Practice Points

May – Nov 2021

Volume 9

Quality of Care NL

The right treatment, for the right patient, at the right time.

Choosing Wisely NL™

Our partnership with Choosing Wisely Canada builds upon established national guidelines and recommendations that cross all disciplines to support the reduction of low-value health care, particularly where harms outweigh benefits.

Health Accord for Newfoundland & Labrador

A task force on health, reimagining health care in Newfoundland and Labrador.

Health System Performance in NL

Effects of COVID-19 in NL

NEWFOUNDLAND AND LABRADOR SUPPORT
Support for People and Patient Oriented Research and Trials

Quality of Care NL

Who We Are

Quality of Care NL is an applied health systems research and evaluation program aimed at improving the quality of care delivered in Newfoundland and Labrador (NL). We work to ensure the right treatment gets to the right patient at the right time.

Our partnership with Choosing Wisely Canada builds upon established national guidelines and recommendations that cross all disciplines to support the reduction of low-value health care, particularly where harms outweigh benefits. This work is carried out by Quality of Care NL on behalf of Choosing Wisely NL.

Our Approach

Our research and evaluation projects are centered on health care system priorities and are directed by many partners within the system. Project ideas are generated by health care providers, managers, policy decision-makers, and patients all with questions on how the system can be improved to deliver better quality care.

Quality of Care NL works with project teams to define methodologies, analyze data, provide clinical interpretation, and engage patients to ensure project outcomes are meaningful. We work with and engage all stakeholders to encourage the implementation of evidence-based research and evaluation outcomes through interventions that make it easier to determine the best course of treatment.

Do you have an idea for delivering improved quality of care? Let us help.

For more information on our projects and what we can do to move your idea forward, please contact:

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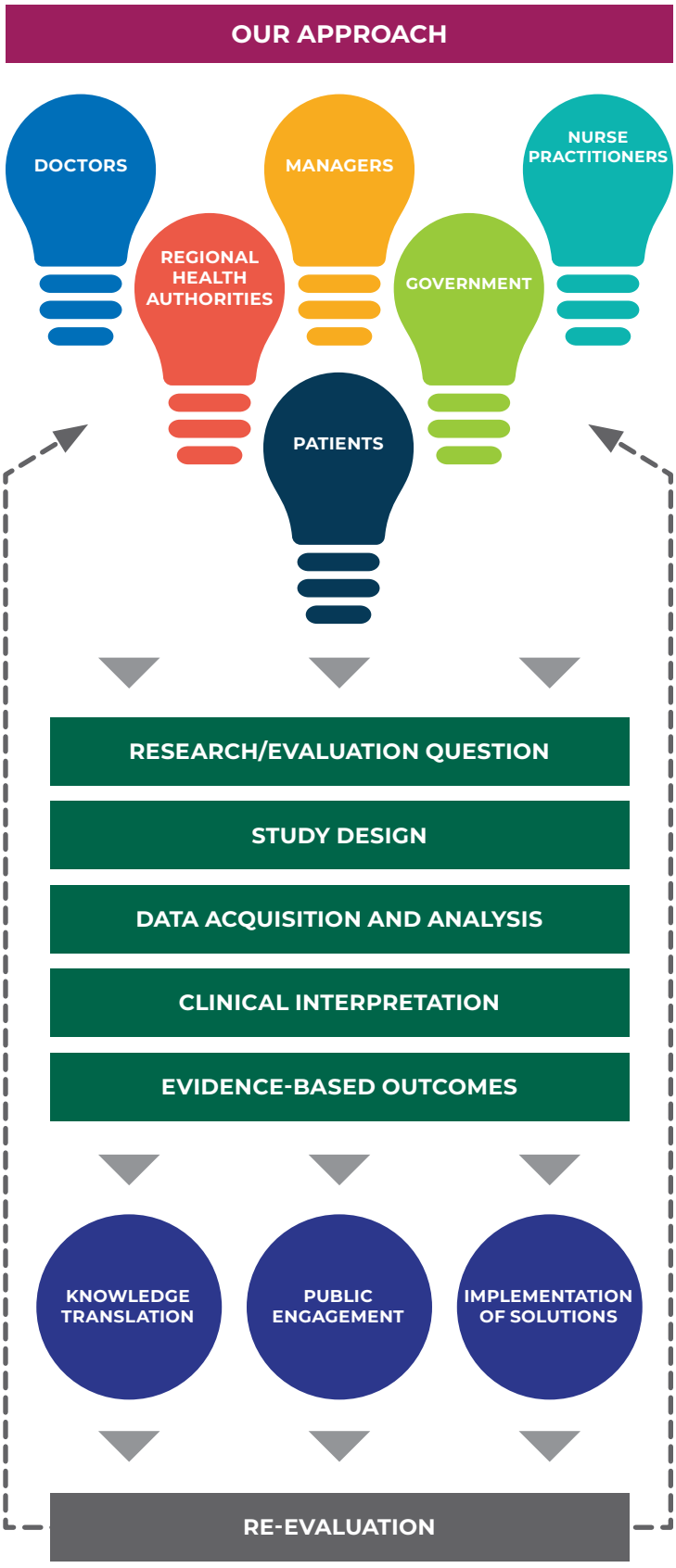

Practice Points Volume 9

Preface

The work published in Practice Points Volume 9 is a combination of work completed as part of the standard agenda for Quality of Care NL, Choosing Wisely NL and NL SUPPORT, as well as the agenda for Health Accord NL, the provincial Task Force on Health.

Health Accord NL was announced in November 2020 by Premier Andrew Furey and the Honourable John Haggie, Minister of Health and Community Services. Dr. Patrick Parfrey and Sister Elizabeth Davis were named Co-Chairs of Health Accord NL.

Supporting the work of Health Accord NL are various stakeholders with specific capacity, skills and expertise. Such organizations include the Government of Newfoundland and Labrador, Regional Health Authorities, NL Centre for Health Information, and Quality of Care NL.

The Health Accord Report was submitted to the Premier and the Minister in February 2022. The Report may be found here, www.healthaccordnl.ca/final-reports/.

Section 1 of this Volume is work completed by Health Accord NL supported in part by Quality of Care NL.

For more information on Health Accord NL, please visit www.healthaccordnl.ca.

Quality of Care NL

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5. NL SUPPORT

Why is Radical Change Necessary in the Health and Social Systems of NL?

Objective

To use evidence, strategies, and public engagement to create a 10-year Health Accord that will improve health in Newfoundland and Labrador, and do so within the fiscal envelope of the province.

Practice Points

1. The vision of Health Accord NL is to improve health and health outcomes of Newfoundlanders and Labradorians through acceptance of and interventions in social determinants of health, and a higher quality health system that balances community, hospital, and long-term care services.

2. Economic development is dependent on the health of the population; poverty predisposes to ill health.

3. There is a compelling case for change because we are exposed to a health crisis, substantial demographic change has occurred, sustainability of the current model of health care is questionable, the province has a fiscal crisis, and climate change is already affecting Labrador.

Results

A. Health Outcomes

Source: Dr. Dan Dutton

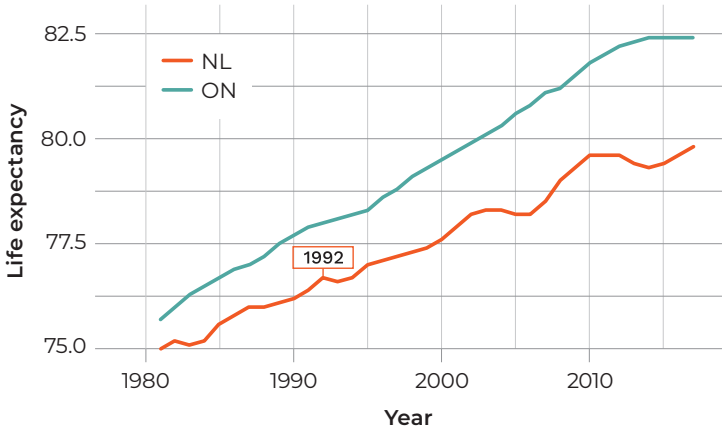


Figure 1. Life Expectancy (NL vs. ON), 1981–2018

- NL's life expectancy in 1981 compared to ON was one year less, and in 2018 it was 2.4 years.

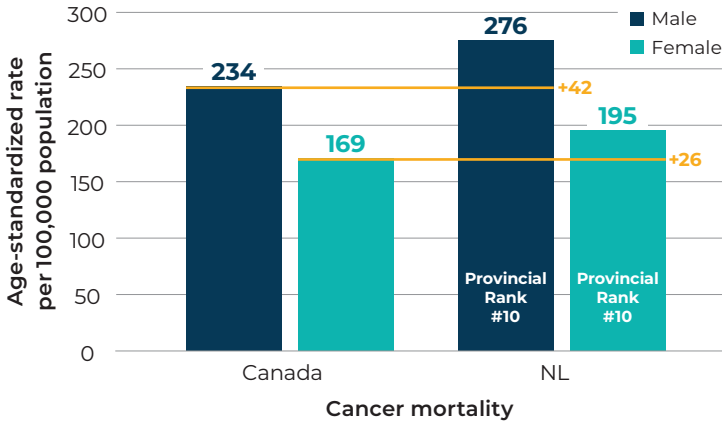


Figure 2A. Age-Standardized Rate Per 100,000 Population of Cancer Mortality in NL and Canada (2018)

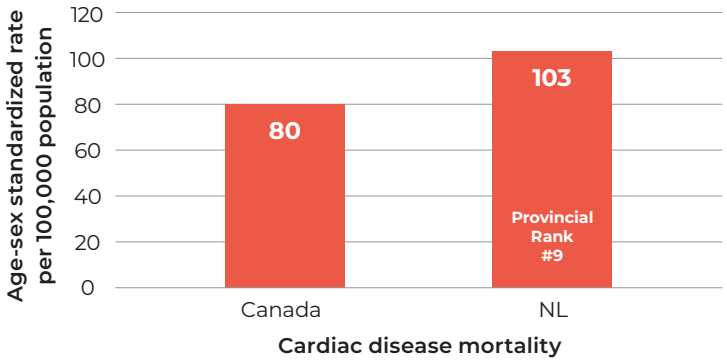


Figure 2B. Age-Sex Standardized Rate Per 100,000 Population of Cardiac Disease Mortality in NL and Canada (2018)

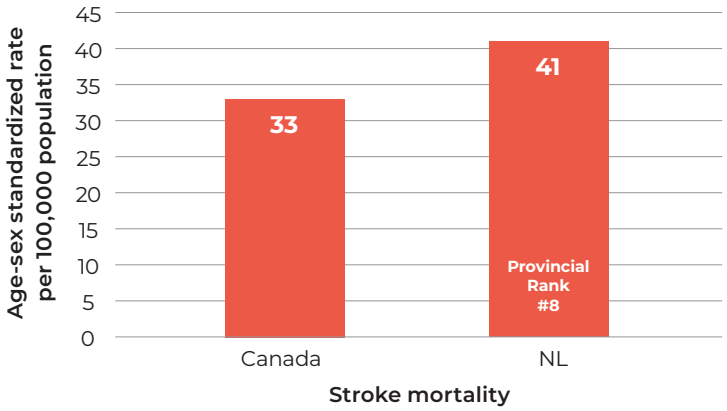


Figure 2C. Age-Sex Standardized Rate Per 100,000 Population of Stroke Mortality in NL and Canada (2018)

- NL's age-sex standardized cancer mortality for men and women is the highest in Canada, cardiac disease mortality ranks 9th of the 10 provinces, and stroke mortality ranks 8th.

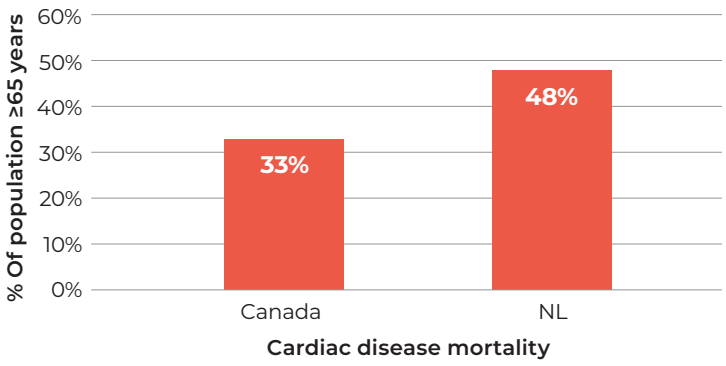


Figure 3. Per Cent with ≥3 Chronic Conditions Reported by Seniors in NL and Canada, 2018

- Per cent of seniors in NL with ≥3 chronic conditions is the highest in Canada.

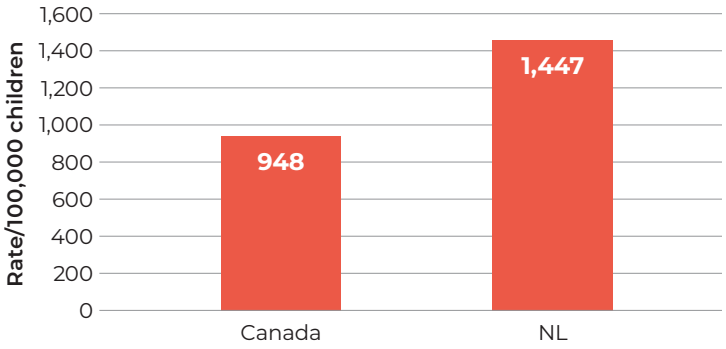


Figure 4. The Rate of Children with Complex Medical Needs/100,000 Children in NL and Canada (2015/2016)

- The rate of children with complex medical care needs is 53% higher in NL than in Canada and NL has the highest rate among the 10 provinces.

B. Demographic Change

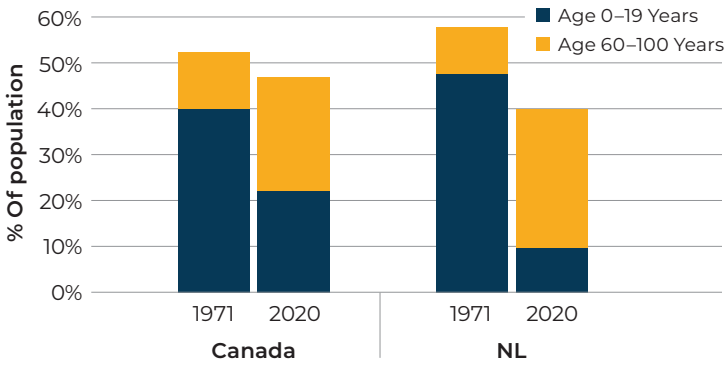


Figure 5. Distribution of Population Based on Age, 0–19 and 60–100 years, NL vs. Canada, 1971 & 2020

- In 1971, compared to Canada, NL had a higher proportion of children/youth and lower percent of people aged ≥ 60 years. In 2020, this had inverted with NL having a lower percentage of children/youth and higher percentage of people ≥ 60 years.

- The number of children decreased from about 200,000 to 70,000. The number of seniors increased from 30,000 to 120,000.

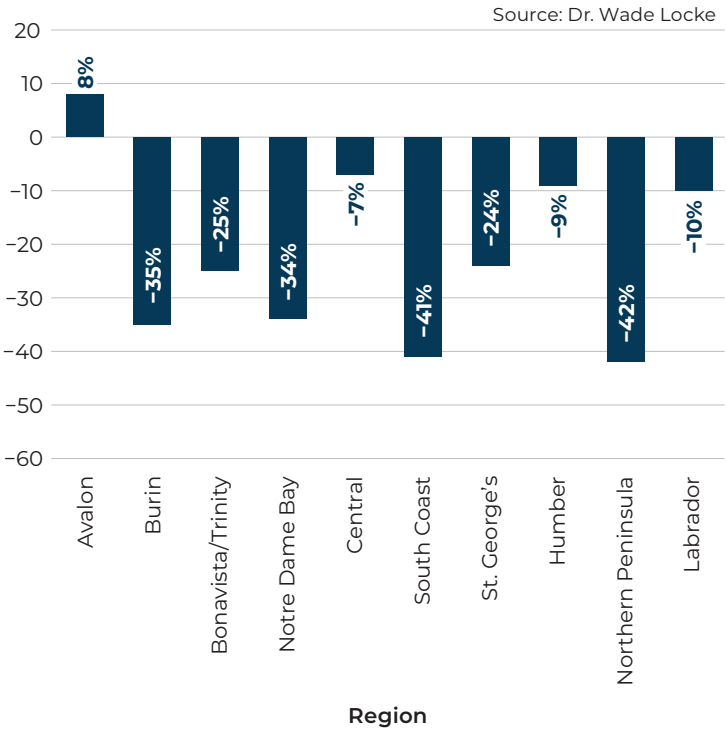


Figure 6. Per Cent Change in Population by Region, 1990–2020 (see Summary 1.5 for more details)

- Within NL there have been substantial regional changes in demography as a result of the cod moratorium.

- Over the last 30 years the Avalon is the only region of the province that has seen a population increase.

- NL has seen a 10% decrease in population in the 1990s.

- This loss in population is most evident in rural and coastal communities, especially on the South Coast, Northern Peninsula, Burin, and Notre Dame Bay. In these regions, the number of children has decreased by 70–75%, and the number of seniors has doubled.

C. Sustainability of the Health System and Need for Social Spending

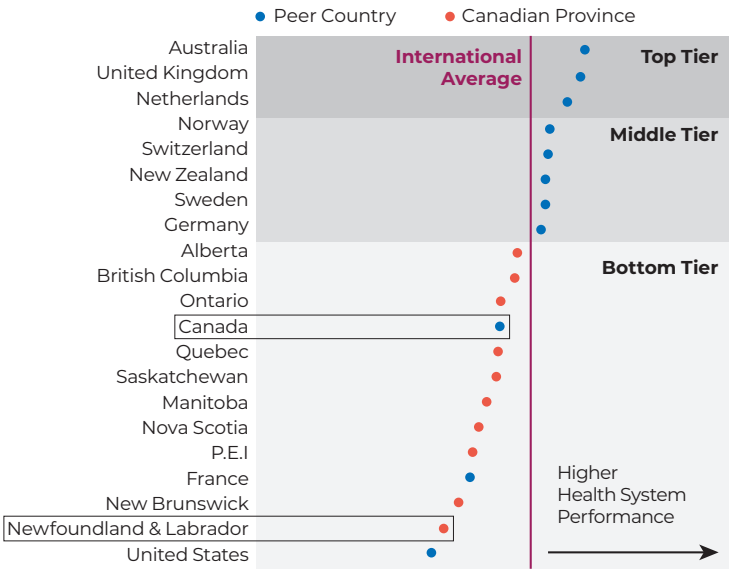


Figure 7. Health System Performance in 11 OECD Countries and the 10 Provinces, 2016–2019

- Among 11 OECD countries, Canada ranked in the bottom tier for health system performance, as evaluated by the Commonwealth Fund. Among Canadian provinces, NL ranked last.

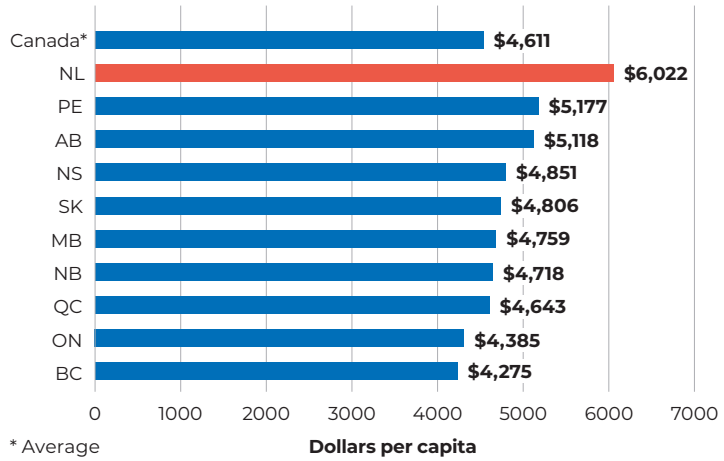


Figure 8. Health Spending in the Provinces: Dollars per Capita, 2019/20

- NL has the highest per capita spending in health among the 10 provinces.
- Allied to the poor health system performance, NL provides poor value for health spending.

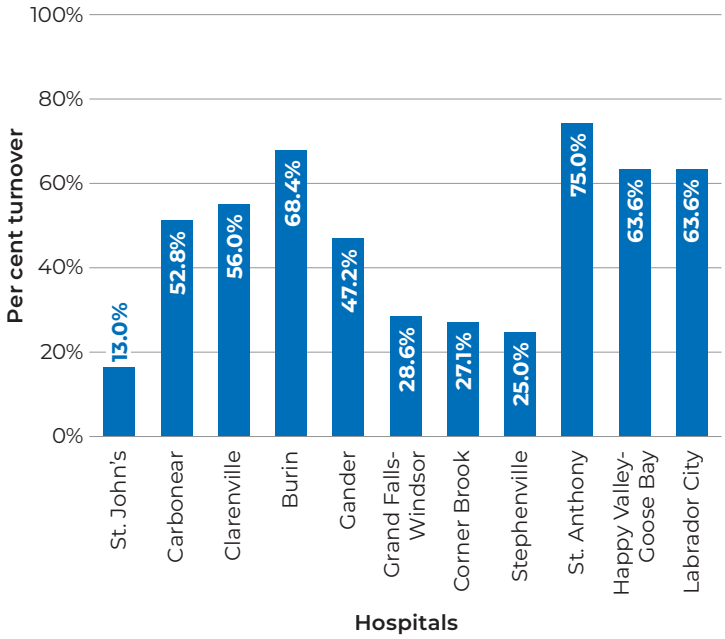


Figure 9A. The Turnover Rate of Doctors in Hospitals, 2018–2021

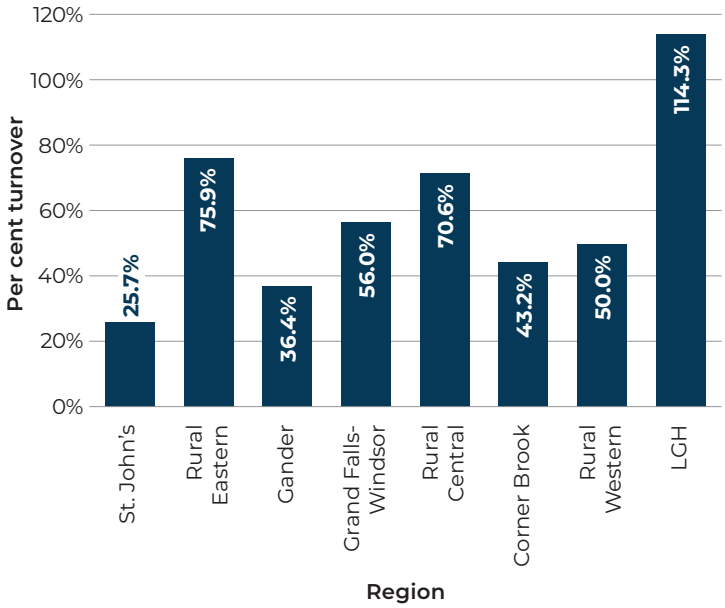
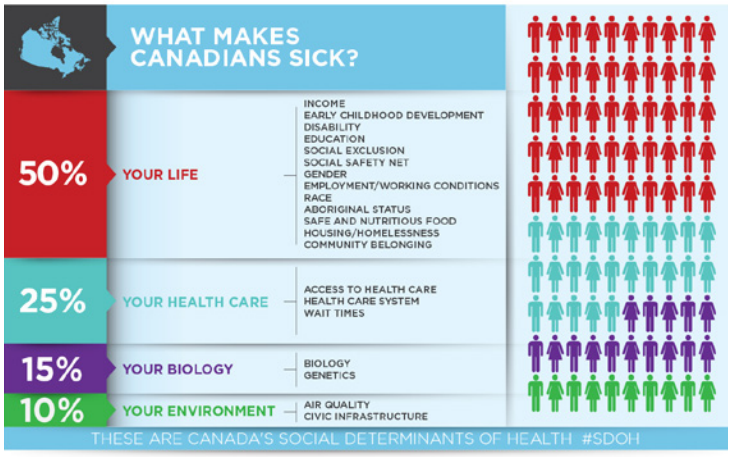


Figure 9B. The Turnover Rate of Family Physicians Funded by the RHA by Region, 2018–2021 (see Summary 1.10 for details)

- The turnover rate of hospital doctors and of family physicians is high, particularity in rural regions of the province.



Source: © Canadian Medical Association, 2013

Figure 10. What Makes Canadians Sick?

- 60% of what makes Canadians sick is the result of social determinants of health (your life and your environment) and 25% the result of the health care system.

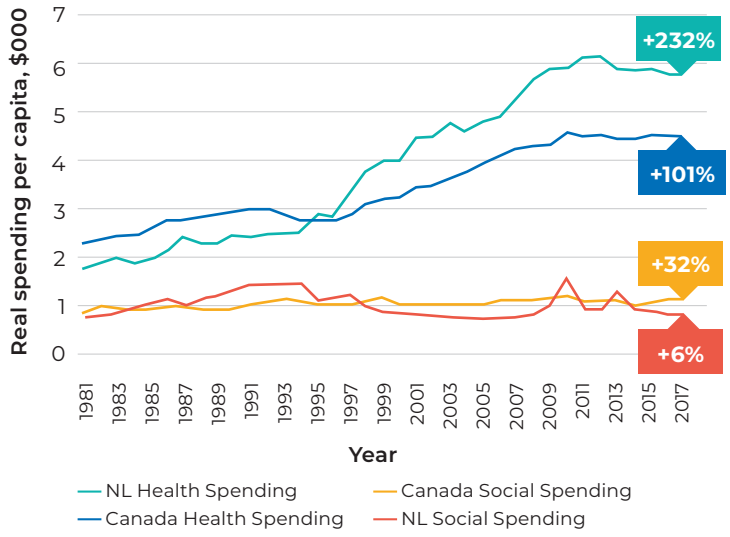


Figure 11. Per Capita Canadian and NL Health and Social Spending, 1981–2017

- Despite the importance of social determinants of health in NL, social spending has been virtually flat since 1981, whereas health spending has increased by 232%.
- By comparison, social spending in Canada has increased by 34% and health spending by 101%.
- See Summary 1.3

Figure 12. Poverty and Ill Health

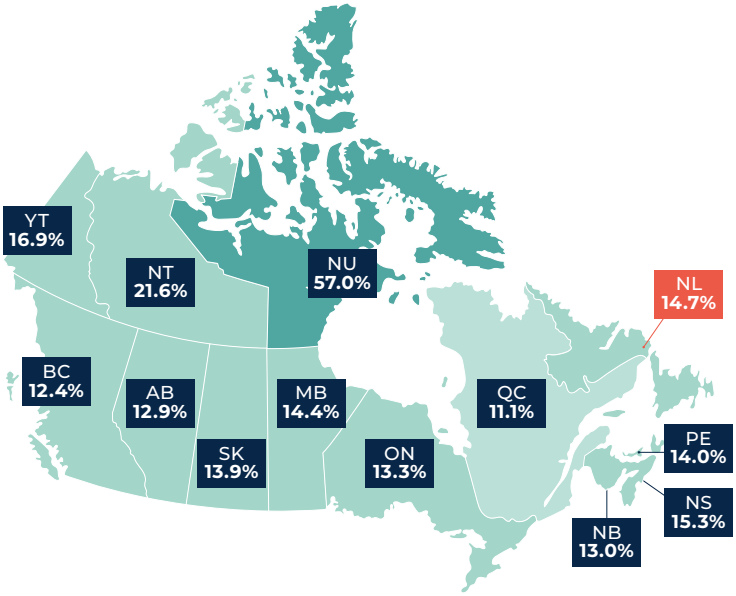
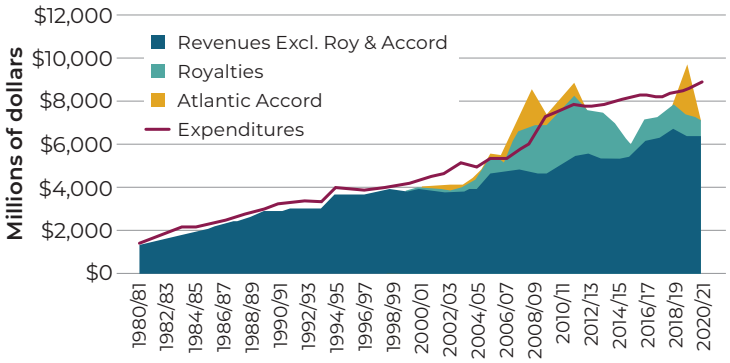


Figure 13. Household Food Insecurity by Province and Territory, 2017/18. Research to Identify Policy Options to Reduce Food Insecurity (proof.utoronto.ca)

- The rate of food insecurity in NL was 14.7% which ranked 9th of the 10 provinces.
- Compared to 34 other major urban areas in Canada, St. John's had the highest prevalence of food insecurity in Canada (17.3% of households).

D. The Fiscal Crisis in NL



Data provided by Dr. Wade Locke
Source: Public Accounts and Fiscal Reference Tables

Figure 14. Provincial Government Revenues and Expenditures, 1980/81–2020/21

- Except for 7 years of the oil bubble and the 2019 Atlantic Accord, NL expenditures exceeded revenues. Spending increased with revenue (mainly oil royalties), but did not decrease when revenues fell.

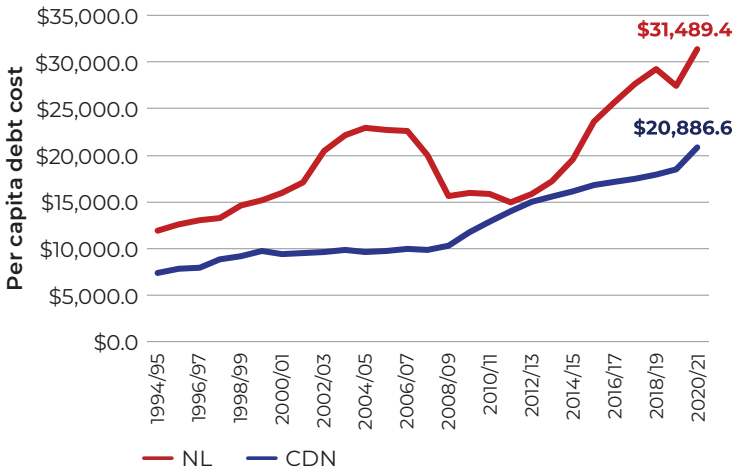


Figure 15A. Per Capita Debt Costs in NL and in Canada, 2020/21

- NL's net debt was $16.4 billion in 2020/21.
- Net debt per capita was $31,489, 51% higher than for all Canadian provinces.
- The combined federal and provincial net debt to GDP is high (105%) in NL, comparable to the Atlantic Provinces, and Quebec. One of the Euro convergence criteria was that government debt to GDP should be below 60%.
- NL's net debt to GDP was 48% in 2020/21, but is projected to increase to 100% before 2035 and 150% before 2040. This is exacerbated by likely declines in NL oil production, evolving actions on climate and global transitions, and increased health costs associated with the aging population.

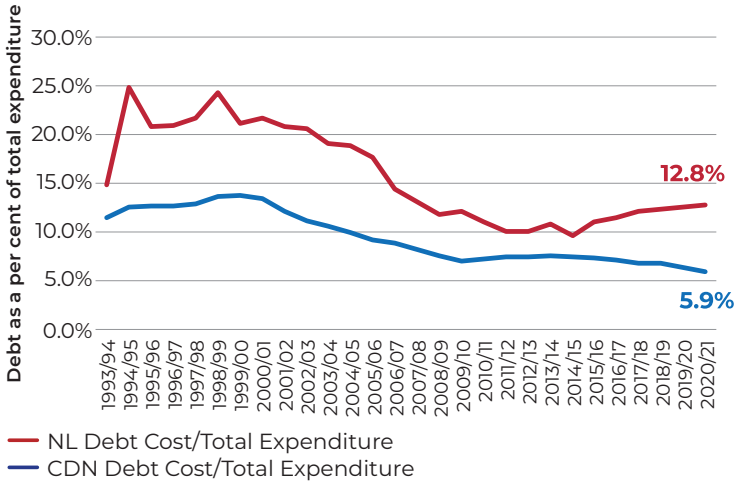


Figure 15B. Debt Cost as a Per Cent of Total Expenditure: A Comparison of NL to All Provinces

- NL debt costs as a per cent of expenditure are more than twice as large as the CDN average (12.8% vs. 5.9%).

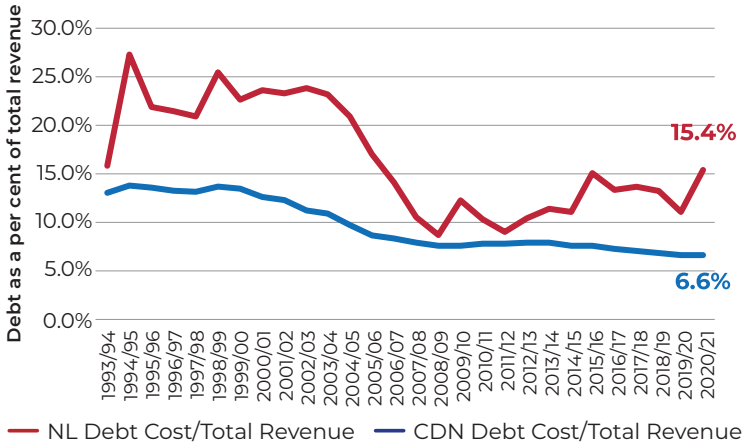
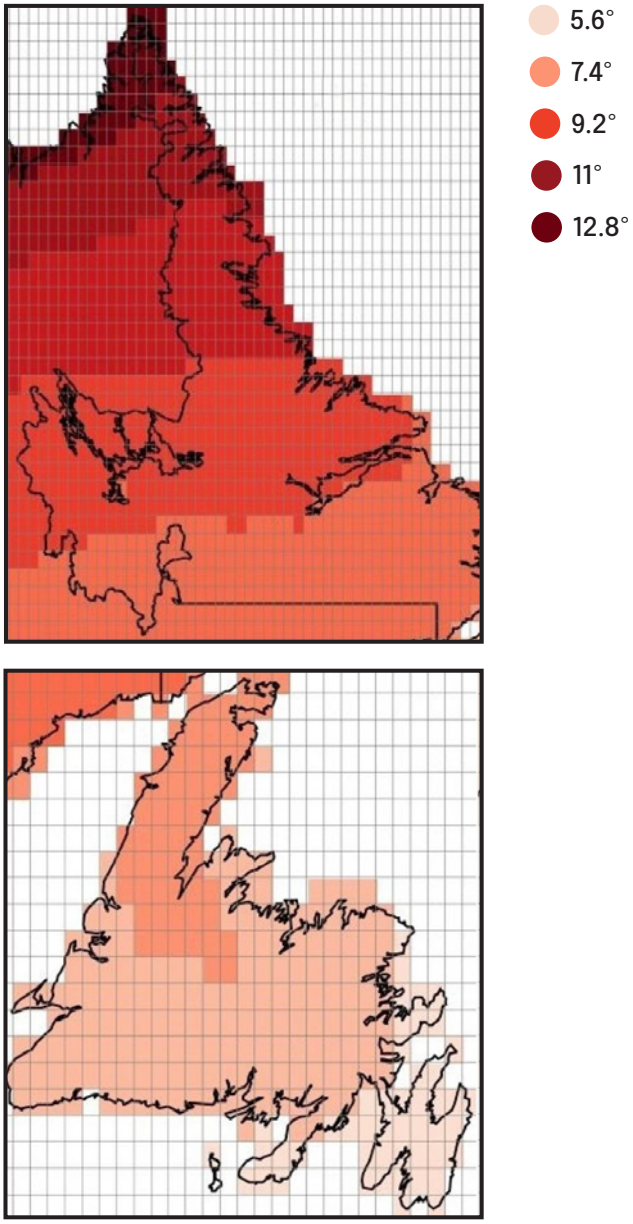


Figure 16. Debt Cost as a Per Cent of Total Revenue: A Comparison of NL to All Provinces

- Between 1 in 6 and 1 in 7 dollars of revenues are needed to service NL's net debt. The corresponding estimate Canada wide is 1 in 16 dollars of revenue are needed to service the debt.
- NL has the lowest credit rating of the 10 provinces.

E. Climate Change



Projected Changes for Winter (Dec-Feb)

Sources: Government of NL, Memorial University

Figure 17. Projected Temperature Change, Late 21st Century (Average Daily)

- Projected winter temperature increases by 2041–2070 in Labrador will be 9–13°C, whereas on the island they will be lower.

Conclusions

1. The poor health outcomes in NL compared to other provinces, substantial demographic change over the past 30 years, poor health system performance despite high per capita health spending, and concerns about the sustainability of the health system provide a compelling case for change.

2. The importance of the social determinants of health in causing adverse health outcomes, flat social spending over four decades, the high prevalence of food insecurity, and the overwhelming economic evidence supporting interventions in childhood poverty indicate that interventions in social and environmental areas are necessary.

3. The fiscal state of the province requires spending on the health and social systems be within the capacity of the province to pay as determined by the democratically elected provincial government.

4. Climate change has already affected the environment in Labrador, influencing the food sources and lifestyles of the Inuit.

The Framework for Implementation of the Major Actions Recommended by Health Accord NL

Objective

To outline a framework for discussion to improve health in NL.

This was written Nov. 2021.

Actions for Social Determinants of Health

- Inclusion
- Poverty reduction
- Childhood development
- Climate change and water management
- Housing insecurity
- Food insecurity
- An approach to basic income

Actions for Elder Care

- Non-ageism
- Aging-in-place with innovative solutions in the community
- Better management of the frail elderly
- Integration across care models
- Better end-of-life care

Framework for Community Teams

- Team: doctors, nurse practitioners, nurses, allied health professionals including social workers, elder care, mental health workers, others
- Formal links with social program teams and community organizations
- Optimal catchment population 6,000–7,000 and up
- All providers for a catchment area digitally connected to each other and to the people
- For smaller catchment populations, a solution for the provision of community services if necessary

Framework for Emergency Services

- A 24-hour, integrated, province-wide air/ground ambulance system, staffed by primary and advanced care paramedics, a single dispatch system
- A virtual emergency system supported by doctors and nurse practitioners
- Fast transport to the 13 hospitals, all of which have a CT scanner

Framework for Health Centres

- Integration with the community team
- Provide a model of urgent care consistent with the needs of the community
- Provide a holding bed or acute care beds as needed by the community
- Contribute to long-term care as needed by the community

Framework for Level of Services in a Hospital

- Three levels of hospital services — community (from catchment populations 10,000 to 40,000), regional (over 80,000), tertiary (over 500,000)
- Sustainability is important where volume of patients requiring a specialty service is small
- Access to specialists is enhanced by virtual care and by visiting specialists
- Regional hospitals need geriatric programs to link with other hospitals and community teams

Framework for Community Hospitals

- Partnership between the community team, health centres and the community hospital all linked virtually
- Base services include emergency, medical, elder care, mental health, diagnostic imaging, laboratory testing, and pharmacy
- Further services depend upon the need of the community, distance from a regional hospital, geography and sustainability of clinical teams

Quality and Performance

- Statutory NL Council for Health and Social Systems
- Evaluation of the health and social systems in the community, in addition to those in hospitals
- Learning health and social systems

Actions for Digital Technology

- Ensuring good virtual care is a reality because it is likely to benefit this province with its extended geography and high rural:urban population distribution
- Assure penetration of broadband 50/10 (currently at 72% of households, estimated to increase the whole province to 98% by 2026)
- Province-wide, integrated, health information system

Working Group on Readiness of Providers

- An approach to the mix and distribution of providers consistent with anticipated need in health and social systems
- Policies to recruit and retain the province's own graduates, an outcome dependent on making the structure more attractive to providers and orienting the education systems to the needs of the province
- Education focused on leadership, strengthening health equity, collaborating across social and health systems, working in team-based care, and improving health outcomes

Working Groups on Finance & Intergovernmental Affairs & Governance

- Collaborate with other government structures, particularly with the federal government to make and fund social policy, with Indigenous Nations to improve their health status, with municipalities and communities to implement social and health change
- Develop a governance approach to improve health outcomes which requires attention to the interface between the health system and social systems, between the provincial government and Indigenous governments, between community-based groups and the formal health system, and between publicly-funded services and privately-funded services
- Provide central governance of the health and social systems as it is necessary for many components of the structures, but decentralization of governance related to care delivery in regions. Develop an approach to integration of services relevant to health in regions

The Need to Lead, Plan and Manage Health Change

- There is a need to lead, manage and plan health change in the presence of:
  a) demand created by the structure of Medicare
  b) demand faciliated by the democratic process
- We require intelligent and committed leadership at the highest political and executive level of government, of health and social systems, and the private sector to:
  a) engage effectively with the public around the necessity for change
  b) create the capacity and willingness to plan for the longterm

The Ratio of Social and Health Spending and its Relationship to Life Expectancy

Objectives

1. To compare social spending, health spending, and life expectancy in NL and Ontario (ON).
2. To model the potential impact of keeping the ratio of health and social spending stable since 1981 (37 years) on life expectancy.
3. To use this model to predict the future impact of increasing the current ratio of social to health spending in NL.

Practice Points

1. In NL, health spending increased by 232% from 1981 to 2017 and social spending was essentially unchanged. In Canada, health spending increased by 100% and social spending by 36%.
2. Life expectancy in NL was 2.5 years lower than that for Ontario in 2017.
3. The social determinants of health contribute far more to poor health than does the health system.

Data (PI: Dr. D.J. Dutton)

Data were obtained from Dalhousie University (K. Ross), who analyzed social and health spending as outlined in annual budgets from 1981–2017, and examined its relationship with life expectancy in NL and Ontario.

Social spending did not include spending on education or justice.

The two scenarios modelled were: (1) the potential outcome for life expectancy if social to health spending had been maintained at the same ratio from 1981 to 2018, and (2) the potential life expectancy if social to health spending ratio is increased by 1% each year for the next five years and maintained at that level thereafter.

Results

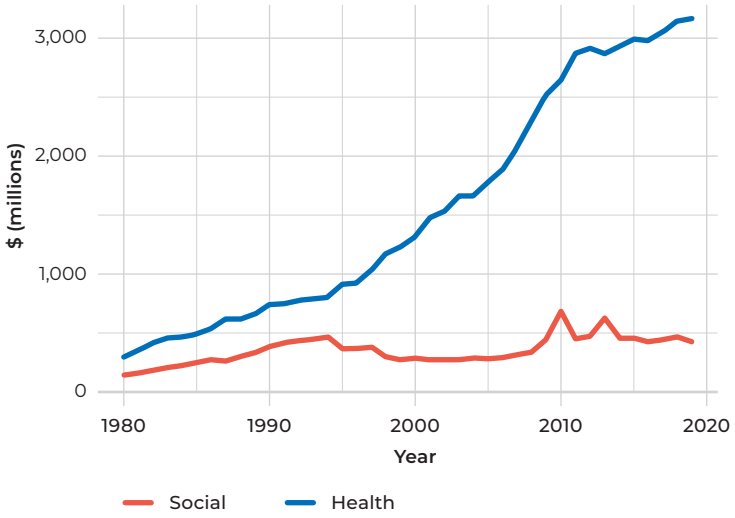
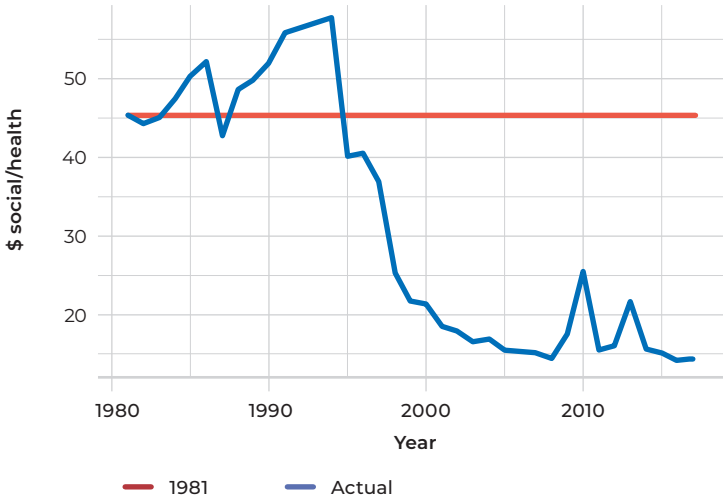


Figure 1A. Social vs. Health Spending in NL, 1980–2018

- Around 1994, the rate of rise of health spending increased and social spending actually decreased.



* The horizontal line represents the ratio of social:health spending in 1981

Figure 1B. The Ratio of Social to Health Spending in NL Since 1981

- The ratio of social to health spending was 0.45 in 1981; by 2000 it had fallen to 0.20 and in 2008 it was 0.15.

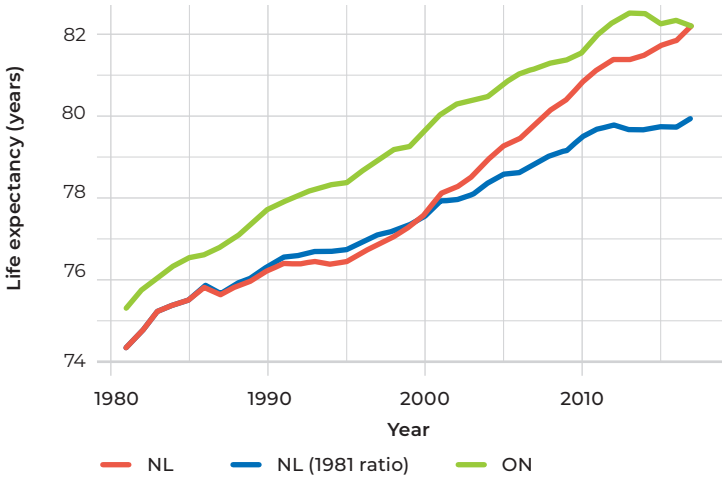


Figure 2. Actual Life Expectancy in NL and Ontario, and Predicted Life Expectancy in NL if Social to Health Spending Ratio had Remained the Same

- Life expectancy at baseline in 1981 was 74.4 in NL and 75.3 in ON. By 2017, it was 79.9 in NL and 82.2 in ON. The further divergence in actual life expectancies started around 1993.

- Modelling predicts that if the ratio of social to health spending had stayed at 0.45 during the past 37 years the difference in life expectancy between NL and ON would have been abolished.

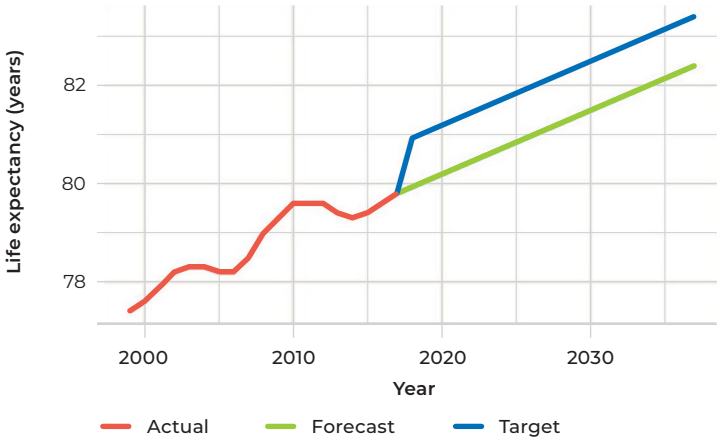


Figure 3. Forecast of Life Expectancy if Social to Health Spending Ratio Increased in the Next Decade

- If the ratio of social to health spending was increased by 1% for the next five years and then maintained at that level thereafter, the model predicts this would result in an improvement in life expectancy of 12 months.

Conclusions

1. The ratio of social to health spending in NL has decreased in the past 22 years as a result of very substantial increases in health spending and flat social spending.

2. Actual improvement in life expectancy in NL was less when compared to Ontario during this time and the difference in life expectancy between the two provinces increased.

3. Modelling suggests that if the ratio of social to health spending had been maintained at 0.45 since 1981, life expectancy in NL would be the same as in Ontario.

4. Modelling suggests that increases in social spending with an increase in the ratio of social:health spending would lead to improved life expectancy.

5. Limitations of the modelling are: the predictions are based on the information available for the model, assumptions made to obtain the prediction, and failure to include accompanying events that could explain the results.

   The potential of demographic change caused by the cod moratorium to explain the differences in life expectancy is examined in the next summary.

Did the Cod Moratorium Impact Life Expectancy in NL?

Objective

To examine demographic change and deaths in NL since 1990 and assess whether the cod moratorium was associated with change in death rates and in life expectancy.

Practice Points

1. The rate of increase of health spending seen in the 1980s increased further in the 1990s in NL. The rate of increase of social spending was essentially zero. Nonetheless, the rate of improvement in life expectancy seen in ON was not seen in NL; in fact, life expectancy curves diverged so that in 2017/18 life expectancy in NL was 2.4 years worse than in ON, having been one year in 1981. The massive increase in health spending did not prevent this divergence of life expectancy over time.

2. The cod moratorium occurred in 1992 and was associated with out-migration from rural NL communities.

3. Life expectancy calculations assume the age specific death rates for the year in question will apply throughout the lifetime of individuals born in that year. Consequently, major intercalated events that change age-specific death rates could have an influence on this metric of the health status of a community.

Data (Dr. W. Locke)

Demographic changes were calculated using Statistics Canada data on population structures by age and sex, and deaths were also obtained from Statistics Canada.

Results

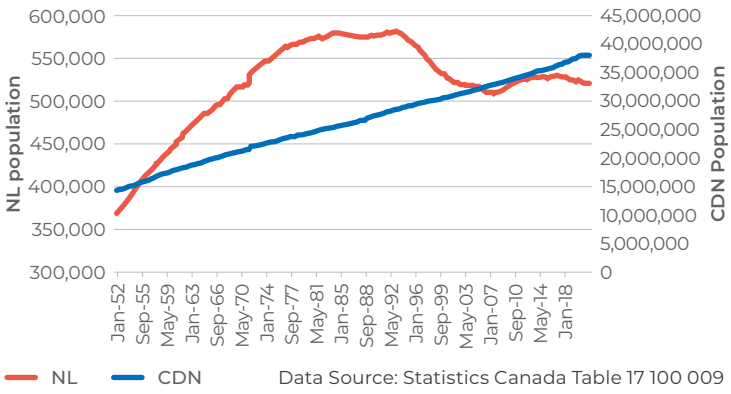


Figure 1. Quarterly Population Size in NL Compared to Canada (Male and Female), 1952 to 2021

- The NL population grew from 1952 to 1991. In the 1990s, it fell by 7.6% and in 2000s, it fell by 2.4%.
- However, the out-migration causing this population reduction occurred from rural communities and had a bigger proportionate impact in these communities.
- Although the population in NL was unchanged in 2010s, rural depopulation continued and is projected to continue for the next decade.

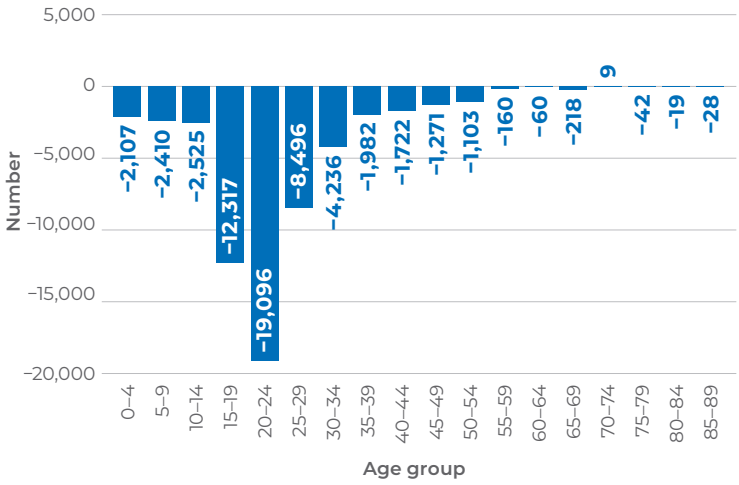


Figure 2A. Net Out-Migration in NL by Age (Males and Females), 1990–2000 (N=57,114)

- From 1990 to 2000, the net out-migration amounted to 57,114 people, of whom 12.3% were children younger than 15 years, 77.3% were young adults aged 15–34 years, 11.0% were older adults aged 35–64 years, and 0.5% were 65 years or older.

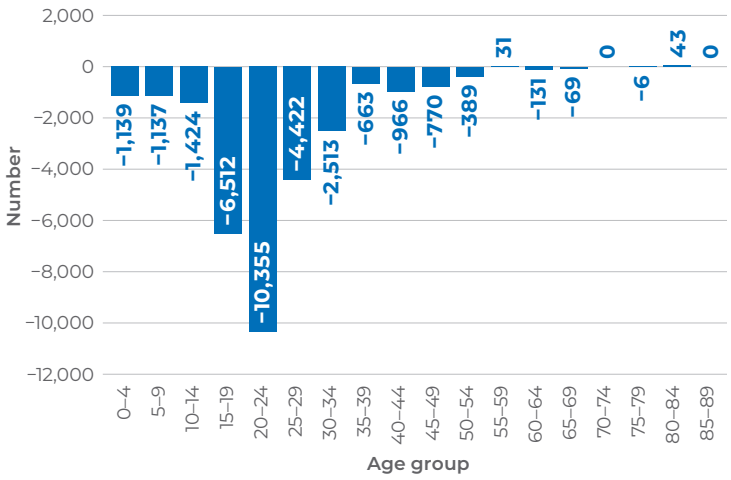


Figure 2B. Net Out-Migration in NL by Age (Males), 1990–2000 (N=30,181)

- From 1990 to 2000, the net out-migration amounted to 30,181 males, 52.8% of the total.

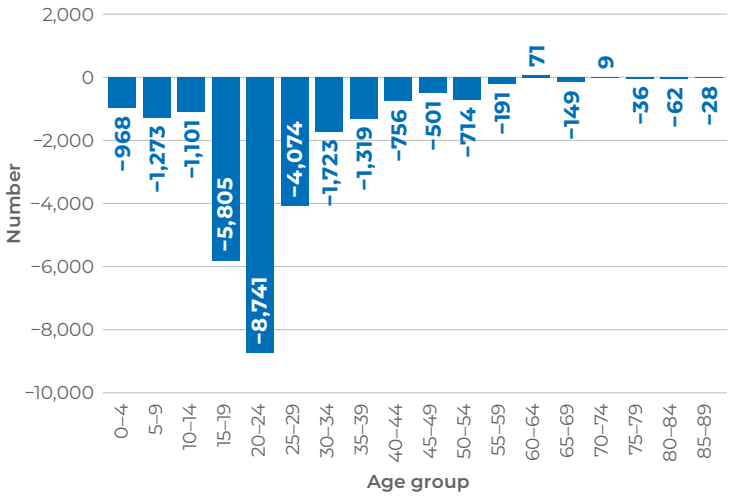


Figure 2C. Net Out-Migration in NL by Age (Females), 1990–2000, (N=26,933)

- From 1990 to 2000, the net out-migration amounted to 26,933 females, 47.2% of the total.

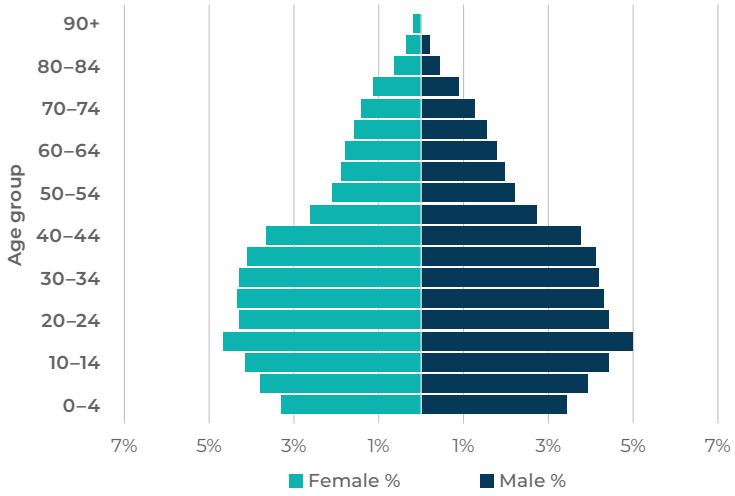


Figure 3A. Population Pyramid for NL by Age and Sex, 1990

- In 1990, 22.9% of the 577,368 people in the population were children younger than 15 years, 35.3% were young adults aged 15–34 years, 32.4% adults aged 35–64 years, and 9.4% were 65 years or older.

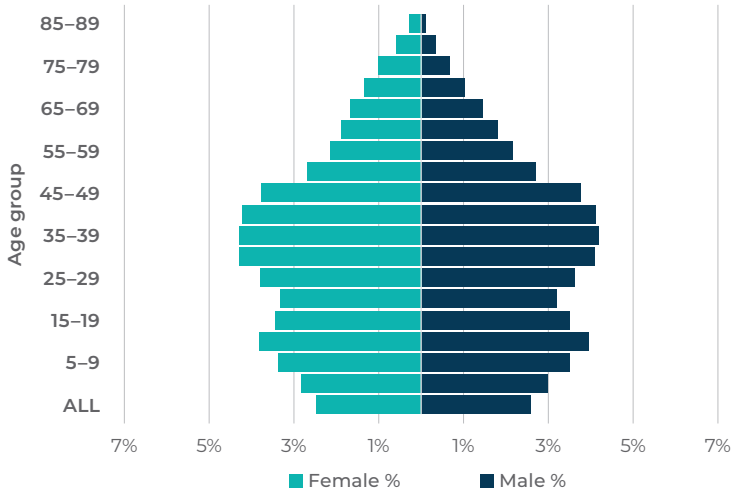


Figure 3B. Population Pyramid for NL by Age and Sex, 2000

- In 2000, the size of the population was now 527,966. The per cent of the population younger than 15 years had decreased to 17.6 and adults aged 15–34 years had also decreased to 28.5%. In contrast, the proportion of people aged 35–64 years had increased to 42.1% and of people ≥ 65 years to 11.9%.

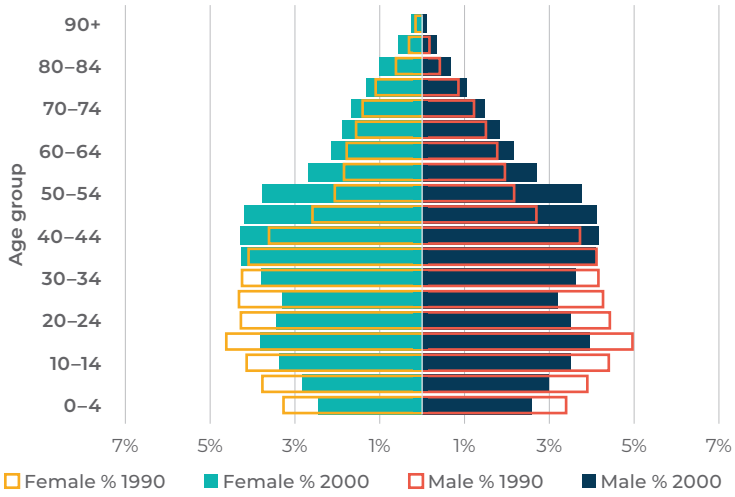


Figure 3C. Population Pyramids for NL, 1990 vs. 2000

- The combination of out-migration, decreased births and increased deaths contributed to the aging of the population. In 2000, a minority (46%) of the people in the province were <35 years, whereas in 1990 this group comprised the majority (58.2%).

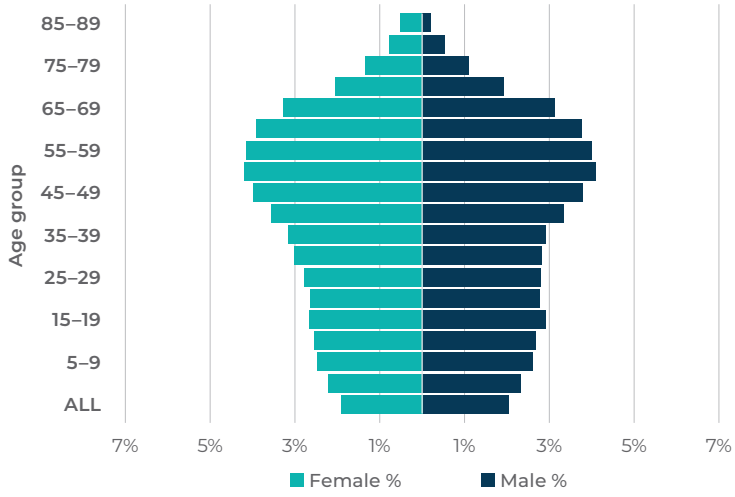


Figure 3D. Population Pyramid for NL, 2020

- In 2020, the size of the population was 522,103. 13.4% were younger than 15 years, 21.8% were 15–34 years, 42.7% were 35–64 years, and 22.3% were 65 years or older.

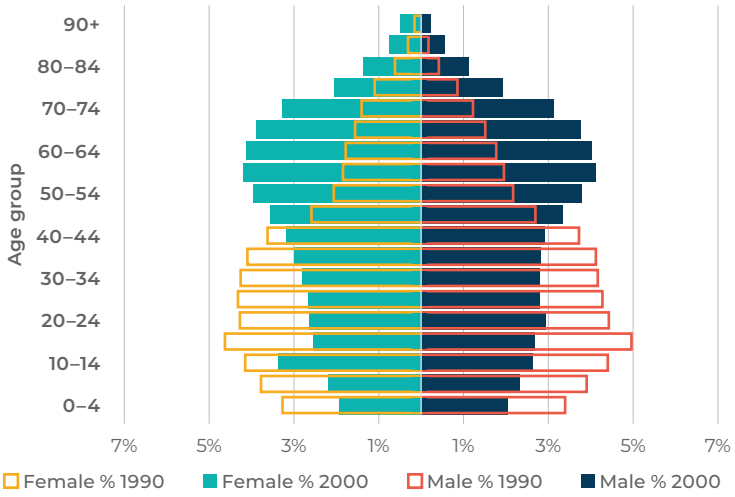
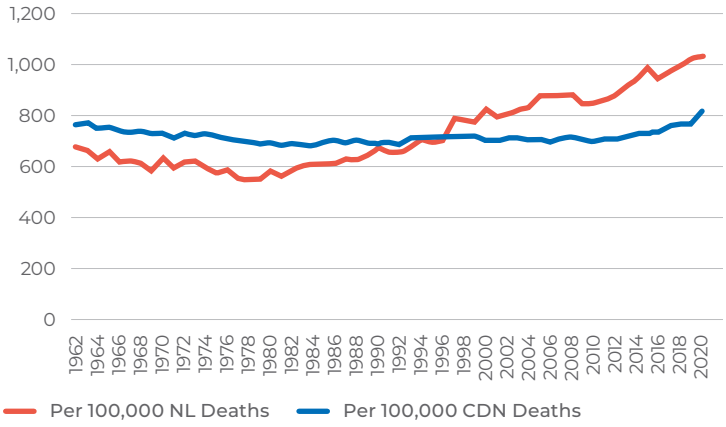


Figure 3E. Population Pyramid for NL, 1990 vs. 2020

- By 2020, 35.2% of the people were <35 years, and 64.8% were ≥65 years.



Data Source: Author's Calculations based on Statistics Canada 17 100 059

Figure 4A. Deaths/100,000 People for NL and Canada, 1962–2020

- NL's death rate was lower than Canada until 1996 and is now over 1,000/100,000 people/year, substantially higher than before 1996 in NL, and also compared to Canada for the same time period.

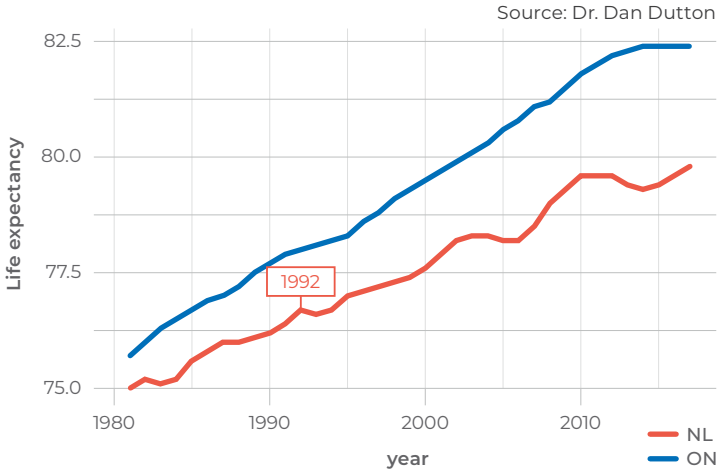


Figure 4B. Life Expectancy for NL vs. Ontario, 1981–2018

- Life expectancy improvement in NL started to diverge from that in Canada around 1993.
- In 1981, the life expectancy in NL compared to ON differed by one year.
- Today, people in NL live 2.4 years less than people in ON.

Conclusions

1. Death rates and life expectancy are different metrics. The number of deaths/100,000 people/year reflect the age and sex distribution of the province, whereas life expectancy integrates the age specific death rates for the year in question.
2. Life expectancy in NL compared to Canada has diverged from 1981 to 2018.
3. The divergence of life expectancies coincided with the cod moratorium and was not prevented by a very substantial increase in health spending.
4. The biggest demographic event in the past three generations in NL was the out-migration from rural communities following the cod moratorium. If this young cohort were healthier than those who stayed in NL this could explain much of the change in life expectancy. In addition, deterioration in the social determinants of health associated with the moratorium could contribute to this divergence in life expectancies.
5. The increase in death rates following the cod moratorium can be explained by a population with proportionately more older people, out-migration of healthier, younger people, and potentially adverse health effects caused by the social consequences of the cod moratorium.

Demographic Change in NL by Region Over 30 Years

Objective

To describe the demographic changes in NL from 1990–2020, particularly in rural regions of the province.

Practice Points

1. There was a 7.6% reduction in the population of NL in the 1990s, with a further reduction of 2.4% in the 2000s. As this was related to the cod moratorium, out-migration was greater from rural communities dependent on the fishery.

2. From 1995 to 2020, births decreased and the reduction was greater in the obstetrics units of the rural hospitals than in the four larger urban units.

3. Rural to urban migration also occurred within NL, particularly to the Avalon region.

Data (PI: Dr. W. Locke)

- Population pyramids by age and sex were created for the ten regions defined in 1990 and compared to those for 2020.
- Data were obtained from Statistics Canada.

Table 1. The Population Size Defined by Age in each Region, 1990 and 2020

Region	Year	Population				
		Total	<15 Years	15–34 Years	35–64 Years	≥65 Years
Avalon	1990	256,580	56,932	91,493	82,425	25,730
	2020	276,883	38,972	67,660	116,961	53,290
Burin	1990	30,135	7,413	10,730	9,363	2,629
	2020	19,485	2,186	3,183	8,571	5,545
Bonavista/ Trinity	1990	44,051	9,624	14,581	14,320	5,526
	2020	33,247	3,899	5,379	14,479	9,490
Notre Dame Bay	1990	53,261	12,386	18,596	16,847	5,432
	2020	34,968	3,721	5,170	15,384	10,693
Central	1990	41,129	9,119	14,293	14,068	3,649
	2020	38,083	5,040	7,567	16,293	9,183
South Coast	1990	24,984	5,674	9,159	8,080	2,071
	2020	14,821	1,487	2,343	6,728	4,263

Table 1. continued

Region	Year	Population				
		Total	<15 Years	15–34 Years	35–64 Years	≥65 Years
St. George's	1990	26,224	6,450	8,820	8,637	2,317
	2020	19,911	2,403	3,431	8,511	5,566
Humber	1990	46,146	10,281	15,364	16,117	4,114
	2020	42,105	5,333	8,852	17,604	10,316
Northern Peninsula	1990	25,685	6,085	9,622	7,868	2,110
	2020	14, 926	1,521	2,148	6,813	4,444
Labrador	1990	30,689	8,439	11,881	9,547	822
	2020	27,674	5,402	7,189	11,645	3,438

Results

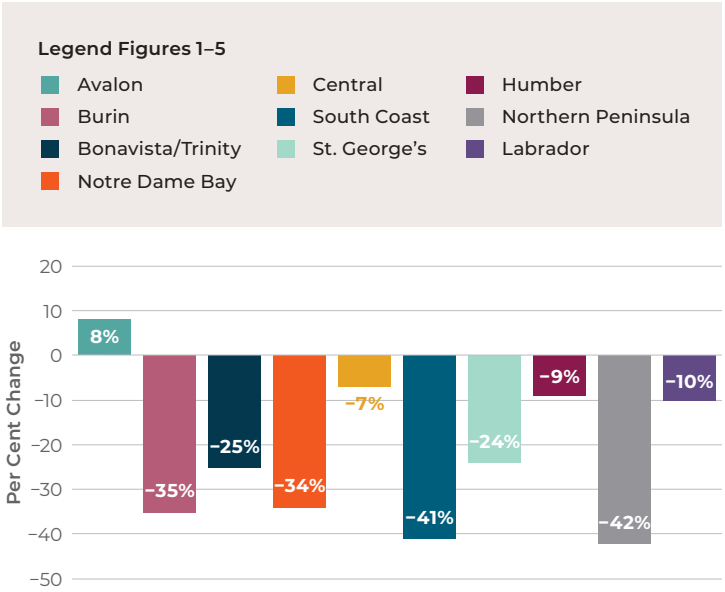


Figure 1. Per cent Change in Population by Region, 1990–2020

- Of the ten regions, only the Avalon had an increase in population.
- The biggest reductions in population were the Northern Peninsula (−42%), South Coast (−41%), Burin (−35%), and Notre Dame Bay (−34%).
- Within Labrador, increases in population occurred in Nunatsiavut and the Innu Nation, but there was a substantial decrease in South/South East Labrador.

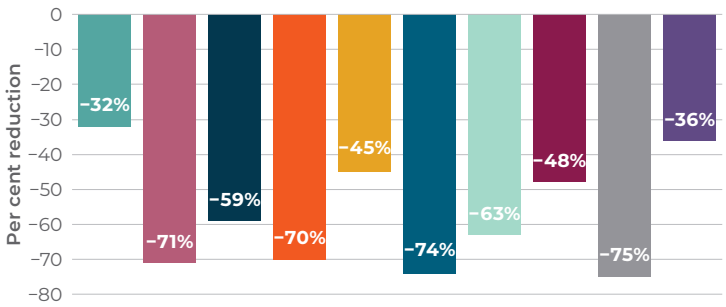


Figure 2. Per Cent Reduction in Children Aged <15 years by Region, 1990–2020

- Massive reductions in the number of children occurred in the Northern Peninsula (–75%), South Coast (–74%), Burin (–71%), and Notre Dame Bay (–70%).
- Even on the Avalon, the reduction in children was –32%.

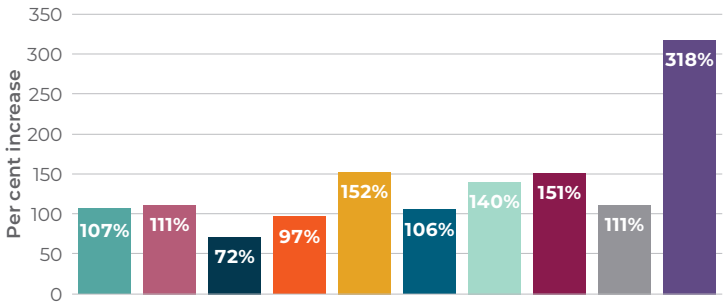


Figure 3. Per Cent Increase in the Number of Seniors aged ≥ 65 years by Region, 1990–2020

- Every region of the province has had massive increases in the number of seniors, particularly Labrador (316%), Central (152%), and Humber (151%).

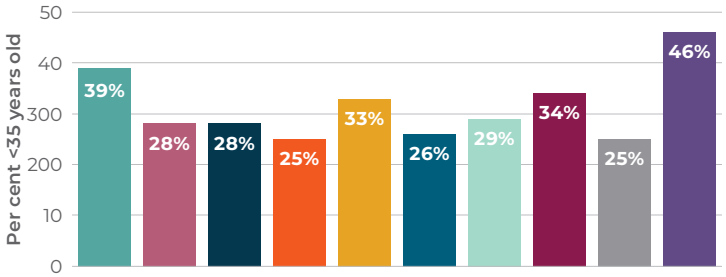


Figure 4. Per Cent of the Population Aged <35 years by Region, 2020

- In 1990, the majority of the population was <35 years in all regions. In 2020, a minority were in this age group (children or younger adults), <30% in all regions except Labrador, Avalon, Humber, and Central.
- This contrasts with the proportions 30 years ago: Burin 60%, Bonavista/Trinity 55%, Notre Dame Bay 58%, South Coast 59%, St. George's 58%, and the Northern Peninsula 61%.

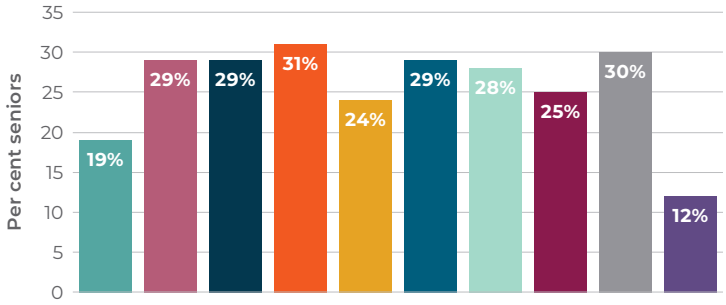


Figure 5. Per Cent of the Population aged ≥ 65 years by Region, 2020

- Only 12% of Labrador's population is comprised of adults aged ≥ 65 years, and 19% of the Avalon's population.
- In the rural regions, the proportion is now around 30%.

Conclusions

1. In the last 30 years, demographic change has been substantial in all regions, with a reduction in the total population in all regions except the Avalon. Reduction has been very large in rural regions exposed to the effects of the cod moratorium, particularly the Northern Peninsula, South Coast, Burin, and Notre Dame Bay where population reduction has been 34–42%.
2. In all regions, there have been very large decreases in the numbers of children and very substantial increases in the numbers of seniors.
3. In rural regions, excluding Labrador, the proportion of the population younger than 35 years is now less than 30%, whereas 30 years ago the majority were in this age group. In these regions, the proportion of the population who are seniors is now around 30%.

Resources Currently Available for Community Teams

Objective

To determine the current catchment populations, actual and projected demographic change, and current human resources available for integrated community teams in health regions in NL.

Practice Points

1. Health Accord NL proposes that approximately 35 Community Teams covering the entire province should provide access for every person in the province to community-based health and social services.

2. The structure envisaged is as follows:

Community Teams
Team: doctors, nurse practitioners, nurses, allied health professionals including social workers, elder care, mental health workers, others
Formal links with social program teams and community organizations
All providers for a catchment area digitally connected to each other and the people
Optimal catchment population 6,000–7,000 and up
For smaller catchment population a solution for the provision of community services is necessary

Data

Actual population change from 2006 to 2016 was obtained from the census and population change from 2021 to 2030 was projected by the Department of Finance. This data was available for the 20 economic zones in the province.

Data on Full-Time Equivalent (FTE) staff in the community funded by the Regional Health Authority (RHA) and in Community Health were obtained from the Department of Health and Community Services and from the RHAs.

Health centres are present in 23 regions, but not in all the proposed community team catchment areas. Total FTEs in each community team area were identified by position; the number of FTEs in health centres was also determined.

Results

Zone #	Name of Zone	2016 Census Population
1	North Labrador	3,577
2	Labrador West	10,052
3	Happy Valley-Goose Bay	10,483
4	Southeast Labrador	2,071
5	Labrador Straights	1,639
6	St. Anthony	7,697
7	Bonne Bay to Port au Choix	8,084
8	Corner Brook	42,783
9	Stephenville	20,950
10	Port aux Basques	8,420
11	Baie Verte-Springdale	13,415
12	Grand Falls-Windsor	26,781
13	Bay D'Espoir	7,077
14	Gander	46,722
15	Bonavista/ Clarenville	27,147
16	Burin Peninsula	20,092
17	Northwest Avalon	40,766
18	Argentia/ Placentia	6,739
19	St. John's Region	216,433
20	Southern Shore	8,447
	Total	529,436

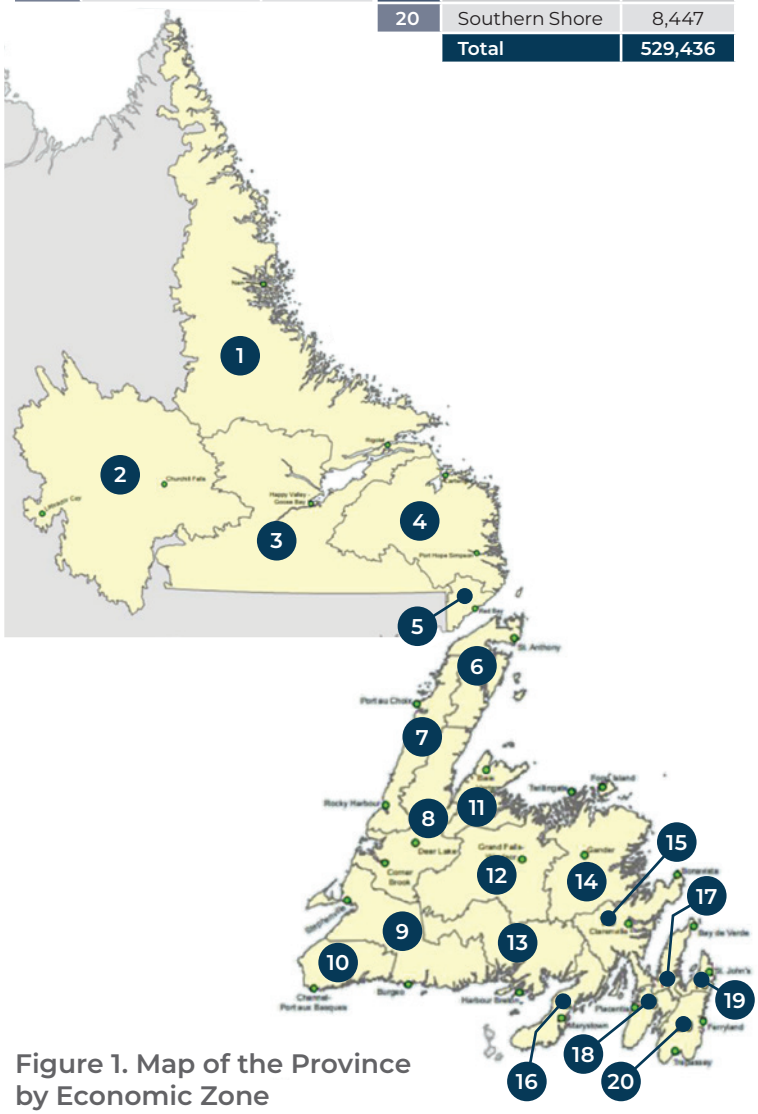


Figure 1. Map of the Province by Economic Zone

Eastern Health (EH)

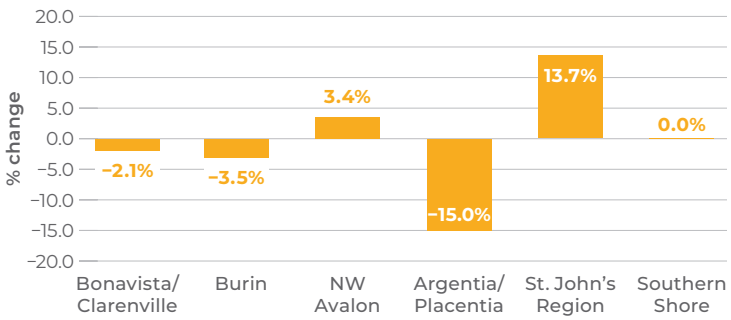


Figure 2A. Actual Change in Population in the Economic Zones of EH, 2006–2016

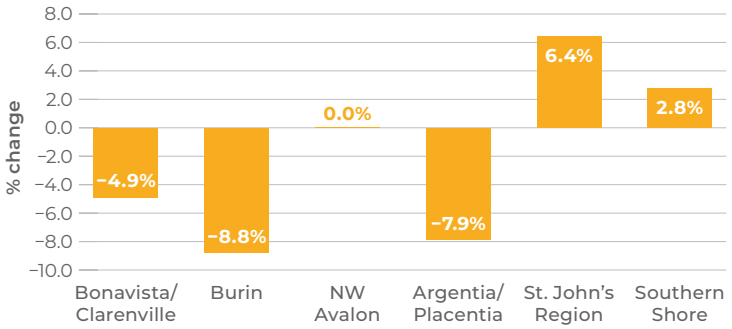


Figure 2B. Change in Population in the Economic Zones of EH Projected to Occur, 2021–2030

- Substantial population decrease from 2006 to 2016 occurred in Argentia/Placentia and −3.5% in the Burin region, whereas substantial increase occurred in the St. John's region.

- Further reduction in the populations of Bonavista/ Clarenville, Burin, and Argentia/Placentia are projected to occur.

Table 1. Number of FTE Staff by Position Available for Community Teams in EH Excluding Family Physicians But Including in Brackets Those Working in Health Centres (HC)

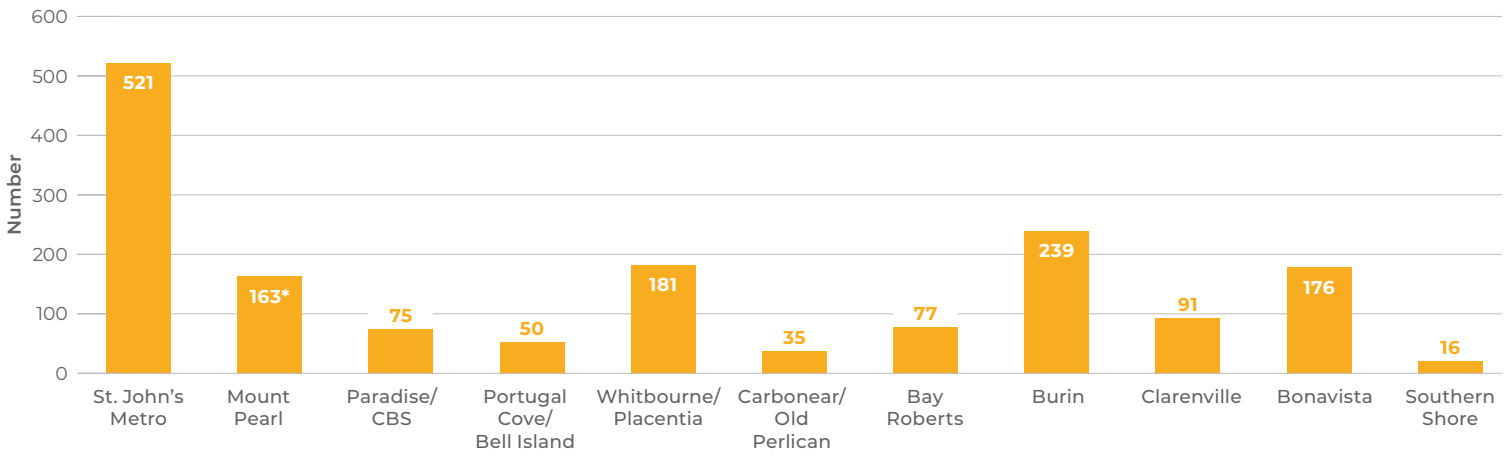
Team	Population	Allied Health	Management/ Support Staff	LPN	NP	RN	Personal Care Attendant	Lab/X-ray	FTEs
St. John's Metro*	119,371	214.3	132.9	20	8.9	127.2	–	16.7	520
Mount Pearl*	23,000	48.9	64.1	4	0.1	45.5	–	–	162.6
Paradise/CBS	54,378	22.8	23.6	1.5	–	27.2	–	–	75.1
Portugal Cove/ Bell Island (HC)	18,516	1 (1)	18.1 (18.1)	8.9 (8.9)	1 (1)	15.2 (9.4)	2.6 (2.6)	2.8 (2.8)	49.5 (43.8)
Whitbourne/ Placentia (x 2 HC)	7,145	13.3 (4.1)	63.4 (59.4)	27.3 (27.3)	1 (1)	38.1 (30)	26 (26)	11.6 (11.6)	180.7 (159.4)
Carbonear#/ Old Perlican (HC)	17,350	1.8	12.7 (8.1)	5.7 (5.7)	1	10.5 (6.9)	–	3.5 (3.5)	35.1 (24.0)
Bay Roberts	20,140	28.4	10.8	4.2	–	33.1	–	–	76.5
Burin# (x 2 HC)	19,810	24 (3.9)	88.9 (76.5)	39.2 (39)	3.4 (2)	43.7 (21.4)	34 (33.8)	6.2 (6.2)	239.4 (182.8)
Clarenville#	20,282	22.3	27.5	7.5	–	25.1	–	8.8	91.2
Bonavista (HC)	7,135	6.6 (4.7)	71.1 (70.1)	30.7 (28.8)	3.1 (3.1)	30.2 (24.4)	28.6 (26.8)	5.7 (5.7)	176 (163.6)
Southern Shore	6,250	3.6	4.3	0.7	2.3	4.9		0.3	16.1

Excludes long-term care facility; * Includes dialysis unit; ( ) = Of the total in the region, FTE staff in health centres.

- In EH there were 1,622.2 FTEs working in the community, excluding family physicians. Of these, 573.6 (35%) were working in the seven health centres.

- Of 387 allied health professionals, 55% were in St. John's.

- The majority of LPNs (73% of 149.7) and nearly all personal care attendants were working in health centres that have long-term care (LTC) beds.



* FTEs in Mount Pearl include the dialysis unit

Figure 3. FTE Staff Available for Community Teams in EH (Excluding Family Physicians)

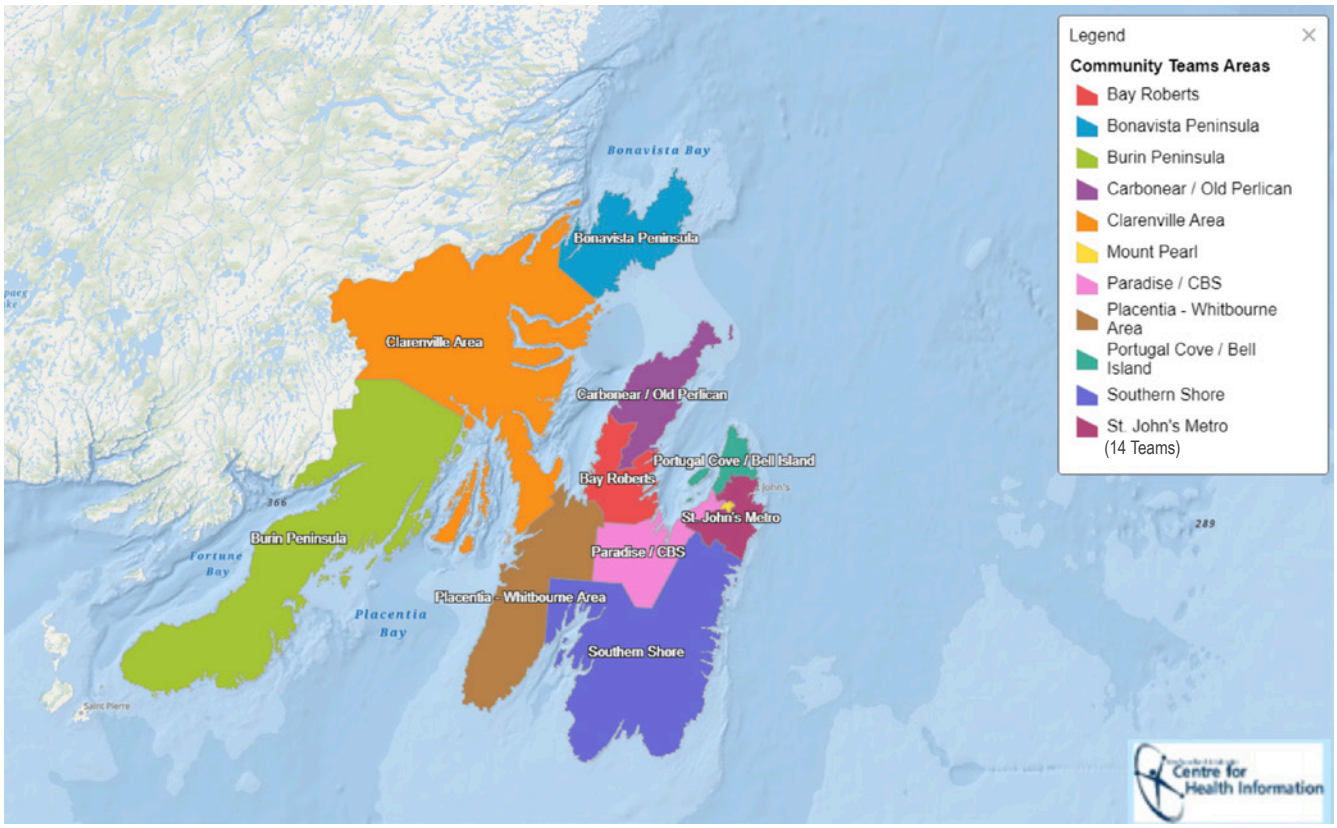


Figure 4. Eastern Health Community Teams Geographic Area

Table 2. Communities Included in Each Community Team Area within Eastern Health

Community Team Area	Communities
Paradise, CBS, and Area	
Paradise, CBS	Paradise, Conception Bay South
Holyrood and Surrounding Area	Avondale, Brigus Junction, Salmonier Line, Chapel's Cove (Harbour Main, Lakeview, Gallows Cove), Colliers, Conception Harbour (Bacon Cove, Kitchuses), Holyrood
Carbonear/Old Perlican Area	
Carbonear and Area	Bristol's Hope, Broad Cove (Small Point, Adam's Cove, Blackhead), Carbonear (Adam's Cove), Freshwater, Victoria, Salmon Cove, Perry's Cove, Western Bay (Bradley's Cove, Ochre Pit, Smooth Cove, Northern Bay, Long Beach, Kingston, Job's Cove, Capelin Cove, Daniel's Cove, Grate's Cove, Lower Island Cove, Red Head Cove)
Old Perlican and Surrounding Area	Bay de Verde, Grates Cove, Hant's Harbour, Lead Cove (New Melbourne, Sibleys Cove, Brownsdale, New Chelsea), Old Perlican, Heart's Content
Bay Roberts/Harbour Grace and Area	
Bay Roberts and Harbour Grace Area	Bareneed (Port de Grave/Blow Me Down, Hibbs Cove), Bay Roberts (Coley's Point, Birch Hills), Brigus, Clarke's Beach, Cupids, Georgetown, Roaches Line, South River, North River, Makinsons, Bishop's Cove, Bryant's Cove, Harbour Grace, Spaniard's Bay, Tilton, Upper Island Cove
Hearts Delight and Surrounding area	Cavendish, Heart's Delight-Islington, Heart's Desire, New Perlican, Whiteway, Winterton, Turk's Cove, New Harbour, Dildo, Broad Cove, Hopeall, Green's Harbour
Placentia/Whitbourne and Area	
Placentia	Placentia (Argentia, Dunville, Ferndale, Freshwater, Jerseyside), Fox Harbour, Great Barasway (Ship Cove, Cuslett, Angel's Cove, Patrick's Cove), Little Barasway (Point Verde), Ship Harbour
Whitbourne and Surrounding Area	Whitbourne, Blaketown (Old Shop, South Dildo) Chapel Arm, Long Harbour, Arlington Heights, Markland, Norman's Cove, Long Cove
St. Bride's and Surrounding Area	Branch, Point Lance, St. Bride's
Portugal Cove, Torbay Area	
Portugal Cove, Torbay Area	Portugal Cove-St. Philip's, Bell Island, Bauline, Pouch Cove, Flatrock, Torbay, Logy Bay-Middle Cove-Outer Cove
Southern Shore/St. Mary's and Area	
Southern Shore	St. Shott's, Trepassey, Biscay Bay, Portugal Cove South, Renews-Cappahayden, Fermeuse, Port-Kirwan, Aquaforte, Ferryland, Calvert, Admiral's Cove, Brigus South, Burnt Cove, Bauline East, St. Michael's, Tors Cove, Mobile, Cape Broyle, Witless Bay, Bay Bulls
St. Mary's Area	Admirals Beach, Colinet, Gaskiers, Point La Haye, Mall Bay, Forest Field, New Bridge, Mount Carmel, St. Catherine's, Mitchell's Brook, North Harbour, O'Donnells, Salmonier, St. Joseph's, St. Mary's, Path End, Riverhead, Harricott, St. Stephen's, St. Vincent's, Peter's River
St. John's Metro	
St. John's Metro	St. John's, Petty Harbour-Maddox Cove, Goulds, Kilbride
Bonavista Area	
Bonavista Area	Bonavista/Spillars Cove, Elliston/Maberly, Trinity Bay North, (Catalina, Port Union, Melrose, Little Catalina), Trinity/Goose Cove, Old Bonaventure, New Bonaventure, Champney's, Champney's West, Lockston, Trouty, Dunfield, Trinity East, English Harbour, Port Rexton/Champney Arm, Keels, Duntara, King's Cove, Stock Cove, Newman's Cove, Birchy Cove, Upper Amherst Cove, Middle Amherst Cove, Lower Amherst Cove, Sweet Bay/Charleston/ Tickle Cove/Open Hall/Red Cliff /Plate Cove East
Clarenville and Area	
Clarenville Area	Clarenville, Shoal Harbour, Random Island West, Britannia, Hickman's Harbour, Robinsons Bight/ Lower Lance Cove, Petley, Lady Cove, Weybridge, George's Brook, Harcourt, Waterville, Gin Cove, Clifton, New Burnt Cove, Monroe, Milton, Burgoyne's Cove
Lethbridge and Area	Musgravetown, Lethbridge, Portland, Bunyan's Cove, Jamestown, Brooklyn, Canning's Cove, Bloomfield, Southern Bay, Summerville, Princeton, Port Blandford
Come By Chance and Surrounding Area	Southern Harbour, Come By Chance, Garden Cove, Swift Current, Goobies, Garden Cove, Black River, Hodge's Cove, Capelin Cove, Gooseberry Cove, Long Beach, Butter Cove, Southport, Little Heart's Ease, Hatchet Cove, St. Jones Within, Hillview, North West Brook, Queen's Cove, Adeytown, Sunnyside, North Harbour, Arnold's Cove, Bellevue (Thornlea and Fairhaven), Chance Cove
Mount Pearl	
Mount Pearl	Mount Pearl
Burin Peninsula Area	
Marystown/ Burin and Surrounding Area	Little St. Lawrence, St. Lawrence, Lawn, Lord's Cove, Lamaline, Point May, Fortune, Grand Bank, Molliers/ Grand Beach
Grand Bank/ Fortune, St. Lawrence, and Area	Frenchman's Cove, Garnish, Winterland, Marystown, Jean de Baie, Spanish Room, Rock Harbour, Red Harbour, Burin, Fox Cove/Mortier, Lewin's Cove, Epworth
Placentia West and Area	Rushoon, Parker's Cove, Baine Harbour, Boat Harbour, Monkstown/Brookside/Petite Forte, St. Bernard's-Jacques Fontaine, Harbour Mille/Little Harbour, Bay L'Argent
Terrenceville and Area	Terrenceville, Grand Le Pierre, English Harbour East

Central Health (CH)

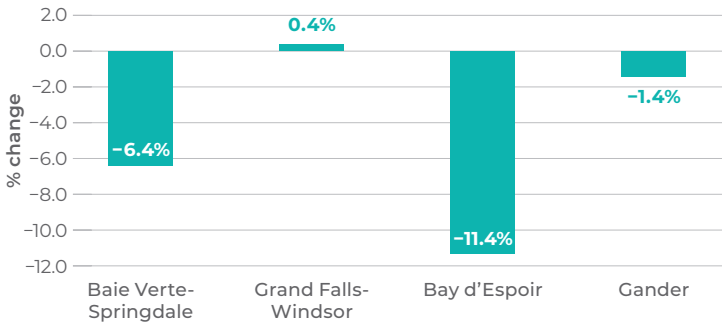


Figure 5A. Actual Change in Population in the Economic Zones of CH, 2006–2016

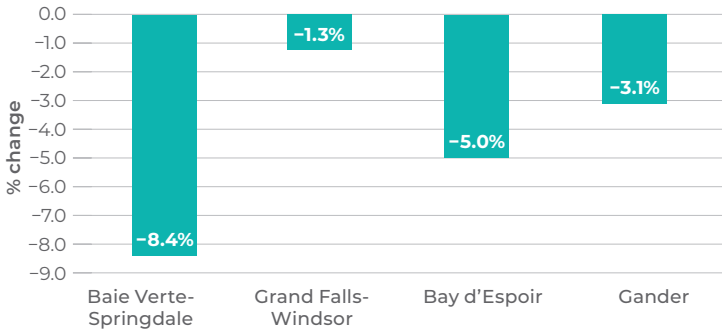


Figure 5B. Change in Population in the Economic Zones of CH Projected to Occur, 2021–2030

- A large reduction in the population from 2006 to 2016 occurred in the Bay d'Espoir zone, and a reduction also occurred in Baie Verte/Springdale zone.

- Over the next decade, the decreases in population in Baie Verte/Springdale and Bay d'Espoir are projected to continue.

Table 3. Number of FTE Staff by Position Available for Community Teams in CH, Including in Brackets Those Working in Health Centres

Place	Population	Allied Health	Management/ Support Staff	LPN	NP	RN	Personal Care Attendant	Lab/ X-ray	Family Physicians	FTEs
New-Wes-Valley to Centreville (HC)	7,155	6.8 (2.8)	59.6 (55.2)	30.5 (28.5)	3 (2)	23.5 (15)	10.9 (10.9)	–	4 (4)	138.3 (118.4)
Fogo Island	2,245	3	19.2 (19.2)	9.1 (9.1)	1 (1)	10.3 (7.3)	2.7 (2.7)	3 (3)	2 (2)	48.3 (44.3)
Twillingate (HC)	5,670	7.8 (4.8)	56.8 (53.6)	24.8 (22.8)	3 (2)	23.2 (17.2)	11.9 (11.9)	6.2 (6.2)	5 (5)	136.7 (123.5)
Total	7,915	10.8 (4.8)	76.0 (72.8)	33.9 (31.9)	4 (3)	33.5 (24.5)	14.6 (14.6)	9.2 (9.2)	7 (7)	185.0 (167.8)
Springdale (HC)	7,880	7.2 (3.2)	62.8 (60.5)	44.1 (44.1)	1 (1)	23.5 (15.1)	21.2 (21.2)	5.2 (5.2)	4.0 (4.0)	169 (154.3)
Baie Verte (HC)	5,365	4.8 (0.8)	35.8 (33.5)	18.2 (17.2)	1 (1)	13.3 (9.3)	5.9 (5.9)	5.2 (5.2)	4.0 (4.0)	87.0 (76.9)
Total	13,245	12.0 (4.0)	98.6 (94.0)	62.3 (61.3)	2 (2)	36.8 (24.4)	27.1 (27.1)	10.4 (10.4)	8 (8)	256.0 (231.2)
Harbour Breton (HC)	7,000	7 (1)	35.2 (29.2)	16.6 (12.6)	7 (4)	20.6 (12.0)	2.9 (2.9)	5.6 (5.6)	4 (4)	98.9 (74.3)
Gander/ Gander Bay	17,255	25	5.0	2.0	1	15.2	–	–	14	62.2
Gambo to St. Brendan's	5,885	3	4.7	–	–	6	–	–	2	15.7
Grand Falls-Windsor (HC)	26,295	36.1 (2.1)	106 (61)	59 (58)	2 (1)	41.4 (15.7)	25.5 (20.3)	5.4 (5.4)	25 (7.0)	300.5 (164.4)
Lewisporte (HC)	7,775	8 (1)	39.4 (37.4)	18.3 (18.3)	1 (1)	17.1 (10.3)	21.4 (21.4)	3.3 (3.3)	5 (5)	113.5 (97.8)
Region-Wide Staff	92,525	22.8	48.5	2.5	2	2	–	–	–	92.2

( ) = Of the total in the region, FTE staff in health centres

- Of the FTEs available in CH, the majority work in the health centres in New-Wes-Valley, Fogo Island, Twillingate, Springdale, Baie Verte, Harbour Breton, Botwood, Buchans, and Lewisporte.

- In CH, there were 1,262.3 FTEs working in the community, including family physicians. Of these, 853.9 (68%) were working in the nine health centres.

- Of 131.5 allied health professionals, 19% were in Gander; 27.5% were in Grand Falls-Windsor, and 17.3% were region-wide staff.
- The majority of LPNs (94% of 225.1) and nearly all personal care attendants were working in health centres that have LTC beds.

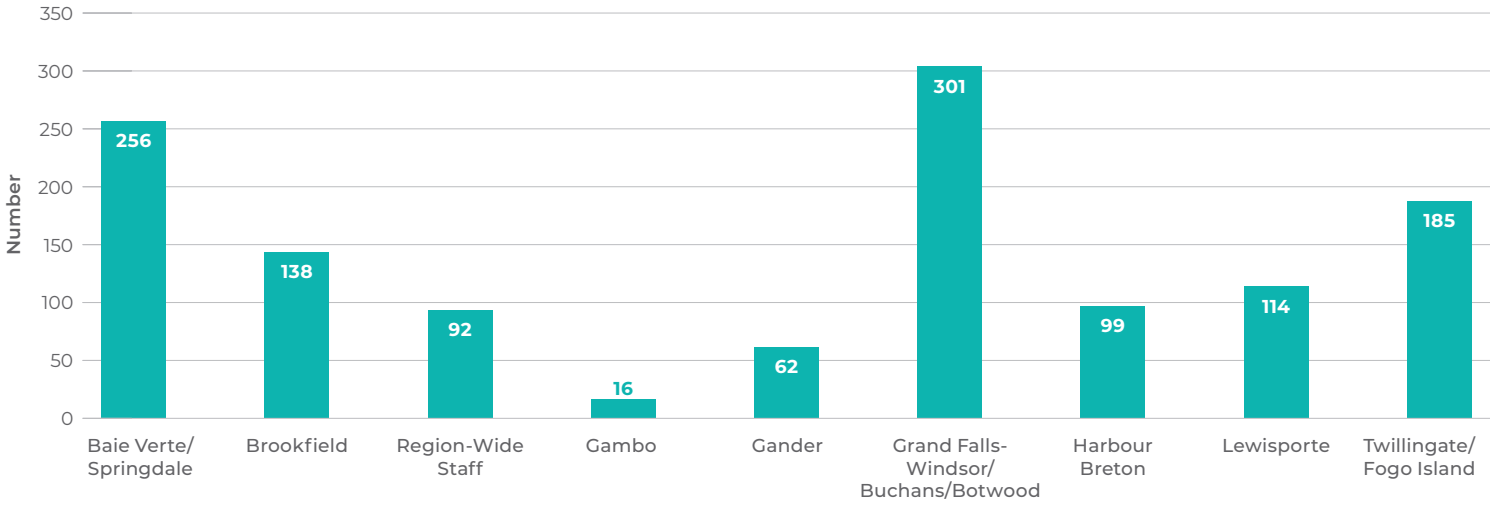


Figure 6. The Number of FTE Staff Available for the Community Teams in CH (Including Family Physicians)

- The catchment population for Fogo Island is small and it would be linked with the Community Team for Twillingate.

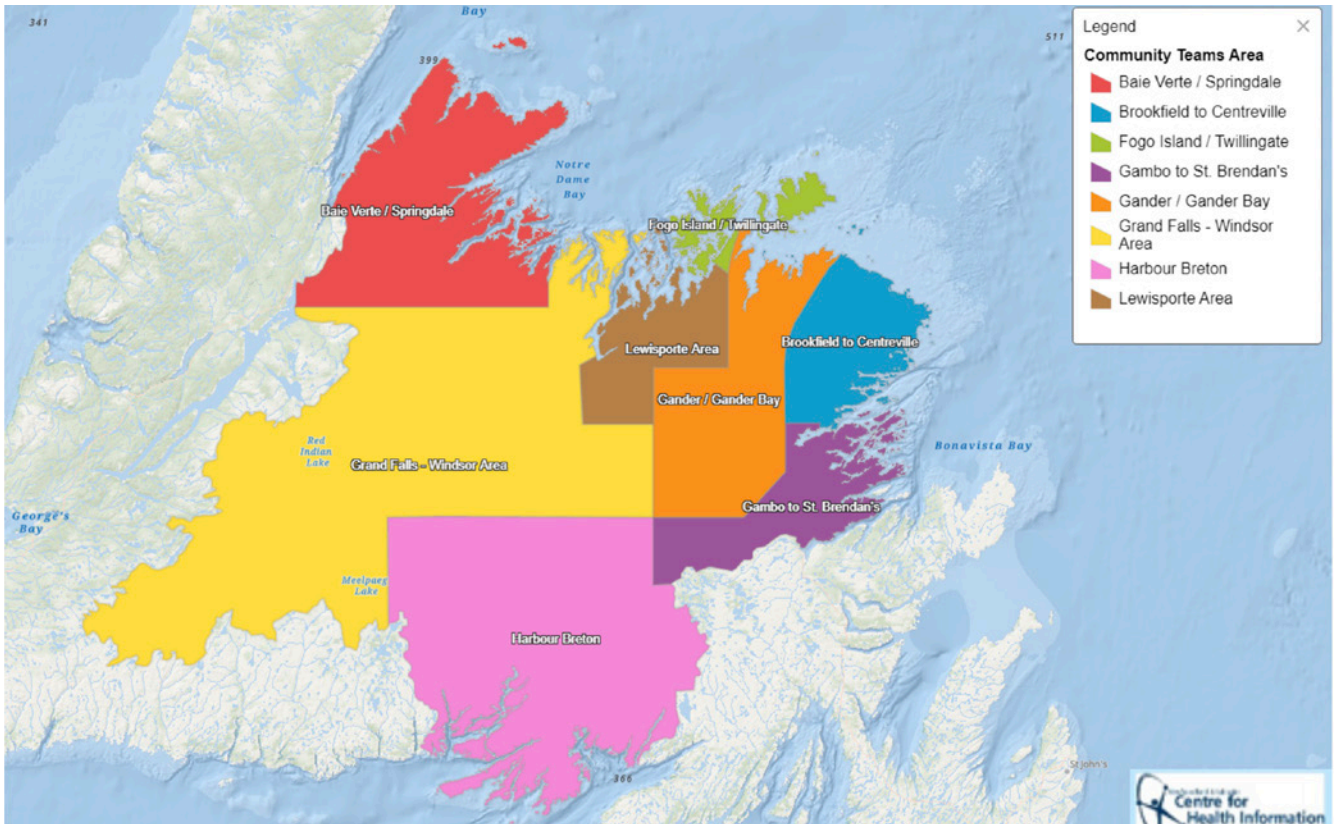


Figure 7. Central Health Community Teams Geographic Area

Table 4. Communities Included in each Community Team Area within Central Health

Community Team Area	Communities
Baie Verte. Springdale Area	
Baie Verte Area	Baie Verte, Brent's Cove, Coachman's Cove, Fleur de Lys, Harbour Round, La Scie, Ming's Bight, Pacquet, Purbeck's Cove, Seal Cove, Tilt Cove, Westport, Wild Cove, Woodstock, Burlington, Middle Arm, Nipper's Harbour, Round Harbour, Shoe Cove, Smith's Harbour, Snooks Arm, Burlington.
Springdale/ Green Bay Area	Springdale, Beachside, Sheppardville, St. Patricks, Birchy Lake, King's Point, Rattling Brook, Jackson's Cove-Langdon's Cove-Silverdale, Harry's Harbour, Nickey's Nose Cove, Little Bay, Little Bay Islands, South Brook, Robert's Arm, Port Anson, Miles Cove, Pilley's Island, Lushes Bight-Beaumont-Beaumont North, Triton, and Brighton.
Harbour Breton Area	
Harbour Breton Area	Bay D'Espoir, Belleoram, Conne River, Harbour Breton, Hermitage, Sandyville, McCallum, Milltown, Mose Ambrose, Pool's Cove, Rencontre East, St. Alban's, Gaultois, English Harbour West, Seal Cove, St. Jacques, St. Veronica's, Boxey, Coomb's Cove, Morrisville, St. Joseph's Cove, Wreck Cove
Grand Falls-Windsor Area	
Grand Falls-Windsor/ Buchans	Grand Falls area, Badger, Buchans, Millertown, Buchans Junction
Exploits Area	Bishop's Falls, Botwood, Peterview, Northern Arm, Phillip's Head, Point of Bay, Cottrell's Cove, Fortune Harbour, Point Leamington, Glover's Harbour, Leading Tickles, Northern Arm, Philips Head, Pleasantview
Gander/Gander Bay Area	
Gander	Appleton, Gander, Benton, Glenwood
Gander Bay Area	Port Albert, Stoneville, Clarke's Head, Main Point, Gander Bay, Horwood, Gander Bay North, Victoria Cove, Wings Point, Aspen Cove, Carmanville, Frederickton, Gander Bay South, Ladle Cove, Noggin Cove
Lewisporte Area	
Lewisporte Area	Baytona, Birchy Bay, Brown's Arm, Boyd's Cove, Campbellton, Comfort Cove, Embree, Lawrenceton, Lewisporte, Little Burnt Bay, Loon Bay, Norris Arm North, Norris Arm South, Stanhope, Michael's Harbour, Newstead, Porterville
Gambo to St. Brendans	
Gambo to St. Brendans	Burnside, Charlottetown, Cull's Harbour, Eastport, Gambo, Glovertown, Happy Adventure, Salvage, Sandringham, Sandy Cove, St. Brendan's, St. Chad's, Terra Nova, Traytown
Brookfield to Centreville Area	
Brookfield to Centreville Area	Alexander Bay, Badger's Quay, Brookfield, Cape Freels North, Centreville-Wareham, Deadman's Bay, Dover, Greenspond, Hare Bay, Indian Bay, Lumsden, Musgrave Harbour, Newtown, Pools Island, Pound Cove, Ragged Harbour, Templeman, Trinity, Valleyfield, Wesleyville
Fogo/Twillingate Area	
Fogo/Twillingate Area	Back Harbour, Barr'd Island, Bridgeport, Change Islands, Cobb's Arm, Cottlesville, Crow Head, Deep Bay, Durrells Arm, Fairbanks-Hillgrade, Fogo, Island Harbour, Joe Batts Arm-Barr'd Islands-Shoal Bay, Moreton's Harbour, Newville, Purcells Harbour, Seldom-Little Seldom, Stagg Harbour, Summerford, Tilting, Twillingate, Valley Pond, Virgin Arm, Wild Cove

Western Health (WH)

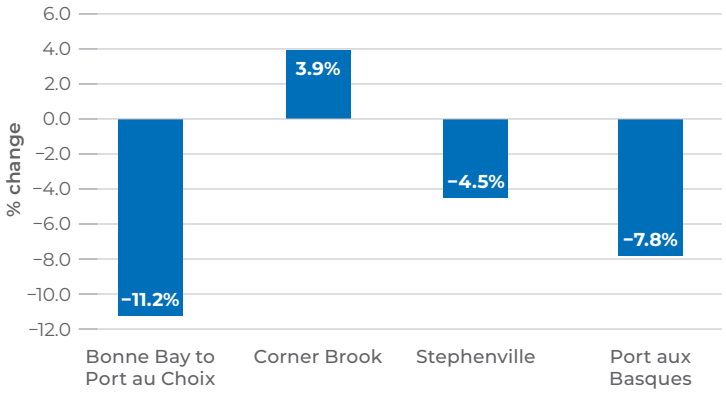


Figure 8A. Actual Change in Population in WH Economic Zones, 2006–2016

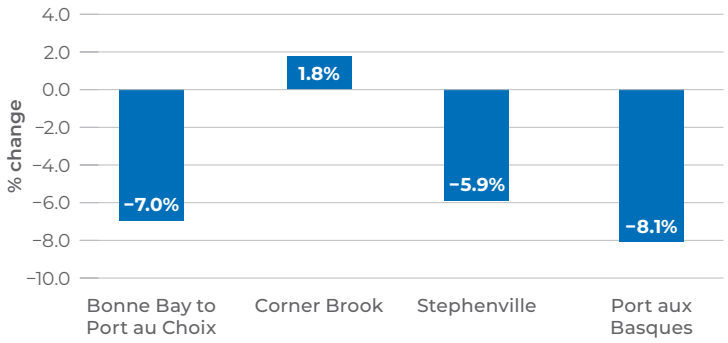


Figure 8B. Change in the Population in WH Economic Zones Projected to Occur, 2021–2030

- In the decade from 2006 to 2016, depopulation of rural areas of WH occurred with some growth in the city of Corner Brook.
- These demographic changes are projected to continue.

Table 5. Number of FTE Staff by Position Available for Community Teams in WH, Including in Brackets Those in Health Centres

Team	Population	Allied Health	Management/ Support Staff	LPN	NP	RN	Personal Care Attendant	Lab/ X-ray	Family Physicians	FTEs
Port Saunders (HC)	2,035	3.3 (2)	30.6 (28.9)	8.3 (7.8)	2 (2)	15.1 (12.9)	3.9 (3.9)	3 (3)	2	68.1 (62.5)
Bonne Bay (HC)	4,355	8.6 (2)	30.5 (28.5)	10.8 (10.3)	2 (2)	15.8 (11.7)	–	3.3 (3.3)	4	75 (61.8)
Total	6,390	11.9 (4)	61.1 (57.4)	19.1 (18.1)	4 (4)	30.9 (24.6)	3.9 (3.9)	6.3 (6.3)	6	143.1 (124.3)
Corner Brook	37,775	70.4	42.4	5.2	2.1	41.3	–	–	40	201.4
Stephenville	18,690	33.6	22.8	4.1	1	28.4	–	–	15	104.9
Port aux Basques (HC)	8,195	14.6 (5.1)	51.9 (47.4)	21.2 (20.2)	2 (2)	34.2 (24.2)	6.9 (6.9)	9.1 (9.1)	7 (3)	147 (118)
Burgeo (HC)	2,095	1	25.7 (27)	13.1 (13.1)	1 (1)	9.3 (7.3)	0.8 (0.8)	2 (2)	2	54.8 (51.2)
Deer Lake	8,185	9	4	2	–	9.1	–		5	29.1

( ) = Of the total in the region, FTE staff in health centres

- In Port Saunders, Bonne Bay, Port aux Basques and Burgeo most of the FTE staff are working in the health centres.
- In WH there were 680.3 FTEs working in the community, including family physicians. Of these, 417.8 (61%) were working in the four health centres.
- Of 140.5 allied health professionals, 50% were in Corner Brook.
- The majority of LPNs (79% of 64.7) and all personal care attendants were working in health centres that have LTC beds.

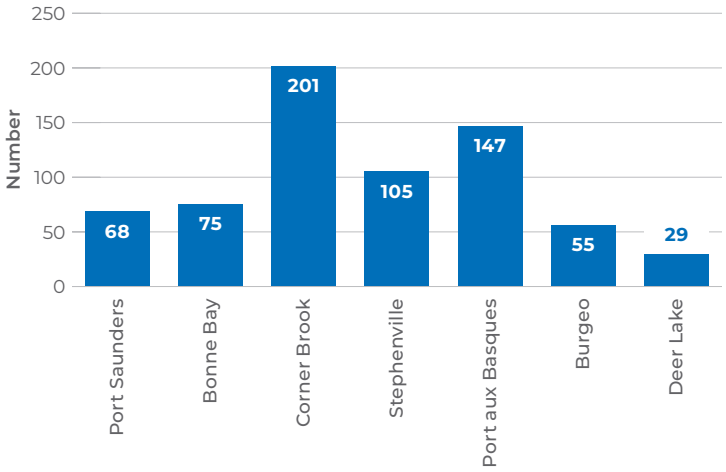


Figure 9. The Number of FTE Staff Available for the Community Teams in WH (Including Family Physicians)

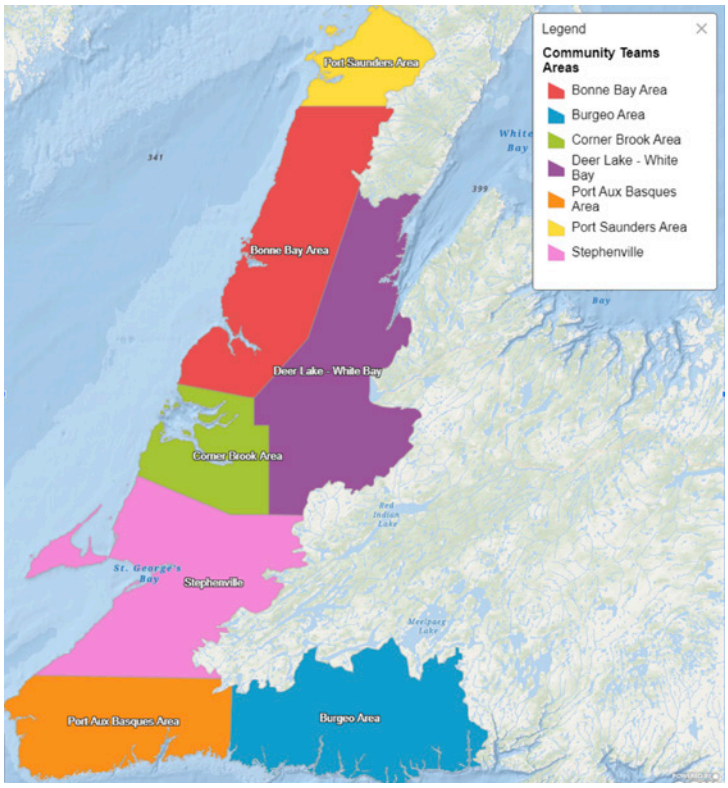


Figure 10. Western Health Community Teams Geographic Area

Table 6. Communities Included in Each Community Team Area within Western Health

Community Team Area	Communities
Bay St. George	
Bay St. George	Barachois Brook, Flat Bay, Journois, St. George's, St. Teresa, McKay's, Heatherton, Highlands, Maidstone, Jeffrey's, Robinsons, St. David's, St. Fintan's, Cartyville, Black Duck Siding, Cold Brook, Kippens, Mattis Point, Noels Pond, Point au Mal, Fox Island River, Port au Port East, Port au Port West, Aguathuna, Spruce Brook, Stephenville, Stephenville Crossing, Port au Port Peninsula - Black Duck Brook, Winterhouse, Campbell's Creek, Cape St. George, Degrau, Marche's Point, Red Brook, Piccadilly Head, Piccadilly Slant- Abrahams Cove, Lourdes, West Bay, Sheave's Cove, Ship Cove, Lower Cove, Three Rock Cove, Mainland
Bonne Bay	
Bonne Bay	Trout River, Wiltondale, Winter House Brook, Woody Point, GBS – Glenburnie, Birchy Head, Shoal Brook, Norris Point, Rocky Harbour, Sally's Cove, St. Pauls, Cow Head, Three Mile Rock, Parsons Pond, Portland Creek, Daniels Harbour, Bellburns
Burgeo	
Burgeo	Burgeo, Francois, Grey River, Ramea
Corner Brook/Bay of Islands	
Corner Brook/ Bay of Islands	Corner Brook, Massey Drive, Gallants, Steady Brook, Hughes Brook, Irishtown – Summerside, Meadows, Gilliams, McIvers, Cox's Cove, Mt. Moriah, Benoit's Cove, Halfway Point, Frenchmans Cove, York Harbour, Lark Harbour, Humber Village, Little Rapids, Pasadena, Pynns Brook, Humber Valley Resort
Deer Lake/White Bay	
Deer Lake/ White Bay	St. Judes, Deer Lake, Howley, Cormack, Reidville, Bonne Bay, Pond, Jackladder, Hampden, Beaches, Georges Cove, Fox Point, and Rooms, Pollards Point, Jacksons Arm, Sops Arm
Port Saunders	
Port Saunders	River of Ponds, Spirity Cove, Hawk's Bay, Port Saunders, Port au Choix, Eddies Cove West (NOT Eddies Cove East), Barr'd Harbour, Castor River North, Castor River South, Bartlett's Harbour
Port aux Basques	
Port aux Basques	Port aux Basques, LaPoile, Rose Blanche, Burnt Islands, Isle Aux Morts, Grand Bay West, Grand Bay East, Upper Ferry, O'Regans, Codroy, Woodville, Millville, St. Andrews, Doyles, Upper Ferry, Cape Ray, Searston, Loch Levin, Loch Lomond, Coal Brook, Cape Anguille, Macdougalls, Margaree, Red Rocks, Tompkins, St. Andrew's, Benoit's Siding

Labrador-Grenfell Health (LGH)

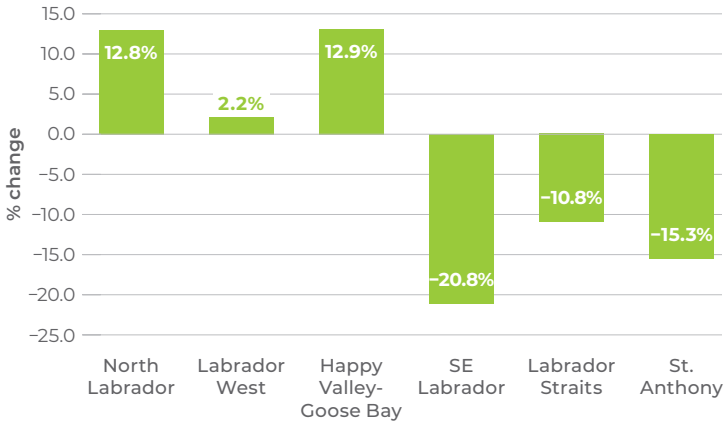


Figure 11A. Actual Change in Population in LGH Economic Zones, 2006–2016

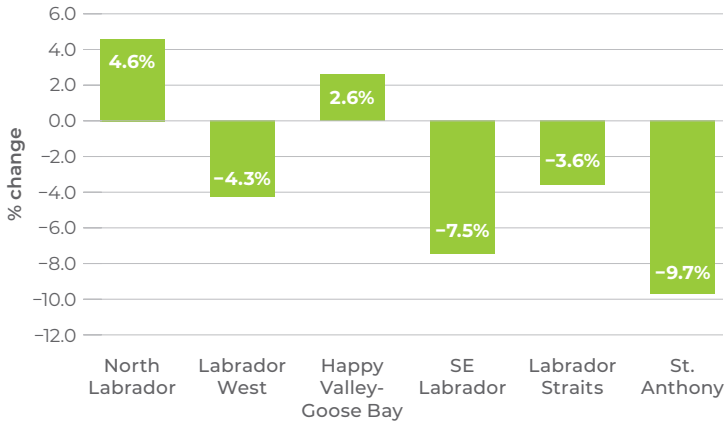


Figure 11B. Projected Change in Population in LGH Economic Zones, 2021–2030

Table 7. Number of FTE Staff by Position Available for Community Teams in LGH, Including in Brackets those in Health Centres

Place	Population	Allied Health	Management/ Support Staff	LPN	NP	RN	Personal Care Attendant	Lab/ X-ray	Family Physicians	FTEs
Nunatsiavut	2,558	1.0	9.1	–	3.3	12.9	9.4	–	–	35.7
Innu Nation	1,482	–	4.6	1.0	2.0	5.4	3.0	–	–	16.0
HVGB	9,678	8.5	15.5	2	–	9.0	–	–	35.0	9,678
Labrador West	9,870	15.0	9.3	0.5	–	14.4	1.1	–	–	40.3
South/SE Labrador (HC)	3,421	2.0	20.4 (14.4)	11.6 (11.6)	1.5	23.6 (7.7)	10.7 (4.5)	1.6 (1.6)	3 (3)	75.5 (42.8)
Northern Penninsula (HCx2)	9,280	12.0 (12.0)	20.3 (16.2)	9.7 (8.2)	1.0 (1.0)	22.1 (17.1)	–	3.1 (3.1)	4 (4)	72.2 (51.6)

( ) = Of the total in the region, FTE staff in health centres

- Three of the proposed community teams (Nunatsiavut, Innu Nation, and South/SE Labrador) have a population that is too small to sustain a full service team. Consequently, the services needed for these teams must be provided by an adjacent team.
- Forteau health centre is included in the South/SE community team and has 14 LTC beds and one holding bed for acute care.
- In LGH, there were 274.7 FTEs working in the community, including family physicians. Of these, 94.4 (34%) were working in the three health centres.
- There are 30.5 allied health professionals working in the community.
- The majority of LPNs (80% of 24.8) and 19% of personal care attendants were working in health centres that have long-term care beds.

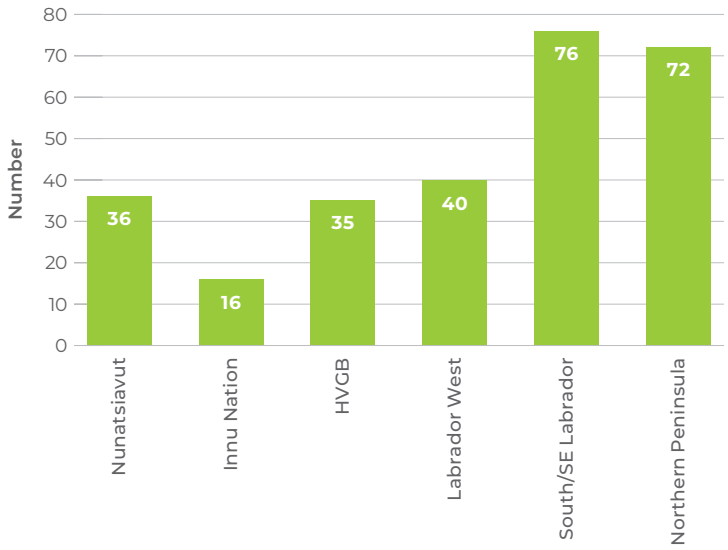


Figure 12. The Number of FTE Staff Available for the Community Teams in LGH (Including Family Physicians)

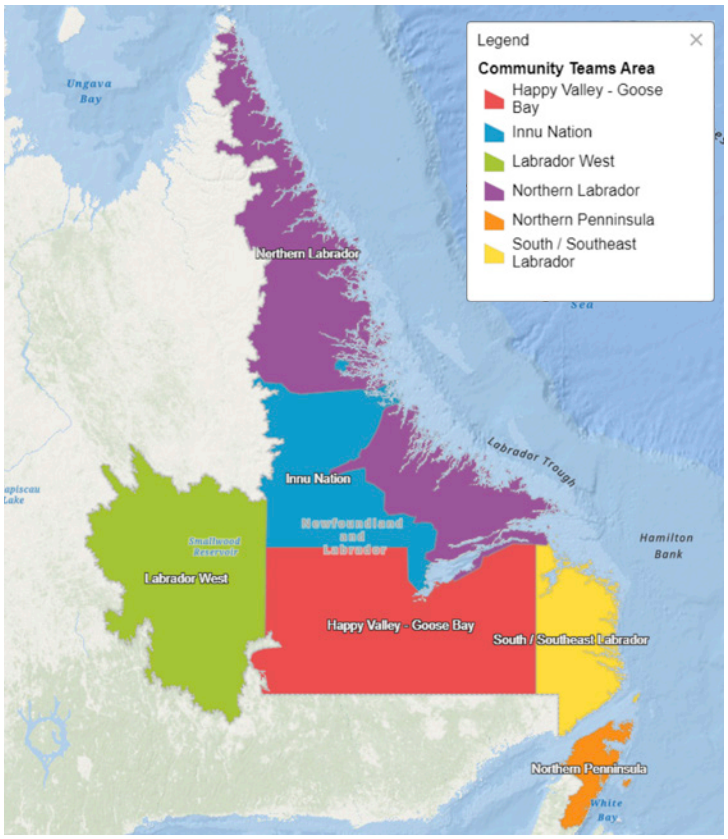


Figure 13. Labrador-Grenfell Health Community Teams Geographic Area

Table 8. Communities Included in Each Community Team Area within Labrador-Grenfell Health

Community Team Area	Communities
Happy Valley-Goose Bay	
Happy Valley-Goose Bay	Happy Valley-Goose Bay, Mud Lake
Innu Communities	
Innu Communities	Natuashish, Sheshatshiu, North West River*
Labrador West	
Labrador West	Labrador City, Wabush, Churchill Falls
Northern Peninsula	
St. Anthony Area	St. Anthony, Cook's Harbour, Goose Cove East, Raleigh, St. Lunaire-Griquet, Great Brehat, L'Anse aux Meadows, Quirpon, Ship Cove, St. Anthony Bright, North Boat Harbour, Wild Bright, Straits View, Gunners Cove, Hay Cove, St. Carol's
Strait of Belle Isle Area	Shoal Cove West, New Ferolle, Blue Cove-Pond Cove, Deadman's Cove, Green Island Cove, Pines Cove, Savage Cove, Sandy Cove, Shoal Cove East, Eddies Cove, Anchor Point, Bird Cove, Flower's Cove, Black Duck Cove, Brig Bay, Forresters Point, Green Island Brook, Nameless Cove, Pidgeon Cove, St. Barbe, Plum Point, Reefs Harbour
White Bay Area	Conche, Croque, St. Julien's, Englee, Main Brook, Roddickton - Bide Arm
Northern Labrador	
Northern Labrador	Rigolet, Makkovik, Postville, Hopedale, Nain
South/Southeast Labrador	
South/ Southeast Labrador	Cartwright, Paradise River, Black Tickle, Charlottetown, Normans Bay, Pinsent's Arm, Port Hope Simpson, St. Lewis, Mary's Harbour, Lodge Bay, Forteau, L'Anse-au-Clair, L'Anse-au-Loup, Pinware, Red Bay, West St. Modeste, L'Anse Amour, L'Anse-au-Diablo, Capstan Island

*(Shares postal code with Sheshatshiu, therefore included in analyses/ reporting using administrative data)

Table 9. Suggested Community Teams with Population Estimates Derived from the Census and from MCP Beneficiary Data

RHA	Team	Population from Census	Population Based on MCP Beneficiary	Primary Health Care Regions (PHCs)
EH	St. John's Metro*	119,371	117,137	St. John's, Petty Harbour Maddox Cove
	Mount Pearl	23,000	23,850	Mount Pearl
	Paradise/ CBS	54,378	57,599	Paradise, CBS, Holyrood, CBC
	Portugal Cove / Bell Island HC	18,516	26,672	Portugal Cove-St. Philip's, Bell Island, Bauline Pouch Cove, Torbay, Logy Bay-Middle Cove-Outer Cove
	Whitbourne/ Placentia x 2 HC	7,145	8,910	Whitbourne-Placentia
	Carbonear/ Old Perlican HC	17,350	13,872	Bay de Verde Peninsula (North)
	Bay Roberts	20,140	25,968	Bay de Verde Peninsula (South)
	Burin x 2 HC	19,810	20,316	Burin
	Clarenville	20,282	18,874	Clarenville
	Bonavista HC	7,135	7,928	Bonavista
	Southern Shore	6,250	9,717	Southern Shore, St. Mary's
CH	Brookfield to Centreville	7,155	7,637	Kittiwake Coast (Modified)
	Fogo Island/ Twillingate	7,915	8,620	Notre Dame Bay (Modified)
	Springdale/ Baie Verte	13,245	13,693	Green Bay, Baie Verte
	Harbour Breton	7,000	6,864	Coast of Bays
	Gander/ Gander Bay	17,255	17,314	Gander (Modified)
	Gambo to St. Brendans	5,885	6,370	Terra Nova
	Grand Falls-Windsor	26,295	26,353	Grand Falls-Windsor, Buchans, Exploits
	Lewisporte	7,775	8,917	Lewisporte
WH	Port Saunders	2,035	2,533	Port Saunders
	Bonne Bay	4,355	4,440	Bonne Bay
	Corner Brook	37,775	35,178	Corner Brook
	Stephenville	18,690	19,786	Stephenville
	Port aux Basques	8,195	8,486	Port aux Basques
	Burgeo	2,095	1,908	Burgeo
	Deer Lake	8,185	8,928	Deer Lake
LGH	HVGB	9,678	8,627	Central Labrador
	Innu Nation	1,482	3,114	Innu Communities
	Labrador West	9,970	10,235	Labrador West
	Northern Peninsula	9,280	8,897	Northern Peninsula
	Northern Labrador	2,558	2,590	Nunatsiavut
	South/ SE Labrador	3,421	3,487	Southeast Labrador

Data Source: Compiled by Data and Information Services, NL Centre for Health Information using data from the 2020/21 MCP Beneficiary Data

Technical Notes

[1]Please note that the MCP Beneficiary data is the source of the population numbers and they differ from other population numbers that are available through Statistics Canada or NL Statistics Agency. MCP Beneficiary data is the only population data source that enables reporting at the PHC level. The MCP Beneficiary data would include any individual who had an active MCP card at some point during the fiscal year.

*The optimal number of community teams has been suggested as 4 but St. John's Metro is uncertain.

Conclusions

1. The mix and distribution of providers currently available for envisaged community teams provides a basis on which to build these teams. In addition, the areas of concern can be identified either because of geography, population size, or availability of providers.

2. In regions that have health centres, the majority of the available staff for the community teams are in the health centres that have long-term care facilities.

3. Staff in long-term care facilities of health centres will remain assigned to this care.

Utilization of Health Centres in NL

Objective

To describe the current utilization of the 23 health centres in NL.

Practice Points

1. There are 23 health centres in the province, seven in Eastern Health (EH), nine in Central Health (CH), four in Western Health (WH) and three in Labrador-Grenfell Health (LGH).

   They provide a mix of services including primary care, emergency care, inpatient acute care, and long-term care, which varies from centre to centre.

2. Health Accord NL envisages approximately 35 Community Teams to cover all areas of the province so that access to care is provided to everyone in NL. The health centres will be integrated into these teams.

3. Health Accord NL also envisages an emergency system with a provincial, integrated air/ground ambulance service, a provincial virtual emergency system, and dependence on the emergency departments of the 13 hospitals in the province.

   The community teams will provide same-day, urgent care clinics with the model of care dependent on volume of cases, availability of providers, geography, and distance from a hospital.

4. Efficient use of the hospitals' acute beds should decrease the need for acute beds in health centres but long-term care should be maintained close to where residents had lived.

Data

These were obtained from the Department of Health and Community Services and the four Regional Health Authorities (RHAs) on the structure of health centres, full-time equivalent employees (FTEs), emergency room (ER) use, acute bed use and number of long-term care (LTC) beds. ER data were for fiscal year 2019/20, and other data for 2021.

Results

Table 1. Catchment Population, FTE Staff, Emergency Room Use, and Utilization of Health Centres in Eastern Health (EH), and Distance to Nearest Hospital

Place	Catchment Population	Family Physicians	FTEs including Doctors	ER Visits	ER Visits 8pm–8am	Acute Beds	Occupancy %	ALC# %	LTC Beds	Distance to Nearest Hospital (km)
Bell Island	2,470	3	46.8	5,444	1,867	4	64	0	17	Ferry
Whitbourne	2,355	5	30.8	8,567	3,128	0	N/A	N/A	0	Carbonear – 58 St. John's – 89
Placentia	4,790	4	137.6	5,246	1,953	11	38	13	75	Carbonear – 106 St. John's – 130
Old Perlican	3,130	4	28	6,566	2,012	4	37	N/A	N/A	54
Bonavista	7,135	4	167.4	7,747	3,490	10	64	26	70	113
St. Lawrence	1,310	3	74.4	2,759	761	0	N/A	N/A	40	38
Grand Bank	4,625	4	115.3	7,012	3,263	0	N/A	N/A	61	61

ALC = Alternate Level of Care.

- The catchment population for the health centres was small, except for Bonavista.
- Four health centres had acute care beds. Placentia and Old Perlican had an occupancy of <40% and Bell Island and Bonavista had an occupancy of 64%.
- Five health centres had LTC beds, with bed numbers ranging from 17–75.
- All health centres were <120 km from the nearest hospital, but Bell Island is dependent on a ferry.

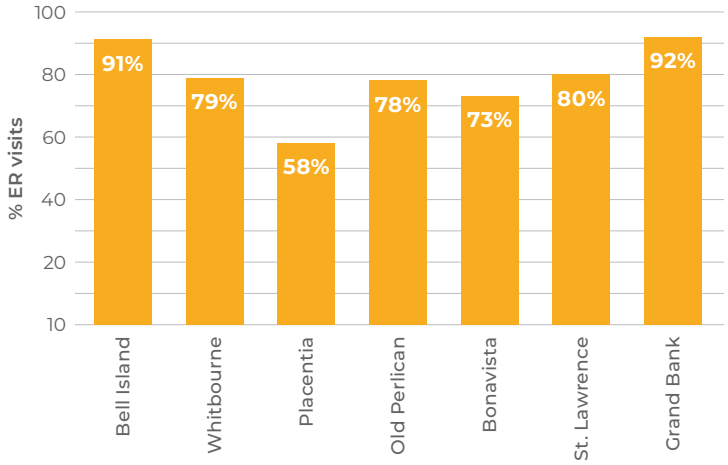


Figure 1. Per Cent of ER Visits to Health Centres in EH Considered to be CTAS Level 4/5 (Defining Visits, Less Urgent, or for Non-Urgent Complaints)
From Practice Points, Vol 8, p.40

- Over 70% of ER visits were considered less than urgent or for minor complaints in all health centres except Placentia.

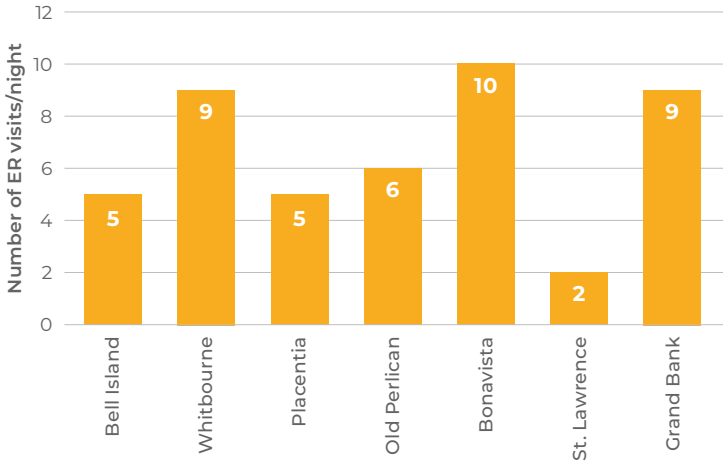


Figure 2. Number of Visits/Night to ER in Health Centres in EH

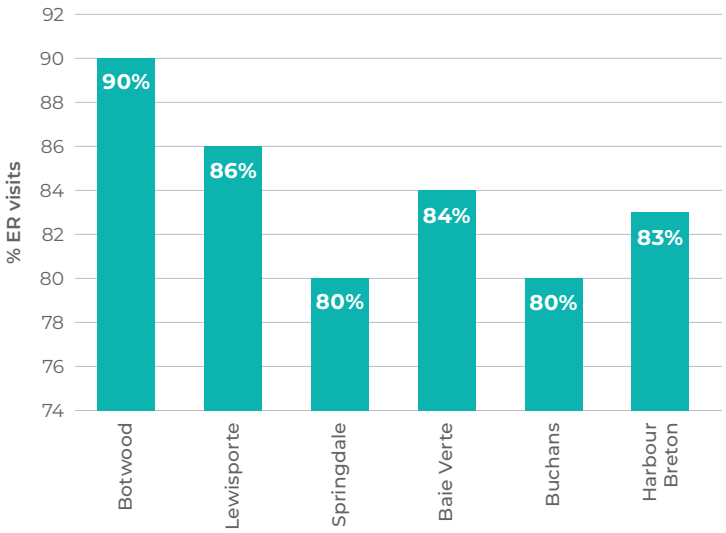
- All health centres had ≤10 visits/night, from 8pm–8am, and St. Lawrence had two visits/night.

Table 2. Catchment Populations, FTE Staff in the Health Centre/Community, Utilization in Health Centres of Central Health, and Distance to Nearest Hospital

Place	Catchment Population	FTEs including Family Physicians	ER Visits	ER Visits 8pm–8am	Acute Beds	Occupancy %	ALC %	LTC Beds	Distance to Nearest Hospital (km)
New-Wes-Valley	7,155	118.8	2,810	1,285	12	76	36	45	123
Fogo Island	2,245	44.3	3,581	602	4	88	49	12	Ferry or Air
Twillingate	5,670	123.5	12,152	2,235	17	92	50	32	118
Springdale	7,880	154.4	5,817	3,155	9	95	52	77	106
Baie Verte	5,365	76.9	6,573	2,526	7	78	41	19	179
Buchans	815	36.2	1,365	404	3	77	0	20	104
Botwood	?	128.2	7,643	1,339[#]	0	N/A	N/A	80	36
Harbour Breton[t]	7,000	95.3	2,703	1,152	5	81	63	19	223
Lewisporte	7,775	97.8	6,506	4,823	0	N/A	N/A	50	59

[#] Closed 12am–8am; [t] Includes St. Albans, which has 3,301 ED visits, 411 at night.

- The catchment population was small for Fogo Island and Buchans.
- Harbour Breton, Baie Verte and New-Wes-Valley is >120 km from the nearest hospital. Fogo Island is dependent on a ferry.
- Seven of the nine health centres had acute care beds, but small numbers (2–7) in four of the centres.
- LTC beds existed in all nine health centres.



Note: Data not available for New-Wes-Valley, Twillingate, or Fogo Island

Figure 3. Per Cent of ER Visits to Health Centres in CH Considered to be CTAS 4/5
Practice Points Vol 8, p40

- Over 80% of visits were not urgent, or for minor complaints in all the health centres of CH.

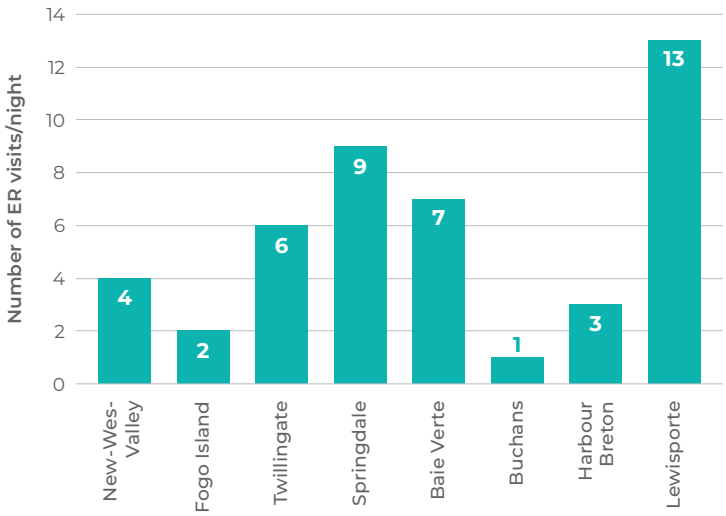


Figure 4. Number of Visits/Night to ERs in the Health Centres of CH

- All the health centres in CH had fewer than 10 visits/night, except Lewisporte.
- Buchans and Fogo Island had less than two visits/night.

Table 3. Catchment Population, FTE Staff, Emergency Room Use, and Utilization in Health Centres of Western Health (WH), and Distance to the Nearest Hospital

Place	Population	FTEs	ER Visits	ER Visits 8pm–8am	Acute Beds	Occupancy Rate (%)	ALC %	LTC Beds	Distance to Nearest Hospital (km)
Port Saunders	2,035	62.5	5,516	1,183	7	46	16	22	St. Anthony – 203 Corner Brook – 276
Bonne Bay	4,355	61.8	5,945	1,493	8	77	66	14	Corner Brook – 123
Port aux Basques	8,195	118	6,247	2,166	14	85	45	30	Stephenville – 164 Corner Brook – 219
Burgeo	2,095	51.2	851	340	3	63	44	18	Stephenville – 181 Corner Brook – 213

- Of the four health centres in WH, only Port aux Basques has a catchment population >5,000.
- All four health centres are >120 km from the nearest hospital.
- All four health centres have acute care beds, and the occupancy is <80% in three centres.
- ALC is high in three of the four centres.
- All four health centres have LTC beds.
- Only Port aux Basques reported on CTAS levels for the ER: per cent of ER visits considered to be CTAS 4/5 was 67.

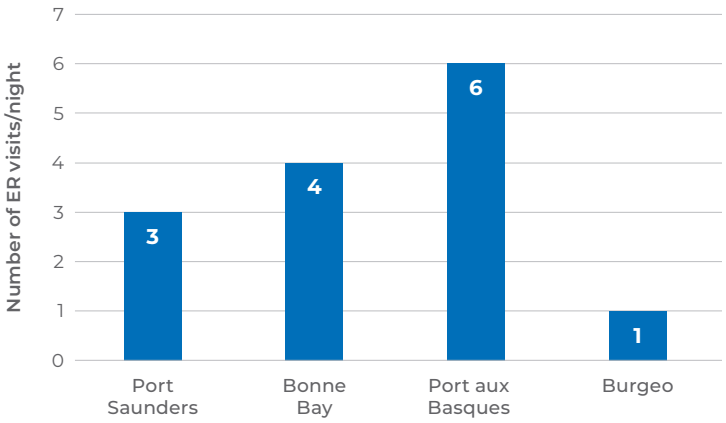


Figure 5. Number of Visits/Night, 8pm–8am, to the ERs in Health Centres of WH

- Use of the ER in the four health centres of WH was low at night.

Table 4. Catchment Population, FTE Staff, Emergency Department Utilization in Coastal Clinics, and Health Centres of LGH

Place	Population	FTEs	ER Visits	ER Visits 8pm–8am	Distance to Nearest Hospital (km)
North West River	547	7.2			43
Natuashish	935	8.8	3,215@	2,029	Air
Nain	1,125	16			Air
Hopedale	574	6.7			Air
Makkovik	377	4.7			Air
Postville	177	3.6			Air
Rigolet	305	4.5			Air
Forteau HC	1,610	43.8	1,216	553	Ferry or Air
Port Hope Simpson	412	6.6	849#	435	Ferry or Air
Mary's Harbour	341	6.7			Ferry or Air
St. Lewis	194	4.4			Ferry or Air
Charlotte-town	290	4.5			Ferry or Air
Cartwright	427	7.2			390
Black Tickle	147	2.4			393
Belle Isle HC	3,290	24.9	2,847	974	82
White Bay HC	2,010	26.7	2,506	721	129

@The sum of ER visits in Northern coastal clinics ; #The sum of ER visits in Southern coastal clinics; HC=Health Centre

- Travel from Northern Labrador to the nearest hospital is by air, and from the communities in the South and South East Labrador by ferry.
- There are three health centres in LGH, none of which have acute care beds, and only Forteau had LTC beds (N= 14). Each has a holding bed.
- The 12 coastal clinics provide emergency care. The catchment populations are small and geographically isolated.
- Roddickton is >120km from St. Anthony hospital.
- CTAS scores from ERs in the three health centres are not available.
- The number of ER visits/night, 8pm–8am, in the three health centres were low: Roddickton 2, Flower's Cove 3, Forteau 2.

Conclusions

1. The catchment populations for the majority of health centres was <5,000 people, and a minority were >120 km from the nearest hospital.
2. The vast majority of ER visits were for non-urgent or minor conditions; the number/night of ER visits was low, the highest being 10/night in Bonavista.

   Different models of urgent care will likely apply to various health centres based on distance from a hospital, geography, volume of visits, and availability of providers.
3. The number of acute care beds needed should be considered based on distance from a hospital, geography, availability of providers, occupancy, and ALC rates.
4. Many health centres provide beds for LTC.

Information to Plan Services in Community Hospitals

Objective

To provide information on demography, utilization, and level of complexity of hospital services provided by the seven rural hospitals in NL.

Practice Points

1. There are hospitals in NL with relatively small catchment areas in Clarenville, Burin, Stephenville, St. Anthony, Happy Valley-Goose Bay (HVGB), and Labrador West. Carbonear has a potential catchment population of about 60,000 people, but residents frequently attend St. John's hospitals for services. For this summary we will use a catchment population of 40,000.
2. These hospitals are appropriately geographically located based on population, but pressures exist to provide full service specialty services in these areas.
3. Small volumes of patients in specialized services predispose to problems with recruitment and retention of specialists (sustainability), concern about quality outcomes particularly in high-risk patients having high-risk procedures, having the health care resources to provide care with high level of complexity, limiting resources to regional hospitals who should provide specialized care with a high level of complexity.

Data

1. These were obtained from Canadian Institute for Health Information, NL Centre for Health Information, and Department of Health and Community Services for 2019/20.
2. Level of complexity reported by the service and work force level is ranked from 1–6, with 1 the lowest level on the Tasmania Role Delineation Model Framework were obtained from the RHA.
3. Turnover is defined as new doctors in 2018–2021 (3 years) plus current vacancies as percentage of current positions funded.
4. Catchment population was obtained from the Department of Finance projections.
5. For the ease of presentation, Stephenville is included with the 3 LGH hospitals.

Results

Eastern Health (EH) Rural Hospitals

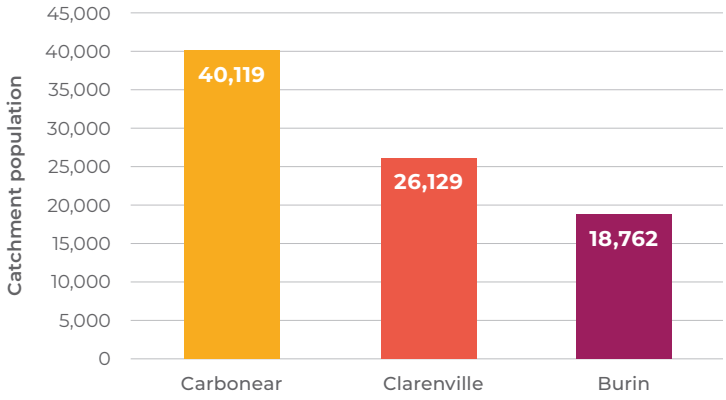


Figure 1A. Catchment Population

- There are 85,010 people in this region, similar to that of Central Health (CH) and Western Health (WH).

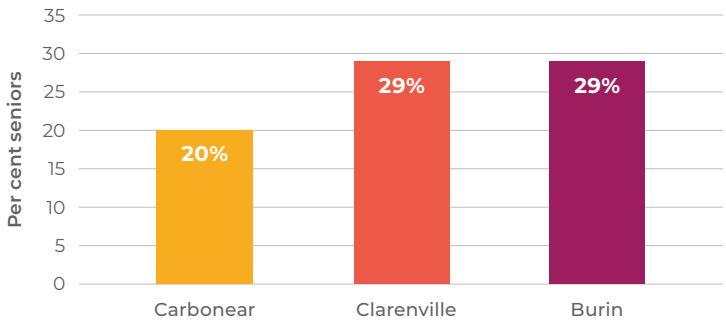


Figure 1B. Per Cent Seniors

- The per cent seniors on the Bonavista Peninsula and Burin Peninsula is 29.
- For ICU, the work force level ranges from 2 to 6. This work was undertaken in 2021.

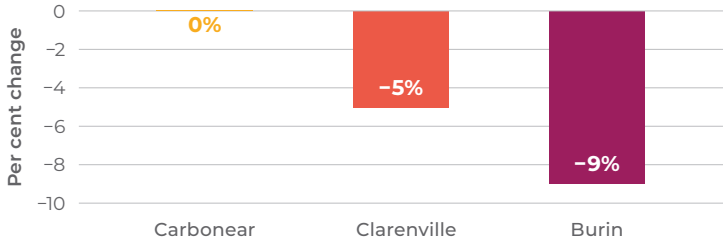


Figure 1C. Predicted Population Change From 2020 to 2030

- The catchment populations of Burin and Clarenville are predicted to decrease.

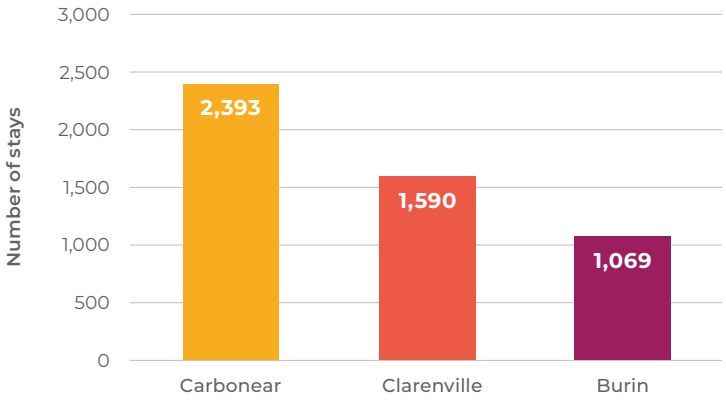


Figure 2A. Annual Number of Stays, 2019–2020

- The number of hospital stays/1,000 population is similar in the three catchment populations (57–60).

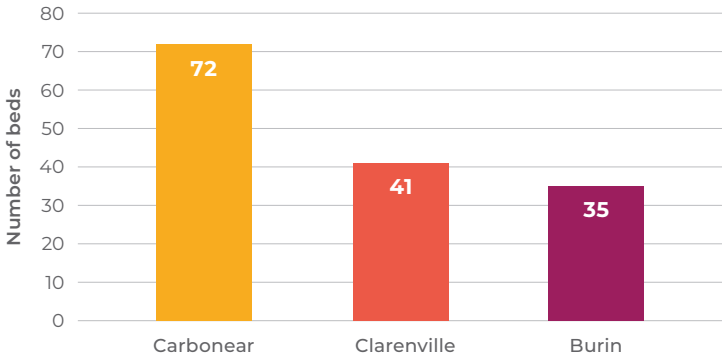


Figure 2B. Number of Beds, 2019/20

- The number of beds/1,000 population is 1.8 in Carbonear, 1.6 in Clarenville and 1.9 in Burin.

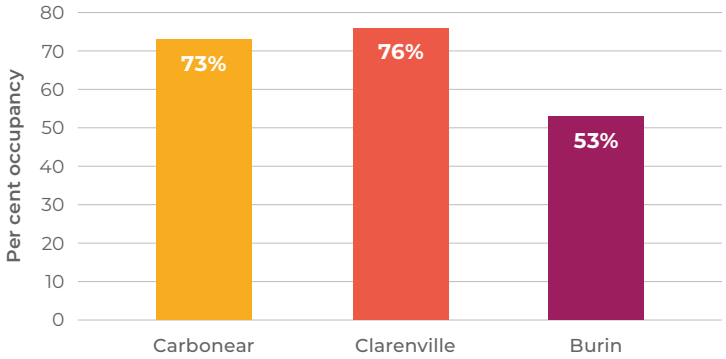


Figure 2C. Per Cent Occupancy, 2019/2020

- The occupancy rate for all three hospitals is low.

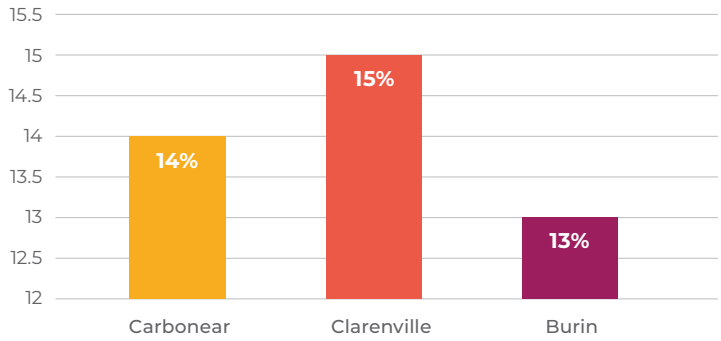


Figure 2D. Per Cent Alternate Level of Care, 2019/2020

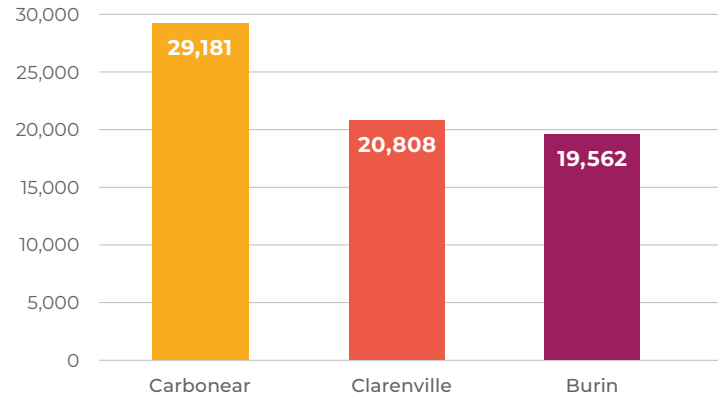


Figure 3A. Annual Utilization of Emergency Department (N), 2019/2020

- The number of ER visits/1,000 population ranged from 727 in Carbonear, 796 in Clarenville, and 1,043 in Burin.

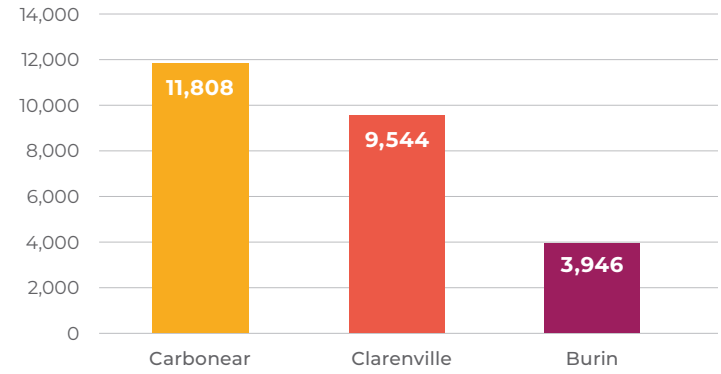


Figure 3B. Number of CTAS 1–3 seen in the Emergency Department 2019/2020

- The number of CTAS 1-3 (resuscitation/emergent/urgent) visits/1,000 population was 294 in Carbonear, 365 in Clarenville and 210 in Burin.

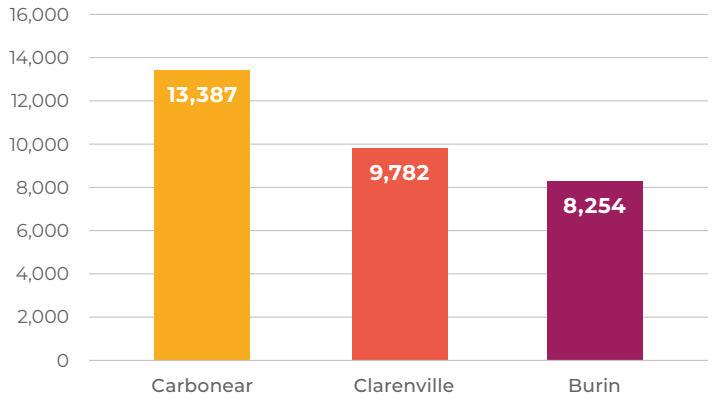


Figure 3C. Number Seen in Emergency Department From 8 PM to 8 AM, 2019/2020

- The percentage of ER visits seen at night was 46% in Carbonear and Clarenville, and 42% in Burin.

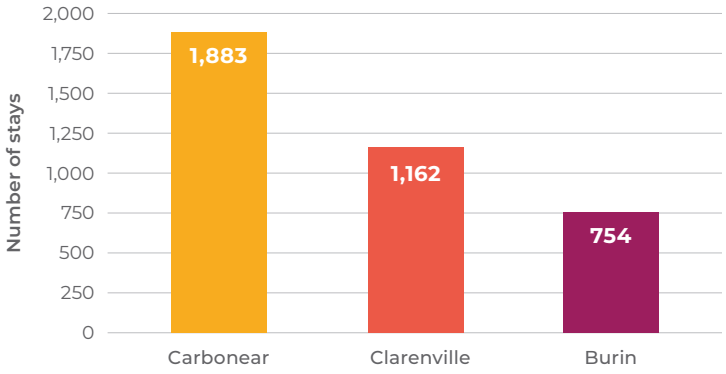


Figure 4A. Annual Number of Stays for Medical Reason, 2019/2020

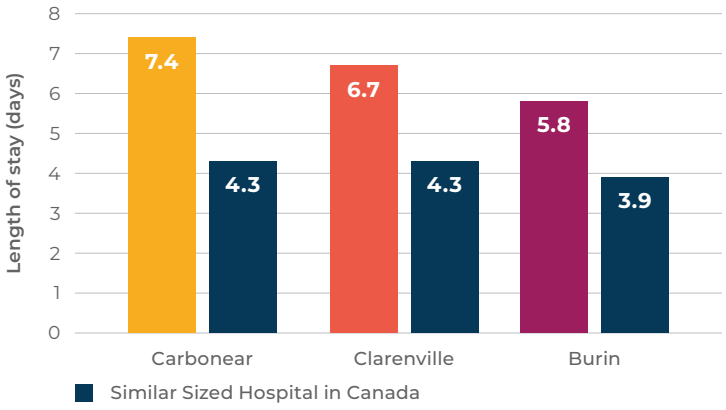


Figure 4B. Length of Stay in Days vs. Canadian Average for Similar Sized Hospital

- Length of stay for medicine was higher than in comparable Canadian hospitals, especially at Carbonear.

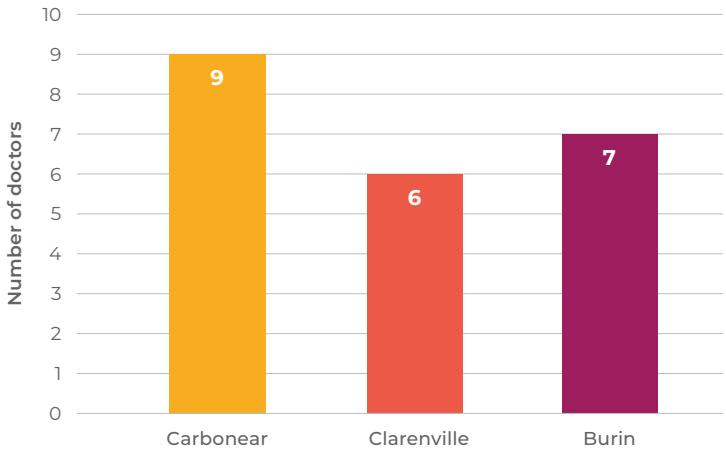


Figure 4C. Number of Doctors for Medicine Service

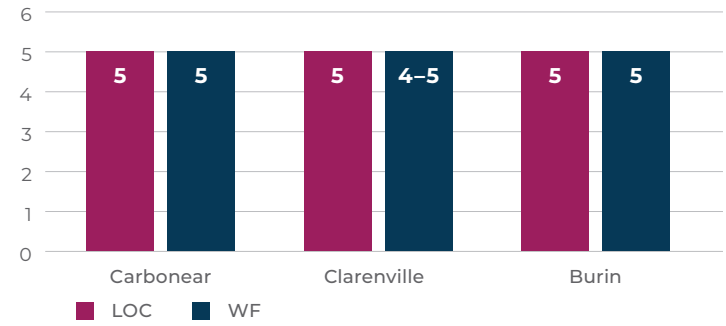


Figure 4D. Level of Complexity (LOC) and Work Force (WF) Level for Medicine

- Level of complexity of medical services provided at the three rural hospitals was high with commensurate work force provided to meet that level.

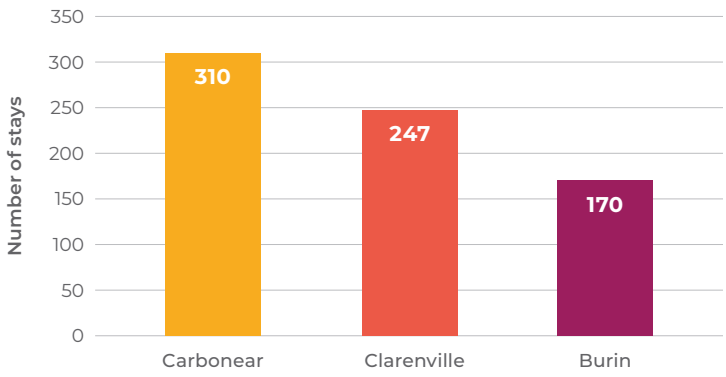


Figure 5A. Annual Number of Stays for Surgery Reason, 2019/2020

- Number of stays for surgery was <1/day for each of the three hospitals.

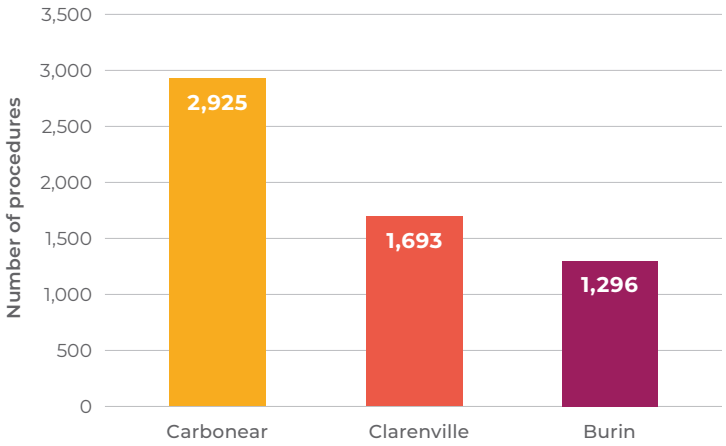


Figure 5B. Number of Same Day Procedures, 2019/2020

- The number of same day procedures/1,000 population was 73 in Carbonear, 65 in Clarenville and 69 in Burin.

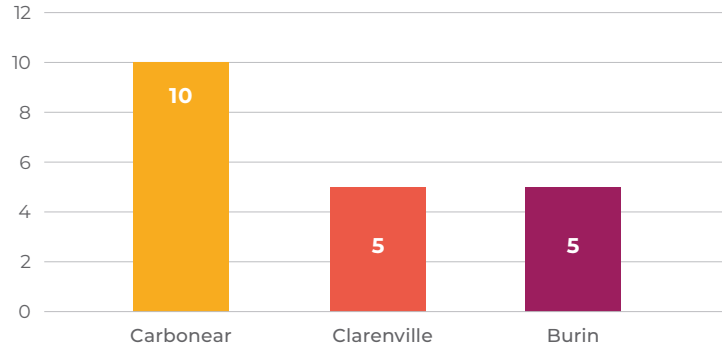


Figure 5C. Number of Surgeons and Anesthetists Funded, 2019/2020

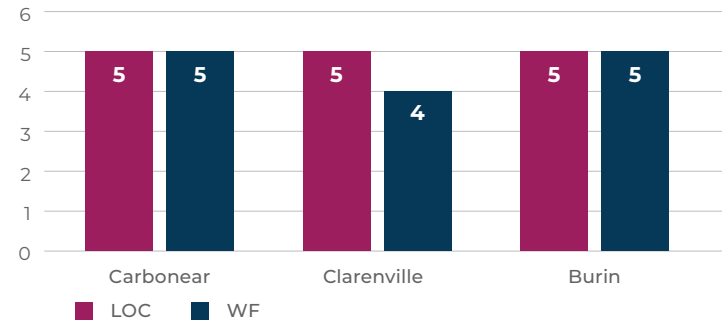


Figure 5D. Level of Complexity (LOC) and Work Force (WF) Level for Surgery

- Level of complexity of surgery reported by the three hospitals was high with commensurate work force provided to meet that level.

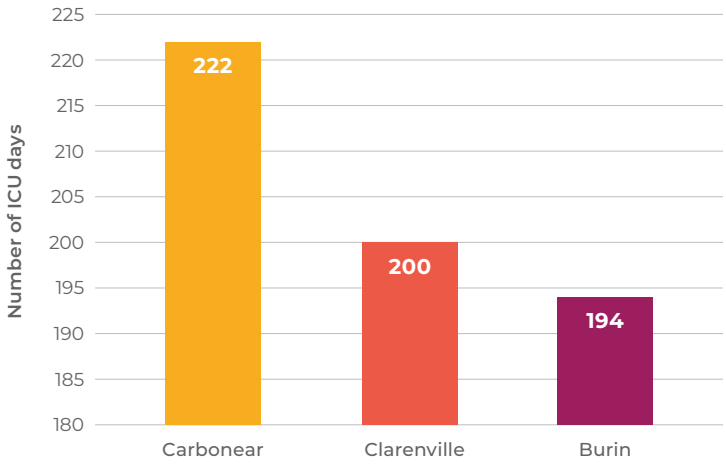


Figure 6A. Annual Number of ICU Days, 2019/2020

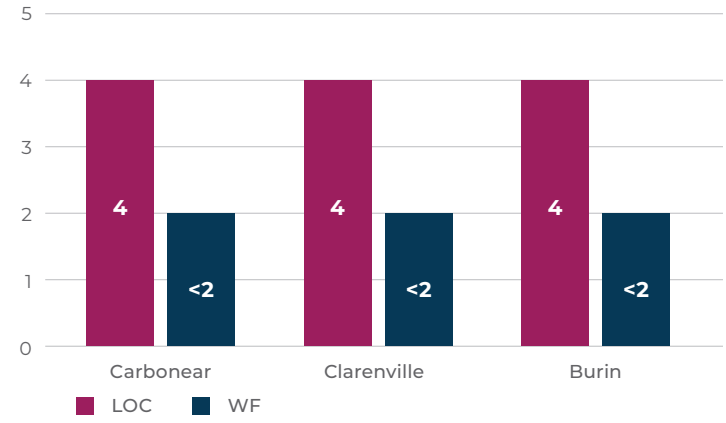


Figure 6B. Level of Complexity (LOC) and Work Force (WF) Level for ICU

- Work force level did not meet the level of complexity of ICU services reported by the three hospitals.

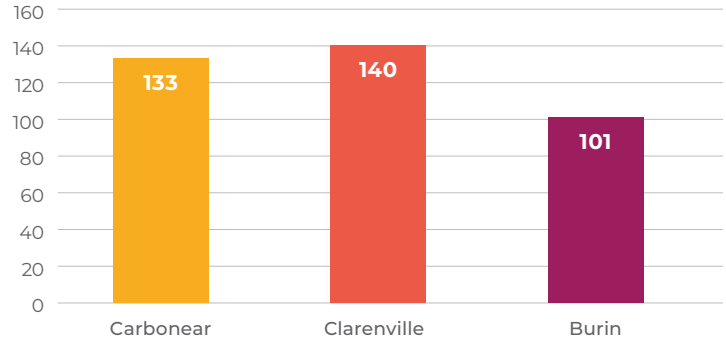


Figure 7A. Annual Number of Deliveries, 2019/2020

- The annual number of deliveries was low, ranging from 101–140.

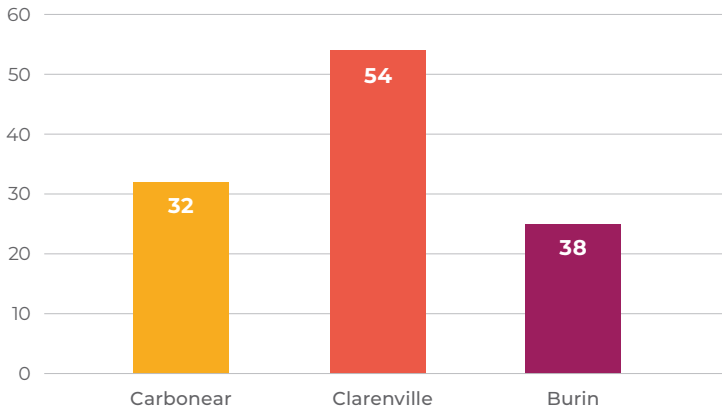


Figure 7B. Annual Number of C-Sections, 2019/2020

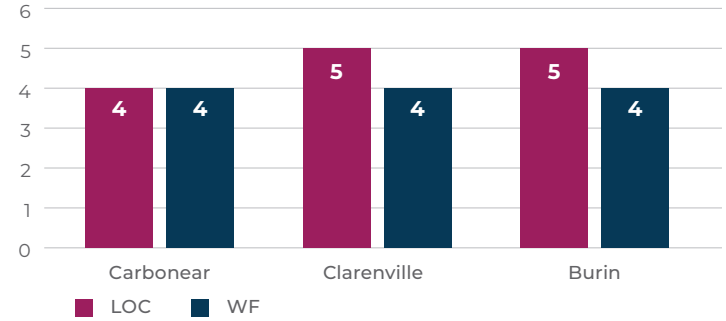


Figure 7C. Level of Complexity (LOC) and Work Force (WF) Level for Obstetrics

- Despite the low number of deliveries, the level of complexity of obstetrics was high.

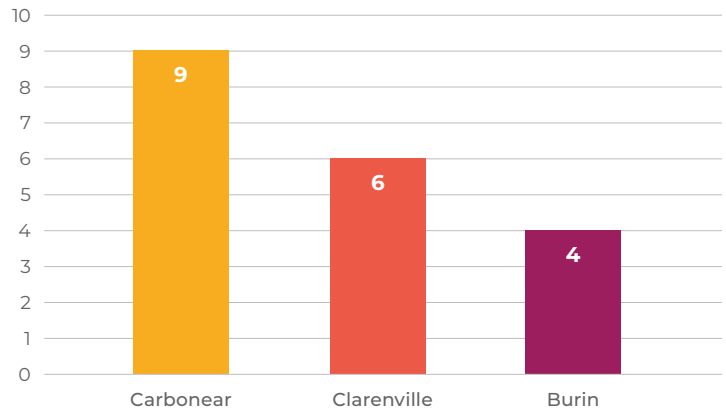


Figure 8A. Number of Other Specialists in Pediatrics, Psychiatry, Imaging and Pathology

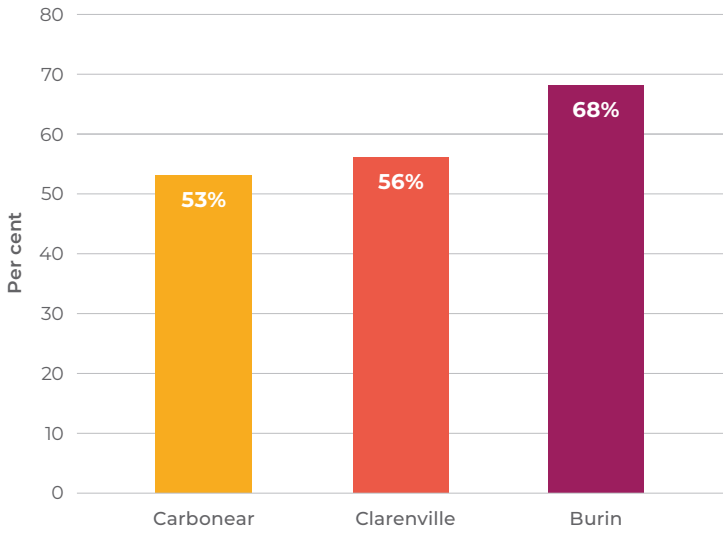


Figure 8B. Per Cent Turnover of Physicians in the Past Three Years, 2018–2021

- The turnover rate was high (number of times positions were filled in the three years plus number of vacancies/total positions funded).

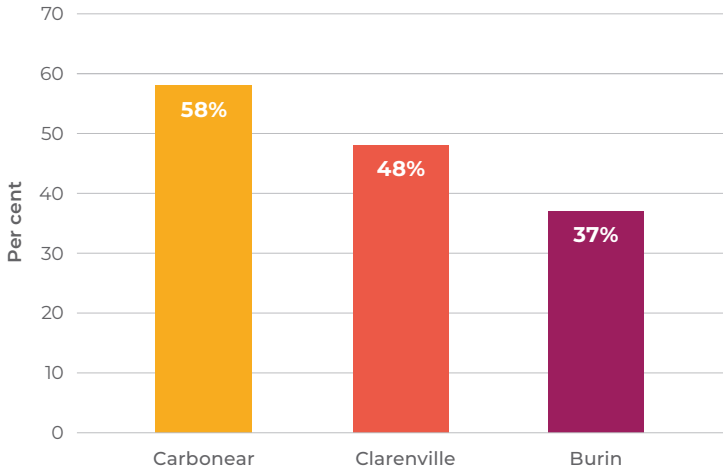


Figure 8C. Per Cent Retention of Physicians for Longer Than Three Years

- The retention of physicians for greater than three years as a percentage of the total positions funded ranged from 37% in Burin to 58% in Carbonear.

Labrador-Grenfell Health (LGH) Hospitals and Stephenville

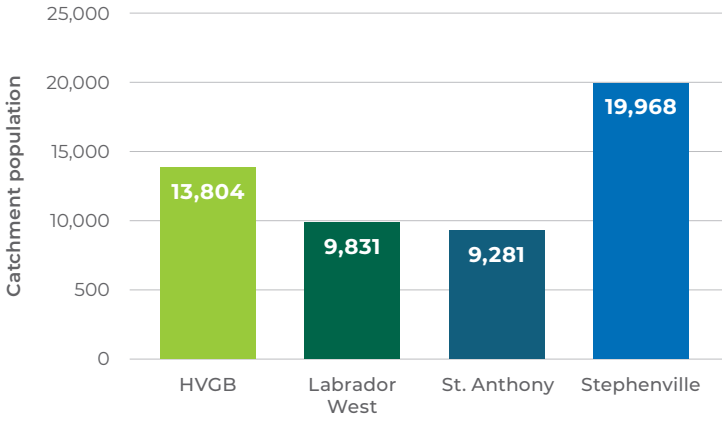


Figure 9A. Catchment Populations

- The three hospitals in LGH are geographically isolated with small catchment populations.

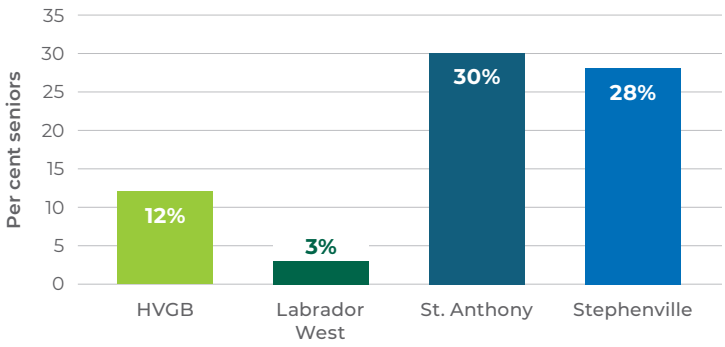


Figure 9B. Per Cent Seniors in Catchment Population

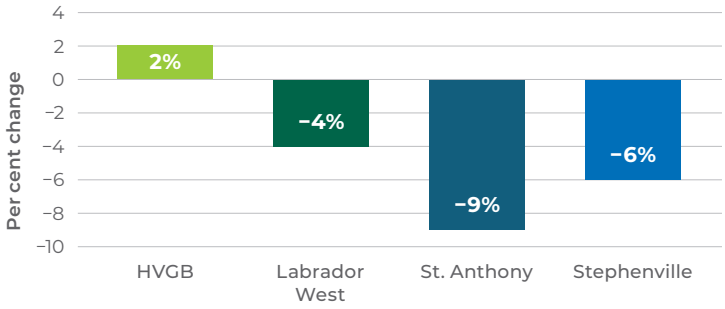


Figure 9C. Predicted Population Change From 2020–2030

- Population reduction in the next decade is projected for Labrador West, St. Anthony, and Stephenville.

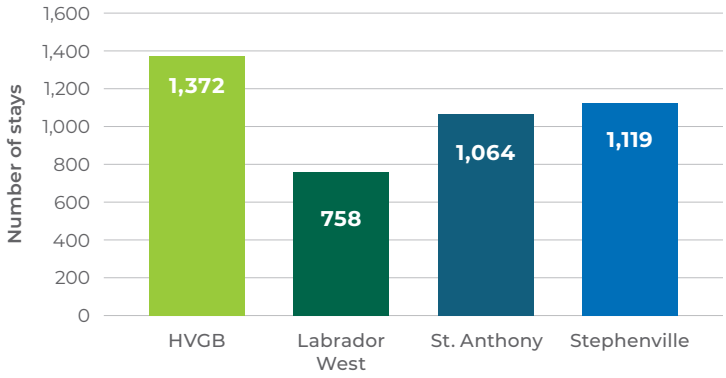


Figure 10A. Annual Number of Hospital Stays, 2019/2020

- The number of hospital stays/1,000 population was 99 in HVGB, 77 in Labrador West, 115 in St. Anthony, and 56 in Stephenville.

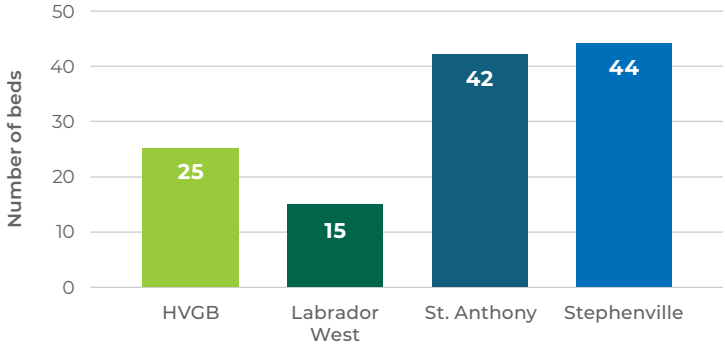


Figure 10B. Number of Hospital Beds

- The number of beds/1,000 population is 1.8 in HVGB, 1.5 in Labrador West, 4.5 in St. Anthony and 2.2 in Stephenville.

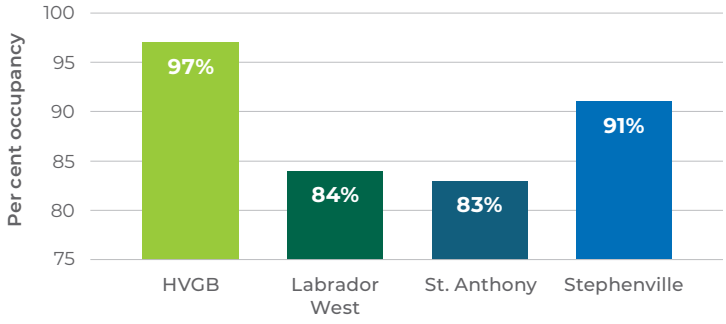


Figure 10C. Per Cent Occupancy

- Occupancy rate is <85% in Labrador West and St. Anthony, and is very high in HVGB.

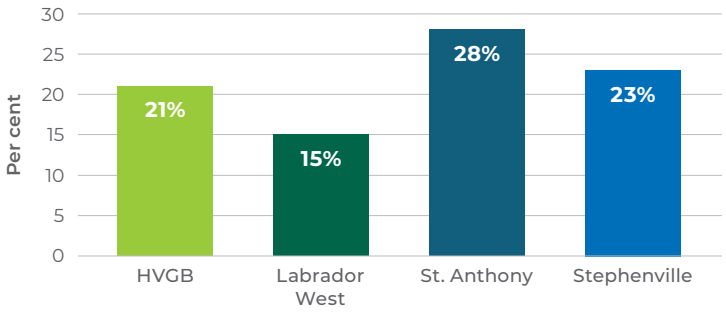


Figure 10D. Per Cent Alternate Level of Care

- Alternate level of care rate is high in HVGB, St. Anthony and Stephenville.

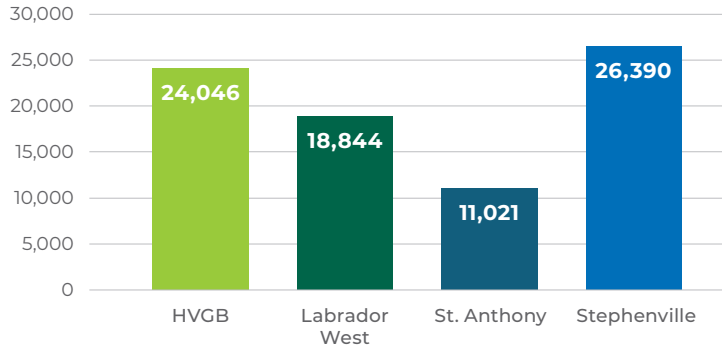


Figure 11A. Annual Utilization of Emergency Department

- The number of ER visits/1,000 population was 1,742 in HVGB, 1,917 in Labrador West, 1,187 in St. Anthony, and 1,322 in Stephenville.

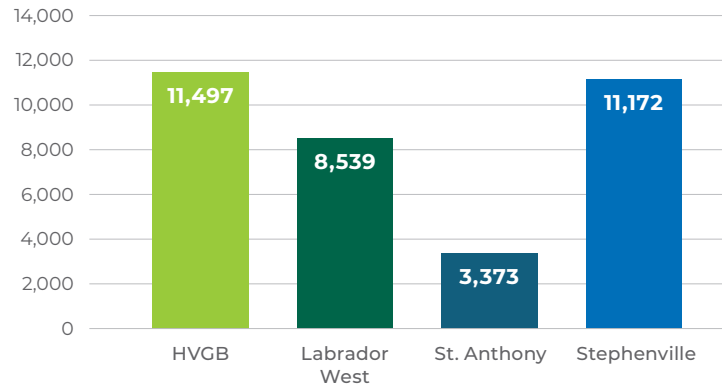


Figure 11B. Number Seen in ER Between 8PM and 8 AM

- Percentage of ER visits seen at night was 48% in HVGB, 45% in Labrador West, 31% in St. Anthony, and 42% in Stephenville.

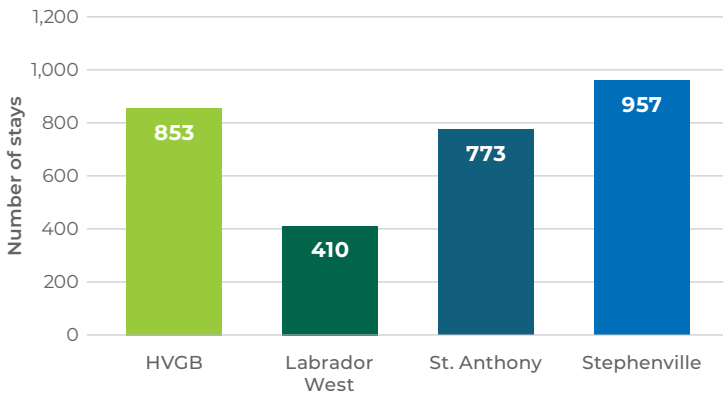


Figure 12A. Annual Number of Stays for Medicine, 2019/2020

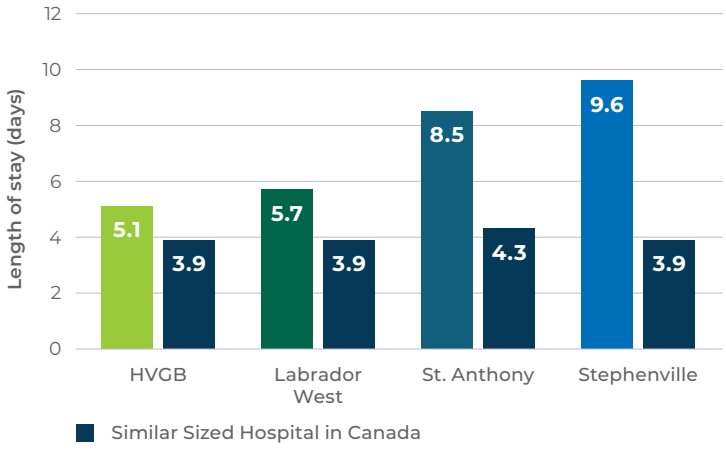


Figure 12B. Average Length of Stay in Days vs. Canada for Similar Sized Hospitals

- Length of stay for medicine was particularly prolonged in St. Anthony and Stephenville.

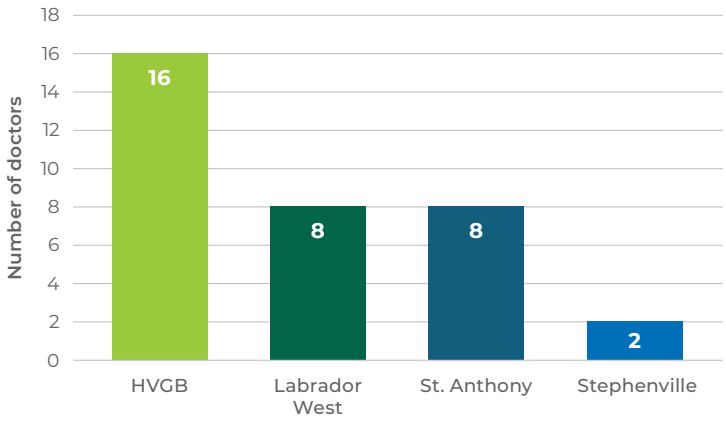


Figure 12C. Number of Doctors for Medicine

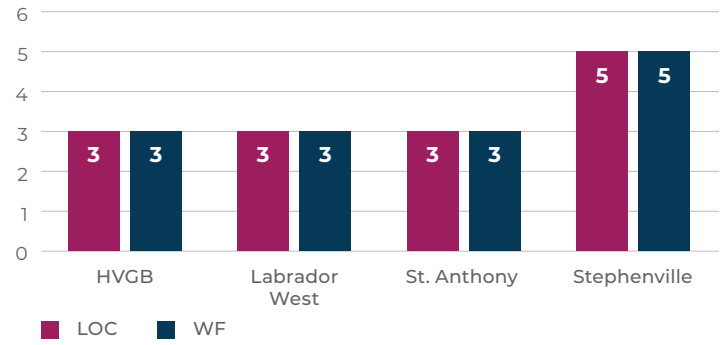


Figure 12D. Level of Complexity (LOC) and Work Force (WF) Level for Medicine

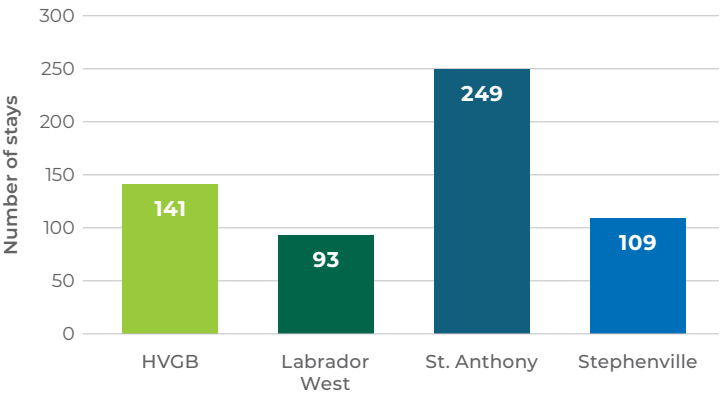


Figure 13A. Annual Number of Stays for Surgery

- In HVGB, one surgeon was responsible for 141 stays, whereas in St. Anthony six surgeons were responsible for 249 stays.

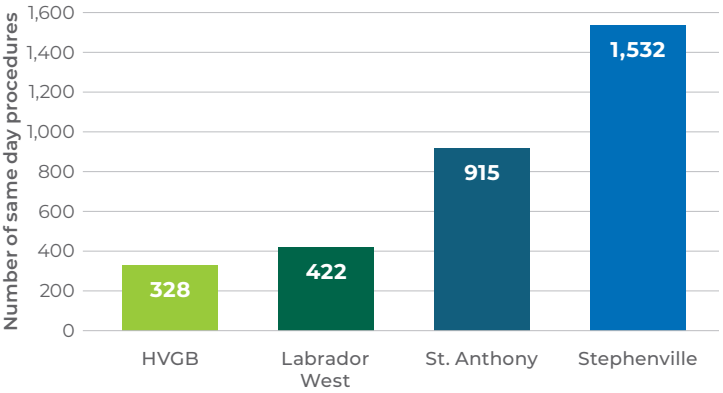
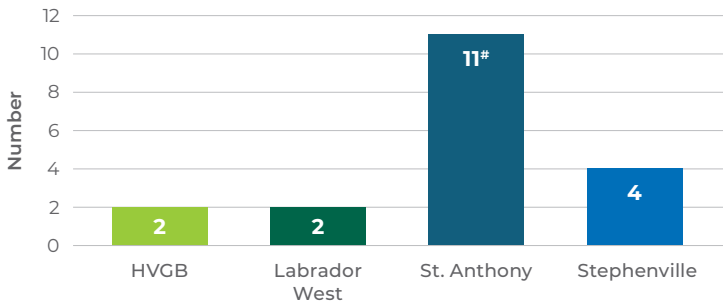


Figure 13B. Number of Same Day Procedures 2019/2020

- The number of same day procedures/1,000 population was 24 in HVGB, 43 in Labrador West, 99 in St. Anthony, and 77 in Stephenville.



Includes three sub specialists

Figure 13C. Number of Surgeons and Anesthetists Funded

- The number of surgeons and anesthetists in St. Anthony was the highest of the 7 community hospitals.

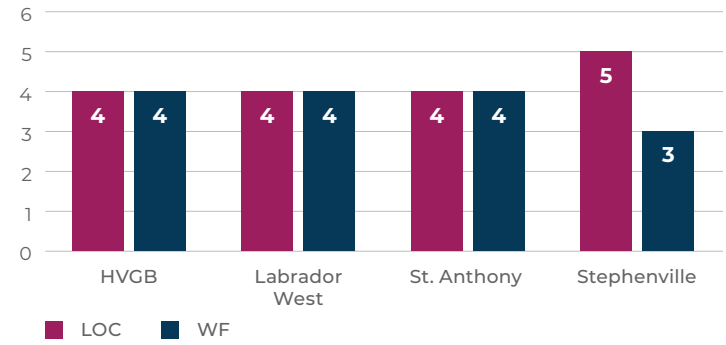


Figure 13D. Level of Complexity (LOC) and Work Force (WF) Level for Surgery

- In the LGH hospitals, level of complexity and work force was consistent with that expected from a community hospital.

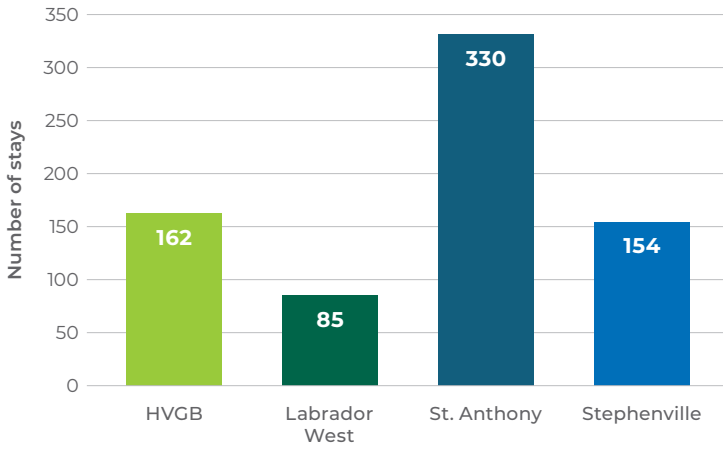


Figure 14A. Annual Number of ICU Stays

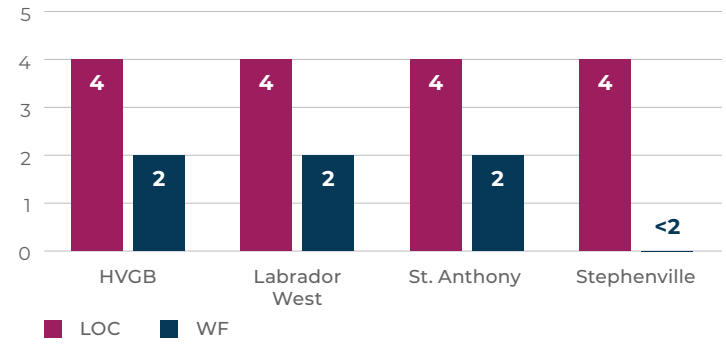


Figure 14B. Level of Complexity (LOC) and Work Force (WF) Level for ICU

- Level of complexity of ICU services was reported as level 4 but the work force was inconsistent with this level.

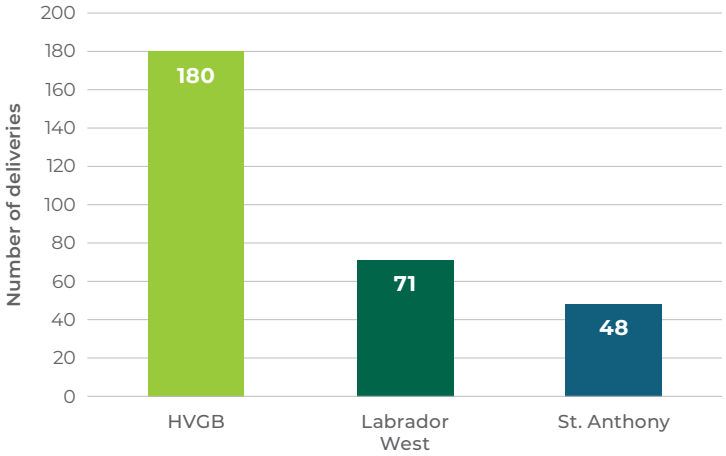


Figure 15A. Annual Number of Deliveries, 2019/20

- The number of deliveries in Labrador West and St. Anthony is low.

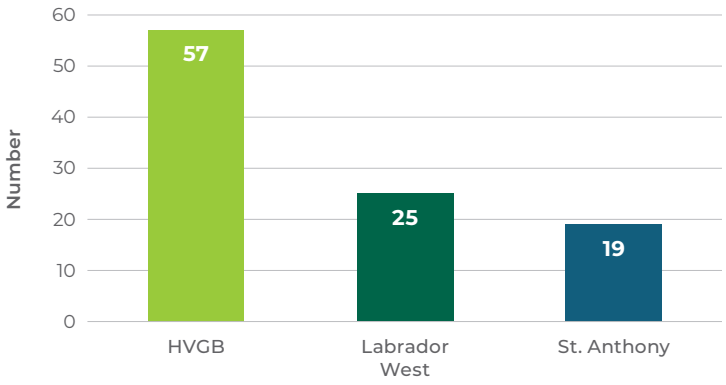


Figure 15B. Annual number of C-Sections

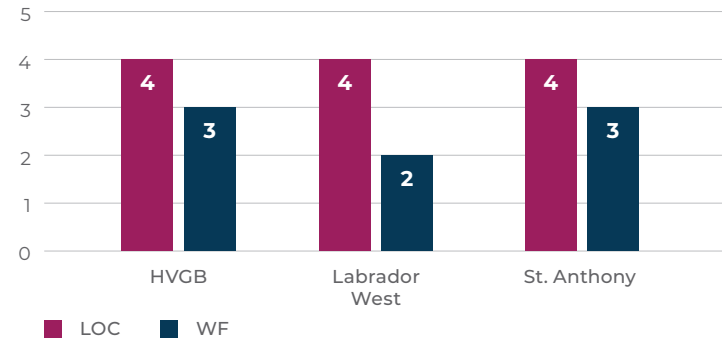


Figure 15C. Level of Complexity (LOC) and Work Force (WF) Level for Obstetrics

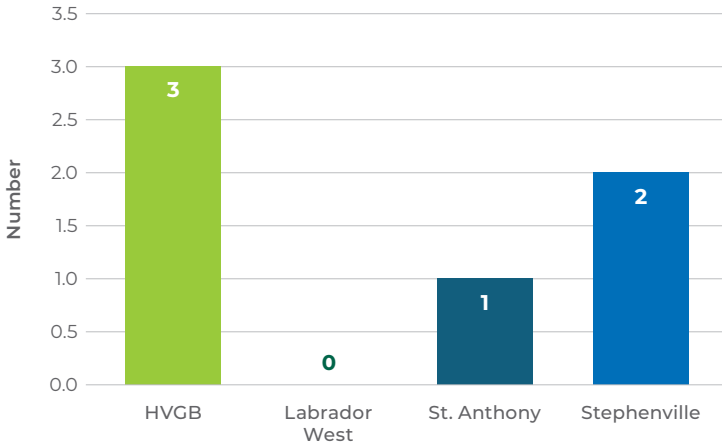


Figure 16A. Number of Other Specialists in Pediatrics, Psychiatry, Imaging and Pathology

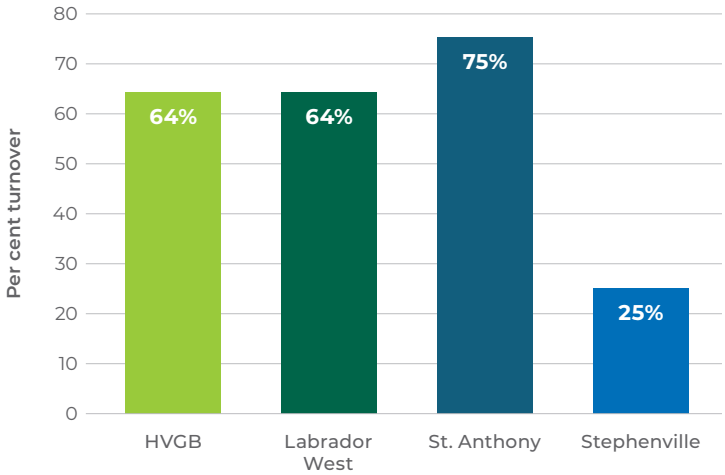


Figure 16B. Per Cent Turnover of Physicians in the Past Three Years

- The turnover rate is high in the three LGH hospitals.

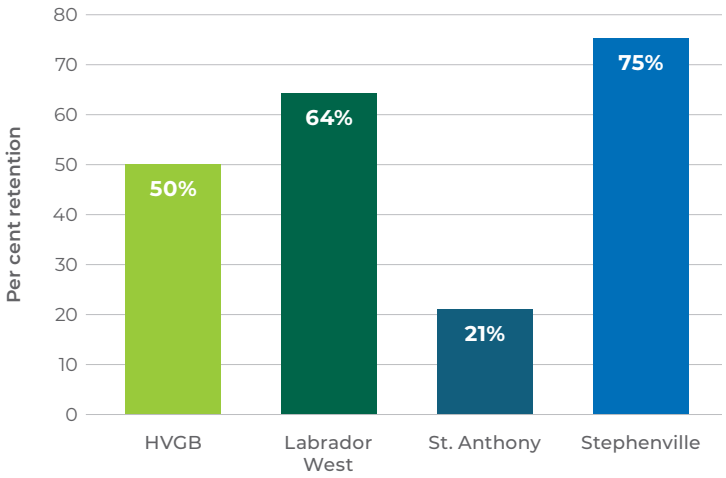


Figure 16C. Per Cent Retention of Physicians for Longer than Three Years

- The retention rate is very low in St. Anthony, a specialist-based hospital, and is better (but still a concern) in the other three hospitals.

Conclusions

1. In the seven community hospitals there is a need for emergency care, acute medical care whether provided by an internist or a family doctor, and imaging that includes a CT scanner.

2. Based on volume and sustainability, there is a need for a plan on how to restructure surgery services, anesthesia, and obstetrics services in Burin and Clarenville.

3. Based on the isolated geography, there is a need for access to surgery services in the three hospitals of LGH and a model of obstetrics care in the two hospitals in Labrador.

4. Occupancy rates of the three rural hospitals of EH is low, length of stay for medicine patients is higher than for comparable Canadian hospitals, level of complexity reported for ICU is 4 of 6 levels, but work force is insufficient for this level of complexity, and turnover rate for physicians is high.

5. In the three LGH hospitals, alternate level of care is high (except in Labrador West); utilization of the ER is high; length of stay for medicine is high in St. Anthony; number of surgeons/anesthetists funded in St. Anthony is high; level of complexity of ICU services is 4 but work force level is low; number of deliveries in Labrador West is 71 and in St. Anthony 48; retention in St. Anthony is the lowest in the province.

6. Consider extension of rural family practice training program, like in HVGB, to other rural hospitals in NL, strengthen linkages between community teams and community hospitals, and create a strong virtual care program together with visiting specialists from Regional and Tertiary Care.

Utilization in Large Hospitals of the Province

Objective

To examine utilization of the major services provided by the six large hospitals in the province.

Practice Points

1. Primary and secondary hospital services for the St. John's region (catchment population around 230,000) are provided in both the Health Sciences Centre (HSC) and St. Clare's Hospital.

   These two hospitals also provide tertiary services for the adults of the province, and the Janeway Hospital provides provincial pediatrics services (catchment population 520,000).

   In Eastern Health, outside St. John's there are 3 rural hospitals and 4 health centres (29 beds) providing acute care.

2. The catchment population for Central Health (CH) is 92,500. Primary and secondary services are provided on two independent sites (Gander and Grand Falls-Windsor (GFW)), one hour apart, each serving about half the catchment population. In addition, there are 55 acute care beds in eight health centres.

3. The largest hospital in Western Health (WH) (catchment population 77,500) is in Corner Brook which provides primary and secondary services to the region. However, Stephenville hospital also provides primary hospital services to about 20,000 people (44 beds), and there are 32 acute care beds in four health centres.

Data

Data were obtained from Department of Finance (population), the Department of Health and Community Services, Canadian Institute for Health Information (CIHI), NL Centre for Health Information (NLCHI), and the Regional Health Authorities (RHAs) for 2019/20. Level of complexity provided by a service ranged from 1–6, as did work force provided to achieve this level of complexity. This was reported by the RHAs using the Tasmanian Role Delineation framework.

Results

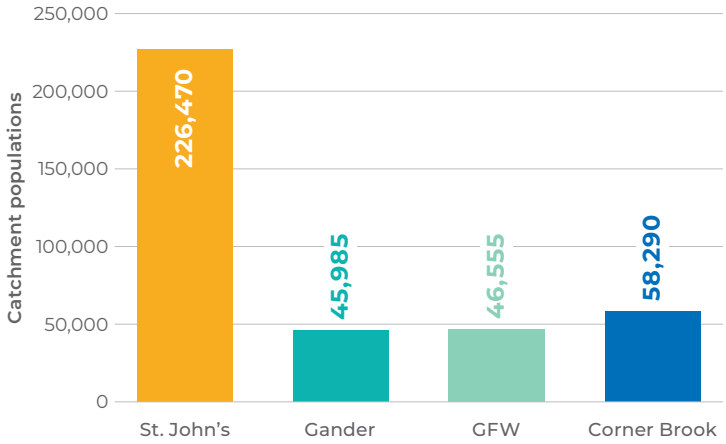


Figure 1A. Catchment Populations for Large Hospitals, 2019/20

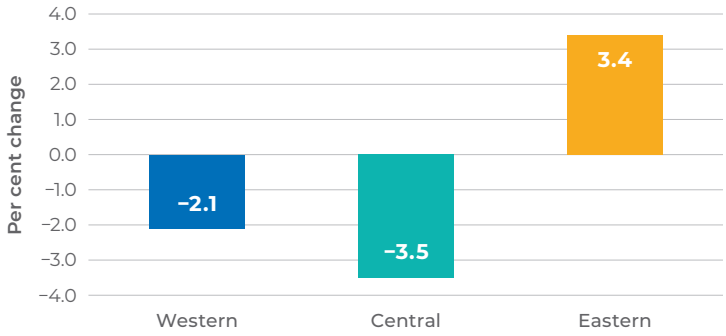


Figure 1B. Predicted Per Cent Change in Population, 2021–2030

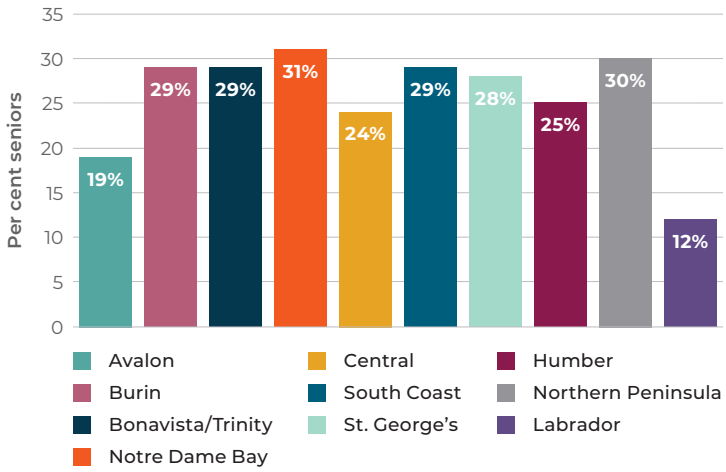


Figure 1C. Per Cent Seniors in the Population by Region, 2020

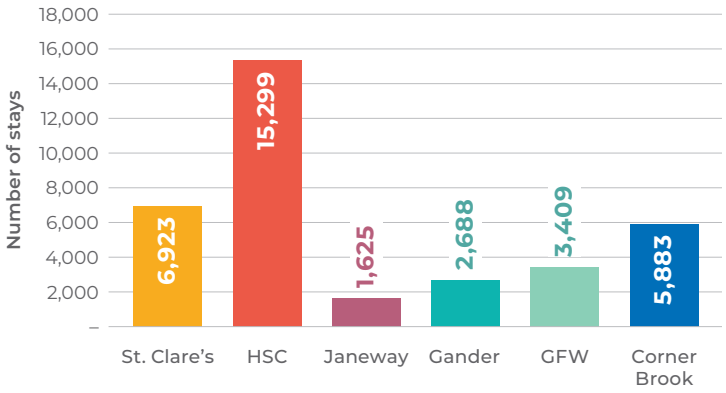


Figure 2A. Number of Stays in the Six Hospitals, 2019/20

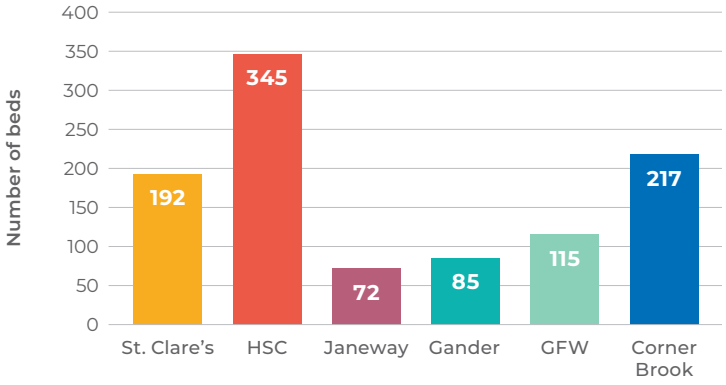


Figure 2B. Number of Beds in the Six Hospitals, 2019/20

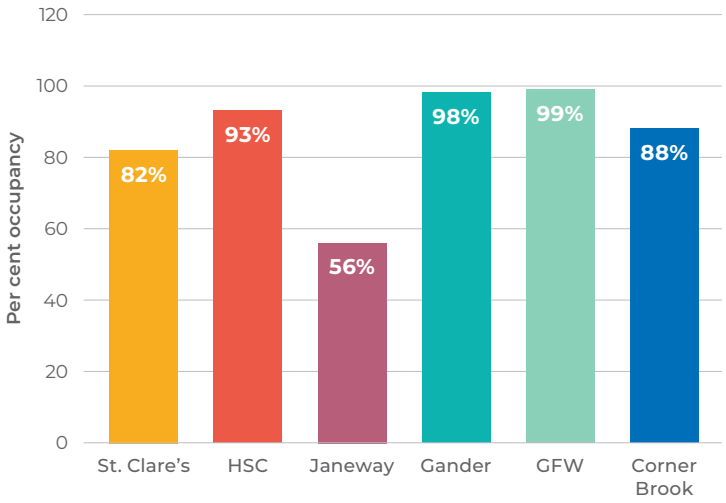


Figure 2C. Per Cent Occupancy in the Six Large Hospitals, 2019/20

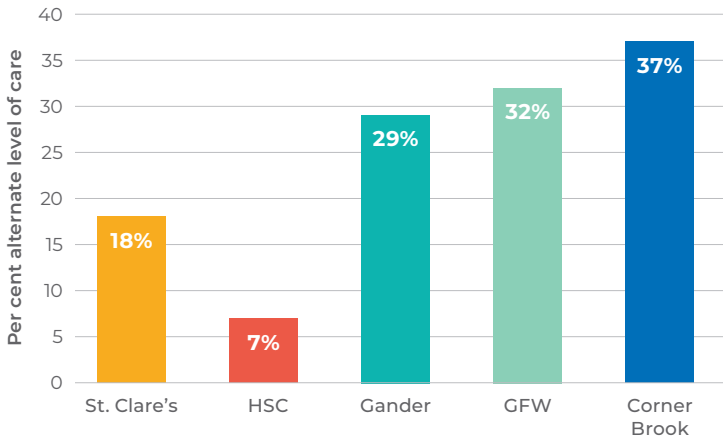


Figure 2D. Per Cent Alternative Level of Care in the Five Large Hospitals, 2019/20, Excluding the Janeway Hospital

- Grand Falls-Windsor had 28% more stays than Gander despite similar catchment population size. However, GFW has more beds.
- Including beds in health centres, beds/1,000 population in the Gander region were 2.6 and in the GFW region, 2.9.
- Adding the additional acute beds in health centres and Stephenville hospital, the rate for WH was 3.8.
- Per cent occupancy was high at HSC, Gander, and GFW. It was low at the Janeway Hospital.
- Per cent alternative level of care (ALC) was high in Gander, GFW and Corner Brook.

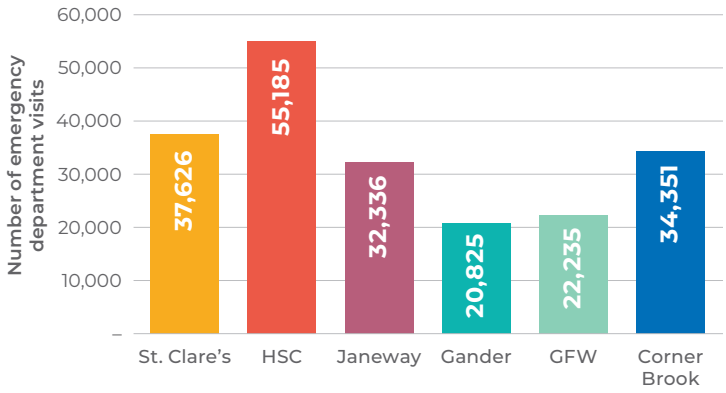


Figure 3A. The Number of Emergency Department (ED) Visits in the Six Large Hospitals, 2019/20

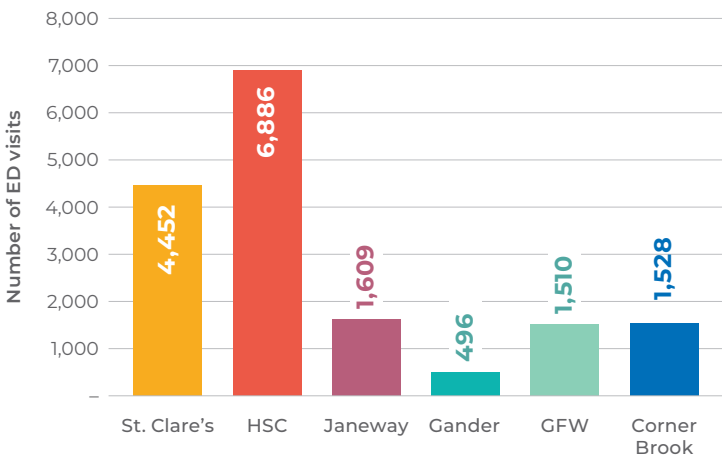


Figure 3B. The Number of ED Visits that were Recorded as CTAS Level 1/2 (Resuscitation Emergency), 2019/20

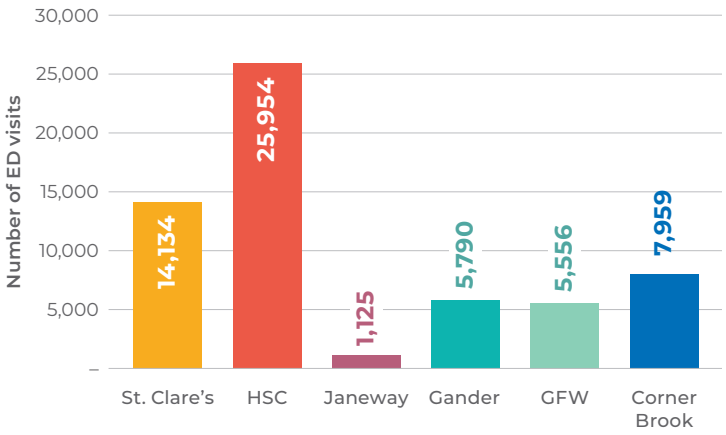


Figure 3C. The number of ED Visits that were Recorded as CTAS Level 3 (Urgent), 2019/20

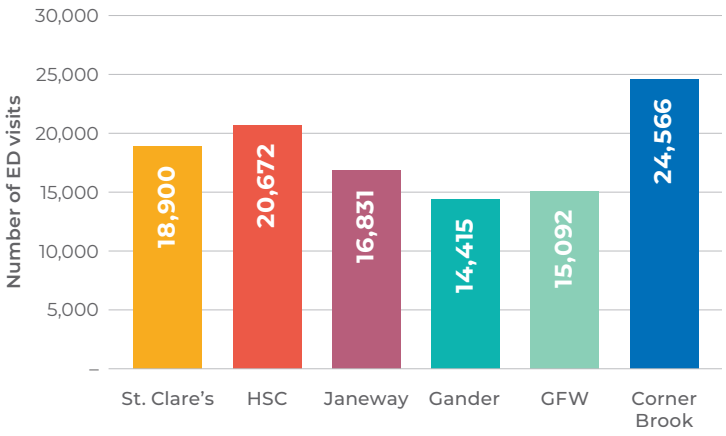


Figure 3D. The Number of ED Visits Recorded as CTAS Level 4/5 (Less Urgent/Non-Urgent), 2019/20

- The rate of ED visits/1,000 population in St. John's was 553, Gander 454, GFW 478, and Corner Brook 818 (assuming catchment population was 42,000).
- CTAS 1/2 visits were three times higher in GFW than Gander.
- The number of ED visits that were CTAS level 3 (urgent) were similar in Gander and GFW.
- ED CTAS 4/5 visits (less urgent or non-urgent complaints) were similar in number in Gander and GFW, comprising 69% of total visits in Gander and 68% in GFW.

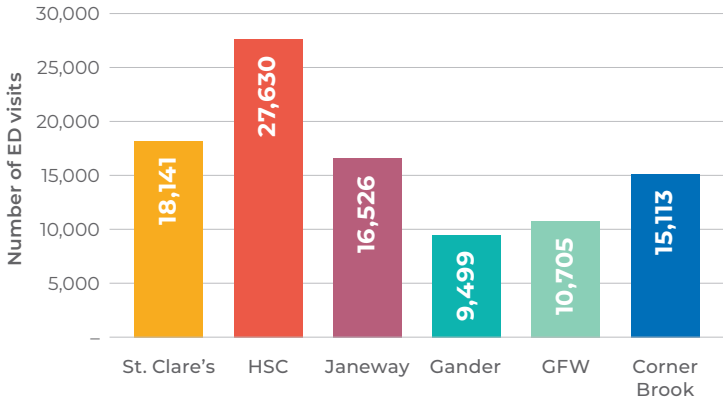


Figure 3E. The Number of Night-Time ED Visits From 8PM–8AM in the Six Large Hospitals, 2019/20

- The percentage of visits that were at night were 48% at St. Clare's, 50% at HSC, 51% at the Janeway, 46% in Gander, 48% in GFW, and 44% in Corner Brook.

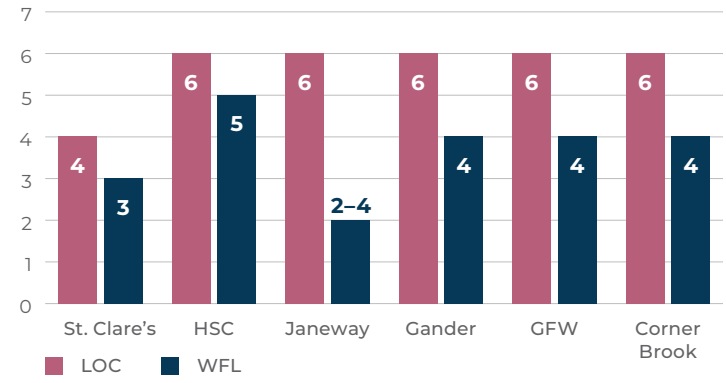


Figure 3F. Level of Complexity (LOC) and Work Force Level (WFL) for ED in the Six Large Hospitals

- Hospitals in Gander, GFW, and Corner Brook reported level of complexity of ED service provision at the highest level, but work force level was not commensurate with that complexity level.

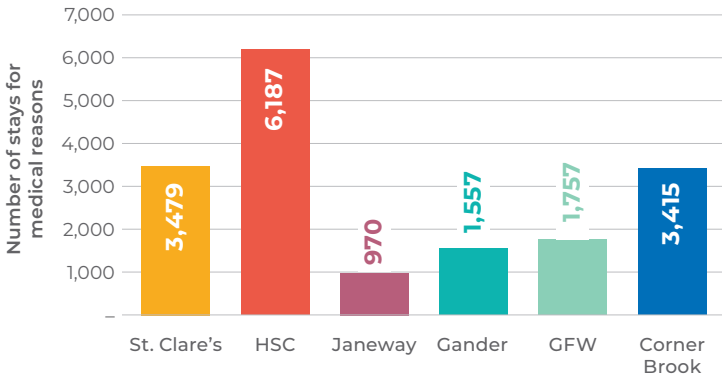


Figure 4A The Number of Stays for Medical Reasons at the Six Large Hospitals, 2019/20

- The number of medicine stays/day was 4.3 in Gander, 4.8 in GFW, and 9.4 in Corner Brook.

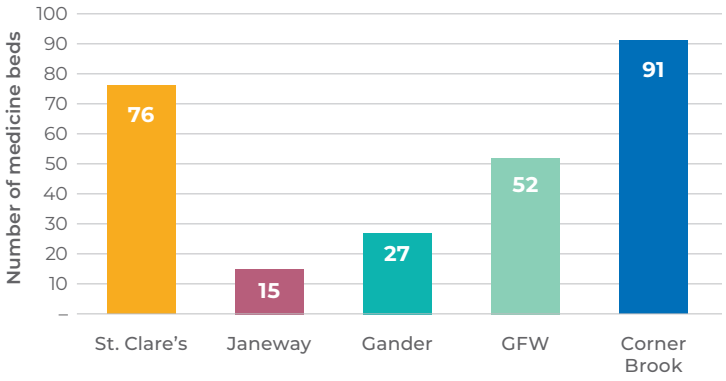


Figure 4B. The Number of Medicine Beds at Five of the Six Large Hospitals, 2019/20

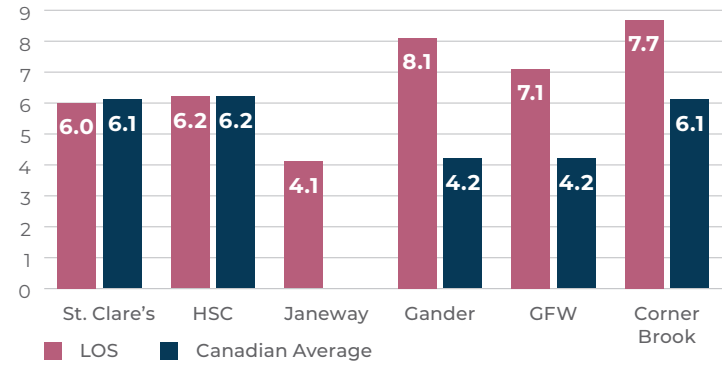


Figure 4C. Average Length of Stay (LOS) for Medical Reasons in the Six Large Hospitals Compared to Comparable Sized Hospitals in Canada, 2019/20

- Length of stay for medical reasons was high in Gander, GFW, and Corner Brook.
- There was not comparable national data for the Janeway Hospital.

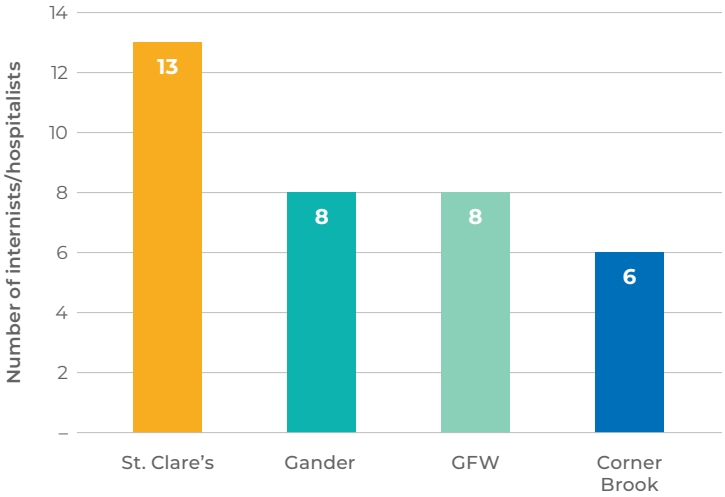


Figure 4D. Number of Internists/Hospitalists in the Large Hospitals

- Relative to the number of medical stays, the number of internists/hospitalists was higher in Gander and GFW compared to Corner Brook.
- Level of complexity for medicine reported by the six large hospitals was high and work force was commensurate with the complexity level.

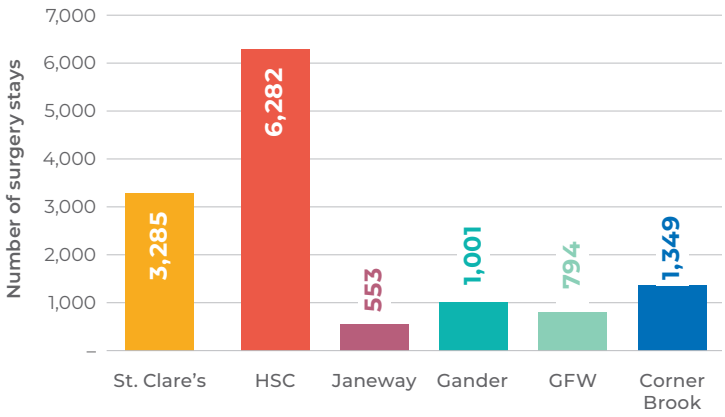


Figure 5A. Number of Surgery Stays in the Six Large Hospitals, 2019/20

- The number of surgeries/day was 2.7 in Gander, 2.2 in GFW, and 3.7 in Corner Brook, using 365 days as the denominator.

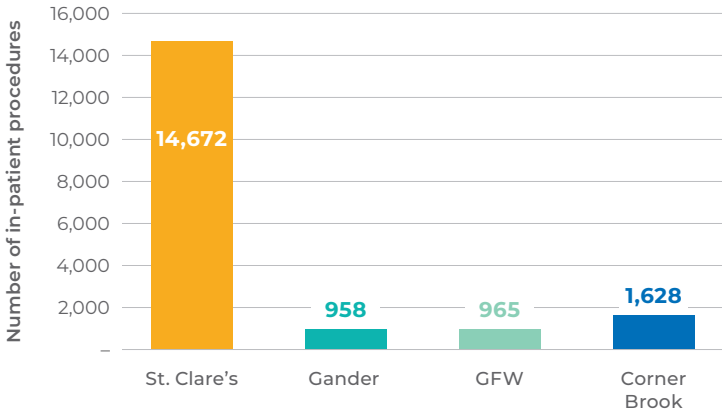


Figure 5B. Number of Inpatient Procedures Defined as Not Low Risk, 2019/20

- The number of not-low-risk inpatient procedures was similar in Gander and GFW; 2.6/day in each hospital.

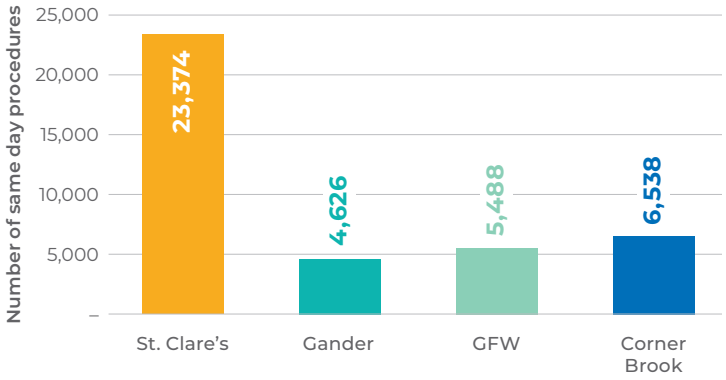


Figure 5C. Number of Same Day Procedures

- The number of same day procedures/day was 12.7 in Gander, 15.0 in GFW, and 17.9 in Corner Brook.

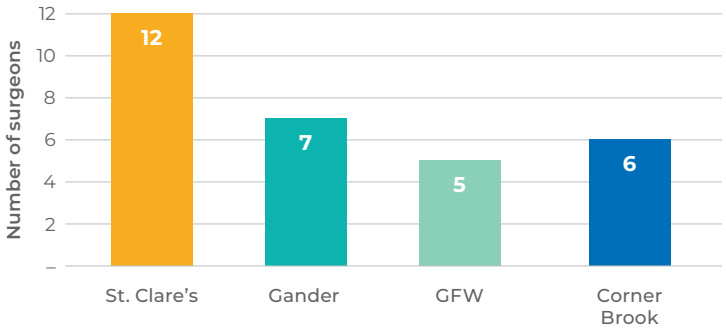


Figure 5D. Number of Surgeons in the Large Hospitals, 2019/20

- Gander, GFW, and Corner Brook reported that level of complexity of surgery services was high (level 5) with work force level commensurate with the level of complexity.

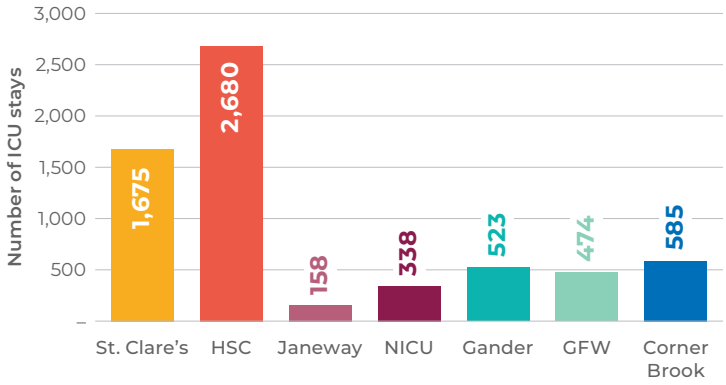


Figure 6A. The Number of ICU Stays in the Large Hospitals, 2019/20

- The number of ICU stays/day in Gander was 1.4, GFW 1.3 and Corner Brook 1.6.

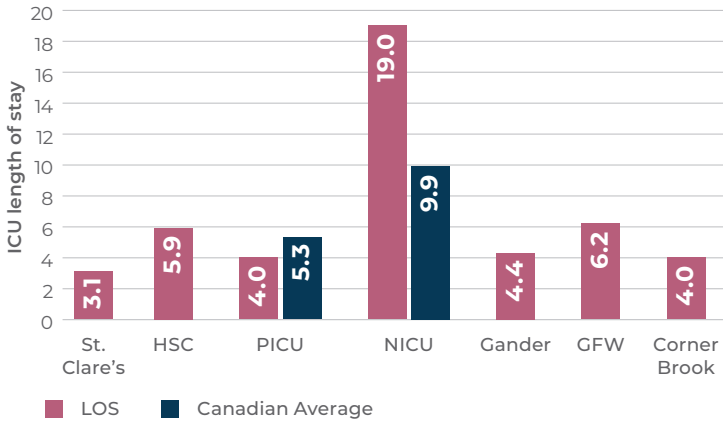


Figure 6B. ICU Length of Stay in the Six Large Hospitals

- Length of stay in the neonatal ICU at the Janeway was high.

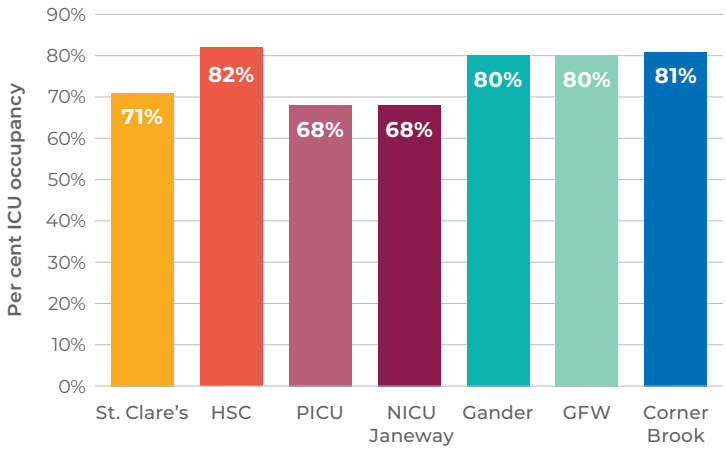


Figure 6C. ICU Occupancy in the Large Hospitals, 2019/20

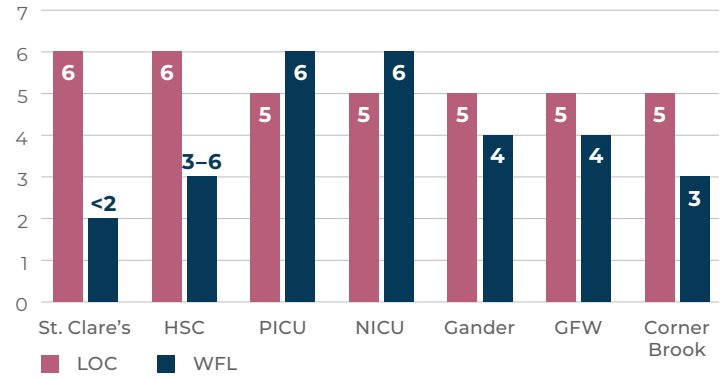
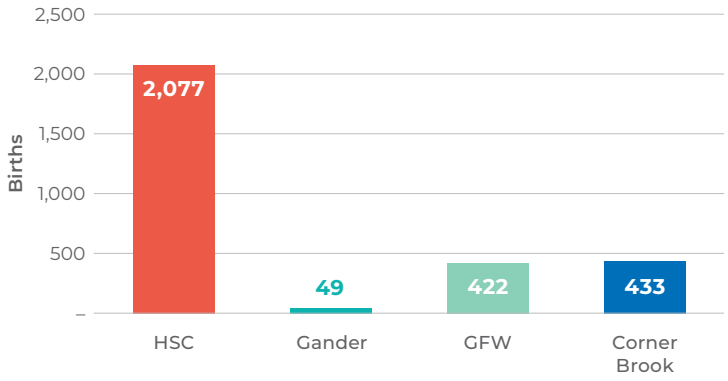


Figure 6D. ICU Level of Complexity (LOC) and Work Force Level (WFL), 2019/20

- St. Clare's Hospital and HSC reported the highest level of complexity of ICU service, but did not have the work force level commensurate with this degree of complexity.



Note: For some of this year, deliveries were diverted from Gander to GFW. The number of deliveries in CH was 471.

Figure 7A. Obstetrics Deliveries at the Four Large Hospitals, 2019/20

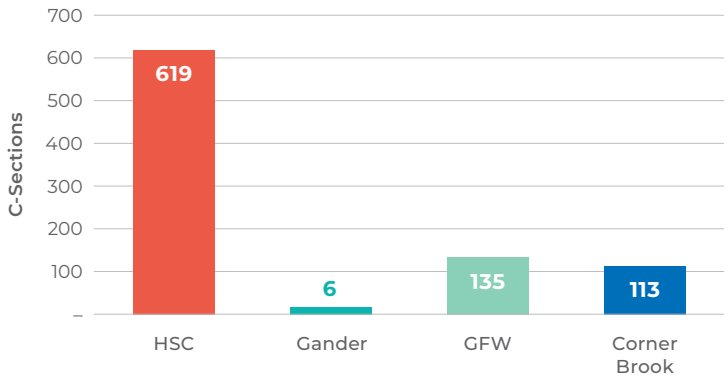


Figure 7B. C-Sections Undertaken in the Obstetrics Units of the Four Large Hospitals

- The per cent of deliveries who had a C-section was 30% in St. John's, 29% in CH, and 26% in Corner Brook.
- The Canadian rate is 28%.

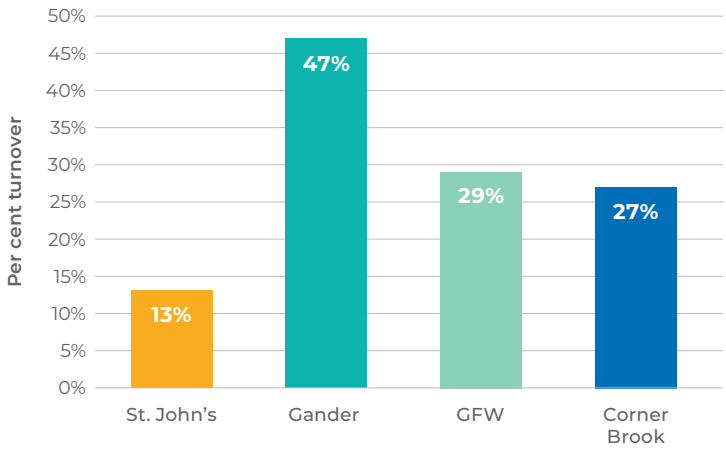


Figure 8A. Turnover Rate of Physicians in the Large Hospitals, 2018–2021

- Turnover rate was defined as the number of new physicians in the three years from 2018–2021 plus current vacancies/number of positions funded.
- The turnover rate was high in Gander. At GFW and Corner Brook it was double that for St. John's.

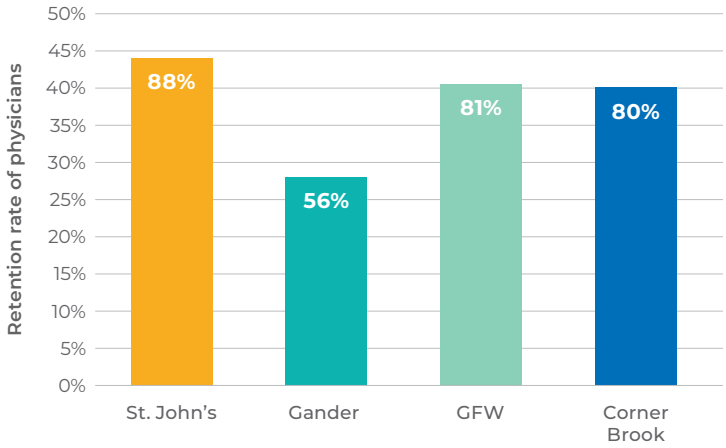


Figure 8B. Retention Rate of Physicians for Longer Than Three Years (2018–2021) in the Large Hospitals

- The retention rate was low in Gander.

Conclusions

1. St. John's hospitals have the largest catchment population and provide primary and secondary services to more than 230,000 people. In addition, they provide tertiary services to the provincial population.

   Per cent occupancy was high at HSC and low at the Janeway.

   Per cent ED visits that were CTAS level 4/5 ranged from 38–52% in the three hospitals.

   LOS in medicine beds was comparable to similar sized hospitals in Canada.

   Per cent turnover in hospital physicians was 13%.

2. Gander and GFW serve similar sized catchment populations, but GFW had more stays and more beds.

   Per cent occupancy and per cent ALC were high in both hospitals.

   Per cent ED visits that were CTAS 4/5 was 69%.

   Average LOS for medicine was high in comparison to comparable sized hospitals in Canada.

   The number of inpatient not-low-risk procedures was 2.6/day in both hospitals, but same day procedures were much higher.

   The number of ICU admissions was 1.3/day in each hospital.

   The number of deliveries was 1.3/day, combining both hospitals.

   Hospital physician turnover rate was higher in Gander than GFW (47% versus 29%).

   Consideration of a regional hospital in Central Health, across two sites, without unnecessary duplication of services, could provide space for provision of more regional services and improve sustainability of services.

   Consideration should be given to having one service in CH for ICU (with a special care unit in the other hospital), obstetrics and gynecology, pediatrics, specialized pathology and laboratory services. A decrease in ALC could create space for a specialized geriatrics service, restorative care, a stroke unit, rehabilitation.

3. The number of beds in WH has decreased since the current analysis with the opening of the new hospital in Corner Brook.

   Per cent ALC is high.

   Percentage of ED visits that achieve CTAS level 4/5 is 72%.

   LOS for medicine is high.

   More efficient use of the hospital could facilitate provision of more regional services, including a Centre of Excellence in Aging.

Turnover, Vacancies, and Locums Among Physicians in NL

Objective

1. To determine the number of positions filled by new physicians in the past three years and the number of current vacancies in the hospitals and health centres of the province.

2. To determine the number of locum licenses provided by the College of Physicians and Surgeons of Newfoundland and Labrador (CPSNL) in the past three years, and the number of locums used by the Regional Health Authorities (RHAs).

3. To determine the cost to the RHAs for locums.

Practice Points

1. Sustainability of services in rural hospitals of the province and in primary care is a concern, particularly in recruitment and retention.

2. The rural hospitals view themselves as full-service regional hospitals, but the number of patients coming from small catchment populations is insufficient to provide full services in some specialties.

3. The high use of locums is a concern because of lack of continuity of care, difficulty in assuring quality, and cost.

Methods

1. Data on positions available for funded physicians, new doctors recruited in the three years from 2018 to 2021, current vacancies, number of unique physician locum visits, and their costs were obtained from the four RHAs.

2. For the purposes of comparison of turnover in the hospitals, the following specialties were included: emergency, internal medicine/hospitalist, general surgery, anaesthesia, obstetrics/gynaecology, paediatrics (general), psychiatry, radiology, and pathology.

3. Sub-specialties within medicine, surgery, or paediatrics were excluded.

4. A turnover rate was calculated as the sum of new doctors plus vacancies with the denominator being total positions funded.

5. For positions in family practice responsible to the RHA, including those working in the health centres, urban and rural groups were calculated by region.

6. Data on locums provided with short-term or long-term licenses were provided by the CPSNL for two years by RHA (2018–2020). The number of locum visits and locum costs were also provided by the RHA.

Results

- In 2011, there were 542 family physicians (FPs) in the province and 554 hospital specialists. In 2019, the increase of FPs was 13% (N=614) and of specialists 17% (N=648).

Table 1. Physician Number Active in Practice by Specialty, Payment Model, and Region, 2019

Specialty	Payment Model	Eastern Health	Central Health	Western Health	Labrador-Grenfell Health	Province
Family Practice	FFS#	320	76	67	7	470
	Salary	72	18	26	28	144
	Total	392	94	93	35	614
All other Specialties	FFS#	294	33	44	0	371
	Sal/APP*	197	35	33	12	277
	Total	491	68	77	12	648

FFS = Fee for service; *APP = Alternate Payment Plan

- The majority of FPs were paid FFS except in Labrador-Grenfell Health (LGH) where the rate was 20%.

- 60% of hospital specialists were paid FFS in Eastern Health (EH), 49% in Central Health (CH), 57% in Western Health (WH), and none in LGH.

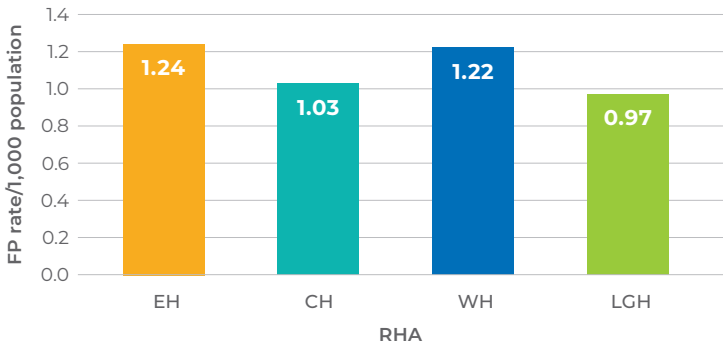


Figure 1. The Rate/1,000 Population of FPs by RHA, 2019

- The rate of FPs was lowest in CH and LGH.

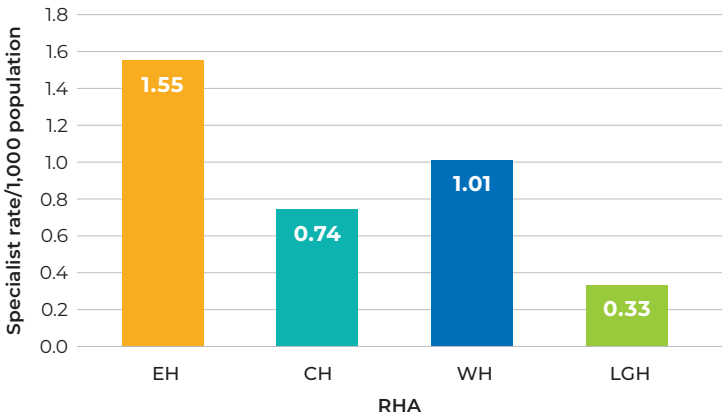


Figure 2. The Rate/1,000 Population of Hospital Specialists by RHA, 2019

- The highest rate of hospital specialists was in EH, not surprising as the tertiary service hospital hub is in St. John's.
- The rate in LGH was 0.33/1,000 population, not surprising as the population of 36,000 has access to three hospitals with a small catchment population for each hospital.

Table 2. Positions Filled With New Physicians and Current Vacancies in the Hospitals of the Province, 2018–2021

Hospital	Number positions	New doctors	Vacancies	Turnover rate		Retention for >3 years	
				N/positions	%	N/positions	%
St. John's	330	42	2	44/330	13.0	289/330	87.6
Carbonear	36	16	3	19/36	52.8	21/36	58.3
Clarenville	25	9	5	14/25	56.0	12/25	48.0
Burin	19	10	3	13/19	68.4	7/19	36.8
Gander	36	12	5	17/36	47.2	20/36	55.5
GFW	42	10	2	12/42	28.6	34/42	81.0
Corner Brook	59	11	5	16/59	27.1	47/59	79.7
Stephenville	8	1	1	2/8	25.0	6/8	75.0
St. Anthony	24	7	11	18/24	75.0	5/24	20.8
HVGB	22	11	3	14/22	63.6	11/22	50.0
Labrador City	11	5	2	7/11	63.6	7/11	63.6

- The turnover rate, defined as the sum of the number of new doctors that have started since 2018 (three years), plus the current vacancies as a percentage of total positions is high in six of the seven rural hospitals.

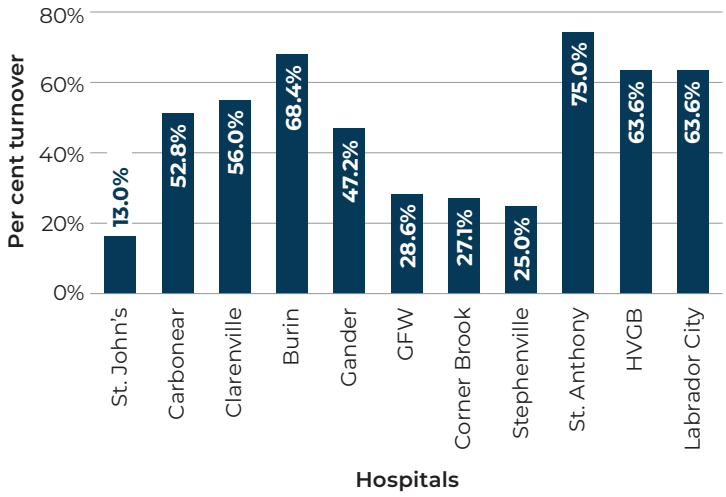


Figure 3. The Turnover Rate of Physicians in Hospitals in NL

- The turnover rate in the bigger hospitals ranges from 13% for the four in St. John's to around 28% in Grand Falls-Windsor (GFW) and Corner Brook, but is high in Gander at 47%.

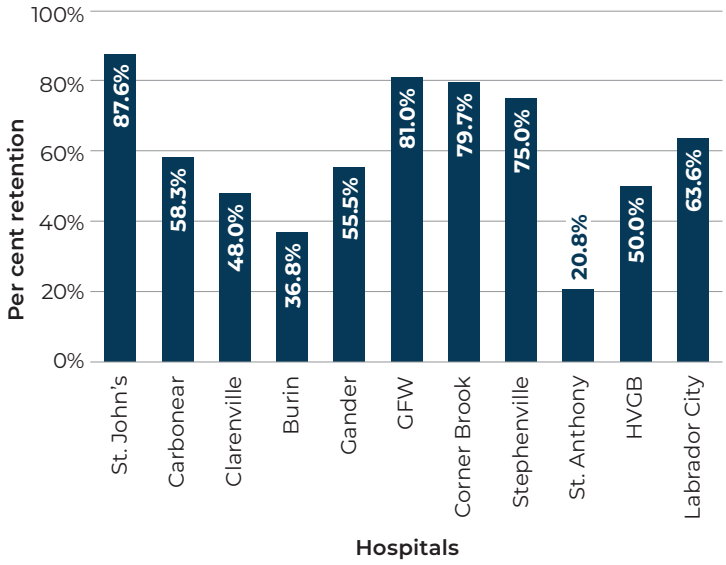


Figure 4. The Retention Rate of Hospital Physicians in NL: the Proportion of Physicians Who Worked in Hospitals for More Than Three Years Using Total Number of Positions as the Denominator

- Retention of physicians (those in place for more than three years as a percentage of the available positions) was low in St. Anthony and Burin.
- For St. John's, GFW, and Corner Brook hospitals, the retention rate was ≥ 80%, but was 56% in Gander.

Table 3. Positions Filled With New Family Physicians and Current Vacancies Analysed by RHA, 2018–2021

Region	Positions N	New Doctors N	Vacant N	Turnover %	Retained >3 Years N	Retained >3 Years %
St. John's	35	7	2	25.7	26	74.3
EH Outside St. John's	29	17	5	75.9	10	34.5
Gander	11	4	0	36.4	7	63.6
GFW	25	14	0	56.0	13	52.0
Rural Central	34	23	1	70.6	16	47.0
Corner Brook	37	11	5	43.2	21	56.8
Rural WH	46	16	7	50.0	27	58.7
Labrador-Grenfell Health	7	7	1	114.3	1	14.3

- The turnover rate for FPs funded by the RHA was very high in the rural areas of EH, CH, and LGH and it was 50% in WH.
- The percentage of positions filled by the same physician for more than three years was very low in LGH and the rural areas of EH.

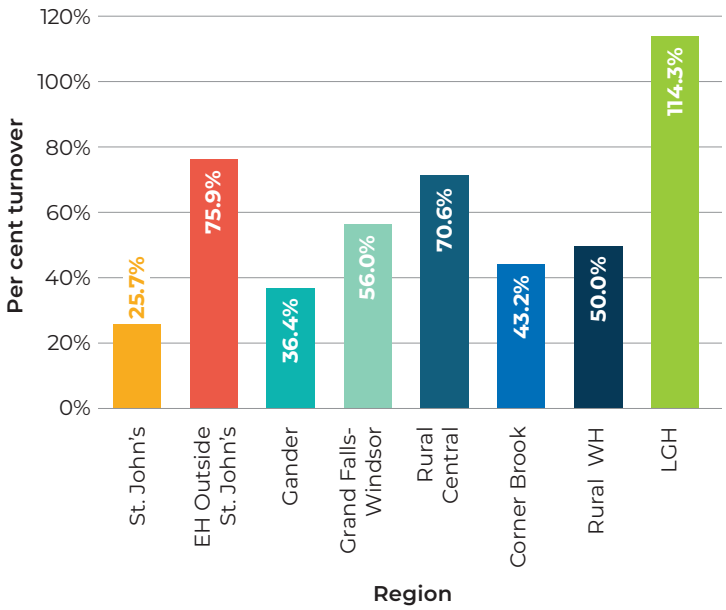


Figure 5. The Turnover Rate of Family Physicians Funded by the RHA by Region, 2019

- The turnover rate for FPs was higher in rural than urban regions of the RHAs. Nonetheless, it ranged from 26% in St. John's to 56% in GFW.

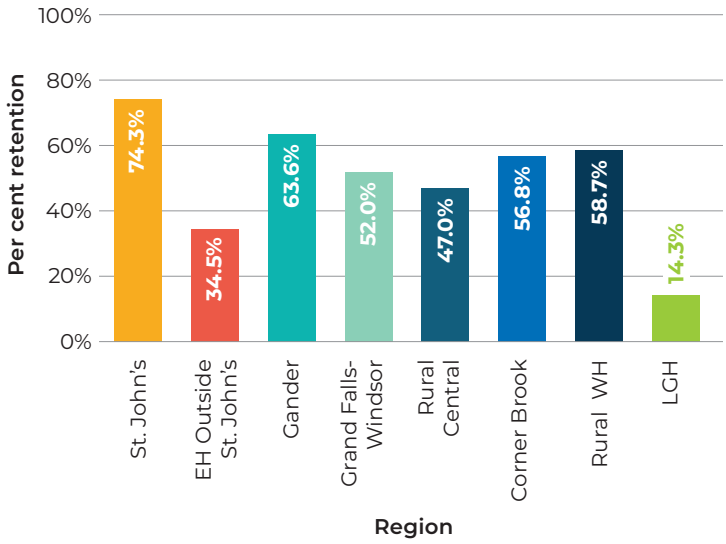


Figure 6. The Retention Rate of FPs for More Than Three Years by RHA

- The retention rates of FPs were low in rural regions of the RHAs, ranging from 14% in LGH to 58% in WH.

Table 4. The Number of Full and Provisional Locum Licenses by Specialty and by RHA, 2018 and 2019

RHA	Family Medicine			Hospital Specialist		
	Full	Provisional	Total	Full	Provisional	Total
EH	34	29	63	107	18	125
CH	14	58	72	107	5	112
WH	24	9	33	33	0	33
LGH	29	16	45	12	9	23

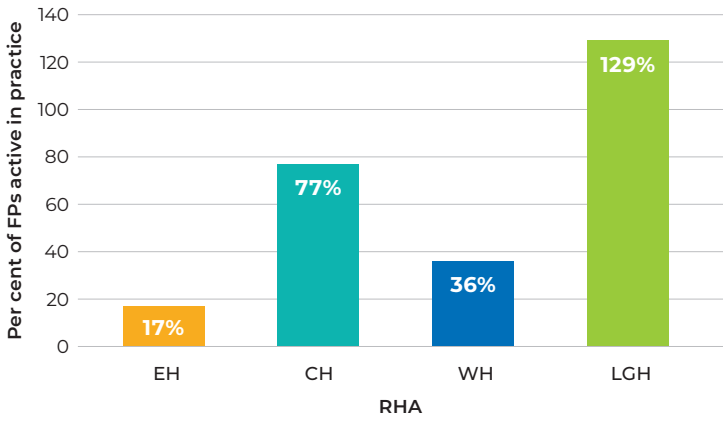


Figure 7. The Total Number of Locum Licenses as Per Cent of FPs Active in Practice in 2019 by RHA, 2018 and 2019

- The rate of locum licenses was high in CH (relative to the number of FPs active in practice): 77 locum licenses/100 physicians were provided over two years. In LGH the rate was even higher.

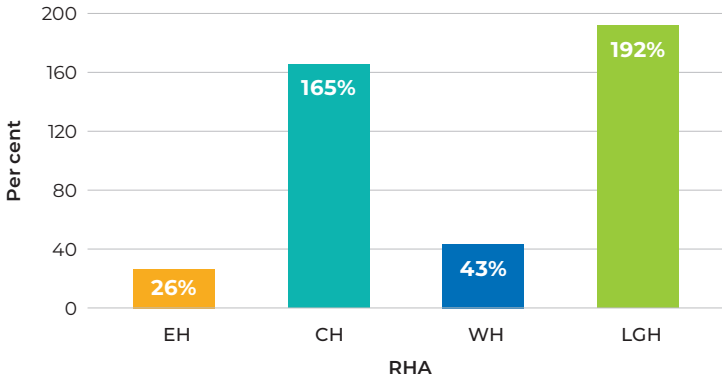
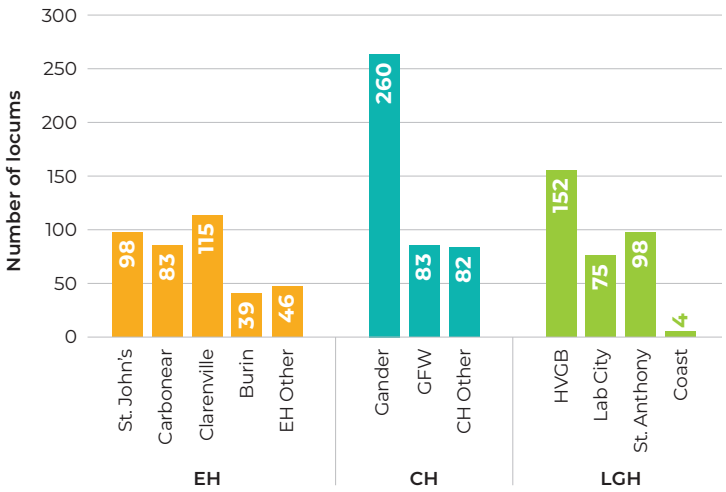


Figure 8. The Total Number of Locum Licenses in 2018 and 2019 as Per Cent of Hospital Specialists Active in Practice by RHA

- The rate of locum licenses relative to the number of hospital specialists was very high in CH and LGH.



Note: WH recorded locums in a different manner than the other RHAs. Therefore, its numbers are not included.

Figure 9. The Number of Locums by Site and Region, 2019

- In EH, there were a total of 384 locums in 2019, with the highest in Clarenville. By comparison, for the two fiscal years 2018–2020, the number of locum licenses (full or provisional) provided in EH was 188.
- Gander had more than threefold the number of locums compared to GFW. The total for the region was 425. For two fiscal years 2018/19 and 2019/20, the number of licenses provided in CH was 170.
- In the two fiscal years 2018/19 and 2019/20, the number of licenses provided in WH was 66.
- The total number of locums for LGH was 329, with the largest number 152 for Happy Valley-Goose Bay (HVGB). In the two fiscal years 2018/19 and 2019/20, the number of locum licenses provided was 68.

Table 5. Cost to the RHAs for Locum Physicians in Millions of Dollars, 2017–2021

RHA	2017/18	2018/19	2019/20	2020/21
EH	5.2	7.1	8.8	8.6
CH	3.3	3.5	4.4	5.2
WH	3.9	3.3	3.3	3.4
LGH	5.4	5.5	6.0	5.2
Total	17.8	19.4	22.6	22.5

- 1% of the total RHA budget of $2.5 billion in 2020/21 was spent on locums, amounting to $22.5 million.

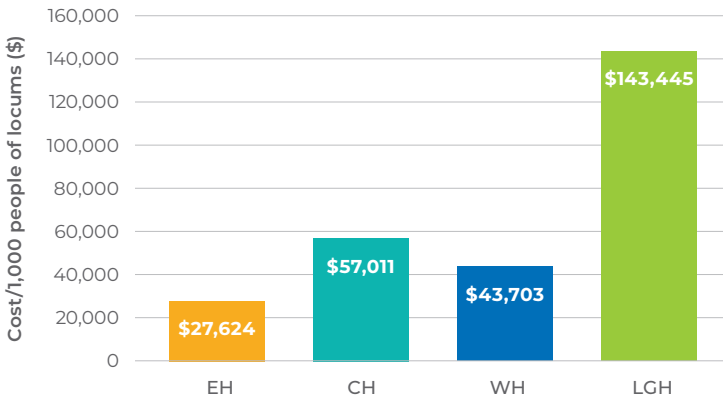


Figure 10. Cost/1,000 people of Locums by RHA, 2020/21

- Compared to EH, the cost of locums/1,000 people in the population was 106% higher in CH, 58% higher in WH, and 419% higher in LGH.
- LGH is dependent on locums because of the higher turnover rate.

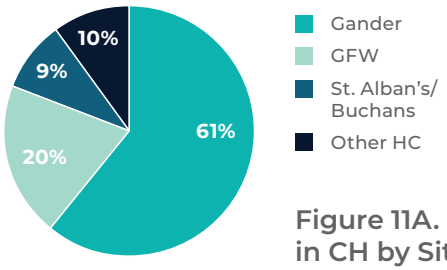


Figure 11A. Use of the Locums in CH by Site, 2019

- Of the 425 locum visits in 2019, 61% (N=260) were in Gander, 20% (N=83) in Grand Falls-Windsor (GFW), 9% (N=38) in St. Alban's/Buchans, and 10% (N=44) in the other eight health centers.

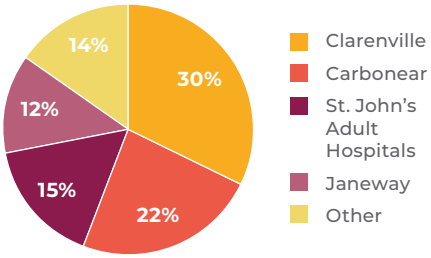


Figure 11B. Use of Locums in EH by Site, 2019

- Of the 384 locum visits in 2019, 30% (N=115) were in Clarenville, 22% (N=83) Carbonear, 15% (N=57) in St. John's adult hospitals, and 12% (N=45) in the Janeway.

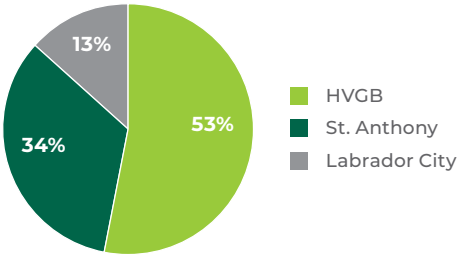


Figure 11C. Use of Locums in LGH by Site, 2019

- Of the 329 locum visits to LGH in 2019, 53% (N=152) were in HVGB, 34% (N=98) in St. Anthony, and 13% (N=39) in Labrador City.

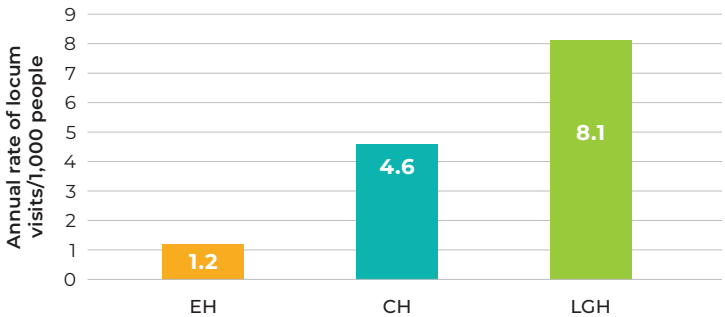


Figure 12. The Annual Rate of Locum Visits/1,000 people by RHA, 2019

- LGH has the highest rate of locum visits because it depends on locums to provide services. Many of the locums are recurrent visitors.

Table 6. Top 6 Sites for Locums Visits in NL, 2019

Top 6 Sites for Locum Visits	N
Gander	260
HVGB	152
Clarenville	115
St. Anthony	98
Carbonear	83
GFW	83

- Gander hospital has the highest number of locum visits annually, 3x times that of GFW which has a similar catchment population.

Conclusions

1. The rate of FPs /1,000 population was lowest in CH and LGH.
2. The turnover rate of doctors in six of the seven rural hospitals was >50%.
3. The turnover rate at Gander hospital was 47%.
4. The turnover rate for FPs funded by the RHA was high in rural EH, CH, and LGH.
5. The rate of locum licenses for both FPs and hospital physicians was high in CH and in LGH.
6. The number of locum visits far outnumbered the locum licenses, particularly for LGH.
7. Sustainability based on turnover, retention and use of locums is a major problem in NL's health system.
8. 1% of total RHA budget was spent on locums.
9. A base of 3–4 doctors in a specialty team should decrease the use of locums, in addition to making the specialty more sustainable.

Use of Air Ambulance in NL

Objective

To review the use of air ambulances in NL.

Practice Points

1. In a geographically large province like NL, comprising almost 500,000 people living on an island and 26,000 living in mainland Labrador, the air ambulance system is vital for emergency care.

   Total land mass of NL is 405,720 km^2 — more than three times the total area of the Maritime Provinces (Nova Scotia, New Brunswick, and Prince Edward Island). It is almost one and three quarters times the size of Great Britain. Area of the Island of Newfoundland — 111,390 km^2. Area of Labrador — 294,330 km^2.

2. This system comprises two aircraft managed by Government Air Services (GAS), short-term contracts with two private airlines (Exploits Valley Air Services (EVAS) and Provincial Airlines (PAL)), and a rotary-wing helicopter contract with Canadian Helicopters is shared with other government departments. Use of this helicopter is limited as it can fly in daylight only (visual flight rules only).

3. Eastern Health (EH) employs medical flight teams to support all aircraft. Teams work 24/7 from St. John's and 14 hours per day/7 days per week from Happy Valley-Goose Bay (HVGB).

4. Labrador-Grenfell Health (LGH) has a contact for medevac and schedevac services in Labrador and the Department of National Defense (DND)Cormorant Helicopter supports emergencies on occasion, but there is no formal agreement with DND.

Data

Health and Community Services provided data on air ambulance use of GAS aircraft, PAL, and EVAS for 3,552 flights from Jan 2018 to Jun 2021.

Results

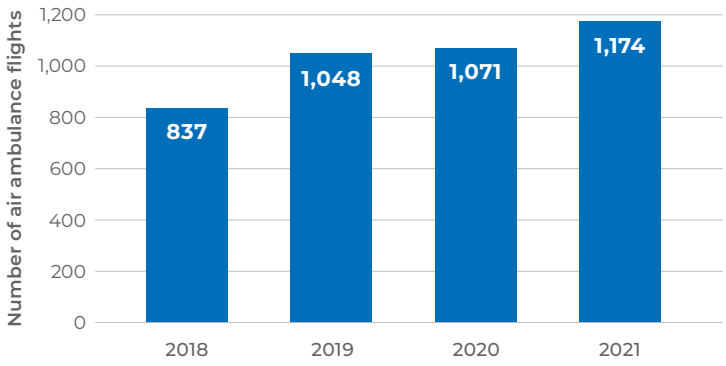


Figure 1. Annual Number of Air Ambulance Flights in NL, 2018–2021

- In the first 6 months of 2021, there were 587 flights giving a prorated annual projected number of 1,174.

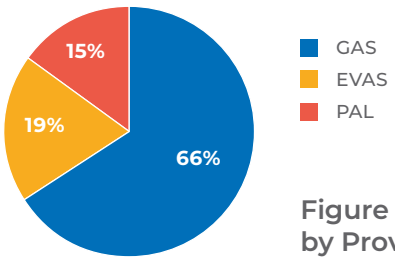


Figure 2. Percentage of Flights by Provider

- There are two air ambulance bases in NL (St. John's, and HVGB), and both have aircraft coverage 24 hours/day, 7 days/week, 365 days/year. The majority of the flights were undertaken by GAS (N=2,343), but GAS covers 12 hour days for both bases each day of the year. The demand for air transportation is greater in the day than overnight, as generally only emergency transport occurs overnight. EVAS provided 660 flights and PAL 544 flights.

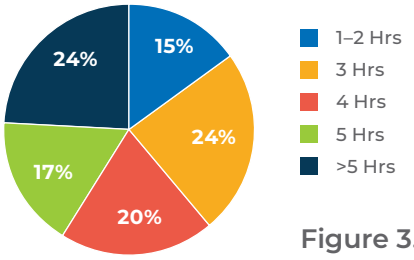


Figure 3. Percentage of Flights Analyzed by Flight Time

- The majority of flights were for a flight time of >3 hours.

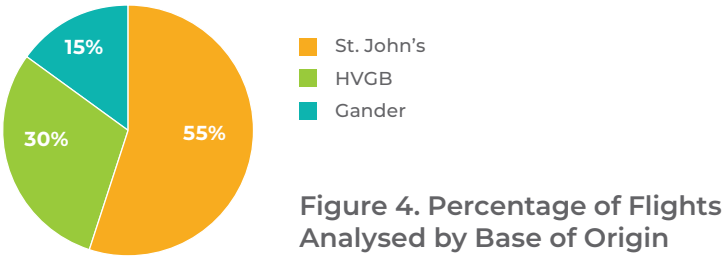


Figure 4. Percentage of Flights Analysed by Base of Origin

- Although there is no official base in Gander, EVAS is based out of Gander.

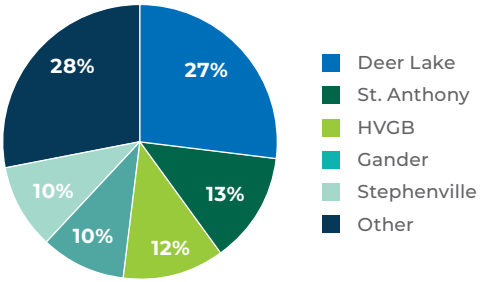


Figure 5A. Destination of Flights Originating from Base Location in St. John's

- Of 1939 flights from St. John's, half were to Western Newfoundland.

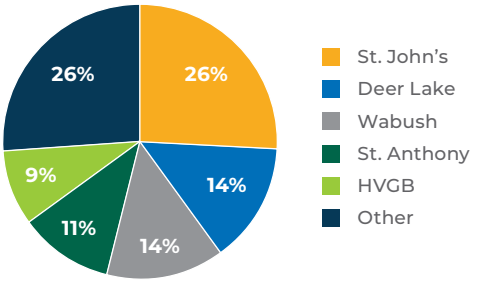


Figure 5B. Destination of Flights Originating from Base Location in HVGB

- Of 1,054 flights from HVGB, 26% were to St. John's (N=274)

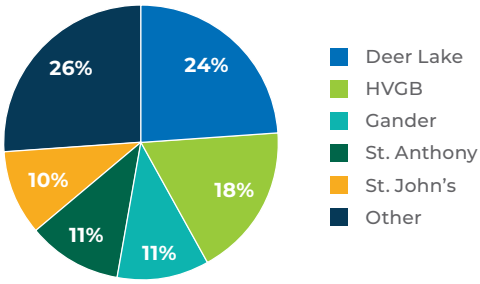


Figure 5C. Destination of Flights Originating from Base Location in Gander

- Of 543 flights originating in Gander, 24% were to Deer Lake.
- In 42 months, the total number of flights to Deer Lake was 802, to Stephenville 290, to St. Anthony 416.

Conclusions

1. During the 42 months of this report, the average number of flights/day was 2.8.
2. The number of flights originating from HVGB, plus going to HVGB from flights originating from St. John's or Gander was 1.1/day. Given its geographic isolation, 24-hour coverage 7 days a week is warranted by a medical flight team.
3. The air ambulance system is not integrated at the management or delivery level. Contract lengths are short-term with private companies, therefore they will not invest in improvements.
4. The question is whether the air ambulance needs can be met by GAS leasing a third airplane or whether private contractors should provide the service.
5. Decreasing the flying limitations of the helicopter service could potentially decrease the need for 24 hour emergency care service in geographically isolated places like Forteau, Bell Island, and Fogo Island, and improve the service in coastal Labrador. This warrants the exploration of a contract for a helicopter that can fly 24 hours per day, using Instrument Flight Rules (IFR).

Private and Community Ambulance Services in NL

Objective

To describe the private and community ambulance services by operator, region, and volume of emergency responses.

Practice Points

1. NL has a diverse ambulance system with 13 hospital/ health centre operations, 25 private operators, and 22 community operations. There are a total of 60 services.

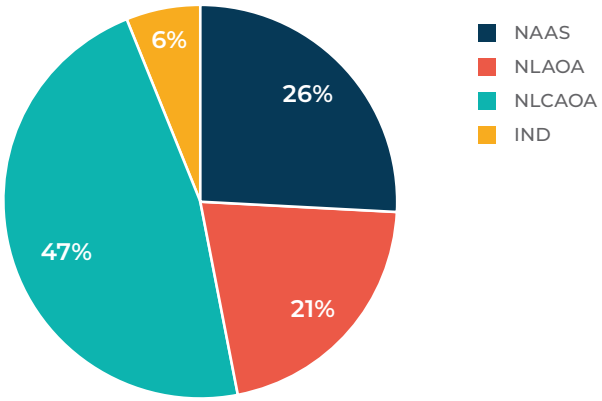


Figure 1. Distribution of Private and Community Operators

- There are three associations representing operators; two representing private operators, and one representing community services:

    1. Newfoundland and Labrador Association of Ambulance Services (NAAS) representing 12 operators;
    2. Newfoundland and Labrador Ambulance Operator Association (NLAOA) representing 10 operators;
    3. Newfoundland and Labrador Community Based Ambulance Services Inc. (NLCAOA) representing 22 operators.
    4. Three independent private operators are not members of any association (IND).

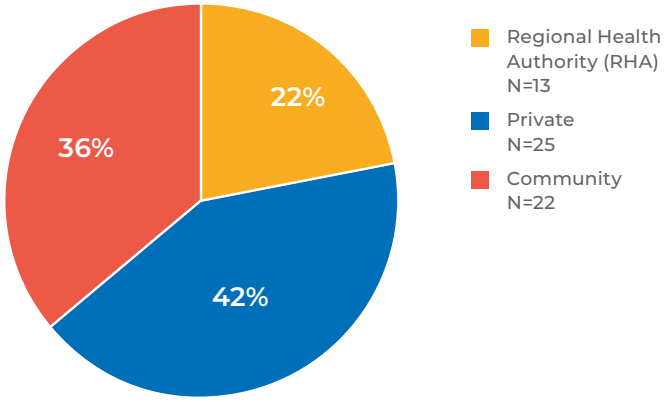


Figure 2. Distribution of Ambulance Operations by Ownership

- There are four RHAs operating the 13 RHA ambulance services.
- Requests for ambulances include emergency, return transfer, and routine. In terms of ambulance bases: the RHAs have 13 services operating from 16 bases; the 25 private operators operate from 45 bases; and the 22 community operators operate from 22 bases. In total, the government of NL funds 179 ambulances; 139 in the private/community sector, and 40 in the RHA operated services.

Data

The distribution, type of operation, and volume of requests in the year 2020 were obtained from the Department of Health and Community Services.

Results

- Of the 43,615 requests made to private and community ambulance services, 27,320 (63%) were for emergency transports.

Eastern Health (EH)

- In addition to the two hospital-based ambulance services in St. John's and Carbonear, there were 25 privately-operated bases and six community-operated bases.
- The 25 private bases were owned by 14 private operators and six community bases were owned by six operators.

Table 1. Private and Community Ambulance Services by Operator, Geography, and Volume of Requests in EH, Jan–Dec 2020

Operator	Association	Base(s)	Total Transfers	Emergency N	Emergency %	Emergencies/ day
Hickeys	NAAS	Kelligrews, Holyrood	3,392	2,992	75	8.2
Ferryland	NAAS	Ferryland	334	365	92	0.9
Ryan's	NAAS	Trepassey	130	150	87	0.4
Smith	NLAOA	Whitbourne	1,029	725	70	2.0
Young's	NAAS	Upper Island cove	1,672	602	36	1.6
Collins	NAAS	Clarke's Beach, Harbour Grace, Bay Roberts, Burin, Lawn	6,208	2,714	44	7.4
Broughton	NLAOA	Brigus	761	385	51	1.1
Heart's Delight	NLCAOA	Heart's Delight	752	361	48	1.0
North Shore	NLCAOA	Adam's Cove	106	106	100	0.3
Old Perlican	NLCAOA	Old Perlican	319	274	86	0.8
Winterton	NLCAOA	Winterton	176	170	97	0.5
Power's	NLAOA	Placentia	934	524	56	1.4
Gibbons	NLAOA	St Mary's, Mt. Carmel	576	328	57	0.9
Random Island	NLAOA	Random Island	140	166	84	0.4
Fewer's	NAAS	7 Bases[#]	5,959	3,456	58	9.5
Bay L'Argent	NLCAOA	Bay L'Argent	252	252	100	0.7
Marystown	NLAOA	Marystown	1,520	814	54	2.2
Grand Bank	NLCAOA	Grand Bank	1,077	635	59	1.7
Cape Shore	IND	St. Bride's	83	82	99	0.2
Tremblett's	NASS	Bell Island	465	352	76	1.0

[#] Bases Include: Arnold's Cove, Bonavista/Catalina, Clarenville, Lethbridge, Port Rexton, Terrenceville

- For operators with multiple bases in 2018/19, Hickeys had 718 emergency calls (1.7/day) from Holyrood, and 2,072 (5.7/day) from Kelligrews.

  Data for the Fewer's/Collins bases were: Clarke's Beach 1,314 emergency calls (3.6/day); Harbour Grace/Bay Roberts 375 (1.0); Burin 196 (0.5); Lawn/St. Lawrence 192 (0.5); Clarenville 1,435 (3.9), Bonavista/Catalina 794 (2.2); Port Rexton 92 (0.3); Terrenceville 139 (0.4); Lethbridge 385 (0.9), and Arnold's Cove 253 (0.7).

  For Gibbons operation, St. Mary's had 231 (0.6/day) emergency calls and Mount Carmel 191 (0.5).

- In 2018/19, 17 of 31 (55%) private or community bases had less than one emergency/day.

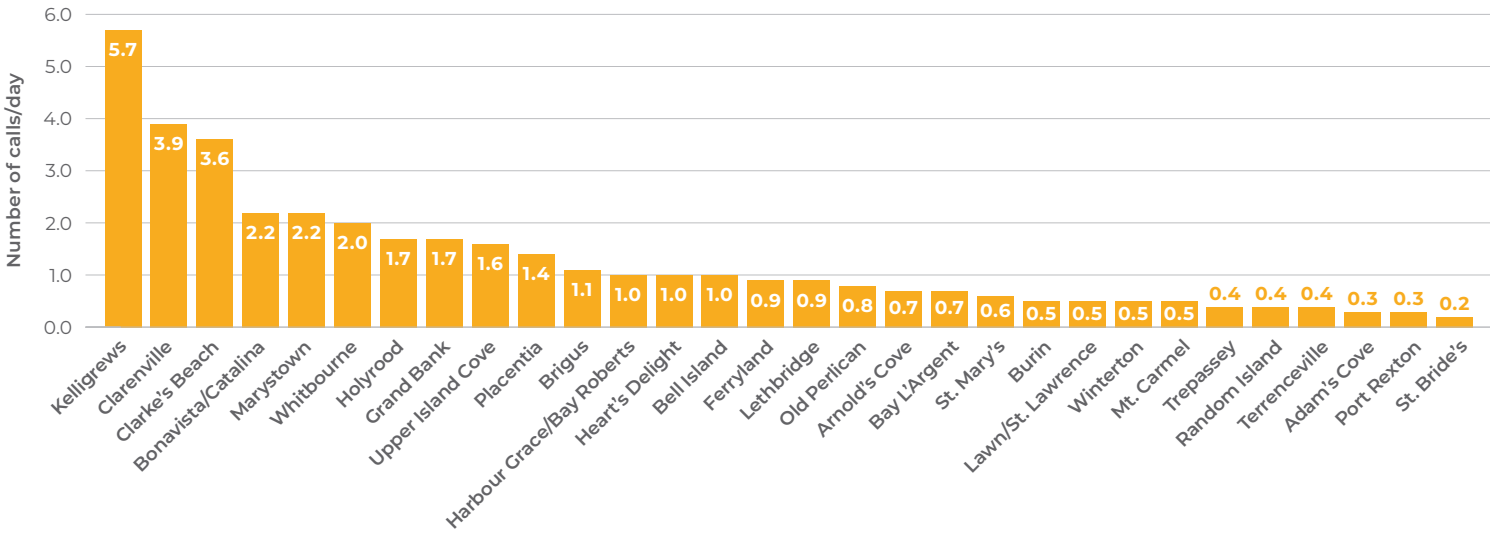


Figure 3. Emergency Calls/Day in Private and Community Bases of EH

Central Health (CH)

- In addition to the six RHA services with six bases (two hospitals in Gander and Grand Falls-Windsor, and four health centres (Twillingate, Buchans, Springdale and Baie Verte)), there were eight private and eight community bases in CH.

- The eight private bases were owned by five operators and the eight community bases were owned by eight operators.

Table 2. Private and Community Ambulance Services by Operator, Geography, and Volume of Requests in CH, Jan–Dec 2020

Operator	Association	Base(s)	Total Transfers	Emergency N	Emergency %	Emergencies/ day
Gambo	NAAS	Gambo	467	458	98	1.3
Delaney	NLAOA	Glovertown	998	587	59	1.6
Hoyles	NAAS	Newtown	677	473	70	1.3
Mercer's	NAAS	Carmanville, Boyd's Cove, Fogo Island	1342	934	70	2.6
Freake's	NAAS	Lewisporte, Botwood	3234	1840	57	5.0
Robert's Arm	NLCAOA	Robert's Arm	153	128	84	0.4
Point Leamington	NLCAOA	Point Leamington	70	70	100	0.2
Triton	NLCAOA	Triton	153	146	95	0.4
La Scie	NLCAOA	La Scie	156	150	96	0.4
Bay D'Espoir	NLCAOA	St. Alban's	350	246	70	0.7
Harbour Breton	NLCAOA	Harbour Breton	198	255	78	0.5
Hermitage	NLCAOA	Hermitage	109	106	97	0.3
English Harbour West	NLCAOA	English Harbour, West/Mose Ambrose	94	94	100	0.3

- Ten of 16 (63%) private or community bases had less than one emergency/day.

- For the Mercer's operation in 2018/19, Carmanville had 465 emergency calls (1.7/day); Boyd's Cove 309 (0.9); Fogo Island 159 (0.4).

  For Freake's operation, Lewisporte 1,075 (2.9/day); and Botwood 487 (1.3).

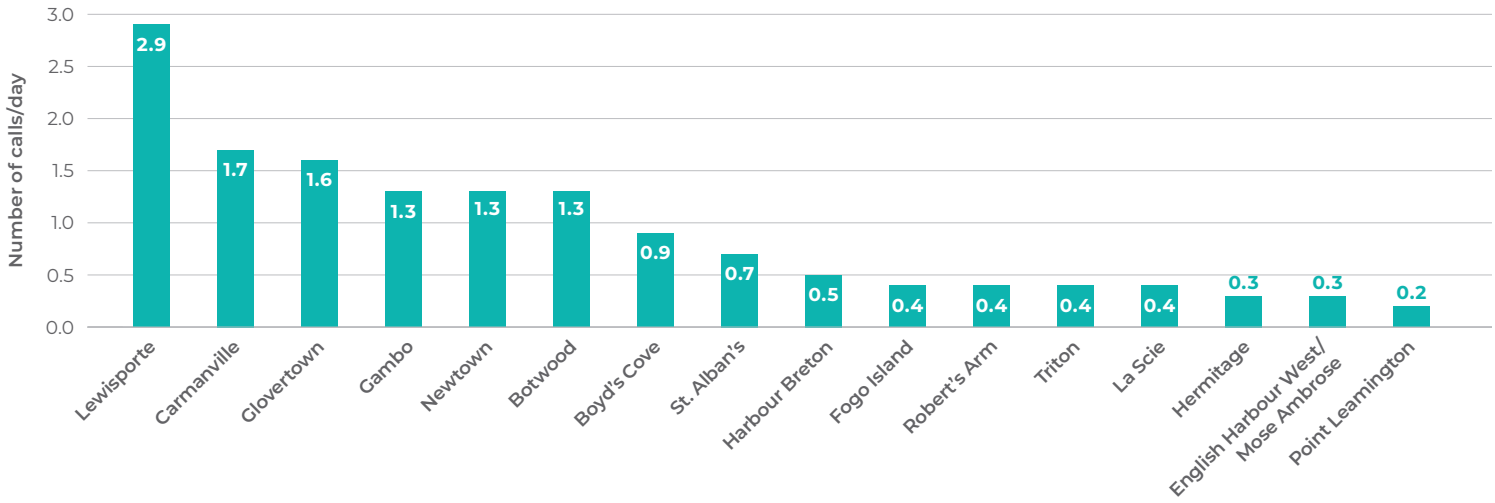


Figure 4. Emergency Calls/Day in Private and Community Bases of CH

Western Health (WH)

- In addition to the two RHA services, one at the hospital in Corner Brook and one at the health centre in Port Saunders, there were eight private and seven community bases.
- The eight private bases were owned by five operators and the seven community bases were owned by seven operators.

Table 3. Private and Community Ambulance Services by Operator, Geography, and Volume of Requests in WH, Jan–Dec 2020

Operator	Association	Base(s)	Total Transfers	Emergency N	Emergency %	Emergencies/ day
Reliable	NAAS	Corner Brook, Burgeo	2,690	1,357	50	3.7
Deer Lake	NLAOA	Deer Lake	1,146	1,088	95	3.0
Hampden	NLCAOA	Hampden	93	93	100	0.3
Jackson's Arm	NLCAOA	Jackson's Arm	109	109	100	0.3
Tryco	IND	Woody Point, Norris Point	431	393	91	1.1
Cow Head	NLCAOA	Cow Head	81	81	100	0.2
Daniel's Harbour	NLCAOA	Daniel's Harbour	111	111	100	0.3
Russell's	NLAOA	Stephenville	2,782	1,642	59	4.5
Lourdes	NLCAOA	West Bay	160	160	100	0.4
Cape St. George	NLCAOA	De Grau	147	147	100	0.4
Royal Canadian Legion	NLCAOA	Jeffreys	196	195	99	0.5
Mackenzie's	IND	Port aux Basques, Codroy Valley	147	147	100	0.4

- For Reliable operation in 2018/19, there were 332 emergency calls in Corner Brook (0.9 per day) (this number is low as the RHA service completes most emergency calls), and 53 (0.1) in Burgeo.

  For Tryco operation, the calls were Norris Point 202 (0.6/day) and Woody Point 151 (0.4).

  For Mackenzie's operation, the calls were Port aux Basques 594 (1.6/day); Codroy 148 (0.4).

- In 2018/19, 11 of 15 (73%) private or community bases had less than one emergency/day.

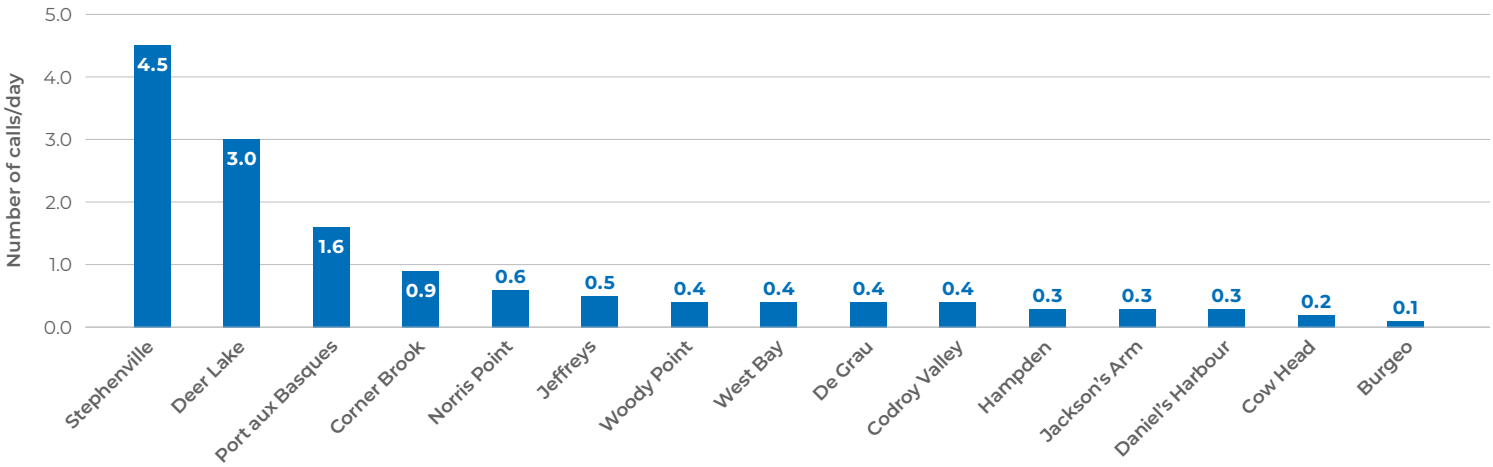


Figure 5. Emergency Calls per day in Private and Community Bases of WH

Labrador-Grenfell Health (LGH)

- In addition to the three RHA services operating from six bases: hospitals in Labrador City, Happy Valley-Goose Bay, St. Anthony, health centres in Flower's Cove and Roddickton, and the medical clinic in North West River, there is one private and one community operator.
- The private operator operates three bases, and the community operator operates one base.

Table 4. Private and Community Ambulance Services by Operator, Geography, and Volume of Requests in LGH, Jan–Dec 2020

Operator	Association	Base(s)	Total Transfers	Emergencies		
				N	%	/day
St. Lunaire-Griquet	NLCAOA	St. Lunaire-Griquet	50	41	82	0.2
Labrador South	NLAOA	Port Hope Simpson, Forteau, Cartwright	300	255	85	0.7

- In 2018/19, there were 68 emergency calls to Port Hope Simpson (0.2/day), Forteau 313 (0.9), and Cartwright 22 (0.1).
- All four (100%) private or community bases had less than one emergency/day.

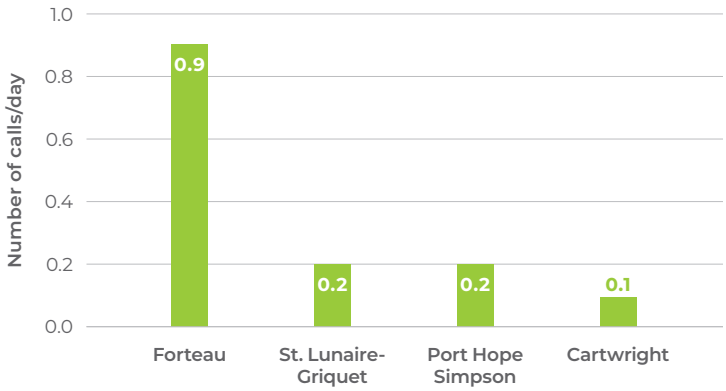


Figure 6. Emergency Calls per Day in Private and Community Bases of LGH

Conclusions

1. Ambulance operations are diverse and include many public, private, and community operators.
2. There are two private ambulance associations and three independent private operators who are not members of any association. In addition, there is a community operators association.
3. Many of the private and community bases have less than one emergency/day but are in geographically isolated rural areas. The community role of paramedics could be expanded.
4. An integrated provincial ground ambulance system is necessary.

The Structure of Long-Term Care in NL

Objective

To describe the institutions and community services provided for aging and chronically disabled people in NL.

Practice Points

1. Care for the elderly can be provided at home, in personal care homes (PCHs), or in long-term care facilities (LTCFs).

2. The Government of NL subsidizes 85% of residents of PCHs. The PCH rate is $2,395/person/month, and the average subsidy is $1,200.

   The average cost for a LTCF bed is $10,200/person/month. This sector is publically funded up to a certain income level.

Data

- These were obtained from the CIHI and the Department of Health and Community Services.

Results

Table 1. Funding Provided in the Provincial Budget for LTC, 2018/19

LTCFs	$477 million
PCHs	$75 million
Home Support/Home Care	$285 million
Special Assistance	$10 million
Total	**$847 million**

- NL spends 28% of its health budget on LTC.
- The spending category "Other institutions", defined by the Canadian Institute for Health Information (CIHI), includes LTCFs, PCHs and addiction centres. NL spends 70% more per capita in this area compared to the Canadian average. Total spending is $389 million for LTCFs and $75 million in PCHs.

Table 2. Agencies, Beds, and Clients of LTC Services by Region, 2021

	Region			
Type of Care	**EH**	**CH**	**WH**	**LGH**
Home Care				
Agencies	25	10	13	2
>100 clients	10	4	4	0
Clients	4,267	1,195	1,121	67
PCHs				
Institutions	43	26	16	4
Beds	2,293	1,517	862	135
Clients	1,643	1,115	625	120
Occupancy %	72	74	73	89
LTCFs				
Institutions	17	12	8	4
Beds	1,688[#]	548[#]	553	148

[#] Plus three palliative and five respite beds in EH, and five palliative and five respite beds in CH. In CH, there are 140 new LTCF beds not included; 20 in Botwood, 60 in Grand Falls-Windsor, and 60 in Gander.

The Number of LTCF beds include protective care residence beds (24 in EH, 12 in CH and 40 in WH)

EH=Eastern Health; CH=Central Health; WH=Western Health; LGH=Labrador-Grenfell Health

- There are many private agencies responsible for home care, a minority of whom care for >100 clients each.
- On the basis that long-term institutional care should be provided as close to home as possible, there are 89 PCHs and 41 LTCFs in the province.
- Occupancy of PCHs is low on the island of Newfoundland.

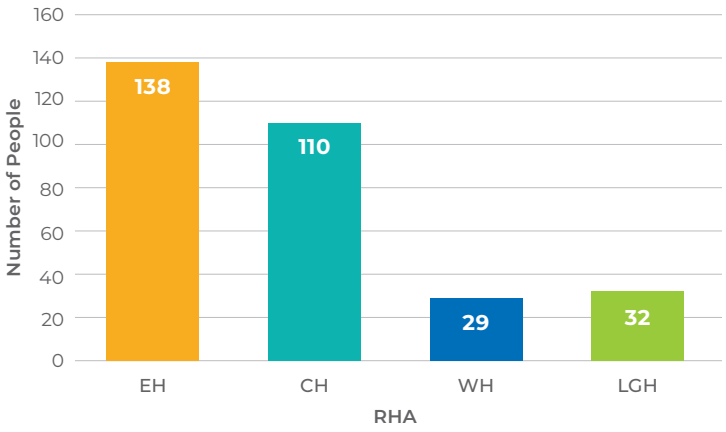


Figure 1. The Number of People Awaiting LTCF Placement on 31 Mar 2021

- On 31 Mar 2021, there were 309 people awaiting placement.
- There were high rates of people waiting for LTCF placement in CH and LGH. The rates were 2.1/1,000 seniors in EH, 4.4 in CH, 1.4 in WH, and 5.3 in LGH.
- This big wait list in CH should be mitigated by the 140 new LTCF beds being built there.

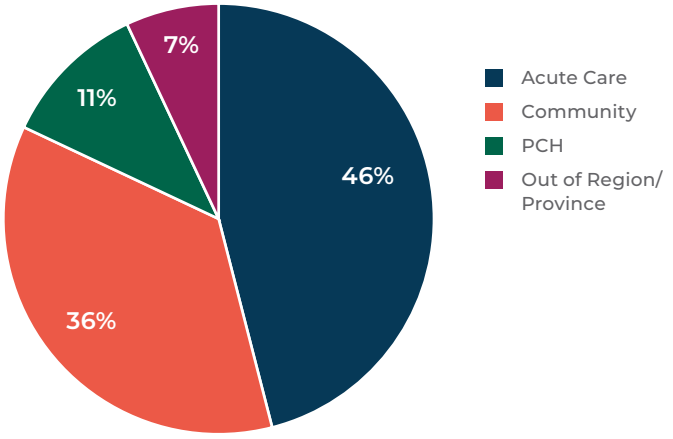


Figure 2. The Location of LTCF Clients Awaiting Placement on 31 Mar 2021 (N=309)

- 142 (46%) clients were awaiting placement while in an acute care hospital.

Conclusions

1. NL spends 28% of its health budget on LTC. Per capita population, this is substantially higher than the national average.
2. Home care agencies are multiple and generally provide care to a relatively small number of clients.
3. Occupancy of PCHs on the island is <75%. There is a high rate of PCH beds in CH. However, this has not solved the high wait list for LTCFs in CH, which should be mitigated by the 140 new LTCF beds being built.
4. The large number of clients in acute care hospitals awaiting placement to a LTCF contributes in a large way to alternate level of care (ALC) length of stay. Furthermore, current models of care for patients in ALC beds are not conducive to improving their health.

Utilization of Long-Term Care Facilities in NL

Objective

To report the number of beds, occupancy, and potential inappropriateness of admissions to long-term care facilities (LTCFs) in NL.

Practice Points

1. NL spends 70% more per capita on institutions other than acute care hospitals relative to the Canadian average. Total spending is $389 million for LTCFs and $75 million for personal care homes (PCHs).

2. LTCF costs an average of $10,200/resident/month and average length of stay is 21 months. There are 3,160 beds in LTCFs in the province.

3. Eighteen per cent of admissions to LTCFs in NL did not have extensive dependence for activities of daily living or severe cognitive impairment. Some of these admissions may have been inappropriate.

Data

- Occupancy at 30 Apr 2021, was obtained from the regional health authorities.

- Beds in LTCFs includes general LTC; protective care; palliative and respite; restorative and rehabilitation and protective care residences.

- Appropriate admission was defined as per cent having extensive to very extensive physical dysfunction and/or severe to very severe cognitive impairment, derived from the Resident Assessment Instrument-Minimum Data Set (RAI-MDS) for admissions in the two years Apr 2018–Mar 2020. The remaining beds were considered potentially inappropriate.

Results

- The number of LTCF beds in Eastern Health (EH) is 1,827, in Central Health (CH) 558 (with 120 more under construction), in Western Health (WH) is 626 beds, and in Labrador-Grenfell Health (LGH) is 149 beds.

Table 1. Utilization in 38 LTCFs in NL on 30 Apr 2021

Location	Total Beds (N)	Bed Type					Occupancy (%)	Potentially Inappropriate Admissions (%)
		LTC	Protective Care	Palliative and Respite	Rehab and Restorative	Protective Care Residences		
LGH								
Forteau	18	16	0	2	0	0	100	0
St. Anthony	47	36	10	1	0	0	100	5
HVGB	71	56	13	2	0	0	100	27
Labrador City	13	12	0	1	0	0	100	31
Total	149	120	23	6	0	0		
WH								
Port aux Basques	30	30	0	0	0	0	99	12
Bonne Bay	14	14	0	0	0	0	99	19
Bay St. George	114	92	22	0	0	0	98	8
Corner Brook (CB)	250	234	16	0	0	0	98	11
CB Protective	40	0	0	0	0	40	97	No data
Burgeo	18	18	0	0	0	0	100	16
Port Saunders	22	22	0	0	0	0	99	11
Western[1]	138	105	0	8	25	0	100	No data
Total	626	515	38	8	25	40		
CH								
Gander	102	79	22	1	0	0	98	7
Fogo Island	11	11	0	0	0	0	99	0
Springdale	78	77	0	1	0	0	99	20
Harbour Breton	18	16	0	2	0	0	98	18
Baie Verte	19	18	0	1	0	0	96	13
Botwood	100	48	48	4	0	0	96	9
Buchans	20	19	0	1	0	0	99	38
Brookfield	45	45	0	0	0	0	99	28

table continued on page 65

[1] 10 Rehabilitation and 15 Restoration Care Beds

Table 1 continued

Location	Total Beds (N)	Bed Type					Occupancy (%)	Potentially Inappropriate Admissions (%)
		LTC	Protective Care	Palliative and Respite	Rehab and Restorative	Protective Care Residences		
CH (continued)								
GFW	65	64	0	1	0	0	99	8
Twillingate	37	32	0	0	5	0	100	11
Lewisporte	63	49	0	2	0	12	95	19
Total	558	458	70	13	5	12		
EH								
Clarenville	44	44	0	0	0	0	100	5
Clarenville Protective	12		0	0	0	12	100	62
St. Lawrence	40	29	10	1	0	0	98	18
Bonavista	70	70	0	0	0	0	83	9
Bonavista Protective	12	0	0	0	0	12	100	40
Grand Bank	61	60	0	1	0	0	93	12
Chancellor Park	154	154	No data	No data	0	0	100	No data
Miller Center	118	42	14	0	62	0	95	12
Carbonear	228	200	28	0	0	0	99	14
Placentia	75	73	0	2	0	0	97	22
Agnes Pratt	133	105	26	2	0	0	98	13
St. Patrick's	210	210	0	0	0	0	100	10
Glenbrook Lodge	104	104	0	0	0	0	100	17
St. Luke's	117	116	0	1	0	0	97	22
Pleasant View Towers	433	403	30	0	0	0	100	17
Bell Island	16	15	0	1	0	0	94	No data
Total	1,827	1,625	108	8	62	24		

- Only one LTCF is below capacity: Bonavista.
- The higher rates of potentially inappropriate admissions in Clarenville Protective and Bonavista Protective units may be related to admissions criteria being less restrictive than for LTCFs; in HVGB, Labrador City, and Buchans due to the absence of a PCH in the regions.
- Of the remaining 34 LTCFs, four (20%) had >20% of admissions that were potentially inappropriate.

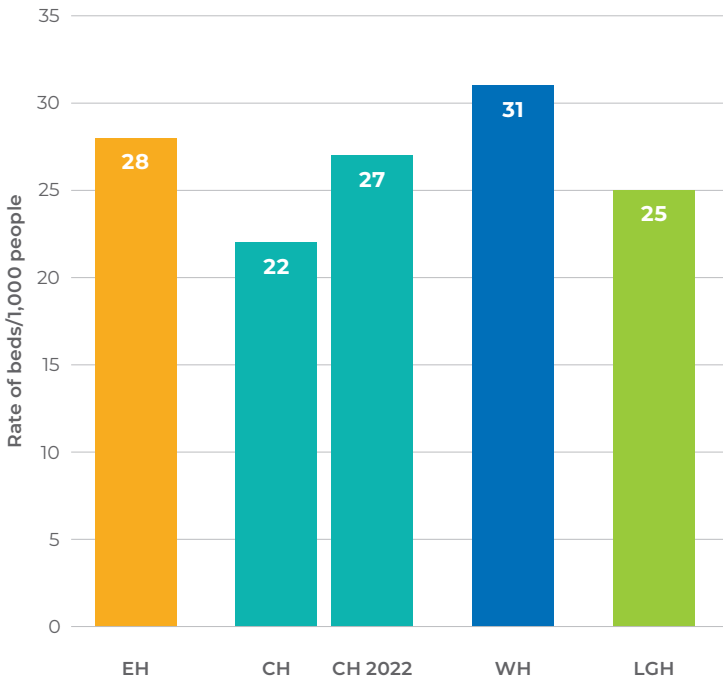


Figure 1. The Number of All LTC Beds/1,000 People Aged ≥65 Years by RHA, 2021

- The addition of 120 new beds in CH will improve the current rate to 27/1,000 seniors in 2022.

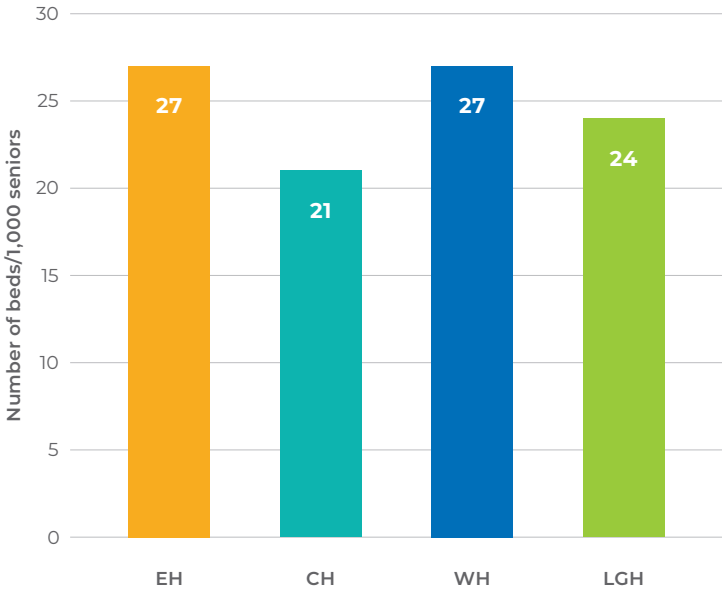


Figure 2. The Number of General LTC and Protective Care Beds/1,000 Seniors in 2021

- As staffing mix differs by type of bed, this rate excludes palliative care, respite, rehab, restorative and protective care residents.

Conclusions

1. The per cent occupancy of LTCFs in NL was high, with 83% of admissions being for clients with extensive impairment for the activities of daily living or severe cognitive impairment.

2. The per cent of potentially inappropriate admissions varied by LTCF.

3. The rate/1,000 seniors is low in CH and therefore likely predisposes CH to increased alternate level of care length of stay in the acute hospitals and health centres in this region. This should improve with the 120 new beds not yet opened.

4. The definition of potentially inappropriate admission includes clients who needed admission for reasons other than severe disability or cognitive impairment, and overestimates the number of admissions that could be avoided. CIHI used a definition that identifies clients admitted to a LTCF who could have been prevented by the use of home supports. Using this definition, CIHI reported that 7% of admissions in NL may have been inappropriate compared to 10% in Canada.

Health Accord for Newfoundland & Labrador

The Current State of the Family Practice Renewal Program

Objective

To report the structure, governance, and programs of the Family Practice Renewal Program (FPRP) in NL.

Practice Points

1. FPRP started in 2016 to transform family practice for better health. It envisioned family physicians (FPs), primary health care providers, and patients working together for an effective and sustainable system.

2. An initiative of the Newfoundland and Labrador Medical Association (NLMA) and the Department of Health and Community Services (DHCS), the FPRP comprises a FPR governing committee, a clinical advisory group, and four FP networks with boards.

Data

These were obtained from the FPRP 2020/21 annual report.

Results

Table 1. Four Family Practice Networks

Name	Region	N Members	Board Chair
Shalloway	Central NL	92	Jared Butler
Long Range	Western NL	74	Amy Pieroway
Endeavor	St. John's Metro	176	Annette McCarthy
RE-Boot	Rural Eastern NL	77	Jackie Elliott

Table 2. FPR Governing Committee

Organization	Number of Representatives
Department of Health and Community Services	3
NL Medical Association	5
Regional Health Authorities	4
NL College of Family Physicians	1
MUN Family Practice	1
NL Centre for Health Information	1

Table 3. Programs of the FPRP

Name	Numbers	Objective
Collaborative Service Committees	4	To build collaborative relationships between FPs and RHAs
My Q	48 FPs 25 staff	To create a culture of quality improvement in family practice
Frailty Education	300 FPs	To increase clinical knowledge, pragmatic relevance to practice, and improve care of older adults
MyPractice	Launched	To provide FPs with training and supports related to managing their practices
Virtual Care Training	45 FPs 36 staff	To implement new virtual care processes during COVID-19
Fee Code	250 FPs	Registrants were fee-for-service FPs
Technology Support	Launched	To assist FPs in adoption of technology for better functionality in their clinics

Conclusions

1. The majority of FPs in the province are members of the FPRP, including nearly all those in Western and Central NL.

2. Programs available to members include several of relevance to Health Accord NL, such as development of teams, collaboration with the RHAs, management of the frail elderly, quality improvement, virtual care, and use of information technology.

Clinic for Children and Youth in Alternate Care (CAYAC)

Objective

To evaluate a new multidisciplinary clinic that provides a medical home for children and youth in care in NL.

Practice Points

1. Children in care have higher medical, emotional, developmental, and educational needs which are under recognized and neglected. Risk factors leading to this include poverty, prenatal exposures to drugs, parental mental illness, and exposure to domestic violence in their families of origin.

2. Barriers to medical supervision for these children include parental incapacitation, inadequate medical records, lack of consistent care and follow up due to multiple placements and movements within the system, and lack of communication between caregivers.

3. At the start of 2020, the number of children and youth (0–15 years) in out-of-home care was 985 (480 in Central Health (CH) and Western Health (WH), 280 in the St. John's metro region, and 230 in Labrador Grenfell-Health (LGH)) and 1,545 in kinship care arrangements.

4. Multidisciplinary clinics that provide a medical home for children and youth in care exist in other provinces and improve outcomes.

Data (PIs: Dr. L.A. Newhook & Dr. S. Luscombe)

- CAYAC clinic at the Janeway Hospital was started in Sept 2019. This multidisciplinary, multiagency clinic is directed by Dr. Sandra Luscombe (Developmental Pediatrician and Medical Director of Child Protection) and includes a general pediatrician, speech language pathologist, occupational therapist, Department of Children, Seniors, and Social Development (CSSD) liaison social worker, Janeway school principal, and a music therapist, each providing between 5–10% clinical time dedicated to the clinic. The clinics occur 3–4 half-days per month in the children's rehabilitation space. A Child Psychiatrist has recently been added to the team.

- Most referrals are from the child/youth's CSSD social worker who is required to attend the clinic appointments. Also attending are any adults who are relevant to the child/youth's guardianship including foster parents, biologic parents, group home workers or other relatives/carers.

- There have been over 100 new patients assessed at the clinic as of Oct 2021 and there have been 208 referrals, between ages 12 months–18 years living within the Eastern Health (EH) catchment area. They have been prioritized by need, and the clinic provides trauma-informed care (all health care members have received training). Participation of youth in the clinic is voluntary and patient-centered.

- The first 56 attendees were evaluated (mean age 8.7 years; 50% male).

Results

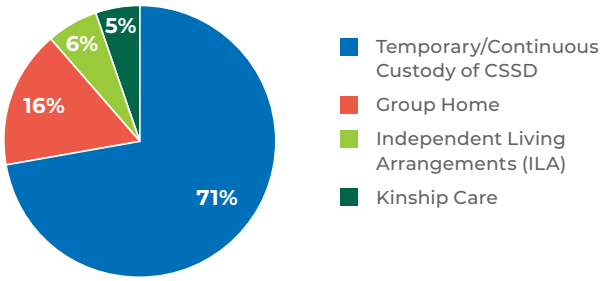


Figure 1. Attendants at CAYAC Analyzed by Care Provider

- The majority of attendees were in temporary or continuous custody of CSSD.

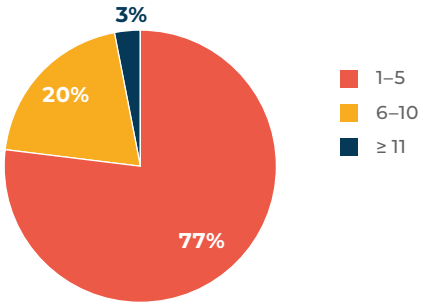


Figure 2. Attendees at CAYAC by Number of Placements in Care

- 23% of attendees have been placed ≥ 6 times and 49% have been in care for ≤ 1 year.

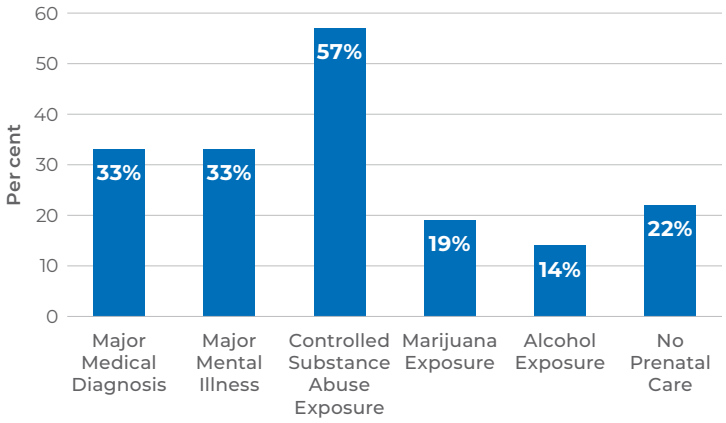


Figure 3. Maternal Health Care History of Attendees at CAYAC

- Exposure during pregnancy to controlled substances is common and maternal medical illnesses (eg. asthma, epilepsy, diabetes) or maternal mental illness (eg. depression, anxiety, posttraumatic stress disorder) also occur frequently.

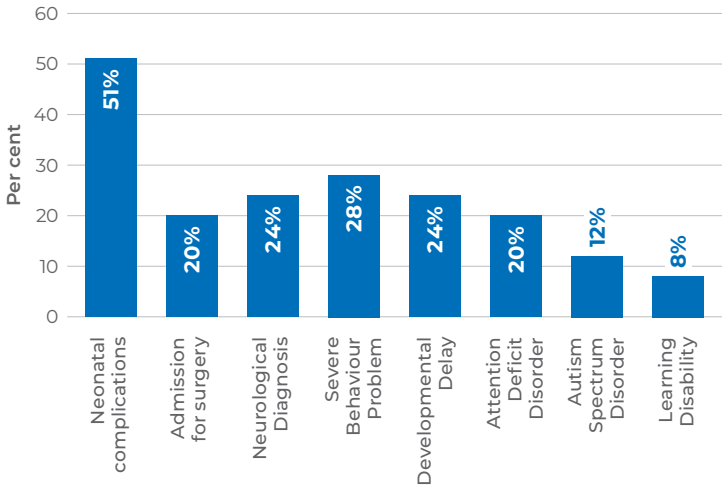


Figure 4. Medical Issues of Attendees of CAYAC

- The majority of children/youth attending CAYAC have diagnosis of neurologic, behavioural, or developmental disorders and/or mental illness diagnosis.
- The mean number of medications/person was 3.6.
- 18% did not have immunizations up to date.

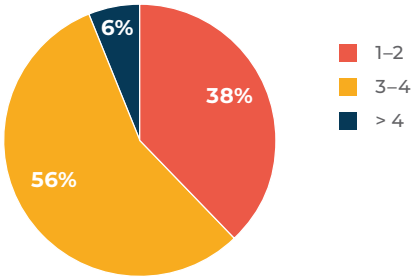


Figure 5. The Proportion of Children/Youth at CAYAC Defined by the Number of Types of Abuse to Which They Were Exposed

- Types of abuse include sexual, physical, psychological neglect, exposure to domestic violence, and parental substance abuse. 62% of attendees at CAYAC have been exposed to ≥ 3 types of abuse.

Table 1. Effects of COVID-19 Pandemic on Children/ Youth in Care

Effects of COVID-19 Pandemic on Children/Youth in Care
Isolation from biological family, friends, social support and providers
Learning problems exacerbated
Delays in family court
Increased economic hardships for biological parents
Increased stress in parents and carers

- These children have experienced many gaps in their health care journey including missed appointments, lack of communication between care and health care providers (resulting in further neglect of their medical and mental health).
- CAYAC has increased communication between CSSD social workers (who are considered part of the health care team) and positive feedback has been received from them through evaluations. The CSSD social workers, foster parents, and kinship carers (especially grandmothers) are amazing and inspirational.

Next Steps

- In 2022, the new CAYAC (child and youth advocacy centre) is opening with a non-governmental partner called “Key Assets”. In this space, there is newly renovated clinic space allocated to operate the CAYAC clinic which will provide an ability to increase the number of clinics available. It will also be equipped with space for Speech-Language Pathology (SLP) assessments and a therapeutic sensory room.

- Expansion to include a “Baby CAYAC” clinic for high-risk infants and toddlers in alternate care is planned.

Conclusions

1. Children and youth are among the most vulnerable groups in our society. Most children and youth seen in the CAYAC clinic thus far have been selected based on need. They have developmental trauma disorder, complex mental health issues, learning and academic challenges, and significant medical problems. These children and youth have gone through the worst possible tragedies and abuse, including neglect, psychological, sexual, and physical abuse, yet most remain positive, hopeful, and resilient.

2. There is an immediate need within CAYAC to provide human resources to provide necessary mental health supports for these children and youth.

3. Development of a “provincial model of care” is critical so that similar multidisciplinary clinics can exist outside EH. There are around 1,000 children/youth in care in the province. Only 10% have had access to this CAYAC, only those living in the EH region, and those with highest need.

Measuring and Tracking Indicators of the Social Determinants of Health in NL

Objective

To identify, document, address, and track indicators of social determinants of health (SDH) in NL, in an ethically transparent and publicly accessible manner, at the point of care in the health system and at community, regional, and provincial levels.

Practice Points

1. Measuring indicators of SDH in NL is essential to assess the extent of the problem, plan implementation of interventions, and determine trends over time.

2. Several jurisdictions measure indicators of SDH, but may not identify them as such. In NL (and many other places) these measurements are not systematic, comprehensive, or consistent and are dispersed across multiple different information sites. Some countries have developed National Wellbeing Indicators. Wales collects, documents, and tracks forty-six such indicators.

3. Kaiser Permanente Northwest, an integrated health care system providing care to more than 600,000 clients in 34 medical clinics and two hospitals, have proposed an approach to identify, document, and track SDH.

Data

1. Wellbeing of Wales: national indicators. https://gov.wales/wellbeing-wales-national-indicators

2. Toward Addressing Social Determinants of Health: A Health Care System Strategy. https://www.ncbi.nlm.nih.gov/pmc/articles/PMC6207437/pdf/18-095.pdf

Results

- Kaiser Permanente Northwest uses specifically trained patient navigators to identify and address patients' SDH, identified at three points: initial contact; referral from a clinician; and proactive assessment. The training of patient navigators includes motivational interviewing, trauma-informed care, and mental health first aid. Once a SDH is identified, using a standardized social needs assessment tool, education about and referral to appropriate and available resources take place. The navigator facilitates connection to these resources. Importantly, all the information is captured in the electronic health record.

Table 1. Possible Indicators for Poverty Measurement and Tracking

Economic	Housing	Food Security
Gross disposable household income per head	Homelessness rates	Household Food Security Survey Module (HFSSM), included in Canadian Income Survey*
Gross value added per hour worked	Affordability - Housing burden (% of income spent on housing) - Households with unpaid rent or mortgage	Food bank usage
Percentage of people in employment	Composite measures such as the Housing Security Index#	Experience-based food insecurity scales (e.g., FIES)
Percentage of people living in households with income poverty relative to NL median; measured for children, working age and those of OAS age	Quality - Issue with housing/ neighborhood that is sub-standard but not an imminent threat to health	Expenditures on food
Regional data for Canadian Index of multiple deprivation	Safety - Proportion of households or neighborhoods reporting one imminent threat to health (e.g., heating, and/or structural issues) - Households who live in neighborhoods with undesirable characteristics, and low access to services and amenities nearby, but do not represent an imminent health or safety threat	Market Basket Measure (MBM)
	Stability - Percentage of households living in overcrowded conditions	

*https://www.canada.ca/en/health-canada/services/food-nutrition/food-nutrition-surveillance/health-nutrition-surveys/canadian-community-health-survey-cchs/canadian-community-health-survey-cycle-2-2-nutrition-2004-income-related-household-food-security-canada-health-canada-2007.html#appa

#https://citymonitor.ai/housing/us-housing-security-index

Table 2. Possible Indicators for Social Determinants of Health, Other Than Poverty

General	Children	Climate/ Environment	Inclusion
Per Cent Live Single Births <2500g	Comprehensive School Health Assessment Survey	Air Quality Index	Gender Pay Difference
Healthy life expectancy at birth including the gap between the least and most deprived (currently 5.9 years in Canada, PHAC data)	Foundation Phase Profile* of children's development	Water Quality Index (% of communities in NL with acceptable WQI)	Percentage of people who feel able to influence decisions in their local area
Percentage of adults who have fewer than two healthy lifestyle behaviours	Number of children with complex medical needs	Amount of non-recycled waste generated per person	Percentage of people satisfied with their ability to access the facilities and services they need
Percentage of children who have fewer than two healthy lifestyle behaviours	Proportion of children in care who have been seen by a multidisciplinary team in the last year	Capacity (in million watts) of renewable equipment installed	Percentage of people agreeing that they belong to the local area; that people from different backgrounds get on well together; and that people treat each other with respect

*https://gov.wales/sites/default/files/publications/2018-03/foundation-phase-profile-handbook-revised-september-2017.pdf

Table 3. Point of Care SDH Indicators*

Social	Economic	Environmental	Health Education
Caregiver stress	Financial problems	Fall risk	Dental well-care counselling
Family stress	Food insecurity	Stressful work schedule	Referral to mental health service
Needs assistance with community resources	Homelessness	Foster care status	Illiteracy and low-level literacy
Unavailability/ inaccessibility of helping agencies	Intentional underdosing of medications	Problem related to social environment	Nutrition and exercise counselling
Social isolation	Unemployment		

Table 3 continued

Social	Economic	Environmental	Health Education
Legal issues	Low income		
Problems related to release from prison	Inadequate material resources		
	Centre for Effective Practice Poverty tool#		

*Abstracted from Kaiser Permanente Northwest. Collected by Patient Navigator using standardized tools.

https://cep.health/clinical-products/poverty-a-clinical-tool-for-primary-care-providers/?&region=9

Conclusions

1. NL should Implement new and co-ordinate existing measures of SDH in NL at community, regional, and provincial levels.
2. Integrate trained patient navigators into multidisciplinary teams to assess, document, and address SDH at the point of care in the community.
3. Ensure that all indicators of SDH are accessible for care delivery, tracking, and evaluation in a linked and safe manner.
4. Utilize a governance structure to ensure the collection, quality, co-ordination, transparency, and analysis of SDH indicators.
5. Commit to making indicators of SDH accessible and publicly available.

Timeline

- Co-ordination of existing indicators can begin immediately.
- Implementation of new population level SDH indicators is feasible in the short-term.
- Creation of a point of care SDH program is a medium-term goal and its medium and long-term success is critically dependent on the availability of an integrated health information system.

Early Childhood Development: Living in Poverty and Availability of Childcare

Objective

To determine distribution of children aged 0–9 years in NL, the number of children living in poverty, and the characteristics of childcare businesses in the province.

Practice Points

1. Childhood poverty is unjust. There is overwhelming evidence to support the subsequent economic benefit of interventions to alleviate childhood poverty. It is estimated that investment of $1 in the early years of individuals living in low income results in savings of $9 in future health and criminal justice system costs.

2. In 2020, there were 45,060 children in NL aged 0–9 years, 8.8% of the population. In Canada, there were nearly 4 million children in the same age group comprising 10.4% of the population.

3. Market Basket Measure (MBM) defines households in low income if disposable income falls below the estimated cost of purchasing a specific basket of goods and services. In Canada 10.1% of the population were low income defined by MBM, and in NL the rate was 10.7%.

4. According to the Canadian Centre for Policy Alternatives 2021, the total cost of poverty in NL is close to $1 billion ($959 million) and loss of economic growth amounts to 2.9% of GDP.

Data

Population estimates and information on childcare businesses provided by the Department of Finance.

Results

A. Children in Communities

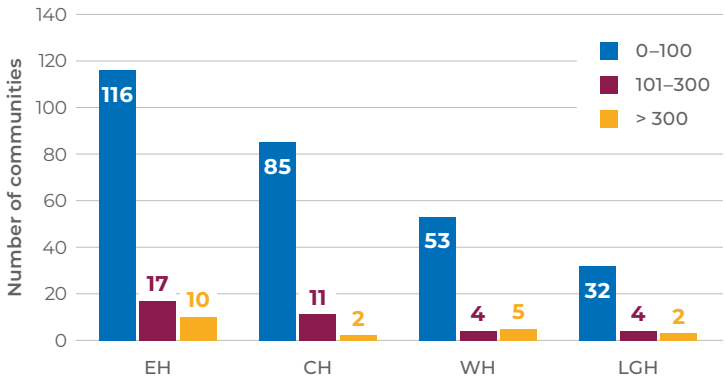


Figure 1. Number of Communities by Number of Children <10 years of Age in the Community Analysed by Region, 2020

- The vast majority of communities in NL had ≤100 children aged <10 years.

B. Children Living in Poverty

Table 1. Number of Families and Non-Family Persons in Low Income by Family Type, 2018

Categories:	Number in Low Income
All Families and Non-Family Persons	41,770
Total Couple Families	7,340
Couple Families with No Children	4,360
Couple Families with Children	2,980
Lone Parent Families	9,210
Non-Family Persons	25,220
Total Families with Children	12,190

- In 2018, there were 12,190 families with children with low income; of these, there were 2,980 couple families with children and 9,210 lone parent families with children.

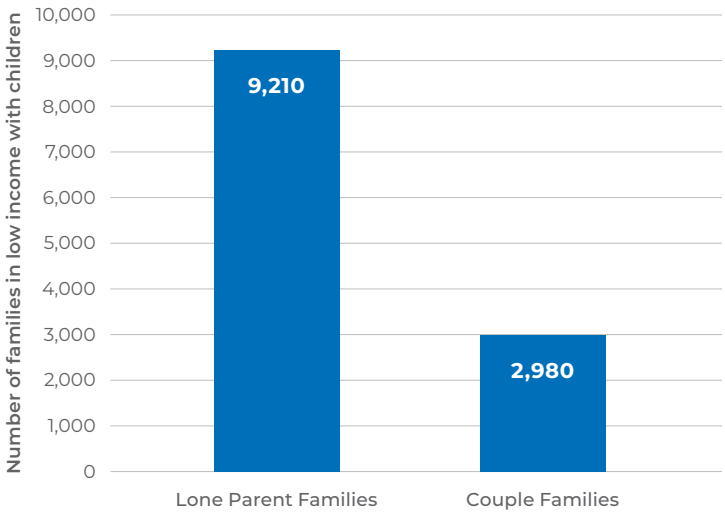


Figure 2. Number of Families in Low Income (Defined by MBM) with Children in NL, 2018

- There were 9,210 lone parent families and 2,980 couple families living in poverty.

Table 2. Families with Children and Youth Receiving Income Support Benefits, May 2021

Categories	Number of Children	Number of Families	% of Children
Number of Children <10 (0–9) Years	3,485	2,363	7.7
Number of Children and Youth <20 (0–19)	7,036	4,158	7.2
Number of Children and Youth <25 (0–24)	8,623	5,371	7.0

- In May 2021, there were 2,363 families in NL with children <10 years of age receiving income support benefits, comprising 3,485 children. This comprised 7.7% of children <10 years.

  There were 4,158 families with 7,036 children and youth <20 years of age. This comprised 7.2% of children <20 years in the province.

- The highest rates of poverty are for single parent households, households with ≥3 children, racialized or Indigenous children, new immigrants, children aged 0–2 years

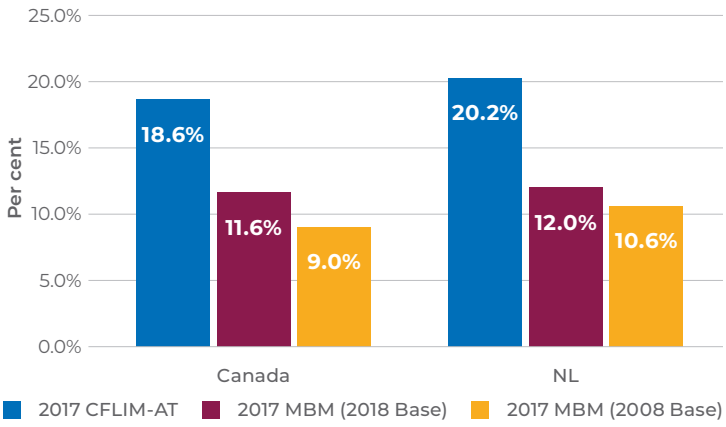


Figure 3. Child Poverty Rates, Market Basket Measure (2018 Base and 2008 Base), and Census Family Low Income Measure (CFLIM), After-tax, in Canada and NL, 2017

- Child poverty rates in NL ranged from 9.0% to 10.6% depending on the measure.

C. Childcare Businesses

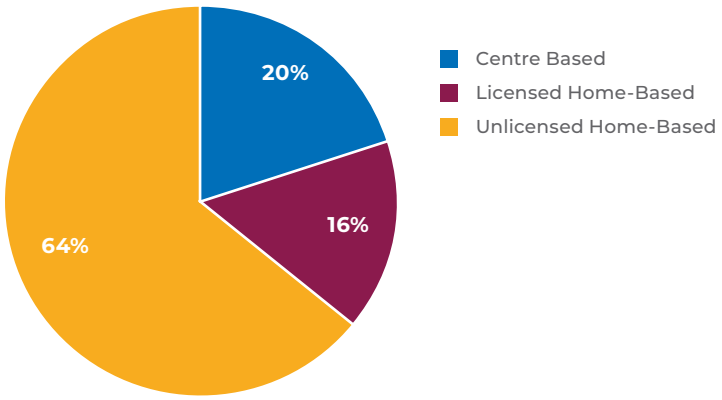


Figure 4. Percentage of Childcare Businesses by Business Type

- In NL, the number of childcare businesses in 2021 was 584, a rate of 13/1,000 children <10 years of age. The comparable rate in Canada was 13.2/1,000.

- The distribution of childcare businesses by business type in NL was different from that in Canada. In Canada, 18% were centre based, 28% licensed home–based, and 54% unlicensed home-based childcare businesses compared to 20%, 16%, and 64% in NL.

Table 3. Program Options Offered by Childcare Business Type in NL and Canada, 2021

Program Offered	Centre %		Licensed Home-Based %		Unlicensed Home-Based %	
	NL	CA	NL	CA	NL	CA
Full-Time	96	91	100	99	91	86
Part-Time	50	3	25	19	33	30
Before School	32	23	18	10	13	14
After School	0	25	24	11	23	18
Evening	0	1	8	0 (0.6)	2	4
Weekends	0	0 (0.4)	8	2	3	3
Overnight	0	0 (0.2)	0	0	2	2
Drop-In	0	7	8	6	5	8
Flexible	9	11	8	8	11	15

- Programming compared favourably to Canada, whether it be centre-based, licensed home-based or unlicensed home-based childcare business.

Table 4. Average Daily Fee per Child Analysed by Childcare Business Type and Age Group of Children Enrolled

Program Offered	Centre		Licensed Home-Based		Unlicensed Home-Based	
	Cost in Dollars					
	NL	CA	NL	CA	NL	CA
<18 months	47	46	38	37	40	37
18–36 months	32	41	34	34	38	38
3, 4 Years	32	37	32	33	34	36
≥ 5 Years	24	29	27	28	25	30

- The planned federal government investment in childcare aims to reduce childcare costs to $10/day, but only for regulated businesses.
- Centre-based childcare is less expensive in NL compared to Canada, whereas licensed home-based childcare is similar.

Conclusions

1. The majority (84%) of communities in NL have 100 or less children under the age of 10, a difficulty for the provision of efficient childcare.
2. 7.7% of all children <10 years in NL are in families who receive income support. This is a barrier for 3,485 children who need childcare, but cannot afford it.
3. The rate of childcare businesses in NL is 13/1,000 children <10 years of age. 64% of these businesses are unlicensed home-based, higher than in Canada (54%). As the federal investment in childcare is focused on licensed businesses the unintended consequence is that unlicensed businesses fail, thus increasing the burden of childcare on working mothers.
4. The type of programming provided compared favorably to Canada, and costs/day for children <5 years ranged from $32 to $47 depending on the age of the child and type of childcare business.
5. In many rural communities, pre-kindergarten classes should be considered.

Health Accord for Newfoundland & Labrador

Community Organizations and Funding from the Provincial Government

Objective

To examine funding provided to community organizations in the province.

Practice Points

1. Community groups contribute to health in NL through service provision, volunteering, and advocacy across the spectrum of health and social need.
2. These groups who receive provincial government contributions leverage further funding from federal and municipal governments, the private sector, and fundraising.
3. The energy, nimbleness, and drive of community groups benefit the community.

Data

This was obtained from the Treasury Board Secretariat, NL for 2019/20.

CSSD: Dept of Children, Seniors and Social Development

AESL: Dept of Advanced Education, Skills and Labour

EECD: Dept of Education and Early Childhood Development

HSC: Dept of Health and Community Services

This data is based on payments issued by the Government of NL certain Government entities also issue grants to community organizations and this data is not included here.

Results

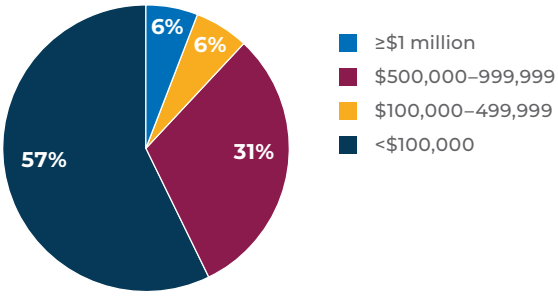


Figure 1. Distribution of Community Groups by Level of Funding

- In 2019/20, 271 community organizations received $68 million.
- The majority of grants to community groups was for less than $100,000.

Table 1. The Top 10 Community Groups by Level of Funding

Top 10 Community Groups by Level of Funding
Waypoints
Choices for Youth
Daybreak Parent-Child Centre Association
Key Assets NL
The Gathering Place
Murphy Centre
The John Howard Society of NL
Community Sector Council of NL
Consumer's Health Awareness Network of NL
Association for New Canadians

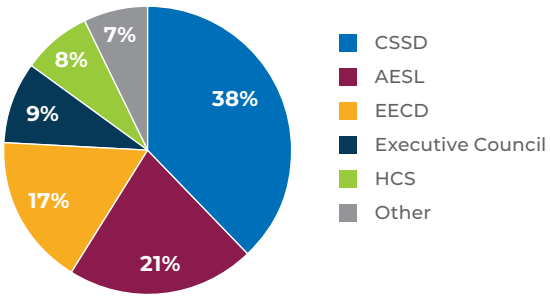


Figure 2. Source of Funding by Provincial Government Department

- The biggest funder among the provincial government departments was CSSD.

Conclusions

1. The total funding of community groups was relatively small and the number funded was large.
2. The spectrum of groups funded was very diverse with most of the funding arising from CSSD, AESL, and EECD.
3. Consideration should be given to increasing the financial incentives for community groups to enhance their community's health through projects aimed at helping people disadvantaged by poverty, exclusion, or age, and by improving the environment.

Clinical Characteristics and Quality of Care in the Long-Term Care Facilities of NL

Objective

To describe the clinical characteristics and measures of care quality of residents in Long-Term Care Facilities (LTCFs).

Practice Points

1. Admission to LTCFs is usually for people with extensive impairment of the activities of daily living and/or severe cognitive impairment. As a consequence, survival in a LTCF is around 20 months.

   Classification systems exist concerning the primary reason for admission linked to the number of hours of care provided (Resource Utilization Groups: RUGs, of which there are 7), and the degree of health instability (CHESS scores, Changes in Health, End-stage disease and Signs and Symptoms).

2. Clinical practice guidelines exist and recommendations have come from Choosing Wisely Canada to restrict the chronic use of antipsychotics and of benzodiazepines. However, psychotropic drugs are widely used in LTCFs. Use of trunk and limb restraints may occur in clients to control behaviour, but are not advised.

Data

Data was obtained from the Resident Assessment Instrument (RAI) completed every quarter in LTCFs. The last one available from a resident in the year 2019/20 was evaluated. The number of clients is greater than the number of beds, because clients who died during the year were included.

In this summary, for each facility we present data on demography (gender, age ≥85 years), clinical characteristics (percent resident for >5 years, percent with extensive impairment of activities of daily living or severe cognitive impairment, percent in a high (1–4) RUGs group, percent with at least moderate CHESS score), and use of psychotropic drugs, or diuretics, or restraints.

Results

Table 1. Clinical Characteristics and Utilization of Psychotropic Drugs, Diuretics and Restraints in Residents of LTCFs by Facility

Facility Name	Residents in FY 2019/20	% Female	% Age ≥85	%RUGs 1–4	% Moderate to very high CHESS score	% Used Antidepressant	% Used Antipsychotic	% Used Antianxiety	% Used Hypnotic	% Used Restraint
Central Health										
Buchans	29	72	48	3	0	28	17	31	28	0
Baie Verte	23	52	35	52	0	70	30	9	30	0
Grand Falls-Windsor	83	63	42	42	8	47	19	18	14	2
Harbour Breton	22	73	41	27	5	64	14	18	36	0
Botwood	100	55	37	26	5	61	38	23	9	0
Brookfield	54	74	54	30	2	54	11	15	35	0
Fogo Island	13	77	77	23	0	62	31	31	54	0
Gander	120	73	47	34	12	68	22	44	22	0
Lewisporte	64	70	47	27	6	73	39	31	39	0
Twillingate	35	66	37	40	6	46	40	17	26	0
Springdale	95	60	48	28	9	52	11	16	8	1
Eastern Health										
Grand Bank	85	72	55	65	28	39	27	44	42	0
Bonavista Protective	10	80	40	20	30	60	70	40	10	0
Clarenville Protective	13	77	69	15	0	31	23	8	8	0
Clarenville	57	68	44	35	5	47	11	30	47	0
Miller Centre St. John's	57	33	54	51	12	60	21	9	11	0
Bonavista	86	62	55	44	13	30	31	36	19	0
Placentia	93	62	38	59	12	54	45	26	25	0
Pleasant View Towers St. John's	516	59	32	37	7	53	39	26	15	0
Carbonear	299	61	39	39	9	36	41	32	27	1
Saint Luke's Home St. John's	150	74	46	36	4	57	23	17	10	0
St. Patrick's Mercy Home St. John's	264	70	57	30	9	44	28	20	14	0
Agnes Pratt Home St. John's	163	81	40	33	7	50	23	19	9	0
Glenbrook Lodge	133	28	50	38	5	65	27	22	17	0
St. Lawrence	51	63	43	37	20	51	31	53	51	0

table continued on page 78

Table 1 continued

Facility Name	Residents in FY 2019/20	% Female	% Age ≥85	%RUGs 1–4	% Moderate to very high CHESS score	% Used Antidepressant	% Used Antipsychotic	% Used Antianxiety	% Used Hypnotic	%Used Restraint
Labrador-Grenfell Health										
Happy Valley-Goose Bay	81	54	32	40	19	37	33	19	11	0
St. Anthony	57	68	32	26	5	63	32	28	30	0
Forteau	15	67	93	20	13	27	67	7	33	0
Labrador City	13	31	31	69	0	31	23	15	38	0
Western Health										
Bay St. George	142	54	37	42	4	46	34	24	34	0
Bonne Bay	16	75	38	38	6	44	12	25	25	0
Burgeo	25	68	56	16	12	28	36	16	44	0
Corner Brook Long-Term Care Home	299	67	50	42	9	51	36	36	36	0
Port Aux Basques	41	61	44	24	2	44	12	19	22	0
Port Saunders	27	67	41	44	7	63	22	22	56	0

- The majority of residents were female. In 11 of 35 (31%) LTCFs, the majority of residents were ≥85 years.
- 82% of residents in the province had severe impairment of ADL or severe cognitive impairment. The per cent without this degree of disability was greater than 20% in seven (20%) LTCFs, but two of these were Protective community residences with lower criteria for admission. The majority of LTCFs (60%) had <10% of residents with low CHESS scores (scores 1–4, which are less than moderate).
- Five LTCFs reported that >50% of residents were in the high RUGs group.
- Use of psychotropic drugs was very high: ≥50% of residents were taking anti-depressants in 19 (54%) of LTCFs. Wide variability in the use of antipsychotics, anti-anxiety, and hypnotics was observed.
- The use of restraints was very unusual.

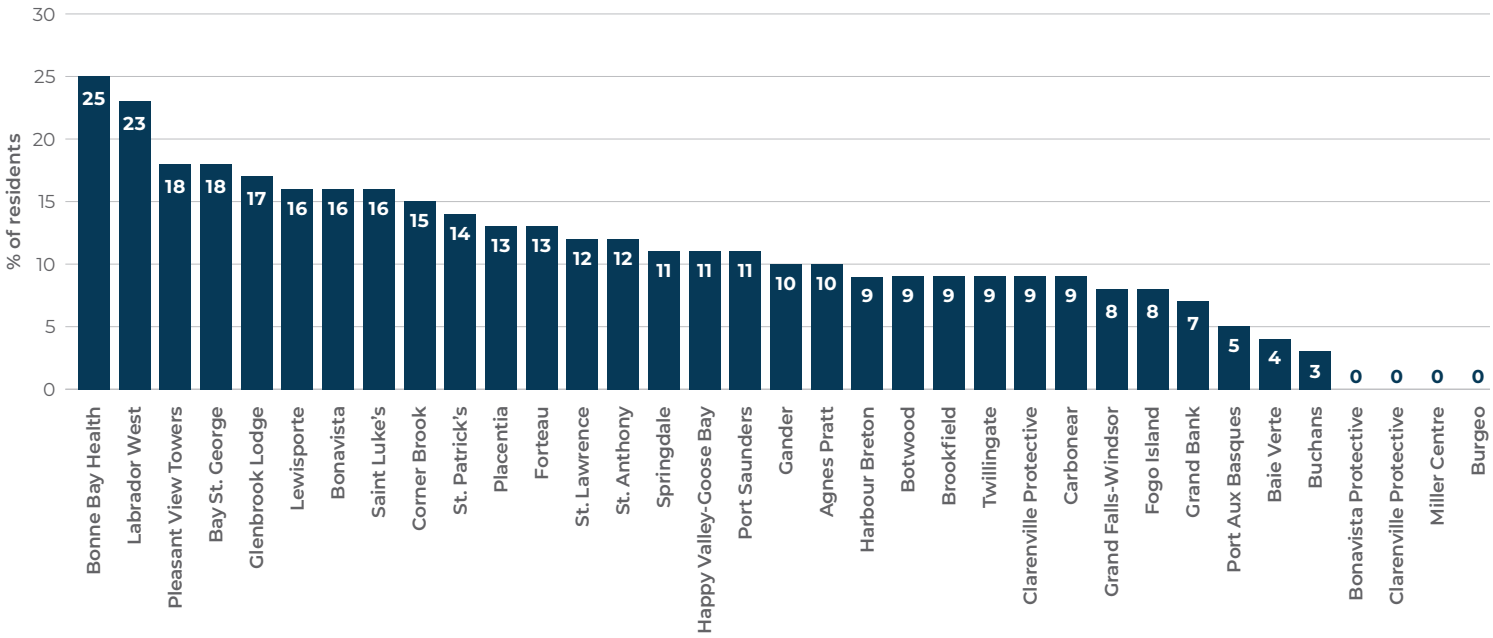


Figure 1. Percent of Residents with Stay >5 years

- The per cent of residents whose stay was >5 years varied from 0–25%.
- In 11 (31%) LTCFs, more than 1 in 8 residents had been there for >5 years.

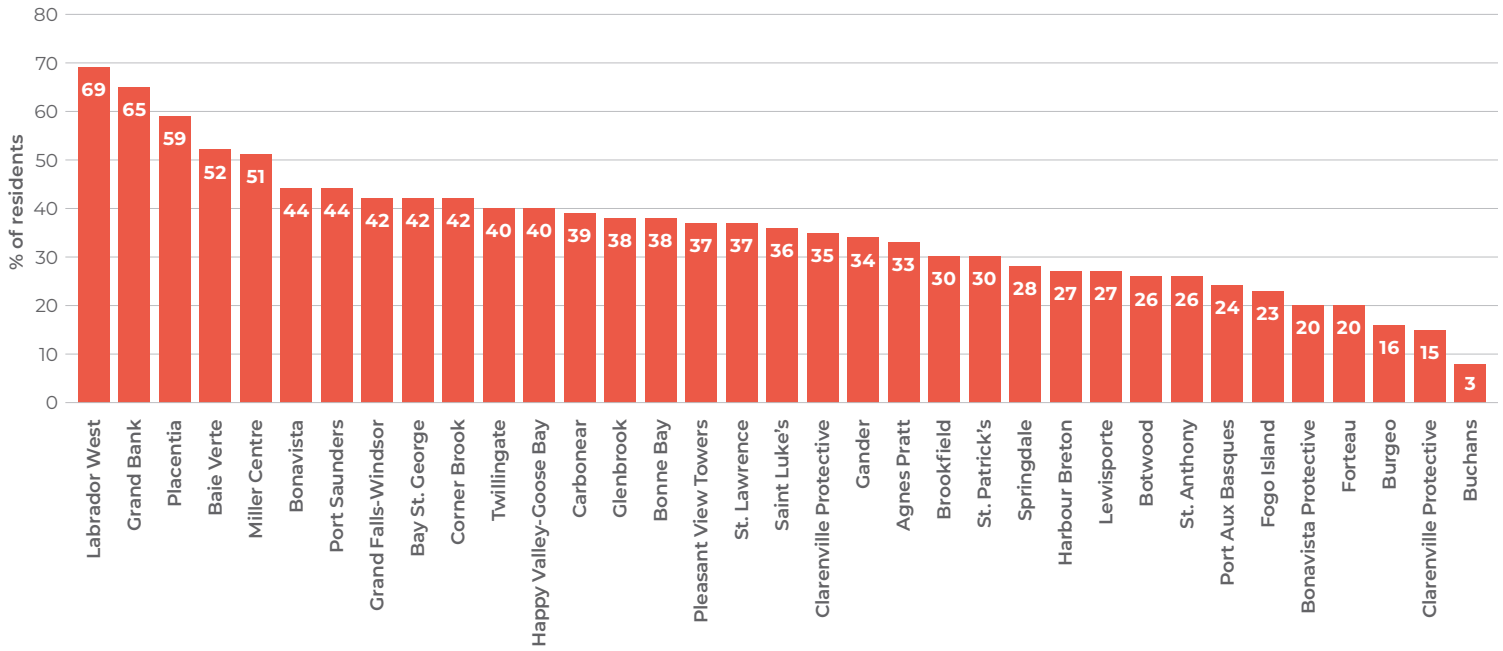


Figure 2. Percent of Residents in One of the Four Highest Resource Use Groups Analysed by LTCF

- The percentage of residents in a RUGs 1–4 group varied from 69% in Labrador West to 3% in Buchans.
- Five LTCFs reported the majority of their residents were in one of the four highest RUGs groups: Grand Bank, the Miller Centre, Placentia, Labrador City, and Baie Verte.

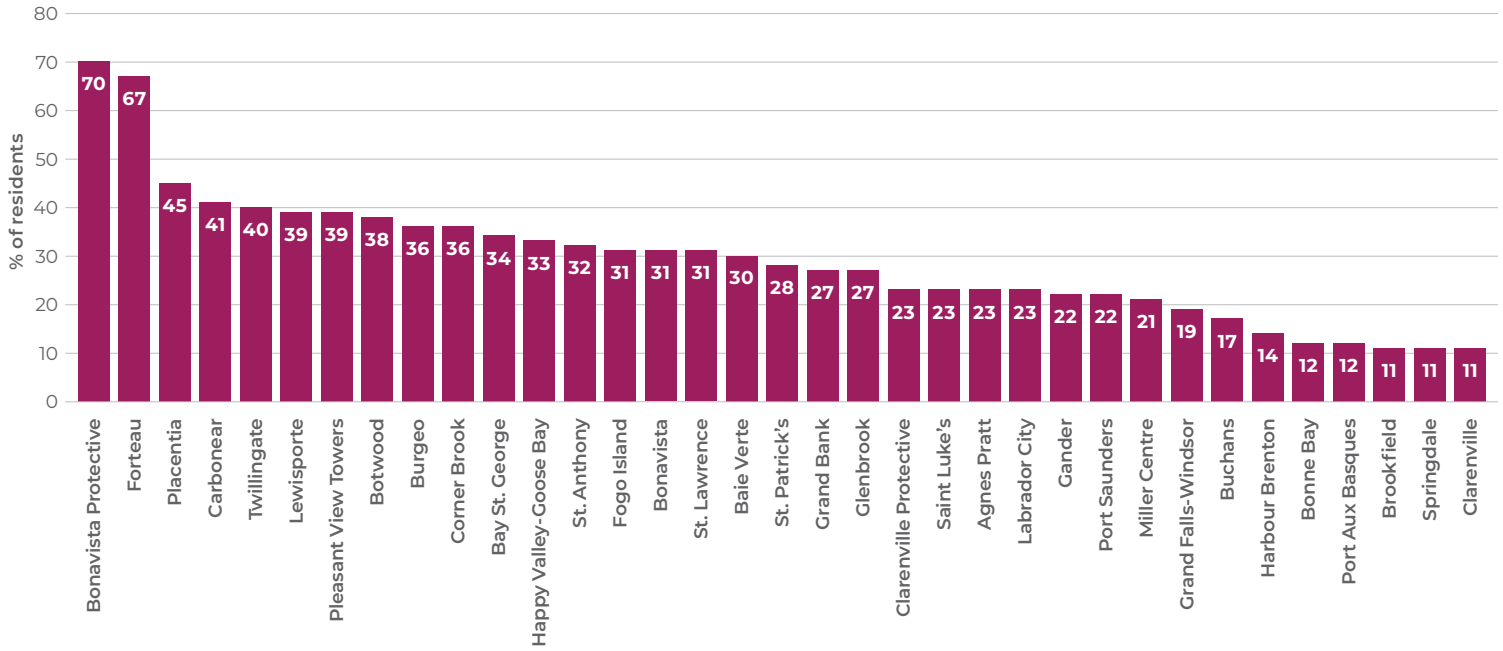


Figure 3. Percent of Residents Taking Antipsychotics by LTCF

- In 15 (43%) LTCFs, the rate of antipsychotic use was <20%, whereas in 17 (49%) LTCFs, it was ≥30%.

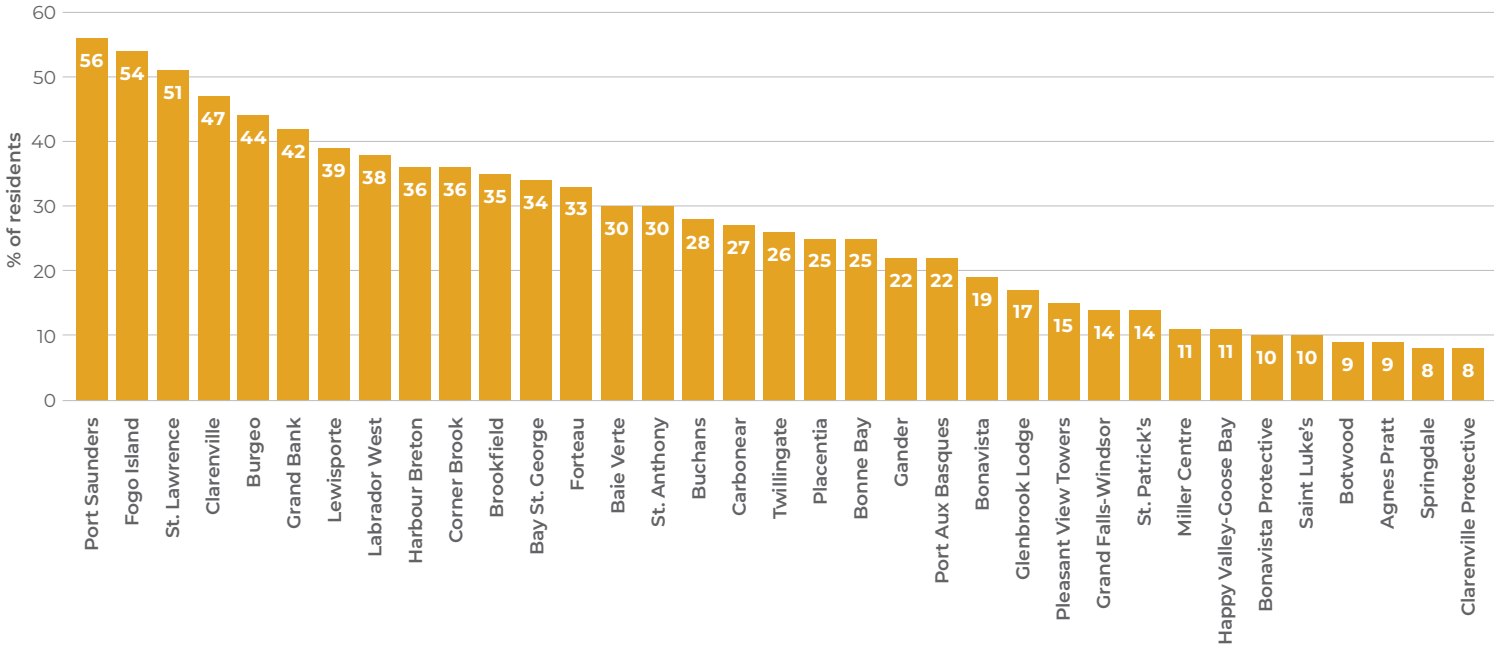


Figure 4. Percent of Residents Taking Hypnotics by LTCF

- The percentage of residents taking hypnotics ranged from 56% in Port Saunders to 8% in Springdale.
- This wide variability in the use of hypnotics was reflected in the observation that 5 (14%) LTCFs had a rate ≤20%, but 15 (43%) LTCFs had a rate ≥30%.

Conclusions

1. In 31% of LTCFs, the majority of residents are ≥85 years.
2. Variability in the rates of residents staying for >5 years was observed. This could be related to admitting younger people with severe disability or admitting older people without severe disability.
3. Variability by LTCFs in the per cent with severe disability/severe cognitive impairment, or in high RUGs groups was also observed. The former metric may be a marker for potentially inappropriate admission.
4. Quality of life and safety may be adversely affected by use of psychotropic drugs. These are prescribed frequently in some LTCFs. Efforts by the RHA to reduce use of these drugs, particularly antipsychotics and benzodiazepines, are required.
5. Use of restraints was rare.

Appropriateness of Admissions to Long-Term Care Facilities in NL

Objective

To estimate the proportion of potentially inappropriate admissions to Long-Term Care Facilities (LTCF) in NL.

Practice Points

1. Admission to a LTCF may be necessary when a person has extensive dependence for activities of daily living (ADL) and/or has severe cognitive impairment.

   In the absence of these disabilities, admission to a LTCF may be inappropriate and survival is likely longer.

2. The Resource Use Group (RUG) classification is a hierarchical categorization of the primary reason for admission in LTCF residents, with level 1 having the highest use of resources and level 7 the lowest. Level 1 is for special rehabilitation, level 2 for extensive services, level 3 for special care, level 4 residents are clinically complex, level 5 have impaired cognition, level 6 have behaviour problems, and level 7 have physical dysfunction.

3. The Resident Assessment Instrument (RAI) is a comprehensive care and service-planning tool completed on admission and every quarter thereafter.

4. The per cent of newly admitted LTC residents who could potentially have been cared for at home (because they had a clinical profile similar to the profile of clients cared for at home with formal supports) was 7.7% in NL and higher in Canada (11.2%). This was reported by CIHI.

Data

- The Resident Assessment Instrument-Minimum Data Set (RAI-MDS) 2.0© completed on new admissions to LTCFs during 2019/20 fiscal year in NL and on all residents of LTCFs during the last quarter of the year were analysed.

- Appropriateness is defined as having extensive-total dependence for ADLs and/or severe-very severe cognitive impairment. However, absence of these two characteristics does not necessarily conclude the admission was inappropriate.

- Four RUGs groupings were analysed: residents who fulfilled criteria for levels 1–3, level 4, levels 5–6, and level 7.

Results

A. Incident cohort of new admissions to LTCF

- 82% of new admissions fulfilled the criteria for appropriate admission (N=807) and 18% were potentially inappropriate (N=178).

Table 1. Demographic and Clinical Characteristics of New Admissions to LTCFs Comparing Appropriate (N=807) to Potentially Inappropriate (N=178) in NL

		Appropriate %	Potentially Inappropriate %
Gender	Female	63	59
Age	<65 years	5	4
	65–84 years	56	61
	≥85 years	39	35
RUG Score	RUGs 1–3	15	3
	RUG 4	43	41
	RUGs 5–6	15	30
	RUG 7	28	26
	CHESS* health instability	8	0
Continence	Bowel	27	78
	Bladder	20	66
Drugs	Antipsychotic	31	34
	Anti-depressant	46	43
	Anti-anxiety	25	19
	Hypnotic	18	21
	Diuretic	30	30
Restraints	Limb	1	1
	Trunk	5	1

*CHESS: Changes in Health, End-Stage Disease, Signs, and Symptoms Scale

- The admissions that were potentially inappropriate differed from those deemed appropriate in that the primary reason for admission was very unlikely to be for high resource reasons, but more likely to be attributed to cognitive impairment or behaviour problems.

- Manifestations of frailty, such as bowel and bladder incontinence, were far more likely in the appropriate group.

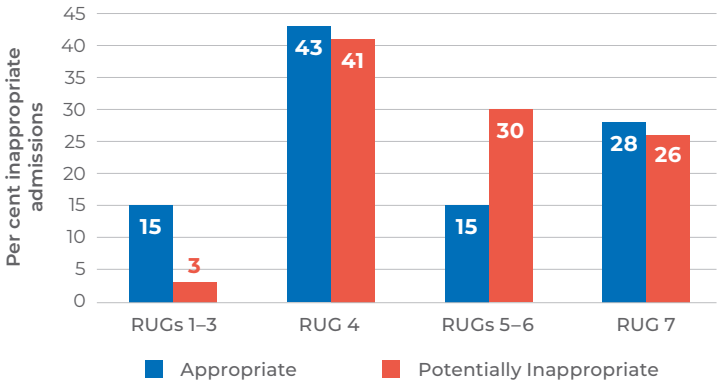


Figure 1. RUGs Classification in Appropriate and Potentially Inappropriate Admissions to a LTCF in NL

Table 2. RUGs Scores and Rates of Continence in Potentially Inappropriate Admissions by RHA

	EH	CH	WH	LGH
% Potentially Inappropriate	20	15	10	26
Number	116/557	30/198	19/181	18/68
RUGs				
RUGs 1–3 %	5	0	0	0
RUG 4 %	47	37	26	27
RUGs 5–6 %	29	23	32	45
RUG 7 %	18	40	42	28
Not Incontinent				
Bowel	82	60	84	72
Bladder	72	40	68	67

- Of potentially inappropriate admissions to a LTCF, the primary reasons varied by Regional Health Authority (RHA): 52% of Eastern Health (EH) admissions had high RUGs (level 1–4) compared to 26–37% in the other RHAs; 40% of Central Health (CH), and 42% of Western Health (WH) admissions had physical dysfunction as the primary reason compared to 18% in EH and 28% in Labrador Grenfell Health (LGH); and 45% of LGH admissions were for behaviour problems.

- The majority of admissions in all four RHAs did not have either bowel or bladder incontinence.

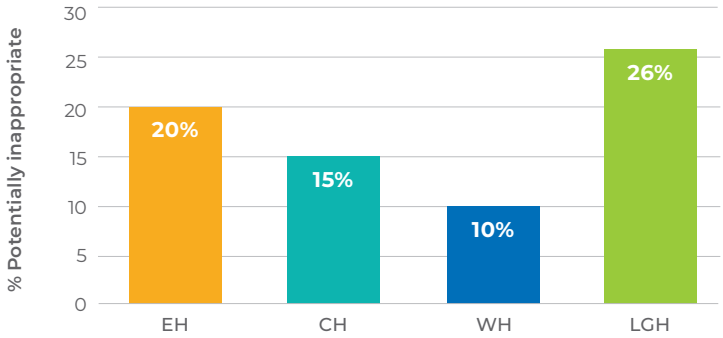


Figure 2. Per Cent of Admissions that were Potentially Inappropriate to a LTCF by RHA

- The highest rate of potentially inappropriate admissions occurred in LGH and the lowest in WH.

B. Prevalent Cohort of Residents in LTCFs

- 84% (N=2,135) of current residents of LTCFs fulfilled criteria for appropriate admission and 16% did not.

Table 3. Demographic and Clinical Characteristics of Appropriate (N=2,135) and Potentially Inappropriate (N=342) Stays in Residents of LTCFs in the Fourth Quarter of 2019/20

		Appropriate %	Potentially Inappropriate %
Gender	Female	66	66
Age	<65 years	8	7
	65–84 years	52	48
	≥85 years	40	46
RUG Score	RUGs 1–3	12	3
	RUG 4	21	25
	RUGs 5–6	18	35
	RUG 7	49	38
	CHESS health instability	7	11
Continence	Bowel	17	72
	Bladder	14	64
Drugs	Antipsychotic	29	27
	Anti-depressant	54	52
	Anti-anxiety	27	21
	Hypnotic	22	18
	Diuretic	26	35
Restraints	Limb	3	1
	Trunk	3	1

- Not surprisingly, the differences observed comparing appropriate to potentially inappropriate admissions in the incident cohort were confirmed in the prevalent cohort.

- The distribution of RUGs scores in the prevalent cohort who were appropriate admissions was substantially different from the comparable incident cohort: 28% of the incident cohort were admitted because of physical dysfunction, whereas in the prevalent cohort this proportion was 49%, as those with the highest resource use died sooner.

Conclusions

1. 18% of new admissions to LTCFs do not have extensive dependence for ADLs or severe cognitive impairment. These potentially inappropriate admissions are not people in high resource use groups, nor those with high degree of frailty as manifest by bowel or bladder incontinence.

2. 30% of potentially inappropriate admissions are attributed to cognitive impairment or behaviour problems, despite not having severe cognitive impairment. This was particularly the case in LGH.

Clinical Characteristics of Clients Evaluated for Long-Term Care in a Hospital or at Home

Objective

To describe the annual volume and clinical characteristics of clients evaluated for long-term care (LTC) either in the community or in a facility.

Practice Points

1. Development of frailty in the elderly or in people with severe illness engenders a request for LTC. Whether this can be provided in the client's home or a personal care home (PCH) or there is a need for a LTC facility (LTCF) is central to the evaluation.

2. Electronic capture of data is facilitated by the use of Resident Assessment Instrument Home Care (RAI-HC) and includes information on Resource Utilization Groups (RUGs), activities of daily living, cognitive impairment, instrumental activities of daily living (IADL), bladder and bowel continence, health stability, and behaviour. Scales with a range of scores are used to summarize this information.

3. The RUGs scale has 7 levels for the primary reasons for admission: special rehabilitation, extensive services, special care, clinically complex (RUGs 1–4), impaired cognition, behavioural problems, decreased physical function (RUGs 5–7).

   The IADL scale includes meal preparation, ordinary housework, managing finances, managing medications, phone use, shopping, and transportation.

   The CHESS (Changes in Health, End-stage disease, Symptoms, and Signs) is a measure of health instability and predictive of death in LTC (range 1–5).

   The MAPLe assigns one of 5 priority levels to each home care client to inform choices related to allocation of home care resources and facility based-services.

Data

The RAI data for clients assessed at home or in hospital for LTC services was obtained from the NL Centre for Health Information (NLCHI) for the fiscal year 2019/20.

Results

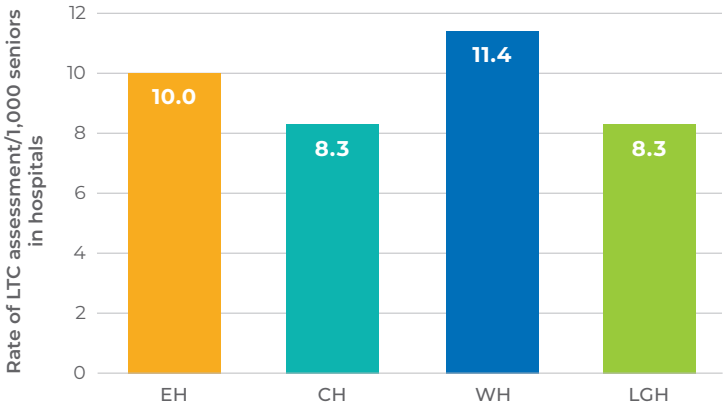


Figure 1. The Rate of LTC Assessment in Hospitals/1,000 Seniors Analyzed by Region

- The highest rate of assessment for LTC in hospitals/1,000 seniors was in Western Health (WH).

Table 1. Clinical Characteristics of Clients Assessed for LTC in Acute Care Hospitals by Region

Characteristic	EH % (N=582)	CH % (N=189)	WH % (N=239)	LGH % (N=44)
Females	53	60	53	45
RUGs 1–4	61	41	38	25
Extreme Dependence and/or Severe Cognitive Impairment	71	71	66	64
Moderate or High Health Instability	25	24	28	36
Good Prospects of Recovery	5	1	3	7
Bladder Incontinence	21	26	26	34
Bowel Incontinence	24	28	26	32
Wandering	9	7	5	18
Fall in Last 90 Days	56	54	56	55
High Priority for LTCF	68	60	67	68
High IADL Score 5 or 6	90	89	85	78

- The majority of clients assessed in Eastern Health (EH) had high RUGs scores. 71% had extreme dependence and/or severe cognitive impairment, consistent with the 68% who had high priority for a LTCF.

- In the other regional health authorities (RHAs), a minority had high RUGs scores but similar proportions to EH with extreme dependence and/or severe cognitive impairment and with high priority for a LTCF.

- Degree of frailty as manifest by bladder or bowel incontinence was not as high as in residents of LTCFs. Despite the relatively low rates of bowel or bladder incontinence, very few were considered to have good prospects for recovery.

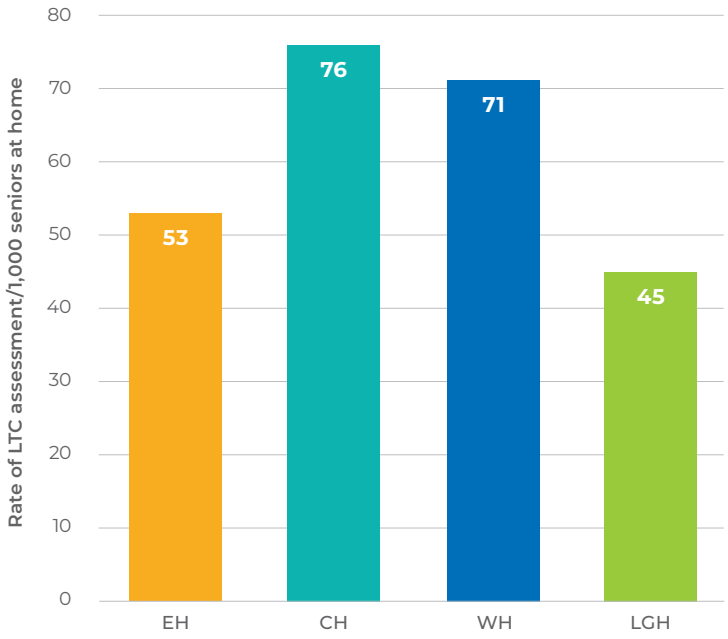


Figure 2. The Rate of Assessment for LTC at Home/1,000 Seniors Analysed by Region

- The highest rates/1,000 seniors assessed at home were in Central Health (CH) and WH.

Table 2. Clinical Characteristics of Clients Assessed for LTC in Their Homes Analysed by Region

Characteristic	EH % (N=3,074	CH % (N=1,733)	WH % (N=1,481)	LGH % (N=241)
Females	66	65	60	65
RUGs 1–4	23	21	23	27
Extreme Dependence and/or Severe Cognitive Impairment	24	25	18	25
Moderate or High Health Instability	18	15	16	15
Good Prospects of Recovery	2	1	2	3
Bladder Incontinence	8	8	8	6
Bowel Incontinence	4	4	3	3
Wandering	6	5	6	5
Fall in Last 90 Days	35	33	33	29
High Priority for LTCF	41	34	35	43
High IADL Score 5 or 6	71	71	66	67

- Although the clients at home are very different to those assessed in hospital in terms of disability there are many more people at home with need for LTCF. The per cent with high priority for a LTCF varied from 34–41%. However, the per cent with extreme dependence and/or severe cognitive impairment was 18–25%, and very low proportions had bladder or bowel incontinence.

Conclusions

1. A majority of clients assessed in hospital had a need for a LTCF, but there were a relatively low proportion with bladder or bowel incontinence or with extreme dependence and/or severe cognitive impairment. This suggests that a geriatrics/rehabilitation service had potential for preventing admission to a LTCF.

2. The numbers at home deemed to be high priority for LTCF by the MAPLe score also had potential for prevention of admission to a LTCF as judged by metrics associated with frailty (Per cent with extreme dependence/severe cognitive impairment, bladder incontinence, and bowel incontinence).

The Use of Benzodiazepines in NL

Choosing Wisely Canada Recommendations

1. Don't routinely continue benzodiazepines initiated during an acute care hospital admission without a careful review and plan of tapering and discontinuing, ideally prior to discharge.

2. Don't use benzodiazepines or other sedative – hypnotics in older adults as first choice for insomnia, agitation, or delirium.

3. Don't prescribe or dispense benzodiazepines without building a discontinuation strategy into the patient's treatment plan (except for patients who have a valid indication for long-term use).

Practice Points

1. The risk of motor vehicle accidents, falls, and hip fractures can more than double in older adults taking benzodiazepines or other sedative-hypnotics.

2. Use of benzodiazepines should be reserved for alcohol withdrawal symptoms/delirium tremens or severe generalized anxiety disorder unresponsive to other therapies.

3. In 2017, chronic use of benzodiazepines in adults ≥65 years per 1,000 population ≥65 years in NL (56.3) was nearly four times greater than for the Canadian population (14.6), and it was the second highest provincial rate in the country.

Data

Data on the use of benzodiazepines in the community was obtained from the Pharmacy Network at NL Centre of Health Information (NLCHI) for two years: Apr 2018–Mar 2020.

Results

- In 2018/19 there were 104,033 prescriptions for benzodiazepines and in 2019/20, there were 101,529.

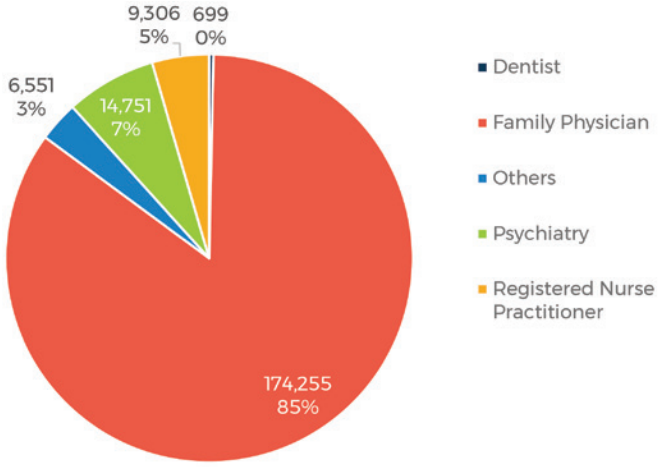


Figure 1. Prescriptions by Specialty

- 85% of prescriptions were from Family Physicians (FPs), who compromise the majority of providers.

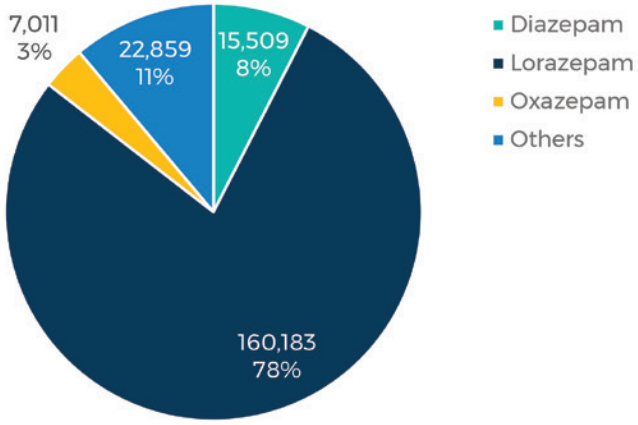


Figure 2. Type of Benzodiazepines Prescribed

- By far, the most frequent benzodiazepine prescribed was Lorazepam, which has a half-life of 10–20 hours.

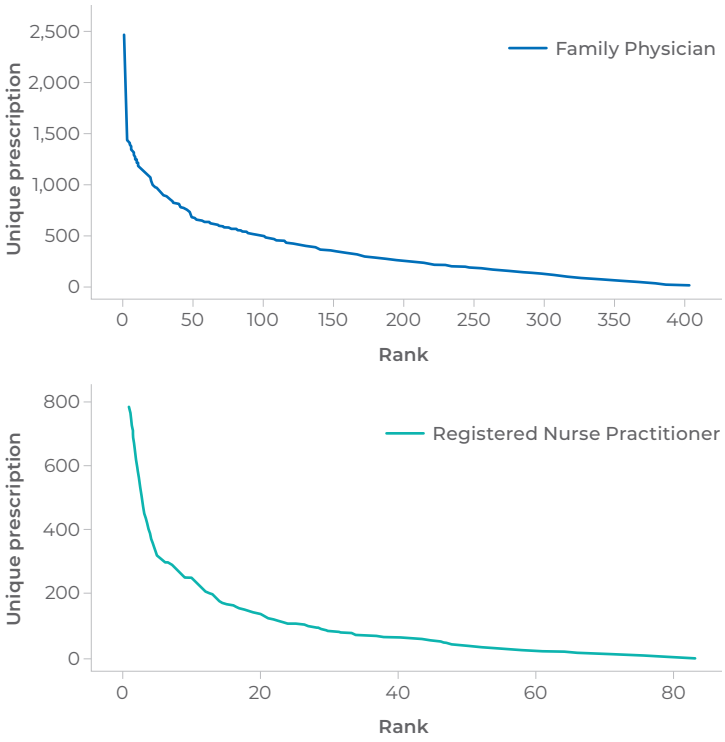


Figure 3. Number of Prescriptions of Benzodiazepines by individual FPs and Nurse Practitioners (NPs) ranked by the Number of Prescriptions Provided by Each Individual Provider

- 80% of the prescriptions by FPs were provided by 33% of the FPs.
- 80% of prescriptions by NPs were provided by 27% of the NPs.
- In 2018/19, the number of unique patients who received a prescription for a benzodiazepine was 44,117 and in 2019/20 it was 43,213.
- The average number of prescriptions/person was 2.4.
- The number of patients who were taking benzodiazepines for longer than three months in 2019/20 was 18,668.

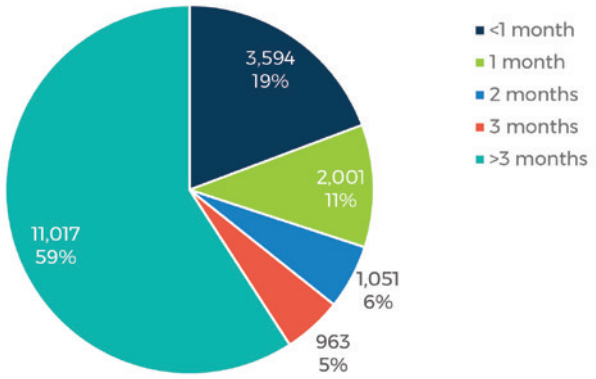


Figure 4. Duration of Benzodiazepine Prescriptions Provided to People During the Last Quarter, 2019/20

- The prevalence of benzodiazepine use in the last quarter of 2019/20 was 18,626 people.
- In prevalent patients, the majority of prescriptions were for longer than three months.
- The incidence of patients not on benzodiazepines in 2018/19 who received a prescription in 2019/20 was 17,261.

Table 1. Number and Rate/1,000 People Prescribed Benzodiazepines in 2019/20

Demography	Number of Prescriptions	Population	Rate/1,000
Women	28,895	264,148	109
Men	14,316	257,955	55
0–19 Years	505	96,958	5
20–64 Years	27,630	308,917	89
65+ Years	15,449	116,228	133
Urban	22,766	287,526	79
Rural	20,204	232,190	87

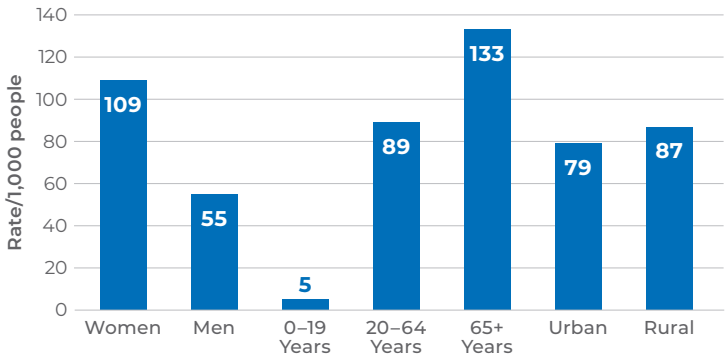


Figure 5. Rate of Benzodiazepine/1,000 People in Subgroups by Gender, Age, and Location in 2019/20

- The rate of benzodiazepine use was twice as high in women compared to men.
- The rate of prescriptions increased by age.

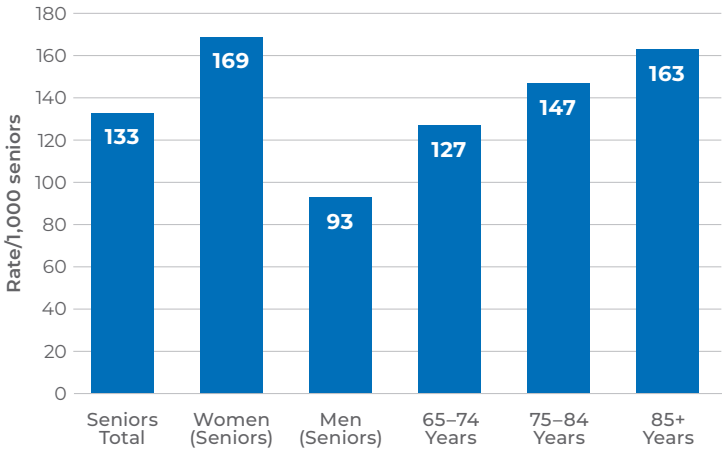


Figure 6. Rate of Seniors Given Benzodiazepines per 1,000 Seniors by Gender and Age Groups

- Among seniors, there was a correlation between older age and use.
- In those 65–74 years the rate/1,000 people was 127, in those 75–84 years it was 147, and in those ≥85 years it was 163.

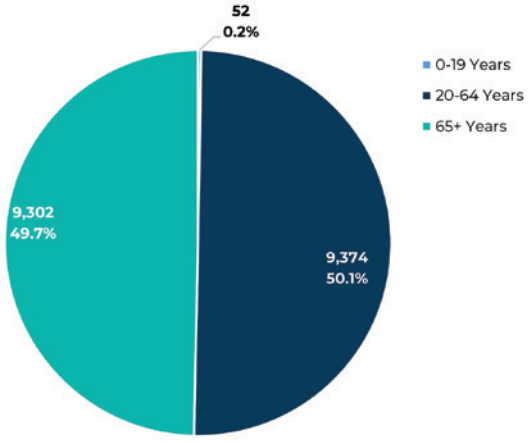


Figure 7A. Distribution of People Taking Benzodiazepines for Longer than Three Months by Age

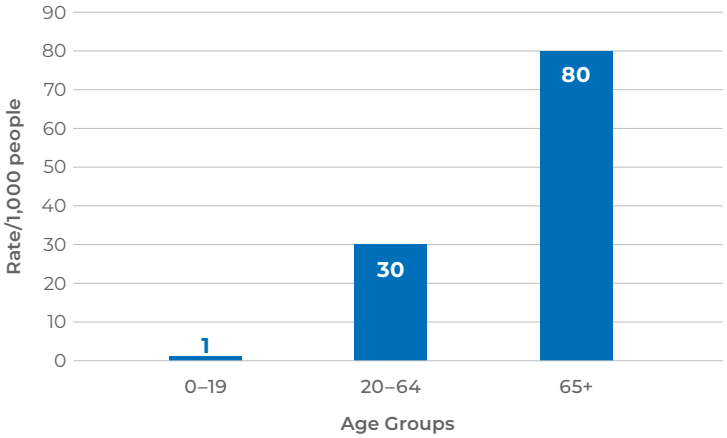


Figure 7B. Rate of People/1,000 Population Taking Benzodiazepines for Longer than Three Months by Age

- Although more adults aged 20–64 years were prescribed benzodiazepines for longer than three months, the rate/1,000 people was higher in seniors.

Conclusions

1. The use of benzodiazepines in NL was high with 13% of adults ≥ 65 years receiving at least one prescription.

   8% of the seniors in the province took benzodiazepines for longer than three months. 60% (9,186) of seniors on benzodiazepines (15,449) took them for longer than three months.

2. 80% of the prescriptions by FPs were provided by 33% of the FPs. The intermediate duration of action benzodiazepine Lorazepam was the most frequently prescribed.

3. In view of the fact that the benefits:harms ratio in seniors is adverse, tapering, and discontinuation of long-term benzodiazepines is recommended, together with decreased initiation of benzodiazepines for insomnia, agitation, and delirium.

The Use of Antipsychotics in the Community in NL

Choosing Wisely Canada Recommendations

1. Don't use antipsychotics to treat primary insomnia in any age group.

2. Don't use antipsychotics as first choice to treat behavioural and psychological symptoms of dementia.

Practice Points

1. In people with dementia and behavioural symptoms, antipsychotics provide limited benefit and cause serious harm, including premature death.

2. Antipsychotics should be limited to cases where non-pharmacological measures have failed and patients pose an imminent threat to themselves or others.

3. The age-sex standardized rate of antipsychotic use/1,000 population ≥65 years in NL is the second highest provincial rate in Canada.

Data

Data on community use of antipsychotics were obtained from the Pharmacy Network in the NL Centre for Health Information for two years: Apr 2018–Mar 2020.

Results

In 2018/19, there were 59,898 prescriptions for antipsychotics provided to people outside of acute care hospitals, and 60,913 in 2019/20.

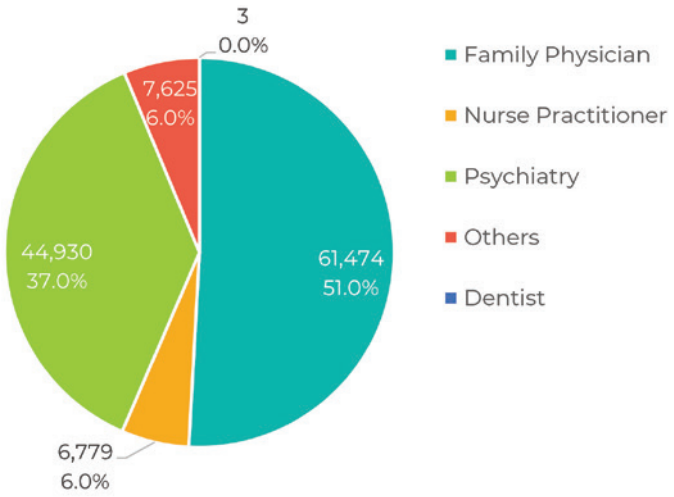


Figure 1. Prescriptions by Type of Provider, 2018–2020

- 51% of antipsychotic prescriptions were provided by Family Physicians (FPs) and 37% by psychiatrists.

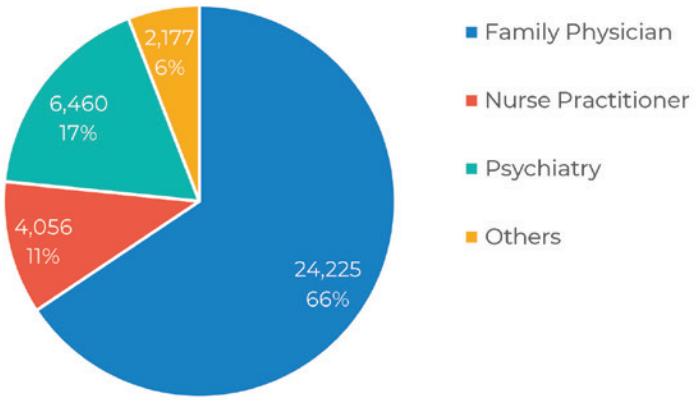


Figure 2. Prescriptions to Seniors by Type of Provider, 2018–2020

- 66% of antipsychotic prescriptions for seniors were provided by FPs.

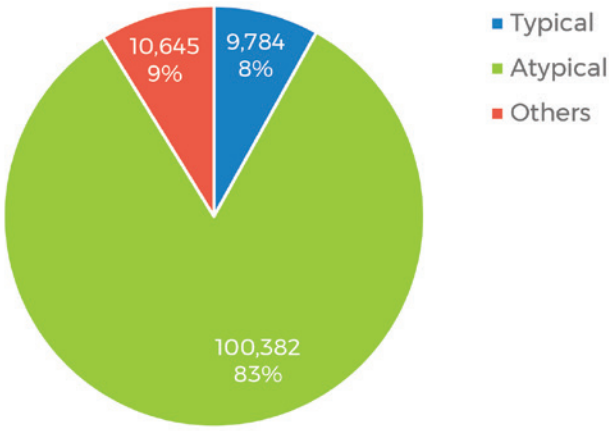


Figure 3. Type of Antipsychotic Prescribed, 2018–2020

- The vast majority of prescriptions (83%) were for atypical antipsychotics.

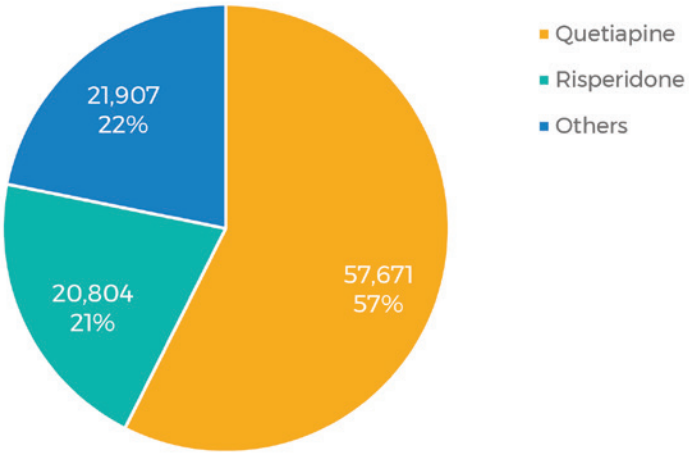


Figure 4. Atypical Antipsychotic Prescribed, 2018–2020

- The most frequently prescribed atypical was Quetiapine (57% of atypicals agents) and the second most frequent was Risperidone (21% of atypicals).

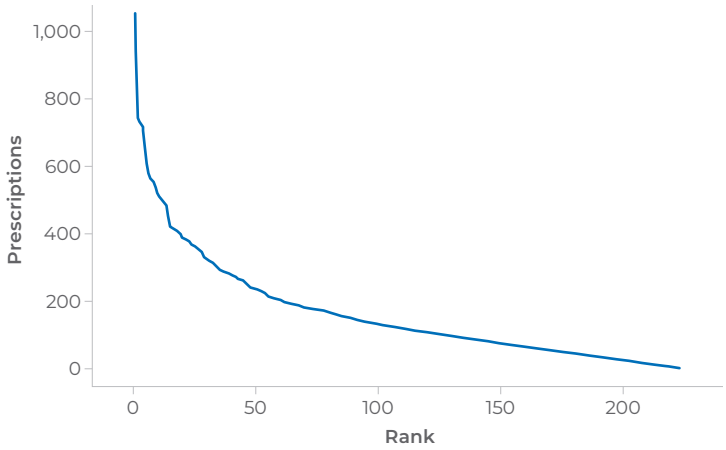


Figure 5. Number of Prescriptions by FPs Ranked by the Number Prescribed, 2018–2020

- 80% of antipsychotic prescriptions were provided by 35% of FPs.
- In 2018/19, 13,960 people received antipsychotics, and in 2019/20 the number was 14,276.
- In 2019/20, the average number of prescriptions/person was 4.1.

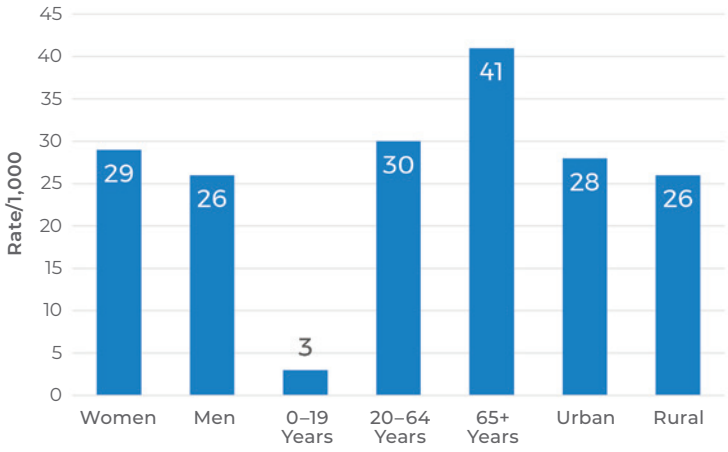


Figure 6. Rate of People Given an Antipsychotic per 1,000 People by Gender, Age, and Location

- Rates in women vs. men and urban vs. rural were similar, whereas rates in seniors was higher than in younger adults.

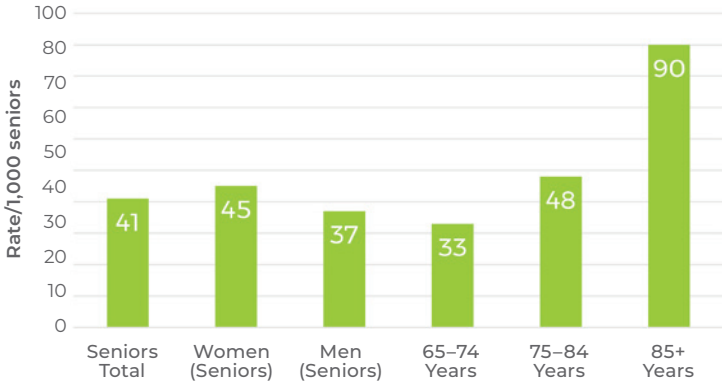


Figure 7. Rate of Seniors Given an Antipsychotic per 1,000 Seniors by Gender and Age Groups

- In seniors, the rate of people given an antipsychotic increased with age: in those aged 65–74 years the number who received an antipsychotic was 33/1,000 people, the comparable rate in those 75–84 years was 48, and in those ≥85 years 90.
- The prevalence of antipsychotic use by unique adults in NL in the last quarter of 2019/20 was 8,230 (19/1,000 adults).
- The number of people taking antipsychotics for more than three months was 7,641, while the number of people taking antipsychotics for more than 12 months was 6,479.
- In 2019/20, the incidence of new people taking antipsychotics was 3,885.

Conclusions

1. The proportion of seniors prescribed antipsychotics in 2019/20 was 4.1%; the rate/1,000 people increased with age, with highest rate of antipsychotic use in seniors aged ≥85 years (90/1,000 people).
2. The majority of prescriptions were written by FPs (51%), and an additional 37% were written by psychiatrists. For seniors, 62% of antipsychotics were prescribed by FPs.
3. 83% of prescriptions were for atypical agents, with Quetiapine being the most frequently prescribed atypical.
4. Of antipsychotics prescribed by FPs, 80% were prescribed by 35% of FPs, implying quite wide spread use of antipsychotics by FPs. Furthermore, the vast majority of people prescribed these drugs were taking them for longer than a year.
5. As the harms outweigh the benefits, in seniors with dementia use of antipsychotics for behavioural or psychological symptoms should be limited.

Use of Drugs in Rural Compared to Urban Regions of NL

Objective

To determine whether there are rural differences in drug use compared to urban regions of the province.

Practice Points

1. 42% of NL's 521,000 population live in rural regions.

2. Potentially unnecessary drug use is high in NL; particularly use of antibiotics, long-term use of proton pump inhibitors (PPIs), chronic use of benzodiazepines, and of antipsychotics in seniors, and use of psychotropic drugs in long-term care facilities (LTCFs).

   Recommendations for use of these drugs have been propagated by Choosing Wisely Canada.

3. Turnover of and vacancies for Family Physicians (FPs) are high in rural regions of the province.

Data

Data on community drug use were obtained from the NL Pharmacy Network at the NL Centre for Health Information and on residents in LTCFs from the RAI documentation done quarterly.

Postal codes were used to define regions.

Results

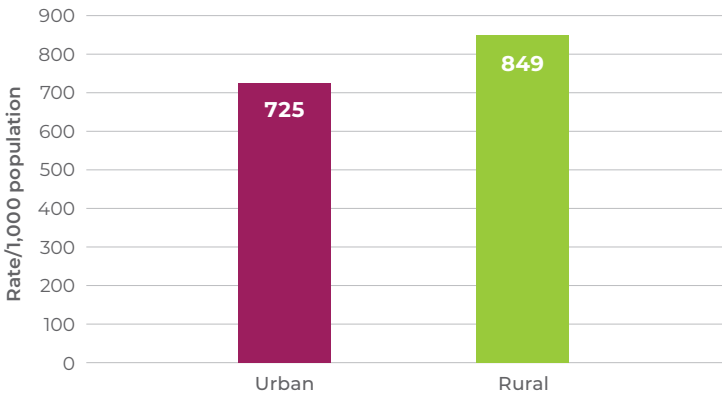


Figure 1. The Rate of Antibiotic Prescriptions/1,000 Popultion in Urban vs Rural Regions of NL, 2019/20

- The rate of antibiotic prescriptions/1,000 people was 17% higher in rural compared to urban regions.

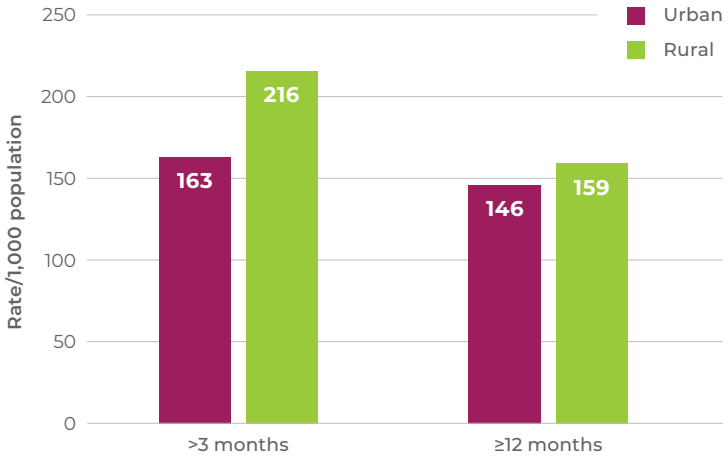


Figure 2. Rate of Long-term PPI Use/1,000 People in Rural vs Urban Regions, 2018/19

- The rate of PPIs prescribed for >3 months/1,000 people was 33% higher in rural compared to urban regions. However, the rate prescribed for ≥12 months was only 9% higher.

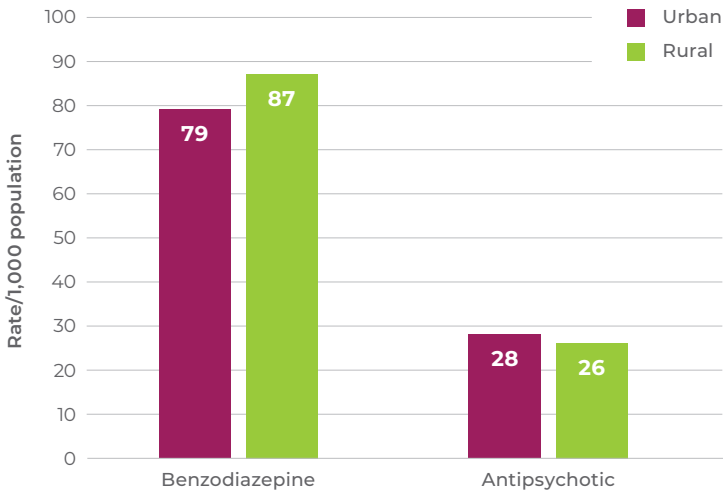


Figure 3. The Rate of Benzodiazepine and of Antipsychotic Prescriptions/1,000 People in Rural and Urban Regions, 2019/20

- NL has a far higher rate of chronic benzodiazepine use in seniors than Canada.

- The rate of benzodiazepine prescriptions/1,000 people was 10% higher in rural compared to urban regions.

- The rate of antipsychotic prescriptions/1,000 people was 7% lower in rural compared to urban regions.

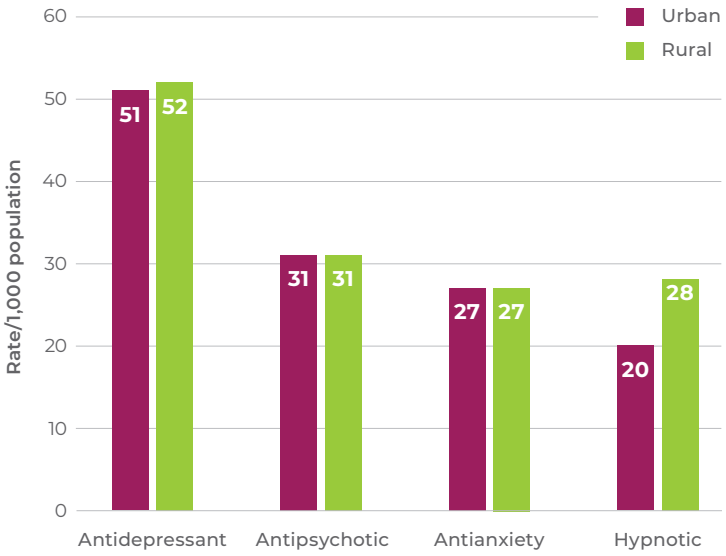


Figure 4. The Per Cent of Residents of Rural and Urban LTCF Taking Psychotropic Drugs, 2020/21

- There was little difference in the use of antidepressants, antipsychotics, and anti-anxiety drugs in rural vs urban LTCF residents. However, the use of hypnotics was 39% higher in rural vs urban residents.

Conclusions

1. Use of antibiotics, long-term PPIs, benzodiazepines in the community and in LTCFs was higher in rural vs urban regions.

2. Improvement in potentially unnecessary drug use may require different approaches in rural compared to urban settings. Integration of pharmacists into community teams should target appropriate use of drugs, both those that are overutilized and those that are underutilized.

3. There are substantial demographic differences across the regions of NL with more women and children in urban areas and more seniors in rural areas. Even with correction for these differences, the highest rates of antibiotic use were in rural areas.

Utilization of Thyroglobulin Tests in NL

Guideline

American Thyroid Association guideline: Routine measurement of Thyroglobulin (Tg) for initial evaluation of thyroid nodules is not recommended. Tg and Tg antibodies should be assessed longitudinally following thyroidectomy for thyroid cancer.

Practice Points

1. Thyroid cancer is one of the fastest growing cancer diagnoses worldwide. It is three times more likely in women than men.

2. Thyroglobulin is a protein uniquely produced by the thyroid gland. Its level ranges from 3–40 mg/ml in a healthy patient

3. Serum Tg levels can be elevated in most thyroid diseases and are an insensitive and non-specific test for thyroid cancer. Following thyroidectomy, Tg levels will be absent or very low unless thyroid cancer recurs. So, an increase in Tg levels suggests reoccurrence of thyroid cancer.

4. The presence of anti-Tg antibodies, which occur in about 25% of thyroid cancer patients and 10% of the general population will falsely lower serum Tg in immune metric assays. Consequently, both Tg and anti-Tg are ordered at the same time.

Methods (PI: Dr. Jocelyn Law)

1. Results of thyroglobulin tests from 2014 to 2019 were obtained from Eastern Health Biochemistry laboratory and matched with 963 patients in the provincial registry diagnosed with thyroid cancer from 2013 to 2020.

2. Patients with Tg< 0.1 mg/ml were assumed to have had a thyroidectomy in absence of a record of thyroid cancer in the cancer registry.

3. Those tests in patients without thyroid cancer or assumed thyroidectomy were classified as potentially unnecessary if only one Tg test was performed.

Results

- Of 963 thyroid cancer patients 74% were female, 14% were <40 years of age, 55% were 40–64, and 31% were ≥ 65 years.

- 15,618 Tg tests were undertaken in the six years of the study in 4,135 patients.

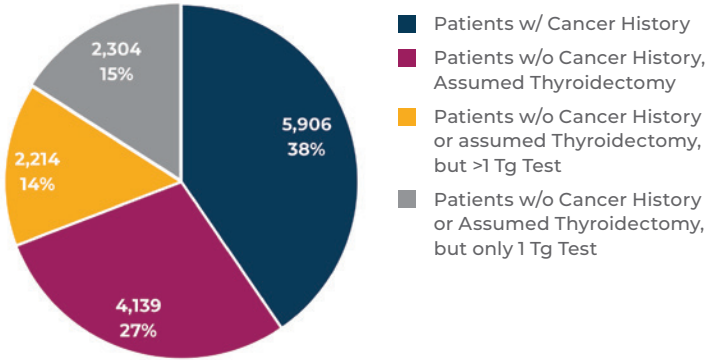


Figure 1. Tg tests in People with Thyroid Cancer, Those Assumed to Have had a Thyroidectomy, and in Those Without Cancer History or Thyroidectomy

- 15% of Tg tests were undertaken once in people without thyroid cancer or assumed thyroidectomy.

- 270 of 963 thyroid cancer patients did not have a Tg test.

- Of patients tested, 56% had a single potentially unnecessary test.

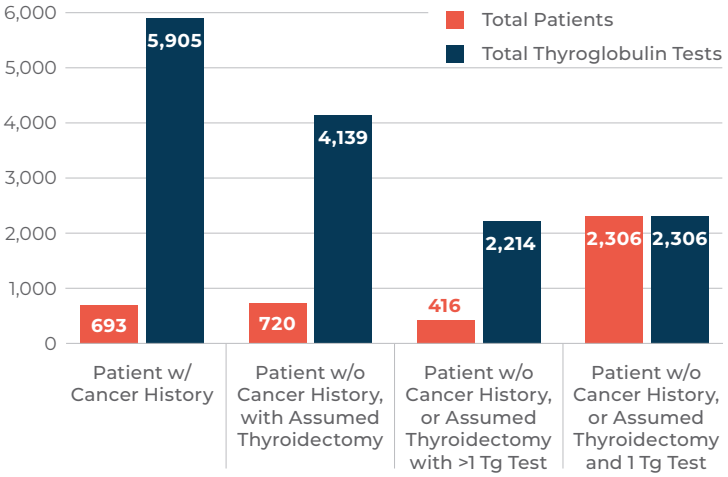


Figure 2. Number of Tg Tests in Those with Thyroid Cancer, Those Assumed to Have had a Thyroidectomy, and in Those with Neither

- The 693 thyroid cancer patients had 8.5 Tg tests/patient, the 720 patients assumed to have had a thyroidectomy had 5.7 tests/patient, the 416 patients with neither, but >1 Tg test had 5.3/patient.
- A limitation is that thyroidectomy can be undertaken for reasons other than differentiated thyroid cancer who do not need a Tg test in follow-up. This unnecessary use is thus unknown.

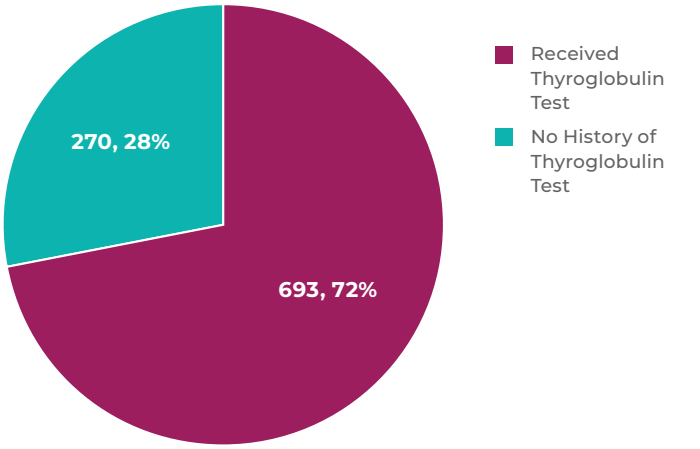


Figure 3. Thyroid Cancer Patients who Had and Did Not Have Tg Tests

- Of 963 patients registered as having had thyroid cancer from 2013–2020, 28% did not have a Tg test.

Conclusions

1. The majority of Tg tests were in patients with registered thyroid cancer or assumed to have a thyroidectomy, or had multiple Tg tests. However, single potential unnecessary Tg testing likely occurred in the majority of patients tested.

2. The absence of Tg testing in 28% of thyroid cancer patients may be related to death, out-migration and lost to follow-up, had a hemithyroidectomy, or another type of thyroid cancer besides differentiated thyroid cancer that did not require Tg monitoring. However the prognosis for thyroid cancer is very good (90% survival at 10 years) limiting the impact of death on potential under-utilization. This data suggest under-utilization of Tg testing in some thyroid cancer patients may have occurred.

Use of Virtual Care by Family Physicians and by Specialists During the First Year of COVID-19 in NL

Objective

To examine the extent of virtual care utilization by family and hospital physicians during COVID-19.

Practice Points

1. There was a massive increase in virtual communication between patients and fee-per-service physicians during COVID-19. During COVID-19, phone and telemedicine calls by Family Physicians (FPs) comprised 56% of billings.

2. 98% of virtual care was by phone.

Data

Data were obtained from NL Centre for Health Information. Data during COVID-19 from 16 Mar 2020 – 14 Mar 2021 (52 weeks) was compared to pre-COVID-19 period 6 Jan – 15 Mar 2020 (10 weeks).

Blocks of weeks used to summarize data during COVID-19 were 16 Mar – 28 Jun 2020 (15 weeks), 29 Jun – 27 Sep 2020 (13 weeks), 28 Sep 2020 – 3 Jan 2021 (14 weeks), 4 Jan – 14 Mar 2021 (10 weeks).

Results

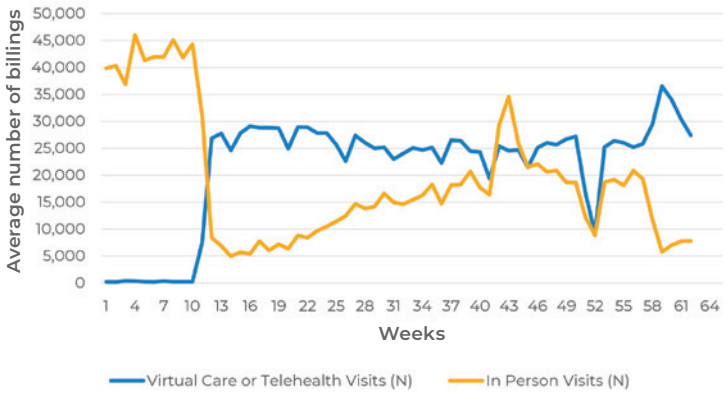


Figure 1. Average Number/Week of In-Person and of Virtual Care Billings by FPs Pre-COVID-19 and during COVID-19 in NL

- During the initial 15 weeks of COVID-19, average weekly in-person visits to FPs decreased by 67%, compared to the 10 weeks pre-COVID-19. During the next 13 weeks, the reduction was 52%, and during weeks 29–42 of COVID-19 it was 31%. In Feb 2021, in-person visits decreased again coincident with community spread of COVID-19 in Eastern Newfoundland.

- The reduction of in-person visits was offset by a massive increase in virtual care that persisted for the next year.

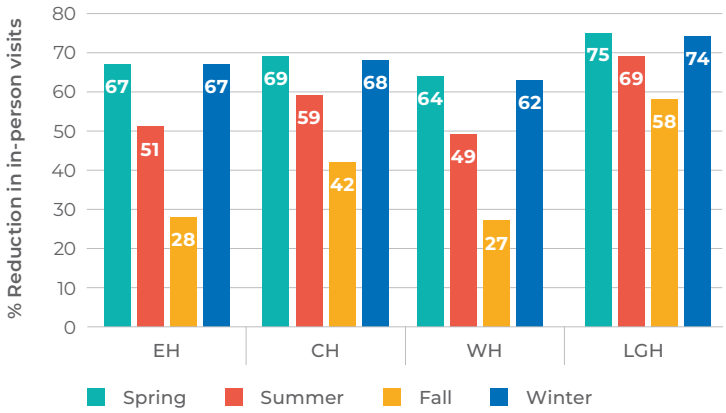


Figure 2. Reduction in In-Person Visits by Fee-Per-Service FPs Analyzed by Region During COVID-19 for the Year 2020/21

- The average weekly in-person visits pre-COVID-19 (6 Jan – 15 Mar 2020) in Eastern Health (EH) was 26,982, in Central Health (CH) 8,793, in Western Health (WH) 5,457, and in Labrador-Grenfell Health (LGH) 572.

- The reduction in in-person visits was greatest and most sustained in LGH, followed by CH, then EH, and lastly WH.

Table 1. Average Weekly In-Person, Virtual and Total Visits to FPs Pre-COVID-19 and during the First Year of COVID-19 in NL

	Weeks	In-Person	Virtual	Total
Pre-COVID-19	1–10	41,970	274	42,244
During COVID-19	1–15	13,867	26,335	40,202
	16–28	20,259	24,964	45,223
	29–42	28,812	22,951	51,763
	43–52	13,629	28,643	42,272

- Total in-person and virtual visits/week fell by only 5% in the first 15 weeks of COVID-19 compared to the pre-COVID-19 period. By weeks 29–42 of COVID-19, total visits/week had increased by 23% during the fall period compared to pre-COVID-19.

- Pre-COVID-19, 57% of in-person visits were by females and during COVID-19 this percentage was unchanged (57%). During COVID-19, 60% of virtual visits were by females.

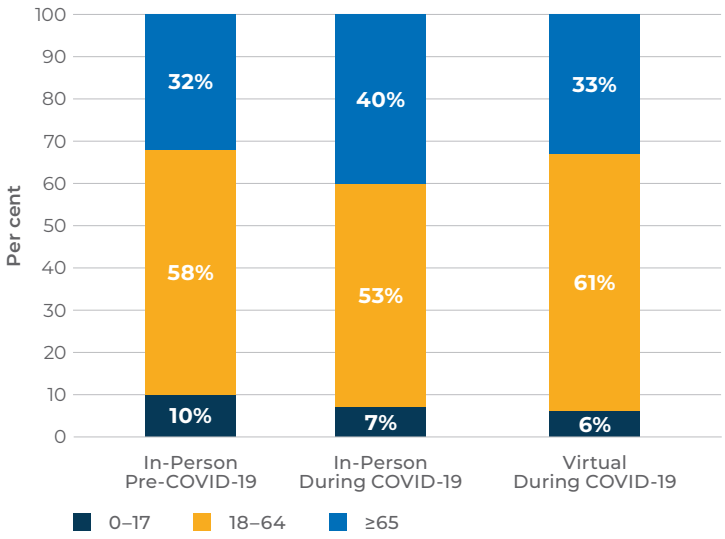


Figure 3. Age Distribution of In-Person Visits Pre-COVID-19 and During COVID-19, and of Virtual Visits During COVID-19

- Pre-COVID-19, 10% of in-person visits were people aged 0–17 years, 58% aged 18–64 years; and 32% were seniors.

- During COVID-19, the age distribution was different for in-person compared to virtual visits: 40% of in-person visits were by seniors versus 33% of virtual visits, whereas for adults aged 18–64 years, the corresponding proportions were 53% versus 61%.

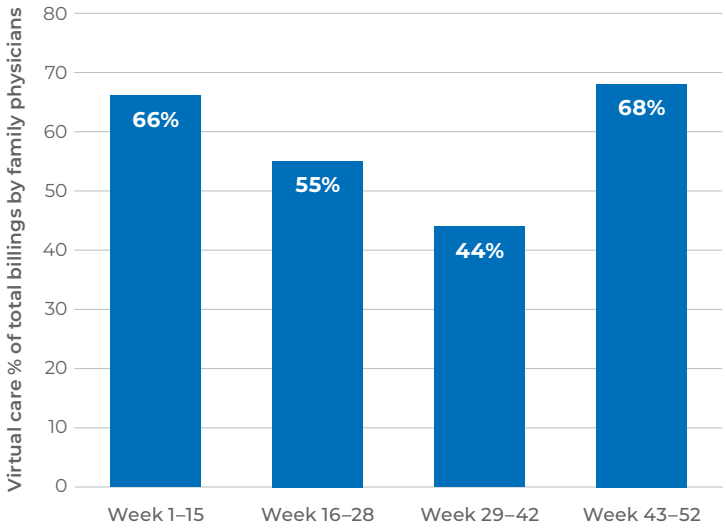


Figure 4. Virtual Care as Per Cent of Total Billings by FPs for Each Quarter Block During COVID-19

- During community spread of the virus, virtual care comprised 2 of 3 visits to a FP.

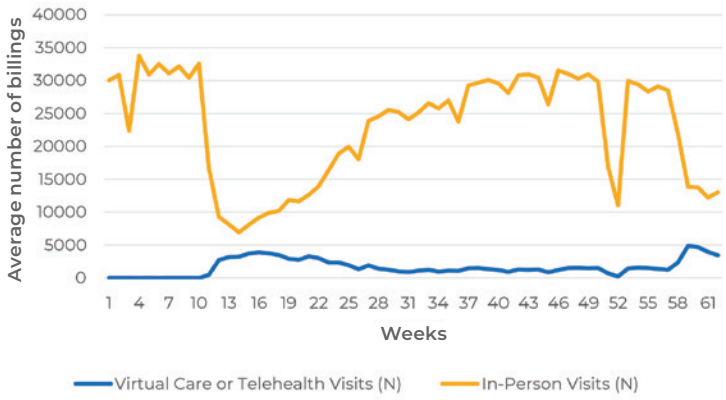


Figure 5. Average Number/Week of Total and of Virtual Care Billings by Specialists Pre-COVID-19 and During COVID-19

- The pattern of reduction in in-person calls was different for specialists compared to FPs. During the first quarter of COVID-19 reduction was 50%, but in the second and third quarters, in-person visits increased, and in the 4th quarter the reduction was 28%.

- The increase in virtual visits was much smaller for specialists than for FPs.

Table 2. Average Number/Week of Total and Virtual Care Billings by Hospital Physicians for the 10 Weeks Pre-COVID-19 and Each Block During COVID-19

	Weeks	In-Person	Virtual	Total
Pre-COVID-19	1–10	30,683	22	30,705
During COVID-19	1–15	18,390	2,872	15,132
	16–28	32,867	1,254	26,536
	29–42	38,817	1,164	28,890
	43–52	22,026	2,410	22,433

- Total in-person and virtual visits fell far more in the first quarter of COVID-19 for hospital physicians specialists (51%) than for FPs (5%). In subsequent quarters the reduction in visits persisted (14% in the summer, 6% in the fall, and 27% in the winter).

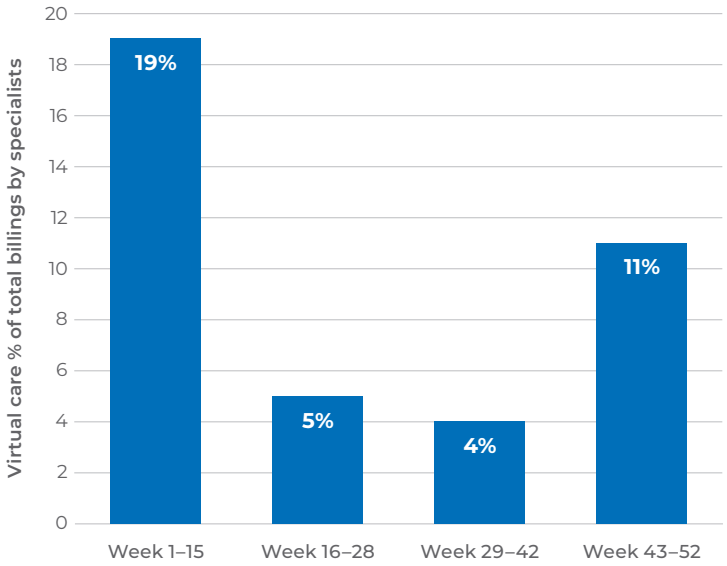


Figure 6. Virtual Care as Per Cent of Total Billings by Hospital Physicians Pre and for Each Quarter Block During COVID-19

- Compared to FPs, the proportion of virtual visits by specialists as per cent of total visits was much smaller.

Conclusions

1. A large and sustained reduction of in-person visits to FPs occurred during the first year of COVID-19. These visits were replaced by virtual visits which comprised the majority of visits for much of the year.

2. A different pattern was observed for specialists where the reduction of in-patient visits was smaller and not sustained. The use of virtual visits comprised a small proportion of total visits during COVID-19.

3. The age distribution of in-person virtual visits during COVID-19 was different with a higher proportion being seniors for in-person visits, but a lower proportion aged 18–64 years compared to virtual visits.

Large Reduction in Use of Antibiotics During COVID-19 in NL

Choosing Wisely Canada Recommendation

Multiple recommendations exist for not using antibiotics for upper respiratory infections, sore throat and otitis media that are most likely viral in origin or for asymptomatic bacteriuria in non-pregnant women.

See www.choosingwiselycanada.org/campaign/primary-care/antibiotics

Practice Points

1. NL has the highest use of antibiotics per capita in Canada.
2. Comparing 2017/18 to 2018/19, the rate of prescriptions of antibiotics/1,000 people in NL decreased by 4.5%.
3. For the past five years, Choosing Wisely NL has undertaken annual campaigns aimed at the reduction in antibiotics, including audit and feedback to family practitioners.

Data

Prescriptions provided was recorded by the NL Pharmacy Network and this data from the community were obtained from the NL Centre for Health Information from 1 Jul 2017–31 Jul 2021.

The COVID-19 pandemic started in the province on 16 Mar 2020 and continued beyond July 2021.

Results

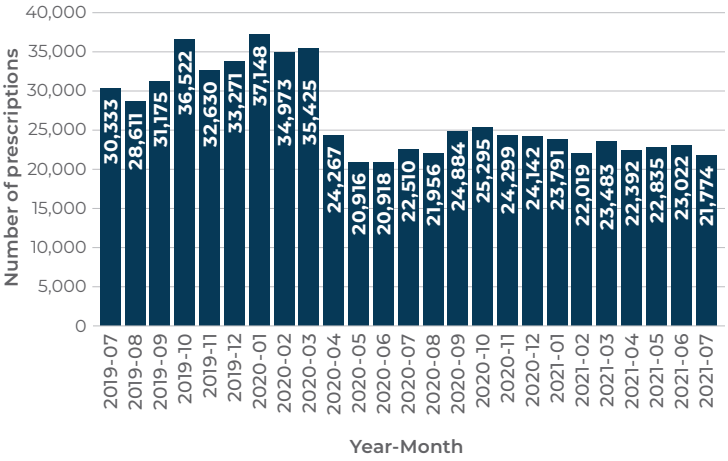
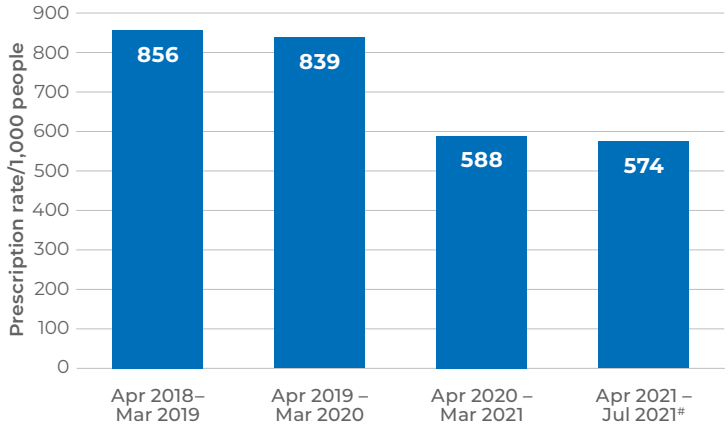


Figure 1. Total Number of Prescriptions/Month for Oral Antibiotics, Jul 2019–Jul 2021

- From 1 Jul 2019–31 Mar 2020 the number of prescriptions amounted to 300,538, an average/month of 33,393 pre-COVID-19.
- The number of antibiotic prescriptions immediately decreased with the advent of COVID-19 and this decrease persisted for the first 16 months during COVID-19.
- During COVID-19 from 1 Apr 2020–1 Aug 2021 the total number of prescriptions was 406,525, an average/month of 25,408.



pro-rated to 12 months

Figure 2. Annual Number of Oral Antibiotics Prescribed in the Community/1,000 Population, 2018–2021

- The annual rate of oral antibiotics in 2019/20 pre-COVID-19 decreased by 2% compared to 2018/19.
- During the first year of COVID-19 the rate of antibiotics prescriptions decreased by 30%, and in the next 4 months the rate decreased further by 2.4% compared to the previous 12 months.

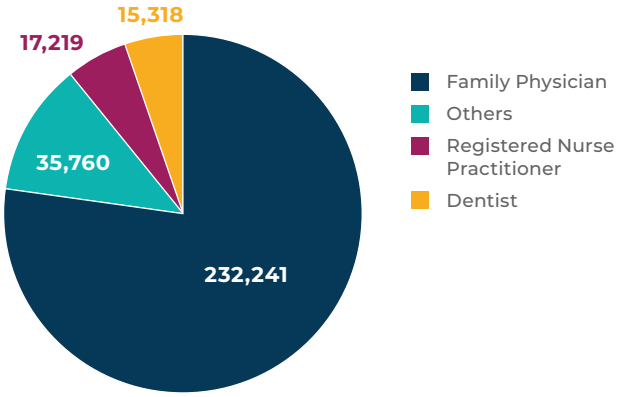


Figure 3A. Prescription of Oral Antibiotics by Health Provider Before COVID-19, Jul 2019–Mar 2020

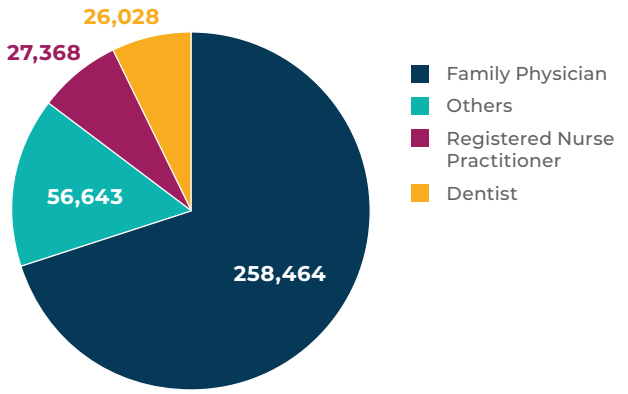


Figure 3B. Prescription of Oral Antibiotics by Health Provider During COVID-19, Apr 2020–Jul 2021

- Pre-COVID-19, 77% of oral antibiotics were prescribed by Family Physicians (FPs).
- During COVID-19, 70% were prescribed by FPs.
- Not surprising, as FPs comprise the majority of providers.

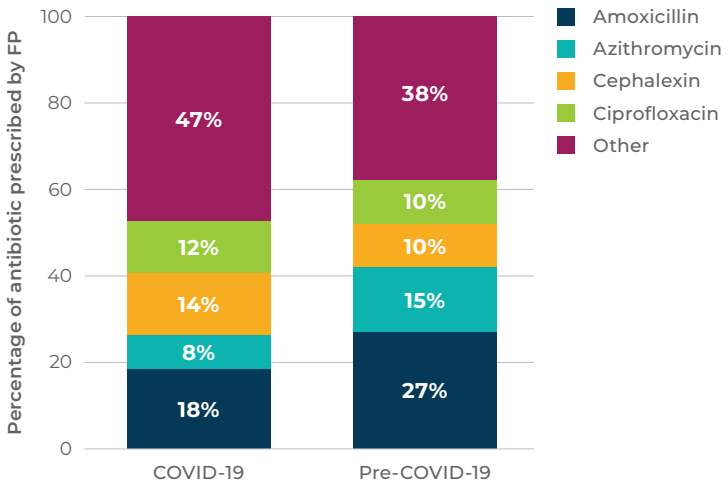


Figure 4A. Type of Antibiotic Prescribed by FPs Before and During COVID-19

- Amoxicillin proportion of antibiotics prescribed by FPs increased and "other" decreased during COVID-19.
- Ciprofloxacin, despite need for limited use because of E.coli resistance, continued to be prescribed.

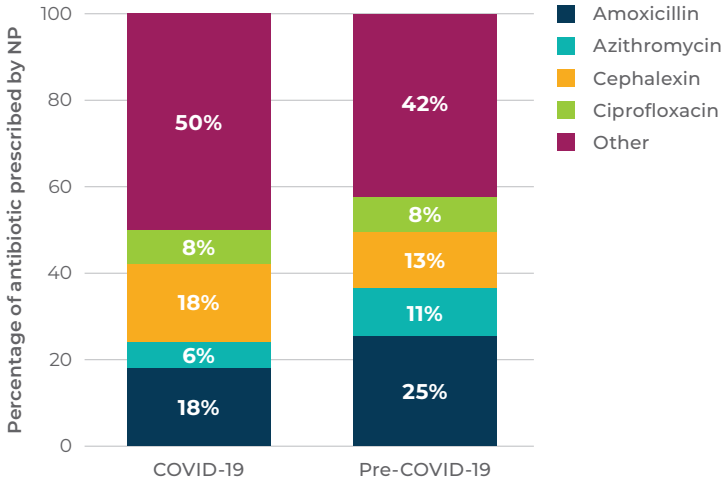


Figure 4B. Type of Antibiotic Prescribed by NPs Before and During COVID-19

- The same pattern of prescription change was observed for NPs as for FPs.

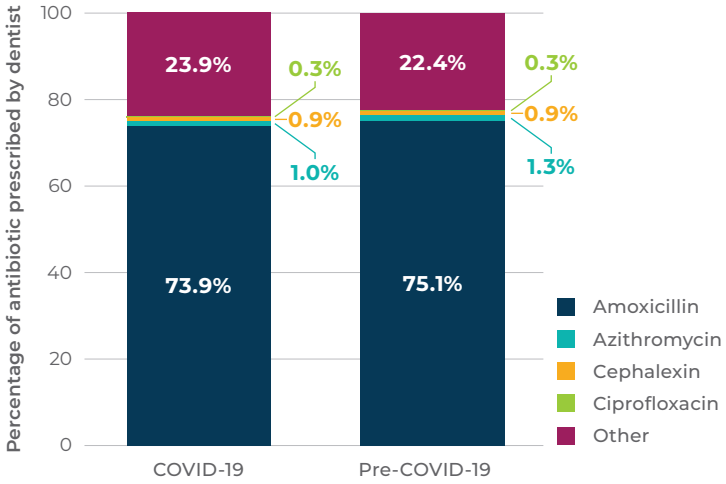


Figure 4C. Type of Antibiotic Prescribed by Dentists Before and During COVID-19

- The majority of prescriptions by dentists were for amoxicillin, both pre and during COVID-19.

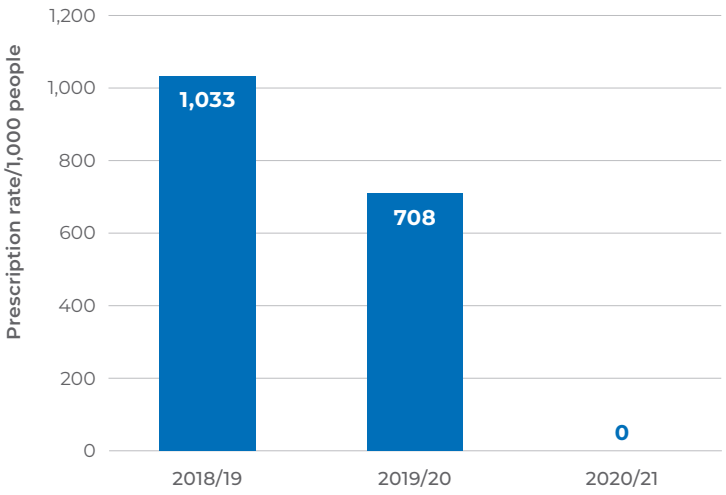


Figure 5. Annual Laboratory Diagnoses of Influenza, 2018–2021

- During the COVID-19 year 2020/21, there were no laboratory confirmed diagnoses of influenza.

Conclusions

1. Comparing 2019/20 to 2018/19, the rate of oral antibiotics decreased by 2%.

2. The onset of COVID-19 was associated with an immediate large reduction in antibiotic use that continued for 16 months. At the same time, visits to doctors decreased by over 50% and was replaced by virtual communication.

3. Masking and social distancing/isolation likely lead to reduced viral infection and fewer presentations to a FP. However, these viral infections do not require antibiotics and reveal a rate of prescriptions possible when viral infections return.

4. It is feasible to reduce antibiotic use by 30% in the community.

Vaccination and Control of COVID-19 in NL and in Populations Comparable to NL (23 Feb–31 Aug 2021)

Objective

To describe COVID-19 events and vaccination roll-outs in Newfoundland and Labrador (NL) compared to the island communities of New Zealand, Australia, Iceland, Prince Edward Island, and Vancouver Island.

Practice Points

1. COVID-19 vaccination protects against severe disease and death from COVID-19 infection.

2. The uptake of COVID-19 vaccination has varied across countries in many of which the unvaccinated were at highest risk for adverse events from the virus.

3. NL has had only seven COVID-19 attributed deaths since the pandemic started as of 31 Aug 2021.

Methods

1. Quality of Care NL decided early in the COVID-19 pandemic to follow events in New Zealand (island population of 4.8 million), Tasmania (island population 540,000), Victoria, Australia (population 6.5 million), Iceland (island population 364,000), Prince Edward Island (island population 158,000), and Vancouver Island (island population 870,000).

2. Data on incidence of new cases, deaths, and vaccinations, together with a description of various types of interventions imposed or loosened and vaccination rollout plans, were obtained from government websites up to 31 Aug 2021. This report examines data from 23 Feb 2021 to 31 Aug 2021 (data from the start of the pandemic to 23 Feb 2021 can be found in previous editions of Practice Points).

3. Vaccination data were collected weekly from the end of May 2021 onwards.

Results

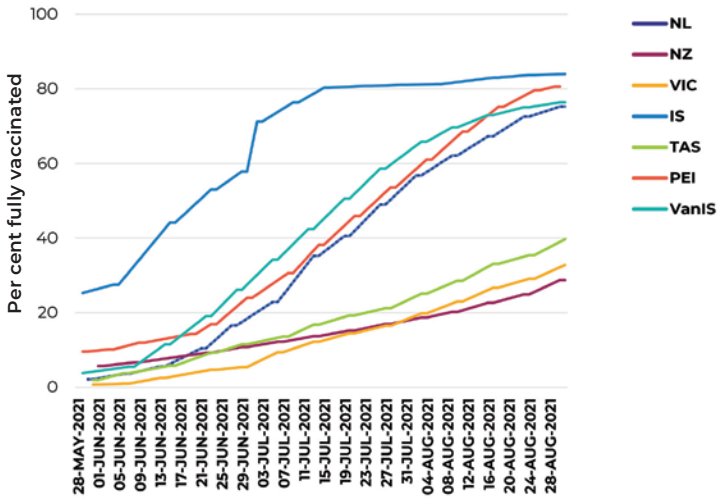


Figure 1. Comparison of Percentage of Eligible Population (≥12 Years) Fully Vaccinated by Jurisdiction, 28 May–31 Aug 2021

- Iceland had the most rapid uptake of immunization followed by the three Canadian islands. Uptake in New Zealand and Australia was low and by 31 Aug 2021 was only 29% in New Zealand.

Newfoundland and Labrador (NL)

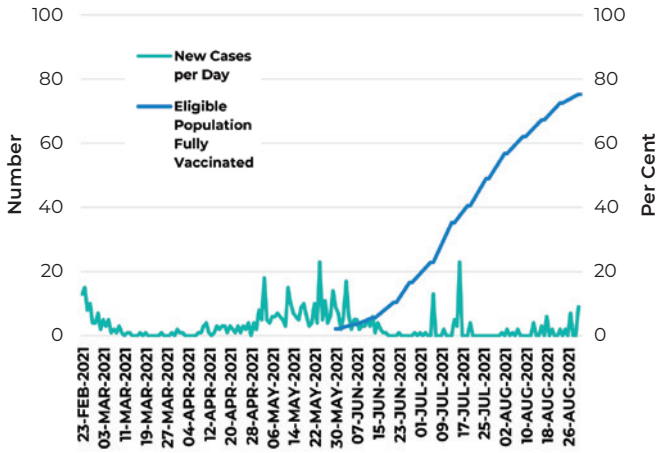


Figure 2. Incidence of New Cases and Percentage of Eligible Population Fully Vaccinated in Newfoundland and Labrador, 23 Feb–31 Aug 2021

- NL's vaccination roll-out was not associated with community transmission since early June 2021.

Vaccination Roll-out:

- Vaccination roll-out began on 16 Dec 2020.
- Eligible population consisted of those twelve years and older (~483,400 people).
- NL's COVID-19 immunization plan was delivered in three phases:
  - Phase 1 – Focused on those most at risk of exposure, those most likely to experience severe complications, and those essential to maintaining the provincial pandemic response. This included congregate living for seniors, health care workers at high risk and those directly involved in the pandemic response, adults 85 years and older, and adults in remote and isolated Indigenous communities.
  - Phase 2 – Adults 70 years of age and older (starting with those 80 years and older); adults who identify as First Nations, Inuit or Métis; staff, residents, and essential visitors at congregate living settings; adults 60–69 years; adults in marginalized populations where infection could have disproportionate consequences; first responders; frontline health care workers who were not immunized in Phase 1 and who may come into direct contact with patients; people aged 16–59 who are clinically extremely vulnerable; people who are required to regularly travel in and out of the province for work; and frontline essential workers who have direct contact with the public and cannot work from home during Alert Level 5 (including teachers and educational staff).
  - Phase 3 – This includes anyone in priority groups remaining from phase 1 or 2, and adults 16–59 years of age. Those aged 12–15 years were included after approval.

Second Wave:

- On 6 Feb 2021, a case was identified in Mount Pearl and signalled the start of a second wave in NL.
- Whole genome sequencing identified it to be a variant of concern (B.1.1.7 or Alpha variant) and on 12 Feb 2021 the entire province moved to Alert Level 5 (Lockdown). More than five hundred and seventy five cases and two deaths were linked to this outbreak.
- A locality approach (Avalon Peninsula versus the rest of NL) was used in gradually reducing restriction measures. All of NL moved to Alert Level 2 on 27 Mar 2021.

Cluster Control of Three Community Outbreaks:

- On 13 May 2021, the Port Aux Basques/Codroy Valley Area (Western Health) moved to Alert Level 4 after three cases were identified in a school in that area. Nine cases were connected to this cluster. All of NL moved to Alert Level 2 on 20 May 2021.
- On 22 May 2021, the Lewisporte to Summerford area (Central Health) moved to Alert Level 4 after a cluster of seven cases was identified. This area was expanded on 24 May 2021 to include the Northeast Coast. Whole genome sequencing identified it to be a variant of concern (B.1.617 or Delta variant). Approximately 70 cases were connected to this cluster. Lockdown measures were loosened using a locality approach (Lewisporte to Summerford versus the rest of the Northeast Coast). All of the area moved to Alert Level 2 on 8 Jun 2021.
- On 30 May 2021, the St. George's-Stephenville-Port au Port area moved to Alert Level 4 after a cluster of seven cases was identified. The Alert Level 4 region was expanded on 1 Jun 2021. Over 40 cases were connected to this cluster. The area moved to Alert Level 2 on 12 Jun 2021.

August Clusters:

- On 18 Aug 2021, a small cluster was identified in Eastern Health. Five cases have been connected to this cluster.
- On 27 Aug 2021, a case was identified in Western Health, the source was under investigation. Seven cases have so far been connected to this cluster. Whole genome sequencing has identified it to be the Delta variant.

Border Control:

- On 23 Jun 2021, visitors from Nova Scotia, New Brunswick and Prince Edward Island were able to enter the Province without any testing or self-isolation requirements.
- On 1 Jul 2021, NL moved to Step 1 of their Reopening Plan. Non-essential travel from within Canada

permitted. Fully vaccinated Canadian travelers have no testing or isolation requirements. Partially vaccinated travelers must present a pre-departure negative COVID-19 test result or self-isolate upon arrival until they receive a negative test result. Unvaccinated Canadian travelers were then required to self-isolate for 14 days.

- On 1 Aug 2021, NL moved to Step 2 of their Reopening Plan. Fully and partially vaccinated Canadian travelers will have no testing or isolation requirements. Unvaccinated Canadians will need to be tested on day 7, 8, or 9, and self-isolate until receipt of a negative test result.

New Zealand (NZ)

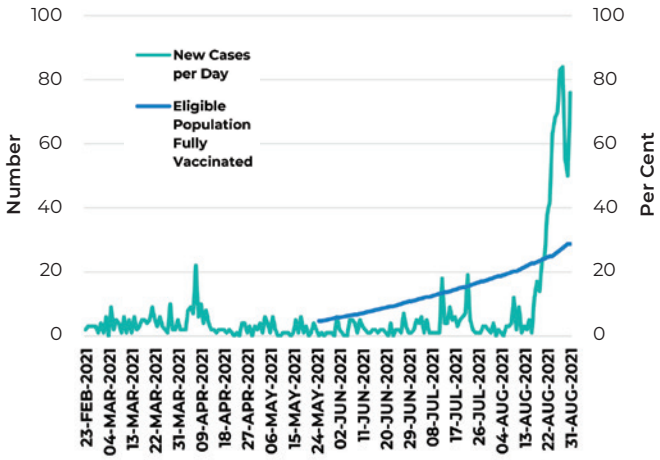


Figure 3. Incidence of New Cases and Percentage of Eligible Population Fully Vaccinated in NZ, 23 Feb–31 Aug 2021

- NZ's low immunization rate was associated with community transmission of the Delta variant in Auckland and Wellington in August 2021.

<u>Vaccination Rollout:</u>

- Vaccination rollout began on 20 Feb 2021.
- Eligible population consists of those 12 years and older (~4,121,325 people).
- In NZ, Everyone aged 16 and older was grouped into one of four groups for their COVID-19 vaccination:
  - Group 1 – Border workers and their household contacts.
  - Group 2 – High-risk frontline workers (frontline health care workers, emergency responders, long-term residential care workers) and people living in high-risk places.
  - Group 3 – People at greatest risk of serious illness, which includes those aged 65 years and older and those with underlying health conditions.
  - Group 4 – General population aged 16 years and older (vaccinated by age bands starting with those aged 60 and over).
- Following approval, from 20 Aug 2021, young people between 12–15 years were eligible to book vaccinations.

<u>Domestic Restrictions and Community Outbreak:</u>

- The last community outbreak occurred in Feb 2021 with the last case identified on 27 Feb. NZ moved to Alert Level 1 on 12 Mar 2021.
- On 16 Aug 2021, the first community case since February was identified. NZ moved to Alert Level 4 (Lockdown) on 18 Aug 2021. Whole genome sequencing identified it to be the Delta variant with a link to the New South Wales (Australia) outbreak.
- On 1 Sep 2021, areas south of Auckland moved to Alert Level 3. Northland then remained at Alert Level 4 until at least 3 Sep and Auckland was expected to remain at Alert Level 4 for at least another two weeks (with a review on 13 September).
- As of 31 Aug 2021, six hundred and eighty-seven cases were part of this community outbreak and 32 cases were in hospital, eight of which were in the ICU.

<u>Border Control:</u>

- All travelers (including those who have received a COVID-19 vaccination) must have a COVID-19 test taken and a negative result returned within 72 hours of their first scheduled international flight.
- All travelers are required to stay in managed isolation for at least 14 days, and be tested for COVID-19 at least three times – within 24 hours of arrival (day 0/1), day 3, and day 12.
- The Aug community transmission escaped by way of a site worker from a quarantine facility.

Tasmania (TAS)

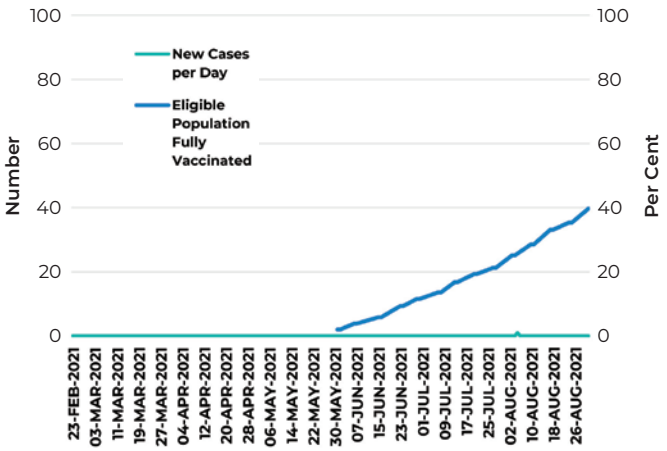


Figure 4. Incidence of New Cases and Percentage of Eligible Population Fully Vaccinated in Tasmania, 23 Feb–31 Aug 2021

- Tasmania has had few cases of COVID-19 but is still vulnerable because of its low vaccination rate.

<u>Vaccination Rollout:</u>

- Vaccination rollout began on 22 Feb 2021.
- Eligible population consists of those 12 years and older (~463,000).
- Tasmania's vaccination program is being rolled out in four phases:
  - ◇ Phase 1a – Border security and quarantine staff, frontline health staff at higher risk, and residents and staff at aged and disability residential care facilities.
  - ◇ Phase 1b – Everyone aged 70 years and older, remaining health care workers, Aboriginal and Torres Strait Islander adults aged 50 years and older, people aged 16 years and older with underlying medical conditions, critical and high-risk workers, and household contacts of quarantine and border workers.
  - ◇ Phase 2a – Everyone aged 40 years and older, all Aboriginal and Torres Strait Islander people aged 16 years and older, and National Disability Insurance Scheme (NDIS) participants and their carers who are aged 16 years and older.
  - ◇ Phase 2b – All adults aged 16 years and older.
- Children are expected to be vaccinated in Phase 3 if it is clinically recommended and approved. Currently, children who are aged 12–15 years are eligible to get vaccinated if they have specified medical conditions or disabilities, are Aboriginal and Torres Strait Islander children, or live in remote communities (as part of community outreach vaccination programs).

<u>Border Control:</u>

- All individuals travelling or transiting through Australia must provide evidence of a negative COVID-19 (PCR) test taken 72 hours or less before their scheduled departure.
- Overseas travelers must complete 14-day isolation in government facilities on coming into Australia.
- Interstate travelers and residents entering Tasmania from areas designated as medium and high-risk must complete 14-day isolation in either a government-designated facility (level 1) or a suitable premises (level 2). Interstate travelers from low risk areas are not required to quarantine. These rules apply to vaccinated travelers as well.

Victoria (VIC)

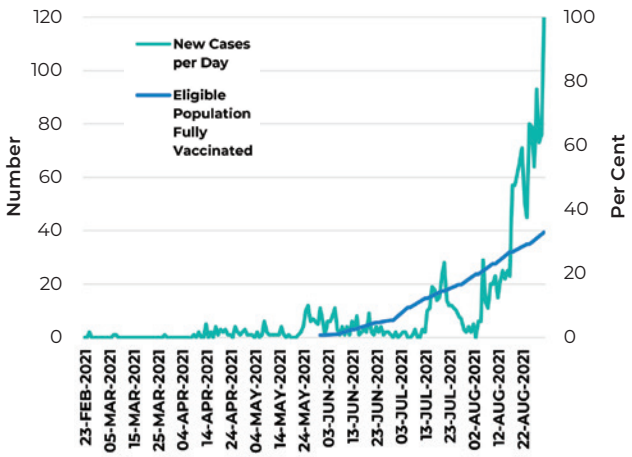


Figure 5. Incidence of New Cases and Percentage of Eligible Population Fully Vaccinated in Victoria, Australia, 23 Feb–31 Aug 2021

- Victoria's low vaccination rate was associated with substantial community transmission of the Delta variant in July and Aug 2021.

Cluster Control of Two Community Outbreaks:

- On 24 May 2021, the first community cases in 87 days were identified. COVIDSafe measures were re-imposed on 25 May 2021 in Metro Melbourne and on 28 May 2021, Circuit Breaker restrictions were implemented statewide. Whole genome sequencing identified it to be the Delta variant (B.1.617.1). More than 100 cases were linked to this outbreak. Restrictions were eased across Victoria using a locality approach (Metro Melbourne versus Regional Victoria). On 9 Jul 2021, Victoria returned to their previous COVIDSafe restrictions.
- On 12 Jul 2021, three community cases were identified and linked to interstate travel. On 16 Jul 2021, Victoria went into lockdown to combat the Delta variant and the large number of exposure sites. On 27 Jul 2021, lockdown was lifted across Victoria and a range of restrictions were eased. Due to increasing case numbers and the high number of associated close contacts and exposure sites, Victoria again went into a statewide lockdown on 5 Aug 2021. On 9 Aug 2021 lockdown was lifted in Regional Victoria, but extended in Metro Melboune. On 17 Aug 2021, Melbourne restrictions were strengthened further and a curfew was imposed. On 20 Aug 2021, the same restrictions and curfew were imposed across Regional Victoria. This will remain in place until 70% of Victorians have had at least one dose of vaccine (estimated to be 23 Sep 2021). More than 1,450 people are currently linked to this community outbreak.
- In the current outbreak, the age profile of positive cases is younger than it has been for previous outbreaks. Of the 895 active cases on 31 Aug 2021, 187 (21%) were aged between 0–9 years, 130 (15%) were aged between 10–19 years, 201 were aged between 20–29 years (22%), and 160 were aged between 30–39 years (18%).
- Up until 25 Aug 2021, vaccination of these younger age groups was only available to those 16 years of age and older with an underlying medical condition or significant disability.
- There have been two deaths related to the outbreak.

Hospitalizations/ICU:

- On 18 Jul 2021, the first case related to the outbreak was hospitalized.
- As of 31 Aug 2021, sixty-one cases were in hospital, 20 of which were in intensive care with 13 cases on ventilators.

Border Control:

- All individuals travelling or transiting through Australia must provide evidence of a negative COVID-19 (PCR) test taken 72 hours or less before their scheduled departure.
- Overseas travelers must complete 14-day isolation in government facilities on coming into Australia.
- All interstate travelers and residents entering Victoria require a travel permit, exception or exemption. Based on the area you were in prior to travel to Victoria, you will be classified as arriving from an extreme risk zone, red zone, orange zone, or green zone. Quarantine and testing requirements differ based on the zone you are arriving from.
- On 27 Aug 2021, a new Departing Hotel Quarantine Permit was approved. It requires mandatory Day 17 testing as a condition of the permit to reduce the risk of COVID-19 getting into Victoria from people who have completed 14-day hotel quarantine interstate. Day 21 testing will continue to be recommended.

Iceland (IS)

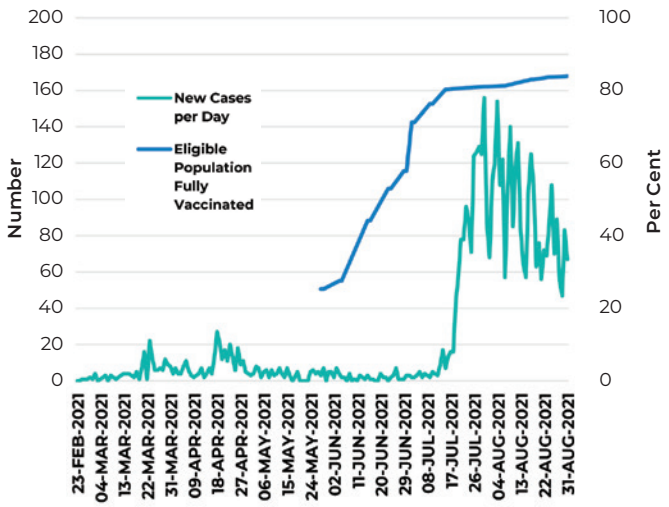


Figure 6. Incidence of New Cases and Percentage of Eligible Population Fully Vaccinated in Iceland, 23 Feb–31 Aug 2021

- Despite the best vaccination rate among the seven comparable regions, substantial community transmission occurred in Iceland in Jul and Aug 2021.

Vaccination Rollout:

- Vaccination rollout began on 29 Dec 2020.
- Eligible population consists of those 12 years and older (~314,050 people).
    - Vaccinations began on 22 Aug 2021 for those 12–15 years.
- Iceland's vaccination program included ten priority groups:
    - Group 1 – Healthcare professionals and other staff working in emergency wards and intensive care units of Landspítali University Hospital and the intensive care unit in the hospital in Akureyri.
    - Group 2 – Healthcare workers working in COVID-19 out-patient wards and wards for patients who have been infected with COVID-19.
    - Group 3 – Persons living in nursing and retirement homes and old-age wards in hospitals.
    - Group 4 – Ambulance staff, paramedics, the employees of the Icelandic Coast Guard, fire brigade employees, prison guards, call-out police officers.
    - Group 5 – Healthcare professionals involved in the primary care of patients and who must necessarily be vaccinated.
    - Group 6 – Persons aged 60 years and older.
    - Group 7 – Persons with underlying long-term illnesses who are at particular risk.
    - Group 8 – Employees of nursery, primary and secondary schools and select groups of social and welfare service workers.
    - Group 9 – Persons who are in sensitive circumstances due to their social and economic situation.
    - Group 10 – All others who request vaccination.
- As of mid-Aug 2021, those who received the Janssen vaccine (Johnson & Johnson one dose vaccine) were offered a second dose (booster), and those with underlying diseases, who may not respond as well as others to vaccines, were also offered an extra dose. Over 53,000 people received the one dose Janssen vaccine (with 70% being given to those 39 years and younger).
- As of 31 Aug 2021, approximately 38,000 had received a booster shot.

Domestic Restrictions, Current Outbreak and Vaccination Status:

- From 15 Apr 2021, domestic restrictions within Iceland were continually eased over two and three-week periods until all domestic restrictions were removed as of 26 Jun 2021.
- On 1 Jul 2021, approximately 71% of Iceland's eligible population was fully vaccinated (just prior to the fourth wave).
- After a rise in domestic infections in July 2021 due to the Delta variant (fourth wave), masks, social distancing, capacity restrictions (up to 75%), and gathering limits (up to 200 people), were re-imposed on 25 Jul, 2021. Restrictions were re-evaluated and on 10 August were extended until 27 Aug, 2021.
- On 28 Aug 2021, capacity restrictions were removed, however restrictions on the number of people who are allowed to gather in one location is still set at 200, social distancing at one metre, and the obligation to wear a face mask remains.
- From 10 Jul 2021 to 31 Aug 2021, there have been 3,986 domestic infections (counting for more than a third of all confirmed cases since the start of the pandemic in Iceland). Sixty-three per cent of domestic infections have occurred in those fully vaccinated (n=2,486), 2% in those partially vaccinated (n=97), and 35% in those who are not vaccinated (n=1,403).
- From 9 Jul 2021 to 31 Aug 2021, there have 149 infections diagnosed in travellers to Iceland. Sixty-four per cent have been identified in those fully vaccinated (n=96), 7% in those partially vaccinated (n=10), and 29% in those who are not vaccinated (n=43).
- There have been three deaths associated with the outbreak.

Hospitalizations/ICU and Vaccination Status:

- On 19 Jul 2021, the first case related to the current outbreak was hospitalized.
- Hospitalizations reached a peak at 32 on 12 Aug 2021 with five people in ICU.
- On 14 Aug 2021, it was reported that 30 people were currently hospitalized. Seven were in the ICU and 23 in the emergency department. Of the patients in intensive care, four had been fully vaccinated and four were on ventilators. Of those in the emergency department, 17 had been fully vaccinated and six were unvaccinated. A total of 73 people had been hospitalized up to this point with two-thirds of them being vaccinated. Of the 11 people that had been treated in the ICU, six of them had been fully vaccinated.

Border Control:

- From 6 Apr 2021, travelers from outside Europe who had a valid certificate confirming vaccination or antibodies to the disease (prior infection) were able to visit Iceland. They were required to undergo a test upon arrival but were exempt from the 5-day quarantine and follow-up test.
- From 27 Apr 2021, stricter requirements for quarantine of arriving passengers coming from high-risk areas were imposed. A ban on non-essential travel to Iceland from specified high-risk COVID-19 areas took effect until 31 May 2021.
- From 1 Jul 2021, those submitting valid vaccination certificates and certificates of prior infections of COVID-19 and children born after 2005 were no longer required to submit negative PCR-certificates upon arrival to the country.
- From 27 Jul 2021, all vaccinated persons and those that can present a certificate of a prior COVID-19 infection must present a negative PCR or antigen (rapid) test that is no more than 72 hours old before departure to Iceland. Unvaccinated individuals will continue to be required to present negative PCR test results no more than 72 hours old and undergo double PCR screening with a five-day quarantine in between. Children born in 2005 or later will continue to be exempted from all border measures.
- From 16 Aug 2021, vaccinated passengers with ties to Iceland were required to undergo testing within 48 hours of arrival in Iceland (rapid antigen test or PCR).

Prince Edward Island (PEI)

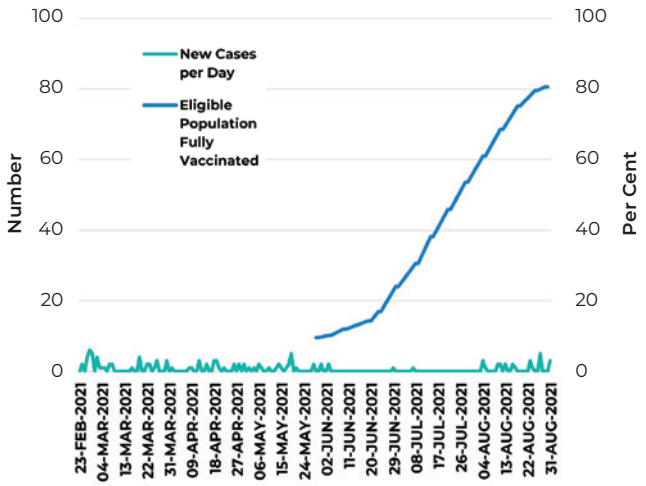


Figure 7. Incidence of New Cases and Percentage of Eligible Population Fully Vaccinated in Prince Edward Island, 23 Feb–Aug 2021

- PEI has vaccinated 80% of its eligible population and only COVID-19 cases related to travel have occurred.

Vaccination Rollout:

- Vaccination rollout began on 16 Dec 2020.
- Eligible population consists of those 12 years and older (~140,500 people)
- Prince Edward Island's COVID-19 immunization program is being rolled out in three phases:
  - Phase 1 – Residents and staff of long-term and community care, health care workers with direct patient contact at higher risk of COVID-19 exposure, seniors 80 years of age and older, adults 18 years of age and older living in Indigenous communities, residents and staff of other residential or shared living facilities (e.g. group homes, residential care, shelters, corrections), and truck drivers and other rotational workers.
  - Phase 2 – Anyone in priority groups remaining from Phase 1, including frontline health care workers, first responders, adults over the age of 70 years, adults aged 60–69 years, Indigenous adults not immunized in Phase 1, and adults aged 12–59 years (age bands from oldest to youngest).

- Phase 3 – Second vaccine dose for individuals in Phase 2 and additional youth younger than 12 years of age as vaccines are approved for their age category.

PEI Cases and Moving Forward Plan:

- Since 23 Feb 2021, cases have been linked to travel or have been identified as being close contacts of previously known cases.
- On 18 Jul 2021, PEI moved to Step 4 of its five-step Moving Forward Plan. The plan outlines a stepwise approach to easing travel and public health measures.

Border Control:

- Returning islanders and visitors can apply for a PEI Pass. The PEI Pass verifies your vaccination status (fully vaccinated or partially vaccinated) and isolation requirements.
- As of 23 Jun 2021, those traveling from within Atlantic Canada to PEI and vaccinated with at least one dose are not required to self-isolate. Those who are unvaccinated must isolate for eight days and be tested upon entry and on day eight.
- As of 18 Jul 2021, those traveling to PEI from outside of Atlantic Canada and vaccinated with two doses are not required to self-isolate but will be tested upon entry. Those who have one dose of vaccine or are unvaccinated must isolate for eight days and be tested upon entry and on day eight.
- As of 9 Aug 2021, fully vaccinated citizens and permanent residents of the United States can visit PEI without isolating but will be tested upon entry (antigen tests are not accepted for entry to Canada).

Vancouver Island (VanIS)

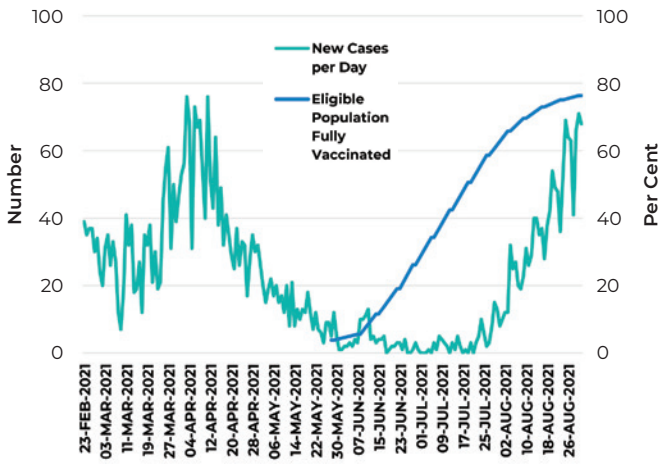


Figure 8. Incidence of New Cases and Percentage of Eligible Population Fully Vaccinated in Vancouver Island, 23 Feb–31 Aug 2021

- Despite approaching 80% of the eligible population being vaccinated, community transmission has occurred in Vancouver Island during Aug 2021.

Vaccination Rollout:

- Vaccination rollout began on 22 Dec 2020.
- Eligible population consists of those 12 years and older (~780,000 people).
- British Columbia's immunization plan is being delivered in four phases:
  - Phase 1 – Residents, staff and essential visitors to long-term care and assisted living; individuals assessed for and awaiting long-term care; hospital health care workers who may provide care for COVID-19 patients; and remote and isolated Indigenous communities.
  - Phase 2 – Seniors aged 80 years and older not yet immunized; Indigenous seniors aged 65 years and older, elders, and additional communities not yet immunized; hospital staff, community Family Physicians and medical specialists not yet immunized; vulnerable populations in select congregated settings; and staff in community home support and nursing for seniors.
  - Phase 3 – People aged 60–79 years, in five-year

increments (starting at ages 75–79); People aged 16–69 years who are clinically extremely vulnerable; front-line essential workers between the ages of 18–64 years.

- ◇ Phase 4 – People aged 18–59 years, in five year increments (starting at ages 55–59); children aged 12–17 years were included after approval.

BC Vaccine Card:

- British Columbians will be required to show a new proof-of-vaccination card to enter many businesses and events across the Province. The rules will apply to restaurants, fitness centres, casinos, organized indoor events like conferences and weddings, movie theatres, ticketed sporting events and indoor concerts, and will apply, as relevant, to post-secondary campuses and may include some student housing.
- One dose of vaccine will be required to enter those businesses and events as of 13 Sep 2021 and full vaccination will be required by 24 Oct 2021.
- There will be no medical or religious exemptions.
- These measures will remain in place until 31 Jan 2022, but may be extended.

Community Outbreak:

- Due to the ongoing surge of COVID-19 cases in BC and the significant number of BC residents who remain unvaccinated, the province is reinstating its mask mandate for indoor public settings as of 25 Aug 2021. The mask mandate had been lifted on 1 Jul 2021, before the Delta variant triggered a fourth wave of the pandemic in BC.
- From 23 Feb 2021–31 Aug 2021, Vancouver Island had 24 deaths and more than 4,270 cases.

Border Control:

- As of 9 Aug 2021, fully vaccinated citizens and permanent residents of the United States can visit British Columbia without isolating. At the border, a negative pre-entry test result is required (antigen tests are not accepted for entry to Canada).

Conclusions

1. NL and PEI have immunized nearly 80% of their populations and community transmission has not occurred in July and Aug 2021. By contrast, in Vancouver Island a similar degree of immunization has not prevented a fourth wave.
2. Iceland's experience is a concern because despite good immunization rates, it has observed 3,986 domestic infections from 10 Jul 2021 to 31 Aug 2021, 63% of which occurred in those fully vaccinated. However, there were only three deaths.
3. Low vaccination rates in New Zealand and Victoria have made these regions vulnerable to COVID-19 Delta variant outbreaks. Tasmania has been free of community transmission despite its low vaccination rate.
4. Community protection by vaccination requires higher vaccination rates than what was achieved in NL. Iceland's experience implies that continued mitigation strategies to prevent virus transmission will be required until higher immunization rates are achieved.

Continued Reduction in Serum IgE Testing Following Choosing Wisely NL Campaign

Choosing Wisely Recommendation

Do not perform screening panels of IgE tests for allergy without previous consideration of pertinent medical history.

Practice Points

1. Ordering more than three serum IgE tests at a time may be inappropriate, even in patients with allergic reactions. The tests should be matched with the allergens identified on history.

2. A Choosing Wisely NL campaign to reduce inappropriate IgE testing was developed in 2017 and rolled out in 2018. It was associated with a 50% reduction comparing 2015 to 1 Jan – 31 Aug 2019, but the proportion of bundles ordered containing more than three tests remained quite high.

Data

Data were obtained from the Meditech Laboratory system at Eastern Health. Results from 1 Sep 2019 – 31 Dec 2020 were compared to previous results from 1 Jan 2015 – 31 Aug 2020.

The COVID-19 pandemic was present from 16 Mar 2020.

Results

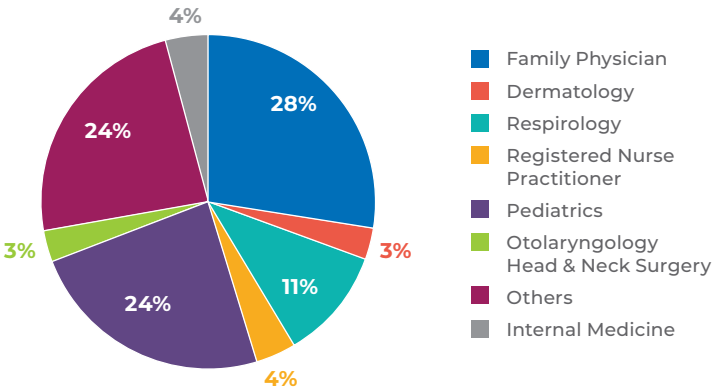


Figure 1. The Per Cent of Tests Ordered by Speciality (1 Sep 2019 – 31 Dec 2020)

- A diverse group of clinicians ordered IgE tests.
- Of 3,509 tests ordered, 28% were by Family Physicians (FPs) and 24% by Pediatricians.

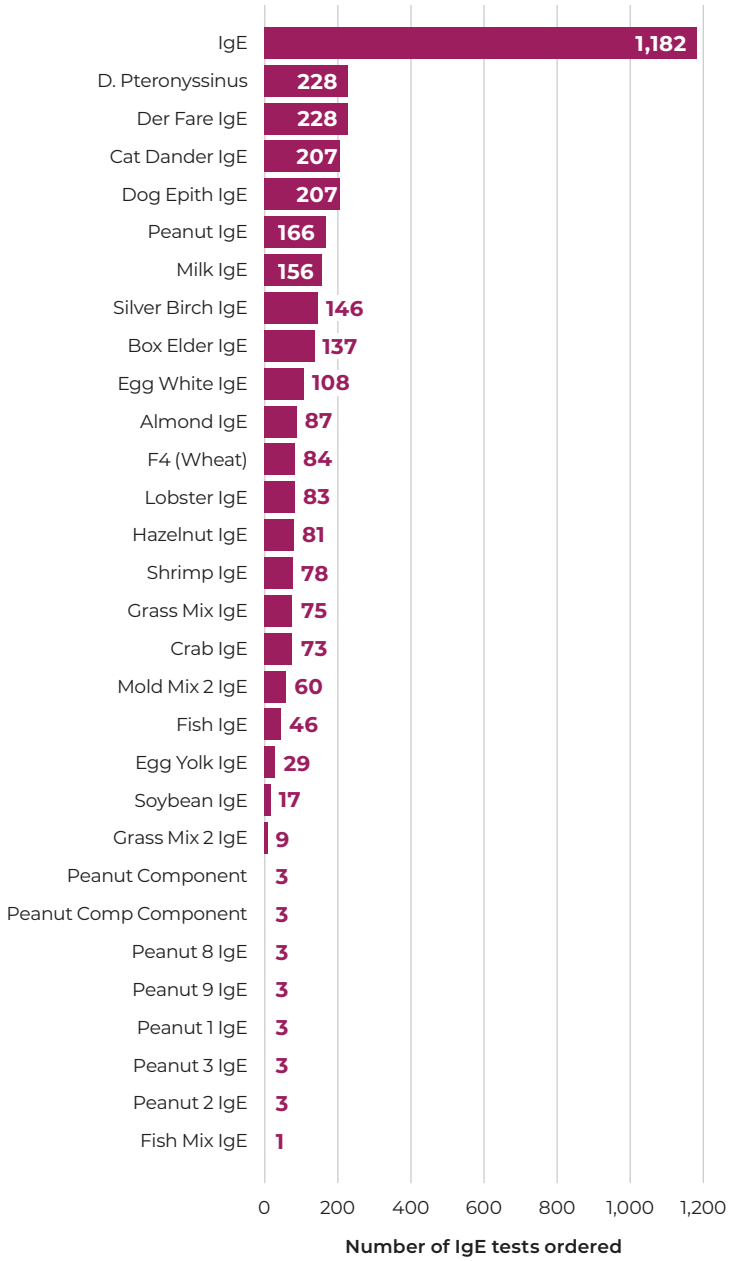


Figure 2. The Number Ordered for Each Individual IgE Test (1 Sep 2019 – 31 Dec 2020)

- A third of IgE tests were for serum IgE and the remaining two thirds were for more specific tests.

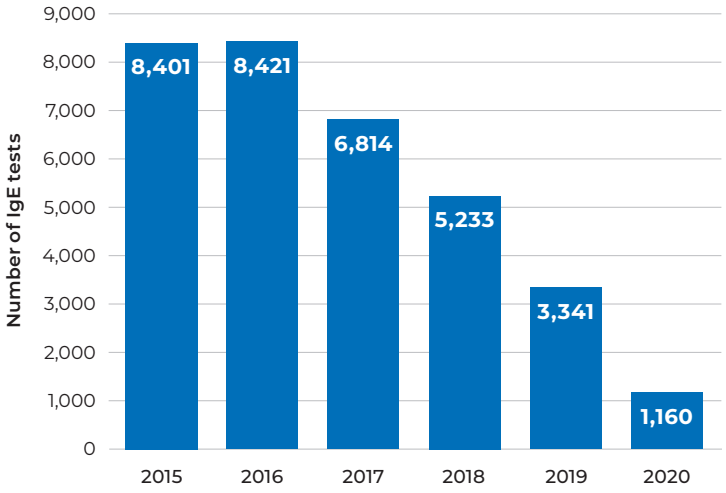


Figure 3. The Total Number of IgE Tests Ordered (1 Jan 2015 – 31 Dec 2020)

- Reduction in number of IgE tests in 2019 compared to 2015 was 60%, and in 2020 it was 86%.

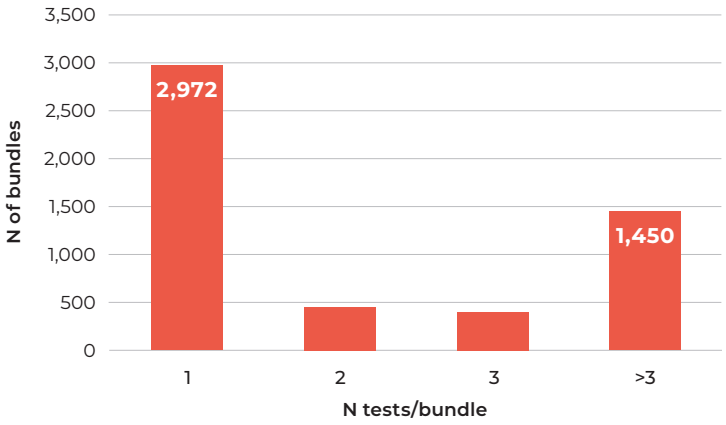


Figure 4A. The Number of Bundles by Number of Tests Per Bundle (1 Jan 2017 – 31 Aug 2019)

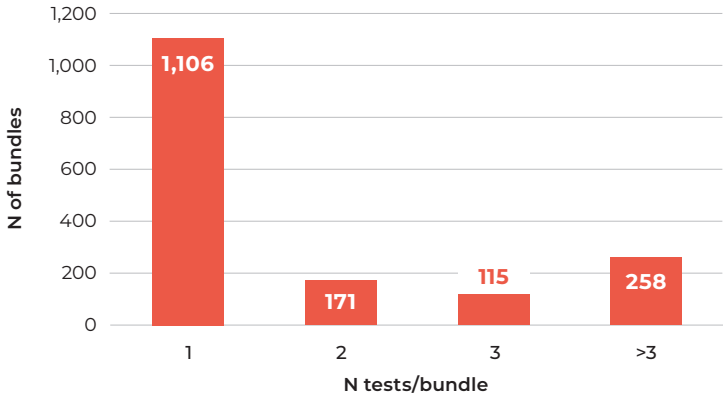


Figure 4B. The Number of Bundles by Number of Tests Per Bundle (1 Sep 2019 – 31 Dec 2020)

- Of 5,268 bundles of tests ordered in 2017–2019, 27.5% were for more than three tests, whereas in 2019–2020, 15.6% of 1,650 bundles were for more than three tests.

- The total number of bundles for more than three tests was reduced from 45 bundles per month in 2017–2019 to 16 per month (2019–2020), a reduction of 64%.

Conclusions

1. Compared to the period prior to the Choosing Wisely NL campaign, continued substantial reduction in the number of IgE tests undertaken was observed in 2019 pre-COVID-19 and during 2020 (likely influenced by the 42 weeks of the pandemic).

2. The number of bundles for more than three individual IgE tests was reduced by 64%, and the proportion of bundles that were for more than three tests was reduced to 15.6% of bundles.

3. These reductions were associated with the Choosing Wisely NL campaign to reduce both the number of potentially inappropriate IgE tests and the inappropriate ordering of more than three tests in an IgE bundle.

Surgery Utilization in NL

Objective

To determine the number of inpatient and same-day surgeries in the 12 adult surgery units in NL.

Practice Points

1. St. Clare's Hospital and the Health Science Centre (HSC) provide both general surgery for the St. John's region (population 230,000) and tertiary care for the province (population 520,000).

2. There are three rural hospitals in Eastern Health (EH) (catchment population 85,000) at Carbonear, Clarenville, and Burin.

3. Central Health (CH) has two hospitals serving a catchment population of 92,500, one in Gander and the other in Grand Falls-Windsor (GFW).

4. Western Health (WH) has a large hospital in Corner Brook and a small one in Stephenville serving a catchment population of 76,500.

5. There is a surgical unit in St. Anthony (catchment population 10,000) and two in Labrador (population 26,000).

Data

Surgery stays, inpatient and same-day procedures were provided by NL Centre for Health Information (NLCHI) for 2019/20. Procedures were classified as low risk using predetermined codes that signify pre-operative testing is unnecessary, and not-low-risk for the remainder.

Because general and subspecialty surgery is undertaken in both St. Clare's Hospital and the Health Sciences Centre, the data were combined.

Two metrics to measure surgical workload were calculated: surgical stays/surgeon and in-patient not-low-risk surgical procedures/surgeon. Surgeons included gynecologists, but excluded ophthalmologists.

Results

Table 1. Surgery Stays, Inpatient and Same-Day Procedures, Classified by Risk, for the Hospitals in NL

Hospital	Stays	Inpatient Low Risk	Inpatient Not Low Risk	Total Same-Day
St. John's	10,120	1,356	14,671	23,374
Rural Eastern Health				
Carbonear	310	59	307	2,925
Clarenville	247	66	288	1,693
Burin	170	40	188	1,296
Total	**727**	**165**	**783**	**5,914**
Central Health				
Gander	1,001	126	958	4,626
GFW	794	315	965	5,488
Total	**1,755**	**441**	**1,923**	**10,114**
Western Health				
Corner Brook	1,349	354	1628	6,538
Stephenville	109	9	136	1,532
Total	**1,458**	**263**	**1,764**	**8,070**
Labrador-Grenfell Health				
St. Anthony	249	23	303	915
HVGB	141	25	154	328
Labrador City	93	26	105	422
Total	**483**	**74**	**562**	**1,665**

- The annual number of stays ranged from 170–310 and the number of inpatient not-low-risk surgical procedures in the three rural hospitals of EH ranged from 188 in Burin to 307 in Carbonear.

- The number of stays was 1001 in Gander and 794 in GFW and the number of inpatient not-low-risk procedures is almost identical in Gander and GFW.

- Despite a much higher complement of surgeons, the number of stays was 249 and of inpatient not-low-risk surgical procedures was 303 in St. Anthony, compared to 141 and 154 in Happy Valley-Goose Bay (HVGB) and 93 and 105 in Labrador City.

Table 2. The Number of Surgeons and Anesthetists at the Hospitals in NL, With Annual Rates of Surgical Stays and Inpatient Not-Low-Risk Surgical Procedures/Surgeon, 2019/20

Hospital	Surgeons (N)	Gynecologists (N)	Anesthetists (N)	Stays/Surgeon#	Procedures/Surgeon#
St. John's	78	20	33	103	150
Rural Eastern Health					
Carbonear	6	2	4	39	38
Clarenville	2	3	3	49	58
Burin	3	2	2	34	38
Central Health					
Gander	9	3	4	83	80
GFW	8	4	4	66	80
Western Health					
Corner Brook	16	4	7	67	61
Stephenville	1	2	–	109	136
Labrador-Grenfell Health					
St. Anthony	5	2	4	36	43
HVGB	1	1	1	71	77
Labrador City	1	1	1	47	53

includes gynecologists but not ophthalmologists

- Low rates of surgical stays/surgeon were observed in the 3 rural hospitals of EH and 2 in LGH.
- The lowest rate of surgical stays/surgeon was in Carbonear, Burin and St. Anthony, amounting to 0.7 stays/week/surgeon.

Table 3. Number of Procedures Undertaken While in Hospital by Surgical Speciality in the Seven Rural Hospitals, 2019/20

Hospital	Surgery Stays	In Hospital Procedures	General Surgery	Gynecology	Catchment Population (1,000s)
Carbonear	310	371	303	68	40.1
Clarenville	247	354	292	62	26.1
Burin	170	228	164	64	18.8
Stephenville	109	145	145	0	20
St. Anthony	249	322#	129	22	9.3–12
Labrador City	93	131	81	50	9.8
HVGB	141	178	130	48	13.8

includes 124 orthopaedics procedures and 46 ENT procedures.

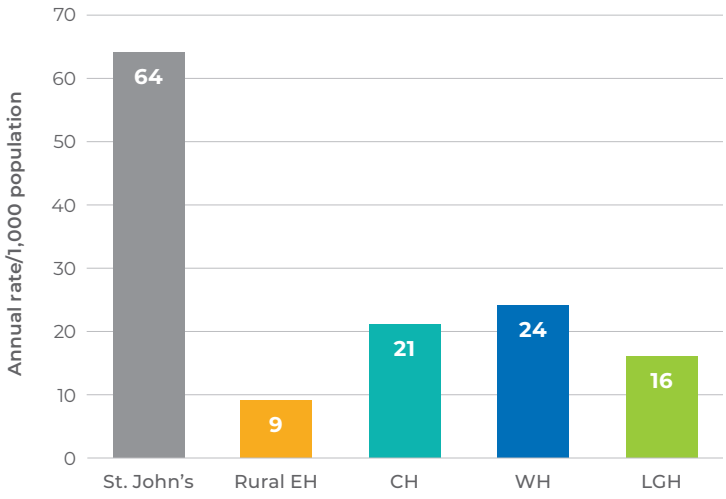


Figure 1. Annual Rate/1,000 Population of In-Patient Not-Low-Risk Surgical Procedures by Region

- The rate of inpatient not-low-risk surgical procedures is high, as anticipated, in St. John's. The rate in the rural hospitals of EH is low compared to CH and WH, implying that many procedures on the people from this region are undertaken in St. John's.
- The rates are similar in CH and WH.
- The rate in St. Anthony is 30, and in the two Labrador hospitals, 10.

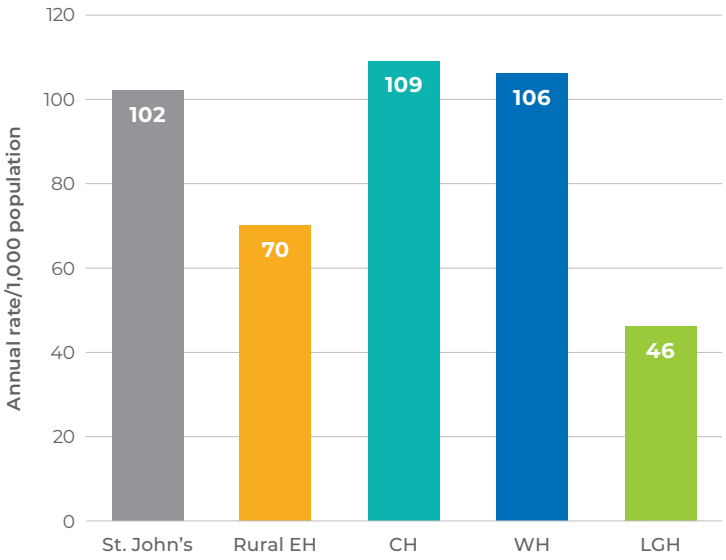


Figure 2. Annual Rate/1,000 Population of Total Same-day Procedures by Region

- The rates of same-day procedures is similar in St. John's, CH and WH.
- The rate in St. Anthony is 92, and in the hospitals in Labrador 29.

Conclusions

1. Because of the small volume of surgery stays, consideration should be given to restructuring surgery services in Clarenville and Burin.
2. Because of concerns about sustainability of services, consideration should be given in CH to planning services in the two hospitals so that there is not unnecessary duplication.
3. The small volume of inpatient surgery procedures undertaken in Stephenville suggests that these could be undertaken in Corner Brook.
4. The disproportion between the number of surgeons and anesthetists, and the number of surgical stays in St. Anthony compared to other rural hospitals is likely unsustainable.

Use of Intensive Care Units in NL

Objective

To determine the utilization, level of complexity, and work force level in the Intensive Care Units (ICUs) of the acute care hospitals in NL.

Practice Points

1. The Tasmania Role Delineation Framework has provided a criteria-based classification system for the level of complexity of individual services in a hospital and the Work Force Level needed to provide this level of complexity.

    a. For ICU, the major problems revolve around trained personnel, access to specialists, and specifically trained allied health professionals and physicians.

2. Objective admission criteria to ICU as recommended by the Society of Critical Medicine include criteria for vital signs and laboratory values (the 'priority model').

Data

The utilization data were obtained from the Canadian Institute for Health Information (CIHI) and the Regional Health Authorities (RHAs), level of complexity and work force level was reported by the RHAs using criteria outlined in the Tasmania Role Delineation Framework, and evaluation of the three rural hospitals of Eastern Health (EH) was provided by Dr. S. Peters.

The data for the evaluation were obtained from Meditech, and included fulfilment of the admission criteria (the priority model) recommended by the Society of Critical Medicine, and interventions undertaken in the first 24 hours of admission to ICU.

Levels of complexity and of work force level range from 2–6, with 6 being the highest.

Results

Table 1. Workforce Level Criteria

Level[#]	Workforce Description
2	• Medical Director with suitable experience and qualifications in an acute care specialty (ICU, ED, Anesthesia) • Access to specialists from relevant disciplines to provide support and consultation as required • Nurse Manager with experience and post registration qualification in either intensive care, high dependency or emergency medicine nursing (or equivalent) • RNs with post registration experience in a critical care environment and minimum requirement of electrocardiography (ECG) interpretation and advanced life support (ALS) competence • A minimum nurse-patient ratio of 1:3 present in the unit • Educational program for nursing staff which may include links with higher level referral centres and tertiary education institutions • Access to technical support staff as required • Access to clinical pharmacist, physiotherapist, pastoral care, social worker, dietician and any other allied health services
3	• Medical director who is either a FRCPC, Critical Care Medicine or has another relevant Specialist Qualification and suitable recent experience in modern intensive care practice • Access to Intensive Care Specialist to ensure patient safety and appropriateness of admission • Physician or Family Physician with appropriate ALS and airway experience • Nurse Manager with post registration qualification in intensive care • RNs with post registration qualification in intensive care or high dependency nursing and have ECG interpretation and ALS competence • A minimum nurse-patient ratio of 1:2.25 or 1:3 (24 hours) (Nursing Hours per Patient Day (NHPPD) HDU model (standalone)

[#] Work force criteria for each level of complexity in ICU services defined by the Tasmania Role Delineation Framework.

table continued on page 117

Table 1 continued

Level[#]	Workforce Description
4	• Medical Director with a full-time commitment to the operation of the unit and who is a FRCPC, Critical Care Medicine • Sufficient registered specialists from relevant disciplines on-call 24 hours, with rostering and call arrangements determined by the Medical Director • In addition to the attending Specialist, at least one on-site physician with appropriate level of experience, airway and ALS skills, rostered for the unit and immediately available at all times to attend the unit • A nurse in charge of the unit who has a post registration qualification in intensive care • All nursing staff in the unit responsible for direct patient care being RNs with the majority of all nurses having a post registration qualification in intensive care • All nurses working in unit must have ECG interpretation, ventilation, invasive line management, and ALS competence at a minimum • A minimum of two RNs present in the unit at all times when there is a patient present in the unit, and this number should be maintained irrespective of Rapid Response Team involvement • Educational programs for both medical and nursing staff which may include links with higher level referral centres and tertiary education institutions • Access to a dedicated unit nursing educator • An orientation program for new staff • A minimum nurse–patient ratio of 1:1 for ventilated and similarly critically ill patients, as per accepted clinical standards for ICUs • A minimum 1:2 nursing ratio for high dependency patients
5	• Minimum 50% of all nursing staff to have post registration qualification in ICU • Each nursing shift requires a designated Clinical Nursing Coordinator and critical care nurse supervisors/educators. The number of critical care nurse supervisors/educators required per shift will vary depending on percentage of qualified staff • Capacity and staffing models adequate to cope with surges in demand for unexpected peaks in emergency referrals, both from within the institution and from referring regional centres • Allied health support, including dedicated, specialized ICU physiotherapists. Recommend 1.0 FTE Senior Physiotherapist per 7 ICU beds OR 1.0 FTE Senior Physiotherapist per 5 HDU beds • A dedicated ICU Specialist Pharmacist. Other pharmacy services including compounding, sterile room services, therapeutic drug monitoring, clinical drug guidelines and protocols • Equipment manager
6	• FRCPC, Critical Care Medicine qualified ICU specialists on-call 24 hours • ICU resident on-site and exclusively rostered to the Unit 24 hours

[#] Work force criteria for each level of complexity in ICU services defined by the Tasmania Role Delineation Framework.

Table 2. Number of ICU Stays and Length of Stay with the Level of Complexity and Work Force Level, 2019/20

Large Hospitals	Stays (N)	Length of Stay (days)	Level of Complexity	Work Force Level	Small Hospitals	Stays (N)	Length of Stay (days)	Level of Complexity	Work Force Level
HSC	2,680	5.9	6	3–6[#]	Carbonear	222	4.2	4	<2
St. Clare's	1,675	3.1	6	<2–6[#]	Clarenville	200	4.0	4	<2
Janeway PICU	158	4.0	5	6	Burin	194	2.3	4	<2
Neonatal ICU	338	19.0	5	6	Stephenville	155	3.1	4	<2
Gander	523	4.4	5	4–6[#]	St. Anthony	330	2.7	4	2
GFW	474	6.2	5	4–6[#]	HVGB	162	2.5	4	2
Corner Brook	585	4.0	5	4	Labrador City	85	3.1	4	2

[#] If workforce components (i.e., medical/nursing/allied health) were discrepant from each other such that an overall workforce level could not be assigned for that site, a range was assigned identifying the levels of the lowest to highest workforce components at that site.

- For the small hospitals, work force level is not commensurate with the level of complexity reported. Relative to the catchment population, the number of admissions to ICU in St. Anthony is high.

- Length of stay varies by hospital. It is 19.0 days at the NICU in the Janeway, which is high in comparison to the national average of 9.9 days.

Table 3. Review of Non-Cardiology ICU Use in the Three Rural Hospitals of EH, 2019/20

	Carbonear	Clarenville	Burin
N evaluated	61	110	42
% admitted from ED	85	38	79
% admitted from OR	5	54	14
% discharged directly home	69	93	81
% with no admission criteron[#]	62	91	74
% intervention with vasopressors/ ventilation/transfusion	23	34	38

[#] No admission criterion as defined by Society of Critical Medicine

- In Clarenville, over half the admissions to ICU were direct from the OR.

- The vast majority in the three hospitals were discharged from ICU to home.

- The majority, particularly in Clarenville, did not fulfill any admission criterion to ICU.

- The majority in the three hospitals had no intervention with vasopressors, ventilation, or transfusion in the first 24 hours of admission to ICU.

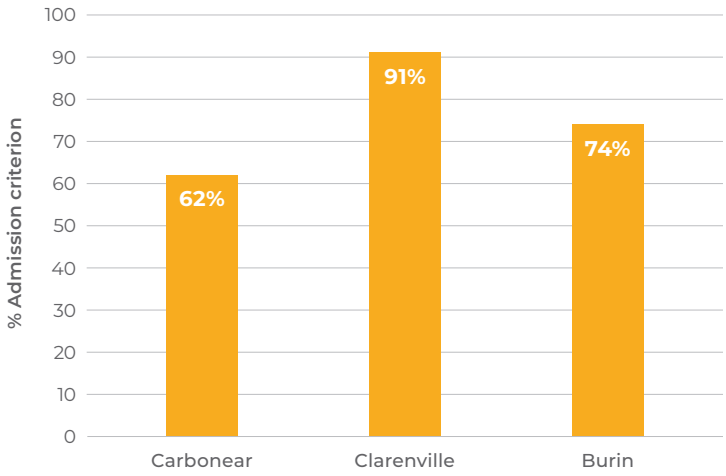


Figure 1. Per Cent With No Admission Criterion to ICU as Defined by the Society of Critical Medicine

Conclusions

1. In the rural hospitals, the number of admissions to ICU reported was small, and the work force level was not commensurate with the level of ICU complexity reported.

2. In the three rural hospitals of Eastern Health, the majority had no criterion consistent with the need for an ICU admission, a minority had an intervention with vasopressors or ventilation or transfusions, and the majority were well enough to be discharged directly home.

3. In Central Health, the total annual number of stays in both Gander and Grand Falls-Windsor was 997, <three/day. Consideration should be given to having one ICU in the region with a Special Care Unit in the other hospital.

4. ICU care is very specialized and should be undertaken in three centres in the province (St. John's, one site in Central, and Corner Brook). Outside St. John's, upgrading of personnel will be necessary.

5. Special care designation should replace ICU in the small hospitals because the work force level is not commensurate with ICU complexity.

Use of Obstetrics Services in NL

Objective

To report the number of deliveries and C-sections in the obstetrics units of NL.

Practice Points

1. In 2020, 3,630 babies were delivered in ten obstetrics units in NL. In the geographically isolated region of Labrador-Grenfell Health (LGH), there are three units and 282 babies were delivered. There is one unit in Western Health (WH) where 425 babies were delivered. The region ranges from Port Saunders (277 km north of Corner Brook), to Port aux Basques (218 km south of Corner Brook).

   Central Health (CH) has two units one travel hour apart and 501 babies were delivered.

   About 80,000 people live in the Tri-Peninsulas region of Eastern Health (EH) and it has three units. The St. John's region, including Placentia and the Cape Shore, has a population of 235,000 and one obstetrics unit.

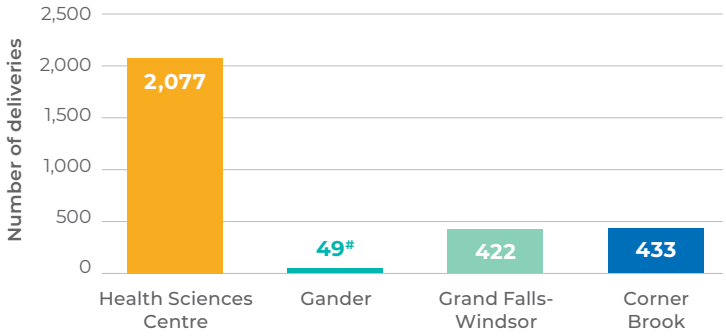
2. Models of obstetrics care vary from the most frequent model, obstetricians, the obstetrician and family physician model in Happy Valley-Goose Bay (HVGB), and a model with obstetricians and midwives in Gander.

3. Small volumes of deliveries in units are a concern for the management of high-risk pregnancies, maintenance of competence, and the sustainability of the program should providers leave.

Data

Utilization data were obtained from Canadian Institute for Health Information (CIHI) for the fiscal year 2019/20.

Results



#For some of this year, deliveries were diverted from Gander to Grand Falls-Windsor. The number of deliveries in CH was 471.

Figure 1A. Annual Number of Deliveries in the Large Hospitals, 2019/20

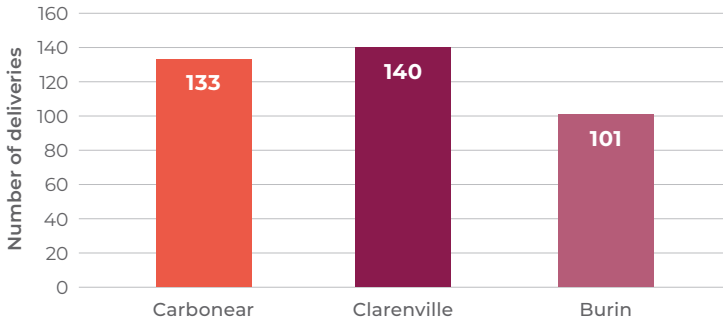


Figure 1B. Annual Number of Deliveries in the Three Rural Hospitals of EH, 2019/20

- The annual number of deliveries in the three rural hospitals was low. Despite a catchment population of at least 40,000 people, there were only 133 deliveries in Carbonear.

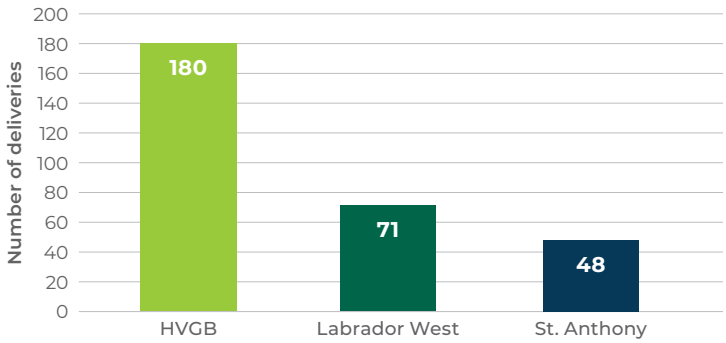


Figure 1C. Annual Number of Deliveries in LGH Hospitals, 2019/20

- The number of deliveries in Labrador West and St. Anthony was low.

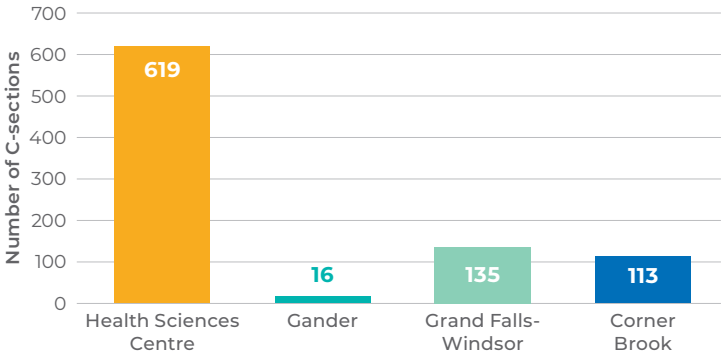


Figure 2A. Annual Number of C-Sections in the Large Hospitals, 2019/20

- The per cent of deliveries by C-section was 30% in St. John's, 29% in CH, and 26% in Corner Brook.
- The Canadian rate is 28%.

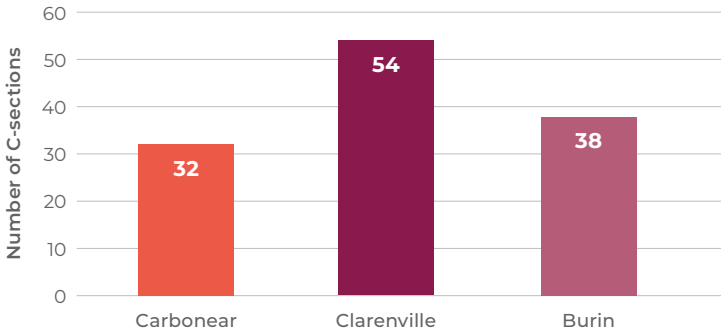


Figure 2B. Annual Number of C-Sections in the Three Rural Hospitals of EH, 2019/20

- The C-section rate was 24% in Carbonear, 39% in Clarenville and 38% in Burin.

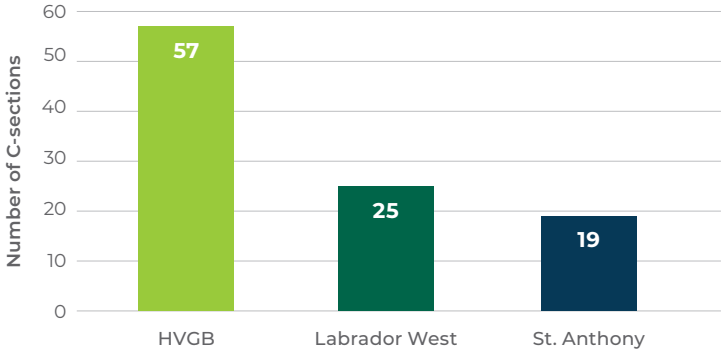


Figure 2C. Annual Number of C-Sections in the Three LGH Hospitals

- C-section rate in HVGB 32%, in Labrador City 35%, and in St. Anthony 40%.

Table 1. Distance to Next Nearest Obstetrics Unit

Area	Distance (km)
Carbonear to St. John's	112
Clarenville to St. John's	196
Burin to Clarenville	192
Gander to Grand Falls-Windsor	98
St. Anthony to Corner Brook	466
Labrador City to HVGB	531

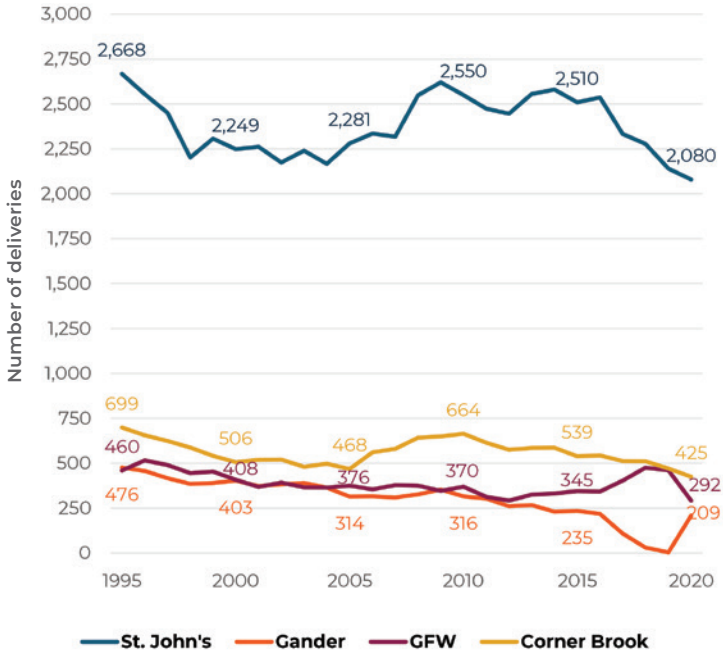


Figure 3A. Deliveries Over Time From 1995 to 2020 in the Large Hospitals

- The reduction in deliveries over the past 25 years was 22% in St. John's, 39% in Corner Brook, and 28% in Central.

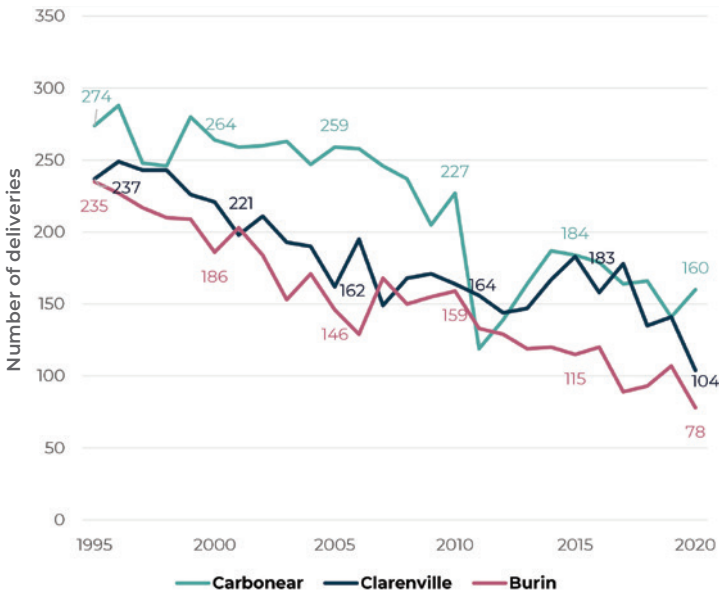


Figure 3B. Deliveries Over Time Since 1995 in the Three Rural Hospitals of EH

- In 2020, there were 360 deliveries from the catchment population of Carbonear, but only 160 deliveries in Carbonear Hospital with the majority in St. John's.
- The reduction in deliveries in the 3 rural hospitals was 42% in Carbonear, 56% in Clarenville, and 67% in Burin.

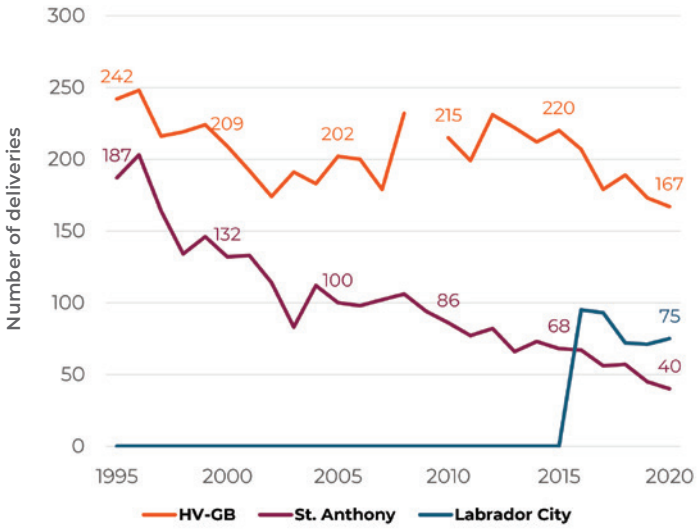


Figure 3C. Deliveries Over Time Since 1995 in the Three Hospitals in LGH

- The reduction in deliveries in HVGB over 25 years was 31% and in St. Anthony it was 79%.

Conclusions

1. Consideration should be given to one obstetrics unit in CH.
2. The small volume of deliveries in St. Anthony and Labrador City is a concern, whatever the model of obstetrics.
3. Because of concern about sustainability of obstetrics service in Burin, consideration should be given to a central unit in Clarenville with outreach to Burin.
4. Consideration should be given to outreach services from St. John's to Carbonear. Continuation of obstetric services in Carbonear would be feasible if more mothers went to Carbonear Hospital rather than St. John's.

Psychotropic Drug Use at the Health Sciences Centre and St. Clare's Hospital

Choosing Wisely Canada Recommendations

1. Don't initiate or escalate opioid doses for non-cancer pain before optimizing non-opioid pharmacotherapy and non-pharmacological therapy.

2. Don't use antipsychotics as first choice to treat behavioural and psychological symptoms of dementia.

3. Don't routinely prescribe benzodiazepines or other sedative-hypnotics for promotion of sleep without first a trial of non-pharmacological interventions.

4. Don't use benzodiazepines or other sedative-hypnotics in older adults as first choice for insomnia, agitation, or delirium.

Practice Points

1. Opioids are not more effective than other analgesics for certain chronic pain conditions, and the risks of opioid treatment support the use of non-opioid therapy.

2. Use of antipsychotics should be limited to patients who pose an imminent threat to themselves or others where non-pharmacological measures have failed.

3. Use of benzodiazepines should be reserved for alcohol withdrawal symptoms/delirium tremens or severe generalized anxiety disorder that is unresponsive to other therapies.

Data

This was obtained from electronic drug repository, Pyxis, used in the St. John's acute care hospitals for the calendar year 2020.

The COVID-19 epidemic started 16 Mar 2020. The monthly Defined Daily Dose (DDD)/1,000 patient days for oral and IV use of opioids, antipsychotics, and benzodiazepines (excluding psychiatry) was calculated for the Health Science Centre (HSC) and St. Clare's Hospital (SC).

Results

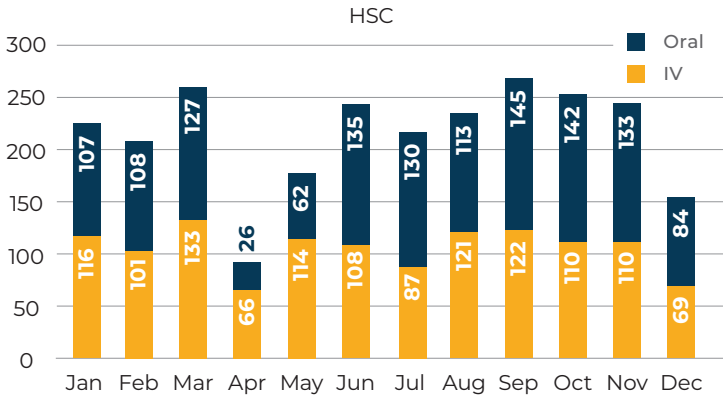


Figure 1A. DDD/1,000 Patient Days of Intravenous and Oral Opioids at the HSC Each Month, 2020

- The average monthly DDD/1,000 patient days for oral opioids for 2020 at the HSC was 109 and for intravenous opioids was 105. The ratio of oral:IV use was 1.05.

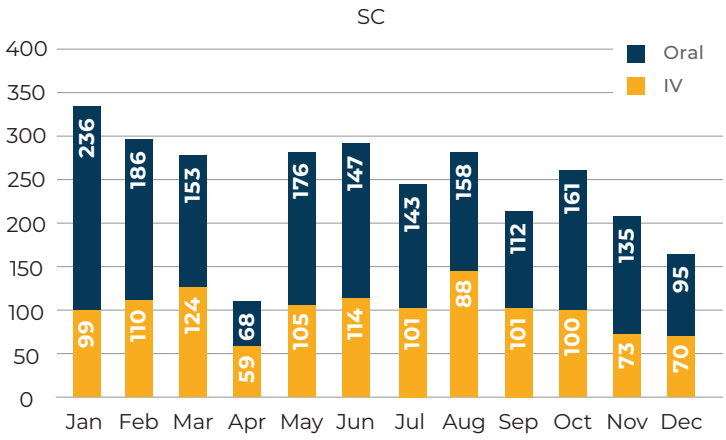


Figure 1B. DDD/1,000 Patient Days of Intravenous and Oral Opioids at St. Clare's Hospital Each Month, 2020

- The average monthly DDD/1,000 patient days for oral opioids at St Clare's was 147 and for intravenous opioids was 95. The ratio of oral:IV use was 1.55.

- Opioid use decreased in Apr 2020 in both hospitals at the start of COVID-19 epidemic.

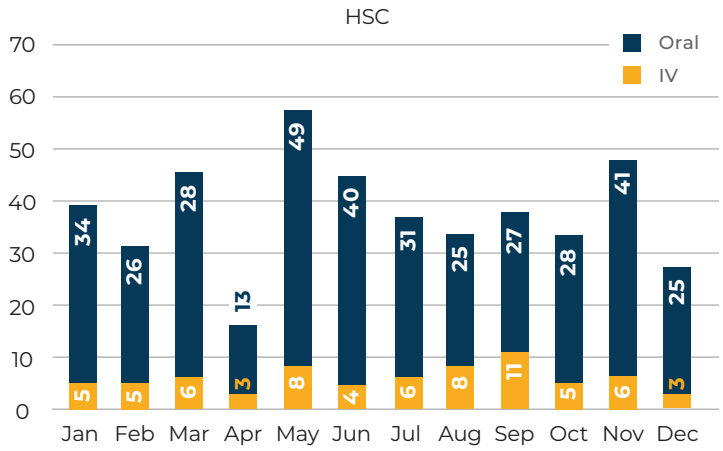


Figure 2A. DDD/1,000 Patient Days of Intravenous and Oral Antipsychotics at the HSC Each Month, 2020

- The average monthly DDD/1,000 patient days for oral antipsychotics at the HSC was 31 and for IV antipsychotics was 6. The ratio of oral:IV use was 5.4.

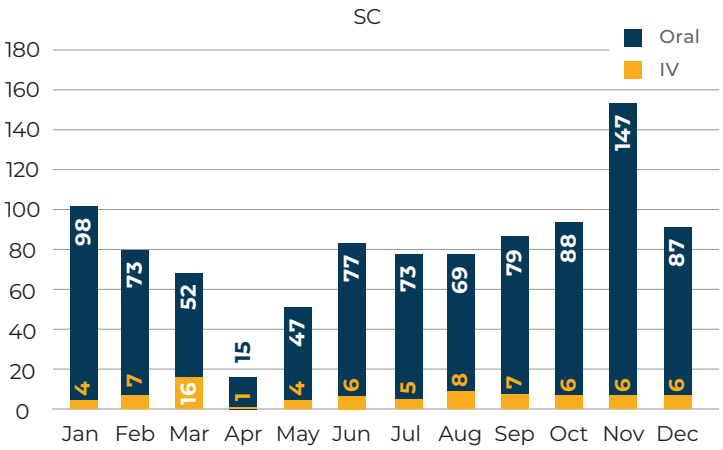


Figure 2B. DDD/1,000 Patient Days of Intravenous and Oral Antipsychotics at St. Clare's Hospital Each Month, 2020

- The average monthly DDD/1,000 patient days for oral antipsychotics at St Clare's Hospital was 75 and for IV antipsychotics was 6. The ratio of oral:IV use was 11.9.
- The DDD/1,000 patient days at the HSC for both intravenous and oral antipsychotics fell during Apr, the first month of the COVID-19 epidemic, in both hospitals.

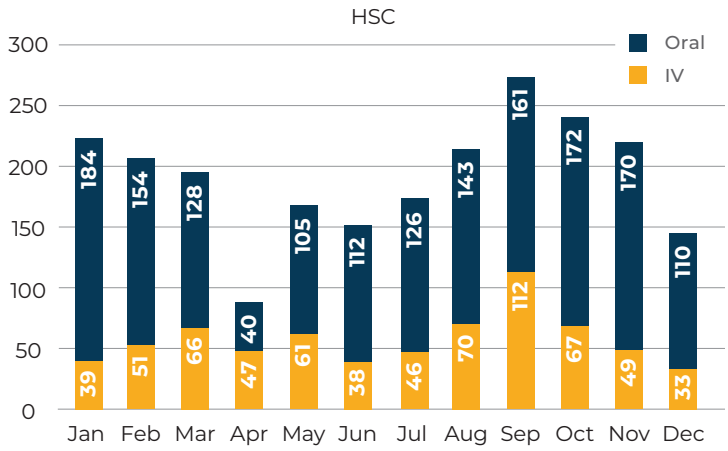


Figure 3A. DDD/1,000 Patient Days of Oral and IV Benzodiazepines Each Month at the HSC, 2020

- The average monthly DDD/1,000 patient days for oral benzodiazepines at the HSC was 134 and for IV was 57. The ratio of oral:IV use was 2.4.

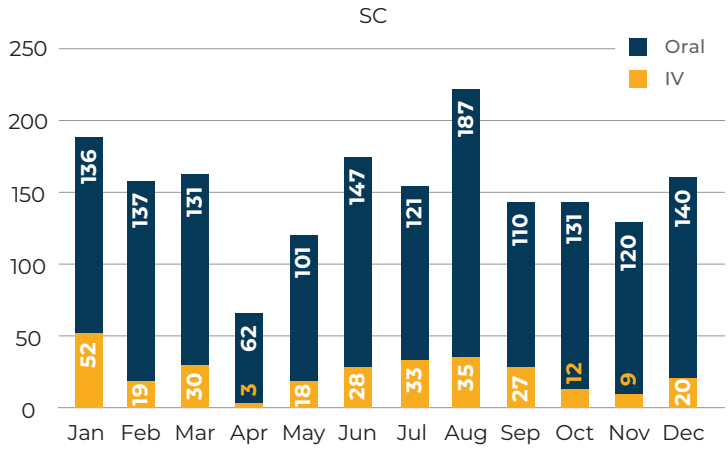


Figure 3B. DDD/1,000 Patient Days of Oral and IV Benzodiazepines at St. Clare's Hospital Each Month, 2020

- The average monthly DDD/1,000 patient days for oral benzodiazepines at St. Clare's was 127 and for IV 24. The ratio of oral:IV use was 5.3.
- The use of benzodiazepines fell in both hospitals in Apr 2020 at the start of COVID-19.

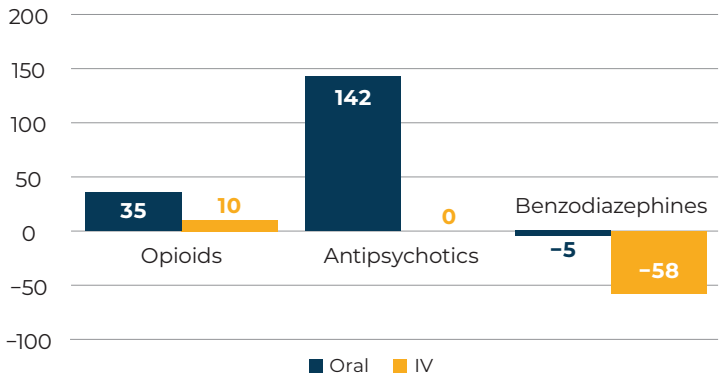


Figure 4. Percent Differences in the Average Monthly DDD/1,000 Patient Days for Oral and IV Opioids, Antipsychotics, and Benzodiazepines at St. Clare's Hospital Compared to the HSC

- The use of opioids and antipsychotics was higher at St. Clare's, but benzodiazepine use was lower compared to the HSC.

Conclusions

1. This data, using DDD/1,000 patient days, permits a comparison of opioid and psychotropic drugs at HSC and St. Clare's Hospital. It also serves as a baseline to assess the impact of future interventions to optimize drug use.

2. Use of oral opioids was higher at St. Clare's Hospital than at the HSC. IV use was nearly as high as oral use at HSC and similar to that at St. Clare's.

3. Use of antipsychotics was higher at St. Clare's Hospital than at the HSC. Antipsychotics were usually administered orally.

4. Use of IV benzodiazepines was 58% lower at St. Clare's Hospital compared to HSC.

5. Use of all three drugs fell in both hospitals during the first month of COVID-19.

The Epidemiology of Alternate Level of Care in Acute Care Institutions in NL

Objective

To determine the extent of Alternate Level of Care (ALC) in hospitals and health centres over time and by region, together with the reason.

Practice Points

1. ALC is provided when a patient no longer needs acute care, but is unable to be discharged. It may result from increased frailty following admission, frailty already present on admission, a deficit of long-term care beds, or insufficient availability of home supports.

2. Geriatric services aimed at preventing deterioration or improving health in the frail elderly may be helpful in decreasing ALC length of stay (LOS).

Data

These were obtained the Canadian Institute for Health Information (CIHI) and the Department of Health and Community Services.

Results

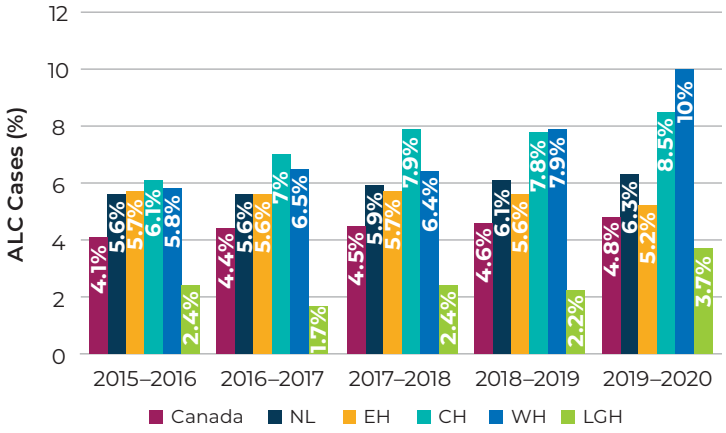


Figure 1. Per Cent of Admissions Designated ALC by Region, 2015/16–2019/20

- In 2019/20 in NL, 6.3% of admissions were associated with ALC compared to 4.8% in Canada.

- The percentage of ALC varied by region: Eastern Health (EH) 5.2%, Central Health (CH) 8.5%, Western Health (WH) 10.0 %, and Labrador-Grenfell Health (LGH) 3.7%.

- The number of cases designated as ALC in the province for 2015/16 was 2,995. Five years later the number increased by 10.4% to 3,306.

- In EH, there was a decrease of 10%, from 1,876 to 1,689.

- In CH, there was an increase of 24.3%, from 518 to 644.

- In WH, there was an increase of 9.4% from 508 to 588 cases.

- In LGH, there was an an increase of 44.1% from 93 to 134.

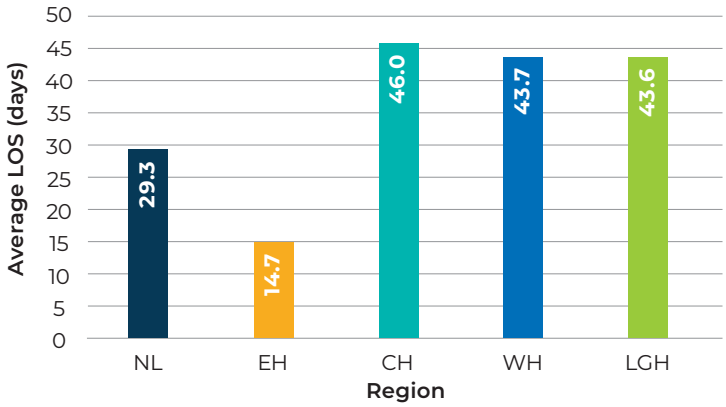


Figure 2. Average Length of ALC Stay (Days) by Region, 2019/20

- NL's ALC LOS was higher than the Canadian average of 24.2 days.

- ALC LOS in EH was low, but in CH, WH, and LGH it was much higher.

- Compared to 2015/16, average ALC LOS in the province increased by 12.7% in 2019/20.

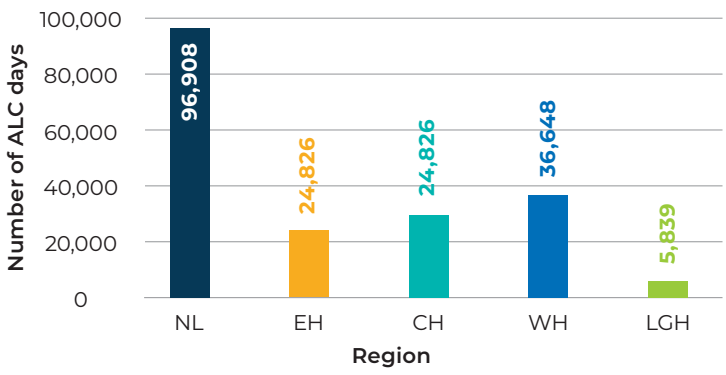


Figure 3. Number of ALC Days by Region, 2019/20

- In 2019/20, the number of ALC days was highest in WH, despite a smaller catchment population than CH. The number was smaller in EH than in either CH or WH, despite a much bigger catchment population.

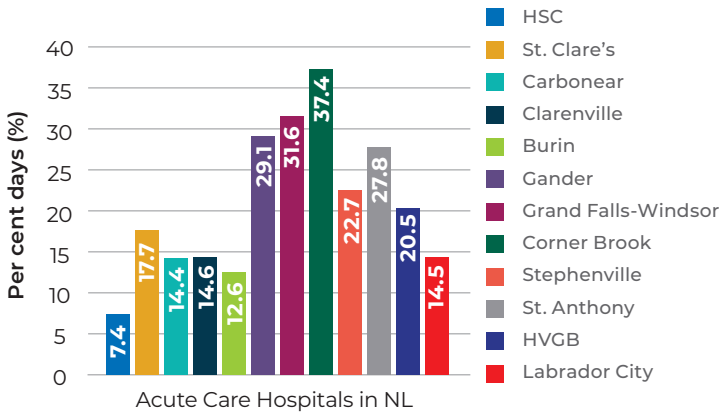


Figure 4. Per Cent Days That Were ALC in the 12 Adult Acute Care Hospitals of NL, 2019/20

- Per cent ALC was very high in Gander, Grand Falls-WIndsor, Corner Brook, and St. Anthony.

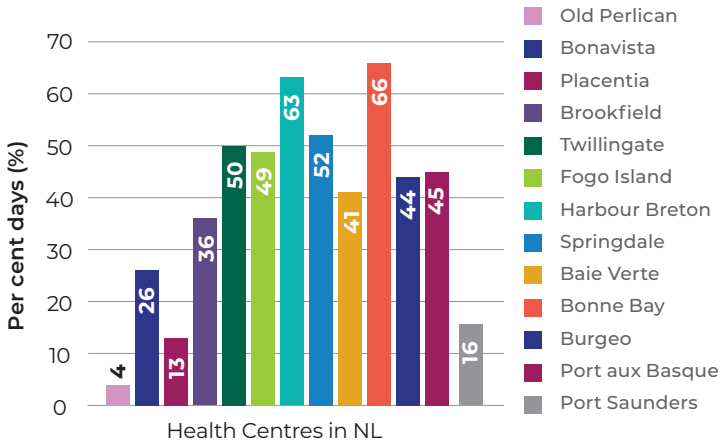


Figure 5. Per Cent Days That Were ALC in the Acute Care Beds in the Health Centres of NL, 2019/20

- The percentage of ALC in the health centres was >15%, except for that in Old Perlican and Placentia.

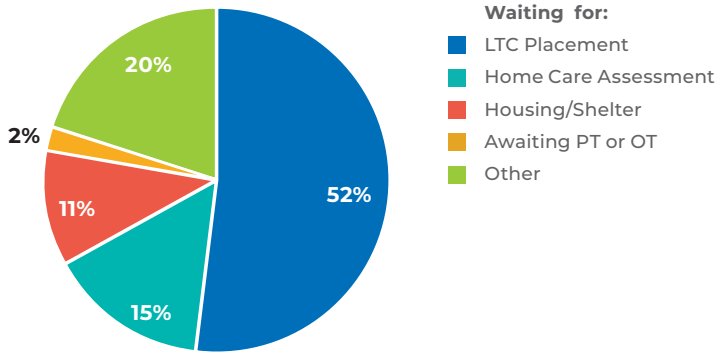


Figure 6A. Reason for ALC in EH, 28 Feb 2021

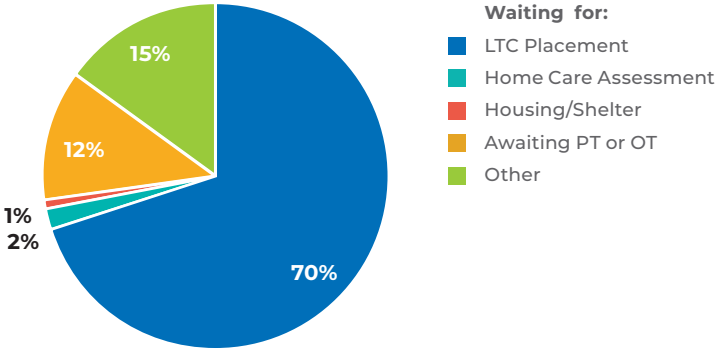


Figure 6B. Reason for ALC in CH, 28 Feb 2021

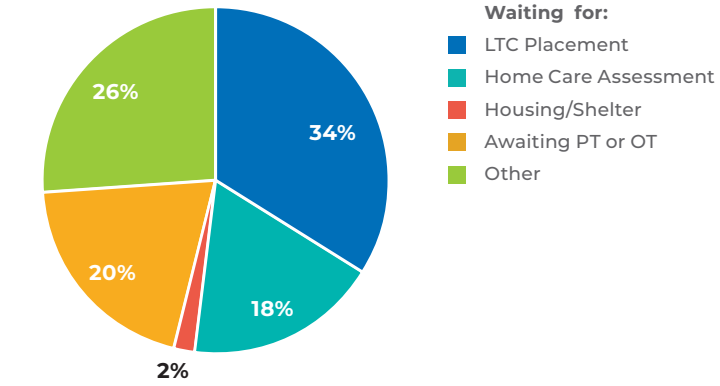


Figure 6C. Reason for ALC in WH, 28 Feb 2021

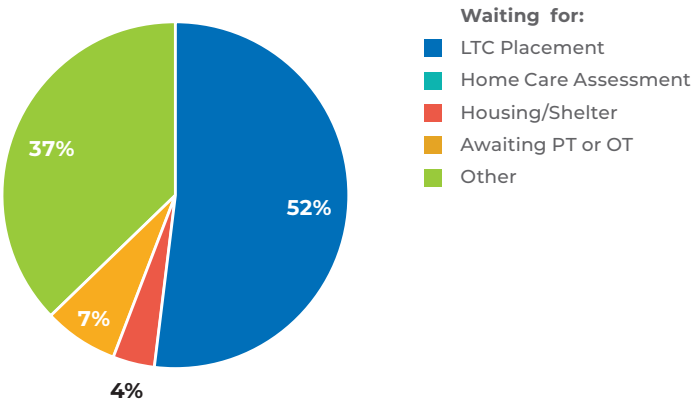


Figure 6D. Reason for ALC in LGH, 28 Feb 2021

- Awaiting placement in long-term care (LTC) was the biggest reason for ALC (53% of cases in the province).
- Other reasons differed by region. In EH, the next two biggest reasons were awaiting home care assessment and housing/shelter. In CH, the reasons were awaiting PT/OT or home supports. In WH, the reasons were awaiting home care assessment or PT/OT.

Conclusions

1. The percentage of cases admitted to an acute care institution and designated ALC and the average ALC LOS were higher in NL than in Canada.
2. ALC was a big problem in both the hospitals and health centres of CH and WH.
3. The major reason for ALC was awaiting LTC placement. Other reasons differed by region, including awaiting home care assessment, housing/shelter, or PT/OT. It is anticipated that the new LTCF beds in CH (N=140) and in WH should improve the ALC problem.
4. Improved access to LTC is necessary, along with adequate geriatric services to prevent deterioration in hospital and to treat the frail elderly.

Quality of Care NL

Hysterectomy Rates in Regional Health Authorities: Input from Central Health

Objective

To provide information from Central Health (CH) on the interpretation of hysterectomy rates in CH.

Practice Points

1. In Practice Points Vol. 8, pp 85–86, we reported hysterectomy and partial hysterectomy rates in the four Regional Health Authorities (RHAs), and expressed concern about the coding of partial hysterectomy.

2. CH had the lowest rate of hysterectomy and the highest rate of partial hysterectomy of the four RHAs. The rates of partial hysterectomy were inconsistent with clinical practice and coding definitions at Canadian Institute for Health Information (CIHI).

Results (Dr. S. Parsons, CH Gynecologist)

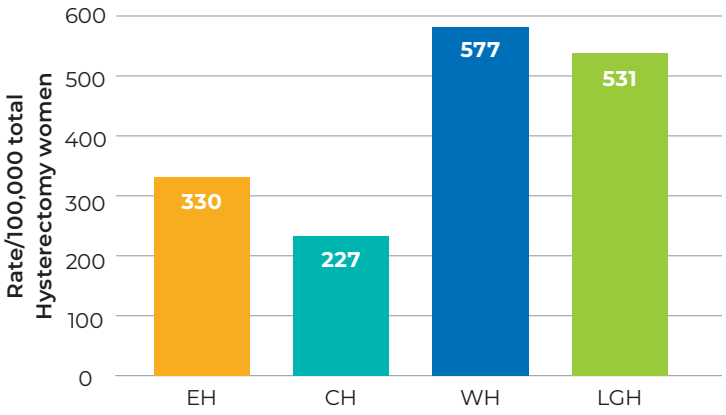


Figure 1. Age Standardized Rates/100,000 of Total Hysterectomy Women Aged ≥18 Years by RHA for 2018 (CIHI)

- The lowest rate of total hysterectomy was reported in CH.
- 95% of hysterectomies in CH are minimally invasive (total vaginal or total laparoscopic hysterectomy) with one night length of stay.
- Age-standardized rate of total hysterectomy/100,000 women ≥18 years in CH is 227, 24% lower than the Canadian rate (298).

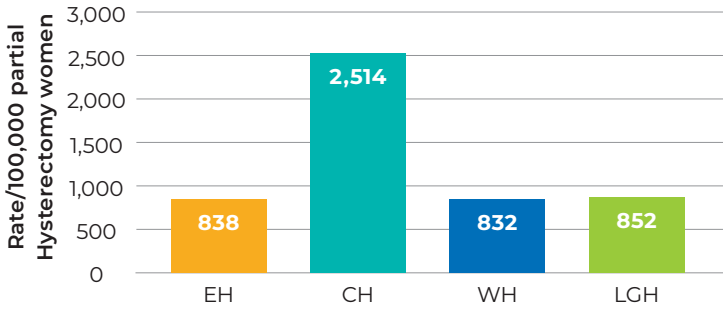


Figure 2. Age-Standardized Rates of Partial Hysterectomy/100,000 Women Aged ≥18 Years by RHA for 2018 (CIHI)

- CH had three times the rate of partial hysterectomy, compared to the other regions.
- It is likely that in CH, hysteroscopy is coded as partial hysterectomy. Hysteroscopy is a diagnostic procedure to investigate uterine problems, usually uterine bleeding.

Table 1. Process for Investigation of Uterine Problem in CH

	Process for Investigation of Uterine Problem in CH
1	One visit for consult, hysteroscopy, endometrium sampling, counselling. Little pelvic imaging.
2	On return of pathology results (within 2 weeks), decision on therapeutic options.
3	Benefits: One visit for the patient. Hysteroscopy is well tolerated. Maximizes choice of more conservative options (oral contraceptive pill, Intra-uterine device, or endometrial ablation) rather than hysterectomy.

Conclusions

1. In CH, the high rate of partial hysterectomy is the result of mis-coding of hysteroscopy, a diagnostic procedure integrated into the process of investigation of uterine problems in CH.

2. Hysterectomy rates are 24% lower in CH compared to the Canadian average, associated with a management process that facilitates conservative therapeutic options for uterine bleeding.

Rural-Urban Differences in Suicide Mortality: An Observational Study in NL

Objective

To examine the demography, circumstances of death, and social and clinical characteristics of people who died by suicide in rural compared to urban areas.

Practice Points

1. The suicide rate in Canada declined by 24% between 1981 and 2017.
2. In Canada and other high income countries, suicide mortality varies geographically, with higher rates in rural areas compared to cities, especially among males.
3. Historically, NL has had one of the lowest suicide rates in the country.
4. The suicide rate in NL has increased steadily over the past four decades, and is two times higher in rural communities compared to urban areas.
5. Risk factors for suicide among rural populations include social isolation, limited access to mental health services, and increased access to highly lethal means such as firearms.

Methods (PIs: Nathaniel J. Pollock*)

1. An observational study of all suicide deaths (N=972) among residents of NL between 1997 and 2016 was conducted.
2. The Suicide Database, developed by NLCHI, was the primary data source for the study.
3. Data were derived from a comprehensive review of provincial medical examiner records and included variables on demography, circumstances of death, and social and clinical characteristics.
4. Rural/urban status was determined by postal code. This was available in 919 (95%) decedents. Urban included St. John's Metro area, Gander, Grand Falls-Windsor, and Corner Brook; all other communities were defined as rural.

*Charlene Record, Nicole D. Power, Keeley Hatfield, Yordan Karaivanov, Shree Mulay, and Margo Wilson

Results

- 81% of people who died by suicide were male (n= 746) and 51% (n=504) were from rural areas.
- The mean age was 41.3 in rural vs 44.2 in urban.
- Mean blood alcohol content at the time of death was significantly higher among people from rural areas compared to urban (28 vs. 23 mmol/L).

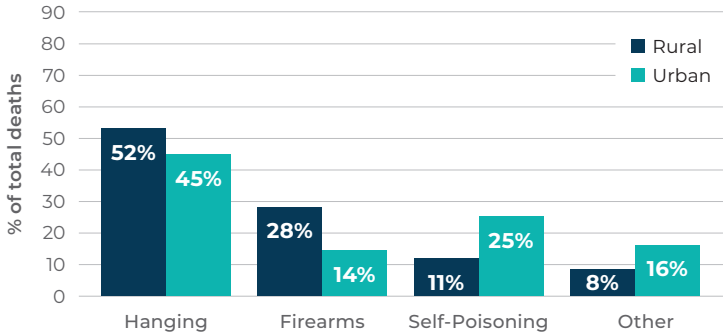


Figure 1. Suicide Deaths by Rural/Urban Status and Method, 1997–2016

- The method of suicide was by hanging in nearly half of cases, proportionately more used firearms in rural areas, and more used self-poisoning in urban areas.

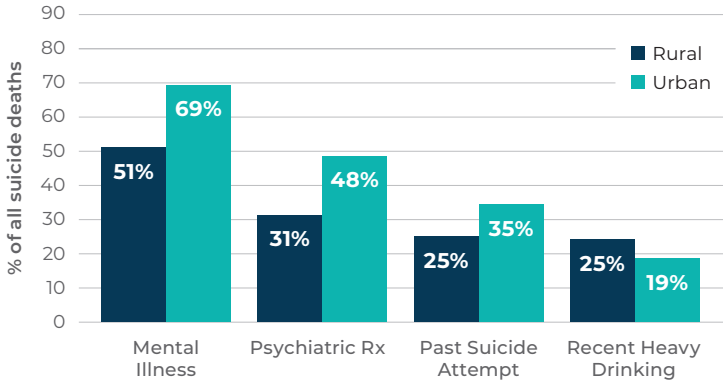


Figure 2. Suicide Deaths by Rural/Urban Status and Select Clinical Characteristics, 1997–2016

- Suicide was associated less with mental illness in rural areas than in urban areas.

Conclusions

1. Compared to urban decedents, rural people who died by suicide in NL were younger, more likely to have used firearms, and less likely to have a prior suicide attempt or diagnosed mental illness.
2. The differences between rural and urban people who died by suicide underscores the need for approaches to suicide prevention that are tailored for each context.

Public Awareness of Inappropriate Medications in the Senior Population

Choosing Wisely Recommendations

1. Don't use benzodiazepines or other sedative-hypnotics in older adults as first choice for insomnia, agitation, or delirium.

2. Don't maintain long-term proton pump inhibitor (PPI) therapy for gastrointestinal symptoms without an attempt to stop/reduce PPI at least once per year in most patients.

Practice Points

1. NL has some of the highest use of potentially harmful medications across the country, including sedatives and PPIs. The long-term use of these medications continues to rise.

2. Only 17% of patients prescribed "reflux medications" and 15% prescribed "sleeping pills" recall their physician, pharmacist, or nurse practitioner talking to them about deprescribing their reflux medication or sleeping pills in the previous 12 months.

3. The Canadian Deprescribing Network (CaDeN) and SaferMedsNL bring together patient advocates, community organizations, health care professionals, and academic researchers to improve medication use through deprescribing (or safely stopping) potentially harmful or unnecessary medications.

4. SaferMedsNL is raising public awareness about the benefit and harms of medications in NL with a province-wide public awareness campaign to promote meaningful conversations between health care professionals and patients to ensure medications are continued when necessary and safely stopped when they are no longer needed.

Data

A Public survey was conducted by the Canadian Deprescribing Network and SaferMedsNL to ask people aged ≥ 65 years (n=2,300 across Canada, n=443 across NL) about medication safety.

Results

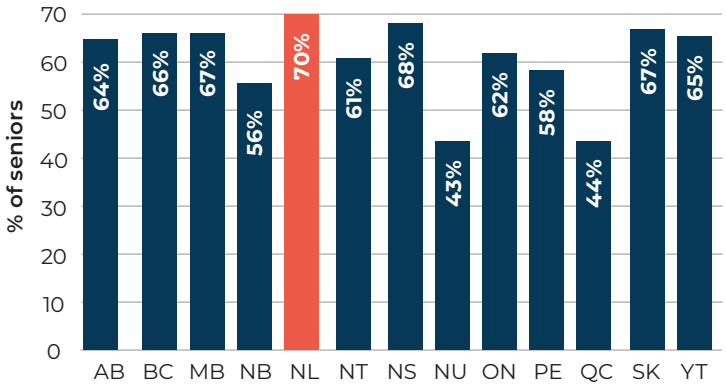


Figure 1. Per Cent of Seniors who had Heard that Some Medications Might be Harmful When Prescribed to Seniors, by Province, 2020

- In 2020, NL was the province with the highest awareness that some medications, such as long-term use of PPIs and sedatives, can be harmful when used by seniors (70%).

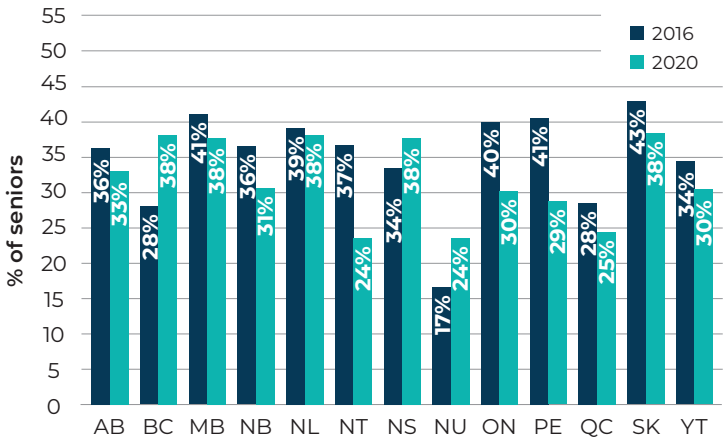


Figure 2. The Proportion of Seniors Who Knew Sleeping Pills may be Harmful if Overused, by Province, 2016 vs 2020

- In NL, between 2016 to 2020, there was no significant change in the number of seniors who know that "sleeping pills" may be harmful: 39% in 2016 to 38% in 2020.

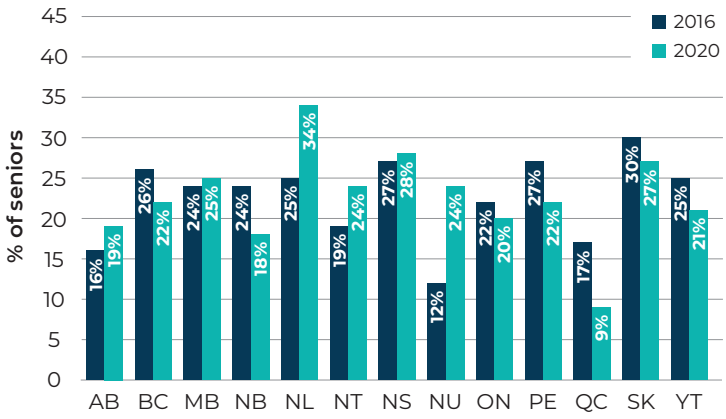


Figure 3. The Proportion of Seniors Who Knew Reflux Medications may be Harmful if Overused, by Province, 2016 vs 2020

- There was a significant increase in the number of seniors in NL who knew reflux medications may be harmful if overused, increasing from 25% in 2016 to 34% in 2020.

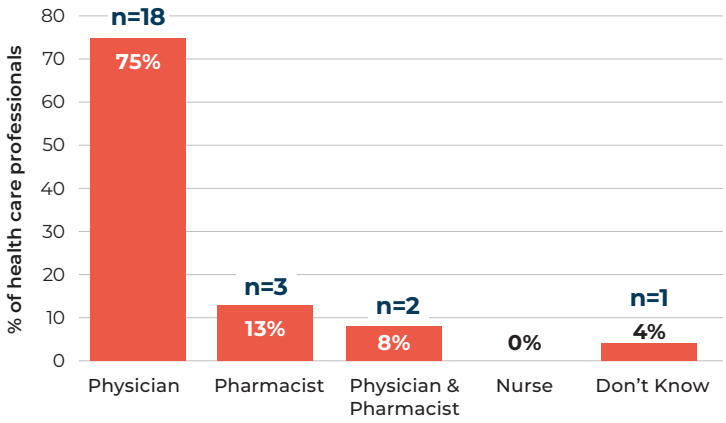


Figure 4. The Healthcare Professions that Talked to Patients About De-prescribing, 2020

- When participants who were taking reflux medications or sleeping pills recalled that a health care professional advised them to stop their medications, the majority of the time they remembered it was a Physician who provided this advice.

Conclusions

1. Despite a high awareness of the harmful effects of prescription medications, NL has a high rate of long-term use of benzodiazepines (80/1,000 using them >3 months) and PPIs (267/1,000 people using them ≥ 12 months) in the senior population.

2. Awareness of the inappropriate or harmful use of specific medications, such as sedative-hypnotics and PPIs, remains low. Future public awareness campaigns are planned and aim to increase awareness.

3. Although Choosing Wisely Canada recommends against long-term use of sedatives and PPIs in most older adults, few patients remember their health care provider talking to them about stopping their medications.

The Eastern Health Diversity Project: Examining Needs and Establishing Priorities

Objective

To examine patient and provider perspectives on the provision of effective and culturally competent care within Eastern Health (EH), focusing on two marginalized patient populations – the Indigenous and refugee communities of NL.

Practice Points

1. Inclusion is an important determinant of health.
2. Exclusion is a reality for many marginalized groups, particularly in the health system.
3. Solutions to exclusion include education and an organizational culture of cultural safety.

Methods (PI: Dr. F. Brunger)

In-depth, extensive interviews with patients and families, diversity service workers, health providers, and health decision makers were conducted to determine the gaps and strengths in health care delivery with respect to cultural competency and safety.

Results

A. Indigenous Patients

- The infrastructure, programming, and leadership within EH experienced by patients primarily through the Aboriginal Patient Navigator Program is stellar.
- The experiences of patients of being marginalized by, and having mistrust in, the health care system in general are strong.
- Repeated stories of patients being subjected to discrimination and racism by front-line workers.
- Mistrust in health care is a pan-provincial experience of being resettled to receive care in the St. John's region, not solely mistrust of EH.

B. Refugee Newcomer

- Patients feel that health care providers want to help them.
- Front-line workers are concerned that they are inadvertently providing substandard care.
- Providers and decision makers want to help and want to do the right thing. They do not know what to do and do not know where to turn for advice and support.
- The key theme in terms of access to health care for refugee patients was connecting various diverse pieces of ad hoc programming, and having a structure and leadership to implement and drive practices, policies, and programs to support culturally safe care.

Recommendations to EH

1. Some of the solutions to mistrust in the health care system experienced by Indigenous patients will need to be pan-provincial.
2. There is a need for leadership, structured program and policy development, consistency and communication of practice, and direction and support for health care providers.

Conclusions

1. Create an Obvious Governance and Leadership Structure

Have centralized leadership and oversight of a system-wide approach
Enable community partners to guide EH's decision making
Recognize and sanction diversity champions and initiatives
Evaluate programs and measure success
Communicate and coordinate services
Support capacity building

2. Educate Health Care Providers

Make information about patient populations easily available
Ensure that information about patient populations is not essentialising
Schedule training to mesh with staff schedules and time constraints
Emphasise cultural safety and humility
Plan training in partnership with community-embedded experts

3. Carefully Consider the Vision for Refugee Patient Navigation

4. Provide Sufficient Professional Interpretation Throughout the EH Region

Educate staff about the use of the telephone interpretation system
Make the telephone interpretation service more widely available
Train providers in how to work with interpreters
Ensure in-person interpreters are professional (trained and paid)
Expand availability of interpreters for Innu patients

5. Promote an Organizational Culture of Cultural Safety by Emphasising Cultural Humility and Relations of Power

Reflect on EH's place in the context of ongoing colonial oppression
Support education about and acceptance of traditional healing modalities
Notice places of marginalization, and create spaces
Create alternatives to the fee-for-service pay structure for physicians
Acknowledge and provide opportunity for unpaid informal volunteers
Reverse the order of who holds the knowledge

Knowledge of and Adherence to Radiographic Guidelines for Low Back Pain: A Survey of Chiropractors in NL

Objective

To determine the level of knowledge, adherence to and beliefs about clinical practice guidelines related to the use of lumbar radiography for low back pain (LBP) in NL.

Practice Points

1. LBP due to serious pathology (e.g., tumour, infection, inflammatory arthropathy) is rare; most cases of LBP are considered non-specific, with no pathoanatomical cause.

2. Radiography is not recommended for the management of LBP in the absence of red flags (i.e., signs/symptoms of serious pathology).

3. In the chiropractic profession, lumbar spine radiography utilisation rates vary widely worldwide from 25 to 93%.

Methods

1. All chiropractors registered in NL were invited to participate in an online survey from May–June 2018. 49 of 52 chriopractors responded.

2. The survey consisted of demographic questions, questions on participants' awareness of published guidelines, and questions related to their beliefs about lumbar spine radiographs for LBP.

3. Written clinical vignettes were used to assess participants' level of adherence to LBP guideline recommendations on the use of lumbar spine radiography. The vignettes were designed to reflect patients who typically present to chiropractors with acute LBP.

Results

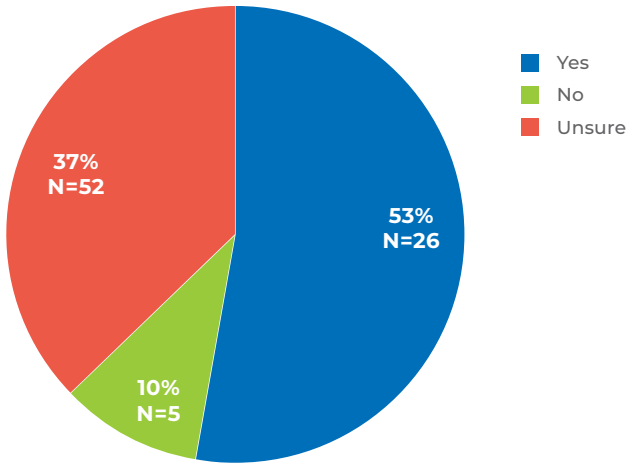


Figure 1. Awareness of Current Radiographic Guidelines for LBP

- 53% of the participants (26 of 49) were aware of current radiographic guidelines for LBP, 10% were not, and 35% were unsure.

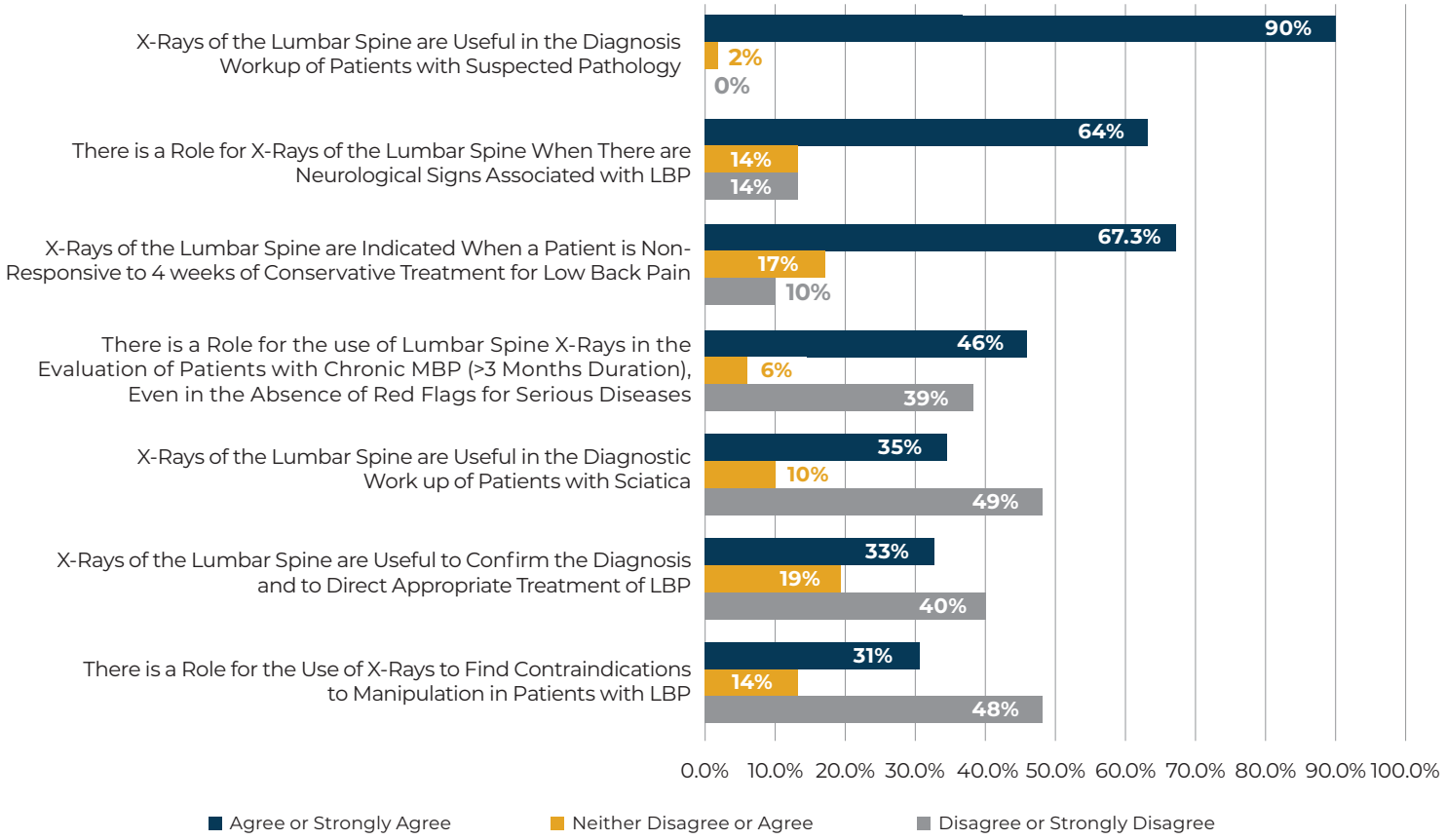


Figure 2. Level of Agreement with Statements on Lumbar Spine X-Rays by Chiropractor

- The majority of participants agreed that lumbar spine radiography is useful for patients with suspected pathology, are indicated when a patient is non-responsive to 4 weeks of conservative treatment, and when there are neurological signs associated with LBP. However, there were less unified beliefs for the role of lumbar spine radiography for chronic LBP, sciatica, to confirm a diagnosis and direct a plan of management, and to identify contraindications for spinal manipulative therapy.

- According to the clinical vignettes, adherence to radiographic guidelines was estimated at 75% (where no radiography was chosen when not indicated by guidelines).

Conclusions

1. Chiropractors in NL demonstrated generally unified beliefs about the role of lumbar spine radiography for the management of LBP.

2. A small proportion still hold beliefs about radiographs for LBP that are discordant with current radiographic guidelines.

3. Future research should aim to determine barriers to guideline uptake in order to design knowledge translation strategies to reduce unnecessary imaging for LBP.

Exploring Factors Influencing Chiropractors' Adherence to Radiographic Guidelines for Low Back Pain

Objective

To use the Theoretical Domains Framework (TDF) to explore perceived barriers and enablers to low back pain (LBP) radiographic guideline adherence with and management of LBP without x-rays among chiropractors in NL.

Practice Points

1. Most LBP is not due to specific pathology, and most clinical practice guidelines for the management of LBP recommend against the use of routine imaging, including lumbar radiography.

2. Based on our previous work, a small proportion of NL chiropractors identified beliefs discordant with current guidelines for LBP radiography, indicating a need to explore factors influencing their beliefs and actions.

3. The TDF contains 14 theoretical domains and was developed to understand the drivers of and barriers to health care providers' clinical behaviours.

Methods

1. We conducted two focus groups with a convenience sample of chiropractors in NL. These groups were interviewed to identify perceived barriers and enablers to LBP guideline adherence and management without x-rays using a guide based on the TDF.

2. Participant quotes were analysed thematically using the TDF, and similar quotes were grouped into belief statements.

3. Domains potentially important for adherence to radiographic guidelines or LBP imaging behaviours were identified by noting conflicting beliefs, and the reported influence of the beliefs on these target behaviours.

Results

- 12 chiropractors participated in the focus groups: eight in Eastern Newfoundland and four in Western Newfoudland.

- Six of the 14 TDF domains were perceived to be important for changing radiographic guideline adherence and LBP imaging behaviours: Knowledge; Skills; Social/professional role and identity; Beliefs about consequences; Memory, attention, and decision processes; and Behavioural regulation.

- Compared to a study including chiropractors in Ontario and Quebec, we identified several similar factors important for radiographic guideline adherence.

Table 1: Examples of Belief Statements Representing Key Factors Influencing Radiographic Guideline Adherence (e.g., Barriers and/or Targets for Intervention Development)

Domain	Belief Statement
Knowledge	I have limited knowledge/awareness of guidelines for imaging.
Skills	Good communication skills are required for managing LBP without x-rays.
Social/Professional Role and Identity	It is my responsibility as a clinician to manage LBP without taking an x-ray.
Beliefs About Consequences	Cost to the health care system is a negative consequence of taking x-rays.
	Missing a diagnosis is a potential negative consequence of NOT taking an x-ray
Memory, Attention, and Decision Processes	I decide whether a patient needs an x-ray based on their clinical presentation.
	I decide whether a patient needs an x-ray (instead of following the guidelines) if I have a gut feeling that there is something else going on.
Behavioural Regulation	Having a system to easily communicate with physicians and access previous imaging would help me better manage LBP (without x-rays).

Conclusions

1. This study identified several factors that may be important for radiographic guideline adherence and managing LBP without imaging within chiropractors in NL.

2. The beliefs identified within our study may be targets for future theory-informed behaviour change interventions aimed at reducing non-indicated imaging for LBP.

Engaging Patients with Multiple Sclerosis to Uncover the Neuroscience of Hand Impairment

Objective

To explore how individuals with multiple sclerosis (MS) manage symptoms of their hand and arm.

Practice Points

1. In the first year of disease onset, over half of people with multiple sclerosis report having loss of manual dexterity.

2. Currently, there are no best practice guidelines for upper extremity rehabilitation.

3. There is an important need to investigate how people with MS navigate MS-related hand and arm dysfunction from a patient perspective.

Methods (PI: M. Ploughman, Author: K. Wadden)

1. 17 participants (12 females, mean age 51 years) with self-reported upper extremity dysfunction were recruited for this study. 16 individuals had relapsing-remitting MS and one secondary progressive MS.

2. In-depth interviews with questionnaire Multiple Sclerosis Impact Scale (MSIS), upper extremity assessments [Nine-hole peg test (NHPT), Box and Block Test (BBT), pinch and grip strength], and objective measures of hand and arm movement in the community (bilateral accelerometers) were performed.

3. Qualitative and quantitative data were analyzed independently (in depth interviews were analyzed using a thematic content analysis) and subsequently combined. To quantify how individuals with MS engage their limbs to complete activities of daily living in unstructured environments, such as their homes and communities, data from accelerometers were analyzed to assess magnitude and frequency of hand and arm movements.

Results

Quantitative Results

Table 1. Participants' Characteristics

Variable	Mean	SD	Range
EDSS (0–10)	2.3	1.1	(0–4)
Disease Duration (Years)	13.4	9.2	(3–28)
MOCA (0–30	26.9	2.2	(21–30)
MSIS-Physical (2–100)	50.2	17.3	(22–77)
MSIS-Psych (9–45)	23.0	10.1	(11–44)

Based on Expanded Disability Status Scale (EDSS), Montreal Cognitive Assessment (MOCA), and Multiple Sclerosis Impact Scale (MSIS)

- Two participants scored moderate and 15 participants scored mild levels of disability.

- Cognitive assessments were high, and physical and psychological impacts of MS were mid-range.

Table 2. Upper Extremity Assessments were Compared to Average Age (~50) and Sex-Matched Normative Data

Assessment	Extremity	Participant Mean (SD) Female : Male	Normative Mean (SD) Female : Male
Pinch Strength (lbs)	Affected/ Non-Dominant	12.7 (2.8): 18.9 (6.7)	16.1 (2.7): 26.1 (4.2)
	Unaffected/ Dominant	13.5 (2.7): 23.8 (2.9)	16.7 (2.5): 26.7 (4.4)
Grip Strength (lbs)	Affected/ Non-Dominant	38.0 (12.5): 67.3 (29.4)	57.3 (10.7): 101.9 (17.0)
	Unaffected/ Dominant	42.2 (13.1): 85.0 (16.2)	65.8 (11.6): 113.6 (18.1)
Nine Hole Peg Test (secs)*	Affected/ Non-Dominant	25.8 (4.8): 26.7 (7.8)	18.9 (2.3): 19.8 (3.1)
	Unaffected/ Dominant	23.7 (6.1): 23.3 (2.4)	17.4 (1.9): 18.9 (2.4)
Box and Block Test (# of Blocks)	Affected/ Non-Dominant	51.6 (12.5): 53.5 (14.6)	74.3 (9.9): 77.0 (9.2)
	Unaffected/ Dominant	54.2 (13.0): 61.6 (5.4)	77.7 (10.7): 79.0 (9.7)

*reference value >18 s = abnormal, >33 s = severe. No published references for other tests

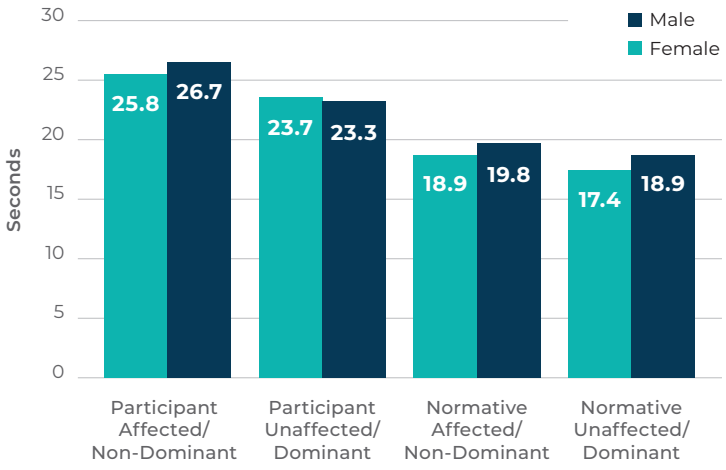
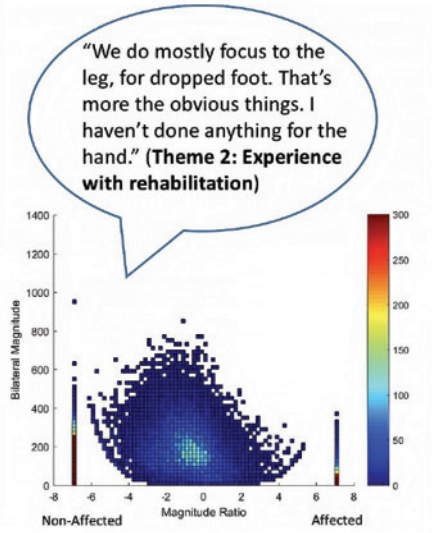


Figure 1. Nine Hole Peg Test (seconds) in Affected and Unaffected Upper Extremities in Female and Male Patients with MS Compared to Normal

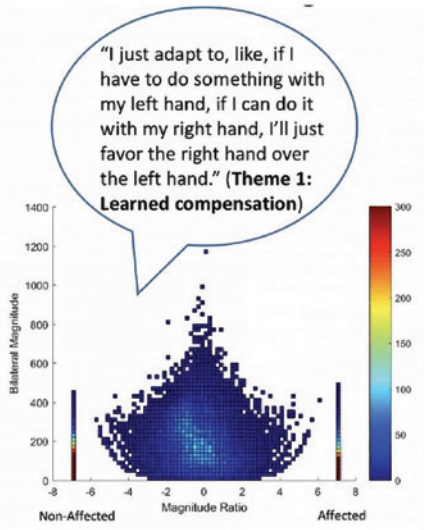
- All assessment means were below normal data. For NHPT, two participants scored in the severe impairment range (> 33.3 s) and 15 scored in the mild impairment range (18 – 33.3 s). Of the 15 within the mild range, 13 participants discussed significant hand dysfunction limiting independence.



- Nine hole peg test for affected limb: 39/s (severe); Grip strength for affected limb: 15 lbs (below normal).

Figure 2. Accelerometry Diagram in a Participant Showing Asymmetrical, Low Frequency and Magnitude of Bilateral Upper Limb Movements in the Community Over 24hrs

- On the y-axis, the bilateral magnitude quantifies the intensity of movement in both upper limbs. On the x-axis, the magnitude ratio indicates the contribution of each limb to activity. The large color bar scale on the right side of the figure represents frequency, where brighter colors indicate greater frequencies of movement. The affected limb represents the hand and arm that was self-reported by the patient as more symptomatic. The non-affected limb represents the hand and arm that was self-reported by the patient as less symptomatic.



- NHPT for affected limb: 30s (mild); Grip strength for affected limb: 48 lbs (below normal)

Figure 3. Accelerometry Diagram in a Participant Showing Asymmetrical, Low Frequency and Magnitude of Bilateral Upper Limb Movements in the Community Over 24hrs

- **Accelerometry Figures:** Participants' accelerometry data aligned with their accounts of learned compensation and priority of the lower versus upper extremity in rehabilitation settings.

- Most patients did not receive rehabilitation for the management of their upper extremity symptoms.

Qualitative Results

1. Qualitative Theme 1: Self-learned compensation – Participants responded to their physical limitations by developing strategies to help them live independently. For example, "I would just work around it. I got used to using my left. But I manage to get it done. Whichever hand." (NHPT affected hand: 20 s (mild), Accelerometry plots: Symmetry, moderate frequency and magnitude).

2. Qualitative Theme 2: Priority of lower versus upper extremity – Described by most participants as their experience in rehabilitation. For example, “The exercises at home were mostly for legs. I don’t remember anything there for arms.” (NHPT affected hand: 38 s (severe), Accelerometry plots: N/A).

Conclusions

1. Patients described creating their own compensatory strategies to perform tasks, which was detected by asymmetrical bilateral accelerometry data.

2. Most participants scored in the mild impairment range on Nine Hole Peg Test, which did not align with qualitative data.

3. Upper extremity rehabilitation in multiple sclerosis appears to be inconsistent, and not prioritized.

Vulvodynia: Addressing Patient-Identified Gaps in Primary Care Provider Knowledge

Objective

To explore the specific health care challenges facing women in NL with vulvodynia, including diagnosis and treatment barriers.

Practice Points

1. Vulvodynia is pain or discomfort at the opening of the vagina for at least 3 months, in the absence of a specific precipitating disorder.
2. It affects 1 in 4 women in their lifetime, 40% remain undiagnosed after multiple consultations, and 41% never receive treatment.
3. Treatment includes medical, pelvic physiotherapy, and psychological support.
4. Prior research of patients in NL in the Founder Project reported that many primary care providers (PCPs) lacked essential knowledge of the condition, struggled with the conduct of thorough and non-judgemental sexual health histories, and failed to provide timely and appropriate referral to specialist and allied health care.

Data (PI: Dr. K. Bajzak)

Qualitative analysis of interviews with 12 individual PCPs and two groups with two participants each. Ten family physicians and six nurse practitioners participated. The questions focused on what PCPs need and wanted to know about vulvodynia, and on how PCPs preferred to receive information about vulvodynia.

Results

The two major themes that emerged were:

1. Lack of awareness about the condition.
2. Barriers to having a sexual health conversation.

Table 1. Awareness About Vulvodynia Among PCPs in NL

PCPs rarely or never saw affected individuals, despite the high prevalence
No knowledge that the cotton wool swab test was the appropriate diagnostic tool
Only half identified some of the treatments commonly used
Little or no formal training

Table 2. Barriers to Having a Sexual Health Conversation Among PCPs in NL

Lack of knowledge of specific questions to ask and how to ask questions with sensitivity
Making time for the sexual health talk
Inter-generational issues, particularly discussing sexual health with older women or younger patients talking with older PCPs
Gender concordance between patient and provider

Table 3. Preferences About Receipt of Information About Vulvodynia

Clear direction about when and how to engage in a sexual health conversation
A concise, accessible toolkit, including information to share with their patients
An educational resource about vulvodynia diagnosis, treatment modalities, and available specialist care services in NL

Conclusions

1. Although vulvodynia occurs frequently, PCPs rarely see patients with the condition, lack awareness of the condition, and perceive barriers to having a sexual health conversation.
2. Creating and evaluating a concise and accessible toolkit is the next step towards equipping PCPs with clinically useful information regarding vulvodynia.

Notes

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