



ATLANTIC HEALTH DATABASE

PART D

HEALTH SERVICE UTILIZATION

NOTE

This volume is a companion to Appendix D, and contains brief text descriptions, definitions, data sources, and charts to accompany the Tables in the appendix. Of particular interest are gender differences in the results, so data in the various indicator sets are presented for both males and females.

This volume highlights which Atlantic region health districts have higher or lower rates of health service utilization according to CIHI and Statistics Canada's raw statistics. However, in many cases, sample sizes at the health district level were small, and the text does not account for the high variability that may result from wide confidence intervals. Statements comparing health service utilization at the health district level should therefore be interpreted with caution. For some indicators, confidence intervals are provided in the accompanying appendix.¹

Please see volume A for descriptions of the 21 Atlantic region health districts, which, in the case of Nova Scotia and Prince Edward Island, do not necessarily correspond with actual health region administrative boundaries.

¹ For example, in Section 3.1.2.2 of Part C, on ischaemic heart disease death rates, the following paragraph appears: "As with all comparative data at the health district level, these results should be interpreted with caution due to small sample sizes and correspondingly wide confidence intervals. For example, for females, seven other Atlantic health districts have a confidence interval with a low-end result that is below the high-end estimate for Bathurst (79.7). This means that it is statistically possible, with a 95% confidence interval, for any one of those eight health districts to have the lowest female ischaemic heart disease death rate in the region. For this reason, readers of these text volumes are referred to the confidence intervals provided in the accompanying appendices (in this case Appendix C, Table 123)." Such caveats are not written into each section, but they could apply to many of the other comparative data as well.

TABLE OF CONTENTS

4.1 Health Service Utilization/Expenditures	2
4.1.1 Contact with health professionals	3
4.1.1.1 Contact with medical doctors.....	3
4.1.1.2 Contact with alternative health care providers.....	7
4.1.1.3 Contact with health professionals about mental health.....	11
4.1.1.4 Contact with dental professionals	17
4.1.2 Hospitalization	20
4.1.2.1 Hip fracture hospitalization.....	20
4.1.2.2 Pneumonia and influenza hospitalization	23
4.1.2.3 Injury hospitalization	24
4.1.2.4 Ambulatory care sensitive conditions hospitalization	26
4.1.2.5 May not require hospitalization	27
4.1.3 Readmission rates	29
4.1.3.1 Acute myocardial infarction (AMI) readmission rate.....	29
4.1.3.2 Asthma readmission rate.....	31
4.1.3.3 Hysterectomy readmission rate.....	32
4.1.4 Inpatient hospital procedures	33
4.1.4.1 Coronary artery bypass graft (CABG).....	34
4.1.4.2 Hip replacement.....	35
4.1.4.3 Knee replacement.....	36
4.1.5 Availability of doctors/nurses	38
4.1.5.1 General/family practitioner and specialist rates.....	38
4.1.5.2 Number of nurses.....	42
4.1.6 Health expenditures	44

LIST OF FIGURES

Figure 309. “Contact” and “no contact” in the past 12 months with medical doctors, household population aged 12 and over, by sex, Canada and Atlantic Provinces, 2000/01 (%)	4
Figure 310. “Contact” and “no contact” in the past 12 months with medical doctors, household population aged 12 and over, by sex, Canada and Newfoundland and Labrador health districts, 2000/01 (%)	5
Figure 311. “Contact” in the past 12 months with medical doctors, household population aged 12 and over, by sex, Canada and Nova Scotia health districts, 2000/01 (%)	6
Figure 312. “Contact” in the past 12 months with medical doctors, household population aged 12 and over, females, Canada and Atlantic health districts with highest and lowest rates of contact, 2000/01 (%)	6
Figure 313. “Contact” and “no contact” in the past 12 months with alternative health care providers, household population aged 12 and over, by sex, Canada and Atlantic Provinces, 2000/01 (%)	10
Figure 314. “No contact” in the past 12 months with alternative health care providers, household population aged 12 and over, females, Canada and selected Atlantic health districts, 2000/01 (%)	11
Figure 315. “Contact” and “no contact” in the past 12 months with health professionals about mental health, household population aged 12 and over, by sex, Canada and Atlantic Provinces, 2000/01 (%)	15
Figure 316. “No contact” in the past 12 months with health professionals about mental health, household population aged 12 and over, by sex, Canada and Newfoundland and Labrador health districts, 2000/01 (%)	16
Figure 317. “No contact” in the past 12 months with health professionals about mental health, household population aged 12 and over, females, Canada and Atlantic health districts with the lowest and highest rates of no contact in the region, 2000/01 (%)	16
Figure 318. “No contact” in the past 12 months with health professionals about mental health, household population aged 12 and over, males, Canada and selected Atlantic health districts with low and high rates of no contact, 2000/01 (%)	17
Figure 319. “Contact” and “no contact” in the past 12 months with dental professionals, household population aged 12 and over, by sex, Canada and Atlantic Provinces, 2000/01 (%)	18
Figure 320. “Contact” in the past 12 months with dental professionals, household population aged 12 and over, by sex, Canada and New Brunswick health districts, 2000/01 (%)	19
Figure 321. “Contact” in the past 12 months with dental professionals, household population aged 12 and over, by sex, Canada and Newfoundland and Labrador health districts, 2000/01 (%)	19
Figure 322. “Contact” in the past 12 months with dental professionals, household population aged 12 and over, Canada and selected Atlantic health districts, 2000/01 (%)	20

Figure 323. Age standardized acute care hospitalization rate for hip fractures, per 100,000 population age 65 and older, by sex, Canada, Atlantic Provinces, and reporting Atlantic health districts, 2002 (rate)	22
Figure 324. Age standardized acute care hospitalization rate for hip fractures, per 100,000 population age 65 and older, females, for Canada, Atlantic Provinces, and reporting Atlantic health districts, 2002 (rate)	22
Figure 325. Age standardized acute care hospitalization rate for hip fractures, per 100,000 population age 65 and older, by sex, Canada and selected Atlantic health districts, 2002 (rate)	23
Figure 326. Age-standardized rate of acute care hospitalization for pneumonia and influenza per 100,000 population age 65 and older, by sex, Canada, Atlantic Provinces, and reporting Atlantic health districts, 2002 (rate)	24
Figure 327. Age-standardized rate of acute care hospitalization due to injuries resulting from the transfer of energy, per 100,000 population, by sex, Atlantic Provinces, and reporting health districts, 2002 (rate)	25
Figure 328. Age standardized ambulatory care sensitive conditions (ACSC) hospitalization rate, per 100,000 population, by sex, Canada, Atlantic Provinces, and reporting health districts, 2002 (rate)	27
Figure 329. Percentage of hospitalized patients who may not require hospitalization, by sex, Atlantic Provinces, and reporting health districts, 2002 (%).....	29
Figure 330. Risk-adjusted rate of unplanned readmission following discharge for acute myocardial infarction, both sexes, Canada, Maritime Provinces, and reporting health districts, 2002 (%)	30
Figure 331. Risk-adjusted rate of unplanned readmission following discharge for asthma, both sexes, Canada, Atlantic Provinces, and reporting health districts, 2002 (%)	32
Figure 332. Risk adjusted rate of unplanned readmission following discharge for hysterectomy, Canada, Atlantic Provinces, and reporting health districts, 2002 (%).....	33
Figure 333. Age-standardized rate of coronary artery bypass graft surgery, per 100,000 population age 20 and over, by sex, Canada, Atlantic Provinces, and reporting health districts, 2002 (rate)	35
Figure 334. Age-standardized rate of total unilateral or bilateral hip replacement surgery, rate per 100,000 population, by sex, Canada, Atlantic Provinces, and reporting Atlantic health districts, 2002 (rate)	36
Figure 335. Age-standardized rate of total unilateral or bilateral knee replacement surgery rate per 100,000 population, by sex, Canada, Atlantic Provinces, and reporting Atlantic health districts, 2002 (rate)	38
Figure 336. General practitioners/family practitioners per 100,000, Canada, Atlantic Provinces, and reporting Atlantic health districts, 1999 (rate).....	40
Figure 337. Specialists per 100,000 population, Canada, Atlantic Provinces, and reporting Atlantic health districts, 1999 (rate)	40
Figure 338. Family physicians per 100,000 population, Canada, Provinces, and Territories, 1997 and 2001 (rate).....	41

Figure 339. Specialists per 100,000 population, Canada, Provinces, and Territories, 1997 and 2001 (rate)	42
Figure 340. Registered Nurses employed, by Province/Territory of registration, percentage change between 1997 and 2001	43
Figure 341. Registered nurses per 10,000 population, Canada and selected Provinces/Territories, 1997-2001 (rate)	44
Figure 342. Per capita total health expenditure, Canada and Atlantic Provinces, 1975, 2000 and 2002 (current dollars/capita).....	45

4.1 Health Service Utilization/Expenditures

Access to good health care is a key determinant of health. Studies have found that access to a regular family physician, for example, can improve overall health status.² Yet Canadians have increasingly faced difficulties accessing health care services. According to Statistics Canada, one in eight Canadians reported having unmet health care needs in 2000/01, up from one in 24 in 1994/95, with long waits and unavailability of services the most frequently cited complaints.³

The Romanow Commission recently acknowledged that: “Providing timely access to quality health care services is a serious challenge in every province and territory.... Canadians’ first concern is with access, and that issue must be dealt with on a priority basis.”⁴ As one of its key recommendations, the Commission emphasized the need for access to primary care and health information 24 hours a day, seven days a week.⁵

The Romanow Commission also recognized significant rural-urban differences in access to medical care:

“Canadians in rural communities often have difficulty accessing primary health care and keeping health care providers in their communities, let alone accessing diagnostic services and other more advanced treatments...People in rural communities also have the added burden of paying for the high costs of travel in order to access the care they need. This often means days and weeks away from family and social support as well as the added cost of accommodation and meals...”

“Problems in access to health services quite often stem from serious shortages in health care providers in rural communities... In 1993, there was less than one physician per 1,000 people in rural and small town areas, compared to two or more physicians per 1,000 people in larger urban centres.”⁶

To remedy these difficulties, the Romanow Commission recommended a Rural and Remote Access Fund to attract and retain health care providers, to provide rural experiences as part of the education and training of physicians and nurses, to expand telehealth approaches, and generally “to support innovative ways of delivering health care services to smaller communities.”⁷

It is possible that the gap between health care needs and availability of services may help explain actual health outcomes in some cases. For example, Newfoundland and Labrador has the

² Shi, L. and B. Starfield, “The effect of primary care physician supply and income inequality on mortality among blacks and whites in US metropolitan areas,” *American Journal of Public Health* 2001; 91 (8): 1246-1250, cited in Sanmartin, Claudia, et al., *Access to Health Care Services in Canada 2001*, Statistics Canada, catalogue no. 82-575-XIE, Ottawa, June, 2002, pages, 8, 22.

³ Sanmartin, Claudia, et al., “Changes in unmet health care needs,” *Health Reports* 13 (3), March, 2002, Statistics Canada, catalogue no. 82-003, pages 15-21.

⁴ Romanow, Roy, *Building on Values: The Future of Health Care in Canada, Final Report*, Commission on the Future of Health Care in Canada, November, 2002, pages 137-138.

⁵ Ibid., chapter 5.

⁶ Romanow, op. cit., page 162.

⁷ Romanow, op. cit., Recommendations 30-33, pages 166 and 168.

country's lowest incidence of new cancers – 20% below the national average, but some of the highest rates of cancer mortality – 12% above the national average. Whether this unusual gap is due to lack of timely diagnosis and treatment or to other factors requires further research. The Romanow Commission report gives a possible indication:

“In fact, some would say that there is an ‘inverse care law’ in operation. People in rural communities have poorer health status and greater needs for primary health care, yet they are not as well served and have more difficulty accessing health care services than people in urban centres.”⁸

In this section there are six types of data examined: reports of recent contact with health professionals, hospitalizations, readmissions, rates of some in-hospital procedures, numbers of doctors and nurses per capita, and health system expenditures per capita.

4.1.1 Contact with health professionals

There are four indicators of contact with health professionals examined in this section, including contact in the past 12 months with medical doctors, alternative health care providers, health professionals about mental health, and dental professionals.

4.1.1.1 Contact with medical doctors

Definition

“Population aged 12 and over who have consulted with a medical doctor in the past 12 months.

“Medical doctor includes family or general practitioners as well as specialists such as surgeons, allergists, orthopedists, gynecologists, or psychiatrists.”⁹

Data Source

Statistics Canada, Canadian Community Health Survey, 2000/01, health file.

Results

In this section, some charts include data reported by Statistics Canada both for “contact” and “no contact” with a medical doctor in the past 12 months. Data are reported both for males and for females. However, some of the data in the “no contact” category are accompanied by a coefficient of variation (CV) from 16.6% to 33.3% and should be interpreted with caution. The text refers only to the “contact” category.¹⁰

⁸ Romanow, op. cit., page 162.

⁹ Statistics Canada: <http://www.statcan.ca/english/freepub/82-221-XIE/00502/defin4.htm#91b>.

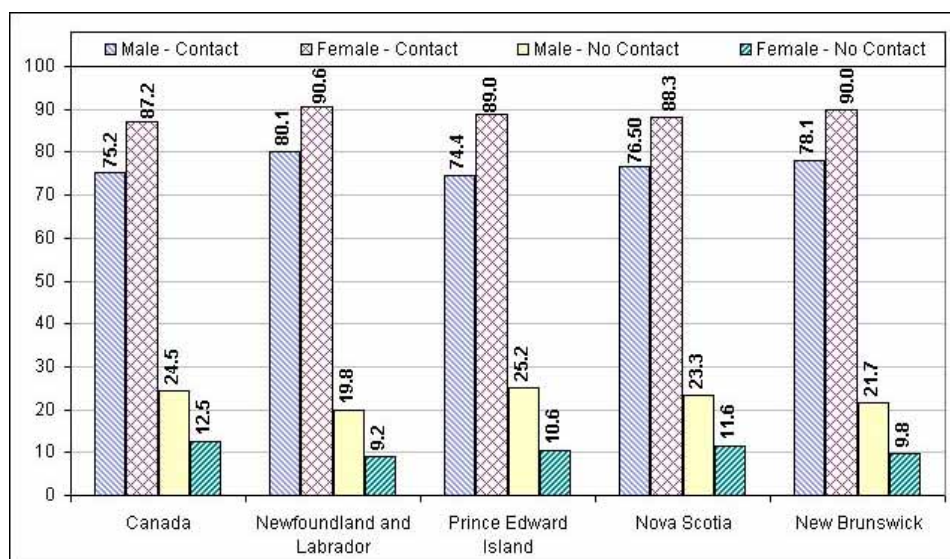
¹⁰ Some reports of data for the “no contact” category with medical doctors in the past 12 months have a coefficient of variation (CV) from 16.6% to 33.3% and should be interpreted with caution. These include data for the following

In 2000/01, Canadian females were 16.0% more likely than males to have had contact with a medical doctor in the 12 months prior to the survey. Likewise, in all Atlantic region districts higher percentages of females than males reported contact with medical doctors in the past 12 months. In all but three Atlantic health districts, this was also true for contact with health professionals about mental health, and contacts with alternative health care providers and dental professionals, as discussed in the following sections. Overall, therefore, in all Atlantic health districts, females were more likely than males to have had contact with health professionals in the past 12 months.

Residents of all four Atlantic Provinces were more likely to have had contact with a medical doctor than the national average (81.3%), with Newfoundland and Labrador (85.4%) and New Brunswick (84.2%) registering the highest contact rates in the country. 82.6% of Nova Scotians and 81.9% of Prince Edward Islanders had contact with a medical doctor in the 12 months prior to the 2000/01 Canadian Community Health Survey.

Nationally, 87.2% of females, compared to 75.2% of males, have had contact with a medical doctor in the past 12 months. Females in all four Atlantic Provinces, and males in all except PEI had higher rates of contact than the national average (Figure 309).

Figure 309. “Contact” and “no contact” in the past 12 months with medical doctors, household population aged 12 and over, by sex, Canada and Atlantic Provinces, 2000/01 (%)



Source: Statistics Canada, Canadian Community Health Survey, 2000/01, health file; available at <http://www.statcan.ca/english/freepub/82-221-XIE/00502/community/system2.htm>, extracted 1 February, 2003.

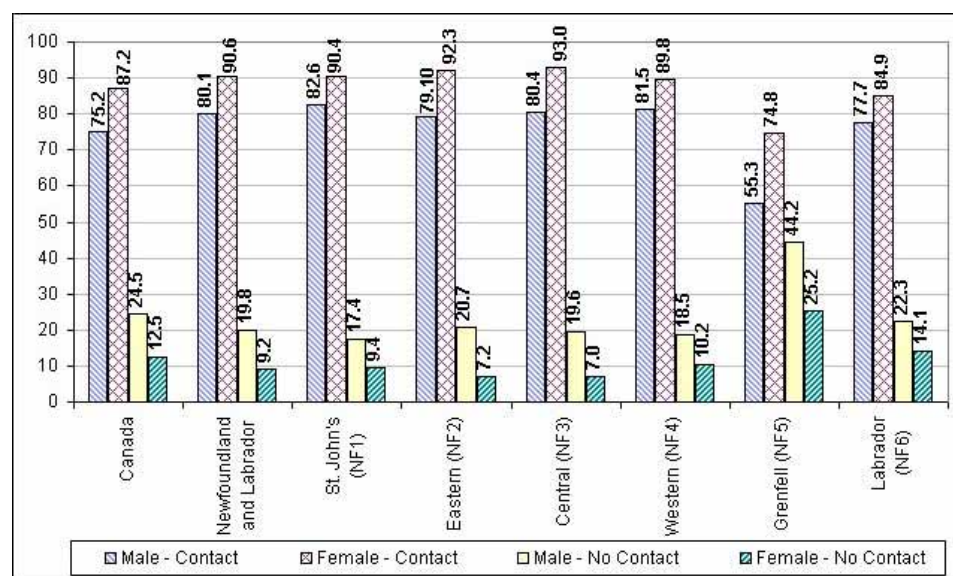
health districts: males and females in Western (NF4), and females in St. John's (NF1), Eastern (NF2), Central (NF3), Labrador (NF6), Pictou-GASHA (NS4), and Bathurst (NB6). In addition, data for two health districts in New Brunswick in the “no contact” category have a CV greater than 33.3% and were suppressed due to extreme sampling variability: Campbellton (NB5) and Miramichi (NB7). In the “contact not stated” category, data for all Atlantic region health districts and three of the Atlantic Provinces have a CV greater than 33.3% and were suppressed (PEI reported 0.4% as “contact not stated” for both sexes, but the data for males and females separately were suppressed). Nationally, 0.3% of males, females, and both sexes were reported as “contact not stated.”

In 17 of the 21 Atlantic region health districts, people were more likely to have had contact with medical doctors in the past 12 months than the national average of 81.3%, with the highest rates of contact in Sussex/Saint John (NB2) at 87.1%, Central (NF3) at 86.7%, and St. Johns (NF1) and Campbellton (NB5) at 86.6%. The health district with the lowest rate of contact with medical doctors was Grenfell (NF5) at 64.9%, followed by Edmundston (NB4) at 77.4%.

To illustrate the sharp gender differences in all Atlantic health districts, Figures 310 and 311 present results separately for males and females. In Grenfell (NF5), only 55.3% of males and 74.8% of females had contact with a medical doctor in the past 12 months – the lowest rates in Atlantic Canada for both sexes (Figure 310). The highest rate for males was in Sussex/Saint John (NB2) at 83.3%. The highest rate for females was in Campbellton (NB5) at 93.4%, followed by Central (NF3) at 93.0%, Miramichi (NB7) at 92.9%, Eastern (NF2) at 92.3%, Bathurst (NB6) at 91.8% and Moncton at 91.7%. More than 4 in 5 females in every Atlantic health district except Grenfell (NF5) had contact with a medical doctor in the 12 months prior to the survey (Figure 312).

As with all health district data, caution must be exercised in making comparisons and interpreting results, due to wide confidence intervals and high variability.

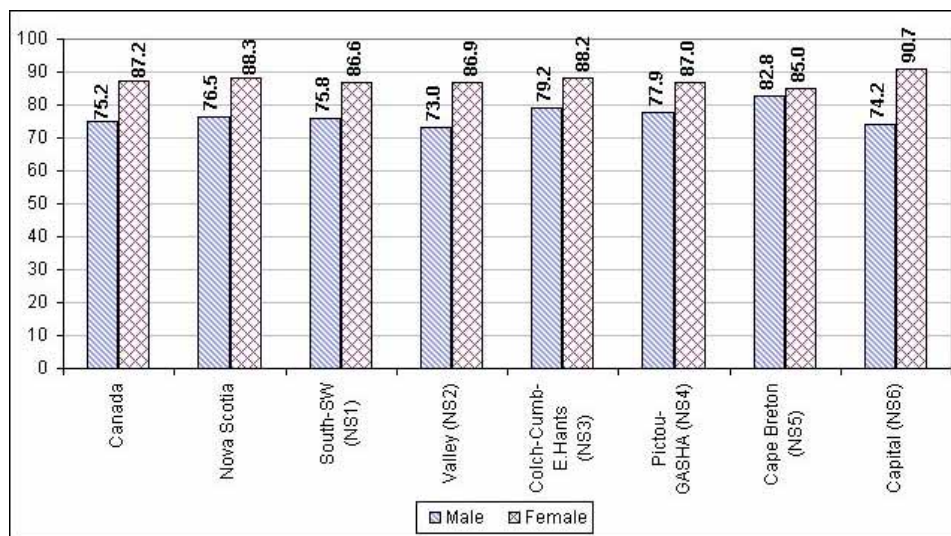
Figure 310. “Contact” and “no contact” in the past 12 months with medical doctors, household population aged 12 and over, by sex, Canada and Newfoundland and Labrador health districts, 2000/01 (%)



Source: Statistics Canada, Canadian Community Health Survey, 2000/01, health file; available at <http://www.statcan.ca/english/freepub/82-221-XIE/00502/community/system2.htm>, extracted 1 February, 2003.

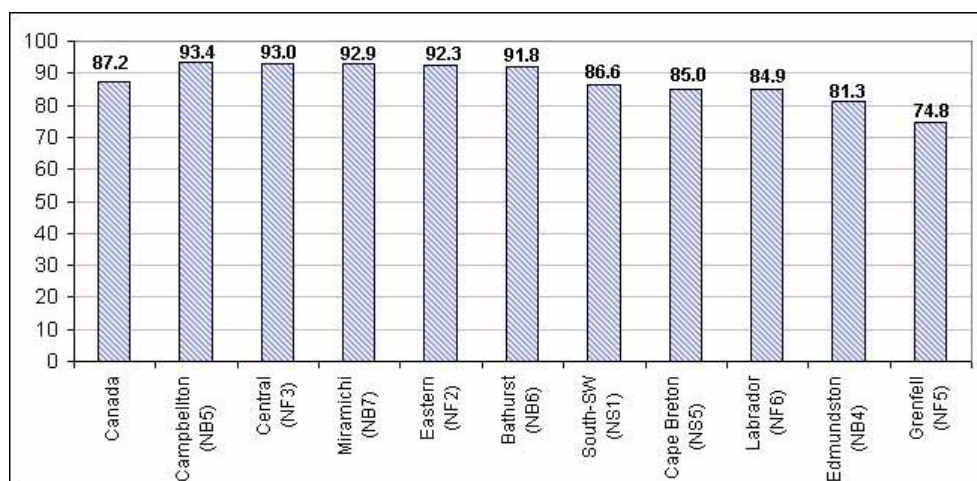
Note: “No contact” data for females in St. John’s (NF1), Eastern (NF2), Central (NF3), Western (NF4), and Labrador (NF6) have a coefficient of variation (CV) from 16.6% to 33.3% and should be interpreted with caution. “No contact” data for males in Western (NF4) have a coefficient of variation (CV) from 16.6% to 33.3% and should be interpreted with caution.

Figure 311. “Contact” in the past 12 months with medical doctors, household population aged 12 and over, by sex, Canada and Nova Scotia health districts, 2000/01 (%)



Source: Statistics Canada, Canadian Community Health Survey, 2000/01, health file; available at <http://www.statcan.ca/english/freepub/82-221-XIE/00502/community/system2.htm>, extracted 1 February, 2003.

Figure 312. “Contact” in the past 12 months with medical doctors, household population aged 12 and over, females, Canada and Atlantic health districts with highest and lowest rates of contact, 2000/01 (%)



Source: Statistics Canada, Canadian Community Health Survey, 2000/01, health file; available at <http://www.statcan.ca/english/freepub/82-221-XIE/00502/community/system2.htm>, extracted 1 February, 2003.

4.1.1.2 Contact with alternative health care providers

Though the numbers are still small by comparison with contact with medical doctors, increasing numbers of Canadians are visiting alternative health care providers, like massage therapists, acupuncturists, homeopaths, and naturopaths. There is now considerable evidence that, while conventional western medicine is a powerful treatment and surgery tool, alternative therapies may have an important role in disease prevention, particularly in the secondary and tertiary prevention designed to control existing medical conditions.

While more research is necessary to substantiate assertions about the efficacy of different kinds of alternative health care, a few examples from the literature are provided here to illustrate the kinds of claims currently made and the growing appeal of alternative care.

For example, small-scale studies have found that acupuncture, an ancient form of Chinese medicine, can be highly cost-effective in treating patients with osteoarthritis, back pain, stroke, angina pectoris, and other chronic conditions, avoiding costly surgery and hospital visits, and facilitating a more rapid return to employment. These studies have attributed substantial cost savings to acupuncture for avoided surgeries and hospital stays in patients with heart disease and severe osteoarthritis, reduced hospital and nursing home days for stroke victims, and avoided productivity losses due to an increase in heart disease patients able to return to work.¹¹

Chiropractic care has also been found to be cost-effective in treating musculoskeletal disorders, which are the most prevalent of all chronic conditions, and account for the highest disability costs and third highest overall costs of any disease, after circulatory disorders and cancers. A 1998 University of Ottawa study concluded that improved access to chiropractic services would lead to very substantial net savings in direct and indirect costs. Direct savings to Ontario's health care system were estimated at more than \$500 million annually, while indirect cost savings to the province in avoided disability were estimated at nearly \$2 billion.¹² Extrapolated to Nova Scotia according to population, these estimates indicate potential savings of \$40 million a year to the Nova Scotia health care system, and \$150 million in productivity gains.

The same study also found that the poor, lower middle class, and the elderly were significantly less likely to access and use chiropractic care, due to the deterrent effect of high co-payment or user fees, even though these groups suffer from a greater prevalence of neuromusculoskeletal conditions. The authors argue that this socio-economic disparity contributes to the high use among these groups of medical services, drugs, and hospital care, frequently with poorer health outcomes. They conclude that improved coverage of chiropractic care under public and private insurance systems can both save money and increase equity. They further argue for a shift from the biomedical model for treating back and neck pain based on diagnostic testing, drugs and bed

¹¹ Findings from these studies are described in Birch, Stephen, and Richard Hammerschlag, *Acupuncture Efficacy: A Compendium of Controlled Clinical Trials*, 1996, and summarized on the web site of the Acupuncture and Oriental Medical Alliance at www.acuall.org/acutreat.htm. References in this section are cited in Colman, Ronald, *The Cost of Chronic Disease in Nova Scotia*. GPI Atlantic, Halifax, October, 2002, chapter 14.

¹² Manga, Pran, and Doug Angus, *Enhanced Chiropractic Coverage under OHIP as a Means of Reducing Health Care Costs, Attaining Better Health Outcomes and Achieving Equitable Access to Health Services*, University of Ottawa, February, 1998. Available from Prof. Pran Manga, Professor, Health Economics, University of Ottawa.

rest to a biopsychosocial model that includes activities/exercise, patient education, spinal manipulation, and restoration of function.¹³

Other claims on the efficacy and cost-effectiveness of alternative medicine abound. A regimen of diet, exercise, meditation, and herbal supplements for a sample of older adults was found to reduce total medical costs by more than 50% over five years compared to the norm, and to reduce hospital days among older adults by 88%.¹⁴

It has been claimed that treating asthma through allergy elimination diets and nutritional supplements could save \$3 billion a year in hospital, drug, and physician costs in the U.S. Intravenous magnesium has been recommended as an alternative to clot-dispersing drugs for heart attack victims. And chelation therapy has been claimed as an effective alternative to bypass surgery at 10% of the cost, with considerably less pain and risk, and a faster convalescence.¹⁵

Large cohort and longitudinal studies are clearly needed to explore the efficacy of alternative treatments more thoroughly than has been the case to date. Yet this is unlikely in the absence of dedicated research funding. In the U.S., according to one critic, only 0.05% of the research funds allocated annually to the National Institutes for Health goes to the Office of Alternative Medicine to investigate the claims of some 50 therapies.¹⁶ The potential cost-effectiveness of these alternative treatments in illness prevention, avoided surgeries and hospital stays, productivity gains, and chronic disease control, argues for more intensive investigations of their efficacy.

One three-year study currently under way at the Stanford Center for Research in Disease Prevention aims to reduce disability and disease among older adults through the regular practice of meditation, emphasis on a plant-based diet, eastern and western exercise, social support, community service, and appropriate use of both conventional and alternative medicine. Dependent variables being measured at periodic intervals include basic physical assessments, psychosocial variables, and cognitive function. The study's stated goal is to provide evidence to insurance companies and Medicare that may encourage the inclusion of such programs in existing health plans.¹⁷

Definition

"Population aged 12 and over who have consulted with alternative health care providers in the past 12 months.

¹³ Manga and Angus, op. cit., pages 4, and 59-61.

¹⁴ *American Journal of Managed Care*, 3 (1997): 135-144; *Psychosomatic Medicine* 49, (1987), 493-507, both cited in Mead, Geoffrey, *Creating a disease-free society through prevention-oriented health care*, available at: <http://www.natural-law-party.org.uk/UKmanifesto/health0.html>.

¹⁵ Goldberg, Burton, "You Don't Have to be Sick," *Alternative Medicine Magazine*, cited at www.garynull.com and www.alternativemedicine.com.

¹⁶ Goldberg, Burton, "You Don't Have to be Sick," *Alternative Medicine Magazine*, cited at www.garynull.com and www.alternativemedicine.com.

¹⁷ Haskell, William et al., "Successful Aging: A Proposed Intervention to Elicit and Sustain Optimal Health for Individuals Age 55-75," Stanford Center for Research in Disease Prevention, available at: http://prevention.stanford.edu/research/studies/aging_sage.html.

“Alternative health care providers include massage therapists, acupuncturists, homeopaths or naturopaths, Feldenkrais or Alexander teachers, relaxation therapists, biofeedback teachers, rolfers, herbalists, reflexologists, spiritual healers, religious healers, etc.”¹⁸

Data Source

Statistics Canada, Canadian Community Health Survey, 2000/01, health file.

Results

In this section, some charts include data reported by Statistics Canada both for “contact” and “no contact” with an alternative health care provider in the past 12 months. Data are reported both for males and for females. However, some of the data in the “contact” category are accompanied by a coefficient of variation (CV) from 16.6% to 33.3% and should be interpreted with caution, while other data have a CV greater than 33.3% and were suppressed by Statistics Canada due to extreme sampling variability. Therefore, at the health district level, where sample sizes are small, the text refers only to the “no contact” category, where data reliability is better.¹⁹

There is a sharp west to east gradient in Canada in contact with alternative care providers, with residents of the western provinces most likely to see alternative medicine practitioners, and Atlantic Canadians least likely to do so.

In 2000/01, residents of Saskatchewan (13.9%), British Columbia (13.7%) and Alberta (13%) were more than four times as likely as residents of Newfoundland and Labrador (3.2%), and more than twice as likely as those in PEI (5.4%), New Brunswick (5.6%) and Nova Scotia (5.9%) to have had contact with an alternative care provider in the 12 months prior to the survey (Figure 313). In central Canada, the proportion of residents in contact with an alternative care provider was closer to the national average (11%) – Quebec (11.1%), Ontario (10.4%), and Manitoba (10.8%).

There also appears to be a sharp gender divide, and also an urban-rural divide in contact with alternative care providers, with women much more likely than men to have had such contact, and urban dwellers generally more likely than rural dwellers to have had such contact. In Canada, 13.9% of females and only 8.0% of males reported contact with an alternative care provider in the past 12 months. In the four Atlantic Provinces, twice as many females (68,598) as males (34,054) reported contact with an alternative care provider in the past 12 months.²⁰

In Nova Scotia, residents of the Halifax area (Capital – NS6) were much more likely to have seen an alternative care provider (8.2%) than other Nova Scotians, with the Annapolis Valley

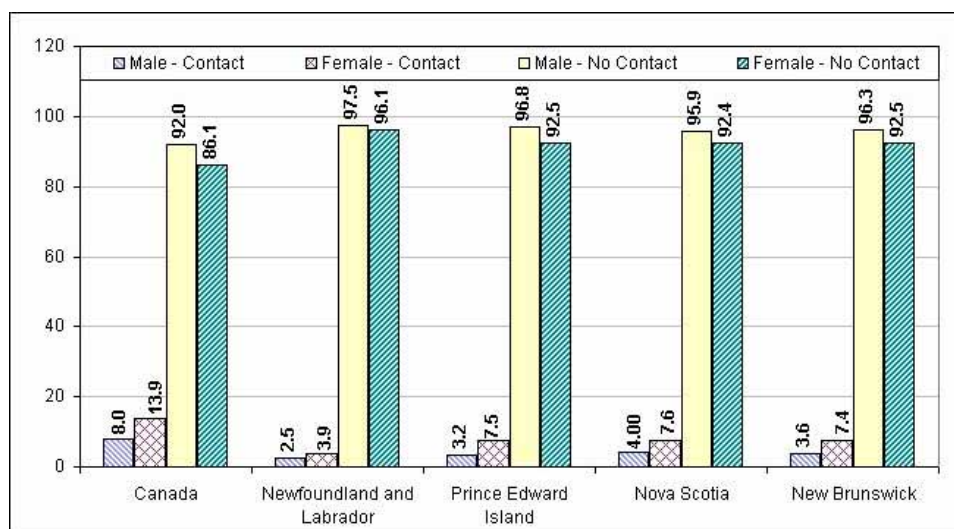
¹⁸ Statistics Canada: <http://www.statcan.ca/english/freepub/82-221-XIE/00502/defin4.htm#91a>.

¹⁹ In the “contact not stated” category, data for all Atlantic region health districts and all Atlantic Provinces have a CV greater than 33.3% and were suppressed by Statistics Canada due to extreme sampling variability. Nationally, an average of 0.1% of males, 0.0% of females, and 0.0% of both sexes were reported as “contact not stated.” However, the national averages have a CV from 16.6% to 33.3% and should be interpreted with caution.

²⁰ Statistics Canada, Health Indicators, available at: <http://www.statcan.ca/english/freepub/82-221-XIE/00502/tables/html/4266.htm>, extracted 20 November, 2003. Data for males in Newfoundland and Labrador have a coefficient of variation (CV) from 16.6% to 33.3% and should be interpreted with caution.

(NS2) at 6.1% registering the second highest rate in the province. In PEI, residents of Charlottetown and Summerside (7.1%) were nearly twice as likely as those in rural areas (3.9%) to have seen an alternative care provider. In Newfoundland and Labrador, residents of St. John's (NF1) at 6.1% were nearly twice as likely as the provincial average (3.2%) to have had contact with an alternative care provider in the past 12 months. However, the urban-rural divide is not apparent in New Brunswick.

Figure 313. “Contact” and “no contact” in the past 12 months with alternative health care providers, household population aged 12 and over, by sex, Canada and Atlantic Provinces, 2000/01 (%)



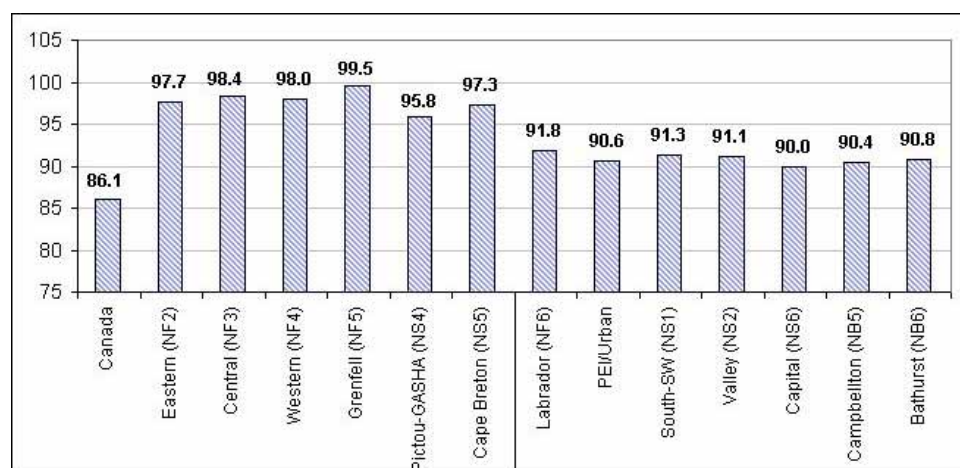
Source: Statistics Canada, Canadian Community Health Survey, 2000/01, health file; available at <http://www.statcan.ca/english/freepub/82-221-XIE/00502/community/system2.htm>, extracted 1 February, 2003.

Note: Data for males in Newfoundland and Labrador who had contact with an alternative care provider have a coefficient of variation (CV) from 16.6% to 33.3% and should be interpreted with caution.

As noted, the numbers reporting contact with alternative care providers at the health district level are small, especially for males, and are subject to high sampling variability. Figure 314 therefore indicates those Atlantic health districts with the highest and lowest percentages of females reporting “no contact with alternative health care providers” in the past 12 months. The highest rates of “no contact” among females were in rural Newfoundland and in Cape Breton (NS5) and the lowest rate of “no contact” was in Halifax (Capital – NS6).

As with all health district data, caution must be exercised in making comparisons and interpreting results, due to wide confidence intervals and high variability.

Figure 314. “No contact” in the past 12 months with alternative health care providers, household population aged 12 and over, females, Canada and selected Atlantic health districts, 2000/01 (%)



Source: Statistics Canada, Canadian Community Health Survey, 2000/01, health file; available at <http://www.statcan.ca/english/freepub/82-221-XIE/00502/community/system2.htm>, extracted 1 February, 2003.

4.1.1.3 Contact with health professionals about mental health

Mental illness accounts for a substantial portion of the disease burden in Canada and represents a significant risk factor for a wide range of physical illnesses. Of seven modifiable risk factors examined in a major study of 46,000 U.S. employees, depression and stress accounted for higher medical costs than any other risk factors. Depressed workers had 70% higher medical costs and highly stressed workers had 46% higher costs than those who did not suffer from depression and high stress.²¹ In addition, mental health problems can lead to a range of causes of premature death, including violence, substance abuse, and suicide.²²

In the U.S., an estimated \$16 billion a year is lost due to undiagnosed and untreated depression in the workplace, through lowered productivity, absenteeism, injury, alcoholism, and related physical illness. Yet many employees are afraid to disclose addiction or mental illness, and therefore avoid support that may be available through workplace health plans, employee assistance programs, or flexible work schedules.²³ Extrapolated to Nova Scotia by population, this estimate implies that the province may be losing more than \$50 million a year due to undiagnosed and untreated depression.

²¹ Goetzel, Ron, David Anderson, R. William Whitmer, Ronald Ozminkowski, Rodney Dunn, Jeffrey Wasserman, and HERO Research Committee, “The Relationship Between Modifiable Health Risks and Health Care Expenditures: An Analysis of the Multi-Employer HERO Health Risk and Cost Database,” *Journal of Occupational and Environmental Medicine* 40 (10): 843-854, October, 1998.

²² Foege, William, Robert Amler, and Craig White, “Closing the Gap,” *Journal of the American Medical Association* 1985; 254: 1355-1358, in Amler, Robert, and Bruce Hull (eds.), *Closing the Gap: The Burden of Unnecessary Illness*, Oxford University Press, New York and Oxford, 1987, page 207.

²³ Ballon, Diana, Editor, *Journal of Addiction and Mental Health*, 4 (1), Toronto, January-February 2001, available at: www.camh.net/journal/journalv4no1/note_from_editor.html.

Substantial research has found that stress negatively affects health, weakens the immune system, and increases susceptibility to a wide range of illnesses.²⁴ In a wide-ranging review of the literature, the *American Journal of Health Promotion* found stress to be the most costly of all modifiable risk factors.²⁵

In addition to depression and stress, certain emotional states and personality types have been identified as risk factors for hypertension, heart disease, and other chronic illnesses. In particular, hostility, aggression, cynicism, and isolation have been related to heart disease risk; suppressed anger has been linked to cancer and high blood pressure; and repressed emotionality has been found to predict both cancer and heart disease. Conversely, mental health has been linked to good physical health and healthy life practices.²⁶ Studies have found that confidence, optimism, self-efficacy, and a sense of coherence and control can buffer and moderate the effects of stress, and protect against illness.²⁷

Despite the clear importance of mental health and the substantial burden of mental illness, the Romanow Commission report on health care in Canada noted:

*"Mental health has been described as one of the 'orphan children' of medicare. The Commission consistently heard that it is time to deal with this issue and bring mental health into the mainstream of public health care...mental health care remains one of the least integrated aspects of health care."*²⁸

When psychiatric hospitals are included, mental disorders account for more hospital days in Canada than any other category of illness. Even in normal (non-psychiatric) hospitals, mental disorders account for nearly six million hospital days a year, and are the second leading cause of hospitalization after cardiovascular diseases.²⁹

Bucking the national trend toward shorter hospital stays, there has been an upward trend in the average length of hospital stay for treatment of mental disorders, with an overall *increase* in patient days in both acute-care and psychiatric hospitals. While there was a 15% decline in total hospital patient days in the early 1990s, there was a parallel 33% increase in patient days for mental disorders. Affective psychoses, including manic-depressive disorders accounted for 23% of psychiatric separations, more than any other single category. Interestingly, the increase in patient days has occurred despite a decline in the number of discharges. This indicates a clear

²⁴ Chrousos, G.P. and P.W. Gold, 1992, "The concepts of stress and stress system disorders: Overview of physical and behavioral homeostasis," *Journal of the American Medical Association* 267: 1244-1252.

²⁵ Goetzel, Ron (ed), "The Financial Impact of Health Promotion," *American Journal of Health Promotion* 15 (5), May/June 2001.

²⁶ Health Canada, *Statistical Report on the Health of Canadians, 1999*, Health Canada and Statistics Canada, September, 1999, catalogue no. H39-467/1999E, page 220; T. Stephens, *Population Mental Health in Canada*, report prepared for the Mental Health Promotion Unit, Health Canada, May 1998.

²⁷ Kabat-Zinn, Jon, "Psychosocial Factors: Their Importance and Management," in Ockene, Ira, and Judith Ockene, *Prevention of Coronary Heart Disease*, Little, Brown, and Company, Boston, 1992, pages 308-312.

²⁸ Romanow, Roy, *Building on Values: The Future of Health Care in Canada*, Ottawa, November, 2002, page 178.

²⁹ Statistics Canada, *Mental Health Statistics, 1993-94*, catalogue no. 83-245-XPB, 1996; Canadian Institute for Health Information, *Hospital Morbidity Database, 1994-95*, and 1995-96; Health Canada, *Toward a Healthy Future*, Ottawa, 1999, pages 142-143; Health Canada, *Statistical Report on the Health of Canadians*, Ottawa, 1999, pages 296-301, Health Canada, *Economic Burden of Illness in Canada 1998*. Ottawa, December, 2002.

trend toward longer hospital stays for fewer patients. More serious cases are hospitalized, while less serious ones are being treated in the community.³⁰

A gender breakdown is useful. Women have a 14% higher rate of psychiatric hospitalization overall than men. Across all ages, female rates of separation from psychiatric institutions are markedly higher than male rates for neurotic disorders (ratio of 1.9:1), depressive disorders (1.8:1), affective psychoses (1.7:1) and adjustment reaction (1.4:1), while men have higher rates for alcohol and drug dependence (2.4:1) and schizophrenia (1.4:1). In general hospitals, women have a 21% higher rate of admission for mental disorders than men.³¹

Despite these dramatic hospitalization figures, most mental health care is actually delivered in the community. But the absence of a national database for community mental health services makes it difficult to examine the efficacy of mental health service delivery. The Romanow Commission reported:

*“Recent history has shown that the trend to treating people with mental illnesses in their own communities rather than in institutions has not been accompanied by sufficient resources. Many mental health patients were discharged with insufficient resources and networks to support their ability to live at home...In the case of mental illnesses, home care is not simply an alternative to institutionalization. Treating people effectively in the community rather than in institutions or hospitals **requires** home care, particularly in order to ensure that people with mental illnesses continue to take their medications appropriately and do not need repeated re-admissions.”³²*

Further research is also required on demographic and socio-economic differences in health service utilization for mental health. One Statistics Canada analysis, for example, found that single mothers scored lower on two scales of self-perceived health and "happiness," and substantially higher on a "distress" scale, and were three times as likely as their married counterparts to consult a health care practitioner for mental and emotional health reasons.³³

The following data from the 2000/01 Canadian Community Health Survey clearly deal with only one small aspect of this complex and multi-faceted subject of mental health care service delivery – namely the proportion of Canadians who consulted health professionals about mental health issues in the past 12 months.

Definition

“Population aged 12 and over who have consulted with a health professional about their mental health in the past 12 months.

³⁰ Statistics Canada, *Mental Health Statistics*, op. cit., Canadian Institute for Health Information, *Hospital Morbidity Database*; Health Canada, *Toward a Healthy Future*, pages 142-143; Health Canada, *Statistical Report*, pp. 296-298 and 301.

³¹ Health Canada, *Statistical Report*, pages 296 and 301.

³² Romanow, Roy, *Building on Values: The Future of Health Care in Canada*, Ottawa, November, 2002, page 179.

³³ Claudio Perez and Marie Beaudet, “The Health of Lone Mothers,” Statistics Canada, *Health Reports*, volume 11, no. 2, Autumn 1999, catalogue no. 82-003-XPB, pages 21-32.

“Mental health professionals include: family doctors or general practitioners, psychiatrists, psychologists, nurses, social workers and counsellors.”³⁴

Data Source

Statistics Canada, Canadian Community Health Survey, 2000/01, health file.

Results

In this section, some charts include data reported by Statistics Canada both for “contact” and “no contact” with health professionals about mental health in the past 12 months. Data are reported both for males and for females. However, some of the data in the “contact” category are accompanied by a coefficient of variation (CV) from 16.6% to 33.3% and should be interpreted with caution, while other data have a CV greater than 33.3% and were suppressed by Statistics Canada due to extreme sampling variability. Therefore, at the health district level, where sample sizes are small, the text refers only to the “no contact” category, where data reliability is better.³⁵

As with alternative care, Atlantic Canadians were generally less likely to consult a health professional about their mental health than other Canadians in 2000/01, with residents of Newfoundland and Labrador least likely to do so (5.6%), and those in Alberta (9.4%) and British Columbia (9.3%) most likely. After Newfoundland, the provinces with the lowest rates of contact with health professionals about mental health were Manitoba (6.4%), and PEI and New Brunswick (6.8%), while Nova Scotia (7.9%) was closer to the national average of 8.2% (Figure 315).

Again, as with the data on alternative care, there is a sharp gender divide, and also an urban-rural divide in contact with health professionals about mental health. Canadian women were twice as likely as men to have had such contact (11% vs. 5.4%), and urban dwellers were generally more likely than rural dwellers to have had such contact. In the four Atlantic Provinces also, twice as many females (92,482) as males (46,815) reported contact with an alternative care provider in the 12 months prior to the survey.³⁶

Eight per cent of St. John’s (NF1) residents reported consulting a health professional about their mental health in the past 12 months – nearly twice the rate as in rural Newfoundland. In urban PEI, residents of Charlottetown and Summerside (7.9%) were more likely to consult a health professional about their mental health than those in rural parts of the province (5.9%). In Nova Scotia the highest rates of contact with health professionals about mental health were in Colchester-Cumberland-East Hants (NS3) at 9.2% and Halifax (Capital – NS6) at 8.8%. In New

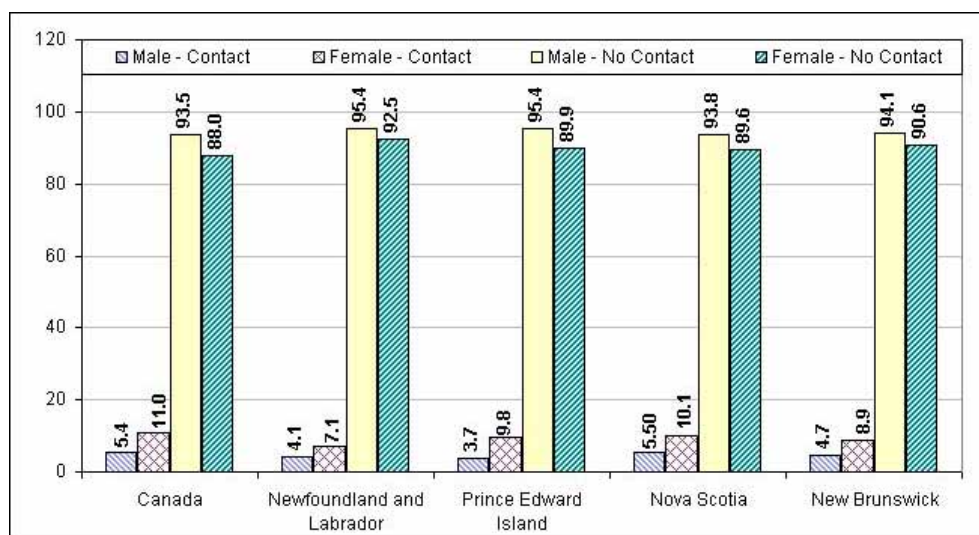
³⁴ Statistics Canada: <http://www.statcan.ca/english/freepub/82-221-XIE/00502/defin4.htm#91c>.

³⁵ In the “**contact not stated**” category, data for almost all Atlantic Region health districts and most data by gender for the Atlantic Provinces have a CV greater than 33.3% and were suppressed by Statistics Canada due to extreme sampling variability, with the exception of females in PEI at 0.3%, both sexes in Rural PEI at 0.5%, males in New Brunswick at 1.2%, females in New Brunswick at 0.5%, and both sexes in Miramichi (NB7) at 2.7%. However, even these data have a CV from 16.6% to 33.3% and should be interpreted with caution. Nationally, an average of 1.0% of both sexes, 1.1% of females, and 1.0% of females were reported as “contact not stated.”

³⁶ Statistics Canada, Health Indicators, available at: <http://www.statcan.ca/english/freepub/82-221-XIE/00502/tables/html/4286.htm>, extracted 20 November, 2003.

Brunswick the highest contact rate was in Moncton (NB1) at 8.7%. In sum, Atlantic Canadians living in many urban centres were generally as likely to consult a health professional about their mental health as in the rest of Canada (national average – 8.2%), while rural contact rates were generally lower than in the rest of the country.

Figure 315. “Contact” and “no contact” in the past 12 months with health professionals about mental health, household population aged 12 and over, by sex, Canada and Atlantic Provinces, 2000/01 (%)



Source: Statistics Canada, Canadian Community Health Survey, 2000/01, health file; available at <http://www.statcan.ca/english/freepub/82-221-XIE/00502/community/system2.htm>, extracted 1 February, 2003.

As with alternative care providers, the numbers reporting contact with health professionals about mental health at the health district level were small, especially for males, and are subject to high sampling variability. Figures 316, 317, and 318 therefore indicate the Atlantic health districts with the highest and lowest rates of *no* contact with health professionals about mental health in the past 12 months, where the sample sizes are larger and the sampling variability is correspondingly smaller. From those data, the contact rates can be inferred, since low rates of “no contact” indicate correspondingly higher rates of contact with health professionals about mental health.

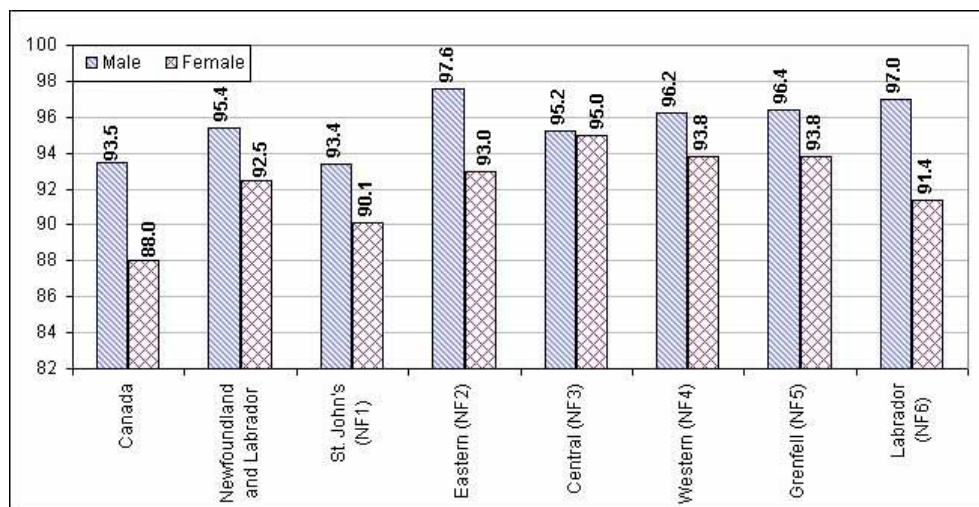
The highest rates of “no contact with health professionals about mental health in the past 12 months” in Atlantic Canada were in the five rural Newfoundland and Labrador health districts (all above 94%) (Figure 316). This indicates that very few Newfoundlanders outside the St. John’s area had contact with health professionals about their mental health in the 12 months prior to the 2000/01 Canadian Community Health Survey.

The lowest rates of no contact for females were in Miramichi (NB7) at 87.7%, urban PEI and Capital (NS6) at 87.9%, Colchester-Cumberland-East Hants (NS3) at 88.5%, Bathurst (NB6) at 89.2%, and Moncton (NB1) at 89.4% (Figure 317). The lowest rates of no contact for males were in Colchester-Cumberland-East Hants (NS3) at 89.9%, Cape Breton (NS5) at 91.9%, and

Moncton (NB1) at 92% (Figure 318). This indicates higher degrees of contact with health professionals about mental health in these districts.

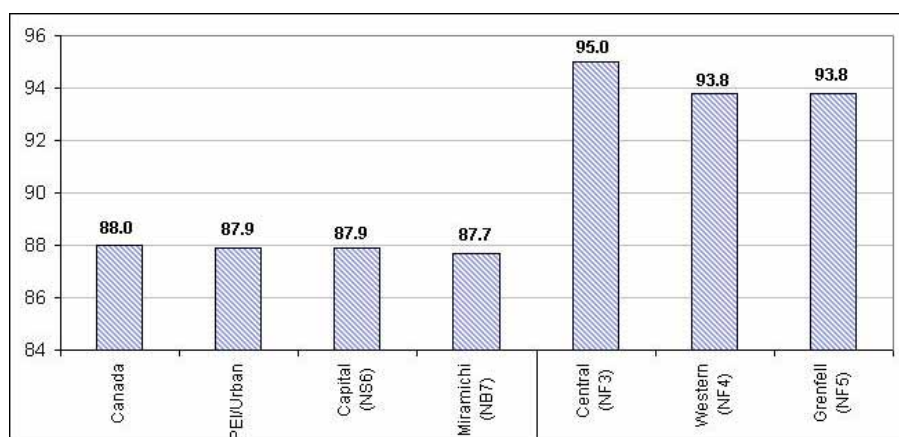
As with all health district data, caution must be exercised in making comparisons and interpreting results, due to wide confidence intervals and high variability.

Figure 316. “No contact” in the past 12 months with health professionals about mental health, household population aged 12 and over, by sex, Canada and Newfoundland and Labrador health districts, 2000/01 (%)



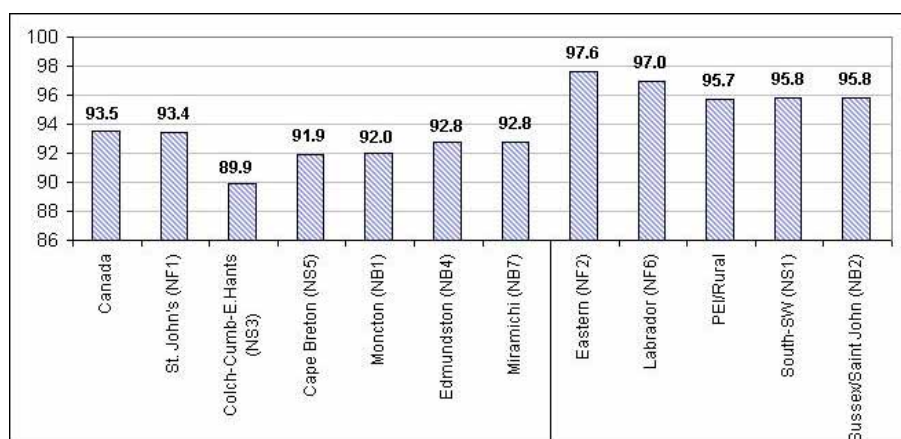
Source: Statistics Canada, Canadian Community Health Survey, 2000/01, health file; available at <http://www.statcan.ca/english/freepub/82-221-XIE/00502/community/system2.htm>, extracted 1 February, 2003.

Figure 317. “No contact” in the past 12 months with health professionals about mental health, household population aged 12 and over, females, Canada and Atlantic health districts with the lowest and highest rates of no contact in the region, 2000/01 (%)



Source: Statistics Canada, Canadian Community Health Survey, 2000/01, health file; available at <http://www.statcan.ca/english/freepub/82-221-XIE/00502/community/system2.htm>, extracted 1 February, 2003.

Figure 318. “No contact” in the past 12 months with health professionals about mental health, household population aged 12 and over, males, Canada and selected Atlantic health districts with low and high rates of no contact, 2000/01 (%)



Source: Statistics Canada, Canadian Community Health Survey, 2000/01, health file; available at <http://www.statcan.ca/english/freepub/82-221-XIE/00502/community/system2.htm>, extracted 1 February, 2003.

4.1.1.4 Contact with dental professionals

Definition

“Population aged 12 and over who have consulted with a dental professional in the past 12 months.

“Dental professionals include dentists, orthodontists or dental hygienists.”³⁷

Data Source

Statistics Canada, Canadian Community Health Survey, 2000/01, health file.

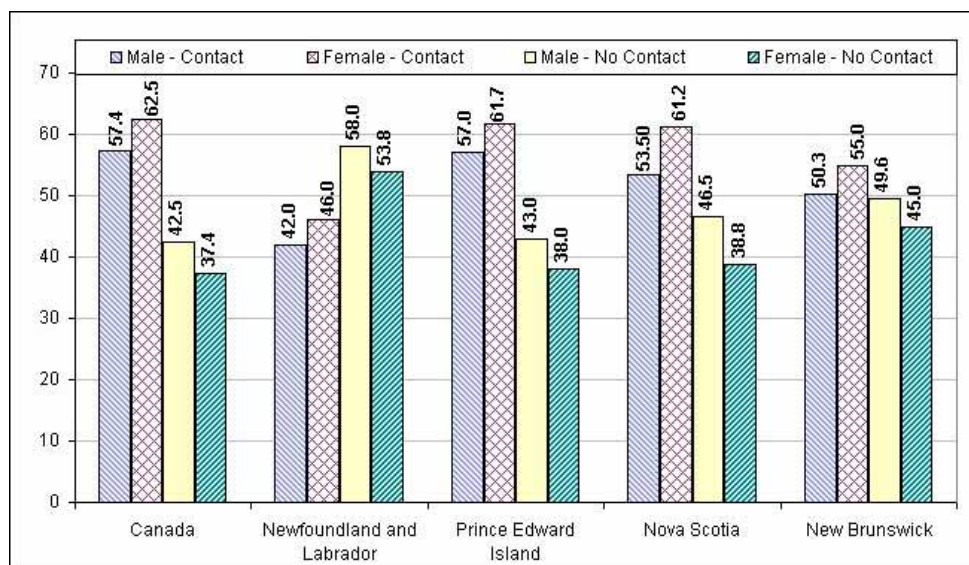
Results

All four Atlantic provinces had lower rates of contact with dental professionals for both males and females than the national average. Residents of Newfoundland and Labrador were much less likely to consult a dental professional (44.0%) than other Canadians. This compares to 59.4% in PEI, 57.5% in Nova Scotia, 52.7% in New Brunswick, and a national average of 60%.

In Canada, 62.5% of females and 57.4% of males reported “contact” with a dental professional in the past 12 months, and in all four Atlantic Provinces, females were also more likely than males to visit a dental professional (Figure 319). In all but two Atlantic health districts [urban PEI and Campbellton (NB5)], females were more likely than males to report “contact” with a dental professional in the past 12 months.

³⁷ Statistics Canada: <http://www.statcan.ca/english/freepub/82-221-XIE/00502/defin4.htm#91d>.

Figure 319. “Contact” and “no contact” in the past 12 months with dental professionals, household population aged 12 and over, by sex, Canada and Atlantic Provinces, 2000/01 (%)



Source: Statistics Canada, Canadian Community Health Survey, 2000/01, health file; available at <http://www.statcan.ca/english/freepub/82-221-XIE/00502/community/system2.htm>, extracted 1 February, 2003.

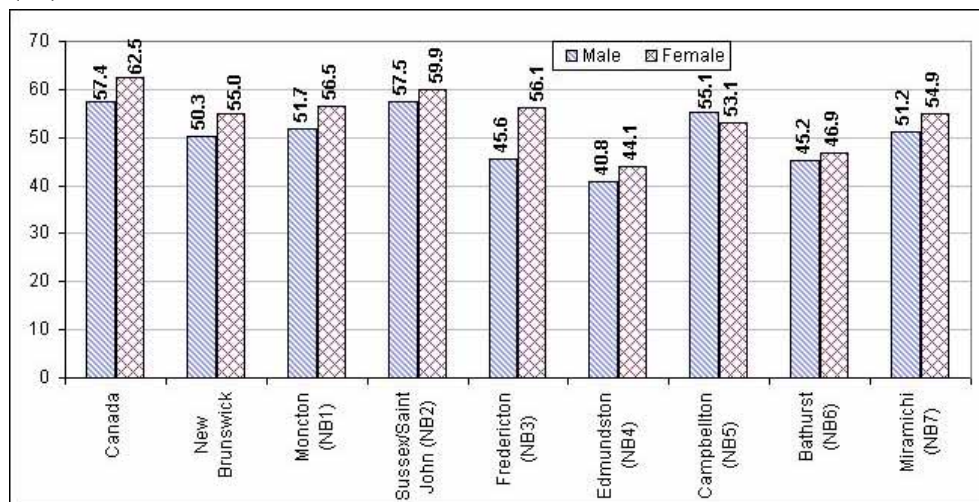
Figures 320, 321, and 322 indicate a fairly clear rural-urban divide, with Atlantic Canadians in urban centers generally more likely to visit dental professionals than those in rural areas. The lowest rates of contact with dental professionals in Atlantic Canada were in rural Newfoundland and Labrador, with residents of Grenfell reporting the lowest rates for both males (28.8%) and females (35.4%). In the Maritimes, the lowest rates of contact were in Edmundston (NB4) at 42.5%, Bathurst (NB6) at 46%, and Cape Breton (NS5) at 50.4%.

By contrast, the highest rates of contact with dental professionals in Atlantic Canada were in urban centers – Charlottetown and Summerside (urban PEI) at 62.6% and Halifax (Capital – NS6) at 62.5%. The highest rate of contact in New Brunswick was in Sussex/Saint John (NB2) at 58.7% (Figure 320). Two-thirds of females in Capital (NS6) visited a dental professional in the past 12 months – the only Atlantic health district with a higher rate of contact for females than the national average (62.5%).

In Newfoundland and Labrador, 54.7% of St. John’s area residents (NF1) had contact with a dental professional in the past 12 months – 70% more than in Grenfell (NF5) at 32.1%, 50% more than in Eastern (NF2) at 36.5%, and more than 40% more than in Central (NF3) at 38.5%, and Western (NF4) at 38.8% (Figure 321).

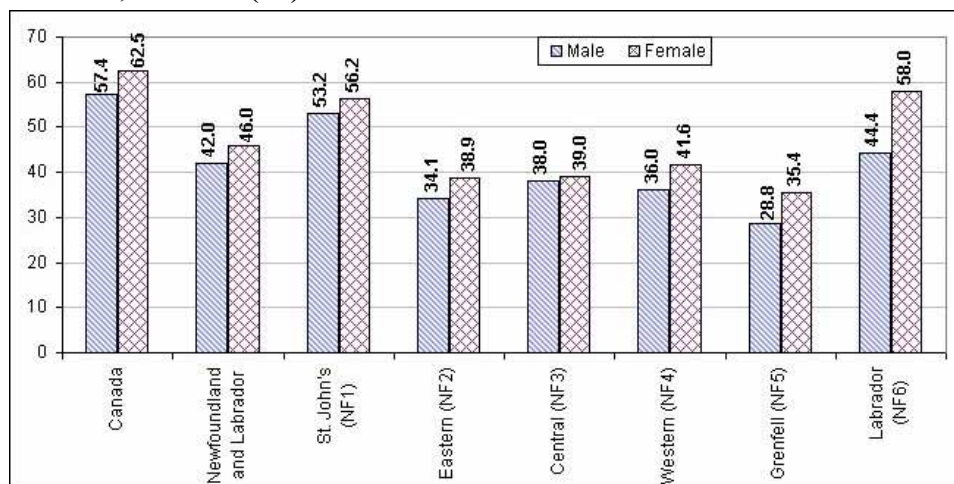
As with all health district data, caution must be exercised in making comparisons and interpreting results, due to wide confidence intervals and high variability.

Figure 320. “Contact” in the past 12 months with dental professionals, household population aged 12 and over, by sex, Canada and New Brunswick health districts, 2000/01 (%)



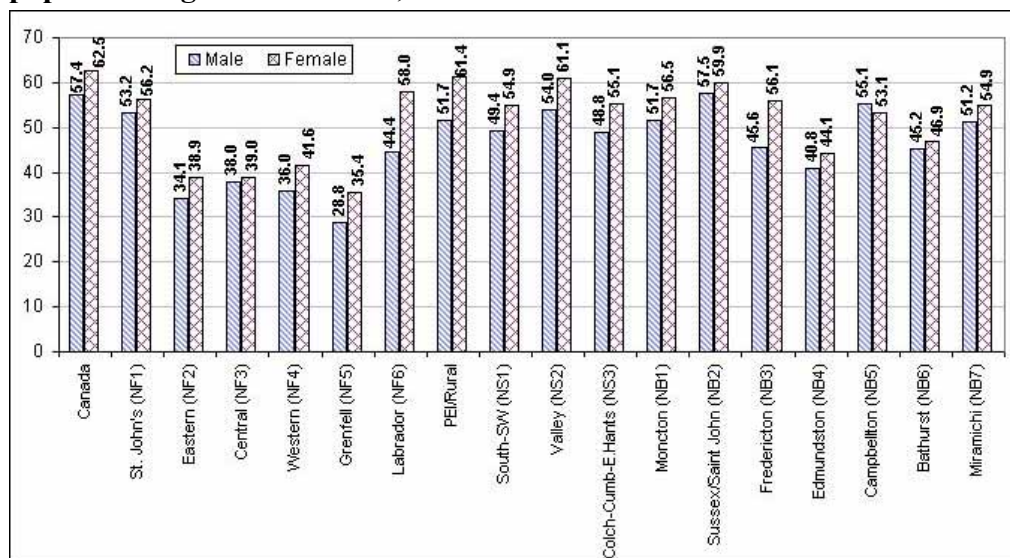
Source: Statistics Canada, Canadian Community Health Survey, 2000/01, health file; available at <http://www.statcan.ca/english/freepub/82-221-XIE/00502/community/system2.htm>, extracted 1 February, 2003.

Figure 321. “Contact” in the past 12 months with dental professionals, household population aged 12 and over, by sex, Canada and Newfoundland and Labrador health districts, 2000/01 (%)



Source: Statistics Canada, Canadian Community Health Survey, 2000/01, health file; available at <http://www.statcan.ca/english/freepub/82-221-XIE/00502/community/system2.htm>, extracted 1 February, 2003.

Figure 322. “Contact” in the past 12 months with dental professionals, household population aged 12 and over, Canada and selected Atlantic health districts, 2000/01 (%)



Source: Statistics Canada, Canadian Community Health Survey, 2000/01, health file; available at <http://www.statcan.ca/english/freepub/82-221-XIE/00502/community/system2.htm>, extracted 1 February, 2003.

4.1.2 Hospitalization

In this section, the rates of hospitalization for hip fractures, pneumonia and influenza, injuries, and ambulatory care sensitive conditions, as well as the percentage of patients hospitalized for conditions or procedures that may not require hospitalization are reviewed.

4.1.2.1 Hip fracture hospitalization

According to Statistics Canada:

*“Hip fractures occur for various reasons, including environmental hazards, the prescription of potentially inappropriate psychotropic medications to the ambulatory elderly, and safety issues in long-term care facilities. As well as causing disability or death, hip fractures can have a major impact on independence and quality of life. This measure is based on the number of cases admitted to hospital, not the number of unique individuals. Some cases may represent readmissions for additional treatments or transfers from one medical setting to another. Thus, the hospitalization rate may over-estimate the incidence of hip fractures.”*³⁸

As people age, bones may become brittle, resulting in osteoporosis, which in turn can lead to serious falls and injuries. Unintentional falls account for more than half of all hospital injury

³⁸ Statistics Canada: <http://www.statcan.ca/english/freepub/82-221-XIE/00502/defin3.htm#s>.

admissions in Canada, 67% of all hospital days due to injury, and 75% of all in-hospital injury deaths. Seniors 65 and older account for 48% of all fractures and dislocations of the lower limbs and 27% of all fractures and dislocations of the upper limbs.³⁹ Physical inactivity, obesity, and poor diet are key modifiable risk factors for chronic musculoskeletal disorders.

One study found that hip fracture incidence in most western nations is about 130 cases per 100,000 population. Extrapolated to Nova Scotia by population, this indicates more than 1,200 hip fractures a year in the province, at an estimated cost to the province of about \$20 million a year. Low calcium intake, vitamin D deficiency, and poor nutrition are linked to low bone mass and bone fragility, which in turn contribute to fracture risk.⁴⁰

Definition

“Age-standardized acute care hospitalization rate for fracture of the hip, per 100,000 population age 65 and older⁴¹ [ICD-9 820.0-820.3, 820.8, 820.9].”

Data Source

Canadian Institute for Health Information, Hospital Morbidity Database.

Results

In 2002, Newfoundland and Labrador and PEI both had higher rates of hospitalization for hip fractures than the national average, while Nova Scotia and New Brunswick had lower rates (Figure 323).

Canadian females aged 65 and over were nearly 80% more likely than males to be hospitalized for hip fractures, at 685 and 387 per 100,000 respectively. Similarly, in all reporting health districts in Atlantic Canada, the rates for females were much higher than for males. In Capital (NS6) and Fredericton (NB3), elderly females were more than twice as likely as elderly males to be hospitalized for hip fractures (Figure 323).

Data for hip fracture hospitalization were not available for all Atlantic health districts. Considering data both at the health district and provincial levels, therefore, the highest regional rates for females were in Central (NF3) at 743 per 100,000, PEI (728), Newfoundland and Labrador (721), and Cape Breton (NS5) and Colchester-Cumberland-East Hants (NS3) both at 698 per 100,000. All other reporting health districts had rates lower than the national average for females, with the lowest rate in Moncton (NB1) at 430 per 100,000 (Figure 324).

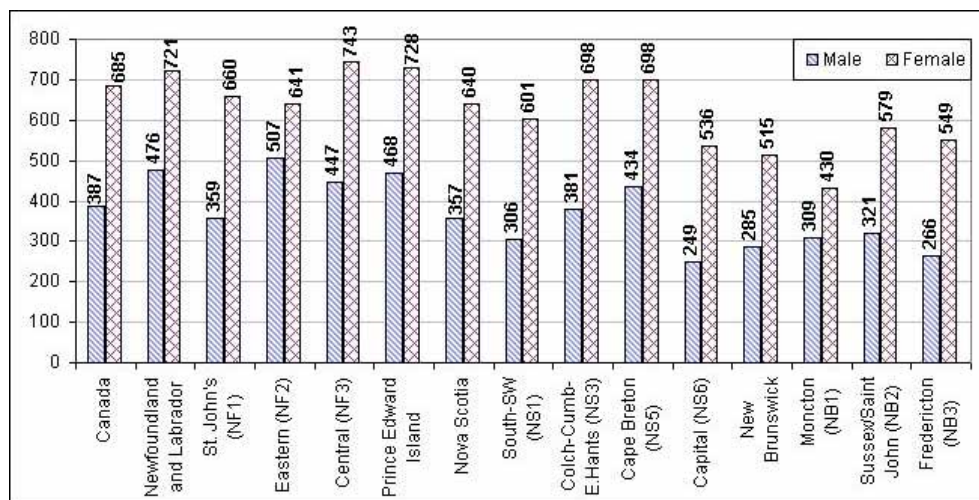
³⁹ Ibid., page 243.

⁴⁰ Heaney, Robert, “Hip Fracture: A Nutritional Perspective,” *Proceedings of the Society for Experimental and Biological Medicine*, 200: 153-156, 1992, cited in Province of British Columbia (1996), *Cost Effectiveness/Value of Nutrition Services: An Annotated Bibliography*, prepared by the Nutrition Section, Prevention and Health Promotion, Ministry of Health, Province of British Columbia, July, 1996, page 37. For more details on musculoskeletal disease costs, see Colman, Ronald, *The Cost of Chronic Disease in Nova Scotia*, GPI Atlantic, Halifax, October, 2002.

⁴¹ Ibid.

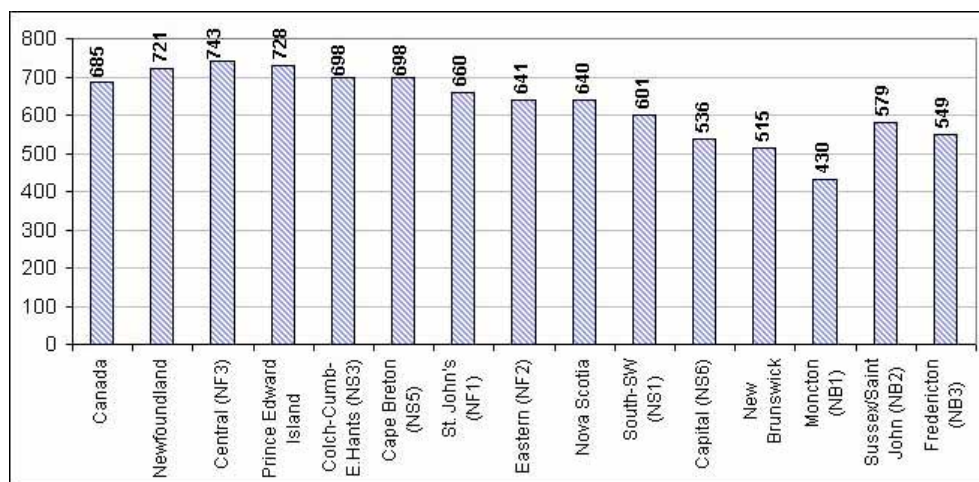
Among males, the highest rates of hip fracture hospitalization were in Eastern (NF2) at 507 per 100,000, Newfoundland and Labrador (476), PEI (468), Central (NF3) at 447, and Cape Breton (NS5) at 434. All other reporting health districts had rates lower than the national average for males, with the lowest rates in South-Southwest (NS1) at 306, Capital (NS6) at 249 per 100,000, Fredericton (NB3) at 266 (Figure 325), and New Brunswick as a whole at 285.

Figure 323. Age standardized acute care hospitalization rate for hip fractures, per 100,000 population age 65 and older, by sex, Canada, Atlantic Provinces, and reporting Atlantic health districts, 2002 (rate)



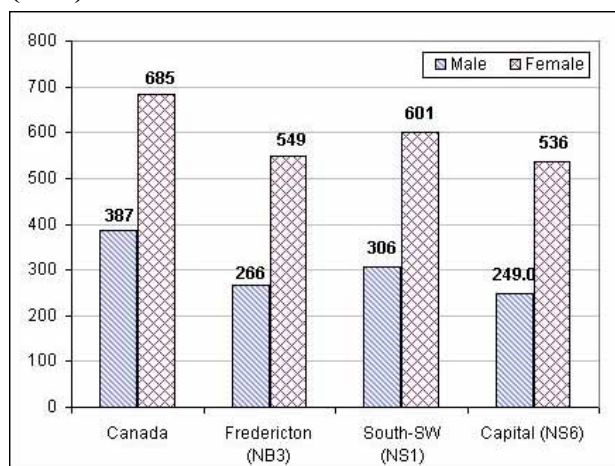
Source: Canadian Institute for Health Information, Hospital Morbidity Database, 2002; available at <http://secure.cihi.ca/hirpt/jsp/HIDispatcher.jsp>, extracted 5 February, 2003.

Figure 324. Age standardized acute care hospitalization rate for hip fractures, per 100,000 population age 65 and older, females, for Canada, Atlantic Provinces, and reporting Atlantic health districts, 2002 (rate)



Source: Canadian Institute for Health Information, Hospital Morbidity Database, 2002; available at <http://secure.cihi.ca/hirpt/jsp/HIDispatcher.jsp>, extracted 5 February, 2003.

Figure 325. Age standardized acute care hospitalization rate for hip fractures, per 100,000 population age 65 and older, by sex, Canada and selected Atlantic health districts, 2002 (rate)



Source: Canadian Institute for Health Information, Hospital Morbidity Database, 2002; available at <http://secure.cihi.ca/hirpt/jsp/HIDispatcher.jsp>, extracted 5 February, 2003.

4.1.2.2 Pneumonia and influenza hospitalization

“This indicator reflects the burden of illness due to pneumonia and influenza, a portion of which may be preventable through influenza and pneumococcal immunization programs. High rates of preventable pneumonia and influenza may suggest a problem with access to immunization.”⁴²

Definition

“Age-standardized rate of acute care hospitalization for pneumonia and influenza per 100,000 population age 65 and older [ICD-9 480-487].”⁴³

Data Source

Canadian Institute for Health Information, Hospital Morbidity Database.

Results

In 2002, all four Atlantic Provinces had higher rates of hospitalization for pneumonia and influenza than the national average of 1,297 per 100,000 population aged 65 and older – Newfoundland and Labrador (1,450), PEI (1,687), Nova Scotia (1,515) and New Brunswick (1,779). New Brunswick had the second highest rate of hospitalization for pneumonia and influenza among seniors in the country after Saskatchewan (1,793).

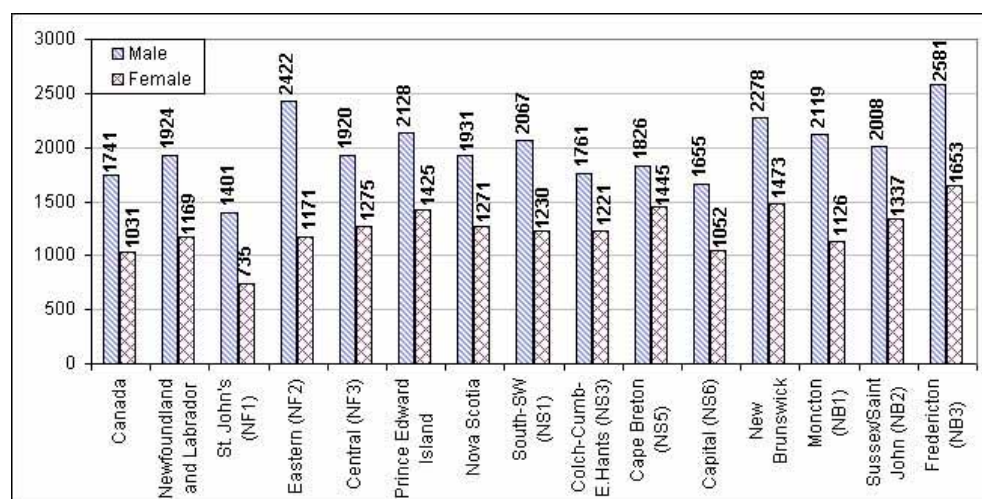
⁴² Statistics Canada: <http://www.statcan.ca/english/freepub/82-221-XIE/00502/defin3.htm#eff>.

⁴³ Ibid.

Data for pneumonia and influenza hospitalization were not available for all Atlantic health districts. The rate of hospitalization for pneumonia and influenza was lower for Canadian females (1,031 per 100,000) than for males (1,741 per 100,000).. The rates for females were also much lower than those for males in all reporting Atlantic health districts.

All reporting Atlantic region health districts had higher rates of hospitalization for pneumonia and influenza than the national average, with the sole exception of St. John's (735 – female, 1,401 – male). The highest rate of hospitalization for pneumonia and influenza in Atlantic Canada was in Fredericton (1,653 – female, 2,581 – male), 60% higher than the national average for females and nearly 50% higher for males (Figure 326).

Figure 326. Age-standardized rate of acute care hospitalization for pneumonia and influenza per 100,000 population age 65 and older, by sex, Canada, Atlantic Provinces, and reporting Atlantic health districts, 2002 (rate)



Source: Canadian Institute for Health Information, Hospital Morbidity Database, 2002; available at <http://secure.cihi.ca/hirpt/jsp/HIDispatcher.jsp>, extracted 5 February, 2003.

4.1.2.3 Injury hospitalization

“This indicator contributes to an understanding of the adequacy and effectiveness of injury prevention efforts, including public education, product development and use, community and road design, and prevention and treatment resources.”⁴⁴

Definition

“Age-standardized rate of acute care hospitalization due to injuries resulting from the transfer of energy, per 100,000 population.”⁴⁵

⁴⁴ Statistics Canada: <http://www.statcan.ca/english/freepub/82-221-XIE/00502/defin1.htm#14>.

⁴⁵ Ibid.

“Cause of injury is reported by the first-documented External Causes of Injury Code (E Code) as follows: E800-E807, E810 -E838, E840-E848, E880-E888, E890-E902, E906-E910, E913-E928, E953-E958, E960-E961, E963-E968, E970-E976, E978, E983-E988, E990-E998.”⁴⁶

Data Source

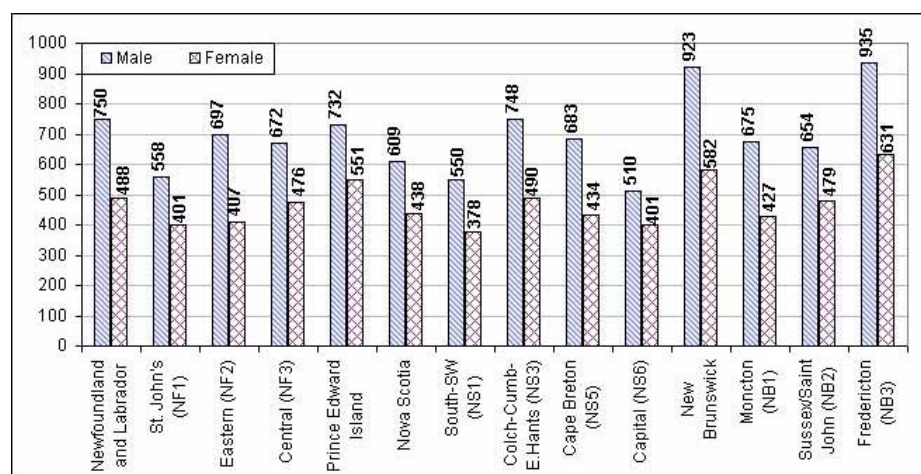
Canadian Institute for Health Information, National Trauma Registry.

Results

Data for this indicator were not available for Quebec or Canada. Of the nine reporting provinces, the lowest rates of hospitalization due to injuries resulting from the transfer of energy in 2002 were in Ontario (521 per 100,000 population), Nova Scotia (532), Newfoundland and Labrador (622) and PEI (647). The New Brunswick rate, at 762 per 100,000, was the highest in Atlantic Canada and the third highest in Canada after Saskatchewan (879) and Alberta (797). Males were about 40-50% more likely than females to be hospitalized due to injuries resulting from transfer of energy.

Data for hospitalization due to injuries resulting from transfer of energy were also not available for all Atlantic health districts. Considering data both at the health district and provincial levels, therefore, the highest reported rates of hospitalization for these injuries for males in Atlantic Canada were in Fredericton (NB3) at 935 per 100,000, and in New Brunswick as a whole (923), and the lowest rates were in Capital (NS6) at 510, South-SW (NS1) at 550, and St. John’s (NF1) at 558. The highest rates for females were also in Fredericton (NB3) at 631 and New Brunswick (582), followed by PEI at 551, and the lowest rates for females were in South-SW (NS1) at 378, and Capital (NS6) and St. John’s (NF1) at 401 (Figure 327).

Figure 327. Age-standardized rate of acute care hospitalization due to injuries resulting from the transfer of energy, per 100,000 population, by sex, Atlantic Provinces, and reporting health districts, 2002 (rate)



Source: Canadian Institute for Health Information, National Trauma Registry. Available at Canadian Institute for Health Information: http://www.cihi.ca/hirpt/jsp/En_HIQuery.jsp?SelIndicator=51, extracted 5 February, 2003.

⁴⁶ Canadian Institute for Health Information: <http://www.cihi.ca/indicators/en/defin1.shtml>.

4.1.2.4 Ambulatory care sensitive conditions hospitalization

“While not all admissions for ambulatory care sensitive conditions are avoidable, it is assumed that appropriate prior ambulatory care could prevent the onset of this type of illness or condition, control an acute episodic illness or condition, or manage a chronic disease or condition. The ‘right’ level of utilization is not known although a disproportionately high rate is presumed to reflect problems in obtaining access to primary care.”⁴⁷

Definition

“Age-standardized inpatient acute care hospitalization rate for conditions where appropriate ambulatory care prevents or reduces the need for admission to hospital, per 100,000 population [ICD-9 250, 291, 292, 300, 303-305, 311, 401-405, or 493]”⁴⁸

Data Source

Canadian Institute for Health Information, Hospital Morbidity Database.

Results

The 2002 national age-standardized inpatient acute care hospitalization rate for conditions where appropriate ambulatory care prevents or reduces the need for admission to hospital, per 100,000 population, was 418 for males and 383 for females. For both males and females, all four Atlantic Provinces had rates that were higher than the national averages: Newfoundland and Labrador (561 males, 551 females), Prince Edward Island (1,030 males, 1,153 females), Nova Scotia (480 males, 420 females) and New Brunswick (660 males, 624 females). Both nationally and in Atlantic Canada, males and females had roughly comparable rates of hospitalization for these conditions (Figure 328).

Considering both sexes combined, PEI had the highest hospitalization rate for these conditions in the country (1,095 per 100,000), followed by New Brunswick (642), Saskatchewan (590), and Newfoundland and Labrador (558), compared to Nova Scotia at 450 and the national average of 401.

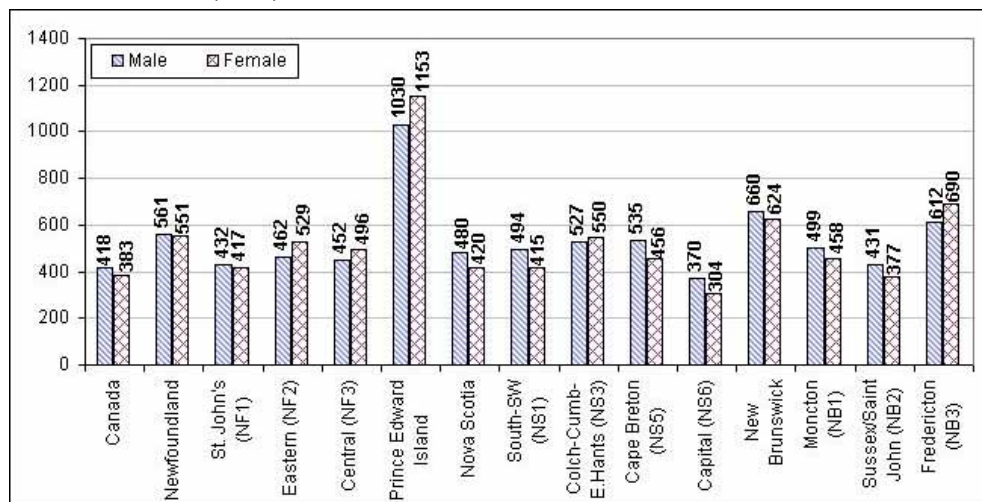
Data for hospitalization due to these conditions were not available for all Atlantic health districts. Considering data both at the health district and provincial levels, therefore, the highest reported rates of hospitalization for these conditions for males in Atlantic Canada were in PEI (1,030 per 100,000) at 2.5 times the national rate of 418, and in New Brunswick (660). The lowest male rate was in Capital (NS6) at 370 – the only Atlantic health district with a lower male rate than the national average.

The highest female rates were in PEI (1,153 per 100,000) at three times the national rate of 383, and in Fredericton (NB3) at 690 per 100,000 – 1.8 times the national rate. The lowest female rates were in Capital (NS6) at 304 and Sussex/Saint John (NB2) at 377 – the only two Atlantic health districts with rates below the national average for females.

⁴⁷ Statistics Canada: <http://www.statcan.ca/english/freepub/82-221-XIE/00502/defin3.htm#70>.

⁴⁸ Ibid.

Figure 328. Age standardized ambulatory care sensitive conditions (ACSC) hospitalization rate, per 100,000 population, by sex, Canada, Atlantic Provinces, and reporting health districts, 2002 (rate)



Source: Canadian Institute for Health Information, Hospital Morbidity Database, 2002; available at <http://secure.cihi.ca/hirpt/jsp/HIDispatcher.jsp>, extracted 5 February, 2003.

4.1.2.5 May not require hospitalization

Definition

“Percentage of patients hospitalized in acute care facilities for conditions or procedures that experts say often allow outpatient treatment not requiring admission. These hospitalizations are classified as May Not Require Hospitalization (MNRH) and are derived from the Case Mix Group (CMG) methodology [groupings or categories developed by the Canadian Institute for Health Information used for classifying acute inpatient visits. Patients in a group have similar clinical characteristics (e.g. diagnosis, procedures) and/or are expected to consume similar amounts of resources].

“MNRH analyses may prompt review of inpatient cases to identify opportunities for providing such care in ambulatory settings. Case mix groups associated with MNRH do not suggest that a patient must be treated in an outpatient setting, as these patients may have a justifiable basis for inpatient admission.”⁴⁹

“May not require hospitalization CMGs: Lens insertion (055), other Ophthalmic procedures (057), other Ophthalmic diagnoses (063), Ethmoidectomy (088), Dental extraction/restoration (089), External & Middle ear procedures (090), Nasal procedures (091), Myringotomy (092), Tonsillectomy and Adenoidectomy procedures (093), Sinusitis (113), Sore throat (114),

⁴⁹ Statistics Canada: <http://www.statcan.ca/english/freepub/82-221-XIE/00502/defin3.htm#eff>.

Miscellaneous ENT diagnosis (115), Croup (116), Atherosclerosis (229), Acquired valvular disorders (232), Hypertension (233), Congenital cardiac disorders (234), Anus & Stomal procedures (266), Unilateral hernia procedures (271), Soft tissue procedures (378), Other Musculoskeletal procedures (379), Other Lower extremity procedures (380), Hand & wrist procedures (381), Arthroscopy (382), Back Pain (409), Signs Symptoms & deformities (411), Joint Derangement (413), Sprains, Strains & minor injuries (414), Other Transurethral or biopsy procedures (512), Miscellaneous urinary tract procedures (514), Miscellaneous Urological diagnosis (534), Hematuria (535), Urinary Obstruction (536), Admission for dialysis (538), Miscellaneous male reproductive system procedures (554), Circumcision (555), Miscellaneous male reproductive system diagnosis (563), Gynecological Laparoscopy (585), Tubal Interruption (586), Miscellaneous Gynecological procedures (587), Miscellaneous Gynecological diagnoses (596), False labour LOS <3 days (619), Anxiety disorders (791), Adjustment disorders (792), Personality disorder with Axis III diagnosis (793), Personality disorder without Axis III diagnosis (794), Sexual dysfunction & Sexual disorders (795), Specific development disorders (796), Miscellaneous Psychiatric diagnosis (797), Procedure cancelled (852), Vein ligation & stripping (893), Unrelated OR procedure (906), and Obsolete psychiatric diagnosis (909).⁵⁰

Data Source

Canadian Institute for Health Information, Discharge Abstract Database.

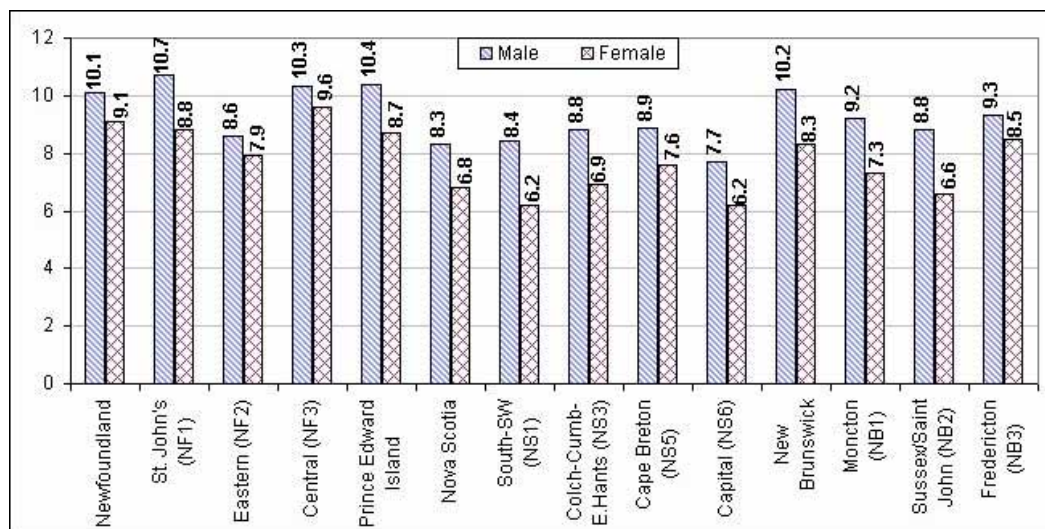
Results

Data for this indicator were not available for Quebec or Manitoba, and therefore for Canada as a whole. Of the eight reporting provinces in 2002, the highest rates of hospitalization in the country for conditions that may not require hospitalization were in Newfoundland and Labrador (9.6 per 100,000), PEI (9.4), and New Brunswick (9.1), followed by Saskatchewan (8.1), Nova Scotia (7.4), Alberta (7.3), B.C. (6.7), and Ontario (5.9).

Data for hospitalization for conditions that may not require hospitalization were not available for all Atlantic health districts. Considering data both at the health district and provincial levels, therefore, the highest reported rates of hospitalization for males for conditions that may not require hospitalization were in St. John's (NF1) at 10.7%, PEI at 10.4%, Central (NF3) at 10.3%, and New Brunswick at 10.2%, while the lowest was in Capital (NS6) at 7.7%. For females, the highest reported rate was in Central (NF3) at 9.6%, and the lowest rates were in South-Southwest (NS1) and Capital (NS6) at 6.2%. Male rates are higher than female rates in all reporting health districts (Figure 329).

⁵⁰ Statistics Canada: <http://www.statcan.ca/english/freepub/82-221-XIE/00502/defin3.htm#eff>.

Figure 329. Percentage of hospitalized patients who may not require hospitalization, by sex, Atlantic Provinces, and reporting health districts, 2002 (%)



Source: Canadian Institute for Health Information, Discharge Abstract Database available at Canadian Institute for Health Information: http://www.cihi.ca/hirpt/jsp/En_HIQuery.jsp?SelIndicator=104, extracted 5 February, 2003.

4.1.3 Readmission rates

In this section, hospitalization rates are given for unplanned readmission following discharge for acute myocardial infarction (AMI), asthma, and hysterectomy.

4.1.3.1 Acute myocardial infarction (AMI) readmission rate

“The risk of readmission following an AMI may be related to the type of drugs prescribed at discharge, patient compliance with post-discharge therapy, the quality of follow-up care in the community, or the availability of appropriate diagnostic or therapeutic technologies during the initial hospital stay. Although readmission for medical conditions can involve factors outside the direct control of the hospital, high rates of readmission act as a signal to hospitals to look more carefully at their practices, including the risk of discharging patients too early and the relationship with community physicians and community-based care.”⁵¹

Definition

“The risk adjusted rate (percentage) of unplanned readmission following discharge for acute myocardial infarction (AMI) [ICD-9 410]. A case is counted as a readmission if it is for a relevant diagnosis and occurs within 28 days after the index AMI episode of care. An episode of care refers to all contiguous in-patient hospitalizations and same-day surgery visits.”⁵²

⁵¹ Canadian Institute for Health Information:
http://secure.cihi.ca/cihiweb/en/pirc_indicators_AMI_Readmin_Rate_note_e.

⁵² Ibid.

Note: The rate represents the number of AMI episodes with a readmission divided by the total number of AMI episodes.

Statistics Canada notes: “To enable comparison across regions, a statistical model was used to adjust for differences in age, sex, and co-morbidities... These rates should be interpreted with caution due to potential differences in the coding of comorbid conditions across provinces and territories.

“Rates for Newfoundland, Quebec and Manitoba are not available due to differences in coding of AMI admissions (Newfoundland) and data collection (Quebec and Manitoba).”⁵³

Data Source

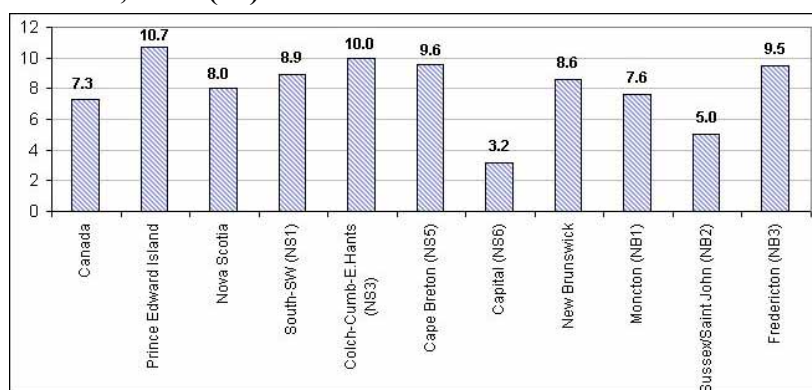
Canadian Institute for Health Information, Discharge Abstract Database.

Results

Data for this indicator are provided for both sexes only, and are not available for Manitoba, Quebec, and Newfoundland and Labrador, or for many Atlantic health districts. For those provinces and territories for which comparable data were available, the risk-adjusted rate for AMI readmission in Canada in 2002 was 7.3%.

The three Maritime provinces had the highest rates of AMI readmission in the country – 10.7% in PEI, 8.6% in New Brunswick, and 8% in Nova Scotia. However, the provincial averages conceal wide intra-provincial disparities, ranging from a low of 3.2% in Capital (NS6) to highs of 10% in Colchester-Cumberland-East Hants (NS3) and 9.6% in Cape Breton (NS5), and from 5.0% in Sussex/Saint John to 9.5% in Fredericton (Figure 330).

Figure 330. Risk-adjusted rate of unplanned readmission following discharge for acute myocardial infarction, both sexes, Canada, Maritime Provinces, and reporting health districts, 2002 (%)



Source: Canadian Institute for Health Information, Discharge Abstract Database available at Canadian Institute for Health Information: http://www.cihi.ca/hirpt/jsp/En_HIQuery.jsp?SelIndicator=104, extracted 5 February, 2003.

Note: The average Canadian rate (7.3%) includes only provinces/territories for which comparable data were available. Data for Newfoundland and Labrador and health districts were not available.

⁵³ Ibid.

4.1.3.2 Asthma readmission rate

“Although asthma readmission for medical conditions may involve factors outside the direct control of the hospital, high rates of readmission act as a signal to hospitals to look more carefully at their practices, including the risk of discharging patients too early and the relationship with community physicians and community-based care.”⁵⁴

Definition

“The risk adjusted rate (percentage) of unplanned readmission following discharge for asthma [ICD-9 493]. A case is counted as a readmission if it is for a relevant diagnosis and occurs within 28 days after the index episode of care. An episode of care refers to all contiguous in-patient hospitalizations and same-day surgery visits.

“To enable comparison across districts, a statistical model was used to adjust for differences in age, sex and co-morbidities... These rates should be interpreted with caution due to potential differences in the coding of comorbid conditions across provinces and territories.

“Rates for Quebec and Manitoba are not available due to differences in data collection.”⁵⁵

Data Source

Canadian Institute for Health Information, Discharge Abstract Database.

Results

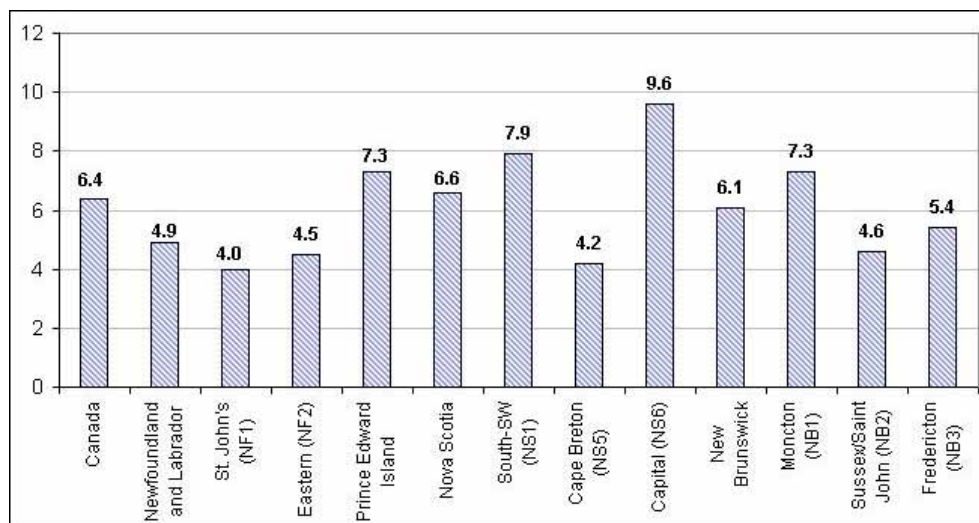
Data for this indicator are provided for both sexes only and are not available for Quebec, Manitoba and many Atlantic health districts. For those provinces and territories for which comparable data were available, the risk-adjusted rate for unplanned asthma readmissions in Canada in 2002 was 6.4%. Among the eight reporting provinces, the highest asthma readmission rate in the country was in British Columbia (7.8%), followed by PEI (7.3%), Nova Scotia (6.6%), Saskatchewan (6.3%), Alberta (6.2%), New Brunswick (6.1%), and Ontario (6.0%). Newfoundland and Labrador had by far the lowest asthma readmission rate in the country at 4.9%.

Among reporting Atlantic health districts, the highest rates were in Capital (NS6) at 9.6% and South-Southwest (NS1) at 7.9%, and the lowest rates were in St. John’s (NF1) at 4.0% and Cape Breton (NS5) at 4.2% (Figure 331).

⁵⁴ Statistics Canada: <http://www.statcan.ca/english/freepub/82-221-XIE/00502/defin3.htm#ef>.

⁵⁵ Ibid.

Figure 331. Risk-adjusted rate of unplanned readmission following discharge for asthma, both sexes, Canada, Atlantic Provinces, and reporting health districts, 2002 (%)



Source: Canadian Institute for Health Information, Discharge Abstract Database available at Canadian Institute for Health Information: http://www.cihi.ca/hirpt/jsp/En_HIQuery.jsp?SelIndicator=104, extracted 5 February, 2003.

Note: The average Canadian rate (6.4%) includes only provinces/territories for which comparable data were available. Central (NF3) and Colchester-Cumberland-East Hants (NS3) do not have comparable data for this indicator.

4.1.3.3 Hysterectomy readmission rate

“Although readmission for hysterectomy may involve factors outside the direct control of the hospital, high rates of readmission act as a signal to hospitals to look more carefully at their practices, including the risk of discharging patients too early and the relationship with community physicians and community-based care.”⁵⁶

Definition

“The risk adjusted rate (percentage) of unplanned readmission following discharge for hysterectomy [ICD-9 68.3-68.7, 68.9]. A case is counted as a readmission if it is for a relevant diagnosis and occurs within 7 or 28 days after the index episode of care. An episode of care refers to all contiguous in-patient hospitalizations and same-day surgery visits.

“To enable comparison across districts, a statistical model was used to adjust for differences in age and co-morbidities... These rates should be interpreted with caution due to potential differences in the coding of comorbid conditions across provinces and territories.

“Rates for Quebec and Manitoba are not available due to differences in data collection.”⁵⁷

⁵⁶ Statistics Canada: <http://www.statcan.ca/english/freepub/82-221-XIE/00502/defin3.htm#ef>.

⁵⁷ Statistics Canada: <http://www.statcan.ca/english/freepub/82-221-XIE/00502/defin3.htm#ef>.

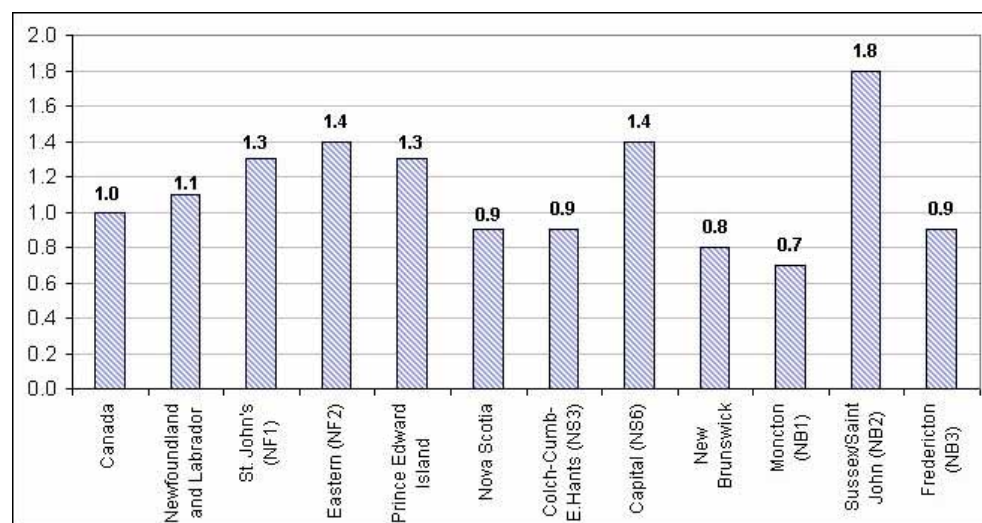
Data Source

Canadian Institute for Health Information, Discharge Abstract Database.

Results

Data for this indicator were not available for many of the Atlantic health districts. For those provinces and territories for which comparable data were available, the risk-adjusted rate for unplanned hysterectomy readmissions in Canada in 2002 was 1.0%. Hysterectomy readmission rates were 1.1% in Newfoundland and Labrador, 1.3% in Prince Edward Island, 0.9% in Nova Scotia and 0.8% in New Brunswick. Among reporting Atlantic health districts, the highest rate was in Sussex/Saint John (NB2) at 1.8%, and the lowest in Moncton (NB1) at 0.7% (Figure 332).

Figure 332. Risk adjusted rate of unplanned readmission following discharge for hysterectomy, Canada, Atlantic Provinces, and reporting health districts, 2002 (%)



Source: Canadian Institute for Health Information, Discharge Abstract Database available at Canadian Institute for Health Information: http://www.cihi.ca/hirpt/jsp/En_HIQuery.jsp?SelIndicator=104, extracted 5 February, 2003.

Note: For Canada, the average rate (1.0%) includes only provinces/territories for which comparable data were available. In Atlantic Canada, Central (NF3), South-Southwest (NS1) and Cape Breton (NS5) do not have comparable data available.

4.1.4 Inpatient hospital procedures

This section includes data for coronary artery bypass graft (CABG), hip replacement, and knee replacement.

4.1.4.1 Coronary artery bypass graft (CABG)

“Variations in CABG surgery rates can be attributed to numerous factors, including differences in population demographics, physician practice patterns, and availability of services. In some cases, coronary angioplasty (an alternative intervention to improve blood flow to the heart muscle) may be used. Variations in the extent of the procedure may result in variations in bypass surgery.”⁵⁸

Definition

“Age-standardized rate of coronary artery bypass graft (CABG) surgery performed on inpatients in acute care hospitals per 100,000 population age 20 and over [ICD-9 procedure code 36.1].”⁵⁹

Data Source

Canadian Institute for Health Information, Hospital Morbidity Database.

Results

In 2002, the highest age-standardized rates of coronary artery bypass graft surgery in the country were in Newfoundland and Labrador (117.1 per 100,000 population age 20 and over) and in Nova Scotia (114.4), and the lowest rates in the country were in PEI (75.5), B.C. (78.7) and New Brunswick (82.8). This compares to a nationwide average of 94.2.

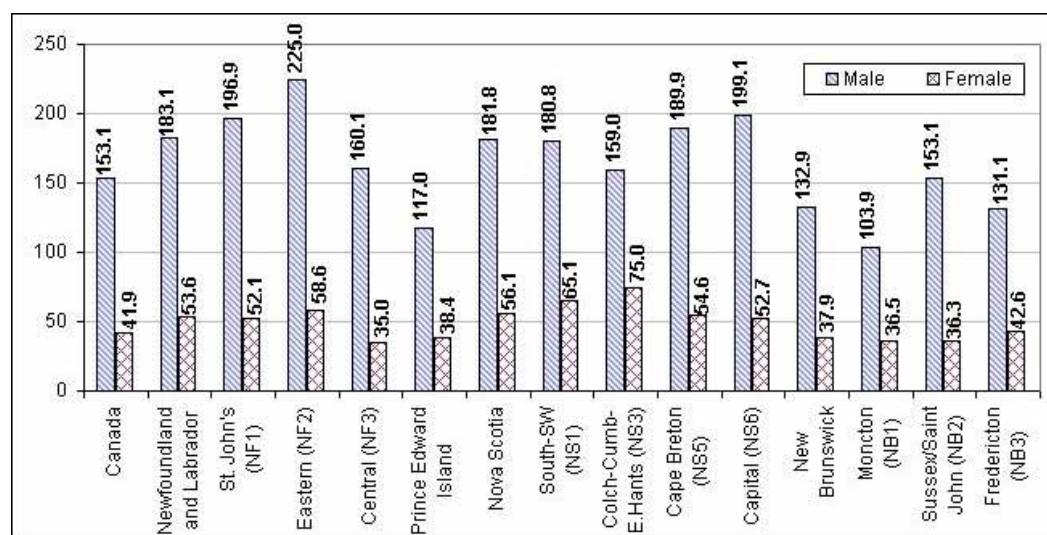
In Canada as a whole and in the four Atlantic Provinces, males were generally 3-4 times as likely as women to have CABG surgery. In 2002, the national bypass rate for females was 41.9 per 100,000, compared to 153.1 for males.

Data were not available for many of the Atlantic health districts. Among reporting health districts, the highest age-standardized bypass surgery rates for males in the Atlantic region were in Eastern (NF2) at 225.0, Capital (NS6) at 199.1, St. John’s (NF1) at 196.9, and Cape Breton at 189.9. For females, the highest rates in the Atlantic region were in Colchester-Cumberland-East Hants (NS3) at 75.0, and South-SW (NS1) at 65.1. The lowest rates for males were in Moncton (NB1) at 103.9 and PEI at 117, and the lowest rates for females were in Central (NF3) at 35, Sussex/Saint John (NB2) at 36.3, Moncton (NB1) at 36.5, New Brunswick as a whole at 37.9, and PEI at 38.4 (Figure 333).

⁵⁸ Statistics Canada: <http://www.statcan.ca/english/freepub/82-221-XIE/00502/defin4.htm#88>.

⁵⁹ Ibid.

Figure 333. Age-standardized rate of coronary artery bypass graft surgery, per 100,000 population age 20 and over, by sex, Canada, Atlantic Provinces, and reporting health districts, 2002 (rate)



Source: Canadian Institute for Health Information, Hospital Morbidity Database, 2002; available at <http://secure.cihi.ca/hirpt/jsp/HIDispatcher.jsp>, extracted 5 February, 2003.

4.1.4.2 Hip replacement

“Hip replacement surgery has the potential to result in considerable improvement in functional status, pain relief, and other gains in health-related quality of life. Over the past two decades rates of surgery have increased substantially. Wide inter-regional variation in the hip replacement rate may be attributable to numerous factors including the availability of services, provider practice patterns, and patient preferences.”⁶⁰

Definition

“Age-standardized rate of total unilateral or bilateral hip replacement surgery performed on inpatients in acute care hospitals per 100,000 population [ICD-9 procedure code 81.50, 81.51, or 81.53].”⁶¹

Data Source

Canadian Institute for Health Information, Hospital Morbidity Database.

⁶⁰ Statistics Canada: <http://www.statcan.ca/english/freepub/82-221-XIE/00502/defin4.htm#89>.

⁶¹ Ibid.

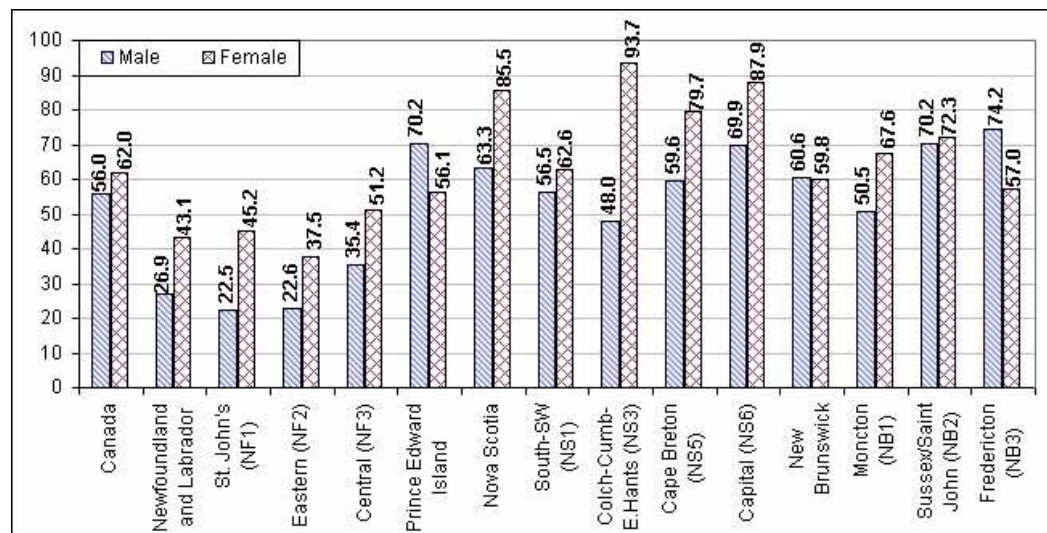
Results

In 2002, Nova Scotia had the highest rate of age-standardized hip replacement surgery in the country (76.4 per 100,000) and Newfoundland and Labrador had the lowest rate (35.5). PEI (63.5) and New Brunswick (60.5) were closer to the national average of 59.5 per 100,000.

Nationwide in 2002, females were about 10% more likely than males to have hip replacement surgery (62 per 100,000 compared to 56 per 100,000), but the ratio varied widely by region. In Newfoundland and Labrador in 2002, females were 60% more likely than males to have hip replacement surgery, and in Nova Scotia 35% more likely, while in PEI males were 25% more likely than females to have hip replacement surgery, and in New Brunswick there was no significant difference between the sexes.

Data were not available for all Atlantic health districts. Among reporting health districts, the highest rates of age-standardized hip replacement surgery for females were in Colchester-Cumberland-East Hants (NS3) at 93.7, Capital (NS6) at 87.9, and in Nova Scotia as a whole (85.5), and the highest rates for males were in Fredericton (NB3) at 74.2, Sussex/Saint John (NB2) at 70.2, and Capital (NS6) at 69.9 (Figure 334).

Figure 334. Age-standardized rate of total unilateral or bilateral hip replacement surgery, rate per 100,000 population, by sex, Canada, Atlantic Provinces, and reporting Atlantic health districts, 2002 (rate)



Source: Canadian Institute for Health Information, Hospital Morbidity Database, 2002; available at <http://secure.cihi.ca/hirpt/jsp/HIDispatcher.jsp>, extracted 5 February, 2003.

4.1.4.3 Knee replacement

“Knee replacement surgery has the potential to result in considerable improvement in functional status, pain relief, as well as other gains in health-related quality of life. Over the past two

decades, rates of surgery have increased substantially. Wide inter-regional variation in the knee replacement rate may be attributable to numerous factors including the availability of services, provider practice patterns, and patient preferences.”⁶²

Definition

“Age-standardized rate of total unilateral or bilateral knee replacement surgery performed on inpatients in acute care hospitals per 100,000 population [ICD-9 procedure code 81.54 or 81.55].”⁶³

Data Source

Canadian Institute for Health Information, Hospital Morbidity Database

Results

In 2002, Nova Scotia had the highest age-adjusted rate of knee replacement surgery in the country (99.1 per 100,000 population) – more than 50% higher than the national average of 65.6. The lowest rates in the country were in Quebec (34.2) and Newfoundland and Labrador (36.2). In PEI, the knee replacement surgery rate was 67.1 per 100,000, and in New Brunswick it was 75.8.

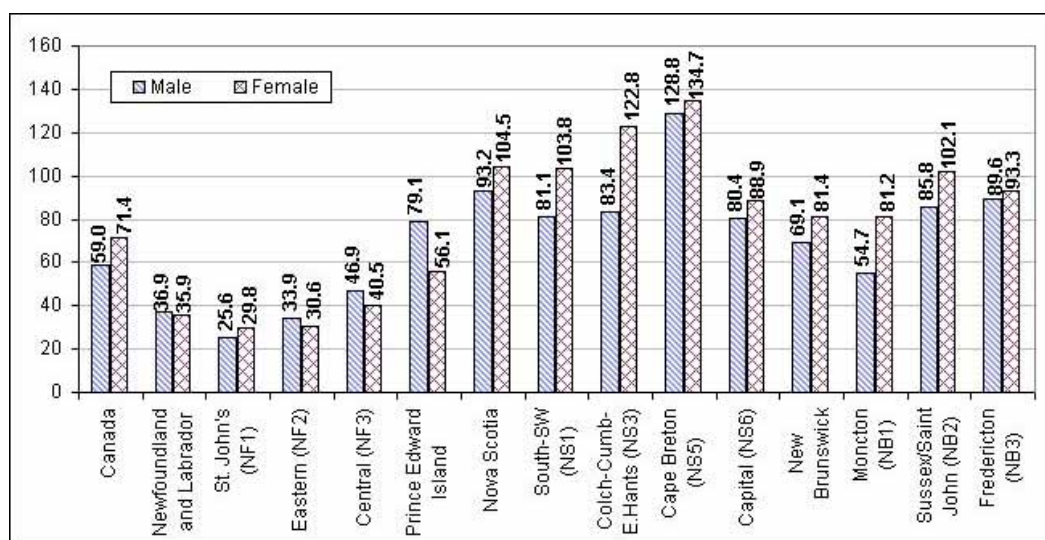
Nationwide in 2002, females were 21% more likely than males to have hip replacement surgery (71.4 per 100,000 compared to 59 per 100,000), but the ratio varied widely by region. In Nova Scotia and New Brunswick, females were also more likely than males to have knee replacement surgery, but in PEI and Newfoundland and Labrador, males were more likely than females to have this surgery.

Data were not available for all Atlantic health districts. Among reporting health districts, the highest age-adjusted knee replacement surgery rates for females were in Cape Breton (NS5) at 134.7 per 100,000 and Colchester-Cumberland-East Hants (NS3) at 122.8, and the highest rate for males was in Cape Breton (NS5) at 128.8 – more than double the national rate. The lowest rates in Atlantic Canada were all in Newfoundland and Labrador, with St. John’s registering the lowest rates both for males (25.6) and females (29.8) – less than half the national average (Figure 335).

⁶² Statistics Canada: <http://www.statcan.ca/english/freepub/82-221-XIE/00502/defin4.htm#90>.

⁶³ Statistics Canada: <http://www.statcan.ca/english/freepub/82-221-XIE/00502/defin4.htm#90>.

Figure 335. Age-standardized rate of total unilateral or bilateral knee replacement surgery rate per 100,000 population, by sex, Canada, Atlantic Provinces, and reporting Atlantic health districts, 2002 (rate)



Source: Canadian Institute for Health Information, Hospital Morbidity Database, 2002; available at <http://secure.cihi.ca/hirpt/jsp/HIDispatcher.jsp>, extracted 5 February, 2003.

4.1.5 Availability of doctors/nurses

4.1.5.1 General/family practitioner and specialist rates

According to Statistics Canada: “Physician to population ratios are used to support health human resource planning. Physician density ratios do not take into account workload or type of services provided. In some districts, health facilities and personnel provide services to a larger community than the residents of the immediate district. In others, residents may seek care from physicians and specialists outside the district where they live. The ratio of physicians to population reflects the number of doctors in a district and has not been adjusted to take these movements into account. The extent to which this affects individual districts is likely to vary.”⁶⁴

Definition

“General practitioners (including uncertified specialists) or family practitioners (family medicine and emergency family medicine specialists) per 100,000 population on December 31st of the reference year. Specialist physicians (specialty based on most recent certified specialty) on December 31st of the reference year, per 100,000 population. Includes physicians in clinical and/or non-clinical practice, including research, teaching or administration.”⁶⁵

⁶⁴ Statistics Canada: <http://www.statcan.ca/english/freepub/82-221-XIE/00502/defin4.htm#93>.

⁶⁵ Ibid.

“Physician per 100,000 ratios for 2001 are revised from previous years’ figures due to updated population estimates. Therefore, figures may differ slightly from past publications. Excludes residents and physicians who are not licensed to provide clinical practice and have requested to the Business Information Group (formerly Southam Medical Group) that their data not be published.”⁶⁶

Data Sources

Canadian Institute for Health Information, Southam Medical Database.

Results

According to Statistics Canada’s 2001 Health Services Access Survey, the vast majority of Canadians (87.7%) had a family physician. Maritimers were more likely to have a regular family physician than other Canadians, with New Brunswick (94.6%) and Nova Scotia (94.4%) registering the highest rates in the country, followed by Ontario (94.3%) and Prince Edward Island (93.6%). Residents of Quebec were the least likely to have a family physician (75.9%), while in Newfoundland and Labrador, 86.2% of residents had a family physician.⁶⁷

At the time this volume was compiled, the most recent available provincial data on physicians and specialists per 100,000 population were for 2001, and the most recent available health district data were for 1999. 2001 data are therefore used whenever Canadian and provincial rates are referenced separately. But where they are compared with health district rates below, 1999 data are used for all jurisdictions for comparative purposes. As this volume went to press, more recent data for these indicators were made available by the Canadian Institute for Health Information. Subject to interest by users, GPI Atlantic intends to have this database updated on a regular basis.

Data for 1999 were available for ten of the 21 Atlantic health districts. In that year, Newfoundland and Labrador (103) and Nova Scotia (101) had higher numbers of general and family practitioners per 100,000 population than the national average (94), with New Brunswick at 91, and PEI at 74 (the lowest rate in the country). In 1999, Nova Scotia had the second highest rate of specialists in the country (97) after Quebec (106), with the lowest rates in PEI (56), Saskatchewan (61), New Brunswick (63), and Newfoundland and Labrador (68).

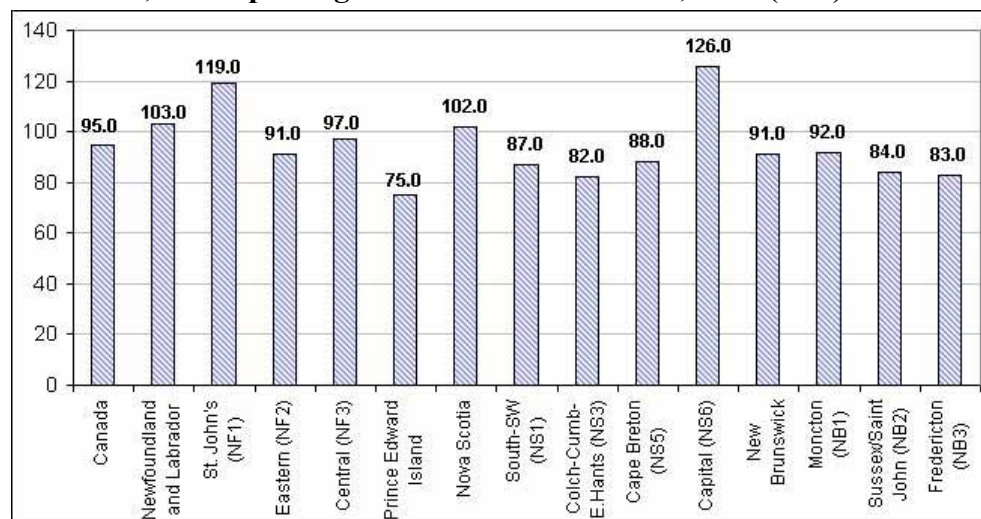
Among the 10 reporting Atlantic health districts, the highest GP/FP and specialist rates in 1999 were in the major urban centers, with 126 general and family practitioners and 168 specialists per 100,000 in the Halifax area (Capital-NS6) and 119 (GP/FP) and 158 (specialists) per 100,000 in the St. John’s area. By contrast, there were far fewer specialists, in particular, in more rural areas – only 11 per 100,000 in Eastern (NF2), 30 in Central (NF3), 33 in Colchester-Cumberland-East Hants (NS3), 45 in South-SW (NS1), and 56 in Cape Breton and PEI (Figures 336 and 337).

⁶⁶ Canadian Institute for Health Information:

http://secure.cihi.ca/cihiweb/disPage.jsp?cw_page=statistics_results_topic_physicians_e&cw_topic=Health%20Human%20Resources&cw_subtopic=Physicians.

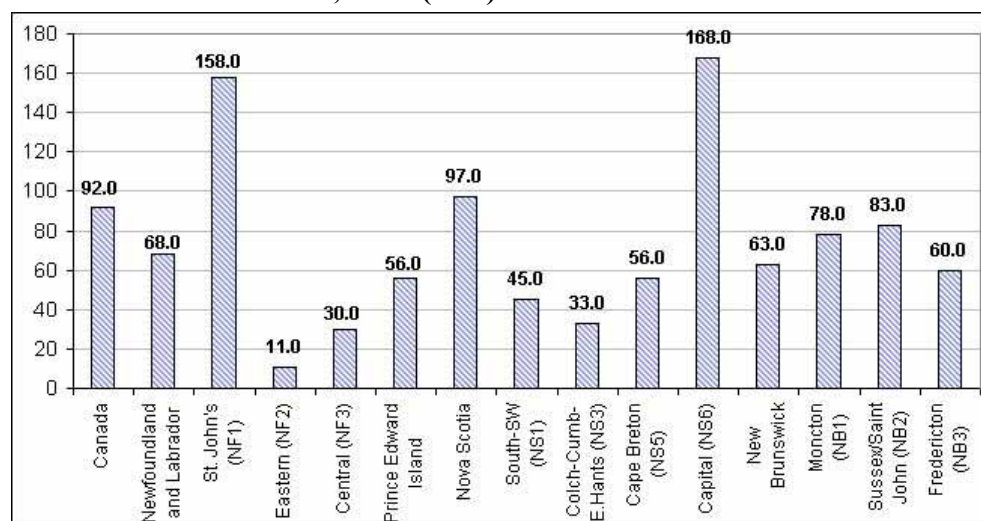
⁶⁷ Sanmartin, Claudia, et al., *Access to Health Care Services in Canada 2001*, Statistics Canada, catalogue no. 82-575-XIE, Ottawa, June, 2002.

Figure 336. General practitioners/family practitioners per 100,000, Canada, Atlantic Provinces, and reporting Atlantic health districts, 1999 (rate)



Source: Canadian Institute for Health Information, Southam Medical Database 2002 available at <http://www.statcan.ca/english/freepub/82-221-XIE/00502/tables.htm>, extracted 5 February, 2003.

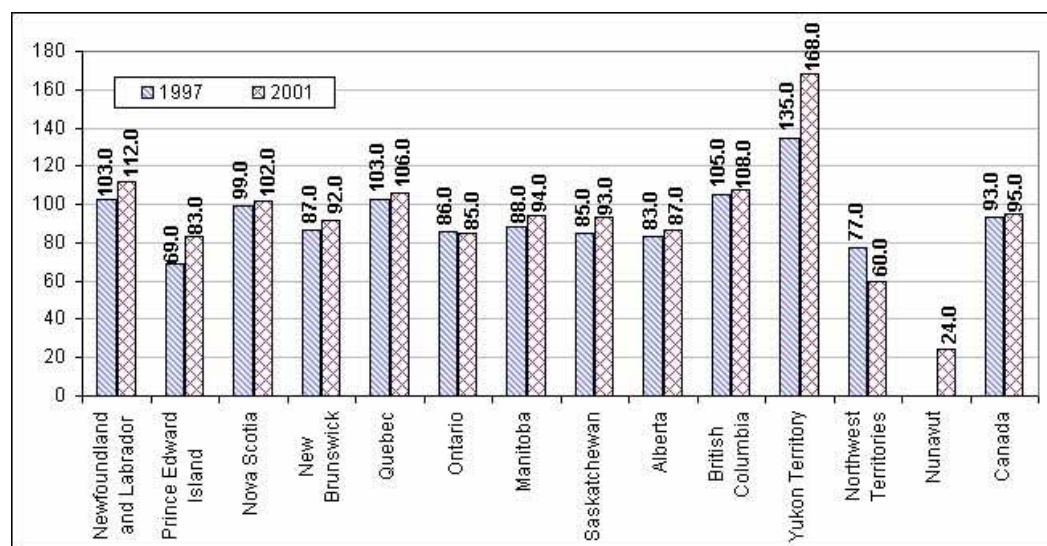
Figure 337. Specialists per 100,000 population, Canada, Atlantic Provinces, and reporting Atlantic health districts, 1999 (rate)



Source: Canadian Institute for Health Information, Southam Medical Database 2002 available at <http://www.statcan.ca/english/freepub/82-221-XIE/00502/tables.htm>, extracted 5 February, 2003.

All four Atlantic Provinces saw the number of family medicine practitioners per 100,000 increase between 1997 and 2001 at a faster rate than in the country as a whole – by 9% in Newfoundland and Labrador, by 20% in PEI (the largest increase in the nation), by 3% in Nova Scotia, and by 6% in New Brunswick, compared to a 2% increase nationwide (Figure 338).

Figure 338. Family physicians per 100,000 population, Canada, Provinces, and Territories, 1997 and 2001 (rate)



Source: Canadian Institute for Health Information, available at

http://secure.cihi.ca/cihiweb/dispPage.jsp?cw_page=statistics_results_topic_physicians_e&cw_topic=Health%20Human%20Resources&cw_subtopic=Physicians, extracted 5 February 2003.

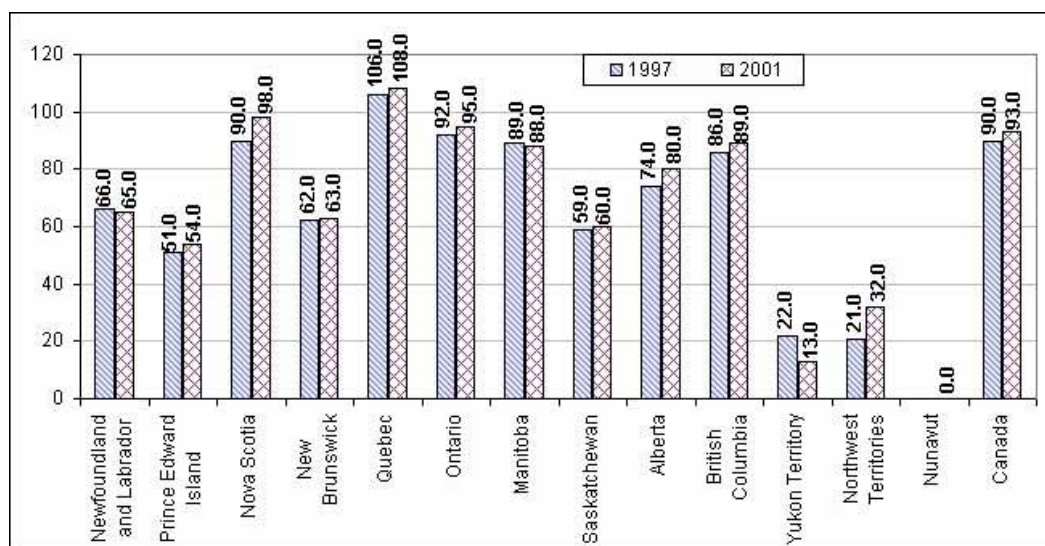
Notes: Physician per 100,000 ratios for 2001 were revised from previous years' figures due to updated population estimates. Therefore, figures may differ slightly from earlier CIHI publications. Excludes residents and physicians who are not licensed to provide clinical practice and have requested to the Business Information Group (formerly Southam Medical Group) that their data not be published. Data as of December 31 of given year. Includes physicians in clinical and/or non-clinical practice, including research, teaching or administration. Caution must be exercised when comparing Northwest Territory data prior to 1999 with Northwest Territory data after 1998, since some of the change may be attributable to the creation of the Nunavut Territory, which also explains the lack of data for Nunavut for 1997.

In 2001, among the ten provinces, Newfoundland and Labrador had the highest number of general and family practitioners (GP/FP) per 100,000 population in the country (112), and PEI had the lowest (83). Nova Scotia had 102 and New Brunswick had 92, compared to the national average of 95.

For specialists, Nova Scotia had the second highest rate in the country (98 per 100,000) after Quebec (108), while the lowest rates were in PEI (54), Saskatchewan (60), New Brunswick (63), and Newfoundland and Labrador (65), compared to the national average of 93. The low rate of specialists in three of the four Atlantic provinces compared with the high rate in Nova Scotia indicates that many Atlantic Canadians may need to travel to Halifax for specialist treatment.

Between 1997 and 2001, among the ten provinces, Nova Scotia had the largest percentage increase in specialists per 100,000 population in the country (9%), compared to a 6% increase in PEI, a 2% increase in New Brunswick, a 2% decline in Newfoundland and Labrador, and a 3% increase nationwide (Figure 339).

Figure 339. Specialists per 100,000 population, Canada, Provinces, and Territories, 1997 and 2001 (rate)



Source: Canadian Institute for Health Information, available at http://secure.cihi.ca/cihiweb/dispPage.jsp?cw_page=statistics_results_topic_physicians_e&cw_topic=Health%20Human%20Resources&cw_subtopic=Physicians, extracted 5 February 2003.

Notes: Physician per 100,000 ratios for 2001 were revised from previous years figures due to updated population estimates. Therefore, figures may differ slightly from earlier CIHI publications. Excludes residents and physicians who are not licensed to provide clinical practice and have requested to the Business Information Group (formerly Southam Medical Group) that their data not be published. Data as of December 31 of given year. Includes physicians in clinical and/or non-clinical practice, including research, teaching or administration. Caution must be exercised when comparing Northwest Territory data prior to 1999 with Northwest Territory data after 1998, since some of the change may be attributable to the creation of the Nunavut Territory, which also explains the lack of data for Nunavut for 1997. As well, in 2001, there were no specialists in Nunavut.

4.1.5.2 Number of nurses

Definition

“The number of Registered Nurses per 10,000 population is calculated annually using the most recent Statistics Canada population estimates. As historical estimates are revised by Statistics Canada, historical ‘RN per 10,000 Population’ rates are revised as well. Therefore, the historical figures presented here will differ from rates presented in previous publications.”⁶⁸

⁶⁸ Canadian Institute for Health Information: http://secure.cihi.ca/cihiweb/dispPage.jsp?cw_page=statistics_results_topic_nurses_e&cw_topic=Health%20Human%20Resources&cw_subtopic=Nurses.

Data Sources

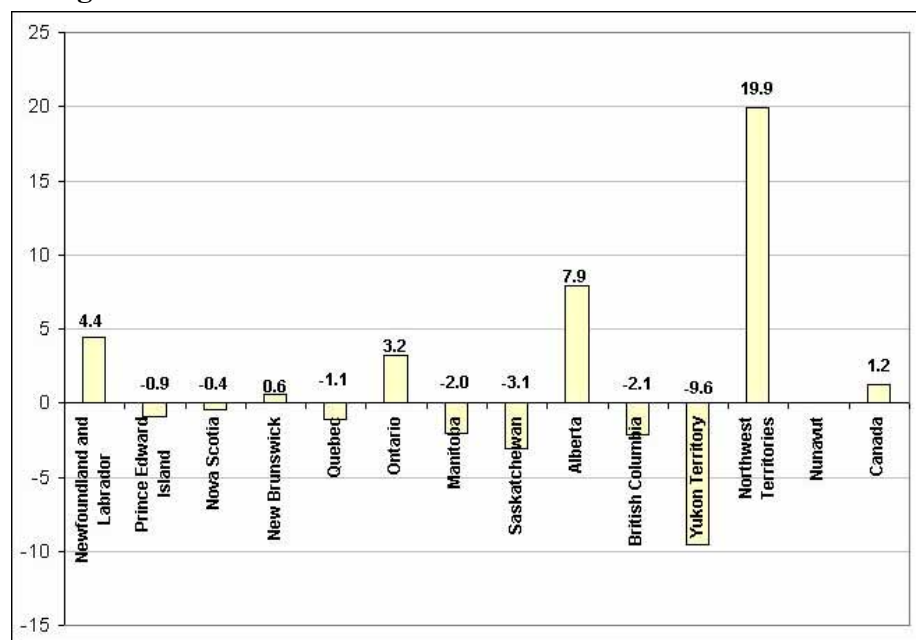
Registered Nurses Database, Canadian Institute for Health Information. RN per 10,000 population CIHI figures differ from provincial/territorial figures for three reasons: (1) CIHI data are collected at the six-month mark, as opposed to year-end figures, (2) CIHI removes “secondary” registrations that do not reflect primary employment, and (3) provincial/territorial associations/colleges may improve the completeness of data at year-end.

At the time this volume was compiled, the most recent available provincial data on nurses per 10,000 population were for 2001. As this volume went to press, more recent data for these indicators were made available by the Canadian Institute for Health Information. Subject to interest by users, GPI Atlantic intends to have this database updated on a regular basis.

Results

Between 1997 and 2001, there was a 1.2% increase in the total number of registered nurses employed in Canada, compared to a 4.4% increase in Newfoundland and Labrador, a 0.9% decline in Prince Edward Island, a 0.4% decline in Nova Scotia, a 0.6% increase in New Brunswick, a 1.1% decline in Quebec, a 3.2% increase in Ontario, a 2.0% decline in Manitoba, a 3.1% decline in Saskatchewan, a 7.9% increase in Alberta, a 2.1% decline in British Columbia, a 9.6% decline in Yukon Territory, a 19.9% increase in Northwest Territories, and a 1.2% increase in Nunavut.

Figure 340. Registered Nurses employed, by Province/Territory of registration, percentage change between 1997 and 2001



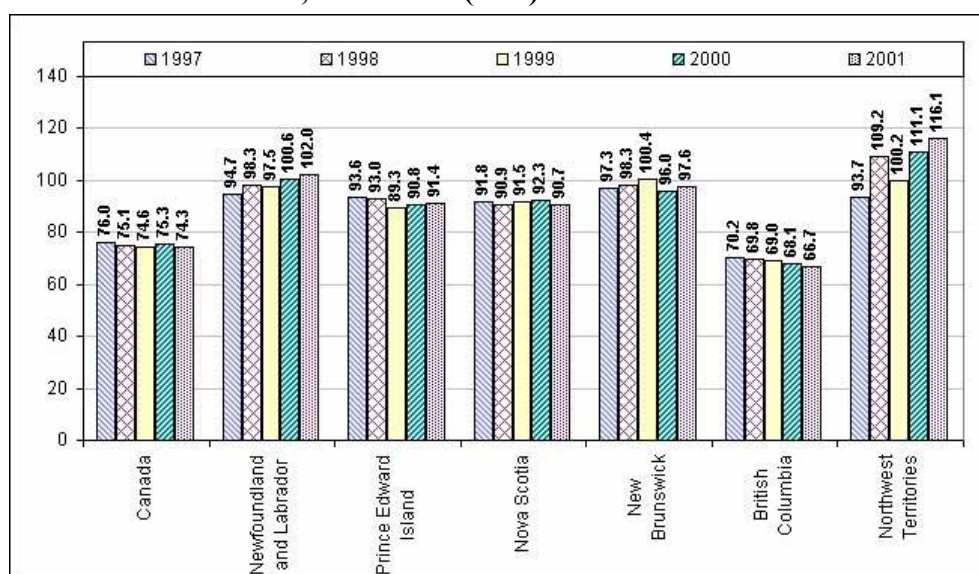
Source: Registered Nurses Database, Canadian Institute for Health Information 1997 to 2001, available at http://secure.cihi.ca/cihiweb/dispPage.jsp?cw_page=statistics_results_topic_nurses_e&cw_topic=Health%20Human%20Resources&cw_subtopic=Nurses, extracted 5 February, 2003.

Notes: Nunavut data not available before 2001. Data from Yukon, Northwest Territories, and Nunavut include RNs working in more than one jurisdiction. Historical data from New Brunswick, Manitoba, Alberta, and British Columbia have been revised from previously published statistics.

On a population basis, however, Canada experienced a 2.2% decline in the number of nurses per 10,000 population between 1997 and 2001, compared to declines of 2.4% and 1.2% in PEI and Nova Scotia respectively, and a marginal 0.3% increase in New Brunswick. Among the ten provinces, only Newfoundland and Labrador had any significant increase in nurses per 10,000 population (up 7.7% from 1997), but this increase was due almost as much to population decline as to an increase in the number of nurses.

Among the ten provinces, and as in previous years, the four Atlantic Provinces had the highest number of registered nurses per 10,000 population in the country in 2001, led by Newfoundland and Labrador (102), New Brunswick (97.6), PEI (91.4), and Nova Scotia (90.7), compared to a national average of 74.3 (Figure 341).

Figure 341. Registered nurses per 10,000 population, Canada and selected Provinces/Territories, 1997-2001 (rate)



Source: Registered Nurses Database, Canadian Institute for Health Information 1997 to 2001, available at http://secure.cihi.ca/cihiweb/dispPage.jsp?cw_page=statistics_results_topic_nurses_e&cw_topic=Health%20Human%20Resources&cw_subtopic=Nurses, extracted 5 February, 2003. Data for Northwest Territories include RNs working in more than one jurisdiction.

4.1.6 Health expenditures

Definition

“Health expenditures in current dollars; expenditures per capita; percent of Gross Domestic Product; public sector expenditures as a percent of total spending; expenditures by use of funds.”⁶⁹

⁶⁹ Statistics Canada: <http://www.statcan.ca/english/freepub/82-221-XIE/00502/defin4.htm#r>.

Data Source

Canadian Institute for Health Information (CIHI), National Health Expenditure Database.

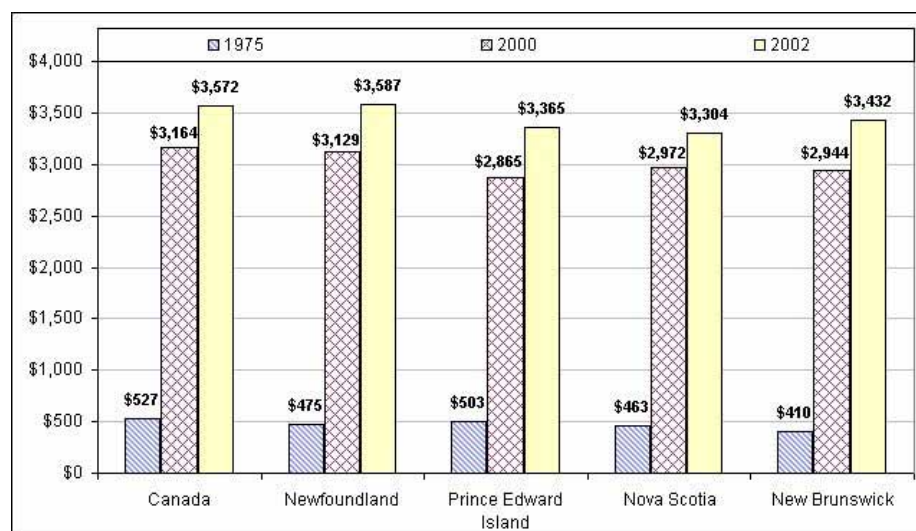
Results

In 2000, the most recent year for which comparative CIHI data are available, all four Atlantic Provinces had lower total health expenditures per capita than the national average of \$3,164, with the Maritime Provinces and Quebec registering the lowest rates in the country. The lowest total health expenditures per capita in 2000 were \$2,865 in PEI, \$2,870 in Quebec, \$2,944 in New Brunswick, \$2,972 in Nova Scotia, \$3,056 in Saskatchewan, and \$3,129 in Newfoundland and Labrador, with the highest expenditures in Manitoba at \$3,500 per capita.⁷⁰

CIHI's forecasted 2002 expenditures per capita show Newfoundland and Labrador at \$3,587, PEI at \$3,365, Nova Scotia at \$3,304, and New Brunswick at \$3,432 (Figure 342).

Since 1998, health expenditures in Canada have grown by an average of 6.5% a year, and are now double the spending in 1980. Of all health expenditures, drug spending has grown the fastest, with average annual growth of 8.7% from 1997 to 2001. Tables 218-222 in Appendix B show the growth in health expenditures by expenditure category from 1975 to 2002 for Canada and the four Atlantic Provinces, and Table 219 details 1999 drug expenditures for Canada, and the provinces and territories.

Figure 342. Per capita total health expenditure, Canada and Atlantic Provinces, 1975, 2000 and 2002 (current dollars/capita)



Source: CIHI National Health Expenditure Database, available at http://secure.cihi.ca/cihiweb/dispPage.jsp?cw_page=statistics_results_source_nh_ex_e, extracted 20 February 2003. 2002 estimates are forecasts.

⁷⁰ Canadian Institute for Health Information, National Health Expenditure Database, Table 4. "Total Health Expenditure, by Province/Territory and Canada 1975 to 2002 - Current Dollars." Available at: http://secure.cihi.ca/cihiweb/dispPage.jsp?cw_page=statistics_results_source_nh_ex_e. Extracted 20 February, 2003.