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**A Review of the Health Status of the
Residents of the Long Harbour-Mount
Arlington Heights Area,
Newfoundland and Labrador**



Prepared for:

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TABLE OF CONTENTS

LIST OF TABLES	ii
LIST OF FIGURES	iv
Acknowledgements.....	v
1.0 INTRODUCTION	1
1.1 The Study.....	1
1.2 The Study Team.....	1
2.0 METHODS	3
3.0 DETERMINANTS OF HEALTH	6
3.1 Socio-Demographic Environment	6
3.2 Education	17
3.3 Personal Health Practices and Coping Skills.....	18
4.0 SELF REPORTED HEALTH STATUS	22
5.0 MORTALITY AND MORBIDITY	32
5.1 Mortality	32
5.2 Morbidity	32
6.0 PREGNANCY/CHILDBIRTH AND CONGENITAL ANOMALIES.....	37
7.0 DISCUSSION.....	40
7.1 Socio-Demographic and Education	40
7.2 Personal Health Practices and Coping Skills.....	41
7.3 Self-Reported Health Status.....	42
7.4 Mortality and Morbidity	43
7.5 Pregnancy/Childbirth and Congenital Anomalies	43
8.0 CONCLUSIONS.....	44
BIBLIOGRAPHY	45
APPENDICES	
A1: Definitions.....	47
A2: Low Income Cut Offs (LICOs), 2001	52
A3: Income Adequacy Grouping.....	54
A4: Morbidity Technical Notes	57
A5: Pregnancy/Childbirth and Congenital Anomalies Technical Notes	62

LIST OF TABLES

Table 1:	Census Divisions and Subdivisions Defining Study Area and Eastern Regional Integrated Health Authority.....	3
Table 2:	Population by Sex and Age Groups (%).....	7
Table 3:	Marital Status (%).....	8
Table 4:	Employment Status by Sex (%).....	9
Table 5:	Occupations in Population Aged 15 and Over by Sex (%).....	10
Table 6:	Labour Force Activity Rates by Sex.....	11
Table 7:	Average Income in 2000.....	12
Table 8:	Percentage With and Without Income, and Average Total Income for Population Aged 15 and Over, by Sex.....	12
Table 9:	Average Income in Population Aged 15 and Over with Employment Income By Hours Worked, by Sex.....	13
Table 10:	Incidence of Low Income 2000 (%).....	14
Table 11:	Income Adequacy (%).....	15
Table 12:	Number of Persons in Private Households.....	16
Table 13:	Highest Education Level of Population Over 20 Years of Age (%).....	17
Table 14:	Smoking Status by Sex (%).....	18
Table 15:	Alcohol Consumption by Sex (%).....	19
Table 16:	Activity Level by Sex (%).....	20
Table 17:	Body Mass Index (BMI) by Sex (%).....	21
Table 18:	Self Reported Health Status by Sex (%).....	22
Table 19:	Satisfaction Level with Medical Care by Sex (%).....	23
Table 20:	Number of Self Reported Chronic Conditions by Sex (%).....	24
Table 21:	Major Self Reported Chronic Conditions by Sex (%).....	25
Table 22:	Severity of Disability by Sex (%).....	26
Table 23:	Self Reported Emotional Status by Sex (%).....	27
Table 24:	Self Reported Stress Level in Daily Life by Sex (%).....	28
Table 25:	Financial Circumstances by Sex (%).....	29
Table 26:	Financial Reserves among Those who Responded Very Good, Good, or Satisfactory to Table 26 (Financial Circumstances) by Sex (%).....	30
Table 27:	Financial Status Compared to Five Years Ago by Sex (%).....	31

Table 28:	Cause Specific Death Rates, All Ages, 1999-2003.....	32
Table 29:	Acute Care Hospital Separations by Cause, 1999/00-2003/04.....	33
Table 30:	Acute Care Hospital Separations for Diseases of the Circulatory System, 1999/00-2003/04.....	34
Table 31:	Acute Care Hospital Separations for Endocrine, Metabolic, and Nutritional Diseases, and Immune Disorders, 1999/00-2003/04.....	35
Table 32:	Acute Care Hospital Separations for Malignant Neoplasms 1999/00-2003/04.....	36
Table 33:	Perinatal Health Indicators, 1999-2003.....	37
Table 34:	Hospitalizations for Pregnancy/Childbirth and Congenital Anomalies Diagnoses, 1999/00–2003/04.....	39
Table A2.1:	2001 Poverty Lines.....	53
Table A3.1:	Household Income Groups Used to Define Income Adequacy Variable (1996).....	55
Table A3.2:	Differences in LICOs Between 1996 and 2001.....	55
Table A3.3:	Household Income Groups Used to Define Income Adequacy Variable (2001).....	56
Table A4.1:	ICD-9 and ICD-10-CA Codes for Disease Categories.....	58
Table A4.2:	ICD-9 and ICD-10-CA Codes for Circulatory Disease Categories.....	59
Table A4.3:	ICD-9 and ICD-10-CA Codes for Endocrine, Nutritional, and Metabolic Disease and Immunity Disorder Categories.....	59
Table A4.4:	ICD-9 and ICD-10-CA Codes for Malignant Neoplasm Categories.....	60
Table A4.5:	SGC Codes for Study Area Census Divisions.....	61
Table A5.1:	ICD-9 and ICD-10-CA Codes for Pregnancy/Childbirth and Congenital Anomalies Categories.....	63
Table A5.2:	SGC Codes for Study Area Census Divisions.....	63

LIST OF FIGURES

Figure 1:	Map of Study Area.....	4
Figure 2:	Map of Eastern Regional Integrated Health Authority	5

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1.0 INTRODUCTION

1.1 The Study

The Health Research Unit (HRU), Division of Community Health and Humanities, Faculty of Medicine, Memorial University of Newfoundland, was retained by Voisey's Bay Nickel Company to prepare a report of the health status of the potential Study Area for its proposed commercial nickel processing plant in the Long Harbour-Mount Arlington Heights area of Newfoundland. The baseline data on the health status of the local population would be of value in determining potential impact from future operations.

For the purposes of this study, Long Harbour-Mount Arlington Heights plus the surrounding area (consolidated census subdivisions 1A, 1B, 1X and 1Y) is identified as the "Study Area". The decision to add the surrounding area was taken in consultation with Dr. Les Hulett, Voisey's Bay Nickel Company Limited, for two reasons: any impacts from the plant are most likely in this area, and the combined area is large enough to provide meaningful summary statistics. This Study Area will be compared to the Eastern Regional Integrated Health Authority, the Province of Newfoundland and Labrador, and Canada where the data permits these comparisons.

In describing health status for an area, it is important to include the factors that affect the health of the population – i.e. the Determinants of Health (Public Health Agency of Canada, 2003). Thus, in addition to reporting information on illness and death (morbidity and mortality), we have included information on the socio-demographic, lifestyle, and economic environment of the region. Our results reflect the conditions which prevailed at the time the reviewed studies were conducted. Migration, either immigration or emigration, may have affected the health status of the region since the reviewed studies were conducted.

1.2 The Study Team

Veeresh Gadag, MPhil, PhD, Professor of Biostatistics and Director of the Health Research Unit, has expertise in population health, population epidemiology, statistical modelling, survey methodology, biostatistics, and data analysis. Dr. Gadag is the Principal Investigator (PI) on this project and assisted with the writing of the report.

Ann Ryan, MSc, Manager, Health Research Unit, has over ten years experience in coordinating research studies, project design and instrument development, evaluation and needs assessment, and health services research. Ms. Ryan prepared the HIC application, supervised HRU staff in collecting and analyzing the data, and drafted and edited the report.

Alison Edwards, MSc, Medical Researcher, Division of Community Health and Humanities, has over twenty years experience in survey methodology, questionnaire development, database development/management, and data analysis. Ms. Edwards provided the tables for the census and Adult Health Survey data, as well as assisting with the preparation and editing of the final report.

The Health Research Unit (HRU) within the Division of Community Health and Humanities was formed in 1992 to carry out research with an emphasis on promoting health and preventing disease. The goal of the HRU is to make available the professionals skills and research

Revised October 2010

experience in the Division of Community Health and Humanities to communities, organizations, government, and industry. The faculty within the Division of Community Health and Humanities has expertise in a wide variety of health research areas including: measuring health knowledge and behaviours, developing strategies for health promotion, assessing the need for new health programs and technologies, studying patterns of disease, designing and evaluating health programs, developing and managing health information systems, etc.

For more information please see the HRU website: <http://www.med.mun.ca/hru>

2.0 METHODS

The current study is a secondary data analysis of the health status of the region surrounding the Long Harbour-Mount Arlington Heights area of the Province of Newfoundland and Labrador (referred to as the Study Area) in comparison with the corresponding information of the Eastern Regional Integrated Health Authority (referred to as Eastern RIHA), the Province, and Canada wherever possible. The sources of information used in this report include: 1) the Newfoundland Adult and Community Health Survey, 2001, Newfoundland and Labrador Statistics Agency; 2) Statistics Canada Census, 2001; 3) the Canadian Institute for Health Information, mortality data (1999-2003), provincial morbidity data (1999/00 to 2003/04), morbidity data for Canada (2000/01), and congenital anomalies hospitalizations (1999/00-2003/04); and 4) Newfoundland and Labrador Centre for Health Information (Live Birth and Stillbirth Systems, 1999-2003).

Two of our main reference sources for this report are the 2001 Census data from Statistics Canada, and the Newfoundland Adult and Community Health Survey, 2001. Therefore, to be consistent with this time frame other data sources used were from the same era (1999/00-2003/04). Due to the low occurrence of some mortality and morbidity causes, and to increase the power of such data, rates are given as an average of five years of data for the Study Area, Eastern RIHA, and the province. For Canada, however, the values given are for one fiscal year.

While data from the Canadian Community Health Survey (2003) is readily available, we have not included it in this report for two reasons: 1) with its smaller sample size it can only be analyzed at the health region, province, or Canada level, and 2) the CCHS data collection timeframe falls on the periphery of the timeframe chosen for this report.

Ethics approval was obtained for this project through the Human Investigation Committee, as per Memorial University guidelines.

We used Census Divisions and Census Subdivisions to define the Study Area (consolidated census subdivisions 1A, 1B, 1X, and 1Y). The specific divisions and subdivisions used to define the Study Area and the Eastern RIHA are shown in Table 1. A map of the Study Area is given in Figure 1. A map of the area covered by the Eastern RIHA is given in Figure 2.

Table 1: Census Divisions and Subdivisions Defining Study Area and Eastern Regional Integrated Health Authority	
	Census Divisions (CD) and Subdivisions (CSD)
Study Area (Consolidated census subdivisions 1A, 1B, 1X, and 1Y)	CSDs 1001203, 1001207, 1001234, 1001240, 1001254, 1001259, 1001263, 1001267, 1001270, 1001274, 1001277, 1001281, 1001285, 1001289, 1001293, 1001298
Eastern Regional Integrated Health Authority	CD1, CD2, CSDs 1007001, 1007006, 1007009, 1007013, 1007014, 1007015, 1007016, 1007017, 1007018, 1007019, 1007020, 1007021, 1007023, 1007024, 1007025, 1007026, 1007027, 1007028, 1007029, 1007030, 1007031, 1007032, 1007036, 1007064

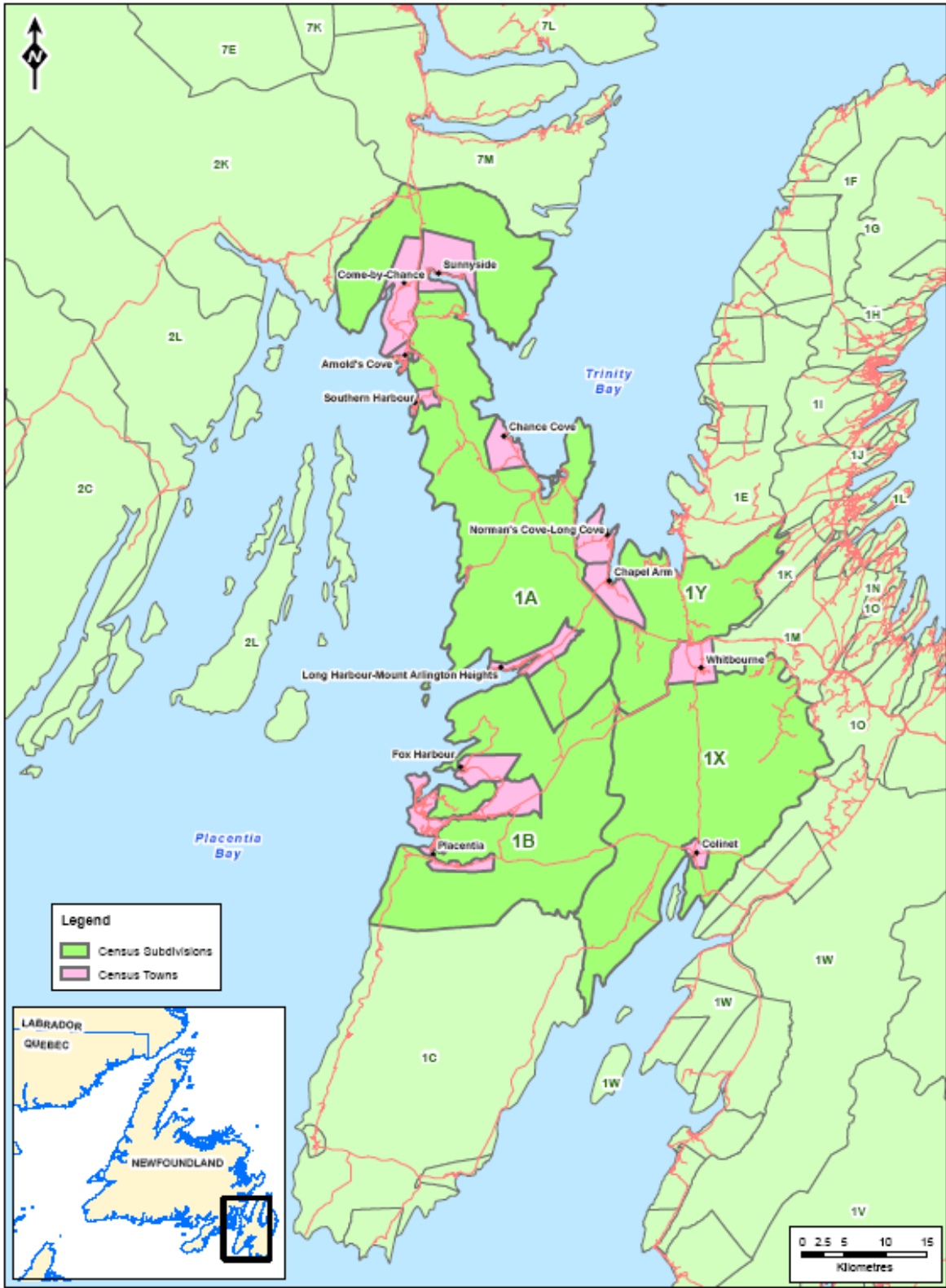


Figure 1: Map of Study Area

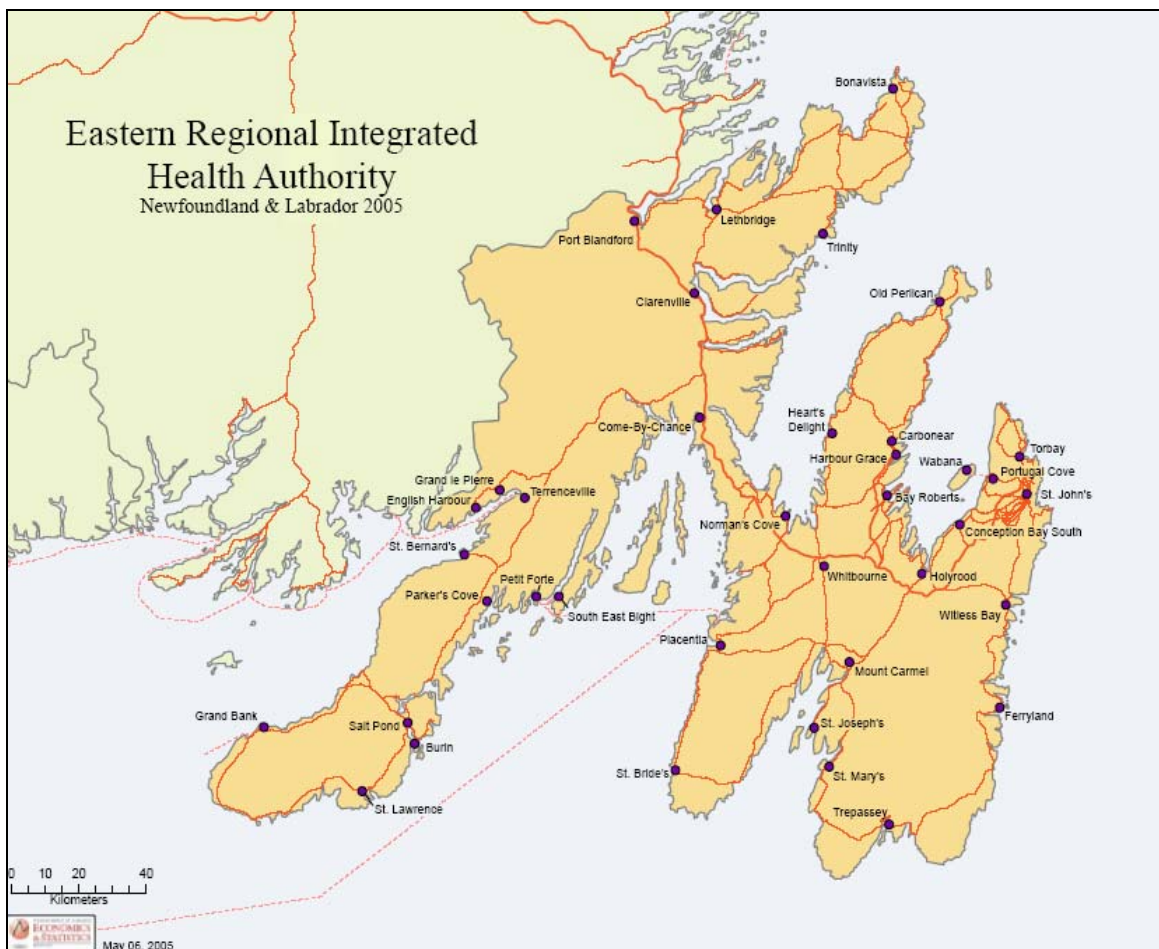


Figure 2: Map of Eastern Regional Integrated Health Authority

The Newfoundland Adult and Community Health Survey, 2001 was a follow up to the 1995 Adult Health Survey (Segovia et al, 1996). The 2001 survey consisted of a telephone survey of almost 8,000 individuals, 18 years of age or older living in private households with telephones in Newfoundland. Those residing in Labrador or on the tip of the Northern Peninsula, specifically all residents of Census Division 10 and residents of Consolidated Census Subdivisions 9C, 9D, and 9F, were excluded. All tables from this survey show weighted percentages.

Demographic data and information on income, unemployment, and education was taken from Table 95F0495XCB01001-NFLDLAB-TNL: Profile for Canada, Provinces, Territories, Census Divisions and Census Subdivisions, 2001 Census. We retrieved this data for the Study Area, Eastern RIHA, the province of Newfoundland and Labrador, and Canada.

Morbidity data is based on information provided by the Canadian Institute for Health Information (CIHI) and is available for fiscal years (April – March). Mortality data, available for calendar years (January – December), is provided through the Newfoundland and Labrador Centre for Health Information. Both data sets were extracted for the years around the census collection time.

3.0 DETERMINANTS OF HEALTH

3.1 Socio-Demographic Environment

The availability of health and social resources in a community is one of the “determinants of health” for the population of that community. Health care facilities available to the Study Area include the Placentia Health Centre which has 24 hour emergency care and 10 in-patient beds, and the Dr. Wm. H. Newhook Community Health Centre in Whitbourne which also has 24 hour emergency care and 3 holding/observation beds. The Placentia area has 6 salaried and 1 fee-for-service general practice physicians and the Whitbourne area has 7 salaried and 1 fee-for-service general practice physicians. The Placentia Health Centre also houses the Lions Manor Nursing Home which has 75 beds providing level II and level III care.

The Study Area has Tetra/telemedicine sites at Whitbourne, Placentia, and Long Harbour. Other health and social resources include: schools in the towns of Dunville, Placentia, Whitbourne, Blaketown, Arnold’s Cove, and Chapel Arm; a College of the North Atlantic campus in Placentia; RCMP detachments in Placentia and Whitbourne; and ferry services to Nova Scotia at Argentia (Community Accounts).

Major employers include: the oil refinery at Come By Chance, the Inco demonstration plant in Argentia, federal and provincial government offices at Placentia and Argentia, municipal government in many communities, fish plants at Ship Harbour and Argentia, and a variety of local businesses.

The population in 2001 of the Study Area was: 6,505 males and 6,605 females (total: 13,110); Eastern RIHA: 141,590 males, 150,050 females (total: 291,640); the Province: 250,965 males, 261,965 females (total: 512,930); and Canada: 14,706,850 males, 15,300,245 females (total: 30,007,095). The Newfoundland Adult and Community Health Survey did not include Labrador or the area of the Northern Peninsula that was included in the Northern Community Health Region at the time of the survey (2001). The population for the area covered by the survey was: 230,670 males and 241,960 females (total: 472,630) which represents 92.14 percent of the total population of Newfoundland and Labrador.

The age demographics of the population under study are also an important determinant of health. The young are more likely to leave rural and less prosperous areas for work in larger centres or other, more affluent, provinces. Table 2 shows that the Study Area has a slightly older population than the Eastern RIHA, the province, or Canada, with around 2 percentage points more of both males and females 65 years of age or over compared to Eastern RIHA. When combining those over the age of 45 the difference is accentuated for both males and females; for example 42.9% of males in the Study Area are 45 years or older, compared to 36.8% for Eastern RIHA, 38.2% for the province, and 35.8% for Canada. As would be expected, because of the increase of those over 45 years of age, there is a considerably lower percentage of children, teenagers, and adults less than 34 years of age, in the Study Area compared to Eastern RIHA, the province, or Canada.

Table 2: Population by Sex and Age Groups (%)								
Location	Study Area		Eastern RIHA		Province		Canada	
Sex	M	F	M	F	M	F	M	F
Age Group	<i>Percentage of Population</i>							
0-14	16.9	15.8	18.2	16.3	18.1	16.5	19.9	18.3
15-24	14.3	13.9	15.3	14.5	14.7	13.9	13.8	12.9
25-34	10.0	10.2	13.2	13.6	12.7	13.3	13.4	13.3
35-44	15.8	16.5	16.5	16.8	16.4	16.8	17.1	16.9
45-54	18.0	17.1	16.1	15.7	16.4	16.0	14.9	14.6
55-64	12.7	11.3	10.2	9.8	10.6	10.1	9.6	9.5
65+	12.2	15.3	10.5	13.4	11.2	13.4	11.3	14.5
<i>Source: Statistics Canada, Table 95F0495XCB01001-NFLDLAB-TNL: Profile for Canada, Provinces, Territories, Census Divisions and Census Subdivisions, 2001 Census.</i>								

Table 3 shows that the Study Area has a higher percentage of married persons, and fewer single persons, than Eastern RIHA, the province, or Canada. There are also fewer separated or divorced persons in the Study Area than the other areas, but slightly more widowed persons. This observed difference in the percentages could partly explain the differences seen in the income tables (later in this report) as there are fewer financially disadvantaged persons (single, separated, or divorced) in the Study Area than the other areas.

Table 3: Marital Status (%)				
Location	Study Area	Eastern RIHA	Province	Canada
	<i>Percentage of Population</i>			
Single	28.4	32.5	31.0	33.5
Married	58.3	53.3	55.4	49.5
Separated	1.7	2.1	2.0	3.0
Divorced	3.8	5.2	4.8	7.6
Widowed	7.9	6.9	6.8	6.4
<i>Source: Statistics Canada, Table 95F0495XCB01001-NFLDLAB-TNL: Profile for Canada, Provinces, Territories, Census Divisions and Census Subdivisions, 2001 Census.</i>				

Employment and income are among the most important determinants of health. Table 4 gives an overall picture of the employment status of the population by sex in the Study Area, Eastern RIHA, and the island portion of the province. Looking at males alone, those in the Study Area are slightly more likely to be self-employed or retired than in the other areas, while for females, considerably more are not employed for pay in the Study Area compared to either Eastern RIHA or the island portion of the province.

Table 4: Employment Status by Sex (%)						
Location	Study Area		Eastern RIHA		Newfoundland ¹	
Sex	M	F	M	F	M	F
	<i>Percentage of Respondents</i>					
Self-employed	11.4	2.9	7.6	4.4	7.0	4.2
Employed by company/organization	39.8	27.6	44.9	38.3	42.0	35.6
Not employed for pay	17.1	45.7	19.3	30.8	21.7	34.2
Retired	24.4	23.8	20.4	20.9	21.9	21.2
Student	7.3	0	7.7	5.6	7.5	4.9
Total sampled	129	109	1933	2024	3888	4044
<i>Source: Newfoundland Adult and Community Health Survey, 2001, Newfoundland and Labrador Statistics Agency</i> ¹ : <i>Island portion of the province, see Appendix 1 for a definition</i>						

Table 5 shows the occupations in the labour force by sex. It is clear that the Study Area has a much lower percentage of either sex in the professional occupations (e.g. management, business, and health), but a comparable percentage of females in the “sales and service occupations” when compared to Eastern RIHA, the province, and Canada.

Table 5: Occupations in Population Aged 15 and Over by Sex (%)								
Location	Study Area		Eastern RIHA		Province		Canada	
	M	F	M	F	M	F	M	F
	<i>Percentage of Population¹</i>							
Management occupations	4.4	2.0	10.4	6.5	9.2	6.4	12.4	7.7
Business, finance and administration occupations	2.0	18.7	7.7	24.4	6.5	21.4	8.9	27.2
Natural and applied sciences and related occupations	4.1	1.0	8.8	2.4	7.6	1.9	9.3	2.9
Health occupations	0.3	6.7	2.7	10.2	2.3	9.5	2.0	8.7
Occupations in social science, education and government service and religion	4.2	7.9	6.0	10.1	5.5	9.6	4.8	10.8
Occupations in art, culture, recreation and sport	0	1.2	2.0	2.7	1.5	2.4	2.4	3.2
Sales and service occupations	10.6	36.5	17.4	31.5	16.0	34.3	18.6	28.4
Trades, transport and equipment operators and related occupations	40.8	2.8	27.3	1.4	29.4	1.8	25.2	2.2
Occupations unique to primary industry	18.7	5.3	8.4	2.1	11.5	2.9	6.1	2.1
Occupations unique to processing, manufacturing and utilities	10.9	11.2	6.5	4.8	6.9	5.5	8.6	4.9
Occupation not applicable	1.9	4.5	3.0	4.0	3.3	4.4	1.7	2.1
<p><i>Source: Statistics Canada, Table 95F0495XCB01001-NFLDLAB-TNL: Profile for Canada, Provinces, Territories, Census Divisions and Census Subdivisions, 2001 Census.</i></p> <p>¹: Percentages may not sum correctly due to suppressions of values less than 5 and rounding to the nearest 5 in the Census file. This is particularly true for the Study Area which has more CSDs that are sparsely populated</p>								

Table 5 also shows that males in the Study Area are much more likely to be in “trades, transport and equipment operators and related occupations”, “occupations unique to primary industry”, or

“occupations unique to processing, manufacturing and utilities” than the other areas (70.4% compared to 42.2%, 47.8%, and 39.9% respectively). More females are occupied in “occupations unique to primary industry” or “occupations unique to processing, manufacturing and utilities” than the other areas (16.5% compared to 6.9%, 8.4%, and 7.0% respectively).

Unemployment rates (Table 6) for both sexes in the Study Area are much higher than for Eastern RIHA, the province, and particularly Canada. This is especially true for those 15 to 24 years of age. Both the participation and employment rates are lower for both males and females in the Study Area compared to Eastern RIHA, the province, and Canada. Females in the Study Area have a much lower participation or employment rate for either age group when compared to males. The unemployment rate for females 15-24 years of age is similar to that of the males, but for those ages 25 years and older the unemployment rate is lower than males.

Table 6: Labour Force Activity Rates by Sex								
Location	Study Area		Eastern RIHA		Province		Canada	
Sex	M	F	M	F	M	F	M	F
	<i>Percentage</i>							
Age 15-24								
Participation rate ¹	44.3	31.9	51.9	52.5	49.2	48.1	65.5	63.9
Employment rate ¹	26.0	21.7	35.7	38.4	31.6	33.6	56.1	55.6
Unemployment rate ²	41.2	41.5	31.2	26.7	35.8	30.3	14.3	12.9
Age 25+								
Participation rate ¹	63.7	49.3	68.2	55.2	66.4	53.2	74.2	59.8
Employment rate ¹	47.9	39.3	56.7	47.9	51.6	44.1	69.5	56.2
Unemployment rate ²	25.6	19.4	16.9	13.2	22.3	17.1	6.3	6.1
<p><i>Source: Statistics Canada, Table 95F0495XCB01001-NFLDLAB-TNL: Profile for Canada, Provinces, Territories, Census Divisions and Census Subdivisions, 2001 Census.</i></p> <p>¹: based on total population aged 15 and over; see Appendix 1 for further details</p> <p>²: based on number in labour force (i.e., those employed or unemployed); see Appendix 1 for further details</p>								

Average income per family and per household in the Study Area is below the corresponding average income in the Eastern RIHA, the province, and considerably below the average for Canada (Table 7). This information is not available for the sexes separately.

Table 7: Average Income in 2000				
Location	Study Area	Eastern RIHA	Province	Canada
	<i>Average Income</i>			
per Family ¹	\$47,405	\$53,823	\$49,679	\$66,160
per Household ²	\$43,564	\$49,185	\$46,290	\$58,360
<i>Source: Statistics Canada, Table 95F0495XCB01001-NFLDLAB-TNL: Profile for Canada, Provinces, Territories, Census Divisions and Census Subdivisions, 2001 Census.</i> ^{1&2} : see Appendix 1 for definitions of Census Family and Census Household				

Table 8 shows total income for the calendar year 2000 by sex and shows that the percentage of males without income, with income, and the average income in the Study Area is very similar to Eastern RIHA and the province; but there are considerable differences in all three of these variables/indicators between the Study Area and Canada. The percentage of females without income is higher than males in all areas, but is highest in the Study Area, i.e. 10.0% compared to 8.4% in Eastern RIHA, 9.4% in the province, and 6.0% in Canada. The average income, for those with some income, is lowest for both sexes in the Study Area.

Table 8: Percentage With and Without Income, and Average Total Income ¹ for Population Aged 15 and Over, by Sex								
Location	Study Area		Eastern RIHA		Province		Canada	
Sex	M	F	M	F	M	F	M	F
	<i>Percentage (%) and Average (\$)</i>							
Percentage without income	5.1	10.0	5.6	8.4	5.4	9.4	3.8	6.0
Percentage with income	94.8	89.9	94.4	91.6	94.6	90.6	96.2	94.0
Average income for persons with income (\$)	27,331	14,327	29,629	18,751	28,144	17,181	36,865	22,885
<i>Source: Statistics Canada, Table 95F0495XCB01001-NFLDLAB-TNL: Profile for Canada, Provinces, Territories, Census Divisions and Census Subdivisions, 2001 Census.</i> ¹ : see Appendix 1 for definition of total income								

The average income for those with employment income during the year 2000 (Table 9) shows that males in the Study Area average about \$3,000 less income than those in Eastern RIHA, \$1,500 less than the average for the province, and over \$10,000 less than the average for Canada.

While females in all four areas had lower average incomes than males, this male/female wage gap far is more pronounced in the Study Area than Eastern RIHA or the province, but similar to Canada.

When considering those who worked full time for the full year, the income for both males and females in the Study Area is slightly lower than those in Eastern RIHA and the province, and considerably lower than those in Canada.

On the other hand, males in the Study Area who worked part time or part year, earned more on average than males in Eastern RIHA or the province, and slightly lower than males in Canada. Part time or part year employed females in the Study Area earned a slightly lower average income to those in Eastern RIHA, the province, and only two-thirds of the income for part time employed females in Canada.

The percentage of male and female employees, by the number of hours they worked in 2000, are provided directly below the average incomes in Table 9. The percentage of workers employed full time for the full year is much lower for both sexes in the Study Area than Eastern RIHA, the province, or Canada.

Table 9: Average Income in Population Aged 15 and Over with Employment Income ¹ by Hours Worked, by Sex								
Location	Study Area		Eastern RIHA		Province		Canada	
	M	F	M	F	M	F	M	F
	<i>Average (\$) and Percentage (%)</i>							
All employees	27,817	15,137	30,874	20,225	29,267	18,341	38,347	24,390
Worked full year, full time ^{2,3}	43,293 28.3%	28,057 25.8%	45,164 46.9%	31,154 45.0%	44,607 42.5%	29,935 40.8%	49,224 58.8%	34,892 46.3%
Worked part year or part time ^{2,3}	22,238 68.7%	10,019 67.3%	18,619 51.0%	11,499 52.2%	18,219 55.3%	10,556 56.3%	23,370 39.0%	15,625 50.6%
<p><i>Source: Statistics Canada, Table 95F0495XCB01001-NFLDLAB-TNL: Profile for Canada, Provinces, Territories, Census Divisions and Census Subdivisions, 2001 Census.</i></p> <p>¹: includes persons who worked for pay or in self-employment during the year 2000, and those who did not work in 2000 but reported employment income</p> <p>²: see Appendix 1 for definition of full and part time work</p> <p>³: percentages do not add to 100% as those who did not work in 2000 but reported some income are not included in either row</p>								

Table 10 shows that 56.5% of unattached individuals in the Study Area fall below the Low Income Cut Offs (please see Appendix 2 for explanation of LICO). This is a considerably greater percentage than the figures for Eastern RIHA (46.3%), the province (46.6%), and particularly Canada (38.0%). However, the percentage of households that fall below the LICO is lower in the Study Area (17.3%) compared to Eastern RIHA (18.4%) and the province (18.8%), but slightly higher than nationally (16.2%).

Table 10: Incidence of Low Income ¹ 2000 (%)				
Location	Study Area	Eastern RIHA	Province	Canada
	<i>Percentage of Population</i>			
In unattached individuals ¹ 15 years and over	56.5	46.3	46.6	38.0
In population in private households ¹	17.3	18.4	18.8	16.2
<i>Source: Statistics Canada, Table 95F0495XCB01001-NFLDLAB-TNL: Profile for Canada, Provinces, Territories, Census Divisions and Census Subdivisions, 2001 Census.</i>				
¹ : see Appendix 1 for definition of Incidence of Low Income, Unattached Individuals and Private Households				

Income adequacy groupings are based on those used in the 1995 Adult Health Survey (Segovia, 1996, page 68 – see Appendix 3: Income Adequacy Groupings) with modifications to reflect LICO values of 2001. Income adequacy assesses self-reported household income with respect to the total number of people within the household. For example, a *very low* income adequacy for a household of 1 would be \$15,000 or less, but a household size of 4 or more it would be \$20,000 or less. A high income adequacy for a household size of 1 would be \$45,001 or more, but for a household size of 4 or more it would be \$100,001 or more.

While a lower proportion of people in the Study Area fall in either of the extreme categories of the income adequacy scale (Table 11), a higher proportion of the Study Area population fall within the income adequacy categories of “low” and “lower middle” than Eastern RIHA or the island portion of the province.

Table 11: Income Adequacy (%)			
Location	Study Area	Eastern RIHA	Newfoundland ¹
	<i>Percentage of Respondents</i>		
Very low	11.3	17.0	18.8
Low	28.0	21.1	22.4
Lower middle	35.5	28.0	29.3
Upper middle	15.1	18.3	16.7
High	10.2	15.7	12.8
Total sampled ¹	201	3254	6553
<p><i>Source: Newfoundland Adult and Community Health Survey, 2001, Newfoundland and Labrador Statistics Agency</i></p> <p>¹: <i>Island portion of the province, see Appendix 1 for a definition</i></p> <p>²: <i>percentages calculated for those who responded to income question</i></p>			

Table 12 shows that there are fewer one-person households in the Study Area than other areas which may help to explain the better income adequacy in the area. Even though the average number of persons per private household is the same in all areas, the distribution of the number of persons per household varies by area.

Table 12: Number of Persons in Private Households				
Location	Study Area	Eastern RIHA	Province	Canada
	<i>Percentage (%) and Average (n)</i>			
1 person	16.9	19.5	18.0	25.8
2 persons	34.3	32.6	33.7	32.6
3 persons	20.9	20.7	21.3	16.3
4 or 5 persons	25.9	25.1	24.9	22.3
6 or more persons	2.0	2.0	2.1	3.1
Average number of persons per household	2.7	2.7	2.7	2.6
<i>Source: Statistics Canada, Table 95F0495XCB01001-NFLDLAB-TNL: Profile for Canada, Provinces, Territories, Census Divisions and Census Subdivisions, 2001 Census.</i>				

3.2 Education

Table 13 shows that education levels of the population of the Study Area tend to be lower than for the Eastern RIHA, the province, and Canada. Although a greater percentage of the Study Area had a trades certificate or diploma (21.3%) than Eastern RIHA (18.5%), the province (18.5%), and Canada (11.8%), 44.3% of the Study Area did not have a high school graduation certificate compared with 34.2% of Eastern RIHA, 39.6% of the province, and 27.9% of Canada. The Census data does not allow analysis separately for males and females.

Table 13: Highest Education Level of Population Over 20 Years of Age (%)				
Location	Study Area	Eastern RIHA	Province	Canada
	<i>Percentage of Population</i>			
Without high school graduation certificate	44.3	34.2	39.6	27.9
With high school certificate	8.7	8.9	9.1	13.9
Trades with certificate or diploma	21.3	18.5	18.5	11.8
College without certificate or diploma	5.0	4.3	4.0	6.4
College with certificate or diploma	10.8	13.0	11.9	16.2
University without degree	5.8	7.8	6.5	7.0
University with bachelor's degree or higher	4.0	13.3	10.5	16.9
<i>Source: Statistics Canada, Table 95F0495XCB01001-NFLDLAB-TNL: Profile for Canada, Provinces, Territories, Census Divisions and Census Subdivisions, 2001 Census.</i>				

3.3 Personal Health Practices and Coping Skills

Personal health practices influence the health status of an individual and a population. Such practices include smoking, alcohol consumption, and exercise. Also, because of the health consequences of being overweight we have included information on body mass index as an indicator of obesity.

Table 14 shows that in all three comparison areas, females were more likely than males to have never smoked. The percentage of males who have never smoked is similar in all areas, but for females in the Study Area there is a three percentage point difference compared with females in Eastern RIHA and the island portion of the province. Males are more likely than females to be former smokers or current smokers. The Study Area has a very similar percentage of males who report never smoking (38.5%) compared with Eastern RIHA (38.5%) and the island portion of the province (37.7%). Compared to the Eastern RIHA and the island portion of the province, the Study Area also has the smallest percentage of self-reported current smokers for both sexes.

Table 14: Smoking Status by Sex (%)						
Location	Study Area		Eastern RIHA		Newfoundland ¹	
Sex	M	F	M	F	M	F
	<i>Percentage of Respondents</i>					
Never smoked	38.5	52.4	38.5	49.1	37.7	49.5
Former smoker	37.7	26.7	34.2	25.9	35.0	25.4
Current smoker	23.8	21.0	27.3	25.0	27.3	25.1
Total sampled	129	109	1939	2026	3895	4047
<i>Source: Newfoundland Adult and Community Health Survey, 2001, Newfoundland and Labrador Statistics Agency</i> ¹ : <i>Island portion of the province, see Appendix 1 for a definition</i>						

In Table 15, occasional drinkers are defined as those who report drinking less often than once a month, current drinkers are those who report drinking more than once a month. Females in the Study Area are more likely to be never, or occasional drinkers than in the other areas. But males in the Study Area are more likely to be ex or current drinkers than in the other areas. Within the Study Area males are twice as likely as females to be current drinkers.

Table 15: Alcohol Consumption by Sex (%)						
Location	Study Area		Eastern RIHA		Newfoundland ¹	
Sex	M	F	M	F	M	F
	<i>Percentage of Respondents</i>					
Never drink	12.3	36.9	10.1	30.2	11.3	33.1
Ex-drinker	9.8	4.9	7.6	6.6	9.1	6.9
Occasional drinker	4.9	22.3	9.6	19.1	9.7	18.7
Current drinker	73.0	35.9	72.7	44.1	69.8	41.3
Total sampled	128	107	1915	1974	3848	3944
<i>Source: Newfoundland Adult and Community Health Survey, 2001, Newfoundland and Labrador Statistics Agency</i>						
<i>¹: Island portion of the province, see Appendix 1 for a definition</i>						

Females in the Study Area are less active than those in either Eastern RIHA or the island portion of the province (Table 16). The Study Area has twice the percentage of females who lead a sedentary lifestyle compared to the other regions. On the other hand, males in the Study Area are active at a similar level to males in the other regions.

Table 16: Activity Level by Sex (%)						
Location	Study Area		Eastern RIHA		Newfoundland ¹	
Sex	M	F	M	F	M	F
<i>Degree of Activity</i> ²	<i>Percentage of Respondents</i>					
Sedentary	1.7	8.2	2.2	4.2	2.1	4.2
Light activity	5.1	10.3	3.9	8.2	3.9	8.8
Moderate activity	10.2	21.6	11.4	19.0	12.0	21.2
Active	25.4	26.8	22.4	27.5	23.0	27.4
Very active	57.6	33.0	60.2	41.2	58.9	38.6
Total sampled	125	100	1862	1900	3742	3773
<i>Source: Newfoundland Adult and Community Health Survey, 2001, Newfoundland and Labrador Statistics Agency</i> ¹ : <i>Island portion of the province, see Appendix 1 for a definition</i> ² : <i>for activity definitions, see Segovia, 1996</i>						

Self reported height and weight were used to calculate the Body Mass Index (BMI) which is divided into 6 groupings according to Health Canada's guidelines (see Appendix 1: Definitions).

Table 17 shows that a higher proportion of both males and females in the Study Area fall above the recommended weight for their height (73.8% for males and 60.9% for females; total of overweight and obese categories) than the Eastern RIHA (males: 68.5% and females: 52.4%) and the island portion of the province (males: 68.5% and females: 54.4%). Considerably more males in the Study Area are in the overweight category (60.7%) compared to Eastern RIHA (48.5%) and the province (48.1%). Females are more likely to be underweight or obese in the Study Area (29.9%) than in either Eastern RIHA (20.5%) or the island portion of the province (22.5%). More females are to be found in either extreme category (underweight or obese class III) than males in any area. More males are in the overweight group than females in any area, particularly in the Study Area where the difference is over twenty-five percentage points.

Table 17: Body Mass Index (BMI) by Sex (%)						
Location	Study Area		Eastern RIHA		Newfoundland ¹	
	M	F	M	F	M	F
<i>BMI</i>	<i>Percentage of Respondents</i>					
<18.5 (underweight)	0	4.1	0.4	2.4	0.6	2.3
18.5-24.9 (normal weight)	26.2	35.1	31.1	45.1	30.9	43.3
25-29.9 (overweight)	60.7	35.1	48.5	34.3	48.1	34.2
30-34.9 (obese class I)	11.5	19.6	16.9	12.8	16.9	14.2
35-39.9 (obese class II)	1.6	3.1	2.3	3.5	2.6	4.1
≥40 (obese class III)	0	3.1	0.8	1.8	0.9	1.9
Total sampled	128	102	1919	1898	3866	3816
<i>Source: Newfoundland Adult and Community Health Survey, 2001, Newfoundland and Labrador Statistics Agency</i>						
<i>¹: Island portion of the province, see Appendix 1 for a definition</i>						

4.0 SELF REPORTED HEALTH STATUS

Health status can be measured by a number of indicators, including self reported health or emotional status, number or types of chronic conditions, and level of disability. We have also included satisfaction with medical care, daily levels of stress, and financial circumstances as all these can have an effect on a person's reported health and well being.

If the categories of "excellent" and "very good" are combined in Table 18 a greater percentage of males in the Study Area rate their health as "excellent" or "very good" (68.8%) compared to Eastern RIHA (57.5%) or the island portion of the province (57.7%). But females are less likely to rate their health as "excellent" or "very good" (54.3%) compared to Eastern RIHA (61.9%) or the island portion of the province (59.3%). The differences between the sexes are more pronounced in the Study Area than the other regions, with females reporting poorer health status than the males.

Table 18: Self Reported Health Status by Sex (%)						
Location	Study Area		Eastern RIHA		Newfoundland ¹	
Sex	M	F	M	F	M	F
Rating	<i>Percentage of Respondents</i>					
Excellent	9.8	7.6	13.0	14.1	13.1	12.5
Very good	59.0	46.7	44.5	47.8	44.6	46.8
Good	18.0	29.5	29.0	25.8	28.2	27.1
Fair	10.7	12.4	11.1	9.4	11.6	10.6
Poor	2.5	3.8	2.4	3.0	2.6	3.0
Total sampled	129	109	1937	2025	3892	4040
<i>Source: Newfoundland Adult and Community Health Survey, 2001, Newfoundland and Labrador Statistics Agency</i>						
<i>¹: Island portion of the province, see Appendix 1 for a definition</i>						

Combining “very satisfied” with “somewhat satisfied” categories in Table 19 shows that the population in the Study Area is slightly more satisfied with their medical care (males: 70.7%, females: 71.4%) than Eastern RIHA (males: 68.6%, females: 67.2%) or the island portion of the province (males: 68.7%, females: 68.0%). Females in the Study Area are less likely to be “very satisfied”, and more likely to be “very dissatisfied” with their medical care.

Table 19: Satisfaction Level with Medical Care by Sex (%)						
Location	Study Area		Eastern RIHA		Newfoundland ¹	
	M	F	M	F	M	F
Sex	M	F	M	F	M	F
Rating	<i>Percentage of Respondents</i>					
Very satisfied	26.0	23.8	27.1	27.2	27.0	27.5
Somewhat satisfied	44.7	47.6	41.5	40.0	41.7	40.5
Neither satisfied nor dissatisfied	7.3	2.9	6.7	5.8	6.4	5.1
Somewhat dissatisfied	14.6	13.3	15.2	17.2	15.2	16.8
Very dissatisfied	7.3	12.4	9.4	9.9	9.7	10.1
Total sampled	128	109	1912	2015	3850	4024
<i>Source: Newfoundland Adult and Community Health Survey, 2001, Newfoundland and Labrador Statistics Agency</i>						
<i>¹: Island portion of the province, see Appendix 1 for a definition</i>						

Table 20 indicates that the Study Area has a greater percentage of both males and females not reporting any chronic conditions than the other two areas. Males reported fewer chronic conditions than females in all the areas.

Table 20: Number of Self Reported Chronic Conditions by Sex (%)						
Location	Study Area		Eastern RIHA		Newfoundland ¹	
	M	F	M	F	M	F
Sex	M	F	M	F	M	F
Number	<i>Percentage of Respondents</i>					
None	43.9	29.8	36.8	26.6	37.5	26.9
One	20.3	25.0	26.8	24.2	26.4	23.6
Two	18.7	11.5	16.8	20.2	16.4	19.0
Three or more	17.1	33.7	19.5	29.1	19.7	30.5
Total sampled	129	109	1940	2026	3897	4048
<i>Source: Newfoundland Adult and Community Health Survey, 2001, Newfoundland and Labrador Statistics Agency</i> ¹ : <i>Island portion of the province, see Appendix 1 for a definition</i>						

Table 21 shows that the most often reported chronic conditions for males were arthritis and rheumatism, recurring backaches, high blood pressure, and heart disease. For females, the most often reported conditions were arthritis and rheumatism, recurring backaches, high blood pressure, and allergies. Both males and females in the Study Area reported considerably fewer allergies than in either of the other two areas. Very few males in the Study Area reported asthma, but a greater percentage reported heart disease than either Eastern RIHA or the island portion of the province. In all areas females reported many conditions at a higher rate than males, for example, arthritis and rheumatism, backaches, allergies, high blood pressure, headaches, and asthma. The only condition reported at a higher rate by males (in all areas) was heart disease.

Table 21: Major Self Reported Chronic Conditions by Sex (%)						
Location	Study Area		Eastern RIHA		Newfoundland ¹	
	M	F	M	F	M	F
Condition	<i>Percentage of Respondents</i>					
Arthritis, rheumatism	22.1	29.3	20.2	26.2	21.4	27.6
Backaches (recurring)	16.9	21.3	17.9	22.2	18.1	21.5
Allergy (of any kind)	8.0	18.6	15.4	24.7	15.1	24.3
High blood pressure	14.9	21.5	14.9	16.7	15.4	18.3
Headaches (recurring)	4.8	15.4	7.2	16.8	7.3	17.1
Asthma	2.9	11.5	6.6	10.1	6.5	9.7
Diabetes	8.6	8.6	7.1	6.2	7.2	7.1
Heart disease	10.0	5.1	7.9	5.3	7.9	5.5
No condition reported	43.7	29.9	36.8	26.6	37.5	26.9
Total sampled	129	109	1940	2026	3897	4048
<i>Source: Newfoundland Adult and Community Health Survey, 2001, Newfoundland and Labrador Statistics Agency</i>						
<i>¹: Island portion of the province, see Appendix 1 for a definition</i>						

The severity of self reported disability (Table 22) is similar between the Study Area, the Eastern RIHA, and the island portion of the province for both males and females.

Table 22: Severity of Disability by Sex (%)						
Location	Study Area		Eastern RIHA		Newfoundland ¹	
	M	F	M	F	M	F
	<i>Percentage of Respondents</i>					
No disability	85.2	87.6	85.9	85.8	85.6	86.4
Temporary disability	3.3	0	2.8	3.1	2.8	2.8
Permanent disability	11.5	12.4	11.3	11.1	11.6	10.8
Total sampled	129	109	1940	2026	3896	4047
<p><i>Source: Newfoundland Adult and Community Health Survey, 2001, Newfoundland and Labrador Statistics Agency</i></p> <p>¹: <i>Island portion of the province, see Appendix 1 for a definition</i></p>						

Ratings for self reported emotional status were similar across the Study Area, Eastern RIHA, and the island portion of the province (Table 23), with most having the rating of either “excellent” or “good”. When comparing between the sexes, slightly more males report being in excellent emotional status, while slightly more females report being in fair or poor emotional status.

Table 23: Self Reported Emotional Status ¹ by Sex (%)						
Location	Study Area		Eastern RIHA		Newfoundland ²	
Sex	M	F	M	F	M	F
Rating	<i>Percentage of Respondents</i>					
Excellent	46.3	41.9	45.1	42.2	45.4	40.7
Good	47.2	47.6	47.3	48.3	47.2	49.2
Fair	5.7	10.5	7.1	8.6	6.8	9.3
Poor	0.8	0	0.5	0.9	0.6	0.9
Total sampled	129	109	1940	2026	3897	4048
<i>Source: Newfoundland Adult and Community Health Survey, 2001, Newfoundland and Labrador Statistics Agency</i> ¹ : see Appendix 1 for the question and grouping of results ² : Island portion of the province, see Appendix 1 for a definition						

Combining the categories “not at all stressful” and “not very stressful” in Table 24, males and females in the Study Area reported less stress in their daily lives than either Eastern RIHA or the island portion of the province. This is also shown, particularly for males, where more reported “not at all stressful” compared to Eastern RIHA or the island portion of the province.

Table 24: Self Reported Stress Level in Daily Life ¹ by Sex (%)						
Location	Study Area		Eastern RIHA		Newfoundland ²	
Sex	M	F	M	F	M	F
	<i>Percentage of Respondents</i>					
Not at all stressful	23.6	15.5	17.1	13.8	17.8	14.2
Not very stressful	24.4	26.2	24.0	22.5	25.0	22.9
A bit stressful	43.9	44.7	44.3	46.2	43.1	46.0
Quite a bit stressful	6.5	11.7	11.6	14.3	11.2	14.0
Extremely stressful	1.6	1.9	3.0	3.2	2.9	3.0
Total sampled	129	108	1937	2022	3891	4042
<i>Source: Newfoundland Adult and Community Health Survey, 2001, Newfoundland and Labrador Statistics Agency</i> ¹ : “Thinking about the amount of stress in your life, would you say that most days are...?” ² : Island portion of the province, see Appendix 1 for a definition						

One of the major stressors of daily life is coping with finances. In Table 25 a slightly greater percentage of male respondents in the Study Area felt “very good” or “good” about their financial circumstances (52.4%) as compared with Eastern RIHA (46.1%) and the island portion of the province (45.8%). The percentage of females in these two categories was remarkably similar across the three areas (42.3%, 42.8%, and 42.5% respectively). At the other end of the scale, combining those who reported “just getting by” or “can’t cope”, 30.7% of females in the Study Area are in these categories compared to 18.8% of males.

Table 25: Financial Circumstances ¹ by Sex (%)						
Location	Study Area		Eastern RIHA		Newfoundland ²	
	M	F	M	F	M	F
	<i>Percentage of Respondents</i>					
Very good	25.4	16.3	18.8	17.5	19.4	17.2
Good	27.0	26.0	27.3	25.3	26.4	25.3
Satisfactory	28.7	26.9	32.4	29.7	31.3	29.3
Just getting by	18.0	28.8	20.0	25.8	21.4	26.5
Can't cope	0.8	1.9	1.5	1.6	1.5	1.8
Total sampled	129	108	1932	2011	3885	4026
<p><i>Source: Newfoundland Adult and Community Health Survey, 2001, Newfoundland and Labrador Statistics Agency</i></p> <p>¹: “Given your annual household income and considering your monthly expenditures on food, car, housing etc., would you consider your financial circumstances to be....”</p> <p>²: Island portion of the province, see Appendix 1 for a definition</p>						

Those who responded “very good”, “good”, or “satisfactory” to Table 25, were asked about how their financial reserves would be affected if their primary source of income were to stop for three months. Table 26 shows that a slightly greater percent of male respondents in the Study Area (69.3%) thought they “could easily cope” or “could cope, but would have to cut back” compared to Eastern RIHA (62.1%) and the island portion of the province (61.0%). Females in the Study Area were almost twice as likely as males to choose the response “could just manage” (31.9% females; 17.8% males). Also, Study Area females were more likely than females in either Eastern RIHA or the island portion of the province (31.9%, 23.2%, and 23.8% respectively) to chose this response (“could just manage”).

Table 26: Financial Reserves ¹ Among Those who Responded Very Good, Good, or Satisfactory to Table 25 (Financial Circumstances) by Sex (%)						
Location	Study Area		Eastern RIHA		Newfoundland ²	
Sex	M	F	M	F	M	F
	<i>Percentage of Respondents</i>					
Could easily cope	28.7	11.1	21.0	15.1	20.2	14.2
Could cope, but would have to cut back	40.6	41.7	41.1	40.5	40.8	40.0
Could just manage	17.8	31.9	22.2	23.2	22.2	23.8
Would have to borrow to survive	6.9	9.7	9.2	10.9	9.4	10.5
Couldn't cope	5.9	5.6	6.6	10.3	7.4	11.5
Total sampled	102	77	1473	1428	2910	2814
<p><i>Source: Newfoundland Adult and Community Health Survey, 2001, Newfoundland and Labrador Statistics Agency</i></p> <p>¹: “If your primary sources of income (from employment, E.I., pensions etc.) were to stop for 3 months, then which statement would likely best describe your situation. Would it be...”</p> <p>²: Island portion of the province, see Appendix 1 for a definition</p>						

When asked, “*Considering everything, would you say that your household is better off, worse off, or about the same financially today as compared to 5 years ago?*” Table 27 shows that a greater percentage of females in the Study Area thought they were “better off” (45.6%) than Eastern RIHA (36.0%) or the island portion of the province (35.7%). Males in the Study Area were more likely to consider themselves “about the same” compared to males in the other areas. The percentages for “worse off” in Eastern RIHA and the island portion of the province were considerably higher than the Study Area for both sexes.

Table 27: Financial Status Compared to Five Years Ago ¹ by Sex (%)						
Location	Study Area		Eastern RIHA		Newfoundland ²	
	M	F	M	F	M	F
	<i>Percentage of Respondents</i>					
Better off	40.8	45.6	44.1	36.0	41.9	35.7
About the same	43.3	39.8	35.1	42.2	37.5	42.5
Worse off	15.8	14.6	20.8	21.8	20.6	21.8
Total sampled	127	107	1906	1994	3835	3979
<p><i>Source: Newfoundland Adult and Community Health Survey, 2001, Newfoundland and Labrador Statistics Agency</i></p> <p>¹: “<i>Considering everything, would you say that your household is better off, worse off, or about the same financially today as compared to 5 years ago?</i>”</p> <p>²: <i>Island portion of the province, see Appendix 1 for a definition</i></p>						

5.0 MORTALITY AND MORBIDITY

5.1 Mortality

The top two major causes of death in the Study Area, Eastern RIHA, the province, and Canada are diseases of the circulatory system and cancer, with diseases of the respiratory system in third place (Table 28). Females in the Study Area have a higher cancer mortality rate (3.2) than males or females in Eastern RIHA (2.6, 2.0), the province (2.6, 1.9), or Canada (2.2, 1.9). Males in the Study Area have the highest mortality rate from diseases of the circulatory system (3.5) when compared to males or females in Eastern RIHA (3.3, 3.0), the province (3.3, 2.9), or Canada (2.5, 2.4). Males in the Study Area also had the highest mortality rate of diseases of the respiratory system (0.9).

Table 28: Cause Specific Death Rates, All Ages, 1999-2003								
Deaths/1,000 Population (5-year average)								
Location	Study Area		Eastern RIHA		Province		Canada	
	M	F	M	F	M	F	M	F
Infectious and Parasitic Diseases	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1
All Malignant Neoplasms	3.2	2.1	2.6	2.0	2.6	1.9	2.2	1.9
Endocrine, Nutritional, and Metabolic Diseases, and Immunity Disorders	0.3	0.3	0.3	0.3	0.3	0.4	0.3	0.3
Diseases of the Nervous System	0.4	0.5	0.4	0.5	0.3	0.4	0.3	0.4
Diseases of the Circulatory System	3.5	2.5	3.3	3.0	3.3	2.9	2.4	2.4
Diseases of the Respiratory System	0.9	0.5	0.7	0.5	0.7	0.5	0.6	0.6
Diseases of the Digestive System	0.2	0.1	0.2	0.2	0.2	0.2	0.3	0.3
Diseases of the Genitourinary System	0.1	0.1	0.2	0.2	0.2	0.2	0.1	0.1
Injury and Poisoning	0.2	0.3	0.4	0.3	0.4	0.3	0.6	0.3

Source: Statistics Canada, Annual Mortality File, 1999-2003
 Statistics Canada, Canadian Vital Statistics, Death Database, 2000-2003
 Statistics Canada, Causes of Death, Shelf Tables, 1999
 Population Estimates for Census Subdivisions (based on 2001 Census), Statistics Canada
 Statistics Canada, Demography Division, 2001

5.2 Morbidity

Morbidity data is based on hospitalizations for various causes, including clinical data collected on all acute and surgical day care patients, as well as some long-term and medical day care patients. In this report we focus on acute care hospitalizations. Please see Appendix 4: Morbidity Technical Notes for an explanation of the following morbidity tables.

The top three causes of hospitalizations (not including pregnancy and childbirth) for all areas of residence are (Table 29): diseases of the circulatory system, the digestive system, and the respiratory system.

Table 29: Acute Care Hospital Separations by Cause¹, 1999/00-2003/04								
Separations/100,000 Population (5-year average)								
Area of Residence	Study Area		Eastern RIHA		Province		Canada²	
Sex	M	F	M	F	M	F	M	F
Infectious and Parasitic Diseases	117.2	125.4	129.8	127.6	126.9	127.0	147	145
All Malignant Neoplasms	631.1	701.5	583.8	517.7	622.9	535.6	563	537
Endocrine, Nutritional, Metabolic Diseases and Immunity Disorders	255.4	414.9	288.2	309.7	294.9	336.6	190	231
Diseases of Blood and Blood-Forming Organs	153.3	152.2	109.5	135.9	122.5	138.7	74	89
Mental Disorders	562.0	435.8	643.2	579.9	642.8	613.6	496	574
Diseases of the Nervous System and Sense Organs	225.4	238.8	209.7	209.9	252.6	259.2	188	201
Diseases of the Circulatory System	1959.4	1564.2	1831.0	1342.8	1996.3	1484.6	1656	1249
Diseases of the Respiratory System	1208.1	1089.6	1074.3	928.9	1215.7	1049.1	884	780
Diseases of the Digestive System	1274.2	1373.1	1082.8	1194.0	1238.0	1417.6	1016	1070
Diseases of the Genitourinary System	426.7	1017.9	385.9	927.9	473.9	1000.4	397	743
Diseases of the Skin and Subcutaneous Tissue	156.3	143.3	120.4	115.9	144.7	134.8	107	95
Diseases of the Musculoskeletal System and Connective Tissue	399.7	391.0	356.0	364.4	406.6	420.1	389	449
Congenital Anomalies	60.1	26.9	63.8	40.7	68.9	46.3	57	44
Injury and Poisoning (nature)	733.3	609.0	707.1	631.1	828.6	704.9	835	744
Pregnancy and Childbirth	0.0	1755.2	0.0	2210.6	0.0	2201.9	0.0	2555

Source: Clinical Database Management System 1999/00 to 2003/04;
Population Estimates for Census Subdivisions (based on 2001 Census), Statistics Canada
Canadian rates are from the Canadian Institute for Health Information online report "Hospital Morbidity Tabular Reports 2000-2001" available at
<http://secure.cihi.ca/cihiweb/products/HospitalMorbidityTabularReports2000-2001.pdf>

¹: based on the most responsible diagnosis
²: rates are for fiscal year 2000/1

Rates of hospitalizations for diseases of the circulatory system and respiratory system were highest for the study area, with the province second, followed by Eastern RIHA and Canada. Rates of hospitalizations for diseases of the digestive system were highest for the province, followed by the study area, Eastern RIHA and then Canada. Pregnancy and childbirth rates in the Study Area are lower than that seen in Eastern RIHA, the province, or Canada.

There is a higher hospital separation rate for all diseases of the circulatory system in the province compared to Eastern RIHA and the Study Area, with the following exceptions: the rate of hospitalizations for atherosclerosis, cerebrovascular, and other heart diseases was highest in the study area (Table 30). Males have higher hospitalization rates than females for all circulatory diseases in all areas.

Table 30: Acute Care Hospital Separations for Diseases of the Circulatory System¹, 1999/00 - 2003/04								
Separations/100,000 Population (5-year average)								
Area of Residence	Study Area		Eastern RIHA		Province		Canada²	
Sex	M	F	M	F	M	F	M	F
All Circulatory Diseases	1959.4	952.2	1831.0	1342.8	1996.3	1484.6	1656	1249
Diseases of Heart	1451.5	1173.1	1388.0	1012.8	1524.0	1127.3	1282	921
Ischemic Heart	868.5	635.8	849.4	505.5	963.6	574.9	790	433
Other Heart	583.0	537.3	538.6	507.3	560.5	552.4	492	488
Cerebrovascular	231.4	191.0	192.2	158.9	211.7	177.8	210	204
Atherosclerosis	141.2	44.8	88.5	45.2	73.3	34.6	28	18
Other Circulatory	135.2	155.2	162.3	125.9	187.3	144.9	135	105

*Source: Clinical Database Management System 1999/00 to 2003/04
 Population Estimates for Census Subdivisions (based on 2001 Census), Statistics Canada
 Canadian rates are from the Canadian Institute for Health Information online report "Hospital Morbidity Tabular Reports 2000-2001" available at
<http://secure.cihi.ca/cihiweb/products/HospitalMorbidityTabularReports2000-2001.pdf>*

¹: based on the most responsible diagnosis
²: rates are for fiscal year 2000/1

Hospitalizations for all endocrine, nutritional, and metabolic diseases, and immunity disorders (Table 31) were higher for the study area than Eastern RIHA, Canada, and the province. There was a considerable difference in hospitalization rates for diabetes between males and females in the Study Area compared to rates between males and females in other areas.

Table 31: Acute Care Hospital Separations for Endocrine, Nutritional, and Metabolic Diseases, and Immunity Disorders¹, 1999/00-2003/04								
Separations/100,000 Population (5-year average)								
Area of Residence	Study Area		Eastern RIHA		Province		Canada²	
Sex	M	F	M	F	M	F	M	F
All Endocrine, Nutritional, and Metabolic Diseases, and Immunity Disorders	252.4	414.9	287.1	307.7	293.7	334.8	190	231
Diabetes Mellitus	135.2	203.0	192.1	169.5	196.2	194.4	104	91
Other Endocrine, Nutritional, and Metabolic Diseases, and Immunity Disorders	117.2	211.9	95.1	138.2	97.5	140.4	85	141

*Source: Clinical Database Management System 1999/00 to 2003/04
Population Estimates for Census Subdivisions (based on 2001 Census), Statistics Canada
Canadian rates are from the Canadian Institute for Health Information online report "Hospital Morbidity Tabular Reports 2000-2001" available at
<http://secure.cihi.ca/cihiweb/products/HospitalMorbidityTabularReports2000-2001.pdf>*

¹: based on the most responsible diagnosis
²: rates are for fiscal year 2000/1

Hospitalization rates for all types of malignant neoplasms combined (Table 32) were highest for the study area, followed by the province and Canada, and lowest for Eastern RIHA. Hospitalization rates for most malignant neoplasms (excluding gender specific neoplasms) were generally higher for males.

**Table 32: Acute Care Hospital Separations for Malignant Neoplasms¹
1999/00-2003/04**

Separations/100,000 Population (5-year average)								
Area of Residence	Study Area		Eastern RIHA		Province		Canada ²	
Sex	M	F	M	F	M	F	M	F
All Malignant Neoplasms	664.2	713.4	571.4	515.6	611.7	533.6	563	537
Stomach Cancer	27.0	17.9	21.2	9.1	27.1	11.7	16	8
Colon Cancer	72.1	131.3	62.8	55.9	68.6	56.8	45	44
Pancreatic Cancer	24.0	6.0	11.4	8.0	11.6	9.5	14	13
Lung Cancer	96.2	68.7	72.1	32.7	85.2	38.4	86	58
Melanoma of the Skin ³	3.0	0.0	2.8	2.5	3.0	2.9	8	5
Other Skin Cancer ³	3.0	3.0	7.0	3.7	7.6	3.8		
Breast Cancer	3.0	92.5	0.8	113.9	0.8	117.0	1	114
Uterine Cancer	N/A	23.9	N/A	26.1	N/A	25.8	N/A	25
Cervical Cancer	N/A	9.0	N/A	15.3	N/A	15.3	N/A	12
Ovarian Cancer	N/A	17.9	N/A	18.6	N/A	22.4	N/A	22
Prostate Cancer	63.1	N/A	71.1	N/A	74.1	N/A	82	N/A
Testicular Cancer	0.0	N/A	4.0	N/A	3.5	N/A	3	N/A
Bladder Cancer	51.1	23.9	61.0	15.0	58.0	13.1	52	15
Kidney Cancer	15.0	3.0	17.5	9.6	20.9	12.0	17	11
Brain Cancer	15.0	11.9	20.3	12.0	19.8	11.1	16	11
Non-Hodgkin's Lymphoma ⁴	33.1	9.0	21.6	13.8	23.0	14.3	--	--
Leukemia	30.1	26.9	13.9	9.5	15.3	12.3	21	15
Other Neoplasms	228.4	268.7	183.8	169.8	193.2	167.1	202	184

Source: Clinical Database Management System 1999/00 to 2003/04
Population Estimates for Census Subdivisions (based on 2001 Census), Statistics Canada
Canadian rates are from the Canadian Institute for Health Information online report "Hospital Morbidity Tabular Reports 2000-2001" available at
<http://secure.cihi.ca/cihiweb/products/HospitalMorbidityTabularReports2000-2001.pdf>

- ¹: based on the most responsible diagnosis
²: rates are for fiscal year 2000/1
³: separate values not available for Canada
⁴: values not available for Canada

6.0 PREGNANCY/CHILDBIRTH AND CONGENITAL ANOMALIES

Selected perinatal health indicators are shown in Table 33. The birth rate in the Study Area is slightly lower than that of either Eastern RIHA or the province. The rates for preterm births and size (small and large) for gestational age are similar for all areas.

Table 33. Perinatal Health Indicators, 1999-2003						
Number (5-year average) and rate (see footnotes for details)						
	Study Area		Eastern RIHA		Province	
	Number	Rate	Number	Rate	Number	Rate
Live Birth ^{1,2}	93	7	2815	9.5	4761	9.1
Stillbirth ^{3,4}	--	--	10	3.5	25	5.3
Preterm Birth ⁵	7	7.8	224	8.0	351	7.4
Small for Gestational Age ^{6,8}	5	6.1	181	6.7	326	7.5
Large for Gestational Age ^{7,8}	13	14.6	405	14.9	673	14.6

Source: Newfoundland and Labrador Centre for Health Information, Live Birth System, 1999-2003;
Newfoundland and Labrador Centre for Health Information, Stillbirth System, 1999-2003;
Population Estimates for Census Subdivisions (based on 2001 Census), Statistics Canada

¹: rate expressed per 1,000 total population
²:excludes births for out-of-province residents
³:rate expressed per 1,000 births (stillbirths and live births)
⁴: excludes stillbirths for out-of-province residents
⁵: number of live births with a gestational age at birth of less than 37 completed weeks; rate expressed as a percentage of all live births
⁶: number of live births whose birth weight is below the standard 10th percentile of birth weight for gestational age; rate expressed as a percentage of all live births.
⁷: number of live births whose birth weight is above the standard 90th percentile of birth weight for gestational age; rate expressed as a percentage of all live births.
⁸: excludes multiple births where size for gestational age cannot be determined
 --: data suppressed where cell counts less than 5

A congenital anomaly is an abnormality of structure, function, or body metabolism that is present at birth and results in physical or mental disability, or is fatal. According to the document *Congenital Anomalies in Canada, a Perinatal Health Report, 2002*, 2-3% of babies born in Canada each year will have a serious congenital anomaly. While infant mortality due to serious congenital anomalies has been decreasing in Canada (3.1 per 1,000 live births in 1981, 1.9 per 1,000 live births in 1991), they still remain a leading cause of death in Canadian infants in both the neonatal and postnatal periods.

While it has been estimated that 15-25% of congenital anomalies are due to an underlying genetic factor, 8-12% are due to environmental factors (maternal related conditions, drug, or chemical exposures), and 20-25% are due to multifactorial inheritance, the majority of congenital anomalies (40-60%) are due to unexplained causes (*Congenital Anomalies in Canada, a Perinatal Health Report, 2002*).

Neural tube defects (NTDs) are congenital anomalies resulting from the failure of the neural tube to close during early embryonic development. Before the Canada-wide introduction of folic acid supplementation in flour, cereals, and pastas in 1998, the province of Newfoundland and Labrador had the highest incidences of NTDs in Canada (average yearly incidence, 1976/7 of 3.4 per 1,000 live births; Liu, et al, 2004). Since then incidence rates have decreased dramatically (0.96 per 1,000 live births, 1998/00; Liu, et al, 2004). Recently De Wals, et al, (2007) reported the prevalence of neural tube defects in Newfoundland and Labrador as 4.56 per 1,000 live births pre-fortification (January 1993-September 1997), 1.42 per 1,000 live births during partial fortification (October 1997-March 2000), and 0.76 per 1,000 live births after full fortification (April 2000 – December 2002).

Hospitalizations for selected pregnancy/childbirth and congenital anomalies are shown in Table 34. Data is suppressed where the cell count is less than 5, so no comparisons can be made between the Study Area and the other areas for any of the diagnoses included in the table.

Table 34. Hospitalizations ¹ for Pregnancy/Childbirth and Congenital Anomalies Diagnoses, 1999/00–2003/04						
Separations (5-year average) and rate (see footnotes for details)						
	Study Area		Eastern RIHA		Province	
	Number	Rate	Number	Rate	Number	Rate
Spontaneous Abortion ³	--	--	61	21.9	151	31.5
Medical/Legally Induced Abortion ³	--	--	196	69.9	318	66.5
Congenital Anomaly – Total ²	--	--	160	9.1	292	9.5
Newborn ³	--	--	40	14.2	69	14.4
< 1 year old ^{4,5}	--	--	49	17.8	101	21.5
1 to 5 years old ⁴	--	--	71	4.8	123	4.7
Down Syndrome – Total ²	--	--	--	--	--	--
Newborn ³	--	--	--	--	--	--
< 1 year old ^{4,5}	--	--	--	--	--	--
1 to 5 years old ⁴	0	0.0	0	0.0	--	--
Spina Bifida – Total ²	0	0.0	--	--	--	--
Newborn ³	0	0.0	--	--	--	--
< 1 year old ^{4,5}	0	0.0	--	--	--	--
1 to 5 years old ⁴	0	0.0	0	0.0	--	--

Source: Clinical Database Management System, 1999/00 – 2003/04, Newfoundland and Labrador Centre for Health Information; Population Estimates for Census Subdivisions (based on 2001 Census), Statistics Canada

¹: see Appendix 5: Pregnancy/Childbirth and Congenital Anomalies Technical Notes
²: rate expressed per 1,000 total population
³: rate expressed per 1,000 live births
⁴: rate expressed per 1,000 population in respective age group
⁵: excludes newborns
--: data suppressed where cell counts less than 5

7.0 DISCUSSION

In this report the Study Area is compared with the regional health authority (Eastern RIHA) of which it is a part, the province (where data is available) and Canada. While the Eastern RIHA has a large rural component, it also encompasses the largest urban portion of the province, the St. John's Metropolitan area. Because St. John's area population demographics (such as age, employment, income, and education) are closer to the Canadian average than the provincial average, this likely influences much of the health data for the Eastern RIHA as a whole.

7.1 Socio-Demographic and Education

Socioeconomic information collected in the 2001 Canada Census and the Newfoundland Adult and Community Health Survey shows that the Study Area had:

- ▶ approximately 4% fewer males and females in the prime wage earning years (25-44 years of age) compared to Eastern RIHA and the province.
- ▶ greater than 4% more males and females in the 45 and over age group compared to Eastern RIHA and the province.
- ▶ approximately 2% more seniors (65 years or older) compared to Eastern RIHA and the province.
- ▶ 5% more married persons than Eastern RIHA and 3% more than the province.
- ▶ at least 3% fewer single persons than Eastern RIHA or the province.
- ▶ more self-employed males and not employed for pay females compared to Eastern RIHA and the island portion of the province.
- ▶ 3% more retired people than Eastern RIHA.
- ▶ fewer than half the percentage of males in management, business, or health occupations; but many more in trades, transport and equipment operators, and in occupations unique to primary industry or processing, manufacturing and utilities, compared to Eastern RIHA and the province.
- ▶ fewer females in management, business, or health occupations, but more in sales and service, and occupations unique to primary industry or processing, manufacturing and utilities, than Eastern RIHA and the province.
- ▶ a considerably higher rate of unemployment than Eastern RIHA or the province, particularly in the 15-24 year age group.
- ▶ lower participation and employment rates for both males and females than the other areas.
- ▶ much lower participation and employment rates for females than males.

- ▶ an average income per family or household which is more than 11% lower than that in the Eastern RIHA and around 5% lower than the provincial average.
- ▶ females who were twice as likely as males to have no income, and who had an average income which was about half that of males.
- ▶ 10% more unattached individuals aged 15 and over in the Study area that fall below the Low Income Cut Offs, compared to Eastern RIHA and the province. However, the percent of the population in private households that fell below the Low Income Cutoffs was similar across all areas analyzed (between 16.2-28.8%). This may be because those residing in private households were more likely to have more than one person resident in the household (see Table 12) and hence more than one income per household. Table A2.1 in Appendix 2 shows that a family of two living in a rural area (which most of the Study Area would be classified as) would have had a low-income cut-off of \$18,666 compared to \$14,933 for a single person. Thus a second person in a household only need to have earned \$4,000 to take the family out of the low-income group if the other person earned near to \$15,000.
- ▶ more adults in the two lowest income adequacy categories than the island portion of the province or Eastern RIHA.
- ▶ fewer one-person households than in Eastern RIHA, the province, or Canada. However, the average number of persons per household was the same in all areas.
- ▶ 10% more adults without a high school graduation certificate compared with Eastern RIHA and 5% more than the province.

7.2 Personal Health Practices and Coping Skills

It should be noted that self reporting has inherent limitations compared to direct measurement. Personal health practice indicators collected through the Newfoundland Adult and Community Health Survey, 2001 shows that the Study Area had:

- ▶ 3% (male) and 4% (female) fewer current smokers than Eastern RIHA and the island portion of the province.
- ▶ a similar percentage of current drinkers in males compared to Eastern RIHA and the island portion of the province.
- ▶ at least 5% fewer females who were current drinkers than the other areas.
- ▶ males who were twice as likely as females to be current drinkers and females who were three times more likely than males never to have had an alcoholic drink.
- ▶ twice as many females, but fewer males, who reported a sedentary lifestyle compared to Eastern RIHA and the island portion of the province.
- ▶ almost three times the number of females compared to males who were leading a non-active lifestyle (sedentary or only taking light activity).

- ▶ 5% more males and 8% more females who could be classified as either overweight or obese (BMI value of 25 and over) compared to Eastern RIHA.

7.3 Self-Reported Health Status

Indicators of health status collected through the Newfoundland Adult and Community Health Survey, 2001, shows that the Study Area had:

- ▶ 11% more males, but at least 5% fewer females who rated their health as “excellent” or “very good” compared with Eastern RIHA and 3% more than the island portion of the province.
- ▶ 6% fewer males but 3% more females who reported one or more chronic conditions compared to Eastern RIHA and the island portion of the province.
- ▶ fewer males who reported recurring headaches, allergies, or asthma than in Eastern RIHA or the province but more who reported heart disease than the other areas.
- ▶ fewer females who reported allergies or headaches than in Eastern RIHA or the province but more who reported arthritis or rheumatism, or high blood pressure,
- ▶ a slightly raised percentage of males or females who reported diabetes when compared to Eastern RIHA or the province.
- ▶ similar percentages of persons who reported their emotional health status as “excellent” or “good” compared to Eastern RIHA and the island portion of the province.
- ▶ a third fewer males and females who reported high stress levels in daily life compared to Eastern RIHA and the island portion of the province.
- ▶ slightly more males who felt “good” or “very good” about their financial circumstances compared to Eastern RIHA and the island portion of the province.
- ▶ slightly more females who felt that they were “just getting by” or “can’t cope” with their financial circumstances compared to Eastern RIHA or the island portion of the province.
- ▶ nearly 8% more males who felt they could “easily cope” if their primary sources of income were to stop for three months compared to Eastern RIHA, and 8.5% more compared to the island portion of the province.
- ▶ females who were 8% more likely to respond that they “could just manage” than those in Eastern RIHA or the island portion of the province when responding to the same question.
- ▶ approximately 10% more females who considered their financial status “better off” than five years previously compared to Eastern RIHA, and 4% more compared to the island portion of the province; but males were more likely to report that things were “about the same”.

7.4 Mortality and Morbidity

Mortality (death) and morbidity (acute care hospital separation) rates are indicators of the general health in a population. It should also be noted that for conditions with low incidence, small numbers may produce large changes in rates and must be interpreted accordingly.

Mortality and morbidity indicators show that compared to the Eastern RIHA and the Province, the Study Area had:

- ▶ the same three major causes of death – diseases of the circulatory system, cancer, and diseases of the respiratory system.
- ▶ similar mortality rates among males and females.
- ▶ the highest rate of circulatory disease deaths among males.
- ▶ the highest rate of respiratory disease deaths among males.
- ▶ the same three major causes of hospitalizations (not including pregnancy and childbirth) – diseases of the circulatory system, the digestive system, and the respiratory system.
- ▶ approximately three quarters of the separations for pregnancy and childbirth.
- ▶ a slightly higher rate for diabetes mellitus related hospitalizations for females and a slightly lower rate for diabetes mellitus related hospitalizations for males when compared to other areas.
- ▶ the highest separation rates for males and females for all malignant neoplasms combined.

7.5 Pregnancy/Childbirth and Congenital Anomalies

Indicators for pregnancy/childbirth and congenital anomalies showed that compared to Eastern RIHA and the province, the Study Area had:

- ▶ a slightly lower birth rate.
- ▶ a similar rate for preterm births.

Due to the small numbers of some indicators or hospitalizations in the Study Area or Eastern RIHA the resulting numbers have had to be suppressed from the tables. This reduces the cases where a difference or a similarity can be noted.

8.0 CONCLUSIONS

The objective of this report is to provide relevant baseline data on the health status of the potential impact area for the proposed VBNC commercial nickel processing plant at Long Harbour. This area was defined as the area encompassed by consolidated census subdivisions 1A, 1B, 1X, and 1Y and is called the Study Area for the purposes of this report.

Overall, the Study Area shows some differences when compared to the Eastern RIHA and the province for indicators included in this report. Many differences are small and should be interpreted with caution because of small numbers in the Study Area. Overall, as of 2001, the population of the Study Area was marginally older, had fewer single persons, fewer one person households, a higher rate of unemployment, lower participation and employment rates, lower average family income, fewer current smokers (for either sex), more overweight people, and lower stress levels when compared to the other areas.

Comparing males and females within the Study Area it is clear that, in 2001, there was a wide wage gap where the average male income was almost twice that of females. This probably influenced the responses about financial security; more males felt good about their financial circumstances while females were more likely to be pessimistic about their financial circumstances and less sure that they could manage if their income were to stop for three months. Females also had much lower participation and employment rates than males.

The variation in hospitalization rates between the Study Area and the other areas, for the years 1999/00-2003/04, was considerable in some cases. Again, it must be emphasized that the population in the Study Area was relatively small (13,000) and minor deviations in the number of hospitalizations for any cause can make a noticeable difference when quoted for a population of 100,000, as is the convention.

Since conditions reported here are those which prevailed at the time of the reviewed studies, changes in the population demographics will affect the health status of the area.

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APPENDIX 1
Definitions

Definitions below include the name of the data set they refer to: **NACHS**: Newfoundland Adult Community Health Survey, 2001; **Census**: Canada Census, 2001; and **Hospitalization** data.

Body mass index (BMI) (NACHS): a method of classifying body weight according to health risk. According to World Health Organization (WHO) and Health Canada guidelines, health risk levels are associated with each of the following BMI categories: normal weight = least health risk; underweight and overweight = increased health risk; obese class I = high health risk; obese class II = very high health risk; obese class III = extremely high health risk.

BMI is calculated as follows: weight in kilograms divided by height in metres squared.

The index is: under 18.5 (underweight); 18.5-24.9 (normal weight); 25.0-29.9 (overweight); 30.0-34.9 (obese-Class I); 35.0-39.9 (obese-Class II); 40 or greater (obese - Class III). The index is calculated for those aged 18 and over excluding pregnant women and persons less than 3 feet (0.914 metres) tall or greater than 6 feet 11 inches (2.108 metres).

Source: Statistics Canada, Canadian Community Health Survey, 2003, 2000/01, health file; Statistics Canada, National Population Health Survey, 1994/1995, 1996/1997 and 1998/1999 cross sectional sample, health file and North component.

<http://www.statcan.ca/english/freepub/82-221-XIE/2005001/defin1.htm#4>

Census family (Census): Refers to a married couple (with or without children of either or both spouses), a couple living common-law (with or without children of either or both partners), or a lone parent of any marital status, with at least one child living in the same dwelling. A couple living common-law may be of opposite or same sex. "Children" in a census family include grandchildren living with their grandparent(s) but with no parents present.

Census household (Census): Refers to a person or a group of persons (other than foreign residents), who occupy the same dwelling and do not have a usual place of residence elsewhere in Canada. It may consist of a family group (census family) with or without other non-family persons, of two or more families sharing a dwelling, of a group of unrelated persons, or of one person living alone. Household members who are temporarily absent on Census Day (e.g. temporary residents elsewhere) are considered as part of their usual household. For census purposes, every person is a member of one and only one household. Unless otherwise specified, all data in household reports are for private households only. Households are classified into three groups: private households, collective households, and households outside Canada.

Education (Census): Five questions collected information on the level of schooling in the Census.

- 1) What is the highest grade of secondary (high school) or elementary school attended by this person (completed or not)? The responses allowed were from 1 to 13, or never attended school, or attended kindergarten only.
- 2) How many years of education has this person completed at university? Responses allowed were none, less than one year, or the number of years.
- 3) How many years of schooling has this person ever completed at an institution other than a university, a secondary (high) school, or an elementary school? Responses allowed were none, less than one year, or the number of years.

4) In the past nine months was this person attending a school, college, or university? Responses allowed were no, yes (part time), and yes (full time).

5) What certificates, diplomas, or degrees has this person ever obtained? Responses allowed were: none, secondary, high school graduation certificate or equivalent, trades certificate or diploma, other non-university certificate or diploma, university certificate or diploma below bachelor level, bachelor's degree, university certificate or diploma above bachelor level, master's degree, degree in medicine, veterinary medicine or optometry, or earned doctorate.

The variable "highest level of schooling" is derived from the years of schooling questions and the question on degrees, certificates, and diplomas.

Employment rate (Census): The employment rate for a particular group (age, sex, marital status, geographic area, etc.) is the number employed in that group, expressed as a percentage of the population 15 years of age and over in that group, in the week prior to enumeration.

$$\text{Employment rate} = \frac{\text{Employed}}{\text{Population 15 years of age and over (excluding institutional residents)}} * 100$$

Employment status (NACHS): The question used to collect this information was: What is your current employment status? Are you ... Self-employed, Employed by company/organization, Not employed for pay, Retired, or Student. The respondent chose the response category most suitable to their situation.

Full-time or part-time weeks worked in 2000 (Census): Refers to persons who worked for pay or in self-employment in 2000. These persons were asked to report whether the weeks they worked in 2000 were full-time weeks (30 hours or more per week) or not, on the basis of all jobs held. Persons with a part-time job for part of the year and a full-time job for another part of the year were to report the information for the job at which they worked the most weeks.

Hospital separation (Hospitalization): The end point of a patient's hospital contact (death, discharge, sign out against medical advice, or transfer), which consists of one or several days of care. The number of separations is the most commonly used measure of the utilization of hospital services. Separations, rather than admissions, are used because hospital abstracts for inpatient care are based on information gathered at the time of separation. It should be noted that the number of separations presented in the tables does not necessarily represent unique patients as a unique patient may have had more than one separation within a fiscal year, and that separations are recorded based on the person's residence, not on the hospital visited.

Incidence of low income (Census): The incidence of low income is the proportion or percentage of economic families or unattached individuals in a given classification below the low income cut-offs. These incidence rates are calculated from un-rounded estimates of economic families and unattached individuals 15 years of age and over.

Island portion of the province (NACHS): The island of Newfoundland excluding the tip of the Northern Peninsula (consolidated Census Subdivisions 9C, 9D, and 9F).

Labour force (Census): Refers to persons who were either **employed** or **unemployed** during the week (Sunday to Saturday) prior to Census Day.

Not employed for pay (NACHS): An individual who does not fall in any of the categories: self-employed, employed by a company or organization, retired, or a student. It would include homemakers, the unemployed, those on strike, and those unable to work.

Participation rate (Census): The participation rate for a particular group (age, sex, marital status, geographic area, etc.) is the labour force in that group, expressed as a percentage of the population 15 years of age and over, in that group, in the week prior to enumeration.

$$\text{Participation rate} = \frac{\text{Labour Force}}{\text{Population 15 years of age and over (excluding institutional residents)}} * 100$$

Private household (Census): Refers to a person or a group of persons (other than foreign residents) who occupy a private dwelling and do not have a usual place of residence elsewhere in Canada.

Self reported emotional status (NACHS): The two questions were:
Here is a list that describes some of the ways people feel at different times. Please tell me if you have the feeling often, sometimes, or never. During the past few weeks, how often have you felt...(READ LIST) Would you say... Often...Sometimes...Never

- ... On the top of the world? (1,2,3)
- ... Very lonely or remote from other people? (3,2,1)
- ... Particularly excited or interested in something? (1,2,3)
- ... Depressed or very unhappy? (3,2,1)
- ... Pleased about having accomplished something? (1,2,3)

During the past few weeks, how often have you felt...

- ... Bored? (3,2,1)
- ... Proud because someone complimented you on something you had done? (1,2,3)
- ... So restless you couldn't sit long in a chair? (3,2,1)
- ... That things were going your way? (1,2,3)
- ... Upset because someone criticized you? (3,2,1)

Responses to these questions were averaged using 1 point for the best response, 2 for the middle, and 3 for the worst response. The values are shown next to the question. The mean values were then grouped to give four levels “excellent” (1-1.5), “good” (1.6-2.0), “fair” (2.1-2.5), and “poor” (2.6-3.0).

Study Area (Census and NACHS): The region surrounding the Long Harbour-Mount Arlington Heights area of the Province of Newfoundland and Labrador; specifically consolidated census subdivisions 1A, 1B, 1X, and 1Y.

Total income (Census): Total of income from all sources during the calendar year 2000, including employment income, income from government programs, pension income, investment income, and any other money income.

Unattached individuals (Census): Refers to household members who are not members of an economic family. Persons living alone are included in this category.

Unemployment rate (Census): The unemployment rate for a particular group (age, sex, marital status, geographic area, etc.) is the unemployed in that group, expressed as a percentage of the labour force in that group, in the week prior to enumeration.

$$\text{Unemployment rate} = \frac{\text{Unemployed}}{\text{Labour force}} * 100$$

APPENDIX 2
Low Income Cut Offs (LICOs), 2001

Table A2.1: 2001 Poverty Lines

November 29, 2002

The LICOs are published by Statistics Canada. Persons and families living below these income levels are considered to be living in "straitened circumstances." There are 35 different LICOs, varying according to family size and size of community. The LICOs are more popularly known as Canada's **poverty lines**.

Low-Income Cut-Offs (LICOs), 2001					
Family Size	Population of Community of Residence				
	500,000 +	100,000-499,999	30,000-99,999	Less than 30,000*	Rural
1	\$18,841	\$16,160	\$16,048	\$14,933	\$13,021
2	\$23,551	\$20,200	\$20,060	\$18,666	\$16,275
3	\$29,290	\$25,123	\$24,948	\$23,214	\$20,242
4	\$35,455	\$30,411	\$30,200	\$28,101	\$24,502
5	\$39,633	\$33,995	\$33,758	\$31,412	\$27,390
6	\$43,811	\$37,579	\$37,317	\$34,722	\$30,278
7 +	\$47,988	\$41,163	\$40,875	\$38,033	\$33,166

Notes: This table uses the 1992 base. Income refers to total pre-tax, post-transfer household income.

*Includes cities with a population between 15,000 and 30,000 and small urban areas (under 15,000).

Source: Prepared by the Canadian Council on Social Development using Statistics Canada's Low Income Cut-Offs, from *Low income cut-offs from 1992 to 2001* Catalogue # 75F0002MIE-2002005, November 2002.

Reading this table

Example: A family of four living in a very large Canadian city with an income (after transfers and before taxes) of less than \$35,455 in 2001, would have been living below the poverty line. A similar family living in a village would not have been below the poverty line, unless their income was less than \$24,502.

Source: http://www.ccsd.ca/factsheets/fs_lic01.htm

APPENDIX 3
Income Adequacy Grouping

Justification for income adequacy groupings:

In 1995, the research team of the 1995 Adult Health Survey contacted Statistics Canada for assistance in producing an income adequacy variable. Statistics Canada produced a table (Table A3.1) of income levels by the number of persons in a household that was suitable for Newfoundland and used the income categories that had been collected in the survey. The subsequent income adequacy variable had levels of: very low, low, lower middle, upper middle, and high income adequacy.

Table A3.1 Household Income Groups Used to Define Income Adequacy Variable (1996)					
Household Income Group	Household Size				
	1	2	3	4	5 or more
Very low	Less than \$10,000	Less than \$10,000	Less than \$10,000	Less than \$15,000	Less than \$15,000
Low	\$10,000 to \$14,999	\$10,000 to \$19,999	\$10,000 to \$19,999	\$15,000 to \$29,999	\$15,000 to \$29,999
Lower middle	\$15,000 to \$29,999	\$20,000 to \$39,999	\$20,000 to \$39,999	\$30,000 to \$49,999	\$30,000 to \$59,999
Upper middle	\$30,000 to \$39,999	\$40,000 to \$49,999	\$40,000 to \$59,999	\$50,000 to \$79,999	\$60,000 to \$79,999
High	\$40,000 or more	\$50,000 or more	\$60,000 or more	\$80,000 or more	\$80,000 or more

Comparing the low-income cut-offs (LICOs) for a community of size 30,000-99,999 (taken as the average value for Newfoundland) and for the years 1996 and 2001 we see the differences shown in Table A3.2.

Table A3.2 Differences in LICOs Between 1996 and 2001			
Family Size	1996 LICOs	2001 LICOs	Difference
1	\$14,591	\$16,048	\$1,457
2	\$18,239	\$20,060	\$1,821
3	\$22,684	\$24,948	\$2,264
4	\$27,459	\$30,200	\$2,741
5	\$30,695	\$33,758	\$3,063
6	\$33,930	\$37,317	\$3,387
7+	\$37,166	\$40,875	\$3,709

Since the income information collected in the 2001 Adult Health Survey is in \$5,000 (or multiples of \$5,000) bands, the ranges of incomes in the 1995 income adequacy table were increased by \$5,000. In some cases the range had to be adjusted for it to match an income range from the questionnaire. The final table is shown in Table A3.3.

Table A3.3 Household Income Groups Used to Define Income Adequacy Variable (2001)					
Household Income Group	Household Size				
	1	2	3	4	5 or more
Very low	\$15,000 or less	\$15,000 or less	\$15,000 or less	\$20,000 or less	\$20,000 or less
Low	\$15,001 to \$20,000	\$15,001 to \$25,000	\$15,001 to \$25,000	\$20,001 to \$35,000	\$20,001 to \$35,000
Lower middle	\$20,001 to \$35,000	\$25,001 to \$45,000	\$25,001 to \$45,000	\$35,001 to \$55,000	\$35,001 to \$75,000
Upper middle	\$35,001 to \$45,000	\$45,001 to \$55,000	\$45,001 to \$75,000	\$55,001 to \$100,000	\$75,001 to \$100,000
High	\$45,001 or more	\$55,001 or more	\$75,001 or more	\$100,001 or more	\$100,001 or more

APPENDIX 4
Morbidity Technical Notes

MORBIDITY TECHNICAL NOTES:

1. In April 2001, reporting facilities in the province of Newfoundland and Labrador implemented the *International Statistical Classification of Diseases and Related Health Problems – 10th revision, enhanced Canadian version/Canadian Classification of Interventions* (ICD-10-CA/CCI) as the coding system for diagnoses and interventions related to hospital morbidity and mortalities. This replaced the *International Classification of Diseases – 9th revision/Canadian Classification of Procedures* (ICD-9/CCP). Because of differences in the coding systems, direct comparison is not always possible or recommended. The following tables indicate how records were assigned to “cause” categories based on most responsible diagnosis codes.

Table A4.1: ICD-9 and ICD-10-CA Codes for Disease Categories		
Cause	ICD-9 Codes	ICD-10-CA Codes
Infectious & Parasitic Diseases	001-139	A00-B99
All Malignant Neoplasms	140-208	C00-C99
Endocrine, Nutritional, and Metabolic Diseases, and Immunity Disorders	240-279	E00-E90
Diseases of Blood and Blood-Forming Organs	280-289	D50-D89
Mental Disorders	290-319	F00-F99
Diseases of the Nervous System and Sense Organs	320-389	G00-G99
Diseases of the Circulatory System	390-459	I00-I99
Diseases of the Respiratory System	460-519	J00-J99
Diseases of the Digestive System	520-579	K00-K93
Diseases of the Genitourinary System	580-629	N00-N99
Diseases of the Skin and Subcutaneous Tissue	680-709	L00-L99
Diseases of the Musculoskeletal System and Connective Tissue	710-739	M00-M99
Congenital Anomalies	740-759	Q00-Q99
Injury and Poisoning (nature)	800-999	V01-Y98
Pregnancy and Childbirth	630-679	O00-O99

Table A4.2: ICD-9 and ICD-10-CA Codes for Circulatory Disease Categories		
Cause	ICD-9 Codes	ICD-10-CA Codes
All Circulatory Diseases	390-459	I00-I99
Diseases of Heart	390-429	I00-I52
Ischemic Heart	410-414	I20-I25
Other Heart	390-409; 415-429	I00-I19; I26-I52
Cerebrovascular	430-438	I60-I69
Atherosclerosis	440	I70
Other Circulatory	441-459	I71-I99

Table A4.3: ICD-9 and ICD-10-CA Codes for Endocrine, Nutritional, and Metabolic Disease, and Immunity Disorder Categories		
Cause	ICD-9 Codes	ICD-10-CA Codes
All Endocrine, Nutritional, and Metabolic Diseases, and Immunity Disorders	240-279	E00-E90
Diabetes Mellitus	250	E10-E14
Other Endocrine, Nutritional, and Metabolic Diseases, and Immunity Disorders	240-249; 251-279	E00-E09; E15-E90

Table A4.4: ICD-9 and ICD-10-CA Codes for Malignant Neoplasm Categories		
Cause	ICD-9 Codes	ICD-10-CA Codes
All Malignant Neoplasms	140-208	C00-C97
Stomach Cancer	151	C16
Colon Cancer	153	C18
Pancreatic Cancer	157	C25
Lung Cancer	162	C33-C34
Melanoma of Skin	172	C43
Other Skin Cancer	173	C44
Breast Cancer	174-175	C50
Uterine Cancer	179, 181-182	C54-C55
Cervical Cancer	180	C53
Ovarian Cancer	183	C56
Prostate Cancer	185	C61
Testicular Cancer	186	C62
Bladder Cancer	188	C67
Kidney Cancer	189	C64
Brain Cancer	191	C71
Non-Hodgkin's Lymphoma	202	C82-C83
Leukemia	204-208	C91-C95
Other Neoplasms	140-150, 152, 154-156, 158-161, 163-169, 170-171, 176-178, 184, 187, 190, 192-201, 203	C00-C15; C17, C19, C20-24, C26-C29, C30-C32, C35-C39, C40-C42, C45-C49, C51-C52, C60, C63, C65-C66, C68-69, C70, C72-C79, C80-C81, C84-C89, C90, C96-C99, C200-C201, C203

2. The number of hospitalizations presented in the tables do not necessarily represent unique patients, a patient may have had more than one separation within a fiscal year.
3. Rates were calculated using the five year average and then dividing by the 2001 population estimate for the given catchment area and gender, unless specified otherwise in the footnotes.

$$\frac{(\text{Sum of Total Hospitalizations 1999/00 to 2003/05}) / 5}{2001 \text{ Population Estimate}} \times 100,000$$

4. Population information was from Population Estimates for Census Subdivisions (based on 2001 Census) and Statistics Canada, Demography Division, 2001.
5. Only acute care hospitalizations were included in the analysis.
6. Geographic codes used to identify Study Area records:

Table A4.5: Standard Geographical Classification (SGC) Codes	
Census Subdivision	Standard Geographical Classification (SGC) Code
1A	1001289, 1001263, 1001285, 1001259, 1001270, 1001281, 1001274, 1001267, 1001277
1B	1001254, 1001240, 1001234
1X	1001207, 1001203
1Y	1001298, 1001293

7. All analyses were based on place of residence.
8. Eastern region refers to the new Eastern Regional Integrated Health Authority (RIHA).
9. Hospital Separation (definition): The end point of an inpatient hospital contact which consists of one or several days of care. A separation from a health care facility occurs anytime a patient (or resident) leaves because of death, discharge, sign-out against medical advice or transfer. The number of separations is the most commonly used measure of the utilization of hospital services. Separations, rather than admissions, are used because hospital abstracts for inpatient care are based on information gathered at the time of separation.

APPENDIX 5
Pregnancy/Childbirth and Congenital Anomalies Technical Notes

1. In April 2001, reporting facilities in the province of Newfoundland and Labrador implemented the *International Statistical Classification of Diseases and Related Health Problems – 10th revision, enhanced Canadian version/Canadian Classification of Interventions* (ICD-10-CA/CCI) as the coding system for diagnoses and interventions related to hospital morbidity. This replaced the *International Classification of Diseases – 9th revision/Canadian Classification of Procedures* (ICD-9/CCP).

The following table indicates how records were assigned to “cause” categories based on most responsible diagnosis codes.

Table A5.1: ICD-9 and ICD-10-CA Codes for Pregnancy/Childbirth and Congenital Anomalies Categories		
Cause	ICD-9 codes	ICD-10-CA Codes
Congenital Anomalies – Total	740-759	Q00-Q99
Down Syndrome	758.0	Q90
Spina Bifida	741	Q05
Spontaneous Abortion	634	O03
Medical/Legally Induced Abortion	635	O04

2. Rates were calculated using the five year average and then dividing by the 2001 population estimate, unless specified otherwise in footnotes.
3. Population information was from Population Estimates for Census Subdivisions (based on 2001 Census) and Statistics Canada, Demography Division, 2001.
4. Geographic codes used to identify the Study Area records (based on place of residence):

Table A5.2: Standard Geographical Classification (SGC) Codes	
Census Subdivision	Standard Geographical Classification (SGC) Code
1A	1001289, 1001263, 1001285, 1001259, 1001270, 1001281, 1001274, 1001267, 1001277
1B	1001254, 1001240, 1001234
1X	1001207, 1001203
1Y	1001298, 1001293

5. Hospitalizations include acute care and surgical day care hospital separations.
6. Hospital Separation (definition): The end point of an inpatient hospital contact which consists of one or several days of care. A separation from a health care facility occurs anytime a patient (or resident) leaves because of death, discharge, sign-out against

medical advice or transfer. The number of separations is the most commonly used measure of the utilization of hospital services. Separations, rather than admissions, are used because hospital abstracts for inpatient care are based on information gathered at the time of separation.