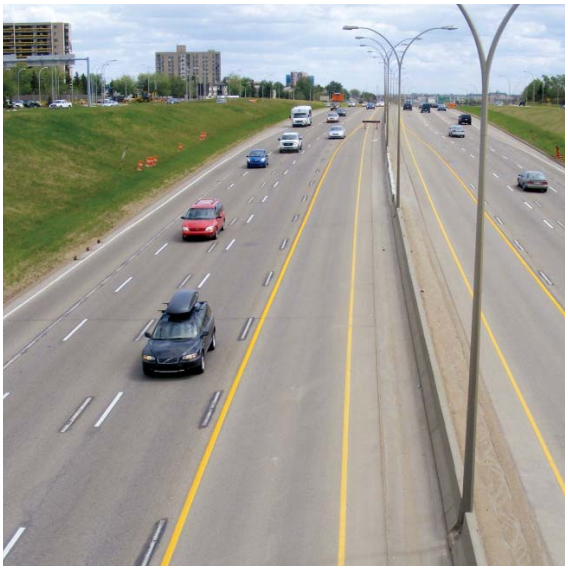
Capital Health
EDMONTON AREA

How healthy are we? 2007









ANNUAL REPORT OF THE MEDICAL OFFICER OF HEALTH

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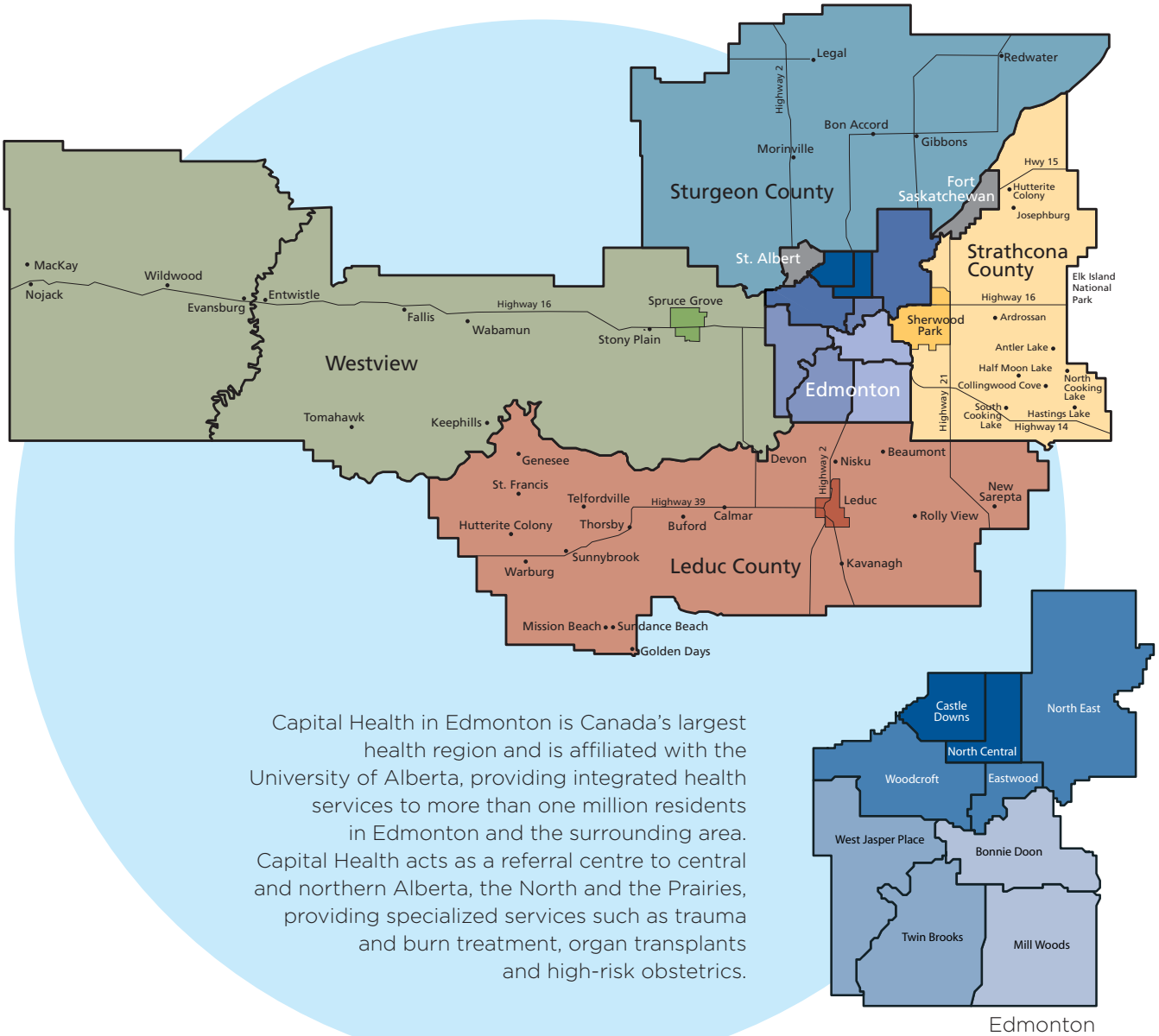
Population for the Capital Health region, 2007

Age Group	Females	Males	Total
< 1	6,725	6,888	13,613
1-4	24,532	25,907	50,439
5-9	29,977	31,655	61,632
10-14	33,104	34,897	68,001
15-19	36,448	37,958	74,406
20-44	198,859	197,129	395,988
45-64	138,832	139,428	278,260
65-74	32,981	30,424	63,405
75+	33,384	21,981	55,365
Total	*534,842*	*526,267*	*1,061,109*



Edmonton

Capital Health in Edmonton is Canada's largest health region and is affiliated with the University of Alberta, providing integrated health services to more than one million residents in Edmonton and the surrounding area. Capital Health acts as a referral centre to central and northern Alberta, the North and the Prairies, providing specialized services such as trauma and burn treatment, organ transplants and high-risk obstetrics.

Capital Health
EDMONTON AREA

A word from the Medical Officer of Health

What is a Medical Officer of Health? Unlike most physicians, who are responsible solely for the health of their patients, a Medical Officer of Health is responsible for the health of whole populations – the public's health. As the Medical Officer of Health for the Capital Health region, I oversee a wide range of programs and services that protect and promote the public's health. Many of these activities take place behind the scenes, where we work to ensure safe drinking water, clean air, safe housing and clean restaurants. Others take place in public health centres, schools, community centres and private homes where we screen for health problems, distribute vaccines and provide health information. This is the day-to-day work of public health but new challenges are always on the horizon. Here are just a few to which we are responding:

- Alberta's fast growing population has created significant public health issues, including homelessness and the need for affordable housing. Our staff is involved in finding solutions to homelessness with our community partners, and was instrumental in providing safe drinking water and sanitation facilities for Edmonton's "tent city" in the summer of 2007.
- In recent years, we established the Office of Emergency Preparedness (OEP) to make sure we are ready in the event of a pandemic or other major public health emergency. The OEP conducts ongoing exercises and simulations to test the region's readiness, including the trial run of off-site pandemic triage centres during last year's influenza season.
- Recent increases in syphilis and mumps speak both to the importance of surveillance and the need to be vigilant when it comes to the health of the public. We are now participating in province-wide campaigns to control the spread of these communicable diseases that many people thought were a thing of the past. We continue to enhance our surveillance systems to provide real time information on disease outbreaks. Our ability to respond quickly to local outbreaks – or a global pandemic – depends on an effective early warning system.
- Other ways in which we are meeting new challenges include public access to restaurant inspection information that individuals can access online. Starting in July 2008, we will also be involved in developing a provincial safe water drinking system and an Alberta Capital Airshed Alliance to monitor and address local air quality issues.

How healthy are we? The Annual Report of the Medical Officer of Health is our report to you on the health of our population and some of the key trends and factors that impact our health. New this year, we have presented health data by age group – babies, children and youth, adults and seniors – and have answered three questions for each group: Why do they go to the emergency department? Why do they go

to hospital? And why do they die? We have provided health and census information in table format by the 15 public health service areas that comprise the Capital Health region. Additional data are available for the public health service areas in the document *Capital Health Quick Facts, 2008*. And a new report, *Perinatal Health Status in the Capital Health Region, 2008*, has been created to provide additional information on pregnancies and births in the region. Both documents are available on the Capital Health website.

Finally, we have also included a detailed section on the health implications of urban sprawl – a phenomenon that has characterized much of the growth in the region over the last several decades. The decisions we make today will not only affect our own health but will continue to be felt by populations 50 years from now. We need to make the right decisions and I hope that this report will help decision makers in this process.

Dr. Gerry Predy
Vice President, Public Health
Medical Officer of Health
Capital Health, Alberta

A word about the data.....

Capital Health region residents

The data used in this report are for people living in the Capital Health region. It excludes those people who may have received service in the region but reside outside the region. For example, there are many women who have their babies in the Capital Health region but do not live in the region – these babies are not included in this report.

Public Health Service Areas (PHS areas)

The PHS areas for the Capital Health region are shown on the map on the inside front cover. Data are provided by the 15 areas where possible.

Hospitalizations

The term hospitalization is used to mean hospital discharge as opposed to hospital admission. This is important when hospitalizations are compared across calendar years. For example, a person admitted to hospital in 2000 and discharged in 2001 will be counted among hospitalizations for 2001.

Rates and Confidence Intervals

Rates (e.g. death rate, birth rate) are calculated for PHS areas as well as for the region as a whole. On the charts that show rates for each PHS area, the black dot represents the rate while the shaded areas surrounding the dot display the confidence interval. The confidence interval, calculated by multiplying 1.96 times the standard error, shows that there is a 95% chance that the "true" rate will fall within the shaded area surrounding the dot.

Public health service area regions

R601 St. Albert
R602 Castle Downs
R603 Woodcroft
R604 Eastwood
R605 North Central
R606 North East
R607 West Jasper Place
R608 Twin Brooks
R609 Bonnie Doon
R610 Mill Woods
R611 Strathcona County
R612 Leduc County
R613 Westview
R614 Sturgeon County
R615 Fort Saskatchewan

Table 1: Health Statistics by Public Health Service Area, 2006

	Region	*R601*	*R602*	*R603*	*R604*	*R605*	*R606*	*R607*	*R608*	*R609*	*R610*	*R611*	*R612*	*R613*	*R614*	*R615*
Number of live births	13,116	591	776	840	733	909	1,127	1,375	1,383	866	1,563	887	516	959	426	162
Number of deaths	6,197	280	225	611	565	525	415	620	522	721	397	370	224	395	149	84
Population	1,028,734	56,932	47,175	80,030	60,877	70,199	75,377	105,047	97,580	86,664	104,773	82,225	41,989	73,632	31,233	15,001
Crude birth rate (# live births per 1,000)	12.7	10.4	16.4	10.5	12.0	12.9	15.0	13.1	14.2	10.0	14.9	10.8	12.3	13.0	13.6	10.8
General fertility rate (# live births per 1,000 females 15-49 years of age)	48.1	40.1	58.2	39.6	47.1	51.4	54.3	48.8	53.3	38.0	53.0	41.6	48.2	51.5	50.7	41.7
Teen birth rate (# live births per 1,000 females 15-19 years of age)	17.2	4.5	20.4	33.2	41.5	22.5	30.6	16.0	7.7	15.9	13.8	4.9	11.0	20.5	13.9	15.2
% Live births to women 35 years of age and older	16.1	22.3	14.3	17.1	14.2	15.4	11.1	16.8	21.3	23.1	13.8	18.2	12.6	12.3	12.0	11.7
High birth weight (% live births >3,999 grams)	10.7	11.3	12.1	11.5	10.8	9.8	9.6	9.1	8.5	11.4	10.7	13.4	12.8	10.8	10.3	16.7
Preterm birth (% live births < 37 weeks)	9.1	8.8	7.5	10.5	14.1	9.0	10.1	8.2	8.9	8.8	8.9	8.5	10.3	8.4	7.7	6.2
Infant mortality rate (# deaths to babies less than 1 year of age per 1,000 live births)	6.4	4.8	3.7	6.8	9.7	5.7	6.3	5.2	3.4	8.0	6.6	4.1	3.8	7.3	5.8	3.6
Life expectancy for females (years)	82.7	84.4	84.2	81.7	80.1	82.2	81.9	83.0	84.3	83.0	82.8	83.3	84.4	82.4	81.7	82.5
Life expectancy for males (years)	77.9	79.1	78.2	76.3	72.3	77.5	76.3	79.0	80.7	77.5	78.9	79.8	80.0	77.5	76.8	78.6
Hospitalization rate (per 1,000)	63.5	58.7	59.2	66.9	84.7	60.6	66.1	58.1	52.1	59.2	58.9	57.2	76.8	65.6	80.0	84.2
Emergency department visit rate (per 1,000)	397.8	406.9	348.8	361.7	499.8	409.8	477.5	333.5	237.4	290.7	327.1	224.3	637.1	641.6	596.3	791.2
All cause mortality rate (per 100,000)	606.1	571.6	554.7	658.2	763.9	627.1	672.2	586.0	530.4	573.8	592.6	573.2	553.1	631.0	641.2	641.8
Ischemic heart disease death rate (per 100,000)	116.5	115.6	118.1	124.1	164.0	123.4	134.2	107.8	99.6	106.9	113.2	105.2	114.9	112.0	133.1	128.7
All heart disease death rate (per 100,000)	145.0	145.6	149.4	152.5	190.63	150.7	170.8	134.8	122.8	136.1	140.4	130.0	139.4	151.3	165.8	186.8
Stroke death rate (per 100,000)	42.4	43.9	31.6	42.3	36.2	50.3	36.1	45.0	45.6	38.6	48.74	49.0	27.8	41.2	48.5	61.2
Cancer death rate (per 100,000)	175.2	180.2	167.4	200.5	201.2	174.2	207.5	168.6	145.1	165.4	149.5	175.1	163.1	180.5	187.9	194.3
Suicide death rate (per 100,000)	13.5	V	V	19.7	24.0	12.6	17.1	12.4	10.3	14.6	10.1	V	V	16.0	V	V
Unintentional injury death rate (per 100,000)	22.4	17.8	V	21.0	34.8	20.3	23.0	19.0	16.7	22.0	16.0	22.2	25.6	33.7	V	V

Note 1: The regional totals for births and deaths are not necessarily the sum of the public health service areas due to events that cannot be geocoded to a public health service area but occur in the region.
Note 2: Death rates are age standardized to the 1996 Canadian population except for the infant mortality rate (IMR).
Note 3: Death rates, including the IMR, for 2006 reflect the years 2002-2006 combined.
Note 4: Life expectancy for 2006 reflects the years 2004-2006 combined.
Note 5: The hospitalization rate does not include obstetric/pregnancy related hospitalizations.
Note 6: V indicates that the estimate is suppressed due to high variability.
Sources: (1) Vital Statistics (Birth and Death data), 2002-2006. (2) Health Utilization Data 2006, Clinical Accountability and Reporting Department, Operational Policy and Integration Division, Capital Health. (3) Population data values are for June 30, 2006 and are interpolated using actual population values from the Alberta Health Care Insurance Plan (AHCIP) Registration File as of March 31, 2006 and 2007.

Table 2: Federal Census Data by Public Health Service Area, 2006

	Region	*R601*	*R602*	*R603*	*R604*	*R605*	*R606*	*R607*	*R608*	*R609*	*R610*	*R611*	*R612*	*R613*	*R614*	*R615*
% 65+ who live alone	27.9	24.3	18.7	45.4	43.2	25.6	22.3	27.0	22.5	33.9	15.5	20.3	28.1	21.1	18.0	34.2
% Lone parent families	16.0	12.4	16.2	21.4	24.5	19.2	22.6	17.3	12.0	17.0	17.2	10.3	11.7	11.7	11.4	14.3
% Aboriginal	5.0	2.8	4.3	8.3	9.7	5.8	7.1	5.0	2.2	3.9	3.6	2.7	3.0	7.0	7.5	3.0
% Visible minorities	17.1	4.3	30.3	14.9	24.1	27.8	20.1	18.6	26.8	10.9	33.9	4.4	2.7	2.1	2.0	2.2
Median income of census families	$78,424	$100,540	$77,268	$61,942	$52,241	$68,132	$66,463	$76,945	$91,725	$69,964	$76,657	$98,670	$83,764	$82,610	$81,994	$91,980
Average income of census families	$91,780	$113,503	$82,061	$75,779	$64,434	$77,015	$73,347	$95,649	$114,788	$87,963	$83,122	$114,762	$89,765	$93,786	$94,234	$98,096
Female lone parent families average income[1]	$46,241	$59,107	$46,290	$44,215	$40,285	$45,226	$39,280	$48,080	$49,577	$52,248	$45,138	$55,252	$45,391	$42,269	$42,598	$55,249
Male lone parent families average income[1]	$65,425	$83,372	$76,012	$51,267	*	$68,248	$58,858	$65,098	$83,068	$47,984	$68,257	$77,623	$58,826	$40,674	*	$67,670
% Less than Grade 9 education	21.6	15.6	22.9	22.8	27.9	31.1	27.4	20.1	13.5	16.3	21.8	17.8	25.4	25.5	25.6	19.7
% Bachelor's degree or higher	18.1	20.8	13.4	19.0	16.9	8.7	9.3	20.1	34.5	30.1	15.7	17.8	9.3	9.9	7.0	10.2
Knowledge of official Language																
% English (language spoken)	96.3	96.8	96.3	96.3	93.0	94.9	96.2	96.9	96.2	95.8	95.6	98.1	97.1	98.3	96.0	97.9
% French (language spoken)	2.0	2.8	1.5	2.1	2.2	1.7	1.7	1.6	1.7	3.1	1.3	1.5	2.9	1.3	3.9	2.0
% English and French (language spoken)	0.3	0.1	0.2	0.3	0.6	0.3	0.4	0.3	0.6	0.3	0.5	0.1	0.1	0.0	0.0	0.0
% Neither English or French (language spoken)	1.3	0.1	1.9	1.2	4.1	3.0	1.5	1.2	1.5	0.6	2.5	0.2	0.0	0.2	0.0	0.2

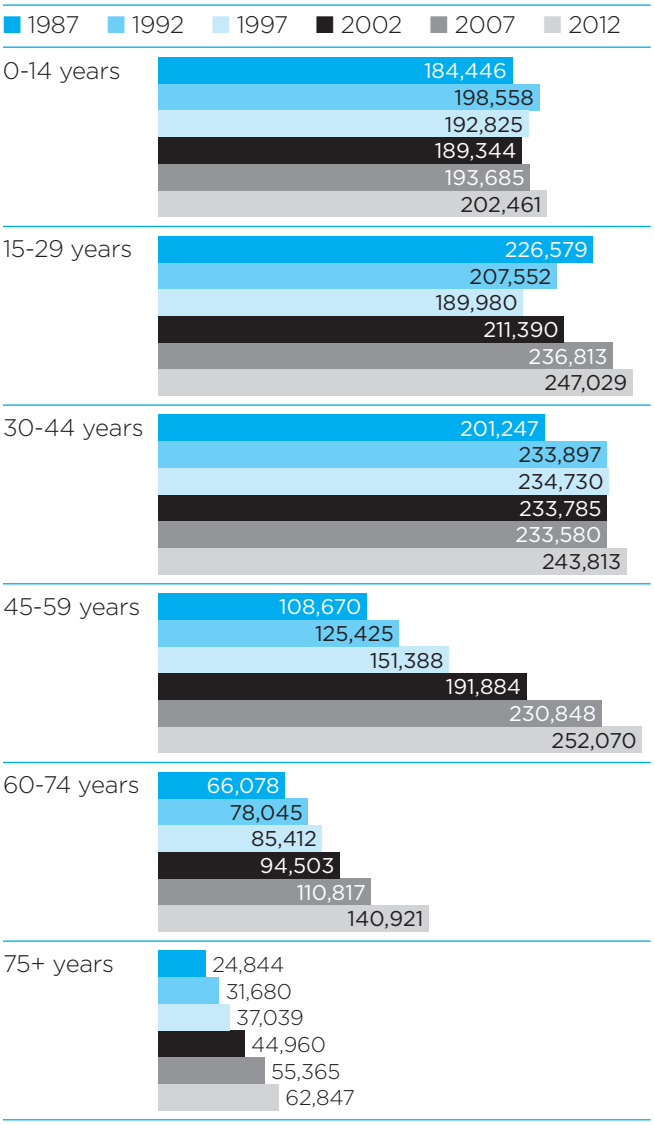
Note: The % less than Grade 9 education and % Bachelor's degree or higher reflect respondents who are 15 years of age and older.
* There were insufficient numbers of male lone parent families to calculate the average income.

Source: Federal Census data, calculated using PCensus software from TETRAD Computer Applications Inc., Vancouver, BC



Population

Figure 1: Changing age structure of the population, Capital Health region, 1987-2012



Source: Population data values are for June 30. Values up to March 31, 2007 are interpolations of actual population values from the Alberta Health Care Insurance Plan (AHCIP) Registration File as of March 31 for each year. Forecast values for points in time after March 31, 2007 are estimated using the March 31, 2007 AHCIP Registration File values and year-over-year population growth values provided by the Health Surveillance Branch of Alberta Health and Wellness.

The age structure of the residents living in the Capital Health region has changed over the last 20 years and is expected to continue changing (Figure 1). In 1987, there were 184,446 children aged 0-14 years living in the region and in 2007, the number was 193,685, a 5% increase over 20 years. At the other end of the age spectrum, there were 24,844 seniors aged 75 years and older living in the region in 1987. By 2007, there were 55,365 seniors representing a 122% increase.

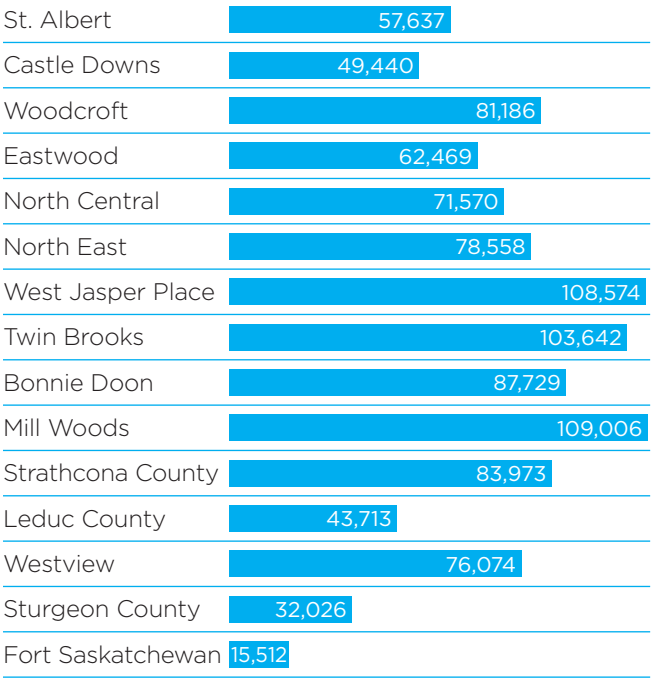
In terms of percentages, children aged 0-14 years made up about one quarter of the region's population in 1987 (22.7%). This percentage decreased to 18.3% in 2007 and is forecasted to decrease to 17.6% in 2012 (n=202,461).

Seniors aged 75 years and older made up 3.1% of the population in 1987 whereas in 2007, this age group accounted for 5.2% of the population. In 2012, it is estimated that seniors aged 75 years and older living in the Capital Health region will account for 5.5% of the population.

The population in the Capital Health region in 2007 was 1,061,109, an increase of about 32,000 from 2006. (The increase from 2005 to 2006 was about 19,000). The average age in the region, in 2007, was 36.8 years; down slightly from 2006 in which it was 37.2 years.

The three largest public health service areas, in terms of population, are West Jasper Place, Mill Woods, and Twin Brooks. The smallest one is Fort Saskatchewan with 15,512 people (Figure 2).

Figure 2: Population for public health service areas, Capital Health region, 2007



Source: Population data values are for June 30 and are estimated using actual population values from the Alberta Health Care Insurance Plan (AHCIP) Registration File as of March 31, 2007 and forecast percent population growth from June 2006 and June 2007 from the Health Surveillance Branch of Alberta Health and Wellness.

The public health service areas within the Capital Health region vary in the proportion of older and younger aged residents.

In terms of percentages (Table 3),

- Castle Downs and Mill Woods have the highest percentage of preschoolers.
- Westview and Sturgeon County have the highest percentage of school-aged children and youth.
- Eastwood has the highest percentage of adults 18-64 years of age.
- North Central has the highest percentage of young seniors (65-74 years of age).
- Bonnie Doon and Woodcroft have the highest percentage of seniors aged 75 years and older.

In terms of numbers (Table 4),

- Mill Woods has the highest number of preschoolers, school-aged children and youth, and adults (18-64 years).
- Twin Brooks and West Jasper Place have the highest number of seniors 65-74 years of age.
- Bonnie Doon has the highest number of seniors aged 75 years of age and older.

Table 3: Percentage of population in selected age groups, Capital Health region, 2007

PHS Area	*<5 years*	*5-17 years*	*18-64 years*	*65-74 years*	*75+ years*
St. Albert	5.6%	18.1%	66.2%	5.9%	4.3%
Castle Downs	**7.6%**	18.0%	65.8%	5.2%	3.4%
Woodcroft	4.7%	11.1%	69.5%	6.5%	**8.1%**
Eastwood	4.9%	11.9%	**71.3%**	5.6%	6.2%
North Central	6.2%	17.5%	61.5%	**7.9%**	6.9%
North East	6.8%	17.7%	66.3%	5.6%	3.6%
West Jasper Place	6.0%	16.0%	65.7%	6.2%	6.1%
Twin Brooks	6.3%	15.9%	65.6%	6.6%	5.6%
Bonnie Doon	4.3%	11.4%	68.1%	7.0%	**9.2%**
Mill Woods	**7.3%**	18.4%	67.5%	4.0%	2.8%
Strathcona County	5.9%	18.5%	66.5%	5.7%	3.4%
Leduc County	6.2%	18.3%	65.4%	5.6%	4.5%
Westview	6.5%	**19.0%**	64.5%	6.1%	3.9%
Sturgeon County	6.6%	**21.5%**	63.6%	5.0%	3.3%
Fort Saskatchewan	5.8%	18.0%	65.9%	5.6%	4.7%
Capital Health region	*6.0%*	*16.4%*	*66.4%*	*6.0%*	*5.2%*

Source: Population data values are for June 30 and are estimated using actual population values from the Alberta Health Care Insurance Plan (AHCIP) Registration File as of March 31, 2007 and forecast percent population growth from June 2006 and June 2007 from the Health Surveillance Branch of Alberta Health and Wellness.
Note: The sum of the percentages across the age groups for each public health service area may not add up to 100% due to rounding.

Table 4: Population in selected age groups, Capital Health region, 2007

PHS Area	*<5 years*	*5-17 years*	*18-64 years*	*65-74 years*	*75+ years*
St. Albert	3,228	10,431	38,133	3,379	2,466
Castle Downs	3,747	8,917	32,552	2,555	1,670
Woodcroft	3,856	9,050	56,412	5,312	6,556
Eastwood	3,070	7,441	44,561	3,522	3,875
North Central	4,432	12,554	44,024	5,638	4,923
North East	5,323	13,873	52,089	4,423	2,849
West Jasper Place	6,470	17,404	71,349	**6,757**	6,594
Twin Brooks	6,506	16,514	67,980	**6,837**	5,804
Bonnie Doon	3,804	9,964	59,776	6,141	**8,044**
Mill Woods	**7,931**	**20,026**	**73,546**	4,407	3,096
Strathcona County	4,992	15,515	55,823	4,821	2,823
Leduc County	2,725	7,986	28,586	2,466	1,950
Westview	4,947	14,486	49,042	4,669	2,930
Sturgeon County	2,118	6,875	20,361	1,614	1,058
Fort Saskatchewan	905	2,789	10,225	865	727
Capital Health region	*64,052*	*173,826*	*704,461*	*63,405*	*55,365*

Source: Population data values are for June 30 and are estimated using actual population values from the Alberta Health Care Insurance Plan (AHCIP) Registration File as of March 31, 2007 and forecast percent population growth from June 2006 and June 2007 from the Health Surveillance Branch of Alberta Health and Wellness.
Note: The sum of numbers across public health service areas for each age group may not add up to the Capital Health total due to rounding.

Health through the ages

The health of Capital Health region residents is presented using four age groups: babies, children and youth, adults, and seniors. It is recognized that health is far more than health care utilization and vital statistics data (births and deaths). However, this report is based on five types of available information including: population, births, deaths, hospitalizations, and visits to the emergency department. For each age group, this information is presented with a focus on public health service areas where relevant and appropriate.

Highlights on health through the ages...

Babies

- There was an 8.4% increase in the number of live births from 2005 to 2006.
- Over the last few years, there has been a slight increase in the general fertility rate although it has not yet reached the 1986 rate of 61.6 per 1,000.
- There are fewer mothers smoking during pregnancy now than five years ago. However, some public health service areas have maternal prenatal smoking rates between 25-30%.
- Half of the babies (children less than 1 year old) living in the Capital Health region visited the emergency department at least once in 2006.
- Respiratory disease was the most common reason for visiting the emergency department.
- Almost 90% of mothers breastfeed their baby in the first week after birth. This percentage drops to 56% by 6 months.

Children and Youth

- In 2007, there were 268,091 children and youth (0-19 years) living in the Capital Health region with Mill Woods having the highest number (31,202).
- For every 1,000 children 1-4 years old, 323 visited the emergency department at least once in 2006 and 24 of every 1,000 children were hospitalized.
- Unintentional injury was the number one reason for children and youth (5-19 years old) to visit the emergency department.
- For every 1,000 female teens aged 15-19 years, there were 16 babies born.
- The death rate for males aged 15-19 years was triple the rate for females with injury accounting for 70% of the deaths for male youth.

Adults and Seniors

- The seniors population (75 years of age and older) has increased by 122% over the last 20 years.
- Unintentional injury was the leading reason for visiting the emergency department for males and females 65-74 years of age.
- The most common reason adults aged 20-44 years were hospitalized in 2006 was mental disorders (for males) and digestive disease (for females).
- Injury, including intentional, unintentional, and undetermined intent, was the leading cause of death for both males and females 20-44 years old.
- Cancer caused almost half of the deaths for female seniors aged 65-74 years but only about 20% of the deaths in the older age group, 75 years of age and older.



Health through the ages:

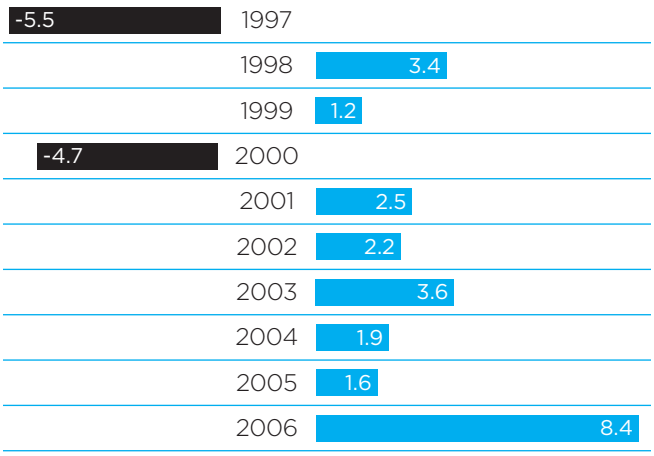
Babies

Between 1992 and 1997, the number of live births decreased from year to year in the Capital Health region. Since 2001, the percentage change has been positive with a dramatic increase in the number of babies born in 2006 to women living in the Capital Health region (Figure 3). In 2006, the number of live births to women living in the Capital Health region was 13,116. Mill Woods had the highest number of live births (n=1,563) and Fort Saskatchewan had the fewest (n=162) (Figure 4).

The general fertility rate (GFR) is the number of live births per 1,000 women between the ages of 15 and 49 years in a given year. In the Capital Health region, the GFR consistently declined from the mid 1980s until the late nineties after which the rate slowly started to increase (Figure 5). In 2006, the GFR was 48.1 but it will be a few more years before the data show whether the increasing GFR is a trend. Of interest is that while the GFR is currently increasing, it is still well below the rates observed in the late eighties.

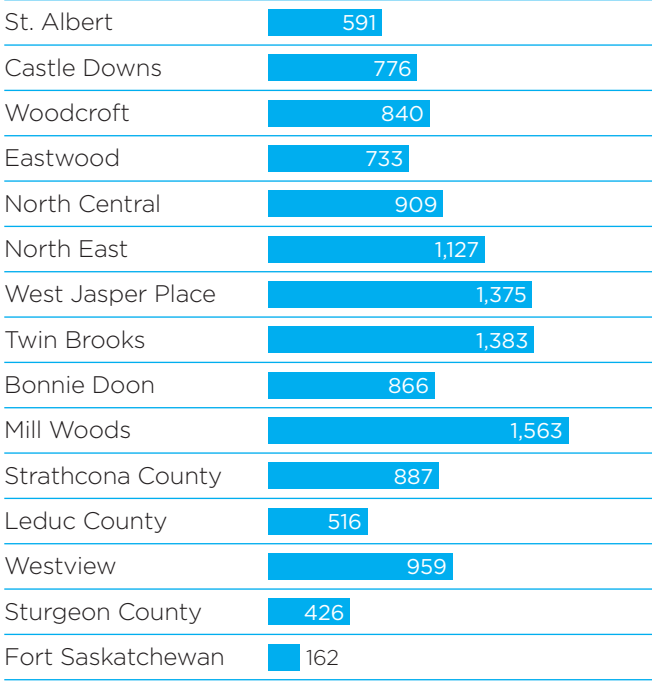
The GFR varies within the region (2004 to 2006 data combined) (Figure 6). Public health service areas with significantly higher rates than the region include: Castle Downs, North East, Twin Brooks, Mill Woods, and Westview. Rates that are significantly lower than the regional rate are found in St. Albert, Woodcroft, Eastwood, Bonnie Doon and Strathcona County.

Figure 3: Percentage change from one year to the next in the number of live births, Capital Health region, 1997-2006



Source: Vital Statistics (Birth Data) 1997-2006.

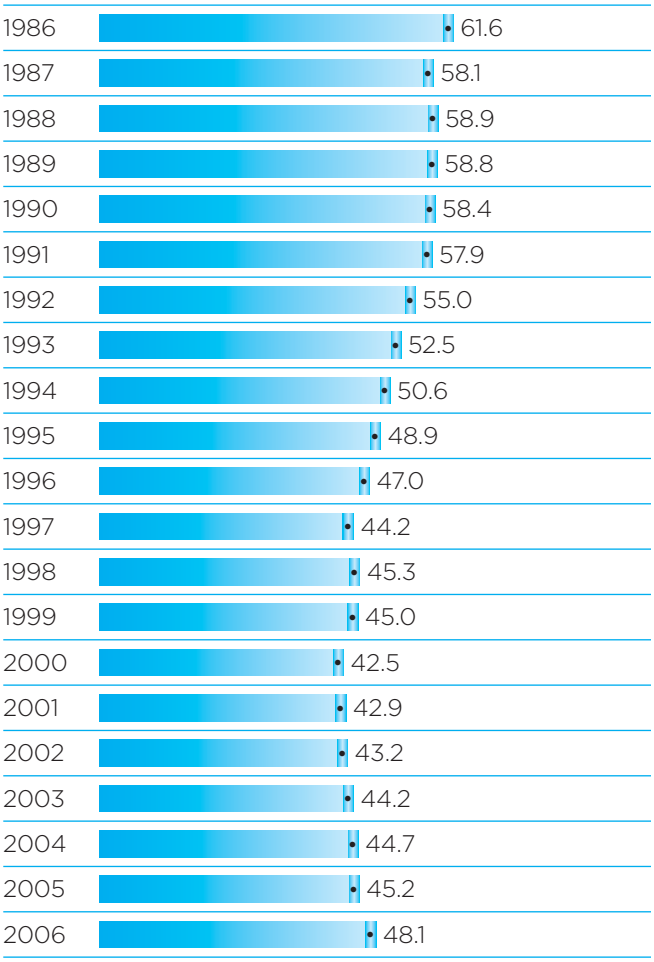
Figure 4: Number of live births, Capital Health region residents, 2006



Source: Vital Statistics (Birth Data) 2006.

Figure 5: General fertility rate, Capital Health region, 1986-2006

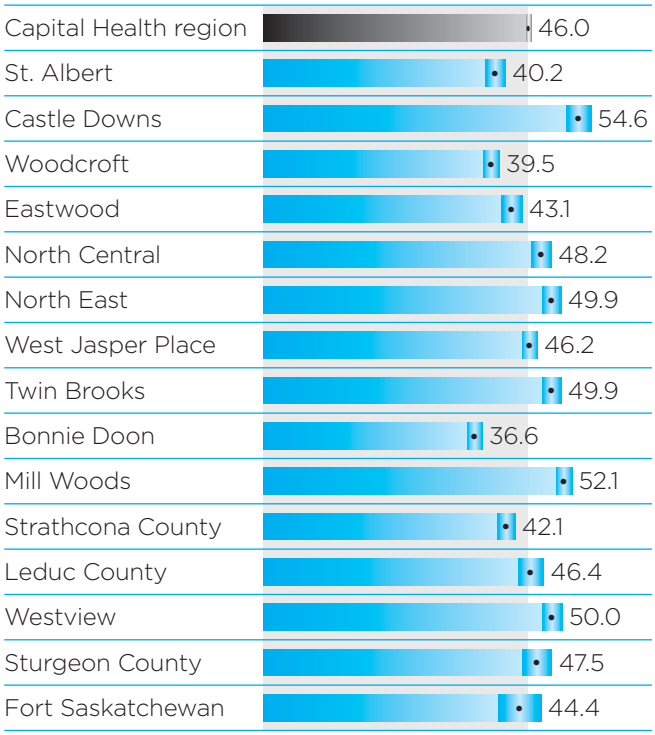
Number of births per 1,000 women 15-49 years of age



Sources: (1) Vital Statistics (Birth Data) 1986-2006. (2) Population data values are for June 30. Values up to March 31, 2007 are interpolations of actual population values from the Alberta Health Care Insurance Plan (AHCIP) Registration File as of March 31 for each year. Forecast values for points in time after March 31, 2007 are estimated using the March 31, 2007 AHCIP Registration File values and year-over-year population growth values provided by the Health Surveillance Branch of Alberta Health and Wellness.

Figure 6: General fertility rate by PHS area, Capital Health region, 2004-2006 combined

Number of births per 1,000 women 15-49 years of age



Sources: (1) Vital Statistics (Birth Data) 2004-2006. (2) Population data values are for June 30. Values up to March 31, 2007 are interpolations of actual population values from the Alberta Health Care Insurance Plan (AHCIP) Registration File as of March 31 for each year. Forecast values for points in time after March 31, 2007 are estimated using the March 31, 2007 AHCIP Registration File values and year-over-year population growth values provided by the Health Surveillance Branch of Alberta Health and Wellness.

There are a number of birth outcomes that are important to look at when assessing the health status of babies in the region including preterm birth (babies born earlier than 37 weeks) and small-for-gestational age (babies who have a birth weight below the 10th percentile of appropriate weight for gestational age babies).

Small-for-Gestational Age (SGA)/ Preterm Births (PTB)

These babies have the double disadvantage of being born too early, earlier than 37 weeks, as well as the possibility of being growth restricted in utero, resulting in a high likelihood of infant disease and death.

For the combined years 2002 to 2006, there were 400 singleton babies born (as opposed to a multiple birth like twins or triplets) who were both small-for-gestational age and preterm accounting for 8.8% of all singleton, preterm babies; and less than 1% of all singleton, live births (Figure 7). In Alberta, there were 311 singleton, SGA/Preterm babies born in 2005 representing 10.2% of all singleton, preterm births; and less than 1% of all singleton live births.

Non-modifiable predictors of SGA/Preterm babies are:[1]

- induced labour
- congenital anomalies
- cesarean section
- previous maternal history of infant death.

Modifiable predictors of SGA/Preterm babies are[1]:

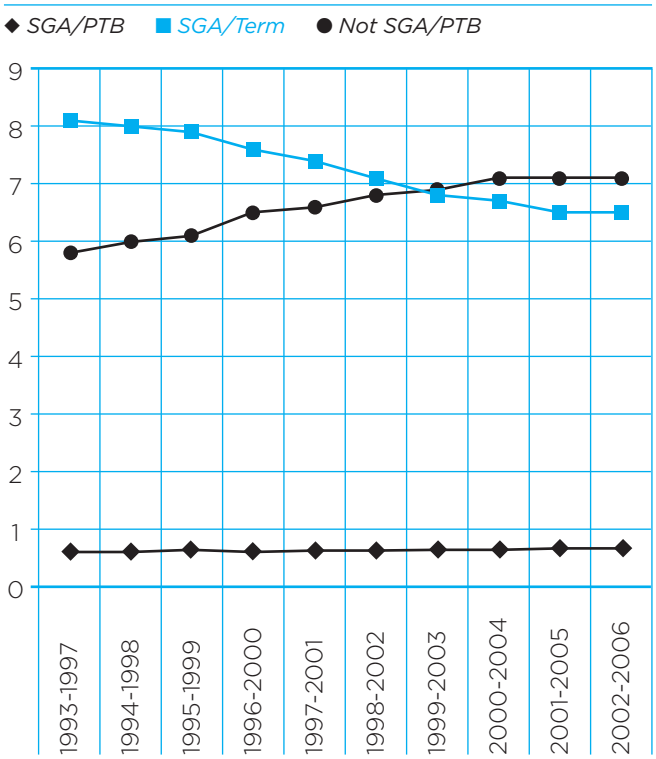
- maternal prenatal smoking
- maternal age of 35 years and older

In addition, women who attended prenatal classes were less likely to have a SGA/Preterm baby.[1]

1 Twilley, L. & Wang, F-L. (2007). Predictors of Preterm and Small-for-Gestational-Age in Alberta. Edmonton, AB: Alberta Health and Wellness.

Figure 7: Small-for-gestational age and preterm birth, Capital Health region, 1993-97 to 2002-06

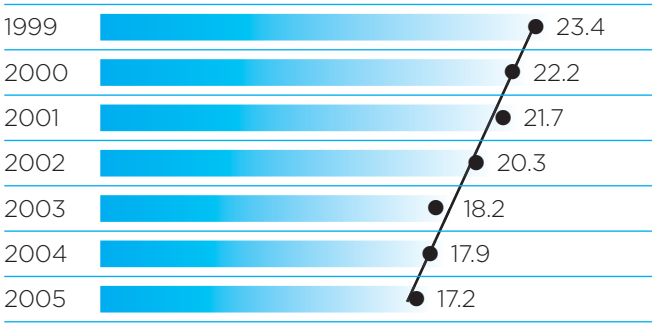
Rate per 100 singleton live births



Sources: Vital Statistics (Birth Data) 1993-2006.

Figure 8: Maternal prenatal smoking rate, Capital Health region, 1999-2005

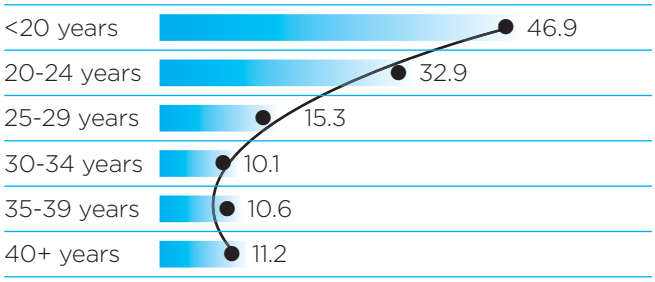
Rate per 100 singleton live births



Source: Alberta Perinatal Health Program, Provincial Data Repository

Figure 9: Maternal prenatal smoking rate by age group, Capital Health region, 1999-2005 combined

Rate per 100 singleton live births



Source: Alberta Perinatal Health Program, Provincial Data Repository

Small-for-Gestational Age (SGA)/ Term Births

These babies are likely growth restricted in utero but are not born earlier than 37 weeks. For the five year period between 2002 and 2006, there were 3,802 singleton SGA/Term babies born in the Capital Health region, representing 7.1% of all singleton, term births and 6.5% of all singleton live births. There is a decreasing trend in the rate of SGA/Term births in the region (Figure 7). In Alberta, 7.7% of all singleton, term births are small-for-gestational age and 7.1% of all singleton live births are SGA.

Not Small-for-Gestational Age (SGA)/Preterm Births (PTB)

While these babies are not small-for-gestational age, they are born earlier than 37 weeks gestation. For the five year period between 2002 and 2006, there were 4,125 singleton Not SGA/PTB babies born in the Capital Health region representing 91.2% of all singleton, preterm births and 7.1% of all singleton live births. Over the years, this rate has shown a slight increase (Figure 7).

In a recent report,[1] preterm delivery was associated with maternal pre-existing medical conditions, past history of preterm birth, SGA birth, or neonatal death, and pregnancy complications. Modifiable factors associated with preterm birth accounted for only 11% of the overall preterm birth risk and included maternal age of 35 years of age and older, maternal prenatal smoking and street drug use.

Prenatal Smoking

One of the modifiable risk factors for SGA/Preterm babies is maternal prenatal smoking. Since 1999, the percentage of women who reported smoking during pregnancy decreased from 23.4% in 1999 to 17.2% in 2005 (Figure 8). While this is a promising trend for the region, there are substantial differences in the maternal prenatal smoking rate between public health service areas and between maternal age groups.

The maternal smoking rate was much higher in the younger age groups than the older age groups (Figure 9). Almost half of the pregnant,

1 Twilley, L. & Wang, F-L. (2007). Predictors of Preterm and Small-for-Gestational-Age in Alberta. Edmonton, AB: Alberta Health and Wellness.

Figure 10: Maternal prenatal smoking rate by PHS area, Capital Health region, 2003-2005 combined

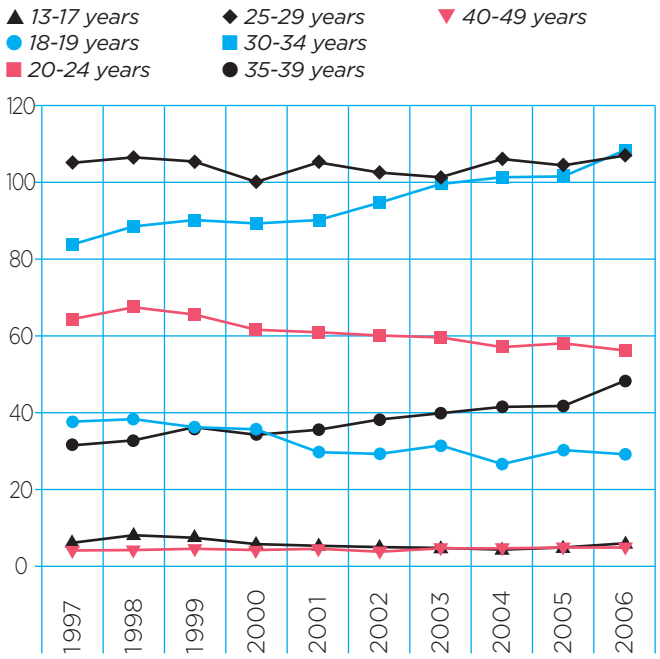
Rate per 100 live births

Capital Health region	17.7
St. Albert	9.5
Castle Downs	15.9
Woodcroft	24.9
Eastwood	30.4
North Central	19.6
North East	26.3
West Jasper Place	16.4
Twin Brooks	8.6
Bonnie Doon	14.7
Mill Woods	15.6
Strathcona County	11.1
Leduc County	20.4
Westview	20.0
Sturgeon County	23.0
Fort Saskatchewan	18.5

Source: Alberta Perinatal Health Program, Provincial Data Repository

Figure 11: Age specific fertility rates, Capital Health region, 1997-2006

Rate per 100,000 population



Sources: (1) Vital Statistics (Birth Data), 1997-2006. (2) Population data values are for June 30. Values up to March 31, 2007 are interpolations of actual population values from the Alberta Health Care Insurance Plan (AHCIP) Registration File as of March 31 for each year. Forecast values for points in time after March 31, 2007 are estimated using the March 31, 2007 AHCIP Registration File values and year-over-year population growth values provided by the Health Surveillance Branch of Alberta Health and Wellness.

young women, under 20 years of age, reported smoking at some time during their pregnancy. The rate decreased to a low of 10.1% for women aged 30-34 years.

The percentage of pregnant women who reported smoking varied substantially within the Capital Health region ranging from a high of 30.4% in Eastwood to a low of 8.6% in Twin Brooks (Figure 10). The regional rate for 2003-2005 was 17.7%.

Maternal Age

Maternal age (women aged 35 years and older) is identified as one of the modifiable predictors for SGA/Preterm babies. The age-specific fertility rate is the number of live births per 1,000 women in a given age group in a given year (Figure 11). There has been a slow increase in the fertility rate among women aged 35-39 years in the region increasing from 31.3 per 1,000 women 35-39 years in 1997 to 47.9 per 1,000 women in 2006.

The percent of live births born to women 35 years of age and older has significantly increased in the region over the last 10 years. Whereas in 1997, 13.9% of live births were to women 35 years of age and older, in 2006, 16.1% of live births were to women of this age.

The age-specific fertility rates for women 35 years of age and older, by public health service area (Figure 12), show that Twin Brooks and St. Albert have the highest fertility rates among women 35-39 years of age, while Castle Downs, Twin Brooks, and Bonnie Doon have the highest fertility rates for women 40-49 years of age.

Why do babies go to the emergency department (ED)?

In 2006, there were almost 10,000 visits made to the emergency department for children less than 1 year of age (females=4,534 and males=5,459). Babies living in the Capital Health region are going to the emergency department most often for respiratory disease with acute upper respiratory infection accounting for 43% of respiratory related visits. Acute bronchiolitis and acute obstructive laryngitis (commonly known as croup) were also major contributors to respiratory related ED visits (Table 5).

Figure 12: Number of live births by PHS area and selected age groups, Capital Health region, 2004-2006 combined

Rate per 1,000 women

	35-39 years	*40-49 years*
Capital Health region	43.5	3.8
St. Albert	**53.8**	2.9
Castle Downs	42.3	**5.0**
Woodcroft	39.7	3.5
Eastwood	37.7	4.5
North Central	36.7	2.9
North East	35.1	3.7
West Jasper Place	48.0	4.2
Twin Brooks	**62.3**	**5.4**
Bonnie Doon	48.2	**5.4**
Mill Woods	43.2	4.1
Strathcona County	42.3	3.1
Leduc County	36.0	2.7
Westview	36.4	3.2
Sturgeon County	34.2	1.4
Fort Saskatchewan	28.2	1.1

Sources: (1) Vital Statistics (Birth Data), 2004-2006. (2) Population data values are for June 30. Values up to March 31, 2007 are interpolations of actual population values from the Alberta Health Care Insurance Plan (AHCIP) Registration File as of March 31 for each year. Forecast values for points in time after March 31, 2007 are estimated using the March 31, 2007 AHCIP Registration File values and year-over-year population growth values provided by the Health Surveillance Branch of Alberta Health and Wellness.

Table 5: Emergency department (ED) visits for males and females less than 1 year old, Capital Health region, 2006

Leading causes by percent and (rank)

Cause	*Males % (rank)*	*Females % (rank)*
Respiratory disease	30.1% (1)	26.8% (1)
Digestive disease	13.1% (2)	14.0% (2)
Infectious/parasitic diseases	7.9% (3)	8.1% (4)
Unintentional injury	6.7% (4)	8.4% (3)
Nervous system disease	5.4% (5)	5.0% (5)
	Males	*Females*
Number of ED visits	5,459	4,534
Population (2006)	6,517	6,086
ED visit rate per 1,000	850.7	745.0

Sources: (1) Clinical Accountability and Reporting Department, Operational Policy and Integration Division, Capital Health (Health Care Utilization Data 2006). (2) Population data values are for June 30, 2006 and are interpolated using actual population values from the Alberta Health Care Insurance Plan (AHCIP) Registration File as of March 31, 2006 and 2007.

When the emergency department visit rate is calculated to reflect the number of individuals as opposed to the number of visits (as it is shown in Table 5), the ED visit rate for children less than 1 year of age was 491.9 per 1,000 population in 2006 (males=516.6 per 1,000; females=465.8 per 1,000). This means that almost half of children less than 1 year of age visited the emergency department at least once in 2006. Among the children who went to the emergency department in 2006, the average number of visits was 1.6 for both males and females.

Emergency Department (ED) visits by PHS area

The ED visit rate for children less than 1 year old living in the region was 824.5 per 1,000 population for 2004-2006 (Figure 13). The ED visit rate for this age was highest in Fort Saskatchewan, Westview, Leduc County, and Sturgeon County. The lowest rates were found in Twin Brooks, Bonnie Doon, and Strathcona County.

Figure 13: Emergency department visit rate for children less than 1 year old by PHS area, Capital Health region, 2004-2006 combined

Rate per 1,000

Capital Health region	824.5
St. Albert	805.9
Castle Downs	755.7
Woodcroft	738.6
Eastwood	924.4
North Central	908.4
North East	1,112.8
West Jasper Place	698.2
Twin Brooks	568.9
Bonnie Doon	555.5
Mill Woods	707.5
Strathcona County	440.7
Leduc County	1,182.8
Westview	1,257.8
Sturgeon County	1,162.5
Fort Saskatchewan	1,865.2

Sources: (1) Clinical Accountability and Reporting Department, Operational Policy and Integration Division, Capital Health (Health Care Utilization Data 2004-2006). (2) Population data values are for June 30. Values up to March 31, 2007 are interpolations of actual population values from the Alberta Health Care Insurance Plan (AHCIP) Registration File as of March 31 for each year. Forecast values for points in time after March 31, 2007 are estimated using the March 31, 2007 AHCIP Registration File values and year-over-year population growth values provided by the Health Surveillance Branch of Alberta Health and Wellness.

Note: Confidence intervals are not displayed due to rates higher than 1,000 per 1,000.

Please note that the higher ED visit rates in the more rural areas of the region including Leduc County, Westview, Sturgeon County and Fort Saskatchewan may reflect fewer options for the residents living in these areas for treatment outside of regular office hours.

Why do babies go to the hospital?

In 2006, there were just over 4,100 hospitalizations for children less than 1 year of age (females=1,830 and males=2,306). When birth events are included, the total number of hospitalizations in 2006 for this age group was 14,826. Babies living in the Capital Health region are hospitalized most often for conditions originating in the perinatal period (Table 6). The perinatal period generally means the period immediately before and after birth. It is defined as starting any time between week 20 and 28 of gestation and ending between week 1 and 4 after birth.

Of these conditions originating in the perinatal period, the ones that required hospitalization most often were disorders related to short gestation and low birth weight (35%); neonatal jaundice (11%); and respiratory conditions (e.g. respiratory distress syndrome) (14%).

When the hospitalization rate is calculated to reflect the number of individuals as opposed to the number of hospitalizations (as it is shown in Table 6), the hospitalization rate for children less than 1 year of age was 267.1 per 1,000 population in 2006 (males=288.8 per 1,000; females=244.2 per 1,000). Among the children who were hospitalized in 2006, the average number of hospitalizations was 1.2 for both males and females.

Hospitalizations by PHS area

There were 342.6 hospitalizations for every 1,000 children less than 1 year of age in the Capital Health region in 2004-2006 (Figure 14). There was variation in the hospitalization rate within the region. Woodcroft (392.8 per 1,000)

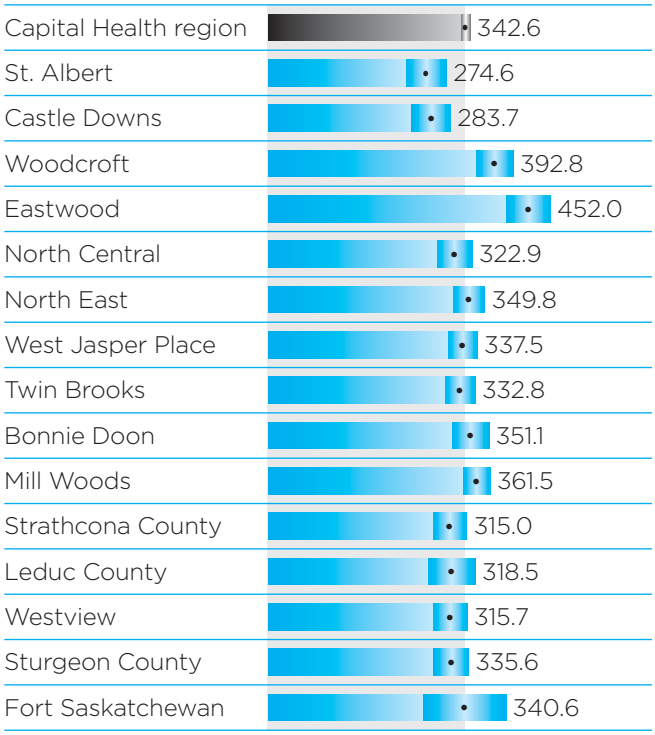
Table 6: Hospitalization for males and females less than 1 year old, Capital Health region, 2006

Leading causes by percent and (rank)

Cause	*Males % (rank)*	*Females % (rank)*
Perinatal conditions	67.8% (1)	69.1% (1)
Respiratory disease	8.2% (2)	6.8% (3)
Congenital anomalies	7.9% (3)	7.8% (2)
Digestive disease	4.0% (4)	2.3% (4)
Genitourinary disease	1.4% (5)	1.2%
Infectious/parasitic diseases	1.1%	1.7% (5)
	Males	*Females*
Number of hospitalalizations (including births)	7,687	7,139
Number of hospitalizations (excluding births)	2,306	1,830
Population (2006)	6,417	6,086
Hospitalization rate per 1,000 (excluding births)	359.4	300.7

Sources: (1) Clinical Accountability and Reporting Department, Operational Policy and Integration Division, Capital Health (Health Care Utilization Data 2006). (2) Population data values are for June 30, 2006 and are interpolated using actual population values from the Alberta Health Care Insurance Plan (AHCIP) Registration File as of March 31, 2006 and 2007.

Figure 14: Hospitalization rate for children less than 1 year old by PHS area, Capital Health region, 2004-2006 combined

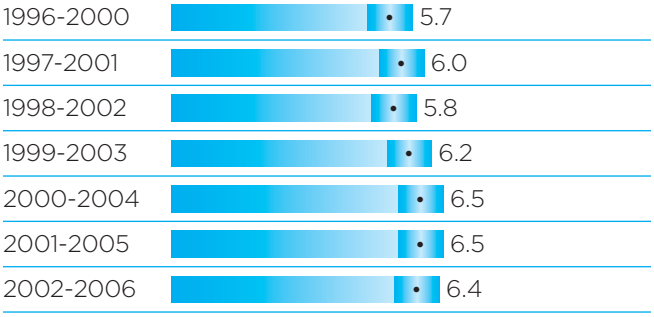


Sources: (1) Clinical Accountability and Reporting Department, Operational Policy and Integration Division, Capital Health (Health Care Utilization Data 2004-2006). (2) Population data values are for June 30. Values up to March 31, 2007 are interpolations of actual population values from the Alberta Health Care Insurance Plan (AHCIP) Registration File as of March 31 for each year. Forecast values for points in time after March 31, 2007 are estimated using the March 31, 2007 AHCIP Registration File values and year-over-year population growth values provided by the Health Surveillance Branch of Alberta Health and Wellness.

Note: Birth events were excluded from the hospitalization rate unless the most responsible diagnosis at time of discharge was not the birth event (e.g., the baby stayed in hospital for reasons such as congenital anomalies, or conditions related to the perinatal period).

Figure 15: Infant mortality rate, Capital Health region, 1996-2000 to 2002-2006 (5 years combined)

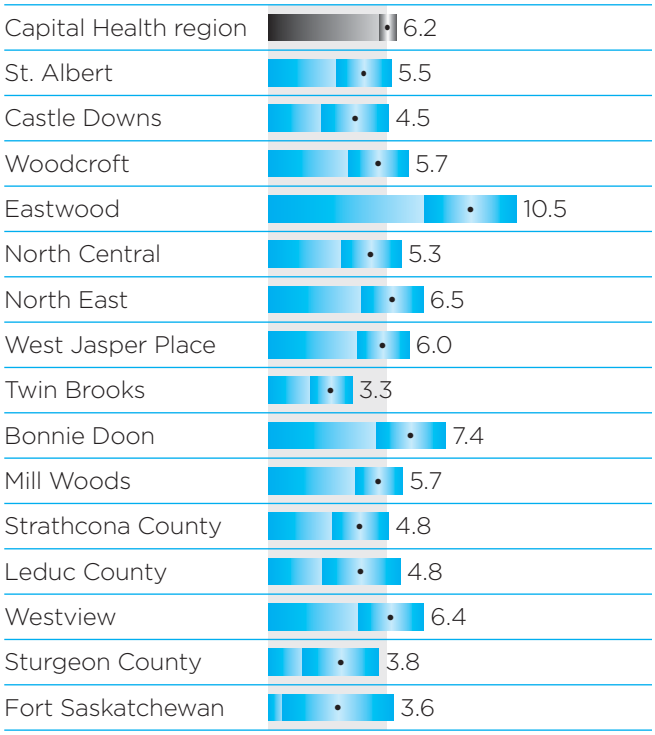
Rate per 1,000 live births



Source: Vital Statistics (Birth and Death Data), 1996-2006.

Figure 16: Infant mortality rate by PHS area, Capital Health region, 1997-2006 combined

Rate per 1,000 live births



Source: Vital Statistics (Birth and Death Data), 1997-2006.

and Eastwood (452.0 per 1,000) Public Health Service areas had the highest rates and they were both significantly higher than the regional rate. Conversely, St. Albert at 274.6 per 1,000 and Castle Downs at 283.7 per 1,000 were the public health service areas with the lowest rates; they were significantly lower than the regional rate of 342.6 per 1,000 children less than 1 year old.

Why do babies die?

In 2006, there were 77 babies who died before their first birthday. While the increasing trend in the infant mortality rate in the region, from 5.7 deaths per 1,000 live births in 1996-2000 to 6.4 in 2002-2006, is not statistically significant, it is a trend that continues to be monitored (Figure 15). Over three quarters of the infant deaths occurring in the five year period 2002-2006 were due to congenital anomalies and conditions arising in the perinatal period.

Eastwood Public Health Service area had an infant mortality rate that was significantly higher than the region, while Twin Brooks at 3.3 deaths per 1,000 live births was significantly lower (Figure 16).

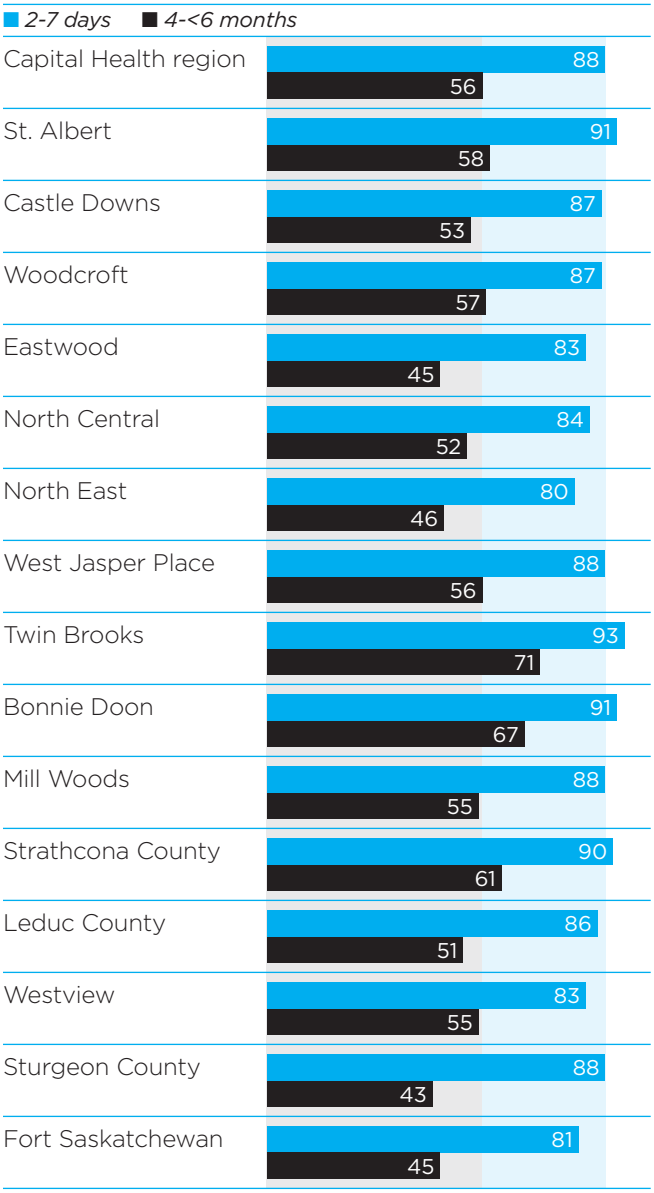
Breastfeeding

Breast milk is the best milk for babies for a number of reasons including:

- it is easily digested
- it helps protect babies from infection and illness
- it may help prevent allergies
- it is always fresh and exactly the right temperature
- it changes to meet a baby's growing needs

In, 2006, there was a relatively high percentage (from 80% to 93%) of mothers who breastfed their baby during the first week after the birth (Figure 17). At the 4-<6 month mark, the percentage of moms breastfeeding their babies decreased to 56% with a high of 71% in Twin Brooks to less than half in Eastwood, North East, Sturgeon County and Fort Saskatchewan.

Figure 17: Percentage of mothers breastfeeding by PHS area, Capital Health region, 2006



Source: Capital Health, Community Health Services, 2006.

Note: Breastfeeding is defined as "any breastfeeding" including those babies who are breastfed exclusively, partially, or predominantly.



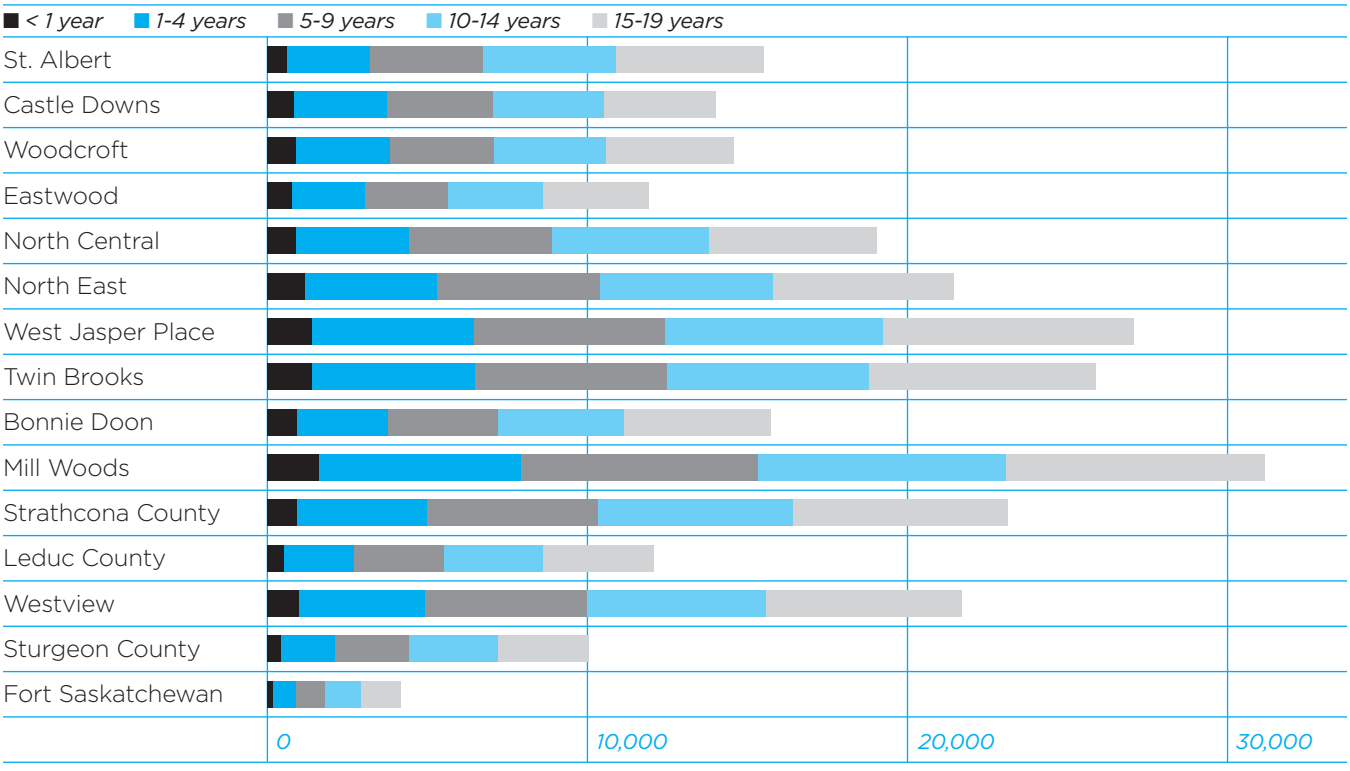
Health through the ages:

Children and Youth

The number, and percentage, of children and youth in the region varies by public health service area (PHS area). (Figure 18 and Table 7)

- In the region, 25.3% of the population is made up of children/youth 0-19 years of age.
- Mill Woods has the highest number of children/youth (31,202).
- Sturgeon County has the highest percentage of children/youth among the PHS areas (31.5%) although it has one of the lowest numbers (10,092).

Figure 18: Number of children by age group and PHS area, Capital Health region, 2007



Source: Population data values are for June 30 and are estimated using actual population values from the Alberta Health Care Insurance Plan (AHCIP) Registration File as of March 31, 2007 and forecast percent population growth from June 2006 and June 2007 from the Health Surveillance Branch of Alberta Health and Wellness.

Table 7: Number (percentage) of children in selected age groups by PHS area, Capital Health region, 2007

PHS Area	*<1 year*	*1-4 years*	*5-9 years*	*10-14 years*	*15-19 years*	*0-19 years*
St. Albert	604 (1.0)	2,624 (4.6)	3,520 (6.1)	4,184 (7.3)	4,622 (8.0)	15,554 (27.0)
Castle Downs	823 (1.7)	2,923 (5.9)	3,323 (6.7)	3,485 (7.0)	3,507 (7.1)	14,061 (28.4)
Woodcroft	903 (1.1)	2,953 (3.6)	3,245 (4.0)	3,523 (4.3)	3,979 (4.9)	14,603 (18.0)
Eastwood	760 (1.2)	2,310 (3.7)	2,603 (4.2)	2,971 (4.8)	3,304 (5.3)	11,948 (19.1)
North Central	931 (1.3)	3,501 (4.9)	4,498 (6.3)	4,916 (6.9)	5,248 (7.3)	19,094 (26.7)
North East	1,171 (1.5)	4,152 (5.3)	5,082 (6.5)	5,416 (6.9)	5,687 (7.2)	21,507 (27.4)
West Jasper Place	1,392 (1.3)	5,077 (4.7)	5,987 (5.5)	6,816 (6.3)	7,837 (7.2)	27,110 (25.0)
Twin Brooks	1,428 (1.4)	5,079 (4.9)	6,007 (5.8)	6,315 (6.1)	7,092 (6.8)	25,921 (25.0)
Bonnie Doon	922 (1.1)	2,882 (3.3)	3,430 (3.9)	3,925 (4.5)	4,619 (5.3)	15,779 (18.0)
Mill Woods	1,647 (1.5)	6,284 (5.8)	7,430 (6.8)	7,759 (7.1)	8,083 (7.4)	31,202 (28.6)
Strathcona County	914 (1.1)	4,077 (4.9)	5,353 (6.4)	6,098 (7.3)	6,743 (8.0)	23,186 (27.6)
Leduc County	517 (1.2)	2,208 (5.1)	2,812 (6.4)	3,117 (7.1)	3,451 (7.9)	12,105 (27.7)
Westview	993 (1.3)	3,954 (5.2)	5,055 (6.6)	5,624 (7.4)	6,106 (8.0)	21,731 (28.6)
Sturgeon County	435 (1.4)	1,683 (5.3)	2,343 (7.3)	2,755 (8.6)	2,876 (9.0)	10,092 (31.5)
Fort Saskatchewan	172 (1.1)	733 (4.7)	944 (6.1)	1,097 (7.1)	1,251 (8.1)	4,197 (27.1)
Capital Health	*13,613 (1.3)*	*50,439 (4.8)*	*61,632 (5.8)*	*68,001 (6.4)*	*74,405 (7.0)*	*268,091 (25.3)*

Source: Population data values are for June 30 and are estimated using actual population values from the Alberta Health Care Insurance Plan (AHCIP) Registration File as of March 31, 2007 and forecast percent population growth from June 2006 and June 2007 from the Health Surveillance Branch of Alberta Health and Wellness.

Why do children and youth go to the emergency department (ED)?

1-4 YEAR OLDS

In 2006, there were 24,521 visits made to the emergency department (ED) resulting in an ED visit rate of 508.3 for every 1,000 children aged 1-4 years living in the Capital Health region (Table 8). Respiratory disease was the leading cause for visiting the emergency department for both boys and girls with the most frequent reasons being: acute upper respiratory infection, acute obstructive laryngitis (croup), asthma, and pneumonia. These four diseases accounted for 75% of the respiratory related visits to the emergency department.

When the emergency department visit rate is calculated to reflect the number of individuals as opposed to the number of visits (as it is shown in Table 8), the ED visit rate for children aged 1-4 years was 323.9 per 1,000 population in 2006 (males=349.4 per 1,000; females=297.2 per 1,000). This means that about one third of children 1-4 years of age visited the emergency department at least once in 2006. Among the children who went to the emergency department in 2006, the average number of visits was 1.6 for males and 1.5 for females.

Table 8: Emergency department (ED) visits for males and females 1-4 years old, Capital Health region, 2006

Leading causes by percent and (rank)

Cause	*Males % (rank)*	*Females % (rank)*
Respiratory disease	27.4% (1)	24.2% (1)
Unintentional injury	23.5% (2)	22.9% (2)
Digestive disease	9.7% (3)	10.3% (4)
Nervous system disease	6.7% (4)	10.9% (3)
Infectious/parasitic diseases	6.4% (5)	6.6% (5)
	Males	*Females*
Number of ED visits	13,810	10,711
Population (2006)	24,734	23,503
ED visit rate per 1,000	558.3	455.7

Sources: (1) Clinical Accountability and Reporting Department, Operational Policy and Integration Division, Capital Health (Health Care Utilization Data 2006).
(2) Population data values are for June 30, 2006 and are interpolated using actual population values from the Alberta Health Care Insurance Plan (AHCIP) Registration File as of March 31, 2006 and 2007.

Emergency department (ED) visits by PHS area

For every 1,000 young children 1-4 years old living in the Capital Health region, there were 526.1 visits made to the emergency department for 2004-2006 combined (Figure 19). There was variation in the emergency department visit rate among the public health service areas with the more rural areas of the region having the highest rates.

5-9 YEAR OLDS

In 2006, there were about 15,300 visits made to the emergency department (ED) resulting in an ED visit rate of 252.8 for every 1,000 children aged 5-9 years living in the Capital Health region (Table 9).

While respiratory disease was the leading cause for visiting the emergency department in younger children, unintentional injury was the leading cause of emergency department visits for both boys and girls in the 5-9 year age group. Of the unintentional injury-related ED visits, 40% were due to falls (including sports related falls).

When the emergency department visit rate is calculated to reflect the number of individuals as opposed to the number of visits (as it is shown in Table 9), the ED visit rate for children 5-9 years old was 179.9 per 1,000 population in 2006 (males=193.9.0 per 1,000; females=165.0 per 1,000). Among the children who went to the emergency department in 2006, the average number of visits was 1.4 for both males and females.

Emergency department (ED) visits by PHS area

As was the case with younger children, there was variation in the emergency department visit rate among the public health service areas with the more rural areas having higher rates (Figure 20).

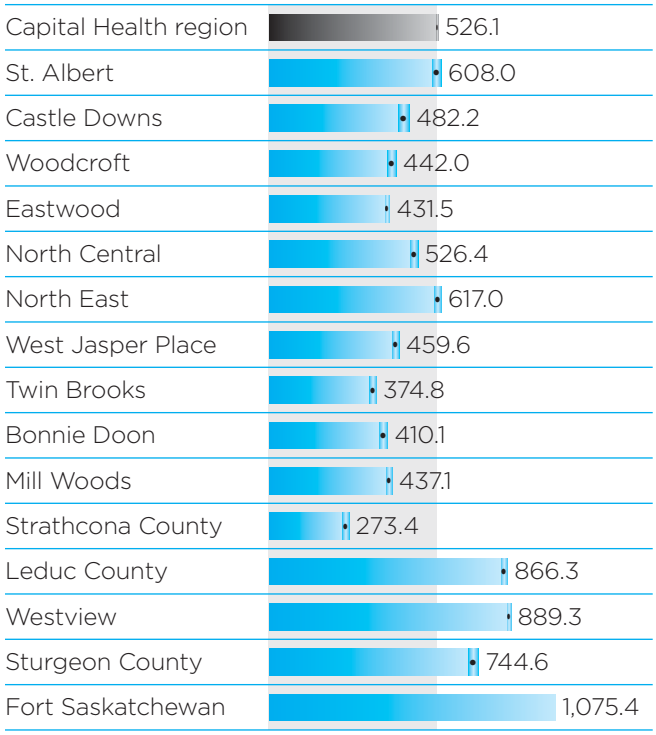
10-14 YEAR OLDS

In 2006, there were 17,944 visits made to the emergency department (ED) by children and youth aged 10-14 years old (Table 10). Males had a slightly higher ED visit rate than females – 283 visits per 1,000 compared to 245 per 1,000.

Unintentional injury was the leading cause of emergency department visits for both males and females followed by respiratory disease. Of the unintentional injury-related visits, 60%

Figure 19: Emergency department visits for children 1-4 years old by PHS area, Capital Health region, 2004-2006 combined

Rate per 1,000



Sources: (1) Clinical Accountability and Reporting Department, Operational Policy and Integration Division, Capital Health (Health Care Utilization Data 2004-2006). (2) Population data values are for June 30. Values up to March 31, 2007 are interpolations of actual population values from the Alberta Health Care Insurance Plan (AHCIP) Registration File as of March 31 for each year. Forecast values for points in time after March 31, 2007 are estimated using the March 31, 2007 AHCIP Registration File values and year-over-year population growth values provided by the Health Surveillance Branch of Alberta Health and Wellness.

Table 9: Emergency department (ED) visits for males and females 5-9 years old, Capital Health region, 2006

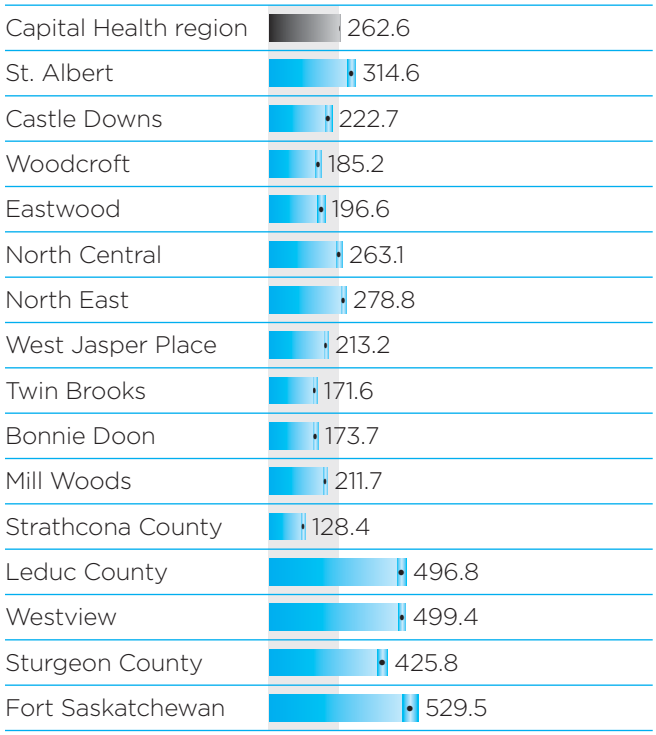
Leading causes by percent and (rank)

Cause	*Males % (rank)*	*Females % (rank)*
Unintentional injury	29.9% (1)	29.6% (1)
Respiratory disease	22.8% (2)	19.9% (2)
Nervous system disease	8.2% (3)	8.5% (3)
Digestive disease	6.8% (4)	5.8% (4)
Infectious/parasitic diseases	4.5% (5)	4.5% (5)
	Males	*Females*
Number of ED visits	8,526	6,818
Population (2006)	31,273	29,434
ED visit rate per 1,000	272.6	231.6

Sources: (1) Clinical Accountability and Reporting Department, Operational Policy and Integration Division, Capital Health (Health Care Utilization Data 2006). (2) Population data values are for June 30, 2006 and are interpolated using actual population values from the Alberta Health Care Insurance Plan (AHCIP) Registration File as of March 31, 2006 and 2007.

Figure 20: Emergency department visits for children 5-9 years old by PHS area, Capital Health region, 2004-2006 combined

Rate per 1,000



Sources: (1) Clinical Accountability and Reporting Department, Operational Policy and Integration Division, Capital Health (Health Care Utilization Data 2004-2006). (2) Population data values are for June 30. Values up to March 31, 2007 are interpolations of actual population values from the Alberta Health Care Insurance Plan (AHCIP) Registration File as of March 31 for each year. Forecast values for points in time after March 31, 2007 are estimated using the March 31, 2007 AHCIP Registration File values and year-over-year population growth values provided by the Health Surveillance Branch of Alberta Health and Wellness.

were caused by falls (including sports related falls) and injuries caused by being struck by an object or person (also including sports).

When the emergency department visit rate is calculated to reflect the number of individuals as opposed to the number of visits (as it is shown in Table 10), the ED visit rate for children/youth aged 10-14 years was 179.5 per 1,000 population in 2006 (males=192.9 per 1,000; females=165.6 per 1,000). Among the children/youth who went to the emergency department in 2006, the average number of visits was 1.5 for both males and females.

Emergency department (ED) visits by PHS area

With the exclusion of Strathcona County, the rural areas had significantly higher emergency department visit rates than the region (Figure 21). The only urban public health service area that had a significantly higher rate than the regional rate was St. Albert.

Table 10: Emergency department (ED) visits for males and females 10-14 years old, Capital Health region, 2006

Leading causes by percent and (rank)

Cause	*Males % (rank)*	*Females % (rank)*
Unintentional injury	50.9% (1)	41.7% (1)
Respiratory disease	9.9% (2)	11.6% (2)
Nervous system disease	4.0% (3)	4.8% (3)
Digestive disease	3.9% (4)	4.5% (4)
Musculoskeletal/connective tissue diseases	2.5% (5)	2.6%
Mental disorders	1.7%	3.1% (5)
	Males	*Females*
Number of ED visits	9,790	8,154
Population (2006)	34,623	33,260
ED visit rate per 1,000	282.8	245.2

Sources: (1) Clinical Accountability and Reporting Department, Operational Policy and Integration Division, Capital Health (Health Care Utilization Data 2006). (2) Population data values are for June 30, 2006 and are interpolated using actual population values from the Alberta Health Care Insurance Plan (AHCIP) Registration File as of March 31, 2006 and 2007.

Table 11: Emergency department (ED) visits for males and females 15-19 years old, Capital Health region, 2006

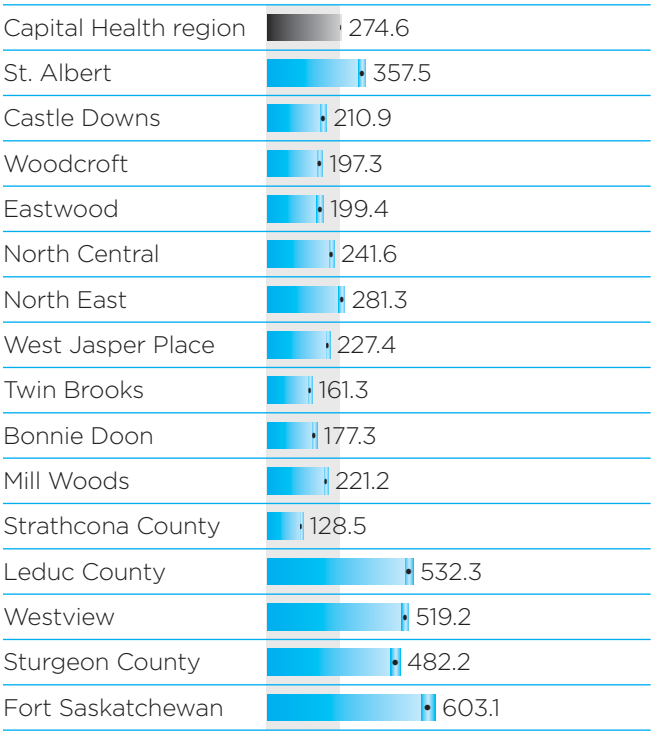
Leading causes by percent and (rank)

Cause	*Males % (rank)*	*Females % (rank)*
Unintentional injury	45.1% (1)	24.3% (1)
Respiratory disease	7.4% (2)	9.9% (2)
Intentional injury	6.7% (3)	3.3%
Mental disorders	4.7% (4)	5.3% (5)
Digestive disease	4.0% (5)	5.8% (4)
Genitourinary disease	1.1%	6.9% (3)
	Males	*Females*
Number of ED visits	15,115	15,041
Population (2006)	37,216	35,779
ED visit rate per 1,000	406.1	420.4

Sources: (1) Clinical Accountability and Reporting Department, Operational Policy and Integration Division, Capital Health (Health Care Utilization Data 2006). (2) Population data values are for June 30, 2006 and are interpolated using actual population values from the Alberta Health Care Insurance Plan (AHCIP) Registration File as of March 31, 2006 and 2007.

Figure 21: Emergency department visits for children 10-14 years old by PHS area, Capital Health region, 2004-2006 combined

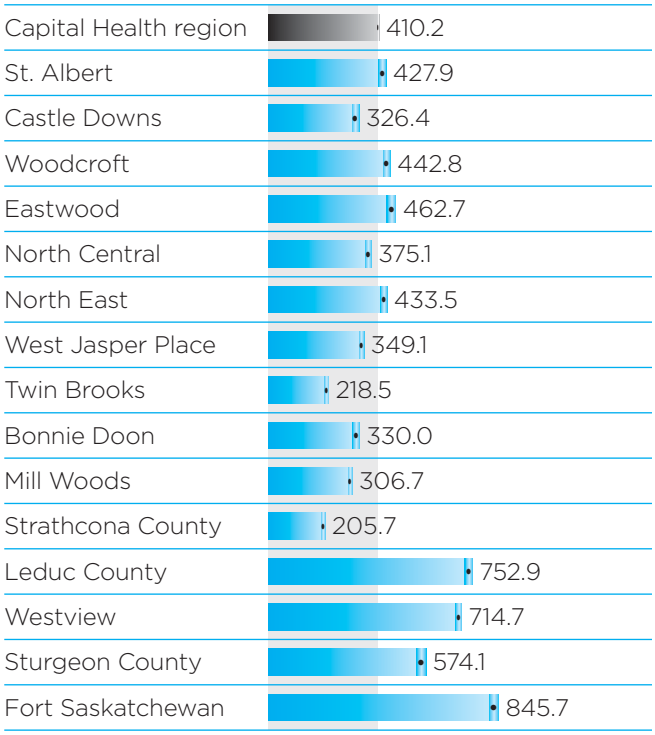
Rate per 1,000



Sources: (1) Clinical Accountability and Reporting Department, Operational Policy and Integration Division, Capital Health (Health Care Utilization Data 2004-2006). (2) Population data values are for June 30. Values up to March 31, 2007 are interpolations of actual population values from the Alberta Health Care Insurance Plan (AHCIP) Registration File as of March 31 for each year. Forecast values for points in time after March 31, 2007 are estimated using the March 31, 2007 AHCIP Registration File values and year-over-year population growth values provided by the Health Surveillance Branch of Alberta Health and Wellness.

Figure 22: Emergency department visits for children 15-19 years old by PHS area, Capital Health region, 2004-2006 combined

Rate per 1,000



Sources: (1) Clinical Accountability and Reporting Department, Operational Policy and Integration Division, Capital Health (Health Care Utilization Data 2004-2006). (2) Population data values are for June 30. Values up to March 31, 2007 are interpolations of actual population values from the Alberta Health Care Insurance Plan (AHCIP) Registration File as of March 31 for each year. Forecast values for points in time after March 31, 2007 are estimated using the March 31, 2007 AHCIP Registration File values and year-over-year population growth values provided by the Health Surveillance Branch of Alberta Health and Wellness.

15-19 YEAR OLDS

In this age group, the females had a higher rate than the males at 420.4 visits per 1,000 population aged 15-19 years compared to 406.1 per 1,000 (Table 11). Once again, unintentional injury was the leading cause of emergency department visits for both males and females. For males, unintentional injury accounted for 45% of the visits made to the emergency department. Being struck by an object or person (including sports) and falls (including sports related falls) were two of the major contributors to unintentional injury-related visits to the emergency department. Intentional injury ranked third for males and of the 1,007 intentional injury-related ED visits, 86.4% were due to assault and another 11.4% were due to self-inflicted injury.

When the emergency department visit rate is calculated to reflect the number of individuals as opposed to the number of visits (as it is shown in Table 11), the ED visit rate for youth between 15 and 19 years of age was 252.5 per 1,000 population in 2006 (males=255.0 per 1,000; females=249.9 per 1,000). Among the youth who went to the emergency department in 2006, the average number of visits was 1.6 for males and 1.7 for females.

Emergency department (ED) visits by PHS area

Higher rates than the regional rate of 410.2 per 1,000 youth aged 15-19 years were observed in the more rural areas of Leduc County, Westview, Sturgeon County and Fort Saskatchewan (Figure 22).

Table 12: Hospitalizations for males and females 1-4 years old, Capital Health region, 2006

Leading causes by percent and (rank)

Cause	*Males % (rank)*	*Females % (rank)*
Respiratory disease	36.0% (1)	35.0% (1)
Unintentional injury	9.8% (2)	8.8% (2)
Nervous system disease	8.8% (3)	8.3% (3)
Digestive disease	8.5% (4)	7.0% (4)
Congenital anomalies	7.6% (5)	5.3%
Infectious/parasitic diseases	5.0%	5.9% (5)
	Males	*Females*
Number of hospitalizations	838	589
Population (2006)	24,734	23,503
Hospitalization rate per 1,000	33.9	25.1

Sources: (1) Clinical Accountability and Reporting Department, Operational Policy and Integration Division, Capital Health (Health Care Utilization Data 2006).
(2) Population data values are for June 30, 2006 and are interpolated using actual population values from the Alberta Health Care Insurance Plan (AHCIP) Registration File as of March 31, 2006 and 2007.

Why do children and youth go to the hospital?

1-4 YEAR OLDS

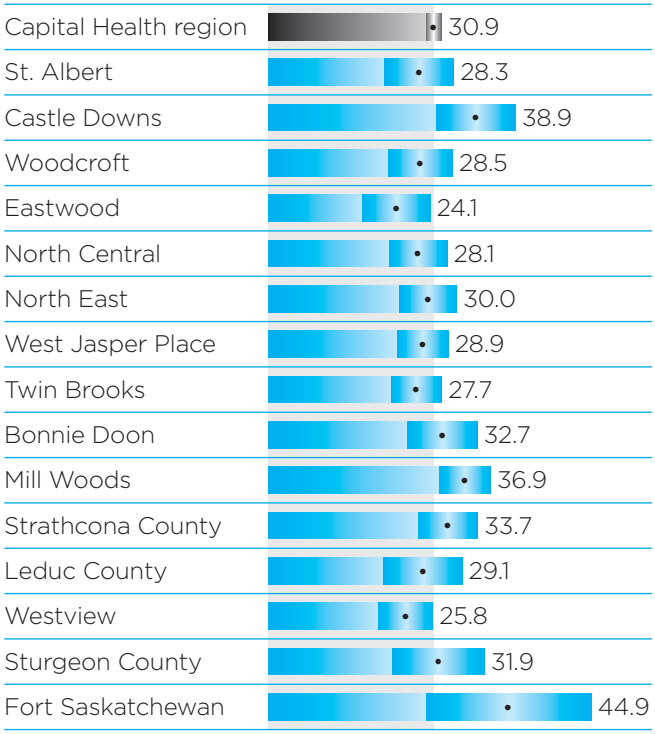
In 2006, there were 29.6 hospitalizations for every 1,000 children aged 1-4 years living in the Capital Health region with boys having a higher hospitalization rate than girls (33.9 per 1,000 versus 25.1 per 1,000) (Table 12).

Respiratory disease was the leading cause of hospitalization for both boys and girls. The most frequent respiratory-related hospitalizations were for asthma (25.8%), tonsils/adenoids (13.2%), acute bronchiolitis (11.2%), and pneumonia (11.0%). Together, they accounted for just over 60% of the respiratory-related hospitalizations.

When the hospitalization rate is calculated to reflect the number of individuals as opposed to the number of hospitalizations (as it is shown in Table 12), the hospitalization rate for children aged 1-4 years was 24.1 per 1,000 population in 2006 (males=27.8 per 1,000; females=20.3 per 1,000). Among the children who were hospitalized in 2006, the average number of hospitalizations was 1.2 for both males and females.

Figure 23: Hospitalizations for children 1-4 years old by PHS area, Capital Health region, 2004-2006 combined

Rate per 1,000



Sources: (1) Clinical Accountability and Reporting Department, Operational Policy and Integration Division, Capital Health (Health Care Utilization Data 2004-2006).
(2) Population data values are for June 30. Values up to March 31, 2007 are interpolations of actual population values from the Alberta Health Care Insurance Plan (AHCIP) Registration File as of March 31 for each year. Forecast values for points in time after March 31, 2007 are estimated using the March 31, 2007 AHCIP Registration File values and year-over-year population growth values provided by the Health Surveillance Branch of Alberta Health and Wellness.

Hospitalizations by PHS area

Although the hospitalization rates ranged from a low of 24.1 per 1000 in Eastwood to a high of 44.9 in Fort Saskatchewan, there was no significant variation in the hospitalization rate within the region for children aged 1-4 years (Figure 23).

5-9 YEAR OLDS

In 2006, there were 17.1 hospitalizations for every 1,000 children aged 5-9 years living in the Capital Health region with boys having a higher hospitalization rate than girls (19.7 per 1,000 versus 14.3 per 1,000) (Table 13). As was reported for 1-4 year olds in the region, respiratory disease was the leading cause of hospitalization for both boys and girls. The most frequent reasons for being hospitalized for respiratory-related conditions were: asthma, tonsils/adenoids, and pneumonia; accounting for 62% of the respiratory-related admissions to hospital.

Table 13: Hospitalizations for males and females 5-9 years old, Capital Health region, 2006

Leading causes by percent and (rank)

Cause	*Males % (rank)*	*Females % (rank)*
Respiratory disease	25.1% (1)	27.6% (1)
Unintentional injury	11.2% (2)	15.0% (2)
Digestive disease	9.1% (3)	6.2% (4)
Mental disorders	7.6% (4)	1.9%
Nervous system disease	7.3% (5)	9.5% (3)
Genitourinary disease	2.1%	6.0% (5)
	Males	*Females*
Number of hospitalizations	617	420
Population (2006)	31,273	29,434
Hospitalization rate per 1,000	19.7	14.3

Sources: (1) Clinical Accountability and Reporting Department, Operational Policy and Integration Division, Capital Health (Health Care Utilization Data 2006).
(2) Population data values are for June 30, 2006 and are interpolated using actual population values from the Alberta Health Care Insurance Plan (AHCIP) Registration File as of March 31, 2006 and 2007.

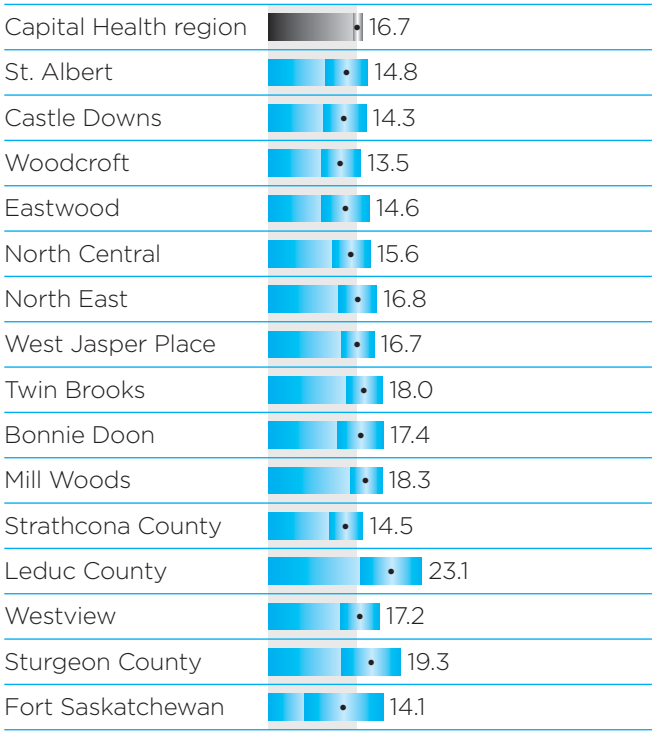
When the hospitalization rate is calculated to reflect the number of individuals as opposed to the number of hospitalizations (as it is shown in Table 13), the hospitalization rate for children 5-9 years old was 13.3 per 1,000 population in 2006 (males=15.1 per 1,000; females=11.5 per 1,000). Among the children who were hospitalized in 2006, the average number of hospitalizations was 1.3 for males and 1.2 females.

Hospitalizations by PHS area

There was no significant variation in the hospitalization rate for 5-9 year olds within the region. Leduc County had the highest hospitalization rate at 23.1 per 1,000 (Figure 24).

Figure 24: Hospitalizations for children 5-9 years old by PHS area, Capital Health region, 2004-2006 combined

Rate per 1,000



Sources: (1) Clinical Accountability and Reporting Department, Operational Policy and Integration Division, Capital Health (Health Care Utilization Data 2004-2006).
(2) Population data values are for June 30. Values up to March 31, 2007 are interpolations of actual population values from the Alberta Health Care Insurance Plan (AHCIP) Registration File as of March 31 for each year. Forecast values for points in time after March 31, 2007 are estimated using the March 31, 2007 AHCIP Registration File values and year-over-year population growth values provided by the Health Surveillance Branch of Alberta Health and Wellness.

10-14 YEAR OLDS

In 2006, there were 15.6 hospitalizations for every 1,000 children aged 10-14 years living in the Capital Health region with boys having a higher hospitalization rate than girls (17.3 per 1,000 versus 13.9 per 1,000) (Table 14).

Unintentional injury was the leading cause of hospitalization for males in this age group with the top three unintentional injuries being falls (including sports related falls), being struck by an object/person (including sports), and motor vehicle related injury.

For girls in this age group, mental disorders were the leading cause of hospitalization with 41% of these hospitalizations accounted for by behavioural and emotional disorders.

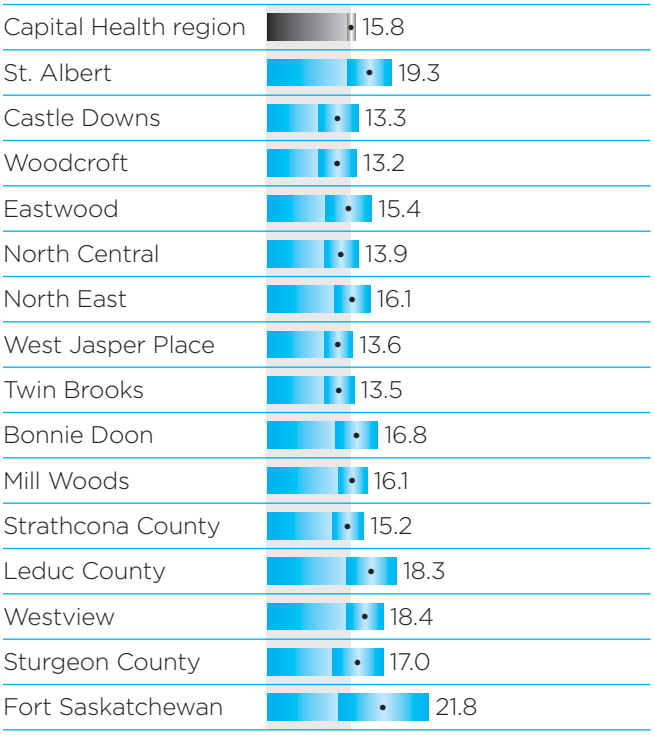
When the hospitalization rate is calculated to reflect the number of individuals as opposed to the number of hospitalizations (as it is shown in Table 14), the hospitalization rate for children/youth aged 10-14 years was 12.5 per 1,000 population in 2006 (males=14.1 per 1,000; females=10.9 per 1,000). Among the children who were hospitalized in 2006, the average number of hospitalizations was 1.2 for both males and females.

Hospitalizations by PHS area

There was no significant variation in the hospitalization rate within the region – the rates range from 13.2 per 1,000 in Woodcroft public health service area to 21.8 in Fort Saskatchewan (Figure 25).

Figure 25: Hospitalizations for children 10-14 years old by PHS area, Capital Health region, 2004-2006 combined

Rate per 1,000



Sources: (1) Clinical Accountability and Reporting Department, Operational Policy and Integration Division, Capital Health (Health Care Utilization Data 2004-2006). (2) Population data values are for June 30. Values up to March 31, 2007 are interpolations of actual population values from the Alberta Health Care Insurance Plan (AHCIP) Registration File as of March 31 for each year. Forecast values for points in time after March 31, 2007 are estimated using the March 31, 2007 AHCIP Registration File values and year-over-year population growth values provided by the Health Surveillance Branch of Alberta Health and Wellness.

Table 14: Hospitalizations for males and females 10-14 years old, Capital Health region, 2006

Leading causes by percent and (rank)

Cause	*Males % (rank)*	*Females % (rank)*
Unintentional injury	20.2% (1)	11.2% (4)
Mental disorders	14.9% (2)	13.2% (1)
Digestive disease	13.7% (3)	11.9% (3)
Respiratory disease	7.7% (4)	12.3% (2)
Nervous system disease	4.7% (5)	8.0% (5)
Musculoskeletal/connective tissue diseases	4.7% (5)	5.4%
	Males	*Females*
Number of hospitalizations*	599	463
Population (2006)	34,623	33,260
Hospitalization rate per 1,000*	17.3	13.9

* excludes obstetric/pregnancy-related hospitalizations

Sources: (1) Clinical Accountability and Reporting Department, Operational Policy and Integration Division, Capital Health (Health Care Utilization Data 2006). (2) Population data values are for June 30, 2006 and are interpolated using actual population values from the Alberta Health Care Insurance Plan (AHCIP) Registration File as of March 31, 2006 and 2007.

Table 15: Hospitalizations for males and females 15-19 years old, Capital Health region, 2006

Leading causes by percent and (rank)

Cause	*Males % (rank)*	*Females % (rank)*
Unintentional injury	23.5% (1)	11.7% (3)
Digestive disease	15.9% (2)	20.8% (1)
Mental disorders	15.7% (3)	14.2% (2)
Respiratory disease	7.9% (4)	5.2%
Intentional injury	7.5% (5)	3.7%
Genitourinary disease	2.5%	7.6% (4)
Musculoskeletal/connective tissue diseases	3.0%	5.3%(5)
	Males	*Females*
Number of hospitalizations*	1,029	753
Population (2006)	37,216	35,779
Hospitalization rate per 1,000*	27.6	21.0

* excludes obstetric and pregnancy-related hospitalizations

Sources: (1) Clinical Accountability and Reporting Department, Operational Policy and Integration Division, Capital Health (Health Care Utilization Data 2006). (2) Population data values are for June 30, 2006 and are interpolated using actual population values from the Alberta Health Care Insurance Plan (AHCIP) Registration File as of March 31, 2006 and 2007.

15-19 YEAR OLDS

In 2006, there were 24.4 hospitalizations for every 1,000 youth aged 15-19 years living in the Capital Health region with males having a higher hospitalization rate than females (27.6 per 1,000 versus 21.0) (Table 15). When the hospitalizations related to pregnancy and obstetrics were included, the hospitalization rate for females doubled to 43.2 per 1,000.

Unintentional injury was the leading cause of hospitalization for males accounting for 23.5% of the total hospitalizations with motor vehicle-related injury and falls (including sports related) being the two most frequent causes. When hospitalizations due to intentional injury were included this percentage increased from 23.5% to 31.0%.

For females, the leading cause of hospitalization was diseases of the digestive system – accounting for one fifth of hospitalizations when

obstetric/pregnancy related hospitalizations were excluded. Of the digestive disease-related hospitalizations, diseases of the appendix accounted for 29% of hospitalizations and disorders of the gall bladder, biliary tract, and pancreas accounted for another 22%.

When the hospitalization rate is calculated to reflect the number of individuals as opposed to the number of hospitalizations (as it is shown in Table 15), the hospitalization rate for youth aged 15-19 years was 20.0 per 1,000 population in 2006 (males=22.4 per 1,000; females=17.5 per 1,000). Among the youth who were hospitalized in 2006, the average number of hospitalizations was 1.2 for both males and females.

Hospitalizations by PHS area

The hospitalization rate within the region did not differ significantly among the public health service areas. Fort Saskatchewan had the highest rate at 34.2 hospitalizations per 1,000 youth aged 15-19 years and St. Albert had the lowest rate at 20.6 per 1,000 (Figure 26).

Why do children and youth die?

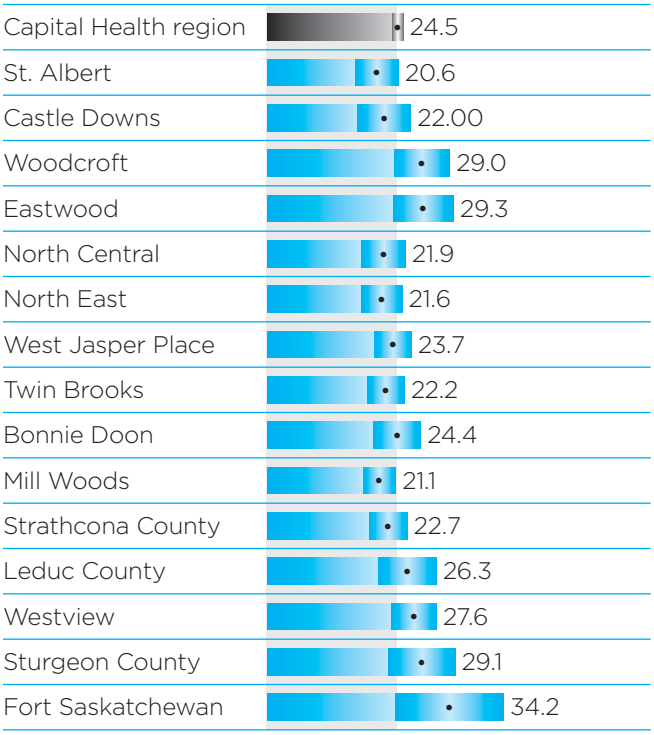
Fortunately, the death rate among young people in the region is low and, therefore, 10 years of data and wider age groups (1-14 years and 15-19 years) were used to provide mortality data for the public health service areas as well as for the region as a whole.

1-14 YEAR OLDS

The mortality rate in the region (1997-2006 combined) for children 1-14 years old was 14.3 deaths per 100,000 population (Figure 27). While the mortality rate ranged from a low of 7.3 deaths per 100,000 in Fort Saskatchewan to a high of 20.3 per 100,000 in North East, there were no rates that were significantly higher or lower than the regional rate.

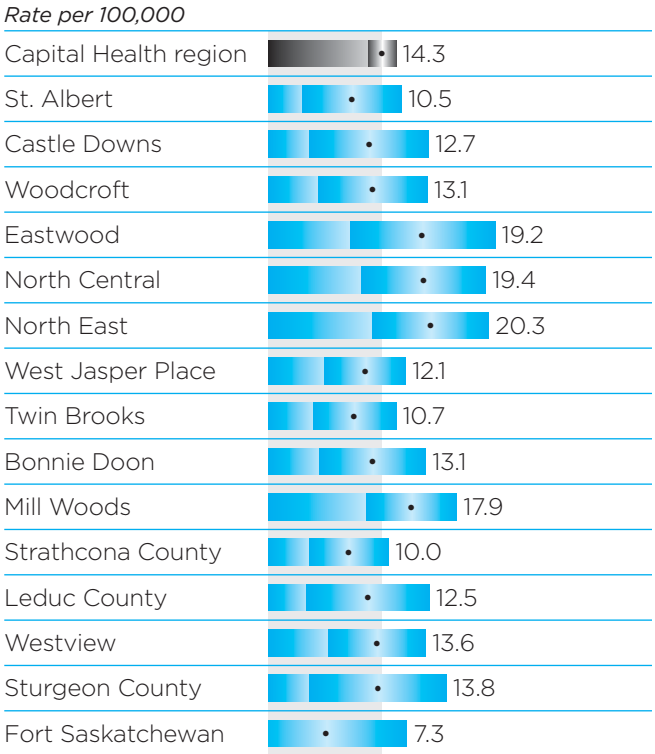
Of the 176,826 children aged 1-14 years old living in the Capital Health region, 102 died in

Figure 26: Hospitalizations for children 15-19 years old by PHS area, Capital Health region, 2004-2006 combined



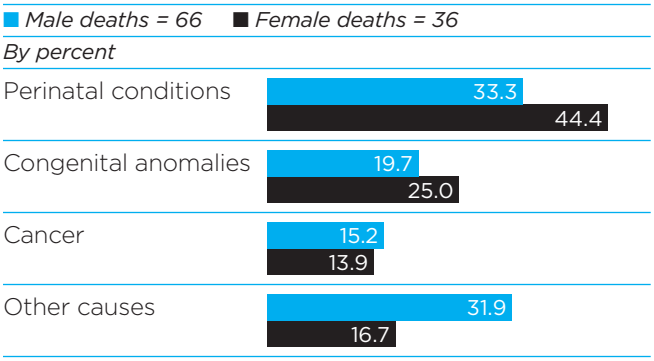
Sources: (1) Clinical Accountability and Reporting Department, Operational Policy and Integration Division, Capital Health (Health Care Utilization Data 2004-2006). (2) Population data values are for June 30. Values up to March 31, 2007 are interpolations of actual population values from the Alberta Health Care Insurance Plan (AHCIP) Registration File as of March 31 for each year. Forecast values for points in time after March 31, 2007 are estimated using the March 31, 2007 AHCIP Registration File values and year-over-year population growth values provided by the Health Surveillance Branch of Alberta Health and Wellness.

Figure 27: Mortality rates for children 1-14 years old by PHS area, Capital Health region, 1997-2006 combined



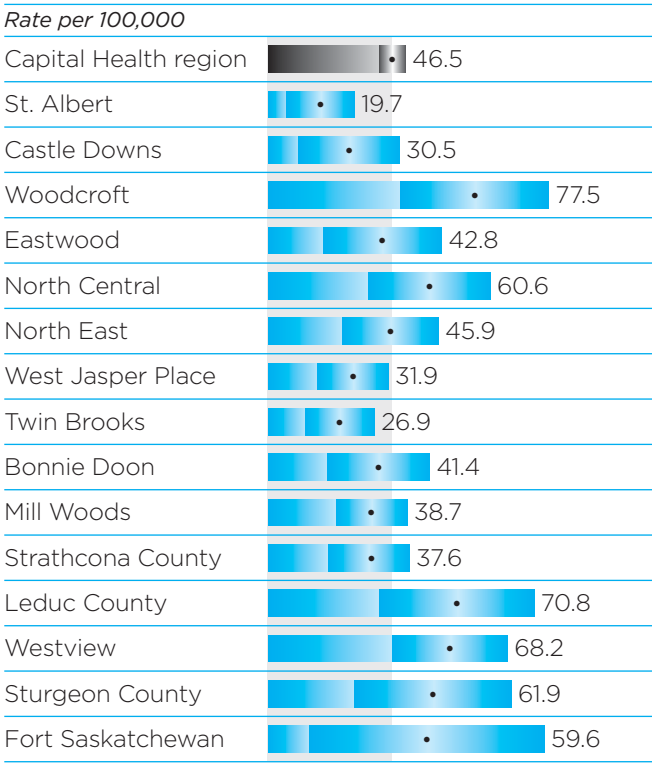
Sources: (1) Vital Statistics (Death Data), 1997-2006. (2) Population data values are for June 30. Values up to March 31, 2007 are interpolations of actual population values from the Alberta Health Care Insurance Plan (AHCIP) Registration File as of March 31 for each year. Forecast values for points in time after March 31, 2007 are estimated using the March 31, 2007 AHCIP Registration File values and year-over-year population growth values provided by the Health Surveillance Branch of Alberta Health and Wellness.

Figure 28: Leading causes of death for 1-14 year olds, Capital Health region, 2006



Source: Vital Statistics (Death Data), 2006.

Figure 29: Mortality rates for children 15-19 years old by PHS area, Capital Health region, 1997-2006 combined



Sources: (1) Vital Statistics (Death Data), 1997-2006. (2) Population data values are for June 30. Values up to March 31, 2007 are interpolations of actual population values from the Alberta Health Care Insurance Plan (AHCIP) Registration File as of March 31 for each year. Forecast values for points in time after March 31, 2007 are estimated using the March 31, 2007 AHCIP Registration File values and year-over-year population growth values provided by the Health Surveillance Branch of Alberta Health and Wellness.

2006. The leading cause of death (Figure 28) for both males and females was conditions originating in the perinatal period – accounting for 33.3% of the deaths in males and 44.4% of the deaths in females. Males in this age group had a higher death rate than females – 73 per 100,000 compared to 42 per 100,000.

15-19 YEAR OLDS

The regional mortality rate using 10 years of data (1997-2006) is 46.5 per 100,000 15-19 year olds living in the region (Figure 29). Although there is variation in the mortality rate for this age group among the public health service areas, only two public health service areas had significantly lower mortality rates than the region, St. Albert and Twin Brooks.

There were 72,995 youth aged 15-19 years old living in the Capital Health region in 2006 and 35 died in this year. Due to the small number of deaths, a detailed breakdown by cause and sex is not shown.

Injury, including unintentional and intentional, was the cause of 67% of the female deaths and 70% of the male deaths.

Education

Education is fundamental to people's ability to lead healthy lives. High school completion is one indicator that can be used to assess not only school success but also the health of a community. Table 16 highlights the percentage of the region's population that completed high school within three years of starting grade 10.

There are 12 school districts in the Capital Health region 11 of which have high school completion data. For the 2005-06 school year, school districts in St. Albert and the Evergreen Catholic Schools in Parkland County had higher high school completion rates than school districts in Edmonton, Calgary, and Alberta.

Teen birth rate

Over the last 10 years, there has been a decrease in the teen birth rate in the Capital Health region (Figure 30). Since 2002, it has hovered around 16 births per 1,000 young women aged 15-19 years. While the downward trend is encouraging, there is concern about the high teen birth rates in parts of the Capital Health region. Four areas – North East, North Central, Eastwood, and Woodcroft - had significantly higher teen birth rates than the regional rate for 2004-2006 (Figure 31).

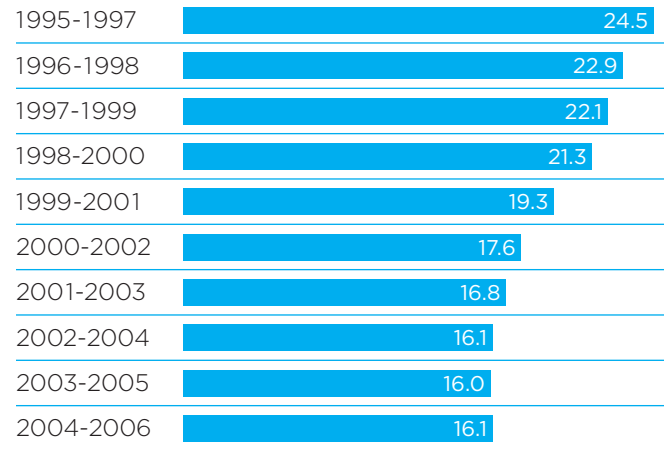
Table 16: Percentage completing high school within three years of starting grade 10, Capital Health region, 2000-2001 to 2005-2006

School District	*2001-02*	*2002-03*	*2003-04*	*2004-05*	*2005-06*
Edmonton Public Schools	57.3%	57.6%	60.5%	63.6%	63.5%
Edmonton Catholic Schools	61.7%	64.1%	69.3%	68.5%	70.5%
St. Albert Protestant Separate Schools	72.5%	72.4%	76.6%	80.2%	80.2%
Greater St. Albert Catholic Schools	72.5%	74.4%	76.6%	78.9%	79.8%
Sturgeon (Sturgeon County)	62.4%	70.1%	72.7%	75.6%	70.8%
Black Gold Regional Schools (Leduc County)	72.8%	76.7%	74.5%	78.6%	75.5%
St. Thomas Aquinas Regional Catholic Schools (Leduc County)	62.1%	67.1%	72.9%	66.2%	56.2%
Parkland School Division (Parkland County)	65.1%	69.5%	64.0%	70.1%	68.8%
Evergreen Catholic Schools (Parkland County)	73.3%	74.5%	72.9%	71.6%	82.0%
Elk Island Public Schools (Strathcona County)	77.0%	78.1%	78.6%	78.1%	76.9%
Elk Island Catholic Schools (Strathcona County)	77.1%	82.2%	81.2%	76.6%	77.5%
Calgary Board of Education #19	*65.2%*	*66.5%*	*68.6%*	*70.3%*	*69.5%*
Calgary Roman Catholic Separate School District	*69.7%*	*73.0%*	*75.0%*	*76.9%*	*74.6%*
Alberta	*65.6%*	*67.8%*	*69.3%*	*70.4%*	*70.4%*

Source: Alberta Education. Alberta High School Completion Rates, June 2007. www.education.gov.ab.ca

Figure 30: Teen birth rate, Capital Health region, 1995-1997 to 2004-2006

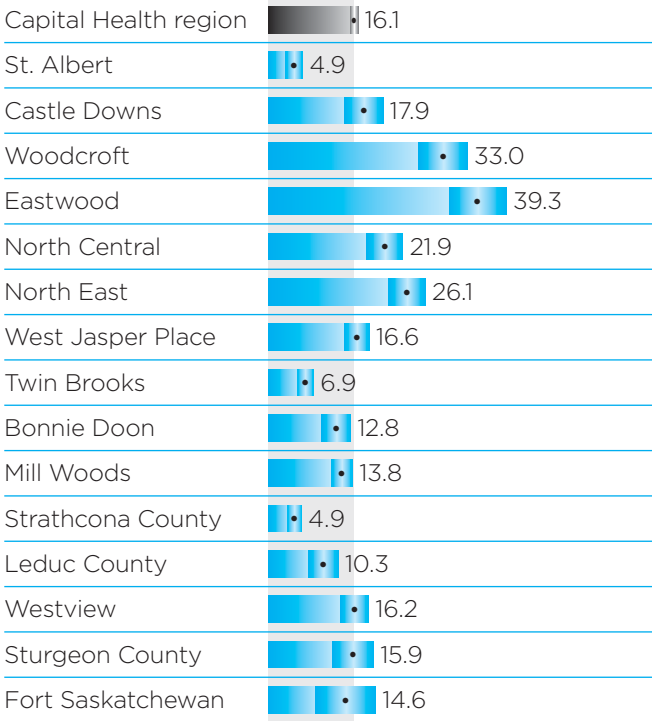
Number of births per 1,000 females 15-19 years of age



Sources: (1) Vital Statistics (Birth Data) 2004-2006. (2) Population data values are for June 30. Values up to March 31, 2007 are interpolations of actual population values from the Alberta Health Care Insurance Plan (AHCIP) Registration File as of March 31 for each year. Forecast values for points in time after March 31, 2007 are estimated using the March 31, 2007 AHCIP Registration File values and year-over-year population growth values provided by the Health Surveillance Branch of Alberta Health and Wellness.

Figure 31: Teen birth rate by PHS area, Capital Health region, 2004-2006 combined

Number of births per 1,000 females 15-19 years of age



Source: (1) Vital Statistics (Birth Data) 2004-2006. (2) Population data values are for June 30. Values up to March 31, 2007 are interpolations of actual population values from the Alberta Health Care Insurance Plan (AHCIP) Registration File as of March 31 for each year. Forecast values for points in time after March 31, 2007 are estimated using the March 31, 2007 AHCIP Registration File values and year-over-year population growth values provided by the Health Surveillance Branch of Alberta Health and Wellness.



Health through the ages:

Adults

All of the public health service areas had a similar percentage of adults aged 20-64 years (Figure 32). North Central had the lowest percentage of 20-64 year olds at 58.6% and Eastwood had the highest percentage at 69.0%.

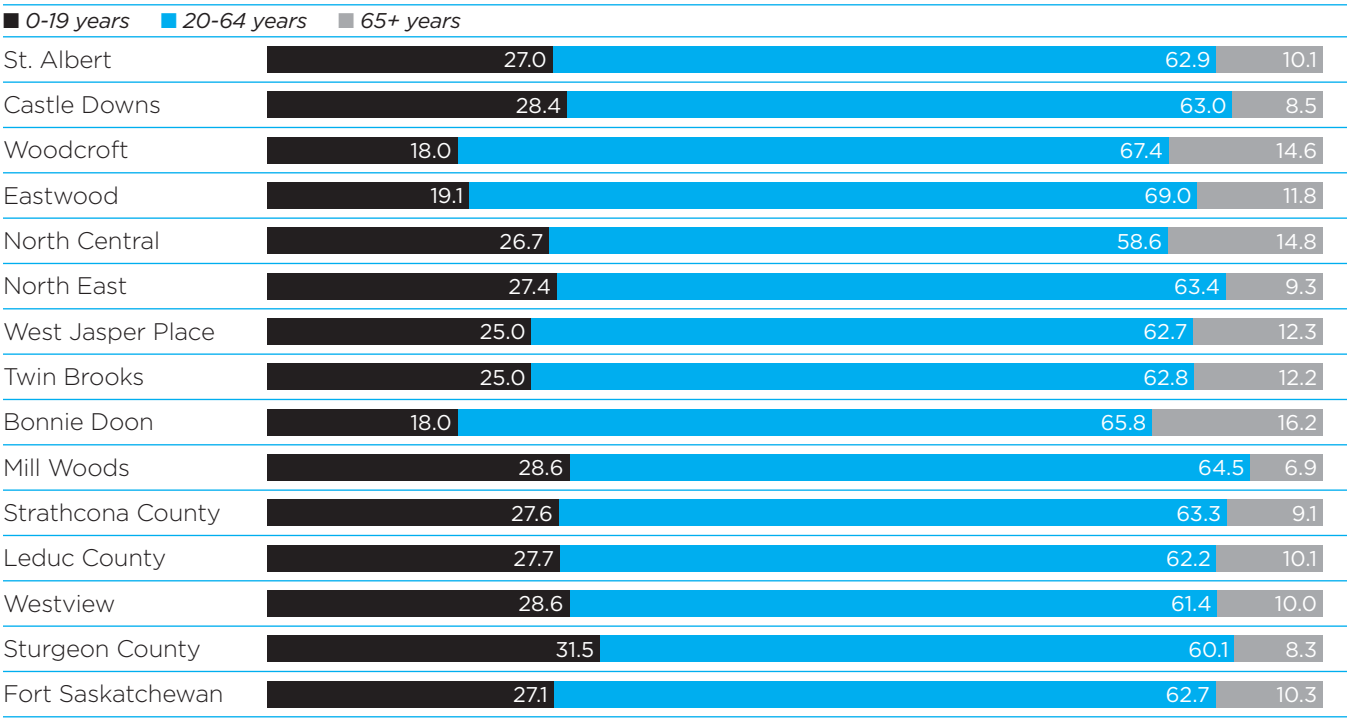
In terms of numbers, Mill Woods, West Jasper Place and Twin Brooks had the highest number of adults aged 20-64 years (Figure 33).

Why do adults go to the emergency department (ED)?

20-44 YEARS OLD

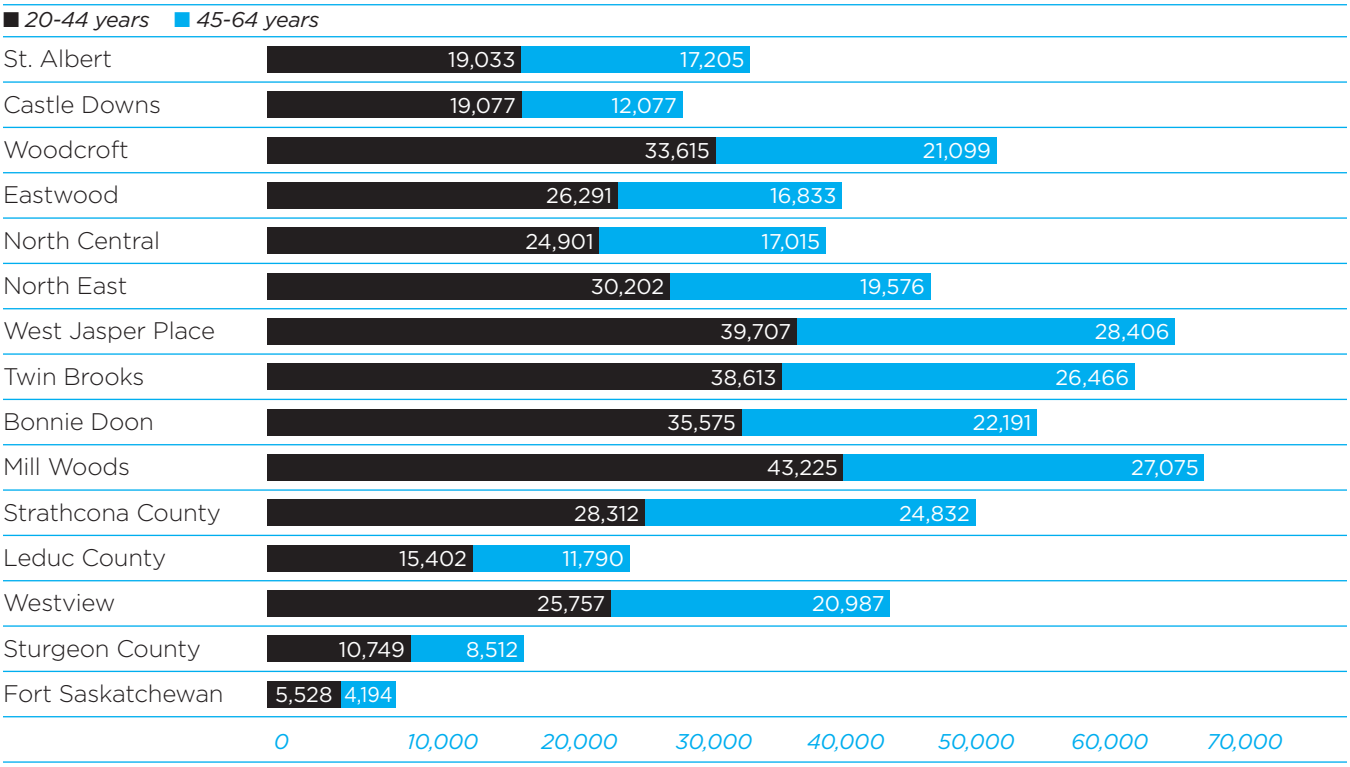
The emergency department visit rate for males and females in this age group was very similar with males having a rate of 393.2 per 1,000 and females having a rate of 395.4 per 1,000

Figure 32: Percentage population by age group, Capital Health region, 2007



Source: Population data values are for June 30 and are estimated using actual population values from the Alberta Health Care Insurance Plan (AHCIP) Registration File as of March 31, 2007 and forecast percent population growth from June 2006 and June 2007 from the Health Surveillance Branch of Alberta Health and Wellness.

Figure 33: Number of adults 20-64 years old, Capital Health region, 2007



Source: Population data values are for June 30 and are estimated using actual population values from the Alberta Health Care Insurance Plan (AHCIP) Registration File as of March 31, 2007 and forecast percent population growth from June 2006 and June 2007 from the Health Surveillance Branch of Alberta Health and Wellness.

(Table 17). Unintentional injury was the leading cause of emergency department visits for both men and women aged 20-44 years in 2006. Of these unintentional injury-related ED visits, about one third were due to falls (including sports) or being struck by an object or person (including sports). Another 12% of these visits were classified under 'cut/pierce'.

When the emergency department visit rate is calculated to reflect the number of individuals as opposed to the number of visits (as it is shown in Table 17), the ED visit rate for adults 20-44 years old was 220.4 per 1,000 population in 2006 (males=224.3 per 1,000; females=216.7 per 1,000). Among the adults who went to the emergency department in 2006, the average number of visits was 1.7 for males and 1.8 for females.

Emergency department (ED) visits by PHS area

The overall emergency department visit rate varied within the region with the rural areas (excluding Strathcona County) as well as Eastwood and North East having significantly higher ED visit rates than the region (Figure 34). Strathcona County had the lowest rate at 195.0 per 1,000 population.

Table 17: Emergency department visits for males and females 20-44 years old, Capital Health region, 2006

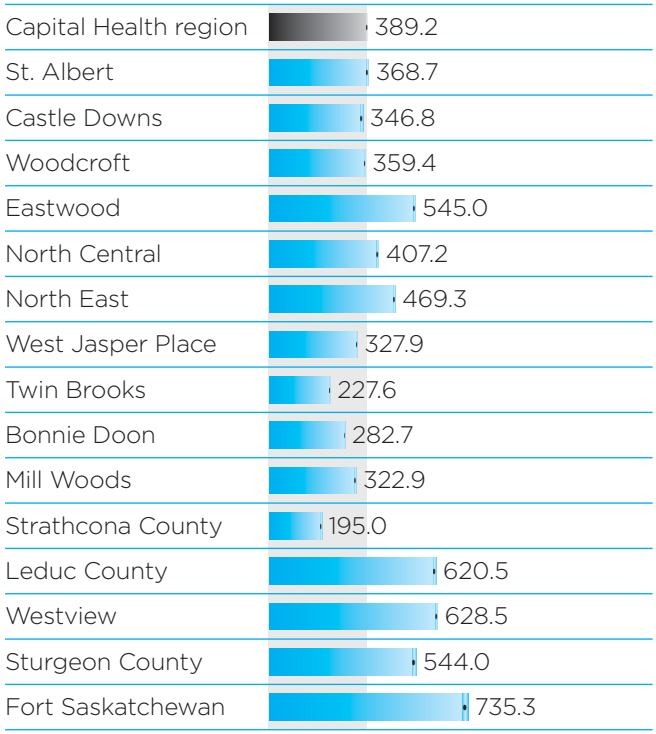
Leading causes by percent and (rank)

Cause	*Males % (rank)*	*Females % (rank)*
Unintentional injury	32.7% (1)	16.9% (1)
Digestive disease	6.4% (2)	7.4% (3)
Respiratory disease	6.2% (3)	7.2% (4)
Musculoskeletal/connective tissue diseases	5.7% (4)	4.7%
Mental disorders	5.3% (5)	4.2%
Pregnancy/childbirth	-	8.8% (2)
Genitourinary disease	2.5%	6.7% (5)
	Males	*Females*
Number of ED visits	75,086	75,554
Population (2006)	190,970	193,622
ED visit rate per 1,000	393.2	395.4

Sources: (1) Clinical Accountability and Reporting Department, Operational Policy and Integration Division, Capital Health (Health Care Utilization Data 2006).
(2) Population data values are for June 30, 2006 and are interpolated using actual population values from the Alberta Health Care Insurance Plan (AHCIP) Registration File as of March 31, 2006 and 2007.

Figure 34: Emergency department visits for adults 20-44 years old by PHS area, Capital Health region, 2004-2006 combined

Rate per 1,000



Sources: (1) Clinical Accountability and Reporting Department, Operational Policy and Integration Division, Capital Health (Health Care Utilization Data 2004-2006). (2) Population data values are for June 30. Values up to March 31, 2007 are interpolations of actual population values from the Alberta Health Care Insurance Plan (AHCIP) Registration File as of March 31 for each year. Forecast values for points in time after March 31, 2007 are estimated using the March 31, 2007 AHCIP Registration File values and year-over-year population growth values provided by the Health Surveillance Branch of Alberta Health and Wellness.

45-64 YEARS OLD

In this age group, females had a lower ED visit rate (296.9 per 1,000) than males (326.5) (Table 18). As was observed in the 20-44 year age group, unintentional injury was the leading cause of visits to the emergency department for both males and females. Falls (including sports) accounted for 30% of the unintentional injury-related ED visits. Overexertion/strenuous movement accounted for another 10% of these visits.

When the emergency department visit rate is calculated to reflect the number of individuals as opposed to the number of visits (as it is shown in Table 18), the ED visit rate for adults 45-64 years old was 174.1 per 1,000 population in 2006 (males=178.9 per 1,000; females=169.2 per 1,000). Among the adults who went to the emergency department in 2006, the average number of visits was 1.8 for both males and females.

Table 18: Emergency department visits for males and females 45-64 years old, Capital Health region, 2006

Leading causes by percent and (rank)

Cause	*Males % (rank)*	*Females % (rank)*
Unintentional injury	21.7% (1)	17.9% (1)
Mental disorders	7.4% (2)	3.7%
Digestive disease	7.1% (3)	8.0% (2)
Musculoskeletal/connective tissue diseases	6.8% (4)	6.9% (4)
Circulatory disease	6.1% (5)	4.4%
Respiratory disease	6.0%	7.1% (3)
Nervous system disease	4.6%	6.3% (5)
	Males	*Females*
Number of ED visits	43,634	39,551
Population (2006)	133,649	133,207
ED visit rate per 1,000	326.5	296.9

Sources: (1) Clinical Accountability and Reporting Department, Operational Policy and Integration Division, Capital Health (Health Care Utilization Data 2006). (2) Population data values are for June 30, 2006 and are interpolated using actual population values from the Alberta Health Care Insurance Plan (AHCIP) Registration File as of March 31, 2006 and 2007.

Table 19: Hospitalizations for males and females 20-44 years old, Capital Health region, 2006

Leading causes by percent and (rank)

Cause	*Males % (rank)*	*Females % (rank)*
Mental disorders	18.2% (1)	15.4% (2)
Unintentional injury	17.6% (2)	5.9% (4)
Digestive disease	15.7% (3)	17.7% (1)
Musculoskeletal/connective tissue diseases	6.5% (4)	4.4%
Intentional injury	6.3% (5)	1.3%
Genitourinary disease	2.3%	15.1% (3)
Benign, in situ, and uncertain tumours	0.8%	5.3% (5)
	Males	*Females*
Number of hospitalizations*	6,297	6,813
Population (2006)	190,970	193,622
Hospitalization rate per 1,000*	33.0	35.2

* excludes obstetric/pregnancy-related hospitalizations

Sources: (1) Clinical Accountability and Reporting Department, Operational Policy and Integration Division, Capital Health (Health Care Utilization Data 2006). (2) Population data values are for June 30, 2006 and are interpolated using actual population values from the Alberta Health Care Insurance Plan (AHCIP) Registration File as of March 31, 2006 and 2007.

Emergency department (ED) visits by PHS area

Fort Saskatchewan had an ED visit rate of 737.9 per 1,000 – more than twice the regional rate of 319.0 per 1,000 people aged 45-64 years old (Figure 35). The other public health service areas that had a significantly higher ED visit rate than the regional rate include: Eastwood, North Central, North East, as well as the more rural areas of the region – Leduc County, Westview, and Sturgeon County.

Why do adults go to the hospital?

20-44 YEARS OLD

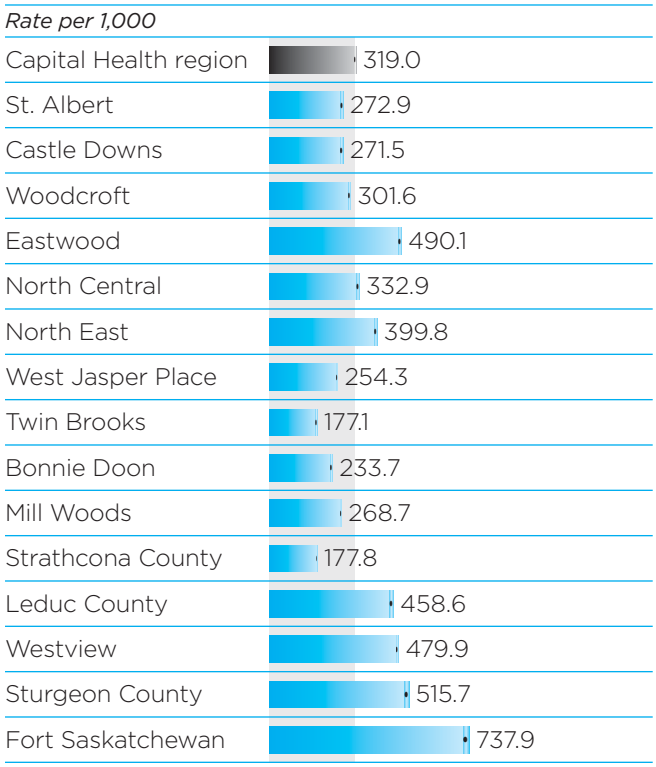
The hospitalization rates for males and females were very similar at 35.2 per 1,000 for females and 33.0 per 1,000 for males (Table 19). When obstetric/pregnancy-related hospitalizations are included, the rate for females was 109.9 per 1,000.

The leading cause of hospitalization for males 20-44 years old was mental disorders and of these hospitalizations, schizophrenia, schizotypal personality disorders, and delusional disorders accounted for 35% of hospitalizations; mental disorders due to psychoactive substance use accounted for 26% and mood disorders accounted for 21%.

For females, aged 20-44 years, digestive disease was the leading cause of hospitalization. Over half (66%) of the digestive disease-related hospitalizations were for diseases of the appendix (17%), non-infective enteritis and colitis (11%), and disorders of the gallbladder, biliary tract, and pancreas (38%).

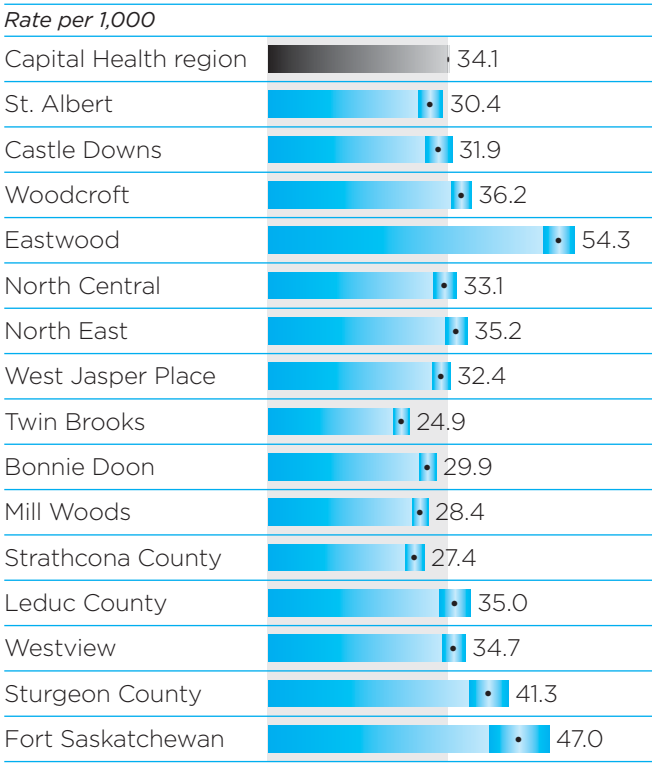
When the hospitalization rate is calculated to reflect the number of individuals as opposed to the number of hospitalizations (as it is shown in Table 19), the hospitalization rate for adults aged 20-44 years was 26.9 per 1,000 population in 2006 (males=25.9 per 1,000; females=27.9 per 1,000). Among the adults who were hospitalized in 2006, the average number of hospitalizations was 1.3 for both males and females.

Figure 35: Emergency department visits for adults 45-64 years old by PHS area, Capital Health region, 2004-2006 combined



Sources: (1) Clinical Accountability and Reporting Department, Operational Policy and Integration Division, Capital Health (Health Care Utilization Data 2004-2006). (2) Population data values are for June 30. Values up to March 31, 2007 are interpolations of actual population values from the Alberta Health Care Insurance Plan (AHCIP) Registration File as of March 31 for each year. Forecast values for points in time after March 31, 2007 are estimated using the March 31, 2007 AHCIP Registration File values and year-over-year population growth values provided by the Health Surveillance Branch of Alberta Health and Wellness.

Figure 36: Hospitalizations for adults 20-44 years old by PHS area, Capital Health region, 2004-2006 combined



Sources: (1) Clinical Accountability and Reporting Department, Operational Policy and Integration Division, Capital Health (Health Care Utilization Data 2004-2006). (2) Population data values are for June 30. Values up to March 31, 2007 are interpolations of actual population values from the Alberta Health Care Insurance Plan (AHCIP) Registration File as of March 31 for each year. Forecast values for points in time after March 31, 2007 are estimated using the March 31, 2007 AHCIP Registration File values and year-over-year population growth values provided by the Health Surveillance Branch of Alberta Health and Wellness.

Hospitalizations by PHS area

Twin Brooks had the lowest hospitalization rate in the region for this age group at 24.9 per 1,000 whereas Eastwood has the highest rate at 54.3 per 1,000 (Figure 36). The other public health service areas with significantly higher hospitalization rates than the region were Sturgeon County and Fort Saskatchewan.

45-64 YEARS OLD

Digestive disease remained the leading cause of hospitalization for females, followed by cancer, while it was circulatory disease that became the leading cause of hospitalization for males (15.9%) albeit it was closely followed by digestive disease (15.3%) (Table 20).

Within the digestive disease-related hospitalizations for female, the leading causes were disorders of the gallbladder, biliary tract, and pancreas (32%), hernia (9%) and diseases of the appendix (9%). In men, over half of the hospitalizations for circulatory disease were due to ischemic heart disease (57%).

When the hospitalization rate is calculated to reflect the number of individuals as opposed to the number of hospitalizations (as it is shown in Table 20), the hospitalization rate for adults aged 45-64 years was 51.6 per 1,000 population in 2006 (males=52.0 per 1,000; females=51.2 per 1,000). Among the adults who were hospitalized in 2006, the average number of hospitalizations was 1.3 for both males and females.

Hospitalizations by PHS area

At 101.8 hospitalizations per 1,000 population, Eastwood had the highest hospitalization rate within the region for adults aged 45-64 years (Figure 37). There are several public health service areas with rates that were significantly lower than the regional rate including St. Albert, Castle Downs, West Jasper Place, Twin Brooks, Mill Woods, and Strathcona County.

What do adults die from?

Cancer was the leading cause of death for females in the 20-44 year age group as well as the 45-64 year age group in 2006 (Figure 38

Table 20: Hospitalizations for males and females 45-64 years old, Capital Health region, 2006

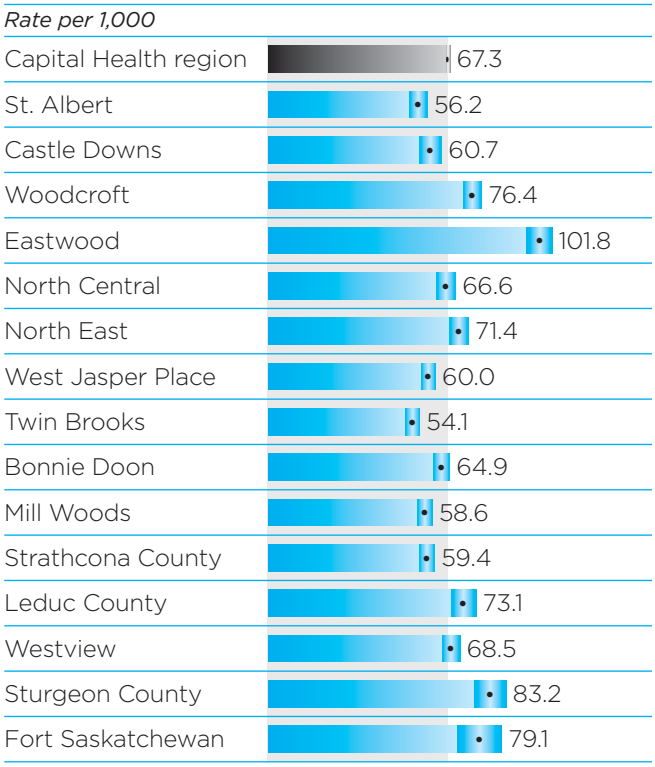
Leading causes by percent and (rank)

Cause	*Males % (rank)*	*Females % (rank)*
Circulatory disease	15.9% (1)	7.1%
Digestive disease	15.3% (2)	13.9% (1)
Cancer	10.2% (3)	11.7% (2)
Musculoskeletal/connective tissue diseases	9.8% (4)	10.5% (4)
Unintentional injury	7.4% (5)	6.0%
Genitourinary disease	3.4%	11.3% (3)
Mental disorders	6.8%	8.0% (5)
	Males	*Females*
Number of hospitalizations*	9,165	8,605
Population (2006)	133,649	133,207
Hospitalization rate per 1,000*	68.6	64.6

* excludes obstetric and pregnancy-related hospitalizations

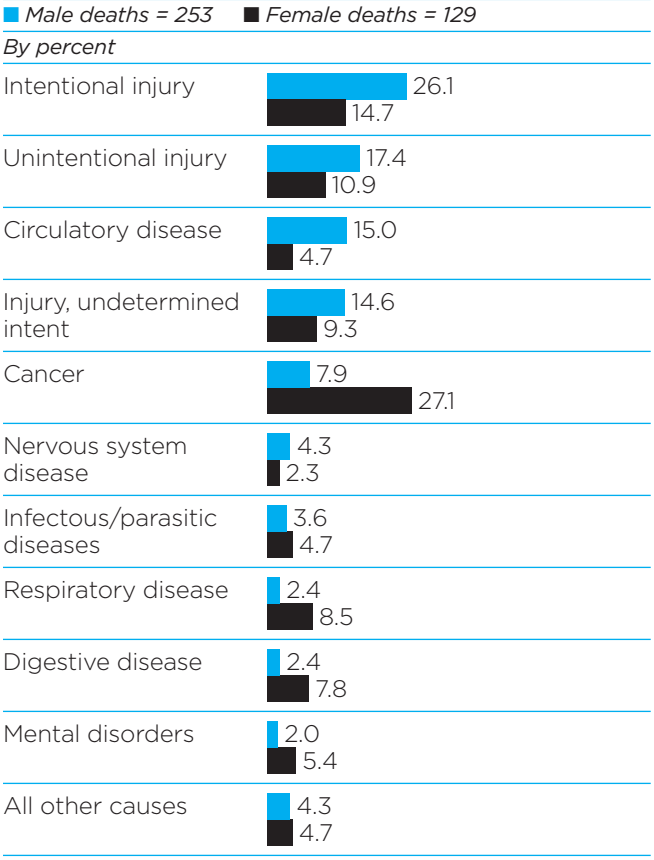
Sources: (1) Clinical Accountability and Reporting Department, Operational Policy and Integration Division, Capital Health (Health Care Utilization Data 2006). (2) Population data values are for June 30, 2006 and are interpolated using actual population values from the Alberta Health Care Insurance Plan (AHCIP) Registration File as of March 31, 2006 and 2007.

Figure 37: Hospitalizations for adults 45-64 years old by PHS area, Capital Health region, 2004-2006 combined



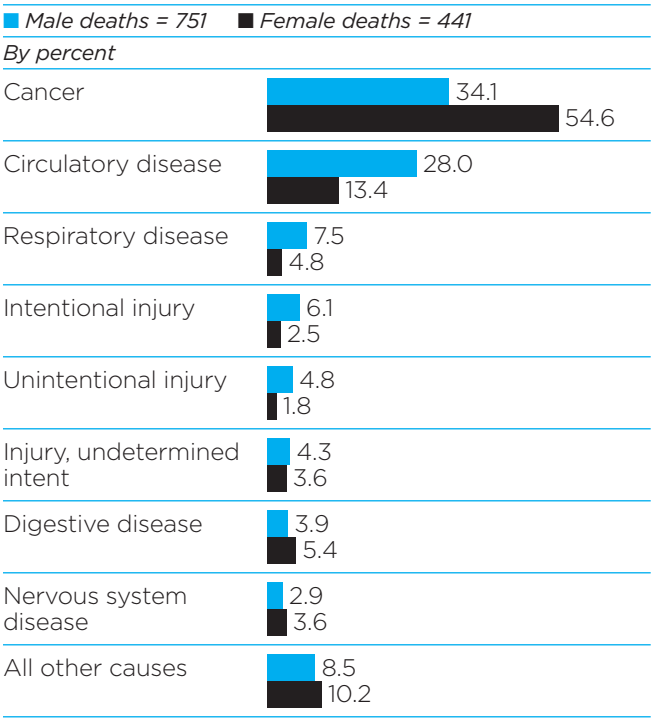
Sources: (1) Clinical Accountability and Reporting Department, Operational Policy and Integration Division, Capital Health (Health Care Utilization Data 2004-2006). (2) Population data values are for June 30. Values up to March 31, 2007 are interpolations of actual population values from the Alberta Health Care Insurance Plan (AHCIP) Registration File as of March 31 for each year. Forecast values for points in time after March 31, 2007 are estimated using the March 31, 2007 AHCIP Registration File values and year-over-year population growth values provided by the Health Surveillance Branch of Alberta Health and Wellness.

Figure 38: Leading causes of death for 20-44 year olds, Capital Health region, 2006



Source: Vital Statistics (Death Data), 2006.

Figure 39: Leading causes of death for 45-64 year olds, Capital Health region, 2006



Source: Vital Statistics (Death Data), 2006.

and 39). However, when unintentional, intentional, and injury with undetermined intent were grouped together, then injury became the leading cause of death for females aged 20-44 years accounting for 35% of the deaths.

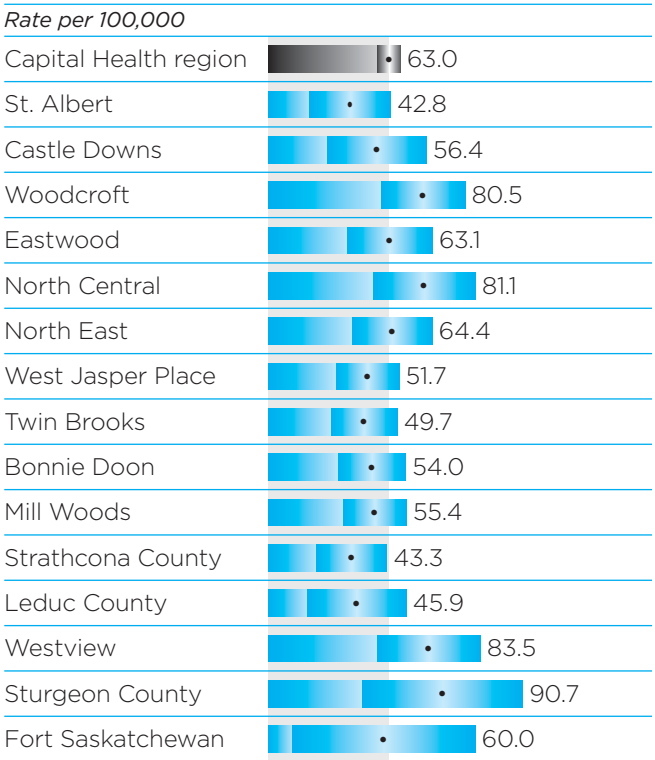
For males aged 20-44 years, intentional injury accounted for approximately one quarter of the deaths in 2006. Of these deaths, 70% were due to suicide. When unintentional injury and injury with undetermined intent were added, this percentage increased to 58% of deaths. For the older males, between 45 and 64 years of age, circulatory disease (including heart disease and stroke) and cancer contributed to just over 60% of deaths.

Deaths by PHS area

20-24 YEAR OLDS

Over a 10 year period, 1997 to 2006, 442 young adults in this age group died. The 10 year combined mortality rate for the region was 63.0 per 100,000 20-24 year olds (Figure 40).

Figure 40: Mortality rate for adults 20-24 years old by PHS area, Capital Health region, 1997-2006 combined



Source: (1) Vital Statistics (Death Data) 1997-2006. (2) Population data values are for June 30. Values up to March 31, 2007 are interpolations of actual population values from the Alberta Health Care Insurance Plan (AHCIP) Registration File as of March 31 for each year. Forecast values for points in time after March 31, 2007 are estimated using the March 31, 2007 AHCIP Registration File values and year-over-year population growth values provided by the Health Surveillance Branch of Alberta Health and Wellness.

Although there was variation in the death rate for these young adults within the region, with a high of 90.7 per 100,000 in Sturgeon County and a low of 43.3 per 100,000 and 42.8 per 100,000 in Strathcona County and St. Albert respectively, the differences among public health service areas were not significant and no one public health service area had a mortality rate that was statistically higher or lower than the region.

25-34 YEAR OLDS

Over a 10 year period, 1997 to 2006, 1,079 adults in this age group died. The 1997-2006 mortality rate for the region was 76.7 per 100,000 25-34 year olds (Figure 41). The mortality rate among the public health service areas varied from a low of 50 per 100,000 in Twin Brooks and Bonnie Doon public health service areas to over two and a half times that in Eastwood (138.7per 100,000).

35-44 YEAR OLDS

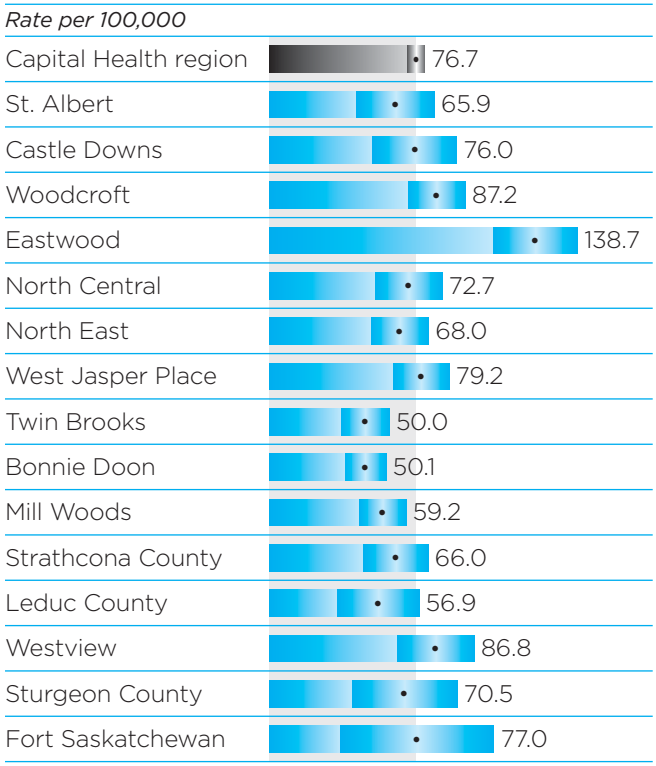
Over a 10 year period, 1997 to 2006, 2,187 adults between 35 and 44 years old died. The 10 year combined mortality rate (1997-2006) for the region was 135.2 per 100,000 35-44 year olds (Figure 42). The mortality rate among the public health service areas varied from a low of 68.0 per 100,000 in St. Albert to a rate that was over four times as high in Eastwood (294.4 per 100,000).

Woodcroft and Eastwood public health service areas had significantly higher mortality rates than the region while St. Albert, Castle Downs, Twin Brooks, Mill Woods, and the counties of Strathcona, Leduc and Sturgeon had significantly lower rates than the region.

45-54 YEAR OLDS

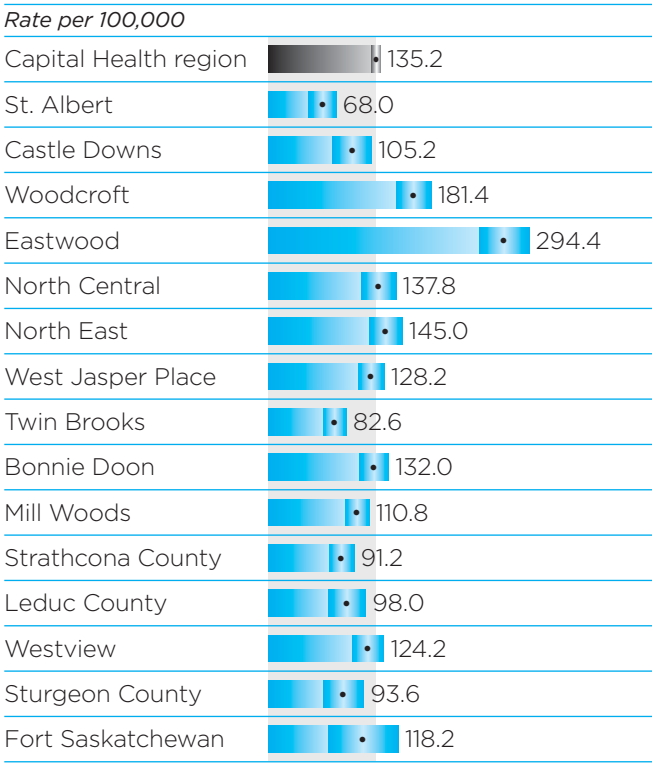
Over a 10 year period, 1997 to 2006, just over 4,000 adults died (n=4,060). The 10 year combined mortality rate (1997-2006) for the

Figure 41: Mortality rate for adults 25-34 years old by PHS area, Capital Health region, 1997-2006 combined



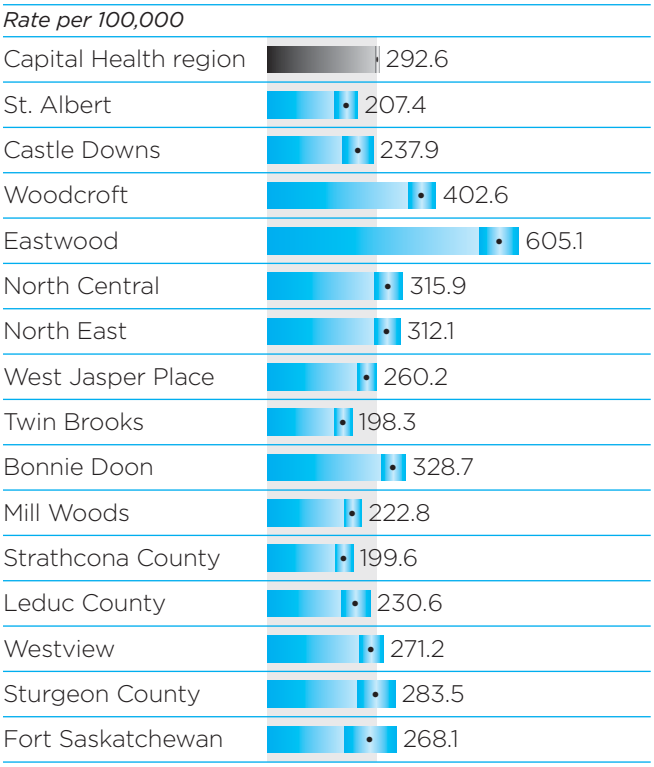
Source: (1) Vital Statistics (Death Data) 1997-2006. (2) Population data values are for June 30. Values up to March 31, 2007 are interpolations of actual population values from the Alberta Health Care Insurance Plan (AHCIP) Registration File as of March 31 for each year. Forecast values for points in time after March 31, 2007 are estimated using the March 31, 2007 AHCIP Registration File values and year-over-year population growth values provided by the Health Surveillance Branch of Alberta Health and Wellness.

Figure 42: Mortality rate for adults 35-44 years old by PHS area, Capital Health region, 1997-2006 combined



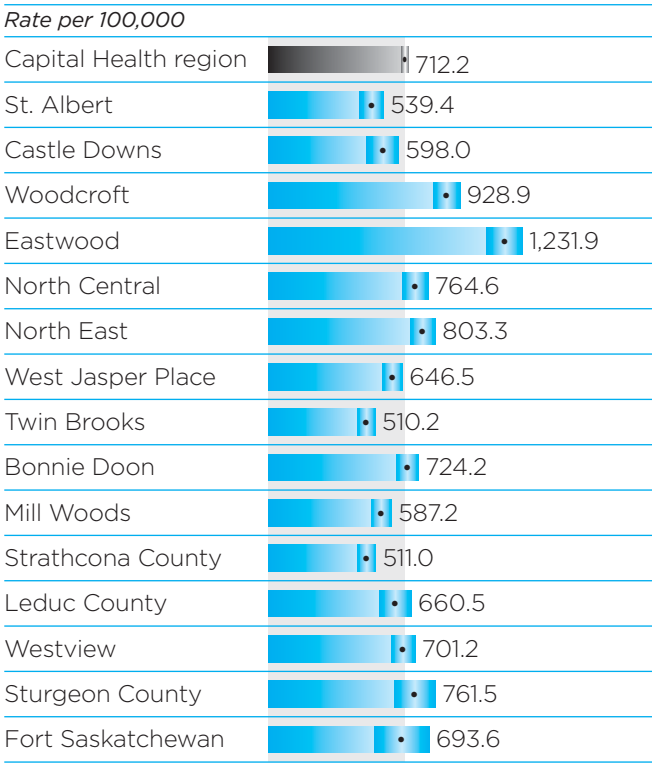
Source: (1) Vital Statistics (Death Data) 1997-2006. (2) Population data values are for June 30. Values up to March 31, 2007 are interpolations of actual population values from the Alberta Health Care Insurance Plan (AHCIP) Registration File as of March 31 for each year. Forecast values for points in time after March 31, 2007 are estimated using the March 31, 2007 AHCIP Registration File values and year-over-year population growth values provided by the Health Surveillance Branch of Alberta Health and Wellness.

Figure 43: Mortality rate for adults 45-54 years old by PHS area, Capital Health region, 1997-2006 combined



Source: (1) Vital Statistics (Death Data) 1997-2006. (2) Population data values are for June 30. Values up to March 31, 2007 are interpolations of actual population values from the Alberta Health Care Insurance Plan (AHCIP) Registration File as of March 31 for each year. Forecast values for points in time after March 31, 2007 are estimated using the March 31, 2007 AHCIP Registration File values and year-over-year population growth values provided by the Health Surveillance Branch of Alberta Health and Wellness.

Figure 44: Mortality rate for adults 55-64 years old by PHS area, Capital Health region, 1997-2006 combined



Source: (1) Vital Statistics (Death Data) 1997-2006. (2) Population data values are for June 30. Values up to March 31, 2007 are interpolations of actual population values from the Alberta Health Care Insurance Plan (AHCIP) Registration File as of March 31 for each year. Forecast values for points in time after March 31, 2007 are estimated using the March 31, 2007 AHCIP Registration File values and year-over-year population growth values provided by the Health Surveillance Branch of Alberta Health and Wellness.

region was 292.6 per 100,000 45-54 year olds (Figure 43). Public health service areas with significantly higher mortality rates than the regional rate included Woodcroft and Eastwood. Significantly lower rates were experienced by St. Albert, Castle Downs, Twin Brooks, Mill Woods, Strathcona County, and Leduc County.

55-64 YEAR OLDS

Over a 10 year period, 1997 to 2006, 6,062 adults died. The 10 year combined mortality rate (1997-2006) for the region was 712.2 per 100,000 55-64 year olds (Figure 44). The public health service areas with significantly higher mortality rates than the regional rate include: Woodcroft, Eastwood and North East. Significantly lower rates were experienced by St. Albert, Castle Downs, Twin Brooks, Mill Woods, and Strathcona County.



Health through the ages:

Seniors

In the Capital Health region, seniors aged 65 years and older made up 11.2% of the population in 2007. Among public health service areas, Bonnie Doon, North Central and Woodcroft had the highest percentage of seniors. Millwoods had the lowest percentage of seniors (Table 21).

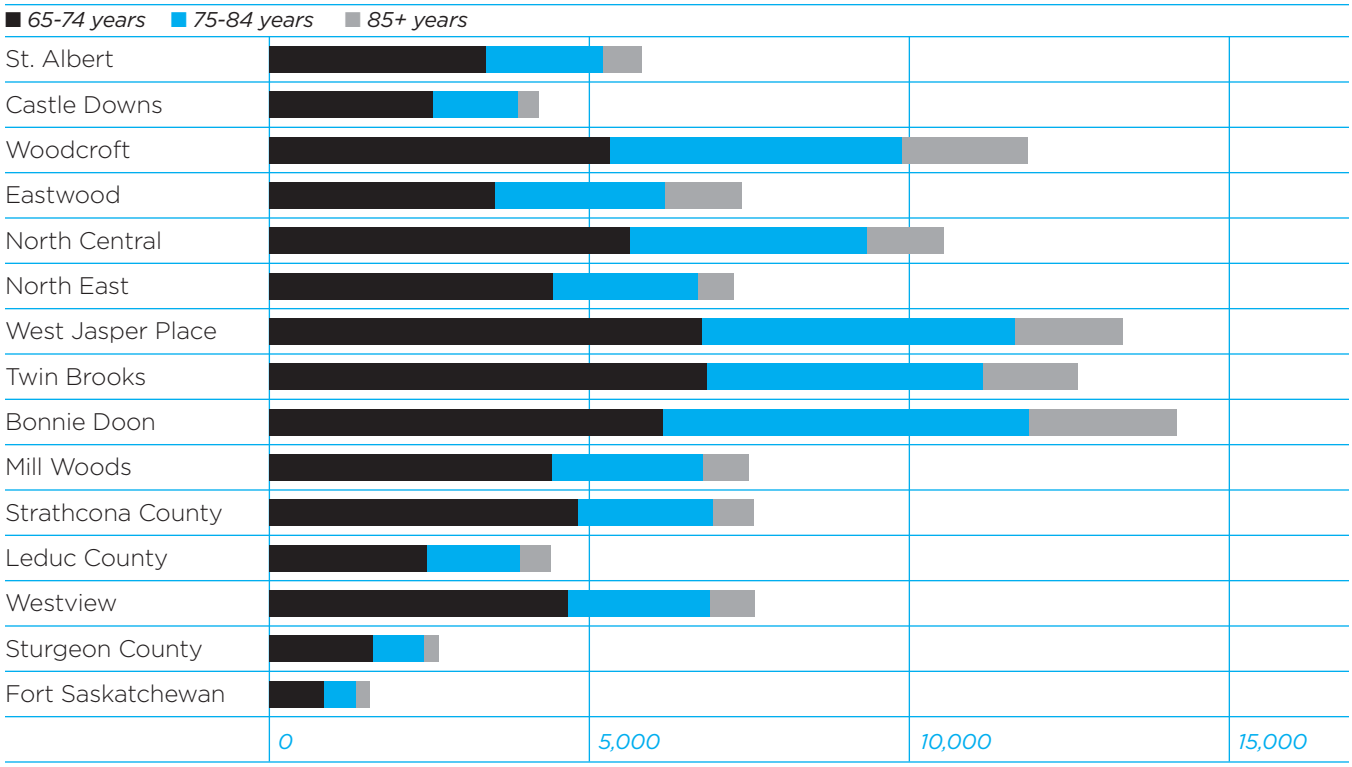
In terms of numbers, the three public health service areas that had the highest number of seniors in 2007 were Bonnie Doon (14,185), West Jasper Place (13,351), and Twin Brooks (12,641) (Table 21, Figures 45-48).

Table 21: Number (percentage) seniors in selected age groups by PHS area, Capital Health region, 2007

PHS Area	*65+years*	*75+ years*	*85+ years*	*65-74 years*	*75-84 years*
St. Albert	5,845 (10.1)	2,466 (4.3)	619 (1.1)	3,379 (5.9)	1,847 (3.2)
Castle Downs	4,225 (8.5)	1,670 (3.4)	329 (0.7)	2,555 (5.2)	1,340 (2.7)
Woodcroft	11,868 (14.6)	6,556 (8.1)	1,979 (2.4)	5,312 (6.5)	4,577 (5.6)
Eastwood	7,397 (11.8)	3,875 (6.2)	1,210 (1.9)	3,522 (5.6)	2,665 (4.3)
North Central	10,560 (14.8)	4,923 (6.9)	1,219 (1.7)	5,638 (7.9)	3,704 (5.2)
North East	7,272 (9.3)	2,849 (3.6)	565 (0.7)	4,423 (5.6)	2,284 (2.9)
West Jasper Place	13,351 (12.3)	6,594 (6.1)	1,698 (1.6)	6,757 (6.2)	4,896 (4.5)
Twin Brooks	12,641 (12.2)	5,804 (5.6)	1,490 (1.4)	6,837 (6.6)	4,314 (4.2)
Bonnie Doon	14,185 (16.2)	8,044 (9.2)	2,299 (2.6)	6,141 (7.0)	5,745 (6.5)
Mill Woods	7,504 (6.9)	3,096 (2.8)	723 (0.7)	4,407 (4.0)	2,373 (2.2)
Strathcona County	7,644 (9.1)	2,823 (3.4)	702 (0.8)	4,821 (5.7)	2,121 (2.5)
Leduc County	4,416 (10.1)	1,950 (4.5)	498 (1.1)	2,466 (5.6)	1,453 (3.3)
Westview	7,599 (10.0)	2,930 (3.9)	711 (0.9)	4,669 (6.1)	2,219 (2.9)
Sturgeon County	2,672 (8.3)	1,058 (3.3)	235 (0.7)	1,614 (5.0)	823 (2.6)
Fort Saskatchewan	1,592 (10.3)	727 (4.7)	234 (1.5)	865 (5.6)	494 (3.2)
Capital Health region	*118,770 (11.2)*	*55,365 (5.2)*	*14,511 (1.4)*	*63,405 (6.0)*	*40,855 (3.9)*

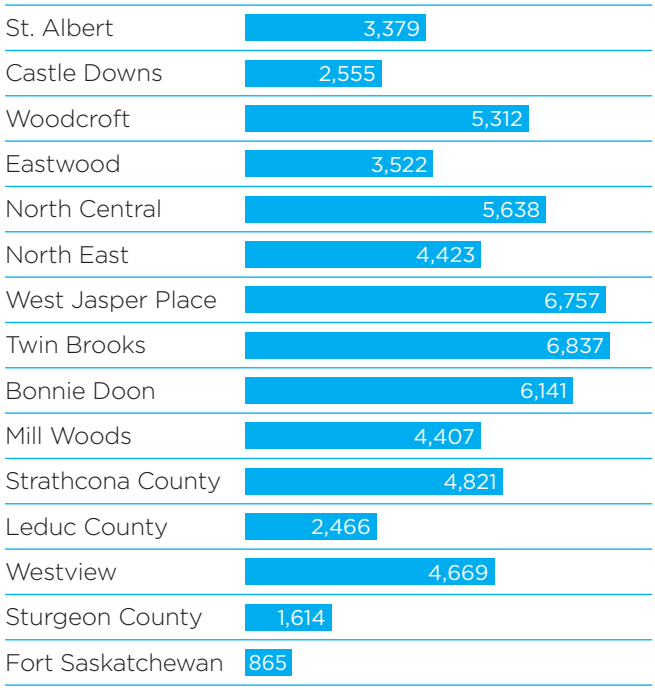
Source: Population data values are for June 30 and are estimated using actual population values from the Alberta Health Care Insurance Plan (AHCIP) Registration File as of March 31, 2007 and forecast percent population growth from June 2006 and June 2007 from the Health Surveillance Branch of Alberta Health and Wellness.

Figure 45: Number of seniors by age group and PHS area, Capital Health region, 2007



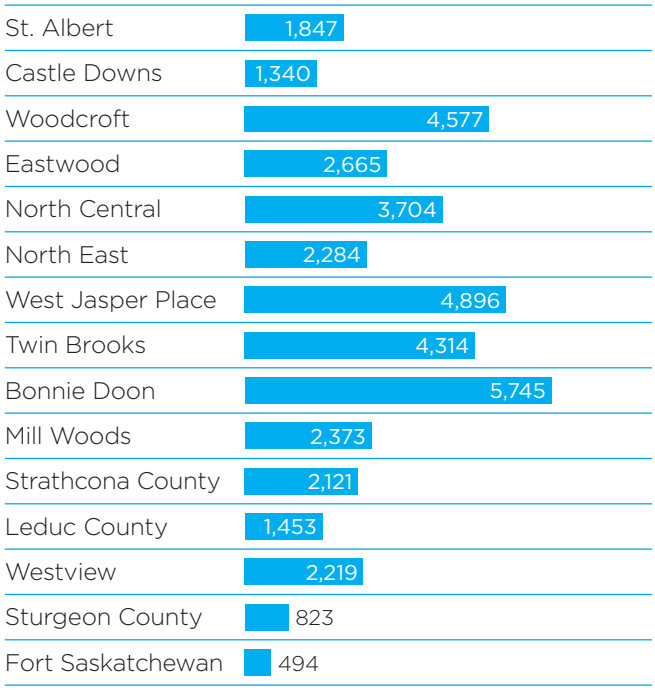
Source: Population data values are for June 30 and are estimated using actual population values from the Alberta Health Care Insurance Plan (AHCIP) Registration File as of March 31, 2007 and forecast percent population growth from June 2006 and June 2007 from the Health Surveillance Branch of Alberta Health and Wellness.

Figure 46: Number of seniors aged 65-74 years, Capital Health region, 2007



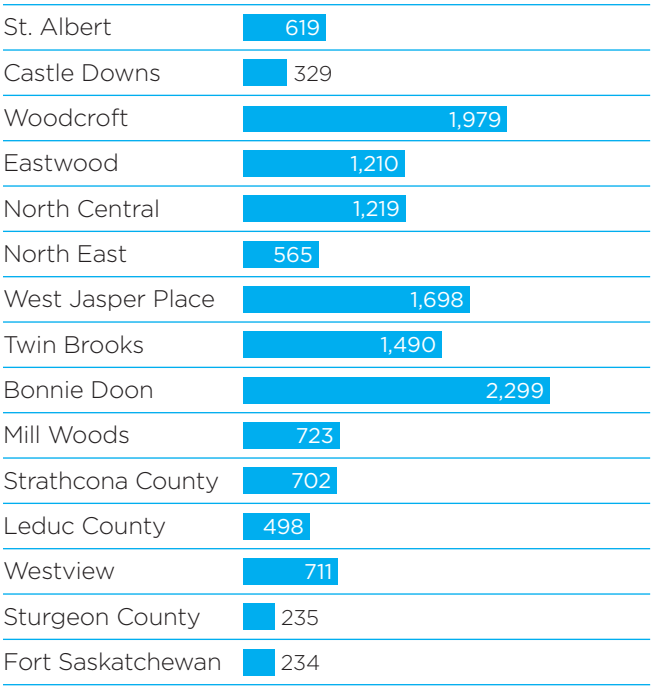
Source: Population data values are for June 30 and are estimated using actual population values from the Alberta Health Care Insurance Plan (AHCIP) Registration File as of March 31, 2007 and forecast percent population growth from June 2006 and June 2007 from the Health Surveillance Branch of Alberta Health and Wellness.

Figure 47: Number of seniors aged 75-84 years, Capital Health region, 2007



Source: Population data values are for June 30 and are estimated using actual population values from the Alberta Health Care Insurance Plan (AHCIP) Registration File as of March 31, 2007 and forecast percent population growth from June 2006 and June 2007 from the Health Surveillance Branch of Alberta Health and Wellness.

Figure 48: Number of seniors aged 85+ years, Capital Health region, 2007



Source: Population data values are for June 30 and are estimated using actual population values from the Alberta Health Care Insurance Plan (AHCIP) Registration File as of March 31, 2007 and forecast percent population growth from June 2006 and June 2007 from the Health Surveillance Branch of Alberta Health and Wellness.

Why do seniors go to the emergency department (ED)?

65-74 YEAR OLDS

In the 65-74 year age group, the ED visit rate for males was higher than females in 2006 (Table 22). However, the most common reason for going to the emergency department was the same for both males and females – unintentional injury. Falls contributed to 50% of the unintentional injury-related visits.

When the emergency department visit rate is calculated to reflect the number of individuals as opposed to the number of visits (as it is shown in Table 22), the ED visit rate for seniors 65-74 years old was 222.9 per 1,000 population in 2006 (males=231.1 per 1,000; females=215.3 per 1,000). Among the seniors who went to the emergency department in 2006, the average number of visits was 1.9 for males and 1.8 for females.

Emergency department (ED) visits by PHS area

The rural areas of the region experienced higher ED visit rates than in other public health service areas (Figure 49). As mentioned earlier in the

Table 22: Emergency department (ED) visits for males and females 65-74 years old, Capital Health region, 2006

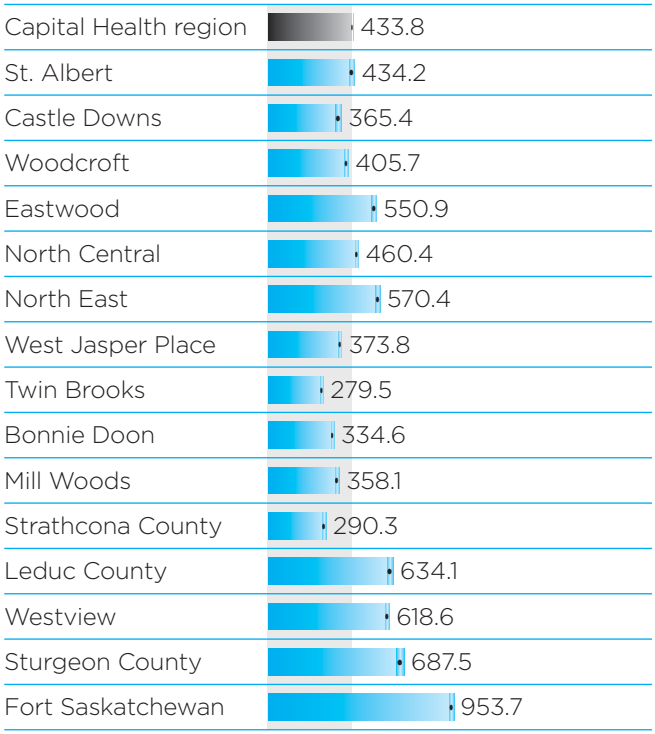
Leading causes by percent and (rank)

Cause	*Males % (rank)*	*Females % (rank)*
Unintentional injury	12.4% (1)	14.1% (1)
Circulatory disease	11.3% (2)	9.0% (2)
Respiratory disease	9.5% (3)	8.8% (3+)
Digestive disease	8.2% (4)	8.8% (3+)
Musculoskeletal/connective tissue diseases	5.3% (5)	6.9% (4)
	Males	*Females*
Number of ED visits	13,118	12,582
Population (2006)	29,561	32,174
ED visit rate per 1,000	443.8	391.1

Sources: (1) Clinical Accountability and Reporting Department, Operational Policy and Integration Division, Capital Health (Health Care Utilization Data 2006). (2) Population data values are for June 30, 2006 and are interpolated using actual population values from the Alberta Health Care Insurance Plan (AHCIP) Registration File as of March 31, 2006 and 2007.

Figure 49: Emergency department visits for seniors 65-74 years old by PHS area, Capital Health region, 2004-2006 combined

Rate per 1,000



Source: (1) Clinical Accountability and Reporting Department, Operational Policy and Integration Division, Capital Health (Health Care Utilization Data 2004-2006). (2) Population data values are for June 30. Values up to March 31, 2007 are interpolations of actual population values from the Alberta Health Care Insurance Plan (AHCIP) Registration File as of March 31 for each year. Forecast values for points in time after March 31, 2007 are estimated using the March 31, 2007 AHCIP Registration File values and year-over-year population growth values provided by the Health Surveillance Branch of Alberta Health and Wellness.

report, the higher ED visit rates consistently observed in these areas, across all age groups may be due to the limited after-hours access to health services other than at the emergency department. Eastwood, North Central, and North East also had significantly higher rates than the regional rate of 433.8 per 1,000.

75+ YEAR OLDS

Unintentional injury was the leading cause of emergency department visits for females aged 75 years and older with falls accounting for one third of the injury-related ED visits (Table 23). For men, circulatory disease was the number one reason for going to the emergency department with ischemic heart disease accounting for 25% of these visits and other forms of heart disease (e.g. cardiac arrest, atrial fibrillation and flutter, heart failure) accounting for another 42%.

When the emergency department visit rate is calculated to reflect the number of individuals as opposed to the number of visits (as it is shown in Table 23), the ED visit rate for seniors 75 years and older was 340.9 per 1,000 population in 2006 (males=350.2 per 1,000; females=334.9 per 1,000). Among the seniors who went to the emergency department in 2006, the average number of visits was 2.0 for males and 1.9 for females.

Table 23: Emergency department (ED) visits for males and females 75+ years old, Capital Health region, 2006

Leading causes by percent and (rank)

Cause	*Males % (rank)*	*Females % (rank)*
Circulatory disease	12.8% (1)	12.3% (2)
Unintentional injury	11.5% (2)	16.4% (1)
Respiratory disease	10.5% (3)	8.0% (4)
Digestive disease	8.4% (4)	8.6% (3)
Musculoskeletal/connective tissue diseases	4.9% (5)	6.8% (5)
	Males	*Females*
Number of ED visits	14,990	20,807
Population (2006)	20,955	32,270
ED visit rate per 1,000	715.3	644.8

Sources: (1) Clinical Accountability and Reporting Department, Operational Policy and Integration Division, Capital Health (Health Care Utilization Data 2006). (2) Population data values are for June 30, 2006 and are interpolated using actual population values from the Alberta Health Care Insurance Plan (AHCIP) Registration File as of March 31, 2006 and 2007.

Emergency Department (ED) visits by PHS area

Significantly higher rates than the regional rate of 693.4 per 1,000 were found in: Leduc County, Westview, Sturgeon County, Fort Saskatchewan, St. Albert, Eastwood, North Central, and North East (Figure 50). The lowest rate was in Twin Brooks at 507.3 per 1,000.

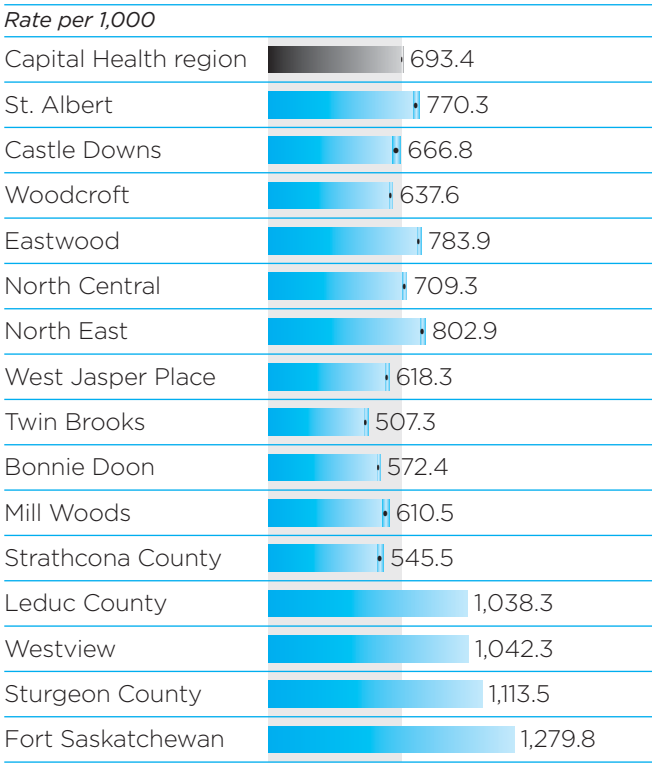
Why do seniors go to the hospital?

65-74 YEAR OLDS

There were over 9,000 hospitalizations in 2006 for seniors between 65 and 74 years of age with males having a higher hospitalization rate (169.1 per 1,000) than females (134.4 per 1,000) (Table 24).

In men, one fifth of the hospitalizations were due to circulatory disease with the major contributors being ischemic heart disease (42%), heart failure (13%), and cerebrovascular diseases (15%).

Figure 50: Emergency department visits for seniors 75+ years old by PHS area, Capital Health region, 2004-2006 combined



Sources: (1) Clinical Accountability and Reporting Department, Operational Policy and Integration Division, Capital Health (Health Care Utilization Data 2004-2006). (2) Population data values are for June 30. Values up to March 31, 2007 are interpolations of actual population values from the Alberta Health Care Insurance Plan (AHCIP) Registration File as of March 31 for each year. Forecast values for points in time after March 31, 2007 are estimated using the March 31, 2007 AHCIP Registration File values and year-over-year population growth values provided by the Health Surveillance Branch of Alberta Health and Wellness.

Table 24: Hospitalizations for males and females 65-74 years old, Capital Health region, 2006

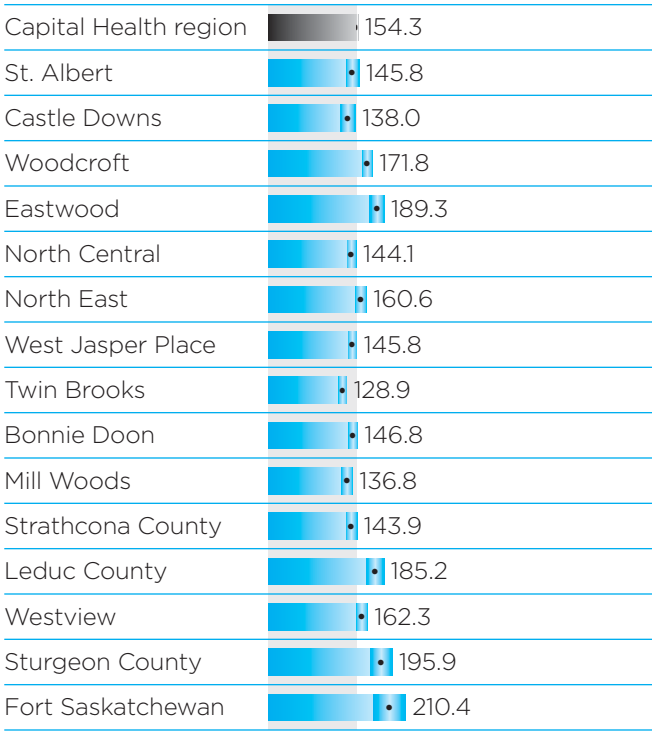
Leading causes by percent and (rank)

Cause	*Males % (rank)*	*Females % (rank)*
Circulatory disease	21.2% (1)	12.8% (2)
Digestive disease	12.1% (2)	11.4% (4)
Cancer	11.8% (3)	12.2% (3)
Respiratory disease	11.0% (4)	10.2% (5)
Musculoskeletal/connective tissue diseases	8.9% (5)	13.4% (1)
	Males	*Females*
Number of hospitalizations	5,000	4,325
Population (2006)	29,561	32,174
Hospitalization rate per 1,000	169.1	134.4

Sources: (1) Clinical Accountability and Reporting Department, Operational Policy and Integration Division, Capital Health (Health Care Utilization Data 2006). (2) Population data values are for June 30, 2006 and are interpolated using actual population values from the Alberta Health Care Insurance Plan (AHCIP) Registration File as of March 31, 2006 and 2007.

Figure 51: Hospitalizations for seniors 65-74 years old by PHS area, Capital Health region, 2004-2006 combined

Rate per 1,000



Sources: (1) Clinical Accountability and Reporting Department, Operational Policy and Integration Division, Capital Health (Health Care Utilization Data 2004-2006). (2) Population data values are for June 30. Values up to March 31, 2007 are interpolations of actual population values from the Alberta Health Care Insurance Plan (AHCIP) Registration File as of March 31 for each year. Forecast values for points in time after March 31, 2007 are estimated using the March 31, 2007 AHCIP Registration File values and year-over-year population growth values provided by the Health Surveillance Branch of Alberta Health and Wellness.

For women, there was no one disease category that stood out but diseases of the musculoskeletal system and connective tissue accounted for the largest proportion of hospitalizations in this age group. Within this category, arthrosis (joint disorder) contributed to 68% of the musculoskeletal system-related hospitalizations.

When the hospitalization rate is calculated to reflect the number of individuals as opposed to the number of hospitalizations (as it is shown in Table 24), the hospitalization rate for seniors aged 65-74 years was 110.1 per 1,000 population in 2006 (males=120.5 per 1,000; females=100.6 per 1,000). Among the seniors who were hospitalized in 2006, the average number of hospitalizations was 1.4 for males and 1.3 for females.

Hospitalizations by PHS area

The regional hospitalization rate for seniors between 65 and 74 years was 154.3 per 1,000 (Figure 51). Significantly higher rates were observed in Woodcroft, Eastwood, Leduc County, Sturgeon County, and Fort Saskatchewan.

75+ YEAR OLDS

For seniors aged 75 years and older, the number one reason for hospitalization was circulatory disease with congestive heart failure contributing to one quarter of these hospitalizations (Table 25). While unintentional injury ranked second for women, respiratory disease ranked second for men.

When the hospitalization rate is calculated to reflect the number of individuals as opposed to the number of hospitalizations (as it is shown in Table 25), the hospitalization rate for seniors 75 years and older was 197.1 per 1,000 population in 2006 (males=214.2 per 1,000; females=185.9 per 1,000). Among the adults that were hospitalized in 2006, the average number of hospitalizations was 1.4 for both males and females.

Hospitalizations by PHS area

The hospitalization rates for Leduc County, Sturgeon County and Fort Saskatchewan are significantly higher than the regional rate and higher than the rates in the other public health

Table 25: Hospitalizations for males and females 75+ years old, Capital Health region, 2006

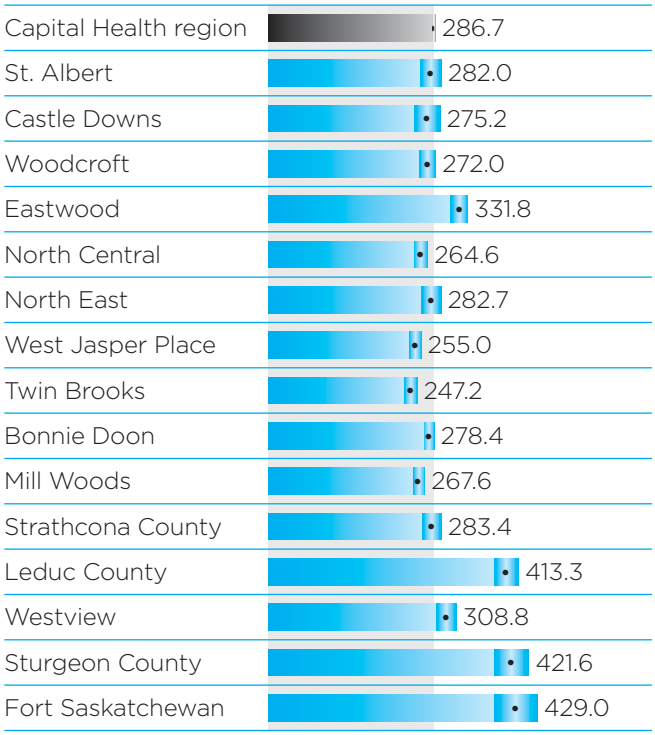
Leading causes by percent and (rank)

Cause	*Males % (rank)*	*Females % (rank)*
Circulatory disease	20.6% (1)	17.2% (1)
Respiratory disease	13.4% (2)	10.5% (4)
Digestive disease	11.1% (3)	10.7% (3)
Cancer	8.9% (4)	6.5%
Musculoskeletal/connective tissue diseases	6.2% (5)	8.3% (5)
Unintentional injury	5.4%	11.2% (2)
	Males	*Females*
Number of hospitalizations	6,413	8,381
Population (2006)	20,955	32.270
Hospitalization rate per 1,000	306.0	259.7

Sources: (1) Clinical Accountability and Reporting Department, Operational Policy and Integration Division, Capital Health (Health Care Utilization Data 2006).
(2) Population data values are for June 30, 2006 and are interpolated using actual population values from the Alberta Health Care Insurance Plan (AHCIP) Registration File as of March 31, 2006 and 2007.

Figure 52: Hospitalizations for seniors 75+ years old by PHS area, Capital Health region, 2004-2006 combined

Rate per 1,000



Sources: (1) Clinical Accountability and Reporting Department, Operational Policy and Integration Division, Capital Health (Health Care Utilization Data 2004-2006).
(2) Population data values are for June 30. Values up to March 31, 2007 are interpolations of actual population values from the Alberta Health Care Insurance Plan (AHCIP) Registration File as of March 31 for each year. Forecast values for points in time after March 31, 2007 are estimated using the March 31, 2007 AHCIP Registration File values and year-over-year population growth values provided by the Health Surveillance Branch of Alberta Health and Wellness.

service areas (Figure 52). Eastwood was the only public health service area within the City of Edmonton with a significantly higher hospitalization rate than the region.

Why do seniors die?

65-74 YEAR OLDS

Seniors between 65 and 74 years of age died primarily from cancer or circulatory disease (Figure 53). For women, almost half of the deaths (48%) were due to cancer and approximately one quarter were due to circulatory disease. For men in this age group, cancer and circulatory disease each contributed about the same percentage of deaths (36%).

The mortality rate, from all causes, (10 years of data combined) for seniors aged 65-74 years was 1,813.8 per 100,000 (Figure 54). Significantly higher rates were found in Woodcroft and Eastwood.

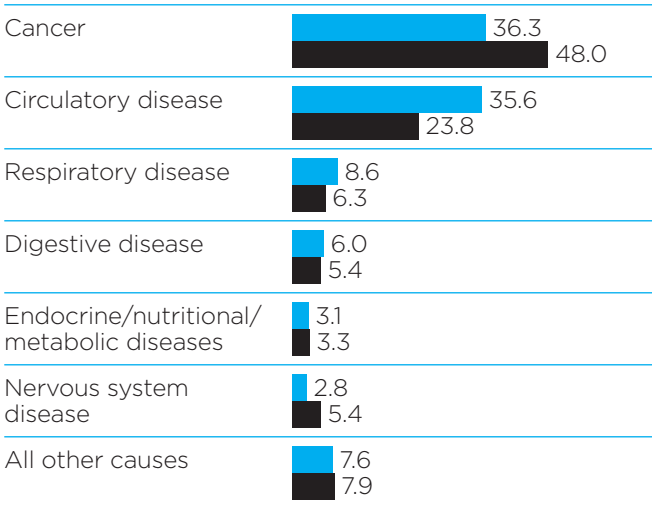
75+ YEAR OLDS

For older seniors, those 75 years of age and older, circulatory disease caused the most deaths for both males and females (Figure 55). For females in this age group, 18.7% of deaths were due to

Figure 53: Leading causes of death for 65-74 year olds, Capital Health region, 2006

Male deaths = 648 *Female deaths = 429*

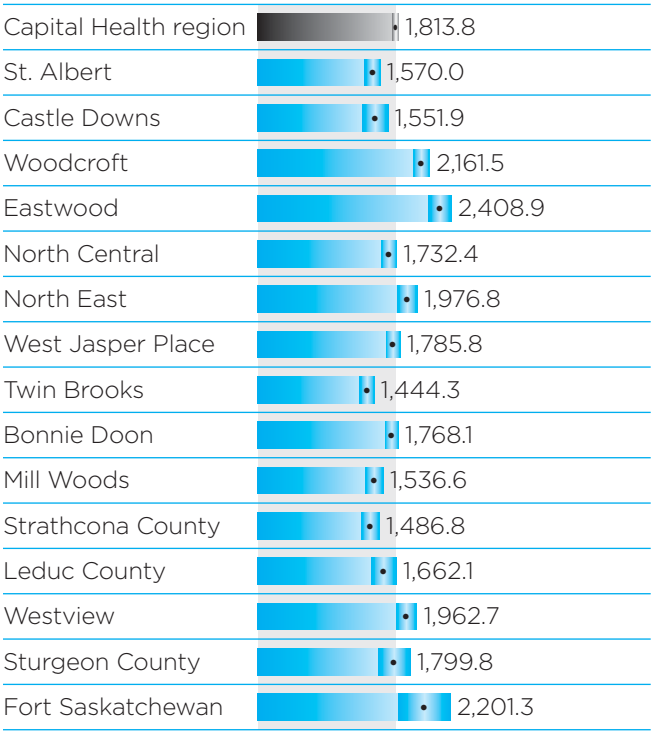
By percent



Source: Vital Statistics (Death Data), 2006.

Figure 54: Mortality rate for seniors 65-74 years old by PHS area, Capital Health region, 1997-2006 combined

Rate per 100,000



Sources: (1) Vital Statistics (Death Data), 1997-2006. (2) Population data values are for June 30. Values up to March 31, 2007 are interpolations of actual population values from the Alberta Health Care Insurance Plan (AHCIP) Registration File as of March 31 for each year. Forecast values for points in time after March 31, 2007 are estimated using the March 31, 2007 AHCIP Registration File values and year-over-year population growth values provided by the Health Surveillance Branch of Alberta Health and Wellness.

cancer. This is a marked decline from the 48% of female deaths that were caused by cancer in the younger seniors (65-74 years of age).

The mortality rates, from all causes, for seniors aged 75-84 years and those aged 85+ years are shown. For the seniors between 75-84 years of age, there was very little variation in the mortality rate within the Capital Health region (Figure 56).

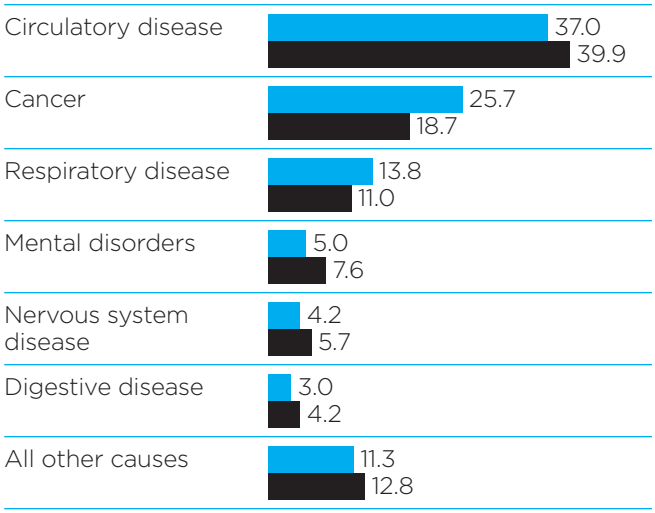
The only rate that was significantly higher than the regional rate was in Fort Saskatchewan (5,412.2 per 100,000) and the only rate that was significantly lower was in Castle Downs (3,667.1 per 100,000).

For seniors aged 85 years and older, there was more variation in the mortality rate with North Central (Figure 57), Twin Brooks, and Strathcona County having significantly higher rates than the region. Significantly lower mortality rates were observed in Castle Downs, Woodcroft, Eastwood, and Bonnie Doon.

Figure 55: Leading causes of death for 75+ year olds, Capital Health region, 2006

Male deaths = 1,518 *Female deaths = 1,873*

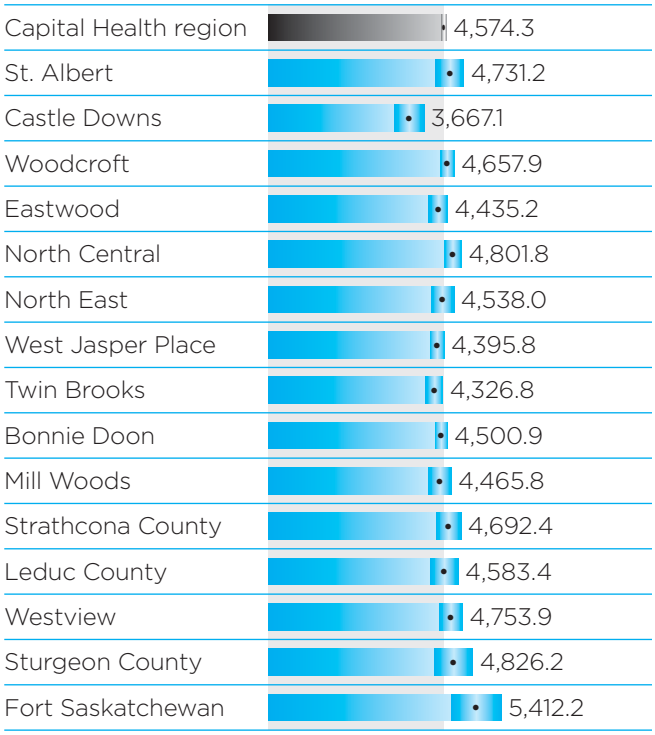
By percent



Source: Vital Statistics (Death Data), 2006.

Figure 56: Mortality rate for seniors 75-84 years old by PHS area, Capital Health region, 1997-2006 combined

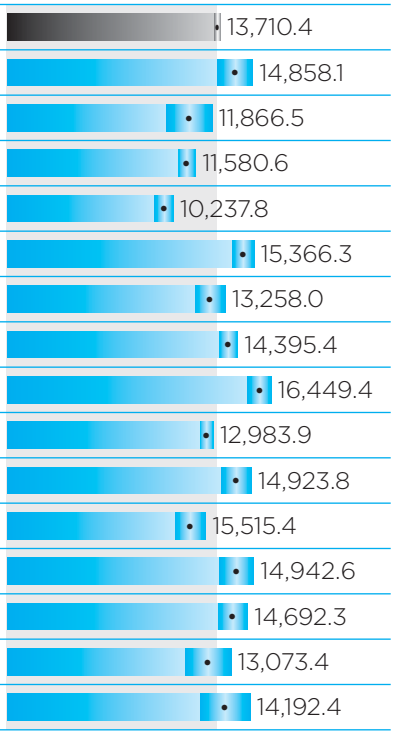
Rate per 100,000



Sources: (1) Vital Statistics (Death Data), 1997-2006. (2) Population data values are for June 30. Values up to March 31, 2007 are interpolations of actual population values from the Alberta Health Care Insurance Plan (AHCIP) Registration File as of March 31 for each year. Forecast values for points in time after March 31, 2007 are estimated using the March 31, 2007 AHCIP Registration File values and year-over-year population growth values provided by the Health Surveillance Branch of Alberta Health and Wellness.

Figure 57: Mortality rate for seniors 85+ years old by PHS area, Capital Health region, 1997-2006 combined

Rate per 100,000



Sources: (1) Vital Statistics (Death Data), 1997-2006. (2) Population data values are for June 30. Values up to March 31, 2007 are interpolations of actual population values from the Alberta Health Care Insurance Plan (AHCIP) Registration File as of March 31 for each year. Forecast values for points in time after March 31, 2007 are estimated using the March 31, 2007 AHCIP Registration File values and year-over-year population growth values provided by the Health Surveillance Branch of Alberta Health and Wellness.



Urban sprawl and population heath

Land-use planning affects our health. Whether we live in Edmonton's core neighbourhoods, suburbs, other municipalities, or a rural area in the Capital Health region, our health is affected by the way land is developed and how buildings and infrastructure are constructed. Many determinants of health in the Capital Health region are affected by our land use patterns and priorities such as:

- The amount, density, location, and affordability of housing
- Population density
- The location and mix of residential, commercial, industrial, and agricultural land
- Transportation options
- Access to nutritious food
- Distance to work, shopping, natural areas, and public places
- Physical safety of roads, trails, and walkways
- Opportunities for physical activity
- Air quality
- Perceptions of neighbourhood safety
- Social interaction
- Crime
- Access to healthcare and health promotion resources

In this section, we focus on the health implications of urban sprawl. Sprawl has characterized much of the growth in the Capital Health region in the past several decades. We'll consider four major categories of health risks associated with sprawl:

(1) physical inactivity;

(2) air pollution;

(3) motor vehicle collisions; and

(4) mental health.[1]

Figure 58 shows how these health risks are related conceptually to sprawl, and where evidence of causal connections is emerging.

What is sprawl?

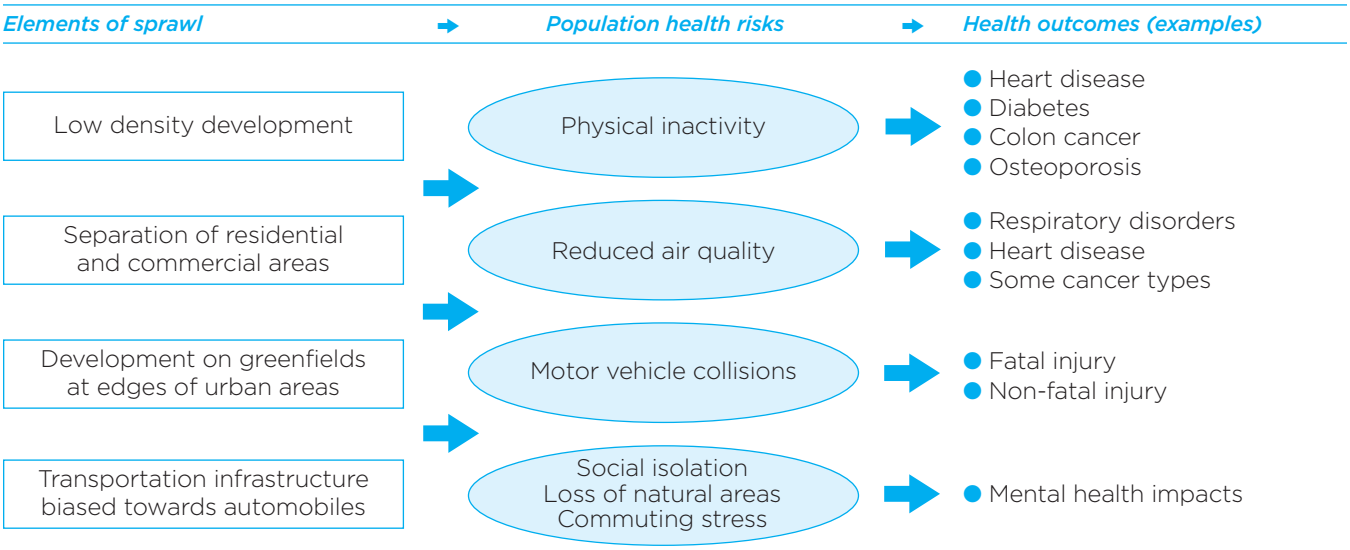
Urban sprawl is an uncoordinated pattern of land development on previously undeveloped land – greenfields – at the edges of an urban area. While there is no consensus definition, the following description of sprawl is useful:

"Continuous low-density residential development on the metropolitan fringe, ribbon low-density development along major suburban highways, and [or] development that leapfrogs past undeveloped land to leave a patchwork of developed and undeveloped tracts."[2]

One key feature of sprawl is that it supports automobile transportation as the main mode of travel, and often makes other forms of transit, such as riding the bus or train, walking, or cycling, inefficient, costly, and/or unsafe.

Sprawl is very common in North American cities, including Edmonton and Calgary, where the land available for outward expansion is perceived to be plentiful. The low population density of sprawling areas also indicates an automobile-focused transportation infrastructure. The Edmonton Census Metropolitan area (CMA), which corresponds

Figure 58: Impacts of sprawl on the health of the population in the Capital Health region



Source: Prepared by Population Health, Population Health and Research, Capital Health, 2008.

to the Capital Health region minus the western edge of Westview, has the lowest population density of the eight largest metro areas in Canada. Based on recent Statistics Canada data, Edmonton CMA is also the most auto-dependent of these areas (Table 26).

Table 26: Population densities and automobile dependence in major Canadian metropolitan areas

Census Metropolitan Area (CMA)	*Population Density (persons/km²)*	*Percent of population aged 18 years and older making all trips by car (as driver or passenger)*
Edmonton	**109.9**	**77**
Winnipeg	131.0	72
Ottawa-Gatineau	197.8	71
Calgary	211.3	75
Quebec City	218.4	74
Vancouver	735.6	69
Montreal	853.6	65
Toronto	866.1	66

Source: Statistics Canada, 2008[3]

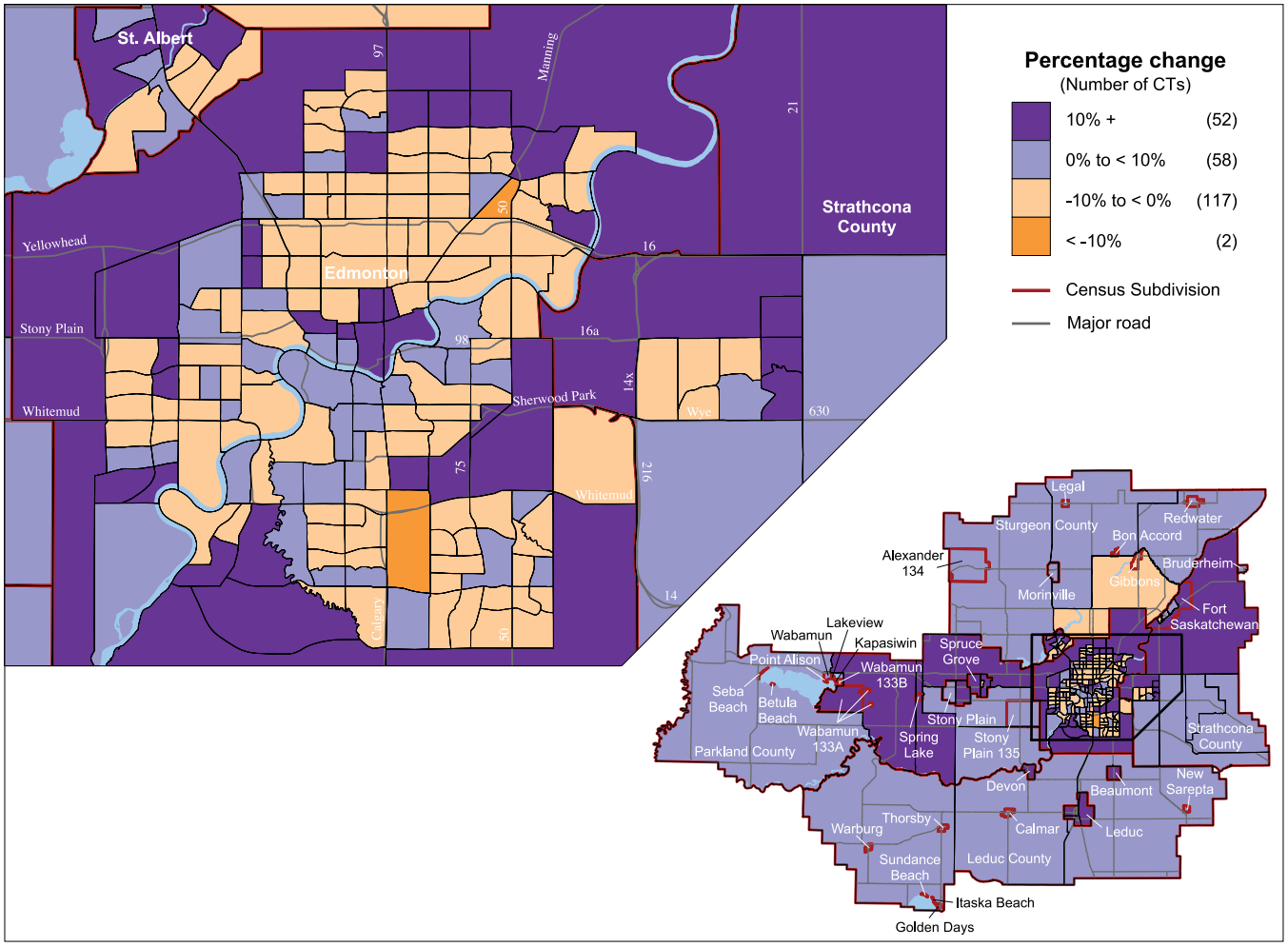
Sprawl in the Capital Health region

In the Capital Health region, sprawl has characterized growth for several decades. The dark purple areas in the Edmonton CMA map on page 46 (Figure 59) are the areas of fastest population growth between 2001 and 2006. These areas are predominantly at the edges of the city.

From 1982 through 2001, the population in Edmonton's core neighbourhoods hovered around 350,000. Over the same time period, the suburban population – the population at the edges of the city – increased from 180,000 to more than 325,000.[4] Figure 60 shows how this pattern developed from the mid-70s through to the present.

The population of the Capital Health region continues to grow. Edmonton's suburbs and parts of its downtown, as well as several other municipalities in the Edmonton CMA are growing. Estimates by Alberta Health and Wellness for the City of Edmonton alone indicate an additional 200,000 people over the next 20-25 years. To house, employ, transport, and provide services for this growing population, many land-use decisions will be made. These decisions have the potential for positive and negative influences.

Figure 59: Edmonton CMA, population change, 2001-2006 by 2006 Census Tract (CT)



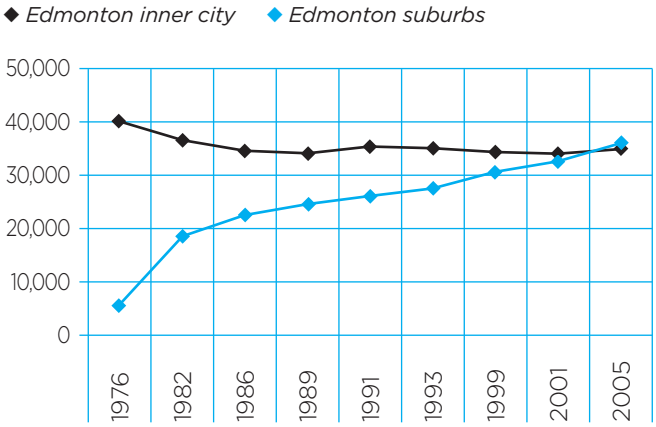
Statistics Canada Statistique Canada

Canada

Source: 2001 and 2006 Censuses of Canada. Produced by the Geography Division, Statistics Canada, 2007.
ttp://www12.statcan.ca/english/census06/analysis/popdwell/tables.cfm

Figure 60: Edmonton inner city and suburban population growth, 1976-2005

Number of residents



Source: City of Edmonton, 2006[5]

Sprawl and physical inactivity

There are strong links between physical activity and health. Physical inactivity, or simply not being active on a regular basis, can affect lung function, the cardiovascular system, immune system function, and the strength and resilience of bones and muscles.[6] Physical inactivity also increases the risk for obesity, which in turn contributes to the development of many chronic diseases including heart disease, diabetes, colorectal cancer, and chronic obstructive pulmonary disease.[7] About half of us in the Capital Health region do not get enough physical activity to obtain health benefits.[8] We can be inactive for various reasons, including:

- Lack of resources such as time and money to participate in forms of activity that require facilities (e.g., gyms) or in structured

programs that require equipment and fees (e.g., organized ice hockey)

- Lack of social support
- Fears about neighbourhood safety
- Sedentary work
- Injury or disability

One of the factors that supports or discourages physical activity for the whole population is land use.[9] Low population density development such as sprawl, and transportation infrastructure that emphasizes automobile travel, increase time spent commuting and decrease daily opportunities for widely accessible and inexpensive forms of exercise such as walking or biking. Walking to work or shopping areas, sending children to the corner store or to school on their bicycles, or traveling to other destinations by bus or train, are made more difficult and/or dangerous when streets are not well-connected, when distances are great, or when public transit is undersupplied because population density is insufficient to support regular service.

In the Capital Health region, motor vehicle transportation is chosen much more often than other transit modes. Figure 61 compares the ways in which people get to work in the Edmonton CMA. The vast majority drove a motor vehicle or rode as a passenger in one.

It is the strong connection between sprawl and widespread motor vehicle use that is most concerning for physical inactivity in the region. Time spent driving is time not spent in active transit such as walking and cycling – or in other types of activities.

Figure 61: Mode of transportation to work, Edmonton Metropolitan Area (CMA), 2006

By population	
Car, truck, van, as driver	409,650
Car, truck, van, as passenger	42,740
Public transit	52,995
Walked or bicycled	34,050
All other modes	6,630

Source: Statistics Canada, 2006 Federal Census data for Edmonton CMA.

http://www12.statcan.ca/english/census06/data/profiles/community/Details/Page.cfm?Lang=E&Geo1=CMA&Code1=835__&Geo2=PR&Code2=48&Data=Count&SearchText=edmonton&SearchType=Begins&SearchPR=48&B1=All&Custom=

ACTIVE TRANSIT: Active forms of transit involve physical activity, and include walking (including walking to or from a bus or train stop) and cycling.

Neighbourhood features such as high street connectivity, relatively high population density, and mixed land use (e.g., residential and commercial) have been linked to increased physical activity.[5] By creating efficient and uncomplicated pedestrian routes to bus or train stops, well connected streets may also increase the use of public transit. The connectivity of streets in the neighbourhood in Figure 62a, which is more typical of core urban neighbourhoods, shows how walking can be an efficient means of getting to a daily destination such as a school. The neighbourhood in Figure 62b contains the long blocks and limited access points of some of the low-density neighbourhoods in the Capital Health region which are not conducive to walking as a means of getting to and from daily destinations.

Sprawl that emphasizes automobile transit is also biased towards those who can afford to buy and maintain cars, and who are able and permitted to drive. Those who do not have a car or who are not able or permitted to drive encounter a narrowed range of employment and activity options, as well as reduced access to a variety of basic material, social, and healthcare resources.

If the Capital Health region continues to grow along "business-as-usual" lines, with most new development being located on previously

Figure 62: Street Connectivity

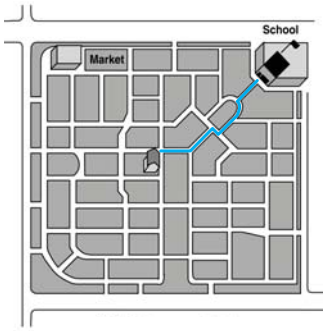


Figure 62a: Many options

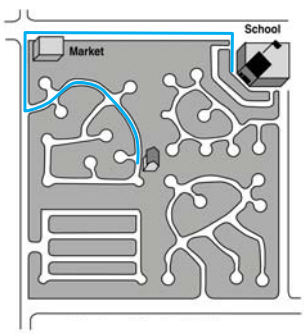


Figure 62b: Few options

Source: Neighborhood Streets Project Stakeholders. Neighborhood street design guidelines: an Oregon guide for reducing street widths. Salem, Oregon: Neighborhood Streets Project Stakeholders; November 2000. Available from: URL: http://www.lcd.state.or.us/LCD/docs/publications/neighstreet.pdf

undeveloped land at the edges of Edmonton, it is likely that people will continue to have to rely heavily on automobiles for most of their transportation needs, and choices for more active transit will be constrained. All of the municipalities in the Capital Health region are facing important choices about how they will grow in the years ahead – choices that will affect the level of physical inactivity in the region.

Sprawl and air pollution

The air we breathe is a fundamental necessity of life, and there is an abundance of evidence linking air pollution to increased rates of illness and death in populations.[12,13] With industrial growth, a growing population, and our reliance on private motor vehicles that characterize sprawl, air pollution will increase.

In Canadian cities, including Edmonton, vehicle emissions are an important determinant of local air quality and its related health impacts. Links between air pollution and health, and the contribution of vehicle exhaust to local and regional air quality, are widely recognized. However, advancements in fields such as toxicology and environmental science, and results from epidemiological investigations, have improved our understanding of which pollutants pose the greatest risks to humans, and which subpopulations, such as children and those with existing respiratory problems, are more vulnerable. We also know that pollutants can have additive or synergistic effects, contributing more of a health "punch" together than they would independently.

Common air pollutants that pose risks for human health include sulfur oxides, nitrogen oxides and fine particulate matter – microscopic by-products of combustion that can be breathed into the lungs and absorbed into the bloodstream. All of these pollutants are constituents of vehicle exhaust.

Regional air pollution from vehicle exhaust has been linked to premature deaths and illness. A report released last year by the Toronto Public Health District estimated that in the Toronto area more than 400 premature deaths each year could be avoided by eliminating the pollution caused by vehicle exhaust.[16] A sprawling land use pattern that promotes car travel is not the only contributing factor to Toronto's vehicular emissions and air quality,

Children living by, or attending school near high-traffic roadways have reduced lung-function growth or poorer respiratory health than children living or attending school further from major roads.[14,15]

but it is clearly an important one; the number of vehicles traveling to and from the city from outlying areas increased by about 75% in the past 20 years.

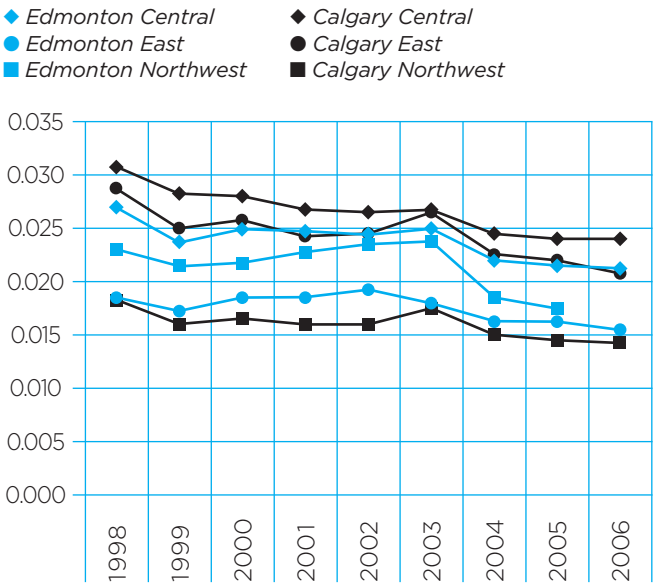
In the Capital Health region, limited data are available. A 2006 study on the relationship between outdoor air pollution and emergency department visits for asthma in the Edmonton metro area concluded that exposure to ambient levels of air pollution (including pollutants present in vehicle exhaust, such as NO_2, CO, and particulate matter) is an important determinant of emergency department visits for asthma, particularly among young children and the elderly.[17]

One way of assessing the level of health risk posed by air pollution is through the use of air quality indicators that reflect measurements taken at monitoring stations, and which correspond to observed increases in hospitalizations or deaths in the days following measurements of high pollution. According to Alberta Environment, there were six days in Edmonton ranked by the air quality index (AQI) currently in use in Alberta as "poor/very poor" in 2007. The air quality index reflects contributions from vehicular and non-vehicular sources.

However, Alberta's AQI has theoretical limitations and its interpretation around health impacts is not clear. The Government of Canada has recently developed the Air Quality Health Index (AQHI), which better reflects the current state of knowledge about how air pollution affects health.[18] Use of the AQHI in Alberta could enable more accurate assessment of the relationship between air pollution and health, and would help us to estimate how much illness and premature death in the Capital Health region is attributable to our extensive use of motor vehicles.

It is also important to distinguish the time scales over which common air pollutants

Figure 63: Long-term trend in nitrogen dioxide (NO_2) levels, Capital Health region, 1998-2006



Source: Clean Air Strategic Alliance (CASA) Data Warehouse, 2008

impact the health of the population in our region. For example, Figure 63, based on monitoring data from stations in Edmonton and Calgary, shows a slight improvement over the past several years in the average annual concentration of NO_2, a common emission from motor vehicles. However, this long term trend does not reflect important variation within individual years, weeks, and days of the period of analysis, and it does not capture important additive or synergistic effects of pollutants, as mentioned above.

Finally, air quality gains from cleaner combustion processes and government regulation of industrial emissions will likely be lost if our growth in population, consumption, and automobile-focused urban growth continues. The way that we use land in the Capital Health region, and the types of transportation that we support by our land-use decisions, will positively or negatively influence our health through changes to the quality of the air that we breathe.

Sprawl and motor vehicle collisions

Motor vehicles are a central part of our culture, and most of us have trouble imagining life without them. According to Alberta Transportation, in the Capital Health region there are now more registered motor vehicles than there are licensed drivers.

Table 27: Emergency department visits, hospitalizations, and deaths from injury for residents, Capital Health region, 2006

Event	*All causes of injury (Number of events)*	*Injury from motor vehicle collisions in traffic (Number of events and %)*
Emergency Department Visits	106,040	7,451 (7.0%)
Hospitalizations	7,760	625 (8.1%)
Deaths	484	67 (13.8%)

Sources: (1) Clinical Accountability and Reporting Department, Operational Policy and Integration Division, Capital Health. (2) Vital Statistics (Death Data), 2006.

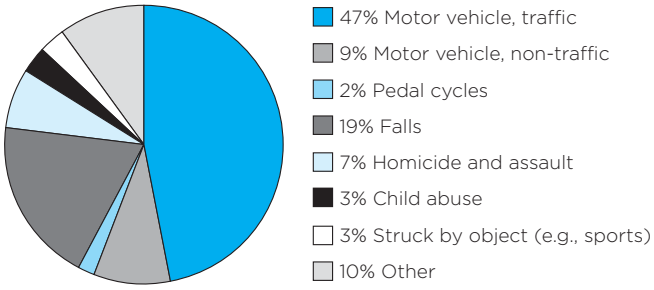
Residents of the Capital Health region travel consistently and most often by motor vehicle. Transportation survey results indicate that more than three-quarters of our daily local trips are in motor vehicles. Active transit modes account for only about 2% of trips in the Capital Health region, and a somewhat larger proportion in the Edmonton area specifically.[19] Motor vehicles dominate the transportation landscape, and injuries and injury-related deaths from motor vehicle crashes are a key public health concern.

In 2006, 67 residents of the region died in motor vehicle-related events on public roadways (including collisions involving pedestrians and pedal cyclists). Fourteen of these fatalities occurred on roads outside of the region. Injuries involving motor vehicles on public roadways were responsible for 8.1% of hospitalizations due to injury and about 7.0% of emergency department visits due to injury (Table 27).

For Albertans aged 0-19 years, serious injurious events involving motor vehicles make up over half of the major trauma burden. Figure 64 shows how this proportion compares with other important causes of major trauma in this age group. Although the rate of traumatic injury to children from motor vehicle collisions is lower in the Capital Health

"Almost fifty percent of all child and teen major trauma cases occur at a street location (includes highways, roadways, sidewalks, curbs, freeways, and motorways)."[20]

Figure 64: Leading causes of unintentional major trauma, 0-19 years of age, Alberta, 2002-2003



Source: Holgate K, Phillips L. Alberta child & teen major trauma report. Edmonton, Alberta: Kidsafe Connection – Stollery Children's Hospital; 2006.

region than in the province as a whole, the proportion of traumatic injury due to motor vehicle collisions in traffic is almost identical.

By requiring extensive road and highway infrastructure, and promoting automobile travel, sprawl contributes to the motor vehicle collisions that result in injuries and fatalities in the Capital Health region. People who live in sprawling neighbourhoods drive more than those living in more compact neighbourhoods, and are therefore at greater risk for injurious collisions.[21] Among major Canadian urban areas, between 1992 and 2005 Edmonton showed the greatest percentage point increase in the proportion of workers with a round trip commute of 60 minutes or more (Figure 65).[3] Commute times increased both for those who commute by private automobiles and for those who use public transit.

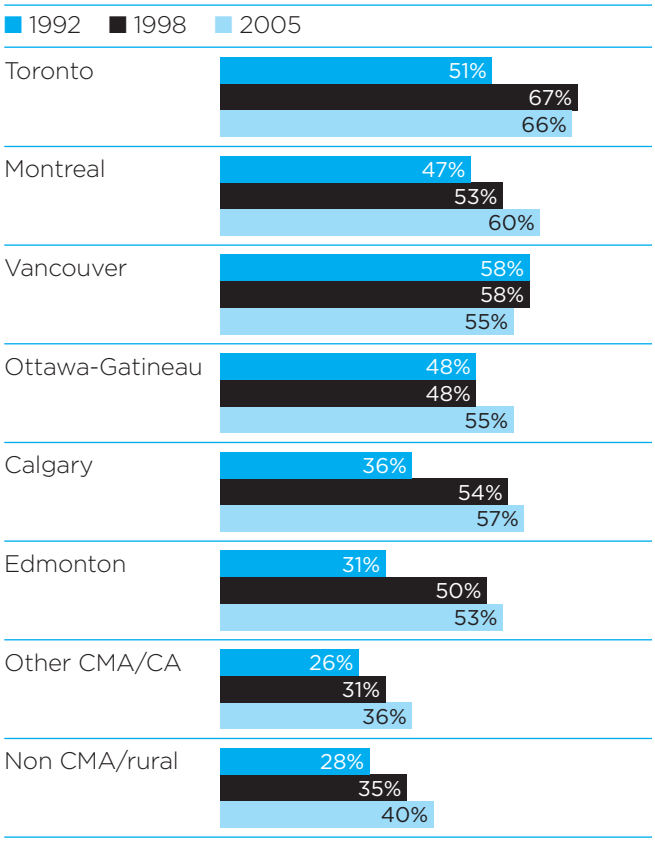
Many of the destinations common in sprawling neighbourhoods, such as "big box" stores and large supermarkets, are built for automobile access. Sidewalks and bike lanes of sufficient quantity and quality, as well as efficient public transit, are low priorities when the built environment is oriented towards motor vehicle transportation.

Smart Growth:
"Smart growth" is a collection of land-use principles and practices emphasizing active transit and pedestrian access to regular destinations, a greater mix of housing, commercial and retail uses, and the preservation of green spaces and other environmental features.

"In general, compact cities with more extensive public transit systems have lower automobile fatality rates (including drivers and passengers, but excluding pedestrians) than more sprawling cities."[1]

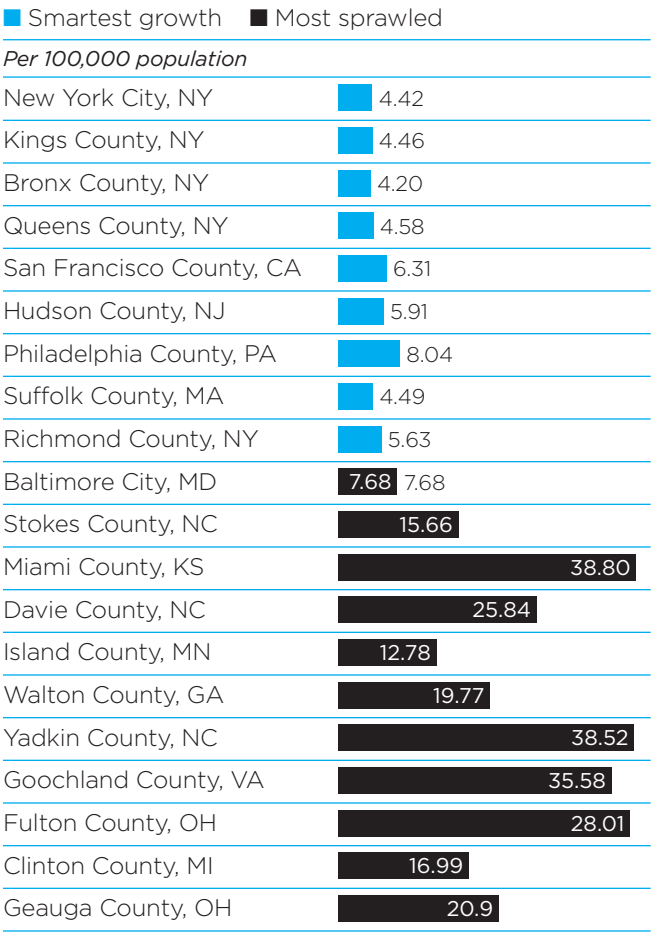
Changes in our land-use, and in our transportation culture and infrastructure are needed. Comparable Canadian data need to be developed. Data from US cities, show profound differences in the rates of traffic-related mortality between compactly developed urban areas ("Smartest Growth") and sprawling urban areas ("Most Sprawled") (Figure 66).

Figure 65: Proportion of workers with a round trip commute of 60 minutes or more by region of residence, Canada, 1992, 1998, 2005



Source: Statistics Canada (General Social Survey, 1992, 1998, 2005)[21]

Figure 66: Traffic-related deaths, "smart growth" cities and sprawling cities, United States, 2000



Source: Ewing, Scheiber, and Zegeer, 2003[22]

Sprawl and mental health

The previous sections have looked at how sprawl affects air pollution, injury and death from motor vehicle collisions, and physical inactivity – all important population health concerns in the Capital Health region, and all of which will be affected by how the region grows in the years ahead.

In this section, we touch on how sprawl contributes to mental health. Mental health encompasses debilitating conditions such as major depression, generalized anxiety disorder, and schizophrenia, as well as acute and chronic forms of mental/emotional suffering which are neither diagnosed nor treated.

Mental health problems are highly underreported and are also related to a variety of chronic conditions. This means that the extent of suffering from mental distress is dramatically under-estimated. Because the factors contributing to mental health are numerous and operate at multiple levels, connections between sprawl and mental health are less clear than connections between sprawl and physical health.[22]

Social isolation is a well established risk for mental illness.[23] Sprawl may affect mental health by contributing to the isolation of individuals and thus reducing the quality of interpersonal relationships and the frequency of supportive social contact. Low-density development with little mixing of residential, commercial, and public space may contribute to social isolation, especially for those without ready access to an automobile and/or those who face cultural, physical, or economic barriers to social integration. Isolated individuals have limited opportunities to develop and experience interpersonal trust and to engage in practices of reciprocity – both of which are related to positive mental health.[24]

Another way that sprawl may affect mental well-being is through its impact on the relationship between humans and the natural world. Because sprawl is almost always associated with development of previously undeveloped or agricultural land, natural space is lost. Sprawling developments that exclude biologically diverse and productive areas can be detrimental to individual and community well-being. Incorporating natural areas into development both in the urban core and at the periphery of the city may reduce the negative impacts of sprawl on mental health and on less tangible but critical social resources such as bonds of trust and practices of reciprocity.

People living in buildings surrounded by greenspace had a stronger sense of community, better relationships with neighbours, and less heated domestic conflicts than those not surrounded by greenspace.[25]

Sprawling development generally places greater per capita resource demands on municipal government services than more compact forms of development closer to urban centres. This may have the effect of contributing to greater health risks in inner city

"The cost to provide public services and infrastructure in new sprawling development is higher than the cost to service that same population in a more compact development form."[27]

neighbourhoods, as municipal resources required for infrastructure development and maintenance, law enforcement, and even public health and health care services are spread over an increasingly larger area of land. These displaced resources could be used to support affordable housing, reliable and safe public and active-transit transportation infrastructure, and attractive public spaces to play and meet in neighbourhoods currently lacking these elements. These basic resources help reduce social decay and support mental health.[26]

The Ontario College of Family Physicians sums up current thinking about the effects of sprawl on mental health: "Sprawl impacts negatively on well-being by eroding social capital, robbing people of all ages of the opportunity to have a balanced healthy lifestyle, degrading the surrounding natural environment, and increasing the stress of commuting, which not only impacts mental health but also physical health." [28]

Sprawl is an important public health issue in the Capital Health region, but many of the forces that lead to sprawl and perpetuate it are outside the direct influence of Capital Health. Political will and the collaborative efforts of diverse stakeholders – including an active citizenry – are needed to ensure that growth patterns in the region promote health rather than exacerbate existing health problems such as physical inactivity and injury and death from motor vehicle collisions. Many municipalities in the Capital Health region are in the process of revising their land-use plans. Check with your municipal government's planning department to see whether existing land-use plans and strategies take population health concerns into account.

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Data notes

ICD10 codes use for mortality, hospitalization, and emergency department visits

Disease	*ICD10 Codes*
Certain infectious and parasitic disease	A00 - B99
Cancer	C00 - C97
Breast (female)	C50
Colorectal	C18 - C21
Lung	C33 - C34
Prostate	C61
Benign tumor, pre/non-invasive or uncertain cancer	D00 - D48
Blood or blood forming organ disease	D50, D89.9
Endocrine/metabolic disorders	E00 - E90
Mental disorders	F00 - F99
Nervous/sense organ disease	G00 - G99, H00 - H59, H60 - H95
Circulatory disease	I00 - I99
Heart disease	I00 - I09, I11, I13, I20 - I51
Stroke	I60 - I69
Respiratory disease	J00 - J99
Digestive disease	K00 - K93
Musculoskeletal disease	M00 - M99
Genitourinary system disease	N00 - N99
Certain perinatal related conditions	P00 - P96
All injury	V01 - Y98
Unintentional injury	V01 - V99, W00 - W99, X00 - X59, Y85 - Y86
Intentional injury	X60 - X99, Y00 - Y09, Y35 - Y36, Y87 - Y87.1, Y89 - Y89.1
Injury (undetermined intent)	Y10 - Y34, Y89.9, Y87.2
Land transport injury (including motor vehicle)	V01 - V89
Falls	W00 - W19
Suicide	X60 - X84

Keeping you informed

At Capital Health, we regularly track trends and assess the impact of a number of factors on the health of people in the region. We hope reports like this provide useful and interesting information for people and act as a catalyst for action.

If you have questions about the information or issues in this report or have other questions about the health of people in the region, please give us a call.

Contact:
Medical Officer of Health
Suite 300, 10216 – 124 Street
Edmonton, Alberta T5N 4A3
Phone: (780) 413-7946

For more information and resources...

HELPFUL PHONE NUMBERS

Capital Health LINK
Health advice and information
Open 24 hours a day, 7 days a week
780-408-LINK (5465)
Toll free in Alberta 1-866-408-LINK (5465)

Distress/Suicide Line
Open 24 hours a day, 7 days a week
780-482-4357

Information and Referral Line
Open 24 hours a day, 7 days a week
211 or 780-482-INFO (4636)

Alberta Health and Wellness
Registration/Claims/Billings/Inquires
780-427-1432

HELPFUL WEB SITES

Capital Health
www.capitalhealth.ca

Health Canada
www.hc-sc.gc.ca

Canadian Health Network
www.canadian-health-network.ca

Health in Action (Alberta)
www.health-in-action.org

Alberta Mental Health Board
www.amhb.ab.ca

The Support Network
www.thesupportnetwork.com

Heart and Stroke Foundation of Canada
ww2.heartandstroke.ca

Dietitians of Canada
For nutrition and BMI information
www.dietitians.ca

Alberta Alcohol and Drug Abuse Commission (AADAC)
www.aadac.com

Canadian Institute for Health Information
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Capital Health
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Alberta Health Services

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On April 1, 2009, AHS brought together 12 formerly separate health entities in the province: nine geographically based health authorities (Chinook Health, Palliser Health Region, Calgary Health Region, David Thompson Health Region, East Central Health, Capital Health, Aspen Regional Health, Peace Country Health and Northern Lights Health Region) and three provincial entities working specifically in the areas of mental health (Alberta Mental Health Board), addiction (Alberta Alcohol and Drug Abuse Commission) and cancer (Alberta Cancer Board).