embed the differences in population need over time.

1.7 Relative Burden of Illness

<u>Disease burden</u> is the impact of a health problem measured by financial cost, mortality, morbidity, or other indicators; it is often quantified in terms of a statistical measure indicating loss of years of healthy life through disabling disease in a specified population, as measured in <u>disability-adjusted life years</u> (DALYs) or <u>premature mortality rates</u> (PMRs).

Indicators that measure vital statistics related to health (deaths and PMR; potential years of life lost (PYLL), life expectancy (LE)) generate the same results with a <u>high correlation to health status</u>. Measures such as self-reported health status, and PMR are all gathered from different data sources for different purposes, yet are all consistent in how they change over time.

Indicator	Province Average 2010	Province Average 2016	Change per Year	
Premature Mortality Rate (PMR)	3.29 / 1,000 < age 75 years	3.83 / 1,000 < age 75 years	2.8%	
Potential Years of Life Lost (PYLL) per annum	36,630	43,223	3.0%	
Life Expectancy (LE) - female	82.4 years	82.91 years		
Life Expectancy (LE) - male	78.2 years	78.7 years		
Excellent or very good self-rated health	54.6% (2015)	53.5% (2021)	-0.3%	

Exhibit 1-21 Leading Indicators of Relative Health Status

Statistics Canada - Canadian Community Health Survey (CCHS)

The pattern for the <u>Health Status Index</u> scores is indistinguishable from that for the PMR. Although one group of indicators measures vital statistics related to health (deaths) and another group measures the economic and social characteristics of residents, they both lead to the same conclusions regarding the relative health status of the province. In fact, measures such as PMR and PYLL are so similar in their assessment of health status that they could be considered interchangeable. In addition, together they provide a very strong composite measure. Given the strong correlation between the Index and the indicators, it would be much more direct to simply use one of the indicators, such as PMR, when talking about overall health status.

The <u>premature mortality rate is considered the best single indicator</u> of the overall health status of a population and the need for health care (Carstairs & Morris, 1991; Eyles & Birch, 1993; Eyles, Birch, Chambers, Hurley, & Hutchison, 1991). PMR is correlated with morbidity and with self-rated health, as well as with socioeconomic indicators (Martens, Frohlich, Carriere, Derksen, & Brownell, 2002a). Populations having a high PMR are presumed to need more health-care services than healthier populations. PMR is calculated as the number of deaths among residents under 75 years old per 1,000 residents.

In the following exhibit, average annual PMR rates are reported for 2010 to 2017 and were age- and genderadjusted to the New Brunswick population under age 75 years. The 10-year forecast model applies the PMR relative value of 2.8% to adjust workforce FTEs for the relative health status gap.

Exhibit 1-22

Premature and Potentially Avoidable Mortality - Canada, Provinces, and Territories 2010-2017

Premature and potentially avoidable mortality, Canada, provinces and territories c 1 2 3 4 5 6 7 Frequency: Annual Table: 13-10-0744-01 (formerly CANSIM 102-4316) Release date: 2019-09-05 Geography: Canada, Geographical region of Canada, Province or territory

Geography	New Brunswid
Sex	Both sexes
Indicators	Mortality 2
Characteristics 4 5 6	Number

										Annual 76
Selected causes of death 8	2010	2011	2012	2013	2014	2015	2016	2017	% Change	Change
Premature mortality 9	2,410	2,395	2,520	2,500	2,630	2,770	2,865	2,885	19.7%	2.8%
PMR/1,000 population	3.21	3.19					3.83	3.82	18.9%	2.7%
Potentially avoidable mortality	1,665	1,670	1,695	1,645	1,830	1,880	1,935	1,885	13.2%	1.9%
Mortality from preventable causes	1,110	1,110	1,140	1,095	1,230	1,245	1,285	1,245	12.2%	1.7%
Mortality from treatable causes	555	560	555	550	600	635	650	640	15.3%	2.2%

Footnotes:

Sources: Statistics Canada, Canadian Vital Statistics, Death Database and Demography Division (population estimates). The table 13-10-0744-01 is an 1 update of table 13-10-0413-01.

Mortality is the death rate, which can be measured as total mortality (all causes of death combined) or by selected cause of death. All counts and rates are 2 calculated using the total population (all age groups).

3 Potential years of life to: defined for this indicator as before age 75. All counts and rates in this table are calculated using the population aged 0 to 74." Rates are age-standardized using the direct method and the 2011 Canadian Census population structure. The use of a standard population results in more 4 meaningful rate comparisons because it adjusts for variations in population age distributions over time and across geographic areas.

Counts and rates in this table exclude: deaths of non-residents of Canada; deaths of residents of Canada whose province or territory of residence was 5 unknown; deaths for which age of decedent was unknown.

6 Rates in this table are based on place of residence for indicators derived from death events.

Due to improvements in methodology and timeliness, the duration of data collection has been shortened compared to previous years. As a result, there 7 may have been fewer deaths captured by the time of the refease. The 2016 and 2017 data are considered preliminary.

The cause of death tabulated is the underlying cause of death. This is defined as (a) the disease or injury which initiated the train of events leading directly to death, or (b) the circumstances of the accident or violence which produced the fatal injury. The underlying cause is selected from the conditions listed 8 on the medical certificate of cause of death.

9 Premature deaths are those of individuals who are younger than age 75.

Augmenting the pharmacy data in the Environmental Scan is the following exhibit on pharmacy prescription drug claims to New Brunswick public plans across four years, providing further evidence of a continuing increase in prescription drug need and, by extension, a continued need to expand the pharmacy workforce.

Exhibit	t 1-23
Four Years of Aggregate Pharmacy I	Prescription Claims and Payments

	2018	2018 - 2019		2019 - 2020		- 2021	2021 - 2022		
	n claims	\$ paid	n claims	\$ paid	n claims	\$ paid	n claims	\$ paid	
Total	6,204,720	248,982,419	6,380,176	270,169,891	6,385,828	289,263,672	6,277,024	295,891,177	
% Change			2.8%	8.5%	0.1%	7.1%	-1.7%	2.3%	
Share	84.43%	83.12%	83.89%	83.52%	83.49%	84.03%	83.33%	84.01%	

<u>New Brunswick Drug Plans and Other Government-Sponsored Plans Administered by Medavie Blue Cross</u> (on behalf of the Government of New Brunswick - Annual Reports)

These data reflect the <u>public</u> domain and provide a <u>partial picture</u> as private insurance data are not available.

1.8 Strengths and Weaknesses of the Model

Strengths

- Supply: Uses most current complete roster/list of health providers
- Supply: Projects replacement FTE requirements using rate tables (work status, aging, death) applied at the individual health provider level of detail
- Supply: Projects, at a summary level, the replacement FTE requirements due to inter-provincial migration and return from abroad
- Need: Compares and adjusts FTE requirements based upon most current benchmarks for each health provider category (pharmacists and pharmacy technicians)
- Need: Quantifies at a summary level FTE need driven by changes in population size, aging, and gender
- Need: Quantifies at a summary level FTE need driven by changes in burden of illness (premature mortality rate (PMR). Uses PMR to reflect change in acuity and complexity of population served.
 Population acuity and complexity translate into increased use of medications (dispensed by pharmacies) and the need for medication management services per patient
- Need Policy: Quantifies at a summary level FTE need driven by changes in Department of Health primary health care policy and strategy
- Need Policy: Quantifies at a summary level FTE need driven by changes in health provider regulations/act (such as, scope of practice)
- Flexibility: New complete roster/list of health providers can be easily uploaded to the model
- Completeness: The model uses a complete list of health providers (public sector, private sector, fulltime, part-time, casual)
- Accuracy: Calculates replacement FTE requirements at the individual health provider level of detail (not at a summary level)

<u>Weaknesses</u>

• Supply: Projects replacement FTE requirements using rate tables (work status, aging, death) applied at the individual health provider level of detail are drawn from multiple physician workforce planning projects; pharmacist- and pharmacy technician-specific rate tables are not available. Physician-specific individual data are used as a proxy

- Supply: Projects, at a summary level, the replacement FTE requirements due to inter-provincial migration and return from abroad using data from CIHI for registered nurses since no similar data is available for pharmacists or pharmacy technicians
- Need: Comprehensive public and private pharmacy data on prescriptions and prescription volumes and payments are not available
- Need: the impact of changes to legislation and health provider regulations (such as, scope of practice) are estimates only in the absence of detailed actual experience and supporting data
- Need: The impact of changing technology in pharmacy, such as central fill pharmacies and automation, were not specifically included in the model and projections. It is recommended that these factors be incorporated into future pharmacy workforce projections.
- Need: The impact of salaries and payment for pharmacy services were not included in the model and projections. Differences in salaries between health care settings and provinces may have a significant impact on the ability of regions and settings to recruit pharmacists and pharmacy technicians. Public funding for pharmacy primary care services impacts both pharmacy and patient uptake. It is recommended that these factors be incorporated into future pharmacy workforce projections.

Model of Care - Primary Health Care

2.1 General Context

Over the past two decades, the trend of including pharmacists within the delivery of primary care has gained traction in a number of countries, including Canada, the United States, the United Kingdom, Australia, Malaysia, and Brazil. For example, pharmacist integration into Primary Care Teams (PCTs) has demonstrated their significant role in direct patient care activities, including medication management and chronic disease management. This includes identifying and resolving adverse or incorrect medication usage, counseling on medications, educating other health-care providers on appropriate prescribing practices, disease monitoring and management and effectively optimizing patients' medication regimens to enhance their overall quality of life. Such a model has been providing services at two sites in Saint John, largely as a pilot program.

The best examples of pharmacist integration into a team-based primary care model within Canada are the Ontario Family Health Teams (FHTs) and Community Health Centres (CHCs) due to the maturity of these models.¹ In Ontario, pharmacist integration into PCTs has been shown to improve prescribing practices and reduce health-care utilization and medication costs. The New Brunswick interviews, including those conducted with pharmacy students, demonstrated increasing evidence and support for the broader integration of pharmacists into PCTs. Support within the study survey was also significant and aligned with the changing scope of practice (actual and ideal).

Pharmacists across Canada are also increasingly providing primary care services independently within community pharmacies. Regulatory changes and government funding are allowing community pharmacists to provide the same medication and chronic disease management services as team-based pharmacists directly within patients' communities. Community pharmacists are also providing disease prevention services, minor ailments prescribing, point of care testing, reproductive health services and more. In 2022, pharmacist-led primary care clinics have opened and expanded in both Alberta and Nova Scotia. Within these publicly-funded clinics, pharmacists spend all of their time on primary care service delivery; with medication dispensing either not provided at all or provided by other pharmacy staff outside the functions of the clinic. Along with team-

¹ Khairi et al. The evolving role and impact of integrating pharmacists into primary care teams: Experience from Ontario, Canada. Pharmacy 2020, 8(4), 234

based models of care, it is expected that pharmacist-led primary care clinics will expand across Canada as so much of country's population lacks access to primary care physicians or nurse practitioners.

I	Exhibit 2-01	
Selected Major Activities Provided by	y Pharmacists in Family	/ Health Teams in Ontario

Category	Activity	Percentage of Respondents (n=70)
	Managing medication-related issues	96%
Direct patient care	General medication reviews	70%
	Medication reconciliation	63%
	Unstructured education to other health- care practitioners	73%
Education and drug information	Mentoring students	27%
	Structured education to patients in a group setting	16%
	Creating new programs for patients	19%
- Systematic improvement programs	Improvement in drug prescribing/use	17%
Other activities	Research/quality improvement	9%

Khairi et al. The evolving role and impact of integrating pharmacists into primary care teams: Experience from Ontario, Canada. Pharmacy 2020, 8(4), 234

2.2 Incidence and Prevalence of Disease in New Brunswick

The incidence and prevalence of disease is manifest as the <u>burden of illness</u>. The Environmental Scan provides <u>compelling evidence that the relative burden of illness is high in New Brunswick</u> - this included the following and warrants review of the scan:

- Prevalence (%) across Canada of having at least one of four main chronic disease risk factors (greater than the national average)
- Age-standardized prevalence (%) of diabetes mellitus in New Brunswick (increasing)
- Prevalence (%) across Canada of overweight and obesity (self-reported) among adults 18+ years of age 2015-2018 (greater than the national average)
- Age-standardized prevalence (%) of hypertension in New Brunswick (increasing)
- Age-standardized prevalence (%) of ischaemic heart disease in New Brunswick (increasing slightly)
- Age-standardized prevalence (%) of asthma in New Brunswick (increasing slightly)
- Age-standardized prevalence (%) of chronic obstructive pulmonary disease in New Brunswick (increasing)
- Age-standardized prevalence (%) of rheumatoid arthritis in New Brunswick (increasing slightly)
- Age-standardized incidence (%) of cancer in New Brunswick (greater than the national average)
- Age-standardized functional health, severe or moderate functional impairment in adults age 18+ years across Canada (greater than the national average)

In summary, chronic disease prevalence is increasing as the population ages, reinforcing the need to use a PMR of 2.8% annual increase over and above base population growth.

2.3 Stabilizing Health Care: An Urgent Call to Action

According to the New Brunswick Department of Health, approximately 74,000 residents of New Brunswick did not have a primary care physician in 2022. That number has remained high for several years. In 2019, Statistics Canada reported that approximately 10.2 % of residents (79,000 individuals) did not have a family physician.

"Stabilizing Health Care: An Urgent Call to Action" is a 2021 publication of the Department of Health, stressing the need for improved access in many areas of healthcare and progress in ensuring the provision of quality, equitable and patient-focused primary care services in New Brunswick. This publication identified provincial challenges such as long wait lists, outdated primary health care model and aging physicians, with 35% of the province's family doctors headed for retirement within five years. The action plan emphasized an evolution to team-based care and the need to match the approximately 40,000 citizens on the Patient Connect NB list with a new provincial Primary Care Network to receive services through a local community clinic or other primary care provider. Pharmacists were included among the health care professionals within the interdisciplinary Primary Care Network. .

There is no one-size-fits-all primary health-care model that will best serve the needs of all New Brunswick communities. The community health needs assessments that have already been conducted across the province, as well as the New Brunswick Health Council (NBHC) extensive primary health-care research, have illustrated that every community has a unique population health profile. The evolution of primary health-care models must reflect the needs of the community and be made up of primary health-care providers who can meet those needs.

"In a nutshell, the consensus is that we should be doing far better with the level of resources we have. So we should be moving away from family doctor-focused primary care," said Stéphane Robichaud² CEO of the New Brunswick Health Council.

The interviews and survey conducted for this study determined that, within the pharmacy profession, there is support for the pharmacists' continued expansion into collaborative primary care, including pharmacist-led clinics. This was further evident in discussion with a representative of Canadian Association of Pharmacy Students and Interns (CAPSI). The potential is substantial but still immature.

The New Brunswick Health Council had set aggressive timelines for the primary health care deliverables outlined in its Action Plan and has since revised its target dates.³ The revised timeline for deliverables remains ambitious.

² CTV News Atlantic, published January 16, 2023

³ New Brunswick Health Council. Access to Primary Care. April 2023. <u>https://nbhc.ca/public-reporting-provincial-health-plan/access-primary-health-care</u> healthintelligenceinc and associates New Brunswick Primary Health Care Framework

• Launch provincial Primary Care Network (Q1 2023-2024)

Citizens without a family doctor or nurse practitioner who need access to primary care services will be able register to a new provincial Primary Care Network and receive services.

- Eliminate Patient Connect List and replace with NB Health Link (Q1 2023-2024)
- Expand Primary Care Network (Q1 2023-2024)

The New Brunswick Primary Care Network will start offering appointments with a wide range of health professionals.

• Community Care Networks (Q2 2024 - 2025)

Community health services will be re-organized into care networks that will make it easier for New Brunswickers to get access to the services that they need.

• Primary Care Network (NB Health Link) Integrated with Tele-Care 811 (Q1 2024 - 2025)

Telephone, virtual and in-person access to the right health-care provider at the right time, will integrate with Tele-Care 811.

2.4 Modeling for Primary Health-Care Teams

Collaborative Care Teams

The most established model of pharmacist expansion into primary care is the team-based model of care. Recognizing that pharmacists are increasingly providing primary care services independently, the team-based model of care was used in this study to forecast future pharmacist and pharmacy technician demand in New Brunswick as there are sufficient data available given the long-established health-care teams in Ontario. As pharmacist-led clinics continue to expand and data becomes available to assess optimal staffing needs and patient rostering, these primary care practices should be included within future workforce planning models.

Collaborative care teams can be described as:

- Multiple health-care providers that bring separate and shared knowledge together at a single site to support a comprehensive range of high quality, effective health-care services and a shared responsibility for quality
- Multiple health-care providers from different professional backgrounds working together and with patients/clients, families, caregivers, and communities to deliver comprehensive health services across care settings⁴
- The diverse mix of professions delivers optimal care that is based on need or the community being served; a high-performing team creates a more comprehensive, coordinated, and effective care delivery system that is patient-centred; team-based care improves the comprehensiveness, coordination, and efficiency of a practice⁵

Modeling for the Transformation of Primary Health Care

There are <u>not insignificant variables</u> that are aligned with collaborative care in New Brunswick and impact the pharmacist and pharmacy technician workforce plan:

- Alignment with public policy and with professional organizations
- Education of providers
- Identification of geographic-specific models
- Constitution of providers in each geographic-specific model
- Compensation models

⁴ BC Patient Safety and Quality Council, 2022

⁵ Team-Based Care in the Patient's Medical Home, College of Family Physicians of Canada, 2022 healthintelligenceinc and associates Modelin

• Rate of uptake

As these variables are tracked, the modeling and metrics can change.

Modeling for the transformation towards primary care teams requires assumptions about rostering by patients and staffing requirements. <u>Row 9</u> sees the gradual and planned increase in rostering over the ten-year base case forecast to a total of 147,600 people. Each PHC team would be responsible for 10,000 patients and each team would include 5.5 GPs (1:1,000), 6 NPs (1:750), 1.0 pharmacist (1.0 pharmacist on duty 302 days per year requires 1.35 FTE per 1.0 pharmacist position), 1.0 dietitian, 0.5 social worker, and 1.0 psychologist or mental health counselor.

The rostering and formulation of each PHC team will take time and cannot occur without the allied health professions in place from the outset of the rostering. In other jurisdictions, the shift to PHC teams has occurred without the essential allied health professions being in place from the outset. This has led to an increased population without a primary care provider.

The modeling for scenarios that reflect primary health-care teams that include pharmacists can be understood using the following <u>interpretation key</u>:

- Row 1/2- forecast years from F0 (2022/23) to F10 (2032/33)
- Row 3 Beginning year balance of pharmacist FTE
- Row 4 Annual replacement (for migration, aging, gender shift, and death) FTE recruitment to maintain current FTE complement
- Row 5 Annual recruitment required to meet both replacements needs and growth
- Row 6 Impact of expanded PHC team implementation
- Row 7 Ending year balance of pharmacist FTE
- Row 8 Population per net pharmacist FTE
- Row 9 Annual projected population enrolment in PHC teams
- Row 10 General Practitioner FTE increase
- Row 11 Nurse Practitioner FTE cumulative increase
- <u>Row 12 Pharmacist FTE cumulative increase</u>
- Row 13 Dietician FTE cumulative increase
- Row 14 Psychologist/Counselor FTE cumulative increase
- Row 15 Social Worker FTE cumulative increase

- Row 16 Blank
- Row 17 Population enrolment to PHC teams per annum
- Row 18 Nurse Practitioner FTE increase per annum

The following figures illustrate the <u>modeling</u> to calculate the population to be rostered with primary health-care <u>teams</u> and the conversion of GP FTE's to nurse practitioners, enabling expansion of PHC delivery, increased collaborative teams, and integration of primary health-care teams into each targeted community.

Exhibit 2-02 Base Case Scenario - Primary Health-Care Teams

	BASE CASE SC	ENARIO												
	a	Ь	с	d	е	f	g	h	i	j	k	1	m	n
1	BASE CASE - PH	IC Collaborative Team	то	F1	F2	F3	F4	F5	F6	F7	F8	F9	F10	10-Yr
2	ELEMENT	NOTE	2022/23	2023/24	2024/25	2025/26	2026/27	2027/28	2028/29	2029/30	2030/31	2031/32	2032/33	Change
3	FTE	Beginning Pharmacist FTE	845	845	903	954	1,002	1,047	1,089	1,129	1,164	1,197	1,227	
4	Less:	Replacement Needs		(32.0)	(33.0)	(34.0)	(36.0)	(36.0)	(37.0)	(39.0)	(41.0)	(42.0)	(42.0)	(372)
5	Plus:	Recruitment (replacement plus gro	owth)	91	81	79	77	73	72	69	67	65	60	734
6	Plus:	Impact of expanded PHC team i	mplementation	<u>o</u>	<u>3</u>	3	<u>4</u>	5	5	<u>6</u>	<u>6</u>	Z	8	<u>47</u>
7	Net:	Ending PHARMACIST FTE	844.6	903.3	954.0	1,001.8	1,046.8	1,088.8	1,128.7	1,164.2	1,196.9	1,226.7	1,252.8	408.2
8		POPULATION PER PHARMACIST FTE	1,005	949	907	870	839	812	788	767	750	734	721	(<u>39.3</u> %)
9	KEY DRIVER -	Population 'enrollment' ¹	Cumulative	0	49,200	61,500	73,800	86,100	98,400	110,700	123,000	135,300	147,600	147,600
10	1GP+1NP per	General Practitioner FTE	Cumulative	0	3	3	4	5	5	6	6	7	8	47
11	1,850 pop.	Nurse Practitioners	Cumulative	0	24	30	36	42	48	54	60	66	72	72
12		Pharmacist	Cumulative	0.0	6.7	8.4	10.1	11.7	13.4	15.1	16.8	18.5	20.1	20.1
13		Dietician	Cumulative	0.0	6.7	8.4	10.1	11.7	13.4	15.1	16.8	18.5	20.1	20.1
14		Psychologist/Counselor	Cumulative	0.0	6.7	8.4	10.1	11.7	13.4	15.1	16.8	18.5	20.1	20.1
15		Social Worker	Cumulative	0.0	3.4	4.2	5.0	5.9	6.7	7.6	8.4	9.2	10.1	10.1
16														
17	Growth	Population 'enrollment'	Annual	0	49,200	12,300	12,300	12,300	12,300	12,300	12,300	12,300	12,300	147,600
18	Growth	Nurse Practitioner	Annual	0	24	6	6	6	6	6	6	6	6	72
19	NOTES:	1	Patients formally	rostering	with a Prin	nary Care C	ollaborative	Team Practio	e					

<u>The base case scenario - primary health-care team will require 20 (line 12) additional pharmacists based in</u> <u>community centres over the forecast period</u>. The role of these pharmacists will include conducting patient prescription review and management, consultation with direct care givers on patient prescriptions, research on new medications, and prescribing new medication. The New Brunswick College of Pharmacists will need to enter into discussions with the Department of Health, the New Brunswick Pharmacists' Association, and regional zones on primary care reform and primary care team composition. The 20 additional pharmacists are part of the total 10-year recruitment target for growth of 408.2 FTE (line 7, col. 'n').

The anticipated, but uncertain, increase and uptake of collaborative care models have the potential to push the base case scenario to the high case scenario.

Exhibit 2-03 Low Case Scenario - Primary Health-Care Teams

	LOW CASE SC	ENARIO												
	а	b	с	d	е	f	g	h	i	j	k	1	m	n
1	LOW CASE - PH	IC Collaborative Team	то	F1	F2	F3	F4	F5	F6	F7	F8	F9	F10	10-Yr
2	ELEMENT	NOTE	2022/23	2023/24	2024/25	2025/26	2026/27	2027/28	2028/29	2029/30	2030/31	2031/32	2032/33	Change
3	FTE	Beginning Pharmacist FTE	845	845	889	926	960	991	1,020	1,046	1,069	1,089	1,106	
4	Less:	Replacement Needs		(21)	(24)	(27)	(30)	(33)	(36)	(39)	(42)	(45)	(48)	(344)
F	Plus:	Recruitment												
5		(replacement plus growth)		66	61	61	61	61	62	62	62	62	62	619
6	Plue	Impact of expanded PHC team												
0	Flus.	implementation		<u>o</u>	<u>0</u>	<u>o</u>	<u>o</u>	<u>o</u>	<u>0</u>	<u>o</u>	<u>o</u>	<u>0</u>	<u>0</u>	<u>o</u>
7	Net:	Ending PHARMACIST FTE	844.6	889	926	960	991	1,020	1,046	1,069	1,089	1,106	1,120	275
8		POPULATION PER PHARMACIST FTE	1,005	964	934	908	886	867	850	836	824	815	807	(<u>24.6</u> %)
9		Population 'enrollment' ²	Cumulative	0	12,300	22,550	32,800	43,050	53,300	63,550	73,800	84,050	94,300	94,300
10	1GP+1NP per	General Practitioner FTE	Cumulative	0	0	0	0	0	0	0	0	0	0	0
11	1,850 pop.	Nurse Practitioners	Cumulative	0	6	11	16	21	26	31	36	41	46	46
12		Pharmacist	Cumulative	0.0	1.8	3.2	4.7	6.1	7.6	9.0	10.5	12.0	13.4	13.4
13		Dietician	Cummulative	0.0	1.8	3.2	4.7	6.1	7.6	9.0	10.5	12.0	13.4	13.4
14		Psychologist/Counselor	Cummulative	0.0	1.8	3.2	4.7	6.1	7.6	9.0	10.5	12.0	13.4	13.4
15		Social Worker	Cummulative	0.0	0.9	1.6	2.3	3.1	3.8	4.5	5.3	6.0	6.7	6.7
16														
17	Growth	Population 'enrollment'	Annual	0	12,300	10,250	10,250	10,250	10,250	10,250	10,250	10,250	10,250	94,300
18	Growth	Nurse Practitioner	Annual	0	6	5	5	5	5	5	5	5	5	46
19	NOTES:	1	Patients formally	rostering wit	h a Primary	Care Collabo	orative Team	Practice						

The <u>low case scenario</u> foresees the gradual and planned increase in rostering for the forecast period to a total of 94,300 people with the recruitment of 13.4 pharmacists.

Exhibit 2-04 <u>High Case Scenario - Primary Health-Care Teams</u>

	HIGH CASE SC	ENARIO												
	a	b	с	d	е	f	g	h	i	j	k	1	m	n
1	HIGH CASE - PI	HC Collaborative Team	то	F1	F2	F3	F4	F5	F6	F7	F8	F9	F10	10-Yr
2	ELEMENT	NOTE	2022/23	2023/24	2024/25	2025/26	2026/27	2027/28	2028/29	2029/30	2030/31	2031/32	2032/33	Change
3	FTE	Beginning Pharmacist FTE	845	845	933	1,008	1,078	1,143	1,204	1,261	1,312	1,359	1,400	
4	Less:	Replacement Needs		(27)	(30)	(33)	(36)	(39)	(42)	(45)	(48)	(51)	(54)	(401.0)
5	Plus:	Recruitment												
2		(replacement plus growth)	-	115	102	100	97	95	94	89	87	85	81	945.1
6	Plus	Impact of expanded PHC team												
Ŭ	1 103.	implementation		<u>0</u>	<u>2</u>	<u>3</u>	<u>4</u>	<u>5</u>	<u>5</u>	<u>6</u>	<u>Z</u>	<u>8</u>	<u>9</u>	<u>48.0</u>
7	Net:	Ending PHARMACIST FTE	845	933	1,008	1,078	1,143	1,204	1,261	1,312	1,359	1,400	1,437	592
8		POPULATION PER PHARMACIST FTE	1,005	919	859	809	768	734	705	701	698	694	1,480	<u>32.1</u> %
9	KEY DRIVER -	Population 'enrollment' ²	Cumulative	0	49,200	67,650	86,100	104,550	123,000	141,450	159,900	178,350	196,800	196,800
10	1GP+1NP per	General Practitioner FTE	Cumulative	0	(2)	(3)	(4)	(5)	(5)	(6)	(7)	(8)	(9)	(9)
11	1,850 pop.	Nurse Practitioners	Cumulative	0	24	33	42	51	60	69	78	87	96	96
12		Pharmacist	Cumulative	0.0	6.7	9.2	11.7	14.3	16.8	19.3	21.8	24.3	26.8	26.8
13		Dietician	Cumulative	0.0	6.7	9.2	11.7	14.3	16.8	19.3	21.8	24.3	26.8	26.8
14		Psychologist/Counselor	Cumulative	0.0	6.7	9.2	11.7	14.3	16.8	19.3	21.8	24.3	26.8	26.8
15		Social Worker	Cumulative	0.0	3.4	4.6	5.9	7.1	8.4	9.6	10.9	12.2	13.4	13.4
16														
17	Growth	Population 'enrollment'	Annual	0	49,200	18,450	18,450	18,450	18,450	18,450	18,450	18,450	18,450	196,800
18	Growth	Nurse Practitioner	Annual	0	24	9	9	9	9	9	9	9	9	96
19	NOTES:	1	Patients forma	lly rostering	, with a Prim	ary Care Col	laborative T	eam Practice	2					

The <u>high case scenario</u> foresees the gradual and planned increase in rostering for the forecast period to a total of 196,800 people with the recruitment of 26.8 pharmacists.

2.5 Key Points on Primary Health-Care Teams

- Across Canadian jurisdictions, there is a growing interest and support for collaborative primary health-care teams. Similar support has been articulated in New Brunswick and by CAPSI. That notwithstanding, there has been some hesitancy in New Brunswick to shift to this model of care.
- Each collaborative team will be constituted by providers that align with local needs, functioning with a joint responsibility for quality and non-referred care. <u>There will not be a single model other than underpinning principles</u>, nor will there be a single provider group as a team leader.
- These models have been incorporated into this report with assumptions of provider and patient uptake. The model is constructed in such a way that the base case can be adjusted easily if the uptake accelerates or declines.



The Environmental Scan provides a review of the <u>pharmacy scope of practice and drug coverage in New</u> <u>Brunswick</u> - this included the following and warrants review:

- Pharmacist scope of practice by province 2022 (with subsets)
- Drug coverage in New Brunswick 2015
- New Brunswick drug plans and other government-sponsored plans 2018-2019 to 2021-2022

Expanded scope of practice is constituted by several activities and subsets, in particular prescribing authority for Schedule 1 drugs. This will impact the FTE needs-based requirements. Alberta is the only province to give pharmacists broad, independent prescribing authority for any Schedule 1 drug. Most other provinces allow pharmacists to alter the dose, formulation and regimen of a drug; renew prescriptions; substitute another drug for a prescribed Schedule 1 drug; administer flu and travel vaccines; and assess patients and prescribe for certain conditions independently.. The scope of practice used in this workforce planning model assumes that pharmacists will be allowed to initiate new Schedule 1 drug prescriptions under three circumstances: if they deem it appropriate after conducting a "patient assessment," if they've received a recommendation from an authorized health professional that drug therapy is warranted, or if, in consultation with a health professional, it is determined that a Schedule 1 drug or blood product is appropriate.

The consultancy surveyed a sample of three Alberta independent pharmacists and held discussions with the NBPA (Director of Professional Practice) on the impact of expanding scope of practice for Schedule 1 drug management. The consistent opinion expressed by all concerned was that there would be a 50% impact on pharmacist time due to expanded scope of practice. The tasks impacted include:

- Medication management
- Chronic disease management
- Communicating and educating other healthcare professionals
- Identifying adverse or incorrect medication usage,
- Issuing prescription refills on an emergency basis
- Counseling on medications

- Research
- Effectively optimizing a patient's understanding of their own medication regimens to enhance overall quality of life

The surveyed Alberta pharmacists noted that an appropriate payment model is a prerequisite for the expanded scope of practice and that the 50% time requirement is an average with some pharmacists spending longer than 50% of their time.

In the base case scenario, the forecast model assumes a 240-minute (50%) impact on the pharmacist workday, which translates to an increase of 419.28 FTE pharmacists. There is also an increase in 350.0 FTE pharmacy technicians necessary to meet the current shortage of supply highlighted repeatedly by those interviewed, which represents a need for one to two pharmacy technicians per pharmacist (the current average is only 0.30 FTE pharmacy technicians per 1.0 FTE pharmacist. By addressing the current deficit of 350.0 FTE and factoring in the other variables applied in the forecast model the ratio will change to 0.46 FTE pharmacy technician per 1.0 FTE pharmacist over the forecast period.

As seen in the Environmental Scan, the number of insurance claims for prescription drugs in New Brunswick since 2018/19 has increased 15.1% to 2021/22 or 5% per annum. Dispensing fees paid during the same time period have increased from 65.6M to 78.2M for an increase of 19.2% or 6.4% per annum. Pharmacy-administered publicly funded vaccines increase from 99,503 claims in 2019/20 to 895,000 claims in 2021/22 due to the pandemic.

Exhibit 3-01 Pharmacists' Scope of Practice by Jurisdiction 2023

PHARMACISTS' SCOPE OF PRACTICE IN CANADA

 Implemented in jurisdiction 	P Pending legislation, regulation or policy for implementation	n X	Not	lemente	d									
		BC	AB	SK	MB	ON	ac	NB	NS	PEI	NL	ΥT	NWT	NU
Prescriptive Authority	Independently, for any Schedule 1 drug	х	~	х	х	х	х	х	х	х	х	х	х	х
(Schedule 1 Drugs)	In a collaborative practice setting/agreement	х	~	~ *	~ *	х	\checkmark	~	\checkmark	х	х	х	х	х
Initiate ^{1,2}	For minor aliments/conditions	Р	~	~	4	\checkmark	\checkmark	~	\checkmark	~ *	~	\checkmark	х	х
	For smoking/tobacco cessation	х	\checkmark	\checkmark	*	\checkmark	\checkmark	\checkmark	\checkmark	~ *	\checkmark	\checkmark	х	х
	In an emergency	~ "	~	~ "	~ *	\checkmark	\checkmark	~	\checkmark	~	~ "	~ "	х	х
Adapt/ Manage ^{1,3}	Make therapeutic substitution	\checkmark	~	~ °	х	х	\checkmark	~	\checkmark	\checkmark	~	\checkmark	х	х
	Change drug dosage, formulation, regimen, etc.	~	~	~ *	~	~	~	~	~	~	~	~	х	х
	Renew/extend prescription for continuity of care	\checkmark	~	~	~	~	\checkmark	~	~	\checkmark	\checkmark	\checkmark	\checkmark	х
Injection Authority (SC or IM) ^{1,4}	Drugs ⁵	\sim	\checkmark	\checkmark	\checkmark	х	° 🖌	\checkmark	\checkmark	\checkmark	\checkmark	\checkmark	х	х
	Vaccines ⁵	\checkmark	\checkmark	\checkmark	\checkmark	\checkmark	\checkmark	\checkmark	\checkmark	~	\checkmark	\checkmark	х	х
	Influenza vaccine	\checkmark	\checkmark	\checkmark	\checkmark	\checkmark	\checkmark	\checkmark	\checkmark	\checkmark	\checkmark	\checkmark	х	х
Labs	Order and interpret lab tests	х	~	Ρ"	¹⁰ ¹⁰	х	\checkmark	Ρ	Ρ	~ ⁰	х	х	х	х
Techs	Regulated pharmacy technicians	\checkmark	\checkmark	\checkmark	¹⁶	\checkmark	х	\checkmark	\checkmark	\sim	\checkmark	х	х	х

1. Scope of activities, regulations, training requirements and/or limitations differ between jurisdictions. Please refer to the pharmacy regulatory authorities for details.

2. Initiate new prescription drug therapy, not including drugs covered under the Controlled Drugs and Substances Act.

3. Alter another prescriber's original/existing/current prescription for drug therapy.

4. Applies only to pharmacists with additional training, certification and/or authorisation through their regulatory authority.

5. Authority to inject may not include all drugs or vaccines. Please refer to the jurisdictional regulations.

6. Implementation planned for Spring of 2023.

7. Applies only to existing prescriptions, i.e., to provide continuity of care.

8. Pursuant to a Ministerial Order during a public health emergency.

9. Applies only to pharmacists working under collaborative practice agreements.

10. For education/demonstration purposes only.

11. Pending health system regulations for pharmacist requisitions to labs.

12. Authority is limited to ordering lab tests.

13. Authority limited to ordering blood tests. No authority to interpret tests.

14. Pharmacy technician registration available through the regulatory authority (no official licensing).

Canadian Association des

Canadian Pharmacists' Association

Forecast Reporting - Interpretation Key

Following is the interpretation key relevant to the forecast need tables in the next two sections of this report.

1. Column 1 Base Year FTE – 2022-2023 is the number of full-time equivalents measured in fiscal April 1, 2022 to March 31, 2023. FTE were assigned a value of 1.0 for full-time, 0.6 for part-time, and 0.2 FTE for casual.

2. Column 2 +/(-) (NIPM + RFA) Is the forecast change, over the ten-year forecast period ending March 31, 2033, in number of FTE due to net interprovincial migration (NIPM) and return from abroad (RFA). The rates of NIPM and RFA are obtained from the CIHI Database which tracks registered nurse (proxy for PH and PT) movement by province each year.

- <u>NIPM</u> Net Inter-Provincial Migration is the net number of health professionals leaving and returning to the province annually. The five-year average annual inter-provincial net migration in New Brunswick was a positive 1.79% (50% of the five-year average of registered nurses (proxy for pharmacists and pharmacy technicians) movement per annum.
- <u>RFA</u> Return from Abroad counts the number of registered nurses (proxy for pharmacists and pharmacy technicians) returning from abroad to practice in New Brunswick net of those having left to move abroad outside Canada. The annual number of registered nurses returning to practice in NB, net of those leaving NB to practice abroad, is negligible (0 net per annum – Source: CIHI).

3. Column 3 +/(-) **Aging Adjustment** is the forecast change, over the ten-year forecast period ending March 31, 2033, in number of FTE due to aging of the workforce. This takes into consideration the gradual tapering of FTE as they age leading up to a zero FTE value at full retirement (age 65 years).

4. Column 4 +/(-) **Death Rate Adjustment** is the forecast change, over the ten-year forecast period ending March 31, 2033, in the number of FTE due to forecast deaths in the workforce. Death rates are drawn from vital statistics adjusted for the income quintile of health professionals.

5. Column 5 +/(-) Work Status Adjustment is the forecast change, over the ten-year forecast period ending March 31, 2033, in number of FTE due to forecast change in work status due to temporary leaves, such as education, research, family, health and maternity/paternal responsibilities.

6. Column 6 Subtotal Replacement Needs is the sum of columns two through five and represents the forecast, for the ten-year forecast period ending 2032/33 (F10), replacement (due to aging, death, gender, and NIPM/RFA) FTE needs in the workforce. In the base case scenario this FTE replacement adjustment equals 4.13% per annum. In the low case scenario this adjustment is 3.83% per annum and 4.43% in the high case scenario.

7. Column 7 +/(-) Benchmark is the benchmarks for pharmacists and pharmacy technicians were drawn from CIHI national data as described in the preceding subsection on benchmarking.

8. Column 8 Adjusted FTE April 1, 2022 (Col 1+Col 7) is the sum of columns 1 and 7.

9. Column 9 +/(-) Change in Population is the percentage change in age- and gender-weighted population over the ten-year forecast period. In the base case scenario, this adjustment adds 0.66% per annum to the forecast FTE requirements. In the low case scenario, this adjustment adds 0.01% per annum to the forecast FTE requirements and 0.89% in the high case scenario.

10. Column 10 +/(-) Relative Burden of Illness is the relative percentage difference in burden of illness as indicated by the proxy measure, premature mortality rate (PMR). In the base case scenario, this adjustment adds 2.82% per annum to the forecast FTE requirements. In the low case scenario, this adjustment adds 2.0% per annum to the forecast FTE requirements and 3.0% in the high case scenario.

11. Column 11 PRE-MOC FTE (Col 8+9+10) Is the sum of columns 8, 9, and 10 and represents the cumulative forecast total prior to the application of assumptions regarding models of care (MOC).

12. Column 12 MOC - Primary Health Care is the adjustment to relevant health specialty FTEs based on the assumptions regarding the MOC for primary health care.

1**3. Column 13 MOC Scope of Practice** is the FTE adjustment to specialties based on the assumptions regarding the MOC defined as 'Scope of Practice'.

14. Column 15 Subtotal MOCs is the FTE subtotal of columns 12 and 13 for MOC's.

15. Column 16 Total FTE 2031/32 (Col 11+17) is the total forecast FTE as of March 31, 2033 and Is the sum of columns 11 (Subtotal Pre-MOC FTE) and 14 (Subtotal MOC's).⁶

16. Column **17** Change in FTE 2021/22 to 2031/32 (Col 16 (-) Col 1) is the difference in FTE's between Column 1 Base Year - 2022/23 (F0) and forecast year - 10 2032/33 (F10).

⁶The total need is the sum of columns 6 and 16 healthintelligenceinc and associates



5.1 Summary - Base Case Scenario 2022-2023 to 2032-2033

			<u>Juiii</u>	IIIary L	ase Ca			022-20	2310	2032-	2033						
PROVINCE WIDE SUMMARY - FORECAST		Base Year	2022/23,	Forecast '	(ears 2023	8/24 (F1)	- 2032/33 (F10)									
BASE CASE SCENARIO	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17
		WORKFO	ORCE RESO	URCE VAR	IABLES		HEALTH SY	STEM PLAN	INING REL	ATED VA	RIABLES						
SPECIALTY	BASE YEAR FTE - 2022/23	+/(-) NIPM & RFA	+/(-) Aging Adjustment	+/(-) Death Rate Adjustment	+/(-) Work Status Adjustment	SUBTOTAL: Replacement Needs	+/(-) Benchma rk	ADJUSTED FTE April 1, 2023 (Col 1+Col 7)	+/(-) Change in Population	+/(-) Relative Burden of Illness	PRE-MOC FTE (Col's 8+9+10)	MOC - Primary Health Care	MOC - Scope of Practice	SUBTOTAL : MOC's	TOTAL FTE - 2032/33 (Col 11+14)	CHANGE IN FTE 2022/23 to 2032/33 (Col 15 (-) Col 1)	TOTAL FTE NEEDS (Col. 16+Col.6)
Pharmacist-Acadie-Bathurst	75.20	(12.8)	18.19	2.68	6.28	14.31	8.81	84.01	0.75	21.17	105.93	2.00	42.01	44.00	149.94	74.74	89.05
Pharmacist-Beauséjour	272.40	(46.4)	92.26	12.86	23.01	81.77	(37.5)	234.91	22.57	54.13	311.61	5.71	117.46	123.17	434.78	162.38	244.15
Pharmacist-Fredericton & River Valley Area	178.60	(30.4)	74.44	9.85	14.61	68.52	21.73	200.33	14.80	35.49	250.61	4.76	100.16	104.93	355.54	176.94	245.46
Pharmacist-Fundy Shore & Saint John	195.40	(33.2)	78.88	9.51	16.21	71.43	(1.4)	193.98	16.19	38.83	249.00	4.66	96.99	101.65	350.64	155.24	226.67
Pharmacist-Madawaska & Northwest	39.80	(6.8)	9.82	1.51	3.40	7.89	12.04	51.84	0.40	11.20	63.44	1.22	25.92	27.14	90.58	50.78	58.67
Pharmacist-Miramichi	50.40	(8.5)	16.19	2.07	4.19	13.97	(3.2)	47.20	0.50	14.19	61.89	1.14	23.60	24.74	86.64	36.24	50.21
Pharmacist-Restigouche	32.80	(5.6)	13.19	1.77	2.64	12.01	(6.5)	26.28	0.33	9.23	35.84	0.64	13.14	13.78	49.62	16.82	28.83
Pharmacists Total	844.60	(143.7)	302.97	40.26	70.35	269.91	(6.0)	838.55	55.53	184.25	1,078.33	20.13	419.28	439.41	1,517.74	669.14	939.04
Pharmacy Technician-Acadie-Bathurst	22.60	(4.0)	1.43	0.22	1.81	(0.6)	3.87	26.47	0.23	6.36	33.05	0.00	35.06	35.06	68.12	45.52	44.97
Pharmacy Technician-Beauséjour	89.60	(15.7)	27.51	3.07	7.49	22.39	(13.9)	75.72	7.42	17.80	100.95	0.00	98.04	98.04	198.99	109.39	131.78
Pharmacy Technician-Fredericton & River Valley	48.00	(8.4)	15.27	1.69	4.01	12.54	15.09	63.09	3.98	9.54	76.60	0.00	83.61	83.61	160.21	112.21	124.75
Pharmacy Technician-Fundy Shore & Saint John	51.00	(9.0)	14.71	1.64	4.26	11.65	10.71	61.71	4.23	10.13	76.07	0.00	80.96	80.96	157.03	106.03	117.67
Pharmacy Technician-Madawaska & Northwest	6.80	(1.1)	1.24	0.26	0.60	0.96	9.35	16.15	0.07	1.91	18.13	0.00	21.63	21.63	39.76	32.96	33.92
Pharmacy Technician-Miramichi	14.00	(2.5)	11.50	0.90	1.11	11.01	1.10	15.10	0.14	3.94	19.18	0.00	19.70	19.70	38.88	24.88	35.88
Pharmacy Technician-Restigouche	16.60	(2.9)	1.02	0.15	1.26	(0.5)	(8.1)	8.53	0.17	4.67	13.37	0.00	10.97	10.97	24.34	7.74	7.25
Pharmacy Technicians Total	248.60	(43.7)	72.68	7.94	20.55	57.50	18.16	266.76	16.22	54.37	337.35	0.00	349.97	349.97	687.32	438.72	496.22
TOTAL	1,093.20	(187.4)	375.66	48.20	90.91	327.40	12.11	1,105.31	71.75	238.62	1,415.68	20.13	769.2	789.38	2,205.06	1,107.86	1,435.26
% Change per Appun						0.000/	0 4 4 0/		0.000/	0.400/	0.050/	0.00/	7 0 40/	7 000/		40 400/	

Exhibit 5-01 Summary Base Case Scenario 2022-2023 to 2032-2033

The <u>base case ten-year forecast</u> scenario to March 31, 2033 calls for an increase of 1,107.86 (Col. 16) FTE (10.13% per annum growth) for pharmacists and pharmacy technicians across all health zones. The base case forecast increase of 1,107.86 FTE is contingent on continued and accelerated reform in primary health care, hinging on deepening and broadening pharmacists' involvement in primary care delivery and an expanded inclusive scope of practice.

The forecast turnover due to retirement, migration out of province, work status shift, and death rate is 327.40 FTE or 32.7 FTE per annum (2.99% per annum). Forecast turnover is simply the number of FTE expected to retire, relocate out of province, and change in work status (temporary leaves). The province must recruit 110.8.0 FTE growth per annum plus replace 32.7 FTE per annum for a total of 143.5 FTE recruitments per annum.

5.2 Summary Low Case Scenario 2022-2023 to 2032-2033

Exhibit 5-02 Summary Low Case Scenario 2022-2023 to 2032-2033

PROVINCE WIDE SUMMARY - FORECAST Base Year 2022/23, Forecast Years 2023/24 (F1) - 2032/33 (F10)																	
LOW CASE SCENARIO	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17
		WORKFO	ORCE RESO	URCE VAR	IABLES		HEALTH SY	STEM PLAN	NING REL	ATED VA	RIABLES						
SPECIALTY	BASE YEAR FTE - 2022/23	+/(-) NIPM & RFA	+/(-) Aging Adjustment	+/(-) Death Rate Adjustment	+/(-) Work Status Adjustment	SUBTOTAL: Replacement Needs	+/(-) Benchma rk	ADJUSTED FTE April 1, 2023 (Col 1+Col 7)	+/(-) Change in Population	+/(-) Relative Burden of Illness	PRE-MOC FTE (Col's 8+9+10)	MOC - Primary Health Care	MOC - Scope of Practice	SUBTOTAL : MOC's	TOTAL FTE 2032/33 (Col 11+14)	CHANGE IN FTE 2022/23 to 2032/33 (Col 15 (-) Col 1)	TOTAL FTE NEEDS (Col. 16+Col.6)
Pharmacist-Acadie-Bathurst	75.20	(11.6)	16.06	2.41	6.91	13.82	8.00	83.20	0.00	15.37	98.58	1.33	31.20	32.53	131.11	55.91	69.73
Pharmacist-Beauséjour	272.40	(41.7)	82.68	11.58	25.31	77.84	(39.8)	232.59	0.01	40.54	273.14	3.81	87.22	91.03	364.17	91.77	169.61
Pharmacist-Fredericton & River Valley Area	178.60	(27.4)	67.03	8.87	16.07	64.62	19.79	198.39	0.01	26.58	224.98	3.17	74.40	77.57	302.55	123.95	188.57
Pharmacist-Fundy Shore & Saint John	195.40	(29.9)	71.34	8.56	17.83	67.88	(3.3)	192.09	0.01	29.08	221.17	3.10	72.03	75.14	296.31	100.91	168.79
Pharmacist-Madawaska & Northwest	39.80	(6.2)	8.80	1.36	3.74	7.74	11.54	51.34	0.00	10.09	61.43	0.81	19.25	20.07	81.50	41.70	49.44
Pharmacist-Miramichi	50.40	(7.6)	14.57	1.86	4.61	13.41	(3.7)	46.74	0.00	10.30	57.04	0.76	17.53	18.29	75.33	24.93	38.34
Pharmacist-Restigouche	32.80	(5.0)	11.84	1.60	2.90	11.31	(6.8)	26.02	0.00	6.70	32.72	0.43	9.76	10.19	42.91	10.11	21.42
Pharmacists Total	844.60	(129.3)	272.32	36.23	77.39	256.63	(14.2)	830.37	0.03	138.67	969.07	13.42	311.39	324.81	1,293.88	445.28	701.91
Pharmacy Technician-Acadie-Bathurst	22.60	(3.6)	1.21	0.20	1.99	(0.2)	1.67	24.27	0.00	4.62	28.89	0.00	26.04	26.04	54.94	32.34	32.13
Pharmacy Technician-Beauséjour	89.60	(14.1)	25.00	2.77	8.24	21.89	(20.2)	69.45	0.00	13.34	82.79	0.00	72.80	72.80	155.59	65.99	87.88
Pharmacy Technician-Fredericton & River Valley	48.00	(7.6)	13.88	1.52	4.41	12.22	9.86	57.86	0.00	7.14	65.01	0.00	62.10	62.10	127.11	79.11	91.33
Pharmacy Technician-Fundy Shore & Saint John	51.00	(8.1)	13.35	1.48	4.69	11.44	5.60	56.60	0.00	7.59	64.19	0.00	60.13	60.13	124.31	73.31	84.75
Pharmacy Technician-Madawaska & Northwest	6.80	(1.0)	1.05	0.24	0.66	0.92	8.01	14.81	0.00	1.72	16.53	0.00	16.07	16.07	32.61	25.81	26.72
Pharmacy Technician-Miramichi	14.00	(2.3)	10.68	0.81	1.22	10.45	(0.2)	13.84	0.00	2.86	16.71	0.00	14.63	14.63	31.34	17.34	27.79
Pharmacy Technician-Restigouche	16.60	(2.6)	0.87	0.14	1.39	(0.2)	(8.8)	7.83	0.00	3.39	11.22	0.00	8.14	8.14	19.36	2.76	2.52
Pharmacy Technicians Total	248.60	(39.3)	66.04	7.15	22.61	56.48	(3.9)	244.66	0.01	40.67	285.34	0.00	259.92	259.92	545.25	296.65	353.14
TOTAL	1,093.20	(168.6)	338.36	43.38	100.00	313.11	(18.2)	1,075.03	0.04	179.33	1,254.41	13.42	571.3	584.73	1,839.14	741.94	1,055.05
% Change per Annum						2.86%	(0.17%)		0.00%	1.64%	1.47%	0.1%	5.23%	5.35%		6.79%	

The <u>low case ten-year forecast</u> scenario to March 31, 2033 calls for an increase of 741.94 FTE (6.79% per annum increase) for pharmacists and pharmacy technicians across all health zones. The low case forecast increase of 741.94 FTE includes 13.42 FTE (Col. 12) for PHC collaborative team members assuming a slower implementation of primary health care reform than in the base and high case scenarios and 571.3 (Col.13) FTE increase for scope of practice changes. The forecast turnover due to retirement, migration out of province, change in work status, and death rate is 313.11 FTE or 41.3 FTE per annum (2.86% per annum). Forecast turnover is simply the number of FTE expected to retire, relocate out of province, and change work status (temporary leaves). The province must recruit 74.0 FTE growth per annum plus replace 31.3 FTE per annum for a total recruitment of 105.5 FTE per annum.

5.3 Summary High Case Scenario 2022-2023 to 2032-2033

Exhibit 5-03 Summary High Case Scenario 2022-2023 to 2032-2033

ROVINCE WIDE SUMMARY - FORECAST Base Year 2022/23, Forecast Years 2023/24 (F1) - 2032/33 (F10)																	
HIGH CASE SCENARIO	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17
		WORKFO	ORCE RESO	URCE VAR	IABLES		HEALTH SY	STEM PLAN	NING REL	ATED VAI	RIABLES						
SPECIALTY	BASE YEAR FTE - 2022/23	+/(-) NIPM & RFA	+/(-) Aging Adjustment	+/(-) Death Rate Adjustment	+/(-) Work Status Adjustment	SUBTOTAL: Replacement Needs	+/(-) Benchma rk	ADJUSTED FTE April 1, 2023 (Col 1+Col 7)	+/(-) Change in Population	+/(-) Relative Burden of Illness	PRE-MOC FTE (Col's 8+9+10)	MOC - Primary Health Care	MOC - Scope of Practice	SUBTOTAL : MOC's	TOTAL FTE - 2032/33 (Col 11+14)	CHANGE IN FTE 2022/23 to 2032/33 (Col 15 (-) Col 1)	TOTAL FTE NEEDS (Col. 16+Col.6)
Pharmacist-Acadie-Bathurst	75.20	(14.1)	20.32	2.95	5.66	14.79	20.93	96.13	3.69	22.54	122.36	2.66	52.07	54.73	177.09	101.89	116.68
Pharmacist-Beauséjour	272.40	(51.0)	101.84	14.15	20.71	85.70	(2.8)	269.57	28.49	73.26	371.32	7.62	146.02	153.64	524.96	252.56	338.26
Pharmacist-Fredericton & River Valley Area	178.60	(33.4)	81.86	10.84	13.15	72.42	50.61	229.21	18.68	48.04	295.92	6.35	124.15	130.50	426.42	247.82	320.24
Pharmacist-Fundy Shore & Saint John	195.40	(36.5)	86.42	10.46	14.59	74.99	26.83	222.23	20.43	52.55	295.21	6.21	120.37	126.58	421.80	226.40	301.38
Pharmacist-Madawaska & Northwest	39.80	(7.5)	10.85	1.66	3.06	8.04	19.43	59.23	(0.0)	11.93	71.16	1.62	32.08	33.71	104.87	65.07	73.11
Pharmacist-Miramichi	50.40	(9.3)	17.81	2.27	3.77	14.53	3.71	54.11	2.47	15.11	71.69	1.52	29.31	30.83	102.52	52.12	66.65
Pharmacist-Restigouche	32.80	(6.1)	14.53	1.95	2.38	12.72	(2.6)	30.18	1.61	9.83	41.62	0.86	16.35	17.21	58.83	26.03	38.75
Pharmacists Total	844.60	(158.0)	333.63	44.28	63.32	283.18	116.07	960.67	75.36	233.26	1,269.29	26.84	520.36	547.20	1,816.50	967.90	1,251.08
Pharmacy Technician-Acadie-Bathurst	22.60	(4.4)	1.64	0.24	1.63	(0.9)	13.73	36.33	1.11	6.77	44.21	0.00	43.46	43.46	87.68	65.08	64.18
Pharmacy Technician-Beauséjour	89.60	(17.3)	30.02	3.38	6.74	22.89	14.35	103.95	9.37	24.10	137.41	0.00	121.88	121.88	259.30	169.70	192.58
Pharmacy Technician-Fredericton & River Valley	48.00	(9.3)	16.66	1.86	3.61	12.85	38.61	86.61	5.02	12.91	104.54	0.00	103.63	103.63	208.17	160.17	173.02
Pharmacy Technician-Fundy Shore & Saint John	51.00	(9.9)	16.08	1.81	3.84	11.85	33.71	84.71	5.33	13.72	103.76	0.00	100.47	100.47	204.24	153.24	165.09
Pharmacy Technician-Madawaska & Northwest	6.80	(1.3)	1.42	0.29	0.54	0.99	15.37	22.17	(0.0)	2.04	24.21	0.00	26.78	26.78	50.99	44.19	45.18
Pharmacy Technician-Miramichi	14.00	(2.8)	12.33	0.99	1.00	11.56	6.72	20.72	0.69	4.20	25.61	0.00	24.47	24.47	50.07	36.07	47.63
Pharmacy Technician-Restigouche	16.60	(3.2)	1.18	0.17	1.14	(0.7)	(4.9)	11.72	0.81	4.98	17.51	0.00	13.65	13.65	31.15	14.55	13.81
Pharmacy Technicians Total	248.60	(48.1)	79.33	8.73	18.50	58.51	117.60	366.20	22.33	68.71	457.24	0.00	434.34	434.34	891.59	642.99	701.50
TOTAL	1,093.20	(206.1)	412.96	53.02	81.82	341.69	233.67	1,326.87	97.69	301.97	1,726.54	26.84	954.7	981.55	2,708.09	1,610.89	1,952.58
% Change per Annum						3.13%	2.14%		0.89%	2.76%	5.79%	0.2%	8.73%	8.98%	*******	14.74%	

The <u>high case ten-year forecast</u> scenario to March 31, 2033 calls for an increase of 1,610.89 FTE (14.74% per annum increase) for pharmacists and pharmacy technicians across all health zones. The high case forecast increase of 1,610.89 FTE assumes continued and accelerated reform in primary health care and an expanded scope of pharmacist practice. The forecast turnover due to retirement, migration out of province, work status, and death rate is 341.69 FTE or 34.1 FTE per annum (3.13% per annum). Forecast turnover is simply the number of FTE expected to retire, relocate out of province, and change work status (temporary leaves). The province must recruit 161.0 FTE growth per annum plus replace 34.1 FTE per annum for a total recruitment of 195.1 FTE per annum.

Provincial Forecast Need Summary

The following exhibit is a <u>ten-year summary</u> of the <u>low, base, and high case</u> scenarios for provincial pharmacy workforce planning from 2022/23 to 2032/33. The <u>low case</u> scenario sees an annual percent increase in the workforce of 6.79% (Col.16), the base case annual increase is 10.13%, and the high case scenario is 14.74%. The pending change in <u>scope of practice (Col.13) is the single biggest factor</u> in each scenario in terms of annual percentage growth; low case 5.2%, base case 7.04%, and high case 8.7%. The next biggest factor in each scenario is changes in burden of illness <u>(Col. 10)</u> with 1.6% in the low case, 2.18% in the base case, and 2.76% in the high case scenario. Another integral factor is the change in <u>age-gender-adjusted population growth</u> with an increase of 0.0% in the low case scenario, 0.66% in the base case, and 0.89% in the high case scenario.

The <u>annual turnover</u> in the workforce due to aging, death, work status, and net interprovincial migration (NIPM)/ return from abroad (RFA) is 2.9% in the low case, 2.99% in the base case, and 3.1% in the high case scenario. Recruitment for <u>annual replacement needs (Col. 6)</u> is the number of FTEs that must be recruited per annum to maintain the workforce at its current level.

Exhibit 6-01 <u>Province-Wide Summary by Scenario</u> base year 2022-2023 (F 0) --- forecast years 2023-2024 (F 1) to 2032-2033 (F 10)

PROVINCE WIDE SUMMARY - FORECAST		Base Year	2022/23,	Forecast \	ears 2023	6/24 (F1) ·	2032/33 (F10)									
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17
		WORKFC	RCE RESC	OURCE VAR	IABLES		HEALTH SY	STEM PLAN	NING REL	ATED VA	RIABLES						
SPECIALTY	BASE YEAR FTE - 2022/23	+/(-) NIPM & RFA	+/(-) Aging Adjustment	+/(-) Death Rate Adjustment	+/(-) Work Status Adjustment	SUBTOTAL: Replacement Needs	+/(-) Benchma rk	ADJUSTED FTE April 1, 2023 (Col 1+Col 7)	+/(-) Change in Population	+/(-) Relative Burden of Illness	PRE-MOC FTE (Col's 8+9+10)	MOC - Primary Health Care	MOC - Scope of Practice	SUBTOTAL : MOC's	TOTAL FTE - 2032/33 (Col 11+14)	CHANGE IN FTE 2022/23 to 2032/33 (Col 15 (-) Col 1)	TOTAL FTE NEEDS (Col. 16+Col.6)
BASE CASE SCENARIO	1,093.20	(187.4)	375.66	48.20	90.91	327.40	12.11	1,105.31	71.75	238.62	1,415.68	20.13	769.2	789.38	2,205.06	1,107.86	1,435.26
ANNUAL % CHANGE						2.99%	0.11%		0.66%	2.18%	2.95%	0.18%	7.04%	7.22%		10.13%	
LOW CASE SCENARIO ANNUAL % CHANGE	1,093.20	(168.6)	338.36	43.38	100.00	313.11 2.9%	(18.2) -0.2%	1,075.03	0.04 0.0%	179.33 1.6%	1,254.41 1.5%	13.42 0.1%	571.3 5.2%	584.73 5.3%	1,839.14	741.94 6.79%	1,055.05
HIGH CASE SCENARIO ANNUAL % CHANGE	1,093.20	(206.1)	412.96	53.02	81.82	341.69 3.1%	233.67 2.1%	1,326.87	97.69 0.89%	301.97 2.76%	1,726.54 5.8%	26.84 0.2%	954.7 8.7%	981.55 9.0%	2,708.09	1,610.89 14.74%	1,952.58



Forecast Net Surplus/(Deficit) in Supply

The following exhibit is the 10-year Net Surplus/ (Deficit) in supply (column 18) in the base case forecast scenario compared to expected supply (column 17). 327 (column 6) are required to maintain the current workforce at its current level and 1,107 (column 16) are needed for growth requirements. The 10-year forecast workforce supply (column 17) is 510 for pharmacists (based on Exhibit 1-07). The net deficit in supply is (429) over the ten-year forecast or (43) per year. Current supply, 510 over ten-year forecast, is enough to cover replacement needs (column 6) and the change in population (column 9) but is insufficient to cover Burden of Illness (column 10) and Model of Care (columns 12 and 13) requirements.

Exhibit 7-01 <u>Province-Wide Forecast Summary</u> base year 2022-2023 (F 0) - - - forecast years 2023-2024 (F 1) to 2032-2033 (F 10)

PROVINCE WIDE SUMMARY - FORE	OVINCE WIDE SUMMARY - FORECAST Base Year 2022/23, Forecast Years 2023/24 (F1) - 2032/33 (F10)																		
BASE CASE SCENARIO	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19
		WORKFC	ORCE RESO	URCE VAR	IABLES		HEALTH SY	STEM PLAN	NING REL	ATED VA	RIABLES								
SPECIALTY	BASE YEAR FTE - 2022/23	+/(-) NIPM & RFA	+/(-) Aging Adjustment	+/(-) Death Rate Adjustment	+/(-) Work Status Adjustment	SUBTOTAL: Replacement Needs	+/(-) Benchma rk	ADJUSTED FTE April 1, 2023 (Col 1+Col 7)	+/(-) Change in Population	+/(-) Relative Burden of Illness	PRE-MOC FTE (Col's 8+9+10)	MOC - Primary Health Care	MOC - Scope of Practice	SUBTOTAL : MOC's	TOTAL FTE - 2032/33 (Col 11+14)	CHANGE IN FTE 2022/23 to 2032/33 (Col 15 (-) Col 1)	TOTAL FTE NEEDS (Col. 16+Col.6)	10-Year Workforce Supply	10 Year - Net Surplus/ (Deficit) (Col. 18- Col. 17)
Pharmacist-Acadie-Bathurst	75.20	(12.8)	18.19	2.68	6.28	14.31	8.81	84.01	0.75	21.17	105.93	2.00	42.01	44.00	149.94	74.74	89.05		
Pharmacist-Beauséjour	272.40	(46.4)	92.26	12.86	23.01	81.77	(37.5)	234.91	22.57	54.13	311.61	5.71	117.46	123.17	434.78	162.38	244.15		
Pharmacist-Fredericton & River Valley Are	178.60	(30.4)	74.44	9.85	14.61	68.52	21.73	200.33	14.80	35.49	250.61	4.76	100.16	104.93	355.54	176.94	245.46		
Pharmacist-Fundy Shore & Saint Joh	195.40	(33.2)	78.88	9.51	16.21	71.43	(1.4)	193.98	16.19	38.83	249.00	4.66	96.99	101.65	350.64	155.24	226.67		
Pharmacist-Madawaska & Northwe	39.80	(6.8)	9.82	1.51	3.40	7.89	12.04	51.84	0.40	11.20	63.44	1.22	25.92	27.14	90.58	50.78	58.67		
Pharmacist-Miramichi	50.40	(8.5)	16.19	2.07	4.19	13.97	(3.2)	47.20	0.50	14.19	61.89	1.14	23.60	24.74	86.64	36.24	50.21		
Pharmacist-Restigouche	32.80	(5.6)	13.19	1.77	2.64	12.01	(6.5)	26.28	0.33	9.23	35.84	0.64	13.14	13.78	49.62	16.82	28.83		
Pharmacists Total	844.60	(143.7)	302.97	40.26	70.35	269.91	(6.0)	838.55	55.53	184.25	1,078.33	20.13	419.28	439.41	1,517.74	669.14	939.04	510.00	(429.0)
Pharmacy Technician-Acadie-Bathu	22.60	(4.0)	1.43	0.22	1.81	(0.6)	3.87	26.47	0.23	6.36	33.05	0.00	35.06	35.06	68.12	45.52	44.97		
Pharmacy Technician-Beauséjour	89.60	(15.7)	27.51	3.07	7.49	22.39	(13.9)	75.72	7.42	17.80	100.95	0.00	98.04	98.04	198.99	109.39	131.78		0.627
Pharmacy Technician-Fredericton & River	48.00	(8.4)	15.27	1.69	4.01	12.54	15.09	63.09	3.98	9.54	76.60	0.00	83.61	83.61	160.21	112.21	124.75		
Pharmacy Technician-Fundy Shore & Saint	51.00	(9.0)	14.71	1.64	4.26	11.65	10.71	61.71	4.23	10.13	76.07	0.00	80.96	80.96	157.03	106.03	117.67		
Pharmacy Technician-Madawaska & North	6.80	(1.1)	1.24	0.26	0.60	0.96	9.35	16.15	0.07	1.91	18.13	0.00	21.63	21.63	39.76	32.96	33.92		
Pharmacy Technician-Miramichi	14.00	(2.5)	11.50	0.90	1.11	11.01	1.10	15.10	0.14	3.94	19.18	0.00	19.70	19.70	38.88	24.88	35.88		
Pharmacy Technician-Restigouche	16.60	(2.9)	1.02	0.15	1.26	(0.5)	(8.1)	8.53	0.17	4.67	13.37	0.00	10.97	10.97	24.34	7.74	7.25		
Pharmacy Technicians Total	248.60	(43.7)	72.68	7.94	20.55	57.50	18.16	266.76	16.22	54.37	337.35	0.00	349.97	349.97	687.32	438.72	496.22	260.00	(236.2)
TOTAL	1,093.20	(187.4)	375.66	48.20	90.91	327.40	12.11	1,105.31	71.75	238.62	1,415.68	20.13	769.2	789.38	2,205.06	1,107.86	1,435.26	770.00	(665.3)
% Change per Annum						2.99%	0.11%		0.66%	2.18%	2.95%	0.2%	7.04%	7.22%		10.13%			

The expected supply for <u>pharmacy technicians</u> is 260 for the ten-year forecast period (26 per year graduating from the New Brunswick Community College; Exhibit 1-08). The deficit of supply (col.18) is 236.2 FTE or 23.6 FTE per year.



Recommendations

The impact of a Workforce Plan for Pharmacy in New Brunswick is far-reaching and extends to all pharmacy services, pharmacists, and pharmacy technicians in the province. Successful implementation, first and foremost, requires a 'systems and patient-centric' approach. A systems approach fosters system-wide integration, coordination, and collaboration. A patient-centric approach fosters quality of care in its broadest sense.

The 14 recommendations are organized using the following sections:

- A Transition to Implementation
- B Stakeholder Engagement
- C Workforce Planning Methodology
- D Maintaining the Workforce Planning Model
- **E** Influencing and Managing the Future Supply of Pharmacy Professionals

٨	Transition to Implementation
A	It is recommended that:
A-01	The base case workforce resource plan and forecast form the strategic framework, navigational direction, and plan for pharmacist and pharmacy technician workforce resources in New Brunswick to 2033.
A-02	Provincial program oversight be adopted to execute an approved workforce plan, including meeting the plan targets.
A-03	The accessibility of pharmacist and pharmacy technician services in the French language be recognized as essential in New Brunswick .
A-04	The New Brunswick Pharmacists' Association (NBPA) engage with the Department of Health to ensure NBPA advice, input, and participation is obtained in the implementation of primary health-care reform involving the pharmacy profession.
A-05	The workforce planning ten-year forecasts and the annual forecast should be compared, bi-annually, to actual results.

D	Stakeholder Engagement
D	It is recommended that:
B-01	The implementation of the workforce plan and its ongoing management be led by a steering committee with representation from the Department of Health, Vitalité Health Network, Horizon Health Network,New Brunswick Pharmacists' Association, and New Brunswick College of Pharmacists.

С	Workforce Planning Methodology		
	It is recommended that:		
C-01	An adjusted population need-based methodology for allocating resources is based on population need rather than demand-based planning using extant utilization data.		

D	Maintaining the Workforce Planning Model				
	It is recommended that:				
D-01	New Brunswick Pharmacists' Association, working with relevant stakeholders, maintain and evaluate regularly the workforce planning model.				
D-02	The workforce planning model 'Workforce Resource Variables' be maintained as follows:				
	 Net Interprovincial Migration and Return from Abroad Adjustment be maintained through CIHI-sourced data and information 				
	 Aging Adjustment be maintained annually through the planning model Master Roster updating and analysis 				
	• Death Rate Adjustment be maintained annually through updates from Vital Statistics and adjusted for relative rates in the subpopulation of the pharmacy professions				
	 Benchmark FTE Adjustment be maintained by the New Brunswick Pharmacists' Association and treated as workforce planning model boundaries (Low, Base, and High) 				
	• Change in population be maintained consistent with government age- and gender-weighted population forecasts at the health zone level of detail				
	 Accessibility of French language services be monitored carefully with supply adjustments implemented whenever required 				
	 Relative Burden of Illness be maintained with annual updates from Statistics Canada on premature mortality rates 				
	 Model of Care Primary Health Care be maintained according to information provided by the Department of Health 				
	 Model of Care Scope of Practice be updated annually from Department of Health and provincial program committees 				

E	Influencing and Managing the Future Supply of Pharmacy Professionals		
	It is recommended that:		
E-01	The Department of Health take a lead role in advocating at provincial/territorial and pan-Canadian levels for an evidence-based increase in the national supply of pharmacists relative to population needs; in particular supply relative to population need in primary care reform and scope of practice enhancements.		
E-02	Relevant stakeholders, determined by New Brunswick Pharmacists' Association as necessary, identify opportunities through regional pharmacy programs to attract and graduate more pharmacy students from New Brunswick in consideration of this planning model.		
E-03	Relevant stakeholders, determined by New Brunswick Pharmacists' Association as necessary, review the size of the pharmacy technician program in consideration of this planning model.		
E-04	The New Brunswick Departments of Health and Education and Training, New Brunswick College of Pharmacists, and New Brunswick Pharmacists' Association meet with New Brunswick Community College to jointly review the size of the pharmacy technician program in consideration of this planning model.		
E-05	International pharmacist recruitment and policy be reviewed in the context of a rapidly expanding national pharmacist need and the program size and priorities be realigned to the needs of the workforce plan.		



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Exhibit A-01 Index of Exhibits

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Workforce Planning for Pharmacists and Pharmacy Technicians in New Brunswick

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