

PHYSICIAN SERVICES REPORT 2008

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Executive Summary

Physicians are an important part of the Northwest Territories (NWT) Health Care system. They provide a range of services from the general to the specialized. The documentation of the use of services provided by physicians is an important part of public accountability. This report fulfills part of that accountability by detailing the main reasons the public requires physician care.

The last report on physician service utilization by residents of the NWT was published in 2001. *The NWT Health Services Report 2000* not only took a broad look at the utilization of physician services but also examined the utilization of hospital and health centre services. The two major findings of the report were: health service utilization is primarily determined by age; and preventable conditions are responsible for a large proportion of health service utilization.

This report is the third in a series of shorter, more focused reports that provide greater detail on a single health service area, examining the use of services by age group and by condition. The first report in this series, *Hospital Services Report, 2006*, was released in 2007 – covering the time period 2000/01 to 2003/04; and the second report, *Health Centre Services Report, 2007*, was released in 2008 – covering the time period 2001/02 and 2005/06. This report focuses on physician services provided to residents of the NWT between 2002/03 and 2006/07.

Highlights

Key findings of this report include:

Overview

- The annual cost of physician services for the entire population averaged \$30.6 million between 2002/03 and 2006/07 for 186,856 encounters by 32,859 people.
- Among children under 15 years of age, infants made the greatest use of physician services – averaging 4,299 visits per 1,000, at an average cost of \$689 per capita.
- Physician service utilization decreases as a child ages. Children, age 1 to 4 years, averaged 2,939 visits per 1,000 per year at an average cost of \$419 per capita.
- Children, age 5 to 14 years, require the least amount of physician services. The average number of encounters per 1,000 per year was 1,919 and, the average cost per capita was \$283.

- Utilization of physician services increases dramatically in the next age group, with youth (age 15 to 24 years) averaging 3,430 encounters per year at an average cost of \$528 per patient. In this age group, gender is the greatest influence on utilization patterns as women are entering their reproductive years. Female youth averaged 4,833 encounters per 1,000 per year compared to 2,129 for men. On average women received approximately \$782 worth of physician services per capita compared to \$292 per capita for men.
- Utilization continues to increase into the adult years, with 25 to 44 year old patients averaging 4,444 encounters per 1,000 per year – amounting to \$723 per capita per year. Similar to youth, gender accounts for most of the increase in utilization, as reproductive related issues dominate the demand for physician services. Women averaged 6,036 encounters per 1,000 per year compared to 2,913 for men; on average women receive approximately \$1,040 worth of physician services per capita compared to \$419 per capita for men.
- Utilization increases again with older adults (age 45 to 64 years), though gender differences still exist – the impact begins to diminish with the dramatic reduction in the demand for reproductive services. Adults, age 45 to 64 years, averaged 6,401 encounters per 1,000 per year, amounting to \$1,055 per capita in physician services.
- For seniors (age 65 and over) the rate of physician encounters per 1,000 per year increases by 48% to 9,470 – amounting to \$1,882 per capita.

Infants (Under 1)

- On average, between 2002/03 and 2006/07, 1,088 infants had 4,679 physician encounters, resulting in 5,405 claims, for an approximate cost of \$750,000.
- The top five diagnosed conditions by cost were diseases of the respiratory system at \$120,000 (26%), conditions occurring in the perinatal period at \$67,000 (15%), congenital anomalies at \$53,000 (12%), diseases of the sense organs and nervous system at \$51,000 (11%), and diseases of the digestive system at \$38,000 (8%).

Children (1 to 4)

- On average, between 2002/03 and 2006/07, 2,140 children (age 1 to 4 years) had 7,767 physician encounters, resulting in 8,559 claims, for an approximate cost of \$1.1 million.
- The top five diagnosed conditions by cost were diseases of the respiratory system at \$240,000 (27%), diseases of the sense organs and nervous system at \$185,000 (21%), diseases of the digestive system at \$115,000 (13%), injuries and poisonings at \$91,000 (10%), and diseases of the skin and subcutaneous tissue at \$64,000 (7%).

Children (5 to 14)

- On average, between 2002/03 and 2006/07, 4,458 children (age 5 to 14 years) had 13,931 physician encounters, resulting in 15,732 claims, for an approximate cost of \$2.1 million.
- The top five diagnosed conditions by cost were diseases of the sense organs and nervous system at \$299,000 (18%), diseases of the respiratory system at \$296,000 (18%), injuries and poisonings at \$280,000 (17%), mental disorders at \$205,000 (12%) and diseases of the digestive system at \$154,000 (9%).

Youth (15 to 24)

- On average, between 2002/03 and 2006/07, 5,016 youth (age 15 to 24 years), had 23,349 physician encounters, resulting in 30,563 claims, for an approximate cost of \$3.6 million. Approximately 71% of these costs (\$2.6 million) were for 2,859 female youth averaging 15,830 physician encounters, with the remaining \$1 million for 2,157 male youth averaging 7,518 physician encounters.
- For female youth, the top five diagnosed conditions by cost were childbirth and pregnancy at \$811,000 (42%), diseases of the genitourinary system at \$163,000 (8%), injuries and poisonings at \$155,000 (8%), mental disorders at \$145,000 (7%) and diseases of the respiratory system at \$141,000 (7%).
- For male youth, the top five diagnosed conditions by cost were injury and poisoning at \$269,000 (33%), mental disorders at \$115,000 (14%), diseases of the respiratory system at \$87,000 (11%), sense organs and nervous system related conditions at \$70,000 (9%) and diseases of the digestive system at \$66,000 (8%).

Adults (25 to 44)

- On average, between 2002/03 and 2006/07, 11,506 adults (age 25 to 44 years) had 64,382 physician encounters, resulting in 81,545 claims, for an approximate cost of \$10.5 million. By gender, 6,510 women had 42,860 physician encounters amounting to \$7.4 million; and 4,996 men had 21,522 physician encounters amounting to \$3.1 million.
- For adult women, the top five diagnosed conditions by cost were childbirth and pregnancy at \$1.6 million (29%), genitourinary systems conditions at \$851,000 (16%), diseases of the digestive system at \$556,000 (10%), mental disorders at \$386,000 (7%), and musculoskeletal system and connective tissue diseases at \$376,000 (7%).

- For adult men, the top five diagnosed conditions by cost were injuries and poisonings at \$433,000 (18%), diseases of the digestive system at \$308,000 (13%), diseases of the musculoskeletal system and connective tissue diseases at \$282,000 (12%), mental disorders at \$249,000 (10%), and diseases of the genitourinary system at \$243,000 (10%).

Adults (45 to 64)

- On average, between 2002/03 and 2006/07, 8,019 adults (age 45 to 64 years) had 54,869 physician encounters, resulting in 65,905 claims, for an approximate cost of \$9 million.
- The top five diagnosed conditions by cost were diseases of the digestive system at \$927,000 (14%), diseases of the musculoskeletal and connective tissue at \$886,000 (13%), sense organs and nervous system at \$777,000 (12%), diseases of the genitourinary system at \$764,000 (11%), and diseases of the circulatory system \$712,000 (11%).

Seniors (Age 65 and Over)

- On average, between 2002/03 and 2006/07, 1,811 seniors (age 65 years and over) had 17,881 physician encounters, resulting in 21,098 claims, for an approximate cost of \$3.6 million.
- The top five diagnosed conditions by cost were diseases of the sense organs and nervous system conditions at \$531,000 (20%), diseases of the circulatory system at \$381,000 (14%), diseases of the musculoskeletal system and connective tissue at \$315,000 (12%), diseases of the digestive system at \$313,000 (12%) and diseases of the genitourinary system at \$268,000 (10%).

Conclusion

- This report presents a detailed look at the utilization of physician services at the beginning of the 21st century. By examining utilization by age, this report shows not only that the intensity of physician resources utilized changes with age, but also many of the reasons for the use of physician services change with age. Moreover, many of the reasons for encountering a physician are preventable by making healthy lifestyle choices.

Chapter 1: Introduction

1.1 Background

Physicians are an important group of service providers within the Northwest Territories (NWT) Health Care system. They provide a range of services from the general to the specialized. The documentation of the use of services provided by physicians is an important part of public accountability.

The last report on physician service utilization by residents of the NWT was published in 2001. *The NWT Health Services Report 2000* not only took a broad look at the utilization of physician services but also examined the utilization of hospital and health centre services. The two major findings of the report were: health service utilization is primarily determined by age; and preventable conditions are responsible for a large proportion of health service utilization.

1.2 New Reporting Format

This report is the third in a series of shorter, more focused reports that provide greater detail on a single health service area, examining the use of services by age group and by condition. The first report in this series, *Hospital Services Report, 2006*, was released in 2007 – covering the time period 2000/01 to 2003/04; and the second report, *Health Centre Services Report, 2007*, was released in 2008 – covering the time period 2001/02 and 2005/06. This report focuses on physician services provided to residents of the Northwest Territories between 2002/03 and 2006/07.

1.3 Physician System

NWT residents have access to physician services both in and outside the NWT. Inside the NWT, most physicians are located in the city of Yellowknife and the regional centres, though they also make regular trips to smaller communities. Both resident and locum (temporary) physicians provide services to the NWT population. The majority of the NWT's resident physicians are generalists or family physicians, though the NWT has a number of resident specialists who primarily provide services out of Stanton Territorial Hospital in the City of Yellowknife. Locum physicians and visiting specialists come from southern Canada and generally work in the NWT for a short period of time – often a few weeks.

NWT residents who require more specialized care than is available in their home community are referred to physicians in larger centres. For NWT residents in larger communities – such as Yellowknife – this generally means care in the Capital Health Region of Edmonton, Alberta. However, for residents outside of Yellowknife, this can also involve travel to Yellowknife or a regional centre (such as Inuvik or Hay River), in addition to travel to southern Canada.

1.4 Scope of the Report

The drivers of physician service utilization will be examined in detail by the following age groups: Under 1, 1 to 4, 5 to 14, 15 to 24, 25 to 44, 45 to 64 and 65 and over. One chapter per age group will examine both the top five health conditions (illnesses or injuries) requiring treatment. Given the predominance of physician services for reproductive related needs, between the ages of 15 to 44 years, chapters six and seven will look at the reasons for physician encounters by gender as well as age.

Cost is the primary measure of physician service use, though data on visits, and other measures, are presented as an overview. Some conditions require greater attention and/or greater effort on the part of physician, than do other conditions (e.g. an operation following a heart attack versus an ear examination). Therefore, cost provides the best measure of the intensity of use of physician resources services rather than simple counts of encounters or services provided.

The reasons why people seek physician services are defined and categorized through the *International Classification of Diseases, 9th Revision (ICD-9)*. ICD-9 takes numerous like conditions and groups them together into chapters, such as the diseases of the respiratory system (e.g. colds, flu, pneumonia and asthma).

The top five ICD-9 chapters will be the primary focus of the age-specific analysis. The top five chapters, though differing across age groups, generally account for two-thirds of physician costs of diagnosed conditions (condition/disease is known or suspected). Further detail is provided on the general conditions that account for the highest costs. For example, where diseases of the respiratory system figure prominently, a breakdown of the proportion of costs for the particular respiratory diseases is provided, e.g., asthma and pneumonia.

In addition to chapters for diagnosed conditions, there are two other ICD-9 chapters that categorize the reasons why physician services were provided: 1) when the underlying problem is unclear or unknown - referred to as symptoms, signs and ill-defined conditions; and 2) where the reason for service is to determine the diagnosis and/or is in support of care of the patient with a diagnosed condition, such as lab tests, X-rays - referred to as supplementary classifications of factors influencing health status and contact with health services. These two chapters will be examined in a separate section for each age group.

The time period examined is 2002/03 to 2006/07, with the data presented in five-year averages. Five-year averages are used to allow for a greater degree of reliability when examining the particular reasons for the use of physician services.

¹ For more detail on the ICD-9 chapters see Appendix C.

This report will not provide an analysis of physician services by community type, given that the location of physician clinic and/or hospital in a community, and its proximity to other communities, affects the utilization of physician services. While physicians travel to the smaller communities, residents of these communities generally rely on nurses for basic primary care services. In contrast, residents in Yellowknife and the regional centres rely mainly on physicians for primary care services. However, community-type breakdowns of general utilization measures will be presented in tables in the Appendices to this report.

This report will not provide an analysis of physician services by ethnicity, given that most physicians are based out of communities that are either primarily non-aboriginal or close to half non-aboriginal. However, ethnicity breakdowns of general utilization measures will be presented in tables in the Appendix to this report.

This report will only provide an analysis of physician services by gender for the age groups 15 to 24 years and 25 to 44 years. Women in these age groups, due to reproductive related issues, use a considerably larger amount of physician resources. In other age groups, gender differences are much smaller and are thus secondary to age. Tables in the Appendix provide some basic utilization breakdowns by age and gender.

Professions providing services similar to some of those provided by physicians, such as nurse practitioners and midwives, are not included in this report. For most of the time period covered by this report, these professionals did not exist in a significant numbers to warrant inclusion. Future reports may examine the services of nurse practitioners and midwives - alone, or combined with physician services.

This report contains time-sensitive information. Such information is only accurate as of March 2008. The information in this report, may be updated, amended, supplemented or otherwise altered by subsequent reports and presentations by the Department of Health and Social Services.

All non-financial service information in this report comes from the NWT Department of Health and Social Services. Population estimates for all population-based rates and per capita figures come from NWT Bureau of Statistics. All financial information in this report comes from both the NWT Department of Health and Social Services and the Government of the Northwest Territories, *Main Estimates*. (See Appendix C for more detail on sources and methodology).

1.5 Organization of the Report

Chapter 2 presents an overview of physician activity.

Chapters 3 to 9 present an analysis of physician activity by each age group: Under 1, 1 to 4, 5 to 14, 15 to 24, 25 to 44, 45 to 64, and 65 & up.

Chapter 10 provides some concluding remarks.

Appendix A presents a glossary of terms used in the report.

Appendix B includes several tables of basic measures of physician service utilization.

Appendix C provides an overview of the methodology and data used throughout the report.

Chapter 2: Overview

The annual cost of physician services for the entire population averaged \$30.6 million between 2002/03 and 2006/07 for 186,856 encounters by 32,859 people. Over the same time period, physician service costs were the second highest cost area of the health care system, after hospitals at approximately \$67.7 million per year and before health centres at approximately \$20.7 million per year. As a proportion of the total health and social services expenditures, physician services accounted for almost 13% of costs.²

Table 2.1 presents a set of utilization measures of physician resources by patient age and gender. Generally, utilization begins to slow after infancy and then begins to increase in one's teen years, rising substantially in one's mid-forties onwards.

Table 2.1
Physician Activity - Various Metrics
2002/03 to 2006/07 Annual Average

	Total	Under 1	1 to 4	5 to 14	15 to 24	25 to 44	45 to 64	65 & Up
Both								
Encounters Per Patient	5.7	4.3	3.6	3.1	4.7	5.6	6.8	9.9
Encounters Per 1,000	4,414	4,299	2,939	1,919	3,430	4,444	6,401	9,470
Cost per Patient	\$ 931	\$ 689	\$ 517	\$ 460	\$ 717	\$ 911	\$ 1,128	\$ 1,962
Cost per Encounter	\$ 164	\$ 160	\$ 142	\$ 147	\$ 154	\$ 163	\$ 165	\$ 199
Cost per Capita	\$ 722	\$ 689	\$ 419	\$ 283	\$ 528	\$ 723	\$ 1,055	\$ 1,882
Females								
Encounters Per Patient	6.4	4.0	3.4	3.1	5.5	6.6	7.6	9.9
Encounters Per 1,000	5,380	4,025	2,709	1,926	4,833	6,036	7,512	9,825
Cost per Patient	\$ 1,069	\$ 642	\$ 484	\$ 448	\$ 896	\$ 1,134	\$ 1,266	\$ 1,904
Cost per Encounter	\$ 168	\$ 159	\$ 141	\$ 143	\$ 162	\$ 172	\$ 166	\$ 192
Cost per Capita	\$ 902	\$ 642	\$ 381	\$ 276	\$ 782	\$ 1,040	\$ 1,250	\$ 1,884
Males								
Encounters Per Patient	4.9	4.6	3.8	3.1	3.5	4.3	6.1	9.8
Encounters Per 1,000	3,508	4,567	3,185	1,913	2,129	2,913	5,431	9,144
Cost per Patient	\$ 777	\$ 735	\$ 550	\$ 473	\$ 479	\$ 620	\$ 993	\$ 2,020
Cost per Encounter	\$ 158	\$ 161	\$ 144	\$ 151	\$ 137	\$ 144	\$ 163	\$ 206
Cost per Capita	\$ 554	\$ 735	\$ 459	\$ 289	\$ 292	\$ 419	\$ 884	\$ 1,881

Note: See Appendix C for explanation of rate and per capita methodology used for infants (under 1).

Sources: NWT Department of Health and Social Services, NWT Bureau of Statistics, and NWT Financial Management Board Secretariat.

Among children under 15 years of age, infants require the greatest amount of physician services – averaging 4,299 encounters per 1,000, and amounting to an average cost of \$689 per capita.³ Most of the reasons infants required services were for routine checks on the progress of the infant's development and care for respiratory and sense organ concerns, such as colds and ear infections.

² These cost figures are estimates based on net costs of services to NWT residents. See Appendix C, Section 1 for data sources.

³ Physician activity coded to the delivery of healthy newborns has been excluded, though all physician care coded to the mother has been included. See Appendix C for more detail.

Physician service utilization decreases as the child ages. Children, age 1 to 4 years, averaged 2,939 encounters per 1,000 per year at an average cost of \$419 per capita. The primary reasons for a child requiring physician care were colds and ear infections.

Children, age 5 to 14 years, require the least amount of physician services. The average number of encounters per 1,000 per year was 1,919 and, the average cost per capita was \$283. The primary reasons for a child requiring physician care were ear and eye infections as well as colds.

Utilization of physician services increases dramatically in the next age group, with youth (age 15 to 24 years) averaging 3,430 encounters per year at an average cost of \$528 per patient. In this age group, gender makes a big difference in the factors influencing utilization patterns. Women are entering their reproductive years, and thus services related to childbirth and pregnancy account for most of gender difference. Women average 4,833 encounters per 1,000 per year compared to 2,129 for men, and on average women receive approximately \$782 worth of physician services per capita compared to \$292 per capita for men. For men, injuries were predominated the reasons for requiring physician services.

Utilization continues to increase into the adult years, with 25 to 44 year old patients averaging 4,444 encounters per 1,000 per year – amounting to \$723 per capita per year. Similar to youth, gender accounts for most of the increase in utilization, as reproductive-related issues dominate the demand for physician services. Women average 6,036 encounters per 1,000 per year compared to 2,913 for men, and on average women receive approximately \$1,040 worth of physician services per capita compared to \$419 per capita for men. For men, injuries were still a leading reason for the use of physician resources, but other reasons such as digestive problems and musculoskeletal and connective tissue diseases begin to rise in prominence.

Utilization increases again with older adults (age 45 to 64 years), though gender differences still exist – the impact begins to diminish with the dramatic reduction in the demand for reproductive services. Adults, age 45 to 64 years, averaged 6,401 encounters per 1,000 per year, amounting to \$1,055 per capita in physician services. Health conditions leading the increase in demand for physician services included digestive system diseases (intestinal/stomach problems, gallstones, hernias), musculoskeletal system and connective tissue diseases (arthritis and rheumatism), circulatory issues (heart disease and high blood pressure), and sense organ disorders (cataracts and other eye-related issues).

For seniors (age 65 and over) the rate of physician encounters per 1,000 per year increases by 48% to 9,470 – amounting to \$1,882 per capita. The difference in utilization patterns between senior men and women is small. Circulatory services (heart disease and high blood pressure), sense organ disorders (cataracts), and musculoskeletal system and connective tissue diseases (arthritis) figured prominently as reasons for the increase in demand for physician care.

Chapter 3: Infants (Under 1 Year)

On average, between 2002/03 and 2006/07, 1,088 infants had 4,679 physician encounters, resulting in 5,405 claims, for an approximate cost of \$750,000 per year.

Diagnosed Conditions

Between 2002/03 and 2006/07, approximately 60% of unique patients, 57% of encounters, 58% of claims and 61% of costs were for diagnosed conditions, with the remainder for ill-defined conditions and supplementary factors.

In terms of unique patient, encounter, claim and cost measures of physician activities, the top five conditions, as proportion of known or suspected conditions, were respiratory system related, sense organs and nervous system related, digestive system issues, conditions during the perinatal period (encounters, claims and costs) skin diseases (unique and encounters), congenital anomalies (claims and costs) and infectious diseases (unique patients) (see Table 3.1).

Table 3.1
Physician Activity by Top 5 Conditions
Under 1 - Average 2002/03 to 2006/07

Rank	Metric			
	Unique Patients (1,510)	Encounters (2,761)	Claims (3,160)	Costs (\$460,372)
1	Respiratory System 29%	Respiratory System 33%	Respiratory System 31%	Respiratory System 26%
2	Sense Organs 15%	Sense Organs 14%	Sense Organs 13%	Perinatal Period 15%
3	Infectious Diseases 10%	Perinatal Period 9%	Perinatal Period 11%	Congenital Anomalies 12%
4	Skin Diseases 10%	Digestive System 9%	Digestive System 9%	Sense Organs 11%
5	Digestive System 9%	Skin Diseases 8%	Congenital Anomalies 8%	Digestive System 8%
Other	27%	27%	28%	28%

Sources: NWT Health and Social Services and NWT Financial Management Board Secretariat.

Respiratory diseases were responsible for 26% of diagnosed costs, representing \$120,000 per year. Acute and upper respiratory infections were responsible for 74% of the costs. Such infections primarily included the common cold but also included more serious issues such as acute bronchitis and bronchiolitis. Approximately 11% of the costs involved the treatment various forms of pneumonia. The remaining respiratory-related issues included diseases such as asthma and influenza.

Certain conditions originating in the perinatal period (20th week of gestation to 28 days after birth) accounted for 15% of costs or \$67,000 per year. Over half of the costs were for the treatment of newborns affected from the stress of delivery as well as those born prematurely and/or having a low birth weight. The remaining costs were spread across a number of conditions including jaundice, breathing and digestive problems.

Congenital anomalies made up 12% of costs or \$53,000 per year. Approximately 55% of these costs were for the treatment of infants with anomalies that were primarily heart and other circulatory system-related. A further 30% of costs were split between digestive system anomalies and anomalies of the musculoskeletal system (arms, limbs, spine etc). The costs involved caring for infants with anomalies related to other systems in the body: nervous, urinary, respiratory, etc.

Diseases of the sense organs and nervous system tissues accounted for further 11% of costs (\$51,000). The treatment of ear related issues (primarily middle ear infections) were responsible for 63% of the costs. Eye-related disorders accounted for another 25% of costs. The remaining treatment costs were for a wide variety of issues, including epilepsy and meningitis.

Diseases of the digestive system accounted for 8% of costs - \$38,000 per year. Intestinal conditions, such as diarrhea and constipation, made up approximately 47% of these costs. Stomach issues, such as vomiting, made up a further 23% of costs. Hernias and dental issues (such as teething) made up most of the remaining digestive system costs.

Supplementary Factors and Ill-Defined Conditions

Table 3.2
Physician Costs
Supplementary Factors, and Symptoms, Signs, Ill-Defined Conditions
Under 1 - Average 2002/03 to 2006/07

	Costs	Proportion
Supplementary Factors - Total	\$ 181,791	100%
Health Supervision of Infant	\$ 137,687	76%
Tissue or Organ Transplant	\$ 14,155	8%
Screening or Examinations	\$ 13,519	7%
Other	\$ 16,429	9%
Symptoms, Signs, Ill-Defined Conditions - Total	\$ 85,693	100%
General Symptoms	\$ 19,654	23%
Cardiovascular Symptoms	\$ 17,586	21%
Respiratory Symptoms	\$ 15,510	18%
Skin Symptoms	\$ 10,013	12%
Other	\$ 22,930	27%

Sources: NWT Department of Health and Social Services and NWT Financial Management Board Secretariat.

Approximately \$182,000 of the cost of physician services was for encounters documented as supplementary classification of factors influencing health status and contact with health services. As seen in Table 3.2, over three-quarters of the costs were for the general supervision of an infant's health and development. The remaining costs under this category, included tissue or organ transplants and screening for health issues.

Services provided to infants where the nature of the illness was unclear at the time of the physician encounter amounted to approximately \$86,000 per year. Twenty-three percent of these costs were for what is classified as general symptoms, including a wide range of problems such as fevers and convulsions. Twenty-one percent of costs were for infants presenting cardiovascular symptoms (primarily heart murmurs) and 18% of costs were for treating respiratory symptoms (primarily a cough). The other costs covered a wide range of symptoms, including rashes, jaundice, vomiting, diarrhea, lack of normal physical development and colic.

Chapter 4: Children (Age 1 to 4 Years)

On average, between 2002/03 and 2006/07, 2,140 children (age 1 to 4 years) had 7,767 physician encounters, resulting in 8,559 claims, for an approximate cost of \$1.1 million per year.

Diagnosed Conditions

On average, approximately 74% of unique patients, 77% of encounters, 77% of claims and 80% of costs were for diagnosed conditions, with the remainder for ill-defined conditions and supplementary factors.

In terms of unique patient, encounter, claim and cost measures of physician activities, the top five conditions were: respiratory system related, sense organs and nervous system related, injuries and poisonings, skin diseases and digestive system issues (see Table 4.1).

Table 4.1
Physician Activity by Top 5 Conditions
Age 1 to 4 - Average 2002/03 to 2006/07

Rank	Metric			
	Unique Patients (3,629)	Encounters (6,086)	Claims (6,583)	Costs (\$881,232)
1	Respiratory System 27%	Respiratory System 33%	Respiratory System 33%	Respiratory System 27%
2	Sense Organs 19%	Sense Organs 22%	Sense Organs 23%	Sense Organs 21%
3	Injury & Poisoning 11%	Injury & Poisoning 10%	Injury & Poisoning 10%	Digestive System 13%
4	Skin Diseases 10%	Skin Diseases 9%	Skin Diseases 9%	Injury & Poisoning 10%
5	Digestive System 9%	Digestive System 7%	Digestive System 8%	Skin Diseases 7%
Other	22%	19%	19%	21%

Sources: NWT Health and Social Services and NWT Financial Management Board Secretariat.

Respiratory diseases were responsible for 27% (\$240,000) of diagnosed costs. Acute and upper respiratory infections were responsible for more than 60% of the issues. Such infections primarily included the common cold but also included more serious issues such as acute bronchitis and bronchiolitis, as well as tonsillitis. Asthma and pneumonias were each responsible for 12% of respiratory related costs. The remaining respiratory-related costs were spread out across a number of conditions, including influenza.

Diseases related to the sense organs and nervous system accounted for 21% (\$185,000) of the cost of physician encounters. Ear issues (primarily middle ear infections) were responsible for 77% of these costs. The remaining nervous system-related issues were primarily made up of eye conditions such as pink eye (conjunctivitis).

Digestive system diseases accounted for 13% (\$115,000) of costs. Dental issues – primarily cavities – were responsible for 62% of the digestive system issues. Gastritis, gastroenteritis and other stomach and intestinal issues (constipation) were responsible for approximately 29% of costs. The remaining costs related to treating digestive system conditions were spread across a number of conditions, including hernias and appendicitis.

Injuries and poisonings were responsible for 10% (\$91,000) of costs. Physicians treated a wide range of injuries, from the serious to the superficial, to all parts of the body. Some of the injuries that accounted for the most intensive use of resources included: open wounds (cuts and punctures), contusions (bruises) and lacerations (tearing of the skin), generally to the face and head, at 23% of injury costs; fractures (mostly to the arms) at 21% of injury costs; and foreign bodies (objects swallowed, inserted into orifices such as nostrils/ears or embedded into skin etc) at 9%. The remaining costs were spread across a wide variety of injuries, including strains, scrapes and burns.

Diseases of the skin and subcutaneous tissues accounted for 7% (\$64,000) of costs. Atopic and contact dermatitis (rashes, eczema, diaper rash etc) made up of 56% of these costs. Impetigo (infectious rashes) made up a further 13% of skin related costs. The remaining issues included a number of issues, including cellulitis and abscesses.

Supplementary Factors and Ill-Defined Conditions

Table 4.2
Physician Costs
Supplementary Factors, and Symptoms, Signs, Ill-Defined Conditions
Age 1 to 4 - Average 2002/03 to 2006/07

	Costs	Proportion
Supplementary Factors - Total	\$ 92,033	100%
Health Supervision of a Child	\$ 35,647	39%
Screening or Examinations	\$ 30,954	34%
Follow-up Exams	\$ 10,005	11%
Other	\$ 15,426	17%
Symptoms, Signs, Ill-Defined Conditions - Total	\$ 117,918	100%
General Symptoms	\$ 27,643	23%
Respiratory Symptoms	\$ 18,663	16%
Abdominal/Digestive Symptoms	\$ 15,805	13%
Nutritional and Metabolic Symptoms	\$ 13,255	11%
Other	\$ 42,550	36%

Sources: NWT Department of Health and Social Services and NWT Financial Management Board Secretariat.

Approximately \$92,000 of the cost of physician services were for encounters documented as supplementary classification of factors influencing health status and contact with health services. As seen in Table 4.2, 39% of the costs were for the general supervision of a child's health and development. Screenings and exams amounted to a further 34% of costs. The remaining costs under this category included follow-up exams, care after surgery and a wide variety of other issues and concerns.

Services provided to children where the nature of the illness was not certain at the time of the physician encounter amounted to approximately \$118,000 per year. Twenty-three percent of these costs were for conditions that are classified as general symptoms, including a wide range of problems such as fevers and convulsions. Sixteen percent of costs were for children with respiratory symptoms (primarily coughs and difficulty breathing) and 13% of costs were for abdominal and digestive symptoms (abdominal cramps, nausea, vomiting, diarrhea etc). The other costs covered a wide range of symptoms, including lack of normal physical development and rashes.

Chapter 5: Children (Age 5 to 14 Years)

On average, between 2002/03 and 2006/07, 4,458 children (age 5 to 14 years) had 13,931 physician encounters, resulting in 15,732 claims, for an approximate cost of \$2.1 million per year.

Diagnosed Conditions

On average, approximately 74% of unique patients, 76% of encounters, 76% of claims and 82% of costs were for diagnosed conditions, with the remainder for ill-defined conditions and supplementary factors.

In terms of unique patient, encounter, claim and cost measures of physician activities, the top five conditions were: respiratory system-related, injuries and poisonings, sense organs and nervous system-related, infectious diseases (for all measures except for costs) skin diseases (unique patients and encounters), and mental disorders (claims and costs) and digestive system-related for costs only (see Table 5.1).

Table 5.1
Physician Activity by Top 5 Conditions
Age 5 to 14 - Average 2002/03 to 2006/07

Rank	Metric			
	Unique Patients (6,650)	Encounters (10,757)	Claims (11,925)	Costs (\$1,675,168)
1	Respiratory System 23%	Respiratory System 25%	Respiratory System 23%	Sense Organs 18%
2	Injury & Poisoning 17%	Injury & Poisoning 16%	Sense Organs 16%	Respiratory System 18%
3	Sense Organs 16%	Sense Organs 16%	Injury & Poisoning 16%	Injury & Poisoning 17%
4	Skin Diseases 10%	Infectious Diseases 10%	Infectious Diseases 11%	Mental Disorders 12%
5	Infectious Diseases 9%	Skin Diseases 9%	Mental Disorders 8%	Digestive System 9%
Other	26%	26%	26%	26%

Sources: NWT Health and Social Services and NWT Financial Management Board Secretariat.

Diseases related to the sense organs and nervous system accounted for 18% (\$299,000) of the cost of physician encounters. Ear issues were responsible for 62% of these costs. Ear infections (primarily middle ear) and perforated tympanic membrane (perforated ear drums primarily caused by infections) were responsible for most of the ear-related costs. Eye disorders were responsible for a further 30% of costs and were made up mainly of refraction disorders (far sighted/near sightedness), strabismus (lazy eye/crossed-eyed). A variety of conditions made up the remaining costs, including the treatment of migraines and epilepsy.

Respiratory diseases were responsible for a further 18% (\$296,000) of the costs. Acute and upper respiratory infections were responsible for 72% of these costs. Such infections primarily included the common cold and tonsillitis. Asthma was responsible for 18% of respiratory related costs. The remaining respiratory-related costs were spread out across a number of conditions, including pneumonia and influenza.

Injuries and poisonings were responsible for 17% (\$280,000) of diagnosed costs. Some of the injuries that accounted for the most intensive use of physician resources included: fractures (mostly to the arms) at 33% of injury costs; open wounds (cuts and punctures), contusions (bruises) and lacerations (tearing of the skin), to the face, head, arms and legs, at 20% of costs; and sprains (mainly legs) and superficial injuries (scrapes) to face and head at 16%. The remaining costs were spread across a wide variety of injuries, including foreign bodies, internal injuries and dislocations.

Mental disorders were responsible for 12% (\$205,000) of diagnosed costs. Children suffering from hyperkinetic syndrome (primarily attention deficit hyperactivity disorder) were responsible for 47% of these costs. Children with delays in development – mainly learning and speech difficulties - accounted for 11% of mental disorder costs. Various forms of psychoses were responsible for 9% of costs (autism, schizophrenia and manic disorders). A wide variety of conditions were responsible for the remainder of the costs to treat mental disorders, including conduct disorders (aggression, anger, anti-social behaviour etc) and neurotic disorders, such as anxiety.

Digestive system diseases accounted for 9% (\$154,000) of the cost of diagnosed conditions. Dental issues – primarily cavities – were responsible for 53% of the digestive system issues. Gastritis, gastroenteritis and other stomach and intestinal issues (constipation) were responsible for approximately 20% of costs. Appendicitis accounted for a further 16% of costs. The remaining costs related to treating digestive system conditions were spread across a number of conditions including hernias and gallstones.

Supplementary Factors and Ill-Defined Conditions

Table 5.2
Physician Costs
Supplementary and Symptoms, Signs, Ill-Defined Conditions - Age 5 to 14
Age 5 to 14 Average 2002/03 to 2006/07

	Costs	Proportion
Supplementary Conditions - Total	\$ 153,565	100%
Screening or Examinations	\$ 75,656	49%
Follow-up Exams	\$ 20,683	13%
Aftercare	\$ 15,391	10%
Other	\$ 41,835	27%
Symptoms, Signs, Ill-Defined Conditions - Total	\$ 198,143	100%
Abdominal/Digestive Symptoms	\$ 50,163	25%
General Symptoms	\$ 39,909	20%
Head and Neck Symptoms	\$ 25,783	13%
Respiratory Symptoms	\$ 23,091	12%
Other	\$ 59,196	30%

Sources: NWT Department of Health and Social Services and NWT Financial Management Board Secretariat.

Approximately \$154,000 of the cost of physician services were for encounters documented as supplementary classification of factors influencing health status and contact with health services. As seen in Table 5.2, nearly half of these costs were for the general screenings and exams. A further 13% were for follow-up exams. The remaining costs, under this category, included aftercare/rehabilitation, the general supervision of a child's development, and a wide variety of other issues and concerns.

Services provided to children where the nature of the illness was unclear at the time of the physician encounter amounted to approximately \$198,000 per year. A quarter of these costs were for abdominal and digestive symptoms (abdominal cramps, nausea, vomiting, diarrhea etc). Twenty percent of these costs were for what is classified as general symptoms, including a wide range of problems such as fevers and convulsions. Thirteen percent of costs were for children with head and neck symptoms (primarily headaches and nosebleeds). The other costs covered a variety of symptoms, including coughs, rashes and a lack of normal physical development.

Chapter 6: Youth (Age 15 to 24 Years)

On average, between 2002/03 and 2006/07, 5,016 youth (age 15 to 24 years), had 23,349 physician encounters, resulting in 30,563 claims, for an approximate cost of \$3.6 million per year.

Given patterns of physician utilization change dramatically between women and men beginning in their late teens and early twenties, this chapter is divided into two parts.

Part 1: Females

Between 2002/03 and 2006/07, 2,859 female youth averaged 15,830 physician encounters amounting to \$2.6 million per year.

On average, approximately 65% of unique patients, 64% of encounters, 61% of claims and 76% of costs were for diagnosed conditions, with the remainder for ill-defined conditions and supplementary classifications.

Diagnosed Conditions

In terms of unique patient, encounter, claim and cost measures of physician activities, the top five conditions were: childbirth and pregnancy, diseases of the genitourinary system, injuries and poisonings, respiratory system related, mental disorders (except for unique patients), and skin diseases (unique patients) (see Table 6.1).

Table 6.1
Physician Activity by Top 5 Conditions
Females Age 15 to 24 - Average 2002/03 to 2006/07

Rank	Metric			
	Unique Patients (5,355)	Encounters (10,976)	Claims (13,201)	Costs (\$1,936,950)
1	Respiratory System 15%	Childbirth & Pregnancy 26%	Childbirth & Pregnancy 30%	Childbirth & Pregnancy 42%
2	Genitourinary System 14%	Respiratory System 13%	Genitourinary System 12%	Genitourinary System 8%
3	Injury & Poisoning 11%	Genitourinary System 12%	Respiratory System 11%	Injury & Poisoning 8%
4	Childbirth & Pregnancy 10%	Mental Disorders 10%	Injury & Poisoning 9%	Mental Disorders 7%
5	Skin Diseases 9%	Injury & Poisoning 8%	Mental Disorders 9%	Respiratory System 7%
Other	41%	32%	30%	27%

Sources: NWT Health and Social Services and NWT Financial Management Board Secretariat.

Childbirth and pregnancy-related physician encounters accounted for 42% (\$811,000) of costs. Over half of these costs were for physician care over the course of normal pregnancies, deliveries and postpartum care (after giving birth). A quarter of the costs were related to complicated pregnancies, deliveries and postpartum issues such as bleeding. The remaining costs were primarily for abortions, as well as care for women with miscarriages and ectopic pregnancies.

Genitourinary system conditions were responsible for 8% (\$163,000) of physician costs. Approximately 33% of costs involved the treatment of infections of pelvic organs (primarily the vagina), urinary tract and bladder. Menstruation problems (excessive bleeding, infrequent bleeding, excessive pain etc) were responsible for a further 20% of costs. Non-inflammatory diseases of the cervix – primarily dysplasia (abnormal cell growth) of the cervix – were responsible for approximately 12% of costs. The remaining costs were spread over a variety of afflictions, including kidney infections, bladder infections, ovarian cysts, breast inflammation and lumps, and kidney failure.

Injuries were responsible for a further 8% (\$155,000) of physician costs. Some of the injuries that accounted for the most intensive use of resources included: fractures (mostly to the legs and arms) at 23% of injury costs; sprains (mainly legs) and superficial injuries (scrapes) to face and head at 21% of costs; and open wounds (cuts and punctures), contusions (bruises) and lacerations (tearing of the skin), to the face, head, arms and legs, at 16%. The remaining costs were spread across a wide variety of injuries, including dislocations and poisonings.

Mental disorders accounted for 7% (\$145,000) of costs. Mental disorders are often complex, with patients suffering from more than one disorder, as well as sometimes including the abuse of alcohol and/or drugs. Depressive disorders were responsible for approximately 29% of costs, neurotic disorders (anxiety) for 22% of cost, affective psychoses (manic-depressive, bipolar) for 13%, and alcohol and drug-related conditions for 12%. The remaining costs were for a wide variety of conditions, including reactions to life change and stressful situations, schizophrenia and attention deficit disorders.

Respiratory illnesses were responsible for a further 7% (\$141,000) of costs. Acute and upper respiratory infections were responsible for 75% of physician costs. Such infections primarily included the common cold and tonsillitis. Asthma was responsible for 15% of respiratory related costs. The remaining respiratory-related costs were spread out across a number of conditions, including pneumonia and influenza.

Supplementary Factors and Ill-Defined Conditions

Table 6.2
Physician Costs
Supplementary Factors, and Symptoms, Signs, Ill-Defined Conditions
Females Age 15 to 24 - Average 2002/03 to 2006/07

	Costs	Proportion
Supplementary Factors - Total	\$ 427,984	100%
Screening or Examinations	\$ 259,411	61%
Contraception Management	\$ 84,261	20%
Administrative or without Illness	\$ 29,711	7%
Other	\$ 54,601	13%
Symptoms, Signs, Ill-Defined Conditions - Total	\$ 152,539	100%
Abdominal/Digestive Symptoms	\$ 58,778	39%
General Symptoms	\$ 27,986	18%
Head and Neck Symptoms	\$ 14,091	9%
Respiratory Symptoms	\$ 13,690	9%
Other	\$ 37,993	25%

Sources: NWT Department of Health and Social Services and NWT Financial Management Board Secretariat.

Approximately \$428,000 of the cost of physician services were for encounters documented as supplementary classification of factors influencing health status and contact with health services. As seen in Table 6.2, 61% of these costs were for the general screenings and exams (ultrasounds, X-rays, physical exams). A further 20% of costs were for contraception management (birth control). The remaining costs under this category included services that were administrative in nature, consultations with patients on a health matter where the patient was not necessarily ill at the time, follow-up exams and counseling.

Services provided to patients where the nature of the illness was unclear at the time of the physician encounter amounted to approximately \$153,000 per year. Thirty-nine percent of these costs were for digestive and abdominal symptoms (abdominal pains/cramps, nausea, vomiting, diarrhea etc). Eighteen percent of these costs were for what is classified as general symptoms, including a wide range of problems such as feeling faint, tired, fevers and convulsions. Nine percent of costs were for youth with head and neck symptoms (primarily headaches and nosebleeds). The other costs covered a wide range of symptoms, including chest pains/difficulty breathing and rashes.

Part 2: Males

Between 2002/03 and 2005/06, 2,157 male youth averaged 7,518 physician encounters amounting to \$1 million per year.

On average, approximately 71% of unique patients, 73% of encounters, 72% of claims and 79% of costs were for diagnosed conditions, with the remainder for ill-defined conditions and supplementary factors.

Diagnosed Conditions

In terms of unique patient, encounter, claim and cost measures of physician activities, the top five conditions were: injuries, respiratory system-related, mental disorders (except for unique patients), skin diseases (except for costs), musculoskeletal system-related (except for costs), sense organs (unique patients and costs) and digestive system-related (costs) (see Table 6.3).

Table 6.3
Physician Activity by Top 5 Conditions
Males Age 15 to 24 - Average 2002/03 to 2006/07

Rank	Metric			
	Unique Patients (3,187)	Encounters (5,615)	Claims (6,380)	Costs (\$818,796)
1	Injury & Poisoning 24%	Injury & Poisoning 25%	Injury & Poisoning 26%	Injury & Poisoning 33%
2	Respiratory System 11%	Mental Disorders 15%	Mental Disorders 15%	Mental Disorders 14%
3	Skin Diseases 11%	Respiratory System 15%	Respiratory System 14%	Respiratory System 11%
4	Musculoskeletal System 11%	Skin Diseases 11%	Skin Diseases 10%	Sense Organs 9%
5	Sense Organs 9%	Musculoskeletal System 9%	Musculoskeletal System 8%	Digestive System 8%
Other	29%	26%	27%	26%

Sources: NWT Health and Social Services and NWT Financial Management Board Secretariat.

Injuries were responsible for a third (\$269,000) of diagnosed costs. Some of the injuries that accounted for the most intensive use of resources included: fractures (mostly to the legs and arms) at 34% of injury costs; and open wounds (cuts and punctures), contusions (bruises) and lacerations (tearing of the skin), to the face, head, arms and legs, at 22%; and sprains (mainly legs) and superficial injuries (scrapes) to face and head at 13% of cost. The remaining costs were spread across a wide variety of injuries, including dislocations, internal wounds and burns.

Mental disorders accounted for 14% (\$115,000) of costs. Mental disorders are often complex, with patients suffering from more than one disorder, as well as sometimes including the abuse of alcohol and/or drugs. Alcohol and drug related conditions (abuse, dependency) were responsible for 16% of costs. Depressive disorders were responsible for approximately 14% of costs and neurotic disorders (anxiety) for 13% of costs. Schizophrenia and affective psychoses (manic-depressive, bipolar) were each responsible for 12% of costs. The remaining costs were for a wide variety of conditions, including reactions to life change and stressful situations, and attention deficit disorders.

Respiratory illnesses were responsible for a further 11% (\$87,000) of costs. Acute and upper respiratory infections were responsible for 68% of costs. Such infections primarily included the common cold and tonsillitis. Asthma was responsible for 13% of respiratory-related costs. The remaining respiratory-related costs were spread out across a number of conditions, including pneumonia and influenza.

Sense organ and nervous system related conditions were responsible for 9% (\$70,000) of costs. Ear disorders (primarily middle ear infections, perforated ear drums) accounted for 40% of these costs. Eye disorders (far sighted/near sightedness, pink eye) accounted for 39% of costs. The remaining costs were scattered across a number of conditions related to the nervous system, including cerebral palsy, epilepsy and migraines.

Digestive system diseases accounted for 8% (\$66,000) of the cost of diagnosed conditions. Gastritis, gastroenteritis and other stomach and intestinal issues were responsible for approximately 39% of digestive costs. Dental issues – primarily cavities – were responsible for 22% of costs. Appendicitis accounted for a further 18% of costs and hernias for 13%. The remaining costs related to treat digestive system conditions were spread across a number of conditions including gallstones.

Supplementary factors and ill-defined conditions

Table 6.4
Physician Costs
Supplementary Factors, and Symptoms, Signs, Ill-Defined Conditions
Males Age 15 to 24 - Average 2002/03 to 2006/07

	Costs	Proportion
Supplementary Factors - Total	\$ 106,122	100%
Screening or Examinations	\$ 55,164	52%
Aftercare	\$ 15,678	15%
Follow-up Exams	\$ 12,382	12%
Other	\$ 22,899	22%
Symptoms, Signs, Ill-Defined Conditions - Total	\$ 76,181	100%
General Symptoms	\$ 19,356	25%
Abdominal/Digestive Symptoms	\$ 15,958	21%
Respiratory Symptoms	\$ 12,540	16%
Head and Neck Symptoms	\$ 11,189	15%
Other	\$ 17,138	22%

Sources: NWT Department of Health and Social Services and NWT Financial Management Board Secretariat.

Approximately \$106,000 of the cost of physician services was for encounters documented as supplementary classification of factors influencing health status and contact with health services. As seen in Table 6.4, 52% of these costs were for the general screenings and exams (CT scans, X-rays, physical exams). A further 15% of costs were for aftercare – looking after surgical dressing and sutures (bandages and stitches). The remaining costs were spread across a wide variety of reasons for physician encounters, including follow-up exams and counseling (parental/child issues).

Physician services provided to patients where the nature of the illness was unclear at the time of the physician encounter amounted to approximately \$76,000 per year. Twenty-five percent of these costs were for problems that were classified as general symptoms, including a wide range of issues such as feeling faint or tired, difficulty sleeping or experiencing convulsions. Twenty-one percent of these costs were for abdominal and digestive symptoms (abdominal pains/cramps, nausea, vomiting, diarrhea etc). The remaining costs were for a wide range of symptoms, including respiratory complaints (chest pains/difficulty breathing), and head and neck symptoms (primarily headaches and nosebleeds).

Chapter 7: Adults (Age 25 to 44 Years)

On average, between 2002/03 and 2006/07, 11,506 adults (age 25 to 44 years) had 64,382 physician encounters, resulting in 81,545 claims, for an approximate cost of \$10.5 million per year.

Given that patterns of physician utilization differ dramatically between women and men between the ages of 25 and 44, this chapter has been divided into two parts.

Part 1: Females

Between 2002/03 and 2006/07, 6,510 women had 42,860 physician encounters amounting to \$7.4 million per year.

On average, approximately 67% of unique patients, 65% of encounters, 62% of claims and 74% of costs were for diagnosed conditions, with the remainder for ill-defined conditions and supplementary classifications.

Diagnosed Conditions

In terms of unique patient, encounter, claim and cost measures of physician activities, the top five conditions were: childbirth and pregnancy (except for unique patients), genitourinary system-related, diseases of the musculoskeletal system and connective tissue, mental disorders, diseases of the respiratory system (except for costs), diseases of the digestive system (cost only) and diseases of the nervous system (unique patients only) (see Table 7.1).

Table 7.1
Physician Activity by Top 5 Conditions
Females Age 25 to 44 - Average 2002/03 to 2006/07

Rank	Metric			
	Unique Patients (13,649)	Encounters (29,966)	Claims (35,174)	Costs (\$5,460,572)
1	Genitourinary System 15%	Childbirth & Pregnancy 20%	Childbirth & Pregnancy 24%	Childbirth & Pregnancy 29%
2	Respiratory System 13%	Genitourinary System 14%	Genitourinary System 14%	Genitourinary System 16%
3	Musculoskeletal System 11%	Musculoskeletal System 10%	Mental Disorders 9%	Digestive System 10%
4	Nervous System 9%	Mental Disorders 10%	Musculoskeletal System 9%	Mental Disorders 7%
5	Mental Disorders 8%	Respiratory System 10%	Respiratory System 9%	Musculoskeletal System 7%
Other	44%	36%	36%	32%

Sources: NWT Health and Social Services and NWT Financial Management Board Secretariat.

Childbirth and pregnancy-related physician encounters accounted for 29% (\$1.6 million) of costs. Approximately 59% of these costs were for physician care over the course of normal pregnancies, deliveries and postpartum care (after giving birth). Thirty percent of the costs were for care for complicated pregnancies, deliveries and postpartum issues such as bleeding. The remaining costs were primarily for abortions, as well as care for women with miscarriages and ectopic pregnancies.

Genitourinary system conditions were responsible for 16% (\$851,000) of physician costs. Treatment costs were spread across a wide range of problems. Approximately 23% of costs were for menstruation problems (excessive bleeding, infrequent bleeding, excessive pain etc). Eighteen percent of costs were for the treatment of infections of pelvic organs (primarily the vagina), urinary tract and bladder. Fourteen percent of costs were for the treatment of kidney issues (primarily failure). Breast issues (primarily non-cancerous lumps) made up approximately 9% of costs, infertility 6%, and non-inflammatory diseases of the cervix – primarily dysplasia (abnormal cell growth) at 5%. The remaining costs were spread over a variety of afflictions, including endometriosis (uterine tissue growth outside the walls of the uterus), stress incontinence and menopausal symptoms.

Diseases of the digestive system accounted for 10% (\$556,000) of costs. Stomach and intestinal diseases accounted for 43% of digestive system costs and primarily included such conditions as acid reflux, gastritis, gastroenteritis/colitis. Gallbladder problems (primarily gallstones) accounted for 40% of costs. The remaining costs were spread across a number of conditions, including hernias, dental problems and appendicitis.

Mental disorders accounted for 7% (\$386,000) of costs. Mental disorders are often complex, with patients suffering from more than one disorder, as well as sometimes including the abuse of alcohol and/or drugs. Depressive disorders were responsible for approximately 29% of costs and neurotic disorders (anxiety) for 22% of costs. Affective psychoses (manic-depressive, bipolar) accounted for 18% of costs and alcohol and drug related conditions (abuse, psychoses) were responsible for 13% of costs. The remaining costs for the treatment of mental disorders were spread across a number of conditions, including reactions to stressful events and life changes.

Musculoskeletal system and connective tissue diseases were responsible for a further 7% (\$376,000) of costs. Joint pain and joint conditions such as arthritis were responsible for 36% of costs. Back pain and back disorders accounted for 32% of costs. The remaining costs were spread across a number of disorders, including various forms of rheumatism.

Supplementary Factors and Ill-defined Conditions

Table 7.2
Physician Costs
Supplementary Factors, and Symptoms, Signs, Ill-Defined Conditions
Females Age 25 to 44 - Average 2002/03 to 2006/07

	Costs	Proportion
Supplementary Conditions - Total	\$ 1,293,853	100%
Screening or Examinations	\$ 818,748	63%
Contraception Management	\$ 219,473	17%
Administrative or without Illness	\$ 93,749	7%
Other	\$ 161,882	13%
Symptoms, Signs, Ill-Defined Conditions - Total	\$ 520,361	100%
Abdominal/Digestive Symptoms	\$ 199,932	38%
General Symptoms	\$ 76,441	15%
Respiratory Symptoms	\$ 58,567	11%
Head and Neck Symptoms	\$ 52,081	10%
Other	\$ 133,340	26%

Sources: NWT Department of Health and Social Services and NWT Financial Management Board Secretariat.

Approximately \$1.3 million of the cost of physician services provided to females age 25 to 44 was for encounters documented as supplementary classification of factors influencing health status and contact with health services. As seen in Table 7.2, 63% of these costs were for the general screenings and exams (CT scans, x-rays, physical exams). A further 17% of costs were for contraception management: primarily tubal ligation (sterilization) and forms of non-permanent birth control. The remaining costs under this supplementary factors category were spread across a number of services, including those that were administrative in nature, consultations with patients on a health matter where the patient was not necessarily ill at the time, follow-up exams and counseling.

Services provided to patients where the nature of the illness was unclear at the time of the physician encounter amounted to approximately \$520,000 per year. Thirty-eight percent of these costs were or abdominal and digestive symptoms (primarily abdominal pains/cramps and swelling). Approximately 15% were for what is classified as general symptoms, including a wide range of problems such as feeling faint or tired, difficulty sleeping or experiencing convulsions. The remaining costs were for a wide range of symptoms, including respiratory complaints (chest pains/difficulty breathing, cough), and head and neck symptoms (primarily headache, as well as swelling in the head/neck and nosebleeds).

Part 2: Males

Between 2002/03 and 2006/07, 4,996 men had 21,522 physician encounters amounting to \$3.1 million per year.

On average, approximately 69% of unique patients, 70% of encounters, 69% of claims and 77% of costs were for diagnosed or suspected conditions, with the remainder for ill-defined conditions and supplementary classifications.

Diagnosed Conditions

In terms of unique patient, encounter, claim and cost measures of physician activities, the top five conditions were: injury and poisonings, musculoskeletal system, mental disorders, respiratory system (except for costs), sense organs and nervous system (except costs), digestive system (costs only) and genitourinary system (costs only) (see Table 7.3).

Table 7.3
Physician Activity by Top 5 Conditions
Males Age 25 to 44 - Average 2002/03 to 2006/07

Rank	Metric			
	Unique Patients (8,033)	Encounters (15,369)	Claims (17,221)	Costs (\$2,382,300)
1	Injury & Poisoning 16%	Musculoskeletal System 16%	Injury & Poisoning 15%	Injury & Poisoning 18%
2	Musculoskeletal System 15%	Injury & Poisoning 14%	Musculoskeletal System 14%	Digestive System 13%
3	Respiratory System 13%	Mental Disorders 14%	Mental Disorders 14%	Musculoskeletal System 12%
4	Nervous System 10%	Respiratory System 11%	Respiratory System 11%	Mental Disorders 10%
5	Mental Disorders 9%	Nervous System 8%	Nervous System 9%	Genitourinary System 10%
Other	37%	37%	37%	36%

Sources: NWT Health and Social Services and NWT Financial Management Board Secretariat.

Injuries were responsible for 18% (\$433,000) of physician costs. Some of the injuries that accounted for the most intensive use of resources included: fractures (mostly to the legs and arms) at 32% of injury costs; and open wounds (cuts and punctures), contusions (bruises) and lacerations (tearing of the skin), to the face, head, arms and legs, at 19%; and sprains (mainly legs) and superficial injuries (scrapes) to the face and head at 16% of cost. The remaining costs were spread across a wide variety of injuries, including dislocations, internal wounds and burns.

Digestive system diseases accounted for 13% (\$308,000) of the cost of diagnosed conditions. Gastritis, gastroenteritis and other stomach and intestinal issues were responsible for approximately half of digestive costs. Hernias amounted to approximately 22% of physician costs, while gallbladder issues (primarily gallstones) accounted for 13% of costs. The remaining costs related to treating digestive system conditions were spread across a number of conditions including dental issues and appendicitis.

Musculoskeletal system and connective tissue diseases were responsible for 12% (\$282,000) of physician costs. Joint pain and joint conditions such as arthritis were responsible for 38% of costs. Back pain and back disorders accounted for 34% of costs. The remaining costs were spread across a number of disorders, including various forms of rheumatism.

Mental disorders accounted for 10% (\$249,000) of costs. Mental disorders are often complex, with patients suffering from more than one disorder that may also include the abuse of alcohol and/or drugs. Alcohol and drug-related conditions (dependency, abuse, psychoses) were responsible for 28% of costs. Depressive disorders were responsible for approximately 20% of costs and neurotic disorders (anxiety) for 16% of costs. The treatment of schizophrenia amounted to 11% of costs and affective psychoses (manic-depressive, bipolar) accounted for 8% of costs. The remaining costs for the treatment of mental disorders were spread across a number of conditions, including reactions to stressful events and life changes.

The treatment of genitourinary conditions made up a further 10% (\$243,000) of costs for diagnosed conditions. More than three-quarters of the costs were for the treatment of kidney failure (primarily dialysis). The remaining costs were spread across a number of conditions, including urinary tract infections.

Supplementary Factors and Ill-Defined Conditions

Table 7.4
Physician Costs
Supplementary Factors, and Symptoms, Signs, Ill-Defined Conditions
Males Age 25 to 44 - Average 2002/03 to 2006/07

	Costs	Proportion
Supplementary Conditions - Total	\$ 372,804	100%
Screening or Examinations - Miscellaneous	\$ 152,279	41%
Screenings - Cardiovascular related	\$ 48,789	13%
Follow-up Exams	\$ 40,477	11%
Other	\$ 131,260	35%
Symptoms, Signs, Ill-Defined Conditions - Total	\$ 273,923	100%
Respiratory Symptoms	\$ 67,323	25%
Abdominal/Digestive Symptoms	\$ 62,153	23%
General Symptoms	\$ 56,660	21%
Head and Neck Symptoms	\$ 31,429	11%
Other	\$ 56,358	21%

Sources: NWT Department of Health and Social Services and NWT Financial Management Board Secretariat.

Approximately \$373,000 of the cost of physician services were for encounters documented as supplementary classification of factors influencing health status and contact with health services. As seen in Table 7.4, 41% of these costs were for miscellaneous screenings and exams (CT scans, X-rays, physical exams). Thirteen percent of costs were for screenings specific to cardiovascular issues – primarily echocardiograms (measuring the electrical activity of the heart). A further 11% of costs were for follow-up exams. The remaining costs were spread across a number of services, including services that were administrative in nature, consultations with patients on a health matter where the patient was not necessarily ill at the time, for contraceptive management (vasectomies) and aftercare.

Services provided to patients where the nature of the illness was unclear at time of the physician encounter amounted to approximately \$274,000 per year. Twenty-five percent of these costs were for respiratory symptoms (chest/pains, difficulty breathing, coughs). Twenty-three percent of these costs were for abdominal and digestive symptoms (abdominal pains/cramps and trouble swallowing). Twenty-one percent of costs were for what is classified as general symptoms, including a wide range of problems such as feeling faint or tired, difficulty sleeping, or experiencing convulsions. The remaining costs were for a wide range of symptoms, including head and neck symptoms (primarily headaches, swelling of head/neck and nosebleeds).

Chapter 8: Adults (Age 45 to 64 Years)

On average, between 2002/03 and 2006/07, 8,019 adults (age 45 to 64 years) had 54,869 physician encounters, resulting in 65,905 claims, for an approximate cost of \$9 million per year.

8.1 Diagnosed Conditions

On average, approximately 68% of unique patients, 68% of encounters, 65% of claims and 74% of costs were for diagnosed conditions, with the remainder for ill-defined conditions and supplementary classifications.

In terms of unique patient, encounter, claim and cost measures of physician activities, the top five conditions were: diseases of the musculoskeletal system and connective tissue, diseases of the circulatory system, diseases of the sense organs and nervous system, genitourinary system related, mental disorders (encounters and claims), diseases of the digestive system (costs only) and diseases of the respiratory system (unique patients only) (see Table 8.1).

Table 8.1
Physician Activity by Top 5 Conditions
Age 45 to 64 - Average 2002/03 to 2006/07

Rank	Metric			
	Unique Patients (17,618)	Encounters (38,097)	Claims (42,788)	Costs (\$6,714,249)
1	Musculoskeletal System 15%	Musculoskeletal System 16%	Musculoskeletal System 15%	Digestive System 14%
2	Sense Organs 11%	Circulatory System 11%	Circulatory System 11%	Musculoskeletal System 13%
3	Respiratory System 10%	Mental Disorders 10%	Sense Organs 11%	Sense Organs 12%
4	Circulatory System 10%	Genitourinary System 9%	Mental Disorders 10%	Genitourinary System 11%
5	Genitourinary System 9%	Sense Organs 9%	Genitourinary System 9%	Circulatory System 11%
Other	46%	44%	44%	39%

Sources: NWT Health and Social Services and NWT Financial Management Board Secretariat.

Treatment of diseases of the digestive system accounted for 14% (\$927,000) of costs. More than half of these costs were for gastritis, gastroenteritis and other stomach and intestinal problems. Gallbladder issues (primarily gallstones) amounted to approximately 22% of physician costs, while hernias accounted for 16% of costs. The remaining costs related to treating digestive system conditions were spread across a number of conditions including dental issues and appendicitis.

Musculoskeletal and connective tissue diseases amounted to 13% (\$886,000) of the cost of diagnosed conditions. Joint pain and joint conditions such as arthritis were responsible for more than half of the costs. Various forms of rheumatism accounted for 22% of costs, while back pain and back disorders accounted for most of the remaining musculoskeletal costs.

Sense organ and nervous system conditions made up 12% (\$777,000) of costs. Eye issues made up 63% of these costs and primarily consisted of treating cataracts, vision problems and glaucoma. Hearing loss and other ear issues (often infections) accounted for another 19% of costs, and the remaining costs were spread out across a number of nervous system-related conditions, including nerve damage and migraines.

The treatment of genitourinary conditions made up 11% (\$764,000) of costs. Approximately 27% of the costs were for the treatment of kidney failure and 22% of costs were for the treatment of menstrual and menopause-related issues. The remaining costs were spread across a large number of conditions, including urinary tract infections and breast disorders (non-cancerous lumps).

Diseases of the circulatory system accounted for a further 11% (\$712,000) of costs. Heart disease was responsible for approximately half of the costs of treating circulatory diseases. Almost a third of costs went to the treatment of hypertension (high blood pressure). The remaining costs were spread across a number of conditions, including the treatment of hemorrhoids, varicose veins and strokes.

Supplementary Factors and Ill-defined Conditions

Table 8.2
Physician Costs
Supplementary Factors, and Symptoms, Signs, Ill-Defined Conditions
Age 45 to 64 - Average 2002/03 to 2006/07

	Costs	Proportion
Supplementary Conditions - Total	\$ 1,227,959	100%
Screening or Examinations - Miscellaneous	\$ 589,184	48%
Screenings - Cardiovascular related	\$ 168,171	14%
Administrative or without Illness	\$ 123,650	10%
Other	\$ 346,954	28%
Symptoms, Signs, Ill-Defined Conditions - Total	\$ 849,227	100%
Abdominal/Digestive Symptoms	\$ 226,640	27%
Respiratory Symptoms	\$ 214,131	25%
General Symptoms	\$ 139,445	16%
Head and Neck Symptoms	\$ 71,237	8%
Other	\$ 197,774	23%

Sources: NWT Department of Health and Social Services and NWT Financial Management Board Secretariat.

Approximately \$1.2 million of the cost of physician services was for encounters documented as supplementary classification of factors influencing health status and contact with health services. As seen in Table 8.2, 48% of these costs were for screenings and exams (CT scans, X-rays, physical exams) for any number of conditions. Fourteen percent of costs were for screenings specific to cardiovascular issues – primarily echocardiograms (measuring the electrical activity of the heart). A further 10% of costs were for services that were administrative in nature or for consultations with patients on a health matter where the patient was not necessarily ill at the time. The remaining costs were spread across a number of services, including follow-up exams and aftercare.

Services provided to patients where the nature of the illness was unclear at the time of the physician encounter amounted to approximately \$849,000 per year. Twenty-seven percent of these costs were for abdominal and digestive symptoms (abdominal pains/cramps and trouble swallowing). Twenty-five percent of these costs were for respiratory symptoms (chest pains, difficulty breathing, coughs). Sixteen percent of costs were for what is classified as general symptoms, including a wide range of problems such as feeling faint or tired, difficulty sleeping or experiencing convulsions. The remaining costs were for a wide range of symptoms, including head and neck symptoms (primarily headaches, swelling of head/neck and nosebleeds).

Chapter 9: Seniors (Age 65 Years and Over)

On average, between 2002/03 and 2006/07, 1,811 seniors (age 65 years and over) had 17,881 physician encounters, resulting in 21,098 claims, for an approximate cost of \$3.6 million per year.

9.1 Diagnosed Conditions

On average, approximately 68% of unique patients, 64% of encounters, 63% of claims and 76% of costs were for diagnosed conditions, with the remainder for ill-defined conditions and supplementary classifications.

In terms of unique patient, encounter, claim and cost measures of physician activities, the top five conditions were: diseases of the circulatory system, diseases of the sense organs and nervous system, diseases of the musculoskeletal system and connective tissue, diseases of the respiratory system (except for costs), genitourinary system related (except for unique patients), diseases of the digestive system (unique patients and costs only) (see Table 9.1).

Table 9.1
Physician Activity by Top 5 Conditions
Age 65&Up - Average 2002/03 to 2006/07

Rank	Metric			
	Unique Patients (4,668)	Encounters (11,667)	Claims (13,345)	Costs (\$2,700,142)
1	Circulatory System 15%	Circulatory System 18%	Circulatory System 18%	Sense Organs 20%
2	Musculoskeletal System 13%	Musculoskeletal System 13%	Sense Organs 13%	Circulatory System 14%
3	Sense Organs 13%	Sense Organs 11%	Musculoskeletal System 12%	Musculoskeletal System 12%
4	Respiratory System 10%	Respiratory System 11%	Respiratory System 11%	Digestive System 12%
5	Digestive System 9%	Genitourinary System 10%	Genitourinary System 9%	Genitourinary System 10%
Other	40%	37%	37%	33%

Sources: NWT Health and Social Services and NWT Financial Management Board Secretariat.

The treatment of sense organ and nervous system diseases accounted for 20% (\$531,000) of the cost of diagnosed conditions. Eighty-seven percent of these costs were for eye-related diseases (primarily cataracts). The remaining costs were for encounters due to ear problems (hearing loss) and nervous system diseases, such as Parkinson's disease.

Diseases of the circulatory system amounted to 14% (\$381,000) of costs. Various forms of heart disease were responsible for 55% of the circulatory disease costs, primarily including heart attacks, heart failure and irregular heartbeats. The treatment of hypertension (high blood pressure) accounted for 27% of costs. The remaining costs for circulatory diseases included such problems as strokes and aneurysms.

Diseases of the musculoskeletal system and connective tissue accounted for 12% (\$315,000) of costs. Over 70% of these costs were for the treatment of various forms of arthritis – primarily osteoarthritis. Various forms of back disorders and rheumatism accounted for 12% and 11% of costs, respectively. The remaining costs primarily included the treatment of osteoporosis.

Diseases of the digestive system accounted for a further 12% (\$313,000) of costs. Sixty-percent of these costs went to the treatment of stomach and intestinal conditions, such as gastritis, intestinal obstructions and esophagitis. Approximately 18% of the costs were for the treatment of gallbladder issues - primarily gallstones, and 13% of costs were for the treatment of hernias. The remaining costs were for the treatment of a number of issues, including dental problems and appendicitis.

Diseases of the genitourinary system accounted for 10% (\$268,000) of costs. Almost two-thirds of these costs were for the treatment of kidney failure. The remaining costs were spread across a number of conditions, including urinary tract infections, breast issues and female genital prolapse.

Supplementary Factors and Ill-defined Conditions

Table 9.2
Physician Costs
Supplementary Factors, and Symptoms, Signs, Ill-Defined Conditions
Age 65 & Over - Average 2002/03 to 2006/07

	Costs	Proportion
Supplementary Conditions - Total	\$ 466,073	100%
Screening or Examinations - Miscellaneous	\$ 166,806	36%
Screenings - Cardiovascular related	\$ 107,699	23%
Administrative or without Illness	\$ 46,545	10%
Other	\$ 145,022	31%
Symptoms, Signs, Ill-Defined Conditions - Total	\$ 314,595	100%
Abdominal/Digestive Symptoms	\$ 86,072	27%
Respiratory Symptoms	\$ 81,875	26%
General Symptoms	\$ 48,617	15%
Head and Neck Symptoms	\$ 23,463	7%
Other	\$ 74,568	24%

Sources: NWT Department of Health and Social Services and NWT Financial Management Board Secretariat.

Approximately \$466,000 of the cost of physician services was for encounters documented as supplementary classification of factors influencing health status and contact with health services. As seen in Table 8.2, 36% of these costs were for screenings and exams (CT scans, X-rays, physical exams) for miscellaneous health issues. Twenty-three percent of costs were for screenings specific to cardiovascular issues – primarily echocardiograms (measuring the electrical activity of the heart). A further 10% of costs were for services that were administrative in nature or consultations with patients on a health matter where the patient was not necessarily ill at the time. The remaining costs were spread across a number of services, including follow-up exams and aftercare.

Services provided to patients where the nature of the illness was unclear at the time of the physician encounter amounted to approximately \$315,000 per year. Twenty-seven percent of these costs were for abdominal and digestive symptoms (abdominal pains/cramps and trouble swallowing). Twenty-six percent of these costs were for respiratory symptoms (chest pains, difficulty breathing, coughs). Fifteen percent of costs were for what is classified as general symptoms, including a wide range of problems such as feeling faint or tired, difficulty sleeping or experiencing convulsions. The remaining costs were for a wide range of symptoms, including head and neck symptoms (primarily headaches, swelling of head/neck and nosebleeds).

Chapter 10: Conclusion

This report presents a detailed look at the utilization of physician services at the beginning of the 21st century. By examining utilization by age, this report shows not only that the intensity of physician resources utilized changes with age, but also many of the reasons for the use of physician services change with age. Moreover, many of the reasons for encountering a physician are preventable by making healthy lifestyle choices.⁴

The treatment of premature/low birth weight babies and infants with congenital anomalies consumed a significant proportion of physician resources spent on infant care. Tobacco use, and/or exposure to second-hand smoke, while pregnant can result in a premature/low birth weight delivery.⁵ Such infants are at an increased risk of other health problems, including asthma, high blood pressure and heart disease, in the first year of life but also later in life.⁶ Congenital anomalies (such as heart defects) also were one of the top demands on physician resources. These anomalies may be an indication of insufficient nutrient (e.g., folic acid) intake while pregnant.⁷

For infants (under 1) and young children (age 1 to 4), acute respiratory conditions (primarily colds but also bronchitis and pneumonia) and ear infections were primary drivers of physician encounters. To some extent respiratory problems in infants and young children are caused and/or exacerbated by environmental effects, such as exposure to second-hand tobacco smoke and poor ventilation in houses. Ear infections also can be caused by tobacco smoke and are more likely to occur when an infant or child "...spends a lot of time drinking from a sippy cup or bottle while lying on his or her back."⁸

Young children, age 1 to 4, also suffer from preventable dental-related problems such as cavities. Risk factors for dental issues include improper hygiene (lack of brushing), excessive intake of sugary drinks and foods, and overuse of bottles (especially at night) with beverages containing sugar.

Children, age 5 to 14, also require treatment for issues similar to those children under 5, such as respiratory conditions and ear infections. However, injuries rise in prominence as children age, and eventually become the number one reason for the use of physician resources for both male youth (age 15 to 24) and adult males (age 25 to 44).

Injuries are nearly 100% preventable. Many injuries happen through the combination of the lack of use of safety devices, the high-risk behaviour of youth and young adults in general, as well as the prominence of alcohol abuse.⁹

The treatment of alcohol abuse (e.g. detoxification) in adult males, as well as young men and women, puts a significant demand on physician resources.

4 The risk factors for diseases highlighted in this report are primarily lifestyle related, and are thus modifiable through lifestyle improvements or abstaining from negative habits. Through abstinence and/or positive lifestyle changes, individuals can reduce their risk for many diseases (e.g., abstaining from/cessation of smoking reduces the risk of contracting lung cancer). The risk factors presented are not meant to be exhaustive nor are they meant to negate the role played by 1) non-modifiable risk factors for any disease (e.g., age, sex, genes); and 2) medical modifiable factors (e.g., pharmaceutical treatment for high blood pressure reducing the risk of stroke).

5 Alberta Alcohol and Drug Abuse Commission, *The Truth About Smoking and Pregnancy*, 2002.

6 City of Berkeley, Department of Health and Human Services, *Health Status Report, 2002 – Low Birth Weight*.

7 Folic acid is found in some foods such as dark green vegetables, beans, lentils corn and oranges, among others, as well as is added to flour (required by the Canadian government). Generally, a supplement of folic acid is recommended before and after becoming pregnant. See Lynn B Bailey and Robert J. Berry, "Folic acid supplementation and the occurrence of congenital heart defects, orofacial clefts, multiple births, and miscarriage" in *American Journal of Clinical Nutrition*, May 2005, Vol. 81, No. 5, pp. 1213S to 1217S, and Alana Kronstal, "Folic Acid: The Healthy Baby Vitamin" in *Epi North*, Summer 2002, pp 4 to 5.

8 U.S. National Library of Medicine and the National Institutes of Health, "Ear infection – acute" in Medline Plus, <http://www.nlm.nih.gov/medlineplus/ency/article/000638.htm>.

9 NWT Department of Health and Social Services, *Injury in the Northwest Territories: A Summary Report* (September 2004), pp. 33 to 40.

By the time people reach their mid-forties, the types of conditions requiring treatment by physicians change. Digestive system conditions, musculoskeletal and connective tissue diseases, and circulatory system diseases rise in prominence. All three of these disease categories can be linked to obesity, inactivity, poor diet and other preventable factors.

Some of the digestive diseases affecting older adults are preventable, such as gastritis, some abdominal hernias, and gallstones. Alcohol abuse and smoking are linked to gastritis.¹⁰ Preventable risk factors contributing to some hernias include heavy/improper lifting, chronic constipation, and excess weight.¹¹ Obesity and a poor diet (high in refined sugars, high in saturated fat and low in fiber) are risk factors for gallstones.¹²

Osteoarthritis, especially in seniors, and back pain are two of the main musculoskeletal disorders seen in the older patients treated by physicians. To some extent, these conditions are preventable and/or manageable. Some of the preventable risk factors associated with the onset as well as the intensity of pain of osteoarthritis include obesity, joint trauma and injury, repetitive task strain, and physical inactivity.¹³ For many back related disorders, some additional preventable risk factors include smoking, heavy/inappropriate lifting and poor posture.¹⁴

A significant proportion of circulatory diseases are preventable, such as heart diseases, hypertension and strokes. Heart disease can be caused by a number of factors, including preventable ones, such as obesity, smoking, poor nutrition and inactivity.¹⁵ Hypertension can be caused by a number of factors, including too much salt in one's diet, as well as obesity.¹⁶ Modifiable risk factors for strokes include smoking, alcohol abuse, poor diet, obesity/overweight and inactivity.¹⁷

Preventable risk factors, such as obesity, smoking, poor nutrition and physical inactivity that contribute to circulatory diseases also contribute to kidney failure.¹⁸ The treatment of kidney failure for both older adults and seniors consumes a substantial amount of physician resources.

This report, the *Hospital Services Report 2006*, the *Health Centre Services Report 2007*, the *NWT Health Status Report 2005*, along with other reports, continue to show the need to encourage the population to make the right lifestyle choices to improve their health status. A result of improved health status is a reduction in the use of health care resources for preventable conditions.

10 University Hospital of Columbia and Cornell, Digestive Diseases (Gastritis, Diverticular Disease).

11 U.S. National Library of Medicine and the National Institutes of Health, "Hernia" in *Ibid*, 000960.htm.

12 Ada Cuevas, et al., "Diet as a Risk Factor for Cholesterol Gallstone Disease" in *Journal of the American College of Nutrition*, Vol. 23, No. 3, 2004, pp. 187-196.

13 Australian Institute of Health and Welfare, *Arthritis and musculoskeletal conditions in Australia*, 2005 (Canberra: Australian Institute of Health and Welfare, 2005), p. 26. MayoClinic.com, *Osteoarthritis*, www.mayoclinic.com/health/osteoarthritis/DS00019/DSECTION=3.

14 Dein Vindigni et al., "Low back pain risk factors in a large rural Australian Aboriginal community. An opportunity for managing co-morbidities?" in *Chiropractic & Osteopathy*, 2005, 13:21. Mayo Clinic, "Back Pain". www.mayoclinic.com/health/back-pain/DS00171/DSECTION=risk-factors

15 Bin Tong and Chris Stevenson, *Comorbidity of cardiovascular disease, diabetes and chronic disease in Australia* (Canberra: Australian Institute of Health and Welfare, 2007), p. 3.

16 U.S. National Library of Medicine and the National Institutes of Health, "Hypertension" in *Medline Plus*, www.nlm.nih.gov/medlineplus/ency/article/000468.htm.

17 British Columbia Medical Association Section of Neurology, *Stroke Risk Factors* www.neurobc.com/conditions/stroke_risk.htm. Heart and Stroke Foundation, *Stroke Prevention and Risk Factors* www.heartandstroke.com/site/c.klQLcMWJtE/b.3483939/

18 Bin Tong and Chris Stevenson, *Ibid*, p. 3.

Appendix A: Glossary¹⁹

Abscess: A collection of pus that has formed on any part of the body surrounded by inflammation (swelling).

Angina: Severe chest pain due to insufficient blood supply to the heart.

Arthritis: Inflammation of a joint characterized by stiffness, swelling and pain. There are many types of arthritis, including osteoarthritis and rheumatoid arthritis.

Asthma: Asthma is a chronic inflammation of the airways (bronchial tubes) that causes swelling and narrowing (constriction) of the airways, and results in the difficulty of breathing.

Bronchitis: Inflammation and swelling of the bronchi - large air tubes leading from the trachea (wind pipe) to the lungs that convey air to and from the lungs.

Candidiasis: A yeast infection often occurring in infants and young children.

Cardiovascular: Refers to the heart and the blood vessels.

Cataract: A cataract is a clouding of the lens in the eye that affects vision. Generally occurs in seniors.

Cellulitis: An acute inflammation of the skin and/or tissue underneath the skin (fatty tissue) caused by a bacterial infection.

Circulatory Diseases: Diseases of the circulatory system, including heart disease and stroke.

Circulatory System: A general term referring to those parts of the body involved in the circulation of blood – heart, arteries, veins and other blood vessels.

Claim: A submission from or on behalf of a physician for the particular service(s) they provided in the course of a treatment (e.g. exam, removal of an appendix, stitching up a wound etc.).

Colitis: Inflammation of the colon (large intestine).

Conjunctivitis: Inflammation or infection of the membrane lining the eyelids – commonly referred to as pink eye.

Demographics: The characteristics of a population described in terms of size, distribution, composition (e.g. age, gender, ethnicity) and vital statistics.

Digestive System: A general term referring to those parts of the body involved in digesting food – mouth, throat, stomach, and intestines.

¹⁹ The definitions in this glossary are meant to be general and simple. The definitions come from the following sources: www.merck.com; www.medterms.com; www.medlineplus.gov; www.MedicineNet.com; www.eMedicine.com; *Dorland's Illustrated Medical Dictionary, 26th Edition (1981)*; and the National Bureau of Economic Research www.nber.org/mortality/1995/docs/ch05.txt.

Eczema: A chronic skin disorder characterized by scaly and itching rashes.

Encounter: Contact between a physician and a patient (e.g. patient visit to a clinic, physician visit to patient's bedside). An encounter results in one or more claims (services).

Epilepsy: A brain disorder involving repeated seizures (sudden change in behavior due to an excessive electrical activity in the brain).

Gallstones: Gallstones are formed within the gallbladder, an organ that stores bile excreted from the liver. Substances in the bile can harden and form stones.

Gastritis: Inflammation of the stomach.

Gastroenteritis: Inflammation of the stomach and intestine.

Genitourinary System: A general term referring to the genitals and those parts of the body involved in urination.

Glaucoma: An eye disease. It usually happens when the fluid pressure inside the eyes slowly rises, damaging the optic nerve.

Hemoglobin: A protein in red blood cells that carries oxygen.

Hemorrhoids: Painful, swollen veins in the lower portion of the rectum or anus.

Hernia: The protrusion of part of an organ (usually the intestines) through a weak point or tear in the thin muscular wall that holds the abdominal organs in place.

Hypertension: High blood pressure.

Hypothyroidism: A condition in which the thyroid gland fails to produce enough thyroid hormone – resulting in a slow metabolism. The thyroid gland, located in the front of the neck just below the larynx, secretes hormones that control metabolism.

Impetigo: Impetigo is a skin disorder caused by bacterial infection and characterized by crusting skin lesions (blisters).

Inflammation: The general way in which the body reacts to infection, irritation or other injury, the key feature being redness, warmth, swelling and pain.

Lower Limb: A general term used in describing the location of an injury and includes the area of the body from the hip to the toes.

Musculoskeletal System: A general term describing the bones and muscles of the human body.

Osteoarthritis: A type of arthritis caused by inflammation, breakdown, and eventual loss of cartilage in the joints. Cartilage is a protein substance that serves as a “cushion” between the bones of the joints.

Pap Smear: A microscopic examination of cells scraped from the cervix for the purposes of detecting cervical cancer.

Pneumonia: Pneumonia is an inflammation of the lungs caused by an infection. Many different organisms can cause it, including bacteria, viruses and fungi. Pneumonia can range from mild to severe, even fatal. The severity depends on the type of organism causing pneumonia, as well as your age and underlying health.

Reproductive Services: Includes services specific to before and after childbirth (assessment, counseling and education), as well as birth control dispensing and management.

Respiratory System: A general term referring to the parts of the body involved in the process of breathing – nose, throat, and lungs.

Rheumatism: Rheumatism is used to describe any of a number of painful conditions of muscles, tendons, joints, and bones.

Rheumatoid Arthritis: Rheumatoid arthritis is an autoimmune disease that causes chronic inflammation of the joints, and can also cause inflammation of the tissue around the joints, as well as other organs in the body. Autoimmune diseases are illnesses that occur when the body tissues are mistakenly attacked by the body’s own immune system.

Service: A general term covering what a physician does to a patient during an encounter. A service may be made up of one or more claims.

Stomatitis: Inflammation of the mucous lining of any of the structures in the mouth, which may involve the cheeks, gums, tongue, lips, and roof or floor of the mouth.

Tonsillitis: Tonsillitis is inflammation of the tonsils.

Unique Patient: When a patient is only counted once in a fiscal year by variable (e.g., age group, diagnosis), regardless of how many encounters they had with a physician(s).

Upper Limb: A general term used in describing the location of an injury and includes the area of the body from the shoulder to the fingers.

Visit: A general term used to describe the encounter (time between entering and leaving) of a physician with a patient.

Appendix B: Data Tables

Table 1.1
Physician Activity - Various Indicators
Average, 2002/03 to 2006/07

Variables	Total Patients			Total Encounters			Total Claims			Total Expenditure		
	Both	Female	Male	Both	Female	Male	Both	Female	Male	Both	Female	Male
Total	32,859	17,280	15,579	186,856	110,204	76,652	228,807	138,941	89,866	30,577,705	18,477,002	12,100,703
Age												
Under 1	1,088	537	551	4,679	2,161	2,517	5,405	2,475	2,930	749,656	344,625	405,030
1 to 4	2,140	1,072	1,068	7,767	3,696	4,071	8,559	4,055	4,503	1,706,362	519,442	586,920
5 to 14	4,458	2,293	2,164	13,931	6,756	7,175	15,732	7,683	8,048	2,052,710	968,582	1,084,127
15 to 24	5,016	2,859	2,157	23,349	15,830	7,518	30,563	21,652	8,911	3,594,800	2,561,876	1,032,924
25 to 44	11,506	6,510	4,996	64,382	42,860	21,522	81,545	56,544	25,001	10,477,466	7,382,156	3,095,309
45 to 64	8,019	3,946	4,073	54,869	30,022	24,847	65,905	36,183	29,722	9,042,421	4,997,603	4,044,818
65 & Up	1,811	894	917	17,881	8,878	9,003	21,098	10,348	10,750	3,554,292	1,702,717	1,851,575
Community Type												
Yellowknife	16,365	8,681	7,684	99,360	59,309	40,051	120,881	74,799	46,081	15,157,719	9,303,710	5,854,008
Regional Centres	8,762	4,560	4,202	51,399	30,014	21,385	63,670	37,941	25,729	8,361,790	4,909,266	3,452,525
Smaller Communities	7,885	4,139	3,746	35,662	20,690	14,972	43,748	25,984	17,764	6,961,043	4,224,064	2,736,980
Unknown	218	104	114	435	190	245	509	217	292	97,153	39,963	57,190
Ethnicity												
Dene	9,463	5,180	4,282	53,171	32,966	20,204	63,844	40,705	23,139	9,450,620	6,045,664	3,404,956
Inuit	3,258	1,815	1,443	17,715	11,246	6,470	21,381	13,740	7,641	3,200,867	2,044,852	1,156,015
Non-Aboriginal/Metis	20,138	10,285	9,853	115,970	65,992	49,978	143,583	84,496	59,086	17,926,218	10,386,487	7,539,731
Location of Service												
In NWT	30,572	16,153	14,419	162,833	96,661	66,172	188,186	116,224	71,961	27,422,906	16,897,625	10,525,282
Outside NWT	7,122	4,008	3,114	24,023	13,543	10,481	40,622	22,717	17,905	3,154,799	1,579,378	1,575,421
Authority												
Beaufort-Delta	5,003	2,669	2,334	24,855	14,890	9,965	30,613	18,496	12,117	4,498,894	2,726,661	1,772,233
Deh Cho	2,083	1,049	1,034	10,177	5,587	4,590	11,937	6,729	5,208	1,798,147	1,013,697	784,451
Fort Smith	2,144	1,127	1,017	13,128	7,748	5,381	16,840	10,232	6,608	2,050,678	1,212,298	838,360
Hay River	3,526	1,807	1,719	21,107	11,976	9,131	25,671	14,921	10,750	3,457,970	1,988,090	1,469,880
Sahtu	1,520	817	703	6,368	3,865	2,504	8,347	5,153	3,194	1,312,779	810,121	502,658
Tlcho	1,740	918	822	8,340	4,968	3,372	10,209	6,301	3,907	1,583,385	1,033,998	549,387
Yellowknife	16,997	8,993	8,003	102,446	60,980	41,466	124,681	76,891	47,790	15,778,699	9,652,175	6,126,524
Unknown	278	104	114	435	190	245	509	217	292	97,153	39,963	57,190
Disease and Conditions												
Infectious and Parasitic	3,275	1,816	1,459	5,227	2,804	2,423	6,227	3,298	2,928	601,575	328,737	272,838
Neoplasms	1,454	863	591	3,033	1,752	1,280	3,765	2,153	1,611	777,327	444,091	333,236
Endocrine, Nutritional, and Metabolic	2,965	1,588	1,407	6,527	3,315	3,212	6,817	3,456	3,359	836,786	450,147	386,641
Blood and Blood Forming Organs	467	316	151	777	513	264	835	543	292	135,446	86,013	49,432
Mental Disorders	4,508	2,548	1,960	12,389	6,917	5,472	13,333	7,294	6,039	1,741,582	960,759	780,823
Nervous System and Sense Organs	7,079	3,905	3,174	12,677	6,949	5,728	15,460	8,369	7,091	2,590,259	1,392,798	1,197,461
Circulatory System	3,369	1,637	1,731	8,213	3,699	4,514	9,518	4,161	3,947	1,394,396	578,877	815,519
Respiratory System	9,195	5,158	4,037	16,940	9,546	7,394	18,194	10,168	8,026	2,011,086	1,108,535	902,550
Digestive System	4,645	2,513	2,132	8,781	4,802	3,979	9,759	5,315	4,444	2,615,262	1,458,764	1,156,498
Genitourinary System	5,360	4,279	1,081	11,981	8,757	3,224	13,576	10,127	3,449	2,404,773	1,699,772	705,001
Childbirth and Pregnancy	1,600	1,600	na	8,906	8,906	na	12,561	12,561	na	2,396,947	2,396,947	na
Skin and Subcutaneous Tissue	4,762	2,182	1,586	7,815	4,110	3,705	8,319	4,365	3,954	839,553	448,115	391,437
Musculoskeletal System and Connective Tissue	7,128	3,888	3,241	14,813	8,279	6,534	15,418	8,638	6,780	2,083,364	1,176,417	906,947
Congenital Anomalies	440	238	203	752	391	360	914	469	445	188,608	100,673	87,935
Perinatal Period	318	200	118	649	444	205	803	555	248	199,627	145,494	54,133
Injury and Poisoning	7,011	3,243	3,768	11,749	5,322	6,427	14,198	6,489	7,709	2,202,507	944,154	1,258,353
<i>Total Diagnosed or Suspected</i>	63,576	36,342	27,234	131,227	76,506	54,721	149,698	87,963	61,735	23,019,097	13,720,291	9,298,805
<i>Symptoms, Signs and Ill-Defined Conditions</i>	9,534	5,372	4,162	17,528	10,080	7,448	19,702	11,287	8,415	2,588,579	1,497,292	1,091,288
<i>Supplementary Classifications</i>	17,530	10,515	7,015	42,337	27,433	14,904	50,568	34,346	16,212	4,322,183	2,905,235	1,416,948
Unknown	2,302	1,419	883	3,741	2,344	1,396	8,849	5,346	3,503	647,846	354,184	293,662

Sources: NWT Department of Health and Social Services and NWT Financial Management Board Secretariat.

**Table 1.2
Physician Activity - Various Indicators (Continued)
Average, 2002/03 to 2006/07**

Variables	Encounters Per Patient			Claims per Patient			Claims per Visit		
	Both	Female	Male	Both	Female	Male	Both	Female	Male
Total	5.7	6.4	4.9	7.0	8.0	5.8	1.2	1.3	1.2
Age									
Under 1	4.3	4.0	4.6	5.0	4.6	5.3	1.2	1.1	1.2
1 to 4	3.6	3.4	3.8	4.0	3.8	4.2	1.1	1.1	1.2
5 to 14	3.1	3.1	3.1	3.5	3.5	3.5	1.1	1.1	1.1
15 to 24	4.7	5.5	4.3	6.1	7.6	4.1	1.3	1.4	1.2
25 to 44	5.6	6.6	6.3	7.1	8.7	5.0	1.3	1.3	1.2
45 to 64	6.8	7.6	6.1	8.2	9.2	7.3	1.2	1.2	1.2
65 & Up	9.9	9.9	9.8	11.6	11.6	11.7	1.2	1.2	1.2
Community Type									
Yellowknife	6.1	6.8	5.2	7.4	8.6	6.0	1.2	1.3	1.2
Regional Centres	5.9	6.6	5.1	7.3	8.3	6.1	1.2	1.3	1.2
Smaller Communities	4.5	5.0	4.0	5.5	6.3	4.7	1.2	1.3	1.2
Unknown	2.0	1.8	2.2	2.3	2.1	2.6	1.2	1.1	1.2
Ethnicity									
Dene	5.6	6.4	4.7	6.7	7.9	5.4	1.2	1.2	1.1
Inuit	5.4	6.2	4.5	6.6	7.6	5.3	1.2	1.2	1.2
Non-Aboriginal/Metis	5.8	6.4	5.1	7.1	8.2	6.0	1.2	1.3	1.2
Location of Service									
In NWT	5.3	6.0	4.6	6.2	7.2	5.0	1.2	1.2	1.1
Outside NWT	3.4	3.4	3.4	5.7	5.7	5.8	1.7	1.7	1.7
Authority									
Beaufort-Delta	5.0	5.6	4.3	6.1	6.9	5.2	1.2	1.2	1.2
Deh Cho	4.9	5.3	4.4	5.7	6.4	5.0	1.2	1.2	1.1
Fort Smith	6.1	6.9	5.3	7.9	9.1	6.5	1.3	1.3	1.2
Hay River	6.0	6.6	5.3	7.3	8.3	6.3	1.2	1.2	1.2
Sahtu	4.2	4.7	3.6	5.5	6.3	4.5	1.3	1.3	1.3
Tlicho	4.8	5.4	4.1	5.9	6.9	4.8	1.2	1.2	1.2
Yellowknife	6.0	6.8	5.2	7.3	8.5	6.0	1.2	1.3	1.2
Unknown	2.0	1.8	2.2	2.3	2.1	2.6	1.2	1.1	1.2
Disease and Conditions									
Infectious and Parasitic	1.6	1.5	1.7	1.9	1.8	2.0	1.2	1.2	1.2
Neoplasms	2.1	2.0	2.2	2.6	2.5	2.7	1.2	1.2	1.3
Endocrine, Nutritional, and Metabolic	2.2	2.1	2.3	2.3	2.2	2.4	1.0	1.0	1.0
Blood and Blood Forming Organs	1.7	1.6	1.7	1.8	1.7	1.9	1.1	1.1	1.1
Mental Disorders	2.7	2.7	2.8	3.0	2.9	3.1	1.1	1.1	1.1
Nervous System and Sense Organs	1.8	2.2	1.8	2.2	2.1	2.2	1.2	1.2	1.2
Circulatory System	2.4	2.3	2.6	2.8	2.5	3.1	1.2	1.1	1.2
Respiratory System	1.8	1.9	1.9	2.0	2.0	2.0	1.1	1.1	1.1
Digestive System	1.9	1.9	1.9	2.1	2.1	2.1	1.1	1.1	1.1
Genitourinary System	2.2	2.0	3.0	2.5	2.4	3.2	1.1	1.2	1.1
Childbirth and Pregnancy	na	na	na	na	7.9	na	na	1.4	na
Skin and Subcutaneous Tissue	1.6	1.6	1.7	1.8	1.7	1.8	1.1	1.1	1.1
Musculoskeletal System and Connective Tissue	2.1	2.1	2.0	2.2	2.2	2.1	1.0	1.0	1.0
Perinatal Anomalies	1.7	1.6	1.8	2.1	2.0	2.2	1.2	1.2	1.2
Perinatal Period	2.0	2.2	1.7	2.5	2.0	2.1	1.2	1.2	1.2
Injury and Poisoning	1.7	1.6	1.7	2.0	2.0	2.0	1.2	1.2	1.2
<i>Total Diagnosed</i>	2.1	2.1	2.0	2.4	2.4	2.3	1.1	1.1	1.1
Symptoms, Signs and Ill-Defined Conditions	1.8	1.9	1.8	2.1	2.1	2.0	1.1	1.1	1.1
Supplementary Classifications	2.4	2.6	2.1	2.9	3.3	2.3	1.2	1.3	1.1
Unknown	1.6	0.0	1.6	3.8	0.0	4.0	2.4	2.3	2.5

Source: NWT Department of Health and Social Services.

**Table 1.3
Physician Activity - Various Indicators (Continued)
Average, 2002/03 to 2006/07**

Variables	Cost Per Patient			Costs Per Encounter			Costs Per Claim		
	Both	Female	Male	Both	Female	Male	Both	Female	Male
Total	\$ 931	\$ 1,069	\$ 777	\$ 164	\$ 168	\$ 158	\$ 134	\$ 133	\$ 135
Age									
Under 1	\$ 689	\$ 642	\$ 735	\$ 160	\$ 159	\$ 161	\$ 139	\$ 139	\$ 138
1 to 4	\$ 517	\$ 484	\$ 550	\$ 142	\$ 141	\$ 144	\$ 129	\$ 128	\$ 130
5 to 14	\$ 460	\$ 448	\$ 473	\$ 147	\$ 143	\$ 151	\$ 130	\$ 126	\$ 135
15 to 24	\$ 717	\$ 896	\$ 479	\$ 154	\$ 162	\$ 137	\$ 118	\$ 118	\$ 116
25 to 44	\$ 911	\$ 1,134	\$ 620	\$ 163	\$ 172	\$ 144	\$ 128	\$ 131	\$ 124
45 to 64	\$ 1,128	\$ 1,266	\$ 993	\$ 165	\$ 166	\$ 163	\$ 137	\$ 138	\$ 136
65 & Up	\$ 1,962	\$ 1,904	\$ 2,020	\$ 199	\$ 192	\$ 206	\$ 168	\$ 165	\$ 172
Community Type									
Yellowknife	\$ 926	\$ 1,072	\$ 762	\$ 153	\$ 157	\$ 146	\$ 125	\$ 124	\$ 127
Regional Centres	\$ 954	\$ 1,077	\$ 822	\$ 163	\$ 164	\$ 161	\$ 131	\$ 129	\$ 134
Smaller Communities	\$ 883	\$ 1,020	\$ 731	\$ 195	\$ 204	\$ 183	\$ 159	\$ 163	\$ 154
Unknown	\$ 445	\$ 383	\$ 503	\$ 223	\$ 210	\$ 234	\$ 191	\$ 184	\$ 196
Ethnicity									
Dene	\$ 999	\$ 1,167	\$ 795	\$ 178	\$ 183	\$ 169	\$ 148	\$ 149	\$ 147
Inuit	\$ 983	\$ 1,127	\$ 801	\$ 181	\$ 182	\$ 179	\$ 150	\$ 149	\$ 151
Non-Aboriginal/Metis	\$ 890	\$ 1,010	\$ 765	\$ 155	\$ 157	\$ 151	\$ 125	\$ 123	\$ 128
Location of Service									
In NWT	\$ 897	\$ 1,046	\$ 730	\$ 168	\$ 175	\$ 159	\$ 146	\$ 145	\$ 146
Outside NWT	\$ 443	\$ 394	\$ 506	\$ 131	\$ 117	\$ 150	\$ 78	\$ 70	\$ 88
Authority									
Beaufort-Delta	\$ 899	\$ 1,021	\$ 759	\$ 181	\$ 183	\$ 178	\$ 147	\$ 147	\$ 146
Deh Cho	\$ 863	\$ 966	\$ 759	\$ 177	\$ 181	\$ 171	\$ 151	\$ 151	\$ 151
Fort Smith	\$ 956	\$ 1,076	\$ 824	\$ 156	\$ 166	\$ 156	\$ 122	\$ 118	\$ 127
Hay River	\$ 981	\$ 1,100	\$ 855	\$ 164	\$ 166	\$ 161	\$ 135	\$ 133	\$ 137
Sahtu	\$ 864	\$ 992	\$ 715	\$ 206	\$ 210	\$ 201	\$ 157	\$ 157	\$ 157
Tlcho	\$ 910	\$ 1,126	\$ 668	\$ 190	\$ 208	\$ 163	\$ 155	\$ 164	\$ 141
Yellowknife	\$ 928	\$ 1,073	\$ 766	\$ 154	\$ 158	\$ 148	\$ 127	\$ 126	\$ 128
Unknown	\$ 445	\$ 383	\$ 503	\$ 223	\$ 210	\$ 234	\$ 191	\$ 184	\$ 196
Disease and Conditions									
Infectious and Parasitic	\$ 184	\$ 181	\$ 187	\$ 115	\$ 117	\$ 113	\$ 97	\$ 100	\$ 93
Neoplasms	\$ 535	\$ 515	\$ 563	\$ 256	\$ 253	\$ 260	\$ 206	\$ 206	\$ 207
Endocrine, Nutritional, and Metabolic	\$ 282	\$ 289	\$ 275	\$ 128	\$ 136	\$ 120	\$ 123	\$ 130	\$ 115
Blood and Blood Forming Organs	\$ 290	\$ 272	\$ 327	\$ 174	\$ 168	\$ 187	\$ 162	\$ 158	\$ 169
Mental Disorders	\$ 386	\$ 377	\$ 398	\$ 141	\$ 139	\$ 143	\$ 131	\$ 132	\$ 129
Nervous System and Sense Organs	\$ 366	\$ 357	\$ 377	\$ 204	\$ 200	\$ 209	\$ 168	\$ 166	\$ 169
Circulatory System	\$ 414	\$ 354	\$ 471	\$ 170	\$ 156	\$ 181	\$ 146	\$ 139	\$ 152
Respiratory System	\$ 219	\$ 215	\$ 224	\$ 119	\$ 116	\$ 122	\$ 111	\$ 109	\$ 112
Digestive System	\$ 563	\$ 581	\$ 542	\$ 298	\$ 304	\$ 291	\$ 268	\$ 274	\$ 260
Genitourinary System	\$ 449	\$ 397	\$ 652	\$ 201	\$ 194	\$ 219	\$ 177	\$ 168	\$ 204
Childbirth and Pregnancy	na	\$ 1,498	na	na	\$ 269	na	na	\$ 191	na
Skin and Subcutaneous Tissue	\$ 176	\$ 174	\$ 179	\$ 107	\$ 109	\$ 106	\$ 101	\$ 103	\$ 99
Musculoskeletal System and Connective Tissue	\$ 292	\$ 303	\$ 280	\$ 141	\$ 142	\$ 139	\$ 135	\$ 136	\$ 134
Congenital Anomalies	\$ 428	\$ 423	\$ 434	\$ 251	\$ 257	\$ 244	\$ 206	\$ 215	\$ 197
Prenatal Period	\$ 628	\$ 726	\$ 460	\$ 308	\$ 328	\$ 265	\$ 249	\$ 262	\$ 218
Injury and Poisoning	\$ 314	\$ 291	\$ 334	\$ 187	\$ 177	\$ 196	\$ 155	\$ 145	\$ 163
Total Diagnosed	\$ 362	\$ 378	\$ 341	\$ 175	\$ 179	\$ 170	\$ 154	\$ 156	\$ 151
Symptoms, Signs and Ill-Defined Conditions	\$ 272	\$ 279	\$ 262	\$ 148	\$ 149	\$ 147	\$ 133	\$ 133	\$ 130
Supplementary Classifications	\$ 247	\$ 276	\$ 202	\$ 102	\$ 106	\$ 95	\$ 85	\$ 85	\$ 87
Unknown	\$ 281	\$ 250	\$ 333	\$ 173	\$ 151	\$ 210	\$ 73	\$ 66	\$ 84

Sources: NWT Department of Health and Social Services and NWT Financial Management Board Secretariat.

Appendix C: Data and Methodology

Table 1.4
Physician Activity - Various Indicators (Continued)
Average, 2002/03 to 2006/07

Variables	Patients Per 1,000			Encounters Per 1,000			Claims Per 1,000			Cost Per Capita		
	Both	Female	Male	Both	Female	Male	Both	Female	Male	Both	Female	Male
Total	776	844	713	4,414	5,380	3,508	5,405	6,783	4,113	722	902	554
Age												
Under 1 (See Methodology)	1,000	1,000	1,000	4,299	4,025	4,567	4,967	4,609	5,316	689	642	755
1 to 4	810	786	836	2,939	2,709	3,185	3,239	2,972	3,524	419	381	459
5 to 14	614	617	611	1,919	1,926	1,913	2,167	2,191	2,146	283	276	289
15 to 24	737	873	611	3,430	4,833	2,129	4,490	6,610	2,523	528	782	292
25 to 44	794	917	676	4,444	6,036	2,913	7,964	3,384	3,384	723	1,040	419
45 to 64	936	987	890	6,401	7,512	5,431	9,053	6,496	6,496	1,055	1,250	884
65 & Up	959	990	931	9,470	9,825	9,144	11,452	10,918	10,918	1,882	1,884	1,881
Community Type												
Yellowknife	855	923	790	5,193	6,309	4,115	6,318	7,957	4,735	792	486	306
Regional Centres	869	932	810	5,101	6,137	4,123	6,318	7,758	4,961	830	487	343
Smaller Communities	601	685	541	2,717	3,340	2,160	3,333	4,195	2,563	530	322	209
Unknown	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
Ethnicity												
Dene	745	822	670	4,188	5,228	3,161	5,029	6,456	3,621	744	476	268
Inuit	699	765	632	3,803	4,737	2,832	4,590	5,788	3,345	687	439	248
Non-Aboriginal/Metis	806	871	748	4,643	5,590	3,794	5,748	7,157	4,485	718	416	302
Location of Service												
In NWT	722	789	660	3,846	4,719	3,029	4,445	5,674	3,294	648	399	249
Outside NWT	168	196	143	567	661	480	960	1,109	820	75	37	37
Authority												
Beaufort-Delta	718	781	657	3,565	4,354	2,806	4,391	5,409	3,411	645	391	254
Deh Cho	662	718	614	3,236	3,825	2,774	3,795	4,607	3,091	572	322	249
Fort Smith	881	959	808	5,393	6,596	4,272	6,178	8,711	5,246	842	488	344
Hay River	853	902	806	5,104	5,977	4,283	6,207	7,447	5,042	836	481	355
Saktu	592	679	516	2,481	3,210	1,857	3,252	4,280	2,343	511	316	196
Tlcho	612	691	543	2,934	3,740	2,227	3,592	4,743	2,581	557	364	193
Yellowknife	840	909	774	5,062	6,163	4,009	6,161	7,771	4,621	780	477	303
Unknown	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
Disease and Conditions												
Infectious and Parasitic	77	89	67	123	137	111	147	161	134	14	16	12
Neoplasms	34	42	27	72	86	59	89	105	74	18	22	15
Endocrine, Nutritional, and Metabolic	70	76	64	154	162	147	161	169	154	20	22	18
Blood and Blood Forming Organs	11	15	7	18	25	12	20	26	13	3	4	2
Mental Disorders	106	124	90	293	338	250	315	356	276	41	47	36
Nervous System and Sense Organs	167	191	145	299	339	262	365	409	325	61	68	55
Circulatory System	80	80	79	194	181	207	225	203	245	33	28	37
Respiratory System	217	252	185	400	466	338	430	496	367	48	54	41
Digestive System	110	123	98	207	234	182	259	203	234	62	71	53
Genitourinary System	127	209	49	283	427	148	321	494	158	57	83	32
Childbirth and Pregnancy	na	na	na	na	435	na	na	613	na	na	117	na
Skin and Subcutaneous Tissue	112	126	100	185	201	170	197	213	181	20	22	18
Musculoskeletal System and Connective Tissue	168	190	148	350	404	299	364	422	310	49	57	42
Congenital Anomalies	10	12	9	18	19	16	22	23	20	4	5	4
Perinatal Period	8	10	5	15	22	9	19	27	11	5	5	2
Injury and Poisoning	166	158	172	278	260	294	317	317	353	52	46	58
Total Diagnosed¹	1,502	1,774	1,247	3,100	3,735	2,505	3,536	4,294	2,826	544	670	426
Supplements, Signs and Ill-Defined Conditions	225	262	190	414	492	341	465	551	385	61	73	50
Supplementary Classifications	414	513	321	1,000	1,339	682	1,194	1,677	742	102	142	65
Unknown	54	69	40	88	114	64	209	261	160	15	17	13

Sources: NWT Department of Health and Social Services, NWT Bureau of Statistics, and NWT Financial Management Board Secretariat.

1.0 Data

The health data: unique patients, encounters, claims come from a part of the Health outside the NWT. This subset of HMIS is referred to as Medicare data.

Financial data came from a combination of sources: NWT Department of Health and Social Services, Medicare data, and the GNWT Main Estimates. See section 2.4 for more detail on the methodology behind the estimation of physician service costs.

Population estimates used to create population-based rates came from the GNWT Bureau of Statistics.

This report contains time-sensitive information. The information in this report may be updated, amended, supplemented or otherwise altered by subsequent reports and presentations. There are two main reasons why the data may change: 1) data entry delays in administrative data; and/or 2) system changes to how the service events (data) are defined and recorded. All subsequent changes are expected to be minor and of no significance to the conclusions reached in this report.

Methodology

2.1 Age Groups

The age groups have been chosen because they provide natural cut-offs for different time periods in a person's life.

Children under the age of 1 are vulnerable and often require regular physician care for a number of conditions (e.g., colds and ear infections), as well as routine check-ups for tracking the infant's development.

As a child moves beyond its first year of life into the toddler and preschool years, its immune system becomes more resilient to diseases. The requirement for health system intervention reduces with every year of age.

As children enter the school years, they are less likely to require physician care – and when they do require care, the reasons change. For example, care for injuries rise in prominence – coming close to matching the previous dominant concerns (ear infections and colds).

As children become teenagers and then young adults, the utilization of physician services increases (primarily for women) and the reasons for using such services change. Reproductive concerns (childbirth and pregnancy) dominate the use of physician resources for women age 15 to 24, whereas for men, injuries dominate their use of resources.

As youth move into their adult years, utilization increases (for both sexes), and the reasons for utilizing physician resources change again. While reproductive related reasons still dominate, they do less so as women utilize physician resources more for conditions related to menstruation and infections of the genital and urinary tract areas.

Injuries still are the number one reason for men when it comes to the utilization of physician resources. However, digestive system and musculoskeletal system concerns begin to take up more resources.

Into the middle age years, utilization of physician resources increases further, while the reasons for seeking care spread out over a number of issues including stomach and intestinal issues, and eye issues.

Seniors have the highest utilization rates, suffering from similar problems – though in differing degrees of prominence - as adults in their forties and fifties.

2.2 Reasons for Physician Encounters

When reasons or causes of the utilization of physician resources are provided, the categories used come from the *International Classification of Diseases, 9th Revision* (ICD-9). There are 16 Classification (or Chapters) for ‘known’ or ‘suspected’ medical conditions that are relevant to this report (see below). Each one of these chapters contains several hundred codes, each of which provides a particular identification of the medical condition in question. Codes that make up the chapter are presented in sub-groupings, e.g., intestinal conditions, gallstones, gastritis, hernias and ulcers as sub-groupings of digestive diseases.

The following is a list of the ICD-9 chapters that are often in the top five, for most age groups, as reasons for physician resource utilization in the Northwest Territories:

1. Diseases of the digestive system (dental issues, intestinal conditions, gastritis, hernias);
2. Diseases of the nervous system and sense organs (ear and eye infections, vision problems, cataracts);
3. Injury and poisoning (fractures, sprains, bruises, cuts);
4. Diseases of the respiratory system (common cold, asthma, pneumonia, influenza);
5. Mental disorders (depression, alcohol and drug abuse/dependency/psychoses);
6. Diseases of the genitourinary system (urinary tract infections, kidney failure); and
7. Diseases of the musculoskeletal system and connective tissue (arthritis, back pain).

The following is a list of the ICD-9 chapters that occur in the top five on occasion:

1. Diseases of the circulatory system (heart attacks, strokes);
2. Complications of pregnancy, childbirth, pregnancy and the puerperium;
3. Diseases of the skin and subcutaneous tissue (eczema and impetigo);
4. Congenital anomalies; and
5. Conditions originating in the perinatal period.

The following is a list of the remaining ICD-9 chapters that do not occur in the top five:

1. Infectious and parasitic diseases;
2. Neoplasms;
3. Diseases of the blood and blood-forming organs; and
4. Endocrine, nutritional, and metabolic diseases, and immunity disorders.

Two other ICD-9 chapters are examined in each chapter:

1. Supplementary classifications of factors influencing health status and contact with health services; and
2. Symptoms, signs and ill-defined conditions.

2.3 Metrics

The main body of the report focuses on proportions. Numbers are presented to provide an indication of the magnitude of patient volume and cost.

Cost is the primary measure of physician service use, though data on visits, and other measures, are presented as an overview. Some conditions require greater attention and/or greater effort on the part of the physician, than do other conditions (i.e. an examination and prescription for an ear infection versus an operation following a heart attack). Thus, cost provides the best measure of the intensity of use of physician resources services than simple counts of encounters or services provided.

2.4 Expenditures

Where the cost of services is discussed, it must be noted that this is an estimate produced for the purposes of this report only and should not be quoted out of the context of this report.

The cost of physician services has been estimated for the purpose of showing the utilization of physician resources by a number of variables, including disease type and age group. The estimation is not meant to provide precise figures but rather a method that can rank order diseases by their magnitude in which they consume physician resources.

There are three types of claim data (see table below) relevant to financial information used in this report coming from two sources: the GNWT *Main Estimates* and the GNWT Department of Health Social Services *Medicare Datamart (Database)*.

Type of Physician Claim	Data Source
1 Out of territory (OOT)	Medicare Database
2 Fee-for-service (FFS)	Medicare Database
3 Salary	Main Estimates and Medicare Database

The financial information (fees paid) associated with the first two types of claim data (OOT and FFS physicians) are the actual payments for services rendered. The third type of claim – those recording the services provided by salaried physicians – is referred to as a shadow billing. Shadow billings are based on the same fee schedule as is used by NWT FFS physicians for their billings to the NWT Medicare system.

The fee schedule lists hundreds of potential services (consultations/procedures), each with a corresponding fee that generally reflects the varying degrees of time and complexity required by and from a physician to carry out a particular task. For example, for an average clinic visit the fee was \$39 in 2006/07 versus \$675 for a Caesarean section.

However, unlike fee-for-service physicians, who have their pay based on what types and how many services they provide, salaried physicians have their pay based on time worked, as well as physician type (generalist, specialty etc), regardless of how many services provided.

To estimate the cost of each service (claim) provided by salaried physicians in the NWT, their shadow billings, recorded in the Medicare database (MD), are totaled and then each particular billing becomes a proportion of that total. For example, if in one year the total salaried physician shadow billings amounted to \$10,000,000, then a claim amounting for \$100 would be equal to 0.001% of the total. This percentage is then applied to the total estimated cost of what is paid to salaried physicians for the same year. For example, if the total was \$15,000,000, then that previous \$100 claim becomes \$150 (i.e., \$15M/\$10M times \$100)

A simplified formula to pro-rate cost for a particular service (claim) provided by a salaried physician is as follows:

$$\left[\frac{\text{Total Estimated Salary Costs}}{\text{Total MD Salary Costs}} \right] \times \text{MD Claim Cost} = \text{Estimate of Salary Claim Cost}$$

The “total estimated salary cost” is calculated by taking the total amount of money estimated annually for the delivery of physician programs inside the NWT minus both fee-for service payments (Medicare database) and recoveries (Main Estimates) for services provided to 3rd parties (such as non-residents).²⁰

A simplified formula to calculate the total estimated salary cost is as follows:

$$\text{Total NWT Physician Costs} - \left[\text{Fee for Service Costs} + \text{3rd Party Recoveries} \right] = \text{Estimate of Total Salary Costs}$$

2.5 Population-Based Rates

With one exception, population-based rates are based on the total number of utilizing a service divided by the total number of people estimated for each population group (age group, gender, community type etc). The number is then multiplied by 1,000 and thus presented as cases per 1,000 (encounters or claims per 1,000 etc).

The one exception to the above is the rate methodology applied to infants (under 1 year of age). In calculating all rates, the utilization of the health care system (numerator) is based over a period of a year, whereas population estimates (denominator) are based on a point of time. For the numerator, during any given year, anytime a patient under the age of one year receives a physician service they are counted – for example, 1,199 unique patients in 2005/06. This means that during the year, one infant could receive a service one day before turning one year of age, and another infant, only a few days old, could receive a service on the last day of the fiscal year. For the denominator, the population under one is counted once at one point of time – for example, 698 in 2005 (representing one day of the year). Even though in the numerator the infants are only counted once each, their number is inflated when considered against a point in time population estimate. This is not a significant problem for wider age-groups – such as 25 to 44 years of age – nor is it a problem when age is removed, for example rates for the total population.

To solve this problem the solution used in this report is to assume that all infants saw a doctor once in their first year of life (excluding the normal delivery of a newborn). Thus, the number of unique counts of infants receiving services becomes denominator instead of the “point in time” population estimate of newborns.

²⁰ From the Main Estimates, the ‘actuals’ were used for 2002/03 to 2005/06, and revised estimates were used for 2006/07.

Given that it is possible that a few infants may never see a physician, it is important to realize that the utilization rates for infants are estimates specific to this report.

2.6 Communities with resident Physicians:

Yellowknife, Inuvik, Hay River and Fort Smith had resident physicians over the five-years covered by this report. The remaining communities were served by visiting physicians and/or residents traveling to larger centres for care.

2.7 Shadow billing's effect on claim detail:

Shadow billing is the term used to describe the recording of the services provided by a physician to their patients when the physician is paid a fixed amount for their time (i.e. an annual salary). In contrast, a fee-for-service (FFS) physician's pay is based on how many and what types of services they deliver (i.e. a fee amount particular to each type of service or procedure).

It is possible that the average shadow billing claim is not as detailed in comparison to the average FFS billing claim. Given that the FFS claims make up the pay of FFS physicians, one can assume that the FFS physician would be very motivated to itemize each service, and/or segment of service (time increments), provided to each patient. In contrast, one can also assume that the salaried physician would not be as motivated to itemize the services they provided, since they are paid roughly the same each day no matter how many patients they see or how many services they provide.

Most physicians practicing in the NWT (at the time of publication and over the course of this study) are paid by way of a salary, and thus most claim information is based on shadow billing.

It is possible that claim detail has suffered as a result of shadow billing. However, this report is not focused on detailing the services or procedures provided by physicians. Rather, this report is focused on detailing the conditions (diseases or injuries) that required patients to seek out physician care. In a claim (shadow billed or FFS), the recording of a condition is separate from the recording of the service or procedure, and is therefore not connected to the pay of any physician.

The report does provide a summary quantification of services (claims) in Appendix B, and in each chapter, as supplemental information to the report's main body. This report is focused on proportions (i.e. 10% versus 5%) more so than absolute numbers (i.e. 500 versus 250). It is not concerned with trends, nor is it a workload analysis, where the effects of shadow billing may end up skewing results.

2.8 Exclusions:

Claims where age, sex, or ethnicity was missing from the record were excluded. These records represent a small amount of data (under 1%). However, they were included in the determination of cost estimates.

Claims entered into the system for the purpose of adjusting previous claims (claim fee amounts) have been excluded in all claim counts. These claims have been included in the cost estimate calculations.

Claims for newborns have been excluded, though all claims associated with aftercare of infants are included. The focus of this report is primarily on the morbidity determining the use of physician services, and as such one's birth is not a disease. Between 2002/03 and 2006/07, almost all babies were born in a hospital and the physician cost associated with their delivery was approximately \$88,000 per annum.

Non-resident and other 3rd party claims (Workers Compensation Board claims and some Federal Government employees) have been excluded.

2.9 Further information:

For further information on data, methodology, or any other aspect of this report, please contact the Policy, Planning and Evaluation Division of the NWT Department of Health and Social Services (867-920-3361).