

# Poverty and health in Edmonton



NOVEMBER 2008

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## Distribution

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# Executive summary



In the fall, 2008, the *Urban Public Health Network* (UPHN) released a pan Canadian report on urban poverty and health titled *Reducing Gaps in Health: A Focus on Socio-Economic Status in Urban Canada*. To complement that report, several UPHN member cities produced local reports that provide more detailed pictures of health inequalities at the local level. This report focuses on the City of Edmonton and presents a comparison of health indicators by socio-economic status.

Income disparities in Edmonton have grown in parallel with rapid economic growth and rising household incomes. Many Edmonton families and individuals are poor or are at risk of falling into poverty and homelessness. The lack of material security, including food and shelter, is only one measure that separates people who are affluent from those who are deprived. A growing body of research shows that health and wealth go together, and that those who are materially deprived also experience poorer health.

## Methodology

To show that health inequalities exist between socio-economic groups in Edmonton, a deprivation index was used to classify city neighbourhoods into three categories by socio-economic status (SES): High SES, Average SES, and Low SES. The deprivation index, developed by the Institut national de santé publique du Québec (INSPQ), is derived using six variables, from the Federal 2001 Census, that measure education, employment rates, income, single parent families, persons living alone and persons separated, divorced or widowed.

The relative health of the population in each of these three SES groups was then assessed, using a variety of indicators for health and the determinants of health. Specific indicators included healthy or unhealthy behaviours, self-reported health status, hospital admissions for both mental and physical health concerns as well as birth and death data. Comparisons were then made between and across groups to identify disparities that could have implications for policy development.

## Poverty and health in the City of Edmonton

Statistically significant differences in health behaviours, self-rated health status, hospital admissions, life expectancy and causes of death between the different SES groups are as follows.

- **Smoking** rates increased as socio-economic status decreased. Almost two in five (37.9%)

individuals in the Low SES group smoke, compared to 28.1% of those in the Average SES group and just 14.7% of those in the High SES group.

- **Physical inactivity** was higher among those in the Low SES group (54.5%) compared to those in the High SES group (34.7%). The difference between the Low SES group and Average SES group was not statistically significant.
- **Self-rated health.** Almost three quarters (72.2%) of people in the High SES group rated their health as excellent or very good, compared to less than two-thirds (61.3%) in the Average SES group and just half (51.3%) in the Low SES group. Differences between all three groups were statistically significant.
- **Hospital admission.** In general, people in the Low SES group were more likely than those in the Average or High SES groups to be admitted to hospital for chronic health conditions and acute health problems, including diabetes, chronic obstructive pulmonary disease (COPD), ambulatory care sensitive conditions (ACSC), coronary heart disease (CHD), mental health and injury.
- **Life expectancy** was lower for both men and women in the Low SES group, compared to those in the High SES group. There was an almost seven year difference in life expectancy between men in the Low SES group (74.1 years) and those in the High SES group (81.0 years). The difference for women was smaller but still notable, with women in the High SES group (84.5 years) expected to live 3.9 years longer than those in the Low SES group (80.6 years).
- **Causes of death.** As is the case in the province as well as nationally, cancer and circulatory disease were the two major causes of death for people living in the City of Edmonton. Although the cancer death rate for males in the High SES group has declined over the last 20 years, there has been an increase for males in the Low SES group, particularly since 2000. There has been a steady increase in the cancer mortality rate for females in the Low SES group.

Similarly, the circulatory disease death rate for males in the Low SES was significantly higher than for those in the High SES group although all three SES groups have experienced an overall decline in their rate. Although a decline was also noted for females, there was no real difference in the circulatory disease death rate among SES groups.

There are also measurable differences in health and health indicators within age groups. Some of these statistically significant differences are highlighted below.

- **Early Childhood.** Babies born at low birth weight or born too early are at an increased risk for death or long-term health problems, compared to healthy weight babies and those born full term. The infant mortality, low birth weight and preterm birth rates were all higher for babies born in the Low SES group, compared to those born in either the Average or High SES groups. While the infant mortality rates were not statistically significantly different between the three groups, there was a significant difference between the Low SES group and both the Average and High groups for low birth weight and preterm birth.
- **Children and Youth.** In contrast to other indicators, children and youth (12-18 years of age) in the Low SES group were less likely than those in either the Average or High SES group to be physically inactive. The differences were not statistically significant and must be used with caution due to high sampling variability.  
  
One of the steepest gradients among the three SES groups was seen in the teen birth rate (number of births per 1,000 females 15-19 years of age). The rate was 4.0 in the High SES group, 16.4 in the Middle SES group and 41.0 in the Low SES group.
- **Seniors.** Two thirds (66%) of seniors in the Low SES group reported experiencing physical limitations to activity, compared to one third (34%) of those in the High SES group.

## Discussion and conclusion

Health inequalities show that the high value Canadians place on universality of access to health care is not matched by equal access to the fundamental social and material conditions that promote and protect health. If local material and social inequalities continue to grow in Edmonton, health disparities will increase.

City departments focus on equalizing access for Edmonton residents to municipal resources and to resources at other levels of government. Alberta Health Services initiatives address conditions affecting the whole population or high-risk groups. The health gradients demonstrated in this report are influenced by City of Edmonton and Alberta Health Services policies; they are also determined by policy decisions and by other types of actions at all levels of government and in all sectors.

Major policies (e.g., those guiding income and consumption taxation and social programs) affecting the distribution of material and social resources in Edmonton are administered at the federal or provincial level of government. Many of these policies are effective but not sufficient for addressing local health disparities. Multi-sector, long-term commitment, common vision, and collaboration across all levels of government and across all sectors are required to reduce health inequalities in Edmonton.



# Introduction



The *Urban Public Health Network* was formed to identify public health issues common to urban populations and to develop strategies to address issues such as emergency preparedness, common standardized indicators for public health activity, the provision of tertiary public health services, immunization capacity, poverty, and health. The UPHN serves as a forum for sharing best practices, advocating for policy changes and fostering and facilitating research in public health.

The following cities/regions are current members of the UPHN:

- Calgary\*
- Edmonton\*
- Halifax\*
- Hamilton\*
- London\*
- Longueuil
- Montreal\*
- Ottawa\*
- Peel Region
- Quebec City\*
- Regina\*
- Saskatoon\*
- St. John's\*
- Surrey
- Toronto\*
- Vancouver\*
- Victoria\*
- Winnipeg\*

Recently, the UPHN members agreed that a major issue for the network is the development of a pan Canadian report on urban poverty and health. The pan Canadian report, titled *Reducing Gaps in Health: A Focus on Socio-economic Status in Urban Canada*, provides a national picture of urban poverty and health with CMA (Central Metropolitan Area) data presented for the fifteen CMAs shown with an asterisk. The Ottawa CMA includes the Gatineau area. Several of the cities/regions have chosen to produce a local report to complement the national release.

This report focuses on the City of Edmonton, providing a picture of poverty and health at a local level. It is presented in three broad sections:

1. Understanding poverty and health;
2. Methodology; and
3. Poverty and health in the City of Edmonton.

Detailed tables at the back of the report provide data for the figures used in the report.



# Understanding poverty and health



The following section is largely taken from the national report *Reducing Gaps in Health: A Focus on Socio-economic Status in Urban Canada*. For more detailed references, please refer to the national report.<sup>1</sup>

## Health

Broadly defined, health is a state of complete physical, mental and social well-being and not merely the absence of disease or infirmity. In the context of this report, health and the determinants of health are measured using a variety of indicators such as healthy or unhealthy behaviours (e.g. level of physical activity, smoking), self-reported health status, hospital admissions for both mental and physical health concerns, as well as birth and death data.

## Poverty

Measures of income and deprivation differ in that income measures focus solely on material disadvantage while deprivation indices account for both material and social disadvantage. The concept of deprivation has its origins in Britain and has been defined as a state of observable and demonstrable disadvantage relative to the local community or the wider society or nation to which an individual, family, or group belongs. Examples of material deprivation include such factors as not having enough food to eat, or inadequate clothing and/or shelter. Examples of social deprivation include poor integration into the community, a lack of participation in social institutions, and poor working environments.

There are a number of advantages to using deprivation indices in health research. As previously stated, deprivation measures employ a multi-faceted approach to identifying individuals, households, and neighbourhoods that are disadvantaged in material or social terms by measuring the socio-economic status of an area. This is useful in analyzing socio-economic or geographical inequalities in health status or in access to health services. Deprivation indices can also be used to condense a large number of variables into a single variable.

## Socio-economic status (SES)

It has long been known that socio-economic status is linked to the health and well-being of people. This link has been observed in health outcomes such as hospitalization rates, the incidence of disabilities, acute and chronic health conditions, and variations in mortality rates. Behaviours and lifestyle may partially explain gaps in health. For example, low-income individuals are more likely to report being inactive and daily smokers than those with middle or high incomes. Socio-economic status is a multi-dimensional term that refers to a combination of indicators including income and education, family structure, gender, and social ties of daily life. It is fairly easy to understand the connection between **income and education** and health indicators. Studies have shown that higher mortality and morbidity rates are present in lower income groups when compared to higher income groups. And higher levels of education are commonly associated with improved health status and life expectancy.



**Family structure** is changing in the City of Edmonton as well as in the rest of the country. The proportion of couples with children is declining while the proportion of lone-parent family households is increasing. Female single-parent families generally support their families on 60% of the income of their male counterparts; a fact that contributes to the statistic that 71% of children who live in a lone-parent family (headed by the mother) live in poverty.

There are also **gender** differences in health. Data from a 2004 CIHI (Canadian Institute for Health Information) report found that men, when compared to women, were less likely to report having a regular family physician and more likely to report longer wait times in obtaining mental health services. The same report found that:

- women reported a lower income than men;
- lower household income and education were associated with an increased prevalence of poor self-rated health in both women and men; and
- lower overall household income was linked to an increased reporting of chronic conditions in women but not in men.

A number of concepts are used to describe the nature of **social ties** among individuals including social support, social networks, social cohesion and community engagement. Social support networks are commonly associated with improved mental health. A lack of these supports has been shown to be correlated with a diminished ability to develop and maintain healthy peer relationships. In addition, weakened social supports have been linked to increased incidences of criminal violence.

Most studies on the links between socio-economic status and health have historically focused on the individual, city, or CMA. However, since the Whitehall study in the U.K., which followed 17,530 civil servants over a decade, it has been clear that gaps in health linked to social and economic factors persist after individual characteristics are taken into consideration. And recent studies have suggested the same – that neighbourhoods can influence health beyond individual-level socio-economic status.

Cities, regardless of size, are characterized by a collection of neighbourhoods. These neighbourhoods, each with their own distinctive characteristics, provide a unique context for

viewing the lives and livelihoods of those within urban settings. Health, crime and employment levels, among other features, can be measured at the neighbourhood level. For example, a 2004 Canadian study looking at mortality in Manitoba and Nova Scotia neighbourhoods found that the more affluent neighbourhoods generally experienced lower mortality than the poorer or more deprived neighbourhoods, when classified by household income, property values and education.

Research has shown that living in poor or disadvantaged neighbourhoods is associated with generally poorer health status and health outcomes. Research has also shown that larger cities tend to have higher inter-neighbourhood differences than do smaller cities.

Aspects of a neighbourhood go beyond individual factors that affect health. Physical factors, such as air and water quality, and human-built factors such as housing and roads can influence health and well-being. For example, a 2004 study on urban sprawl and physical and mental health found that physical activity is constrained by sprawling urban development.

## The Edmonton context – population

The population for the City of Edmonton has changed over the years. Figure 1 shows the population, by age group and sex, for the city at three points in time: 2001, 2008, and the projected population for 2015.

By 2015, population forecasts show that more people will be in the age groups 50 years and older while there will be fewer individuals in the 10-19 and 40-49 year age groups. In addition, an increase in numbers is observed in the young adult age groups, 25-39 years.

## The Edmonton context – economy

In the last five years, Edmonton experienced the highest economic growth among all Canadian cities.<sup>2</sup> Driven by rising energy prices, consumer spending, strong construction activity, and growth in personal incomes, Edmonton's regional economy grew by 5.4% in 2007. This level of growth exceeded the national growth for the fifth year in a row.

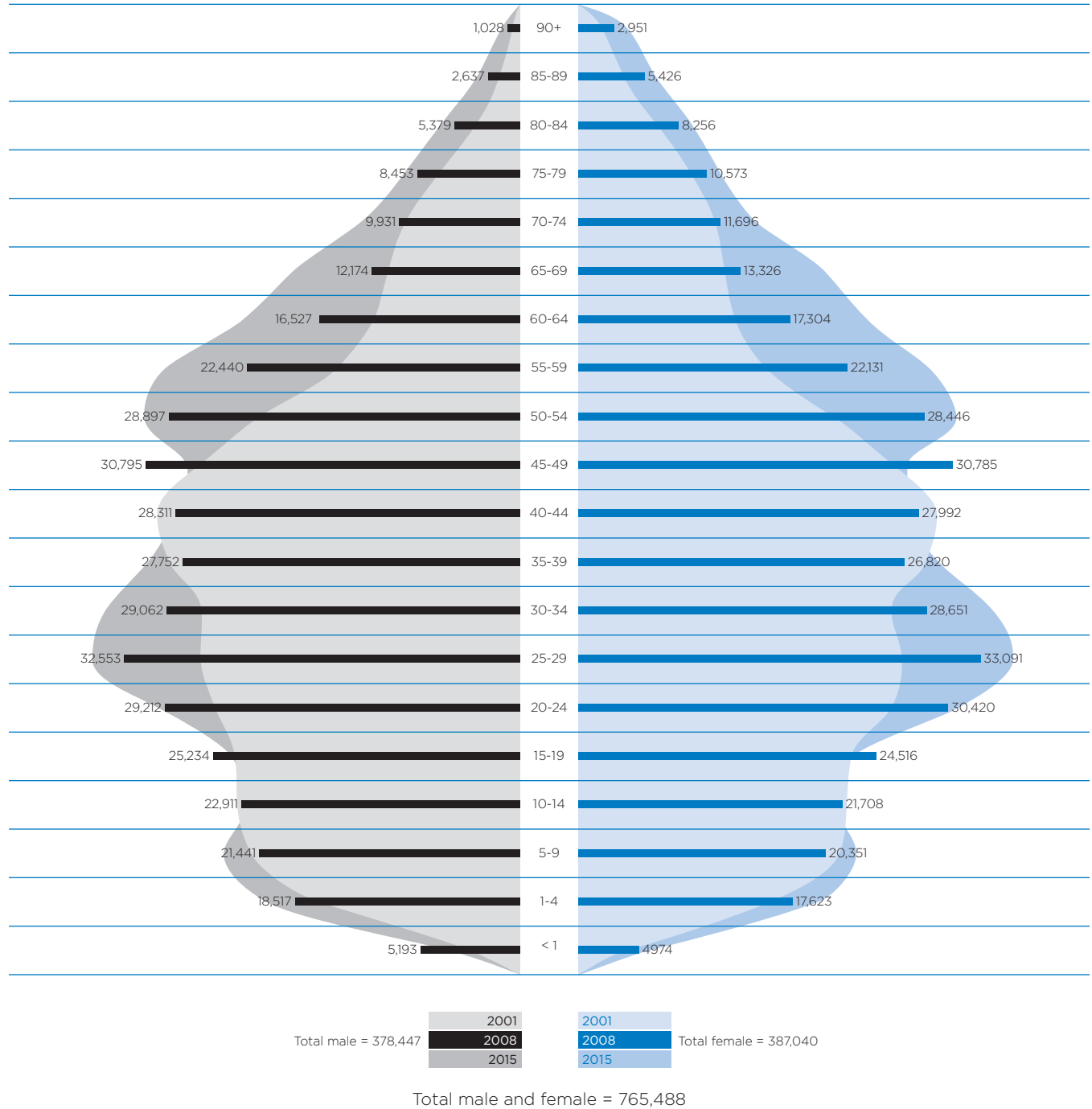
The economy plays a pivotal role in the city's social well being. Rapid economic growth creates job opportunities and increased income.

Edmonton's vibrant labour market with low unemployment rates continues to attract migrants. Over the last five years, most of Edmonton's population growth can be attributed to its success in attracting migrants from elsewhere in Canada and around the

world. Since 2001, the population of the city has grown by 13%. About 80% of this growth can be attributed to migration.

Many newcomers, when they move to Edmonton, leave behind their family and social support networks. The migrants who arrive in the area are

**Figure 1: City of Edmonton's changing population for 2001, 2008, and 2015**



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 (AHCIPI) Registration Files as of March 31 for each year. Forecast values for points in time after March 31, 2007 are estimated using the March 31, 2007 AHCIPI Registration File values and year-over-year population growth values provided by the Health Surveillance Branch of Alberta Health and Wellness. The forecasts have been further adjusted using December 31, 2007 Alberta Health and Wellness registration file data.

generally younger and are of child bearing age and they contribute to population growth over time.

Although household incomes have risen, income disparities in Edmonton are growing. Many Edmonton families and individuals are poor or are at risk of falling into poverty and homelessness. According to 2006/07 fiscal year, taxfiler data for the City of Edmonton, about 106,680 persons in Edmonton live in poverty; of these, 33,330 are children. This represents about 21% of all children in the City of Edmonton. Compared to couple families, lone parent families in Edmonton were six times more likely to live in poverty.<sup>3</sup> Other groups at higher risk of being poor include recent immigrants, other migrants, Aboriginals and visible minorities. Demand for social services is increasing rapidly with the growth in population as well as the financial pressures facing individuals and families living in Edmonton. The City currently shoulders the burden for the Edmonton Census Metropolitan Area with about 85% of low income families and individuals living in the city of Edmonton. In comparison, 71% of the total population of the CMA lives in Edmonton.

As more families struggle to make a living, the surge in migration has led to a greater demand for housing. This has resulted in housing shortages in Edmonton and has sent prices soaring. In the last few years, house prices have been growing at a rate well above incomes, and have led to serious affordability issues. Since 1996, the average price of a new single family dwelling has more than quadrupled. In 1996, the average price of a new single family dwelling was \$119,470 compared to \$486,707 in 2007. Rental rates also grew rapidly and have increased by 30% since 2004.

According to the Canada Mortgage and Housing Corporation (CMHC) definition, housing affordability problems refer to those households where 30% or more of their household income is spent on shelter costs including rent, electricity, heating, fuel, water or other municipal services, mortgage or loan payment for the dwelling, property taxes and condominium fees.<sup>4</sup> The highest priority for affordable housing is for those classified as “core needs housing”. This refers to families or individuals that spend more than 50% of their income on shelter.<sup>5</sup>

According to Statistics Canada's Survey of Household Expenditures for Edmonton, about 80,311 households spent more than 30% of their

income on housing in 2006. Those most likely impacted by the housing costs are new migrants, those with fixed incomes, particularly seniors, people with severe disabilities, low income earners, students and Assured Income for the Severely Handicapped (AISH) recipients. Today, construction of affordable housing is being impacted by high construction costs due to tight supply, high demand and ongoing labour shortages, as well as the supply for affordable and serviced land available for development.

Given the proportion of Edmonton households that are overspending on shelter, homelessness can be expected to continue to rise as individuals and families face crises that prevent them from meeting their housing costs. The number of visible homeless persons in Edmonton rose from 2,192 in 2004 to 2,618 in 2006, an overall increase of about 20%. Since 1999 the number of homeless persons living in Edmonton has more than doubled.

The shortage of affordable housing is only one of several factors contributing to homelessness. Other causes include low income, unemployment and underemployment, drug and alcohol addiction, poor mental and physical health, disabilities, physical abuse and sexual abuse. In many cases, the persons and families affected require much more than housing; they also need flexible support services, adapted to their special needs.

Homelessness and its impact on health is a complex issue. Health problems and inequities experienced by the homeless have been well documented. Homeless persons and those in poor housing experience higher levels of poor health, particularly chronic problems. These include heart disease, infectious diseases, such as tuberculosis, respiratory problems including asthma, and mental illness such as anxiety and depression. Poor nutrition and hygiene, a higher than average incidence of substance abuse, and lack of family supports contribute to the poorer health of the homeless.

One of the most pressing and immediate needs identified for those in poverty is the lack of food. According to a Statistics Canada report, almost 15% of Canadians, or an estimated 3.7 million people, were considered to be living in what is known as a “food-insecure” household at some point during 2000.<sup>6</sup> The report, based on data from the Canadian Community Health Survey

(CCHS), also found that more than 40% of people in low or lower-middle income households reported some degree of food insecurity.

Households were considered to be food insecure if the person responding on behalf of the household acknowledged any of three circumstances stemming from a lack of money: someone had worried about not having enough to eat; someone had not eaten the quality or variety of food desired; or someone had not had enough to eat.

Based on data from the Edmonton Food Bank, there is evidence to suggest that a large portion of those experiencing food insecurity are not using food banks. In 2006, the rate declined by 13% since 2005 and dropped by 30% since 1999.

The Canadian Association of Food Banks (2007) provides a picture of those that do use food banks. About five out of ten are households (single parent or two parent) with children followed by single adults (38%) and couples with no children (12%). The statistics indicate that children are overrepresented as food bank users (40%).

The assumption that those who are employed should be able to live outside of poverty is increasingly challenged as a significant portion of the labour force today has difficulty finding work that enables an adequate standard of living. A growing number of Albertans with employment income are visiting food banks. This year, 27% of food bank clients have jobs. This is the second largest group of food bank clients after social assistance recipients (34.9%). Though they have jobs and may work hard to better their lives, vulnerable workers are still having difficulty feeding themselves and their families.

# Methodology



Most health related data do not have a measure of the individual's socio-economic status. Therefore, a geographical area was used for calculating a measure of the socio-economic status (SES) for people living in the area. Since the purpose of the SES for the geographic area is meant to be a proxy for the individual SES, it is important to have small geographic areas so that there is a high probability that the residents living in the area share similar SES characteristics. There are several indices that have been developed in Canada.<sup>1</sup> For the purposes of the UPHN poverty and health reports, CPHI chose to use the Deprivation Index, published by Robert Pampalon and Guy Raymond from the Institut national de santé publique du Québec (INSPQ).<sup>7</sup>

The Deprivation Index was chosen because the data are available at a small geographical area and also because it takes into account both material factors and social factors. The index was developed using six variables from the Federal Census 2001 that are related to a high number of health and social concerns. The six census variables include the following:

- The proportion of people who have not graduated from high school;
- The ratio of employment to population;
- Average income;
- Proportion of persons who are separated, divorced or widowed;
- Proportion of single-parent families; and
- Proportion of people living alone.

The Dissemination Area (DA) was chosen as the geographical area since it is the smallest area for which Canadian census data are available. A DA typically has a population of 400 to 700 persons.

The six variables were used in a principal-component analysis which revealed two components: a material component consisting of variations in education, employment, and income; and a social component consisting of variations in the proportions of separated, divorced, and widowed persons, single-parent families, and people living alone.

An overall material score and an overall social score were then calculated for each neighbourhood by weighting each DA score by its population and combining it with the other DAs from that neighbourhood. Once each neighbourhood had a material and a social score, the neighbourhoods were plotted onto a deprivation matrix, with the material quintiles dividing the Y axis and the social quintiles dividing the X axis.

Neighbourhoods that were within the top left corner of the matrix were considered High SES, since they were in the top quintile of both the material and social dimensions of the index. Neighbourhoods in the bottom right corner of the matrix were considered Low SES, as they fell within the bottom quintiles on both dimensions. Neighbourhoods within the City of Edmonton were classified into one of three socio-economic status (SES) groups: High SES, Average SES, and Low SES. This resulted in about 16% of the population residing in the High SES group and

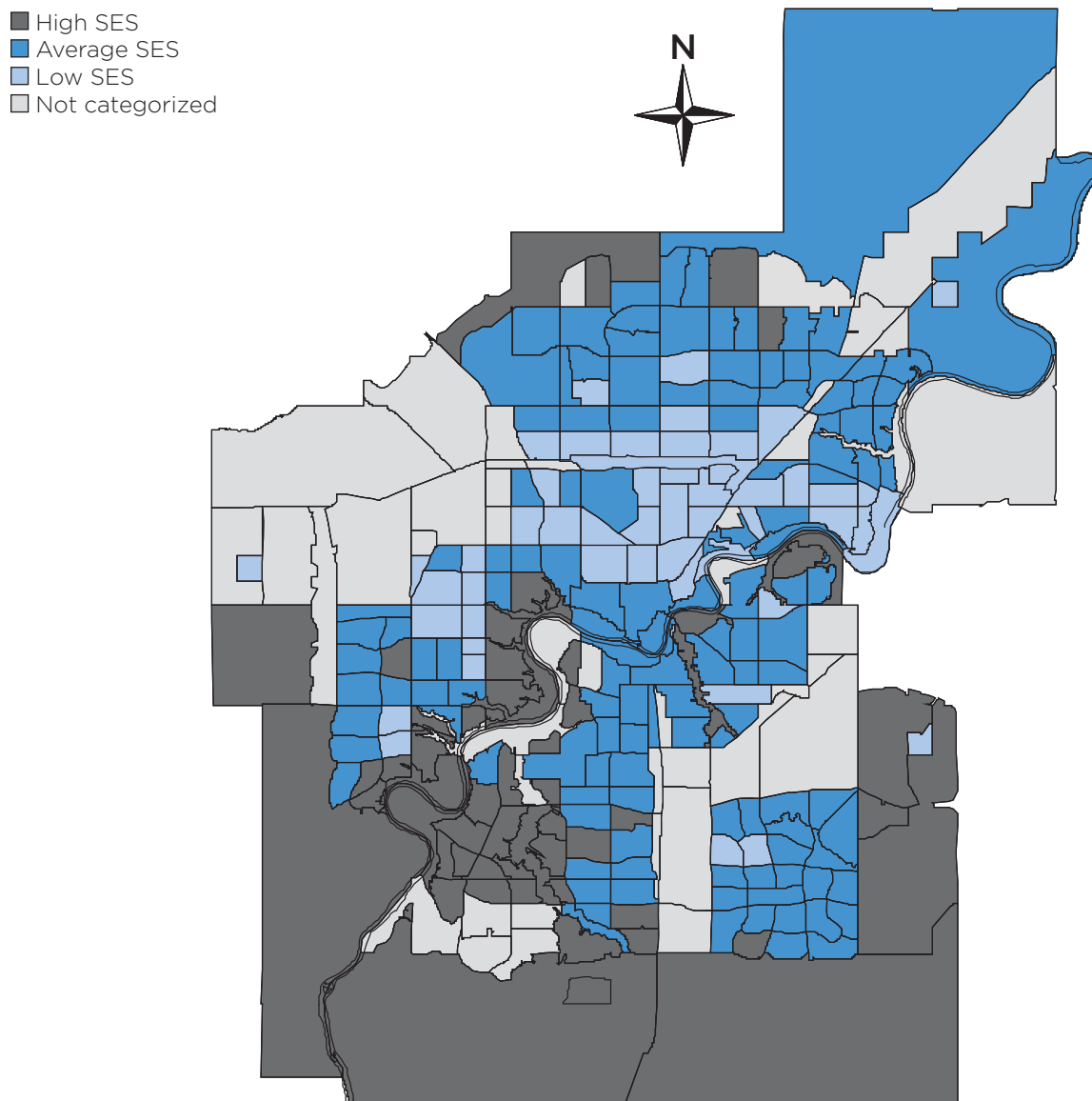
about 24% of the population in the Low SES group (Figure 2).

Statistics Canada provided several demographic and socio-economic variables from the Federal Census 2001 at the neighbourhood level for each participating city. The data are presented for the three SES groups. The three SES groups were also compared on several health measures including birth and death data, hospital data, and self-reported health data from the Canadian Community Health Survey (CCHS). Statistics

Canada combined the results for the Canadian Community Health Survey (CCHS) for the years 2003 and 2005 in order to have samples large enough to report. The hospital data were provided by the Canadian Population Health Initiative (CPHI), from data managed by the Canadian Institute for Health Information (CIHI).

The data are based on three fiscal years from April 2003 through the end of March 2006. The data are age-standardized to the 1991 Canadian population. The birth and death data are from Municipal Affairs (Vital Statistics) for the calendar

**Figure 2: Distribution of neighbourhoods in Edmonton by socio-economic group, 2001**



Source: Deprivation index and classification of neighbourhoods into socio-economic groups based on 2001 Federal Census data and 2001 City of Edmonton neighbourhood boundaries.

years 2004 through 2006 and were analyzed locally. The data were age-standardized to the 1996 Canadian population. The calendar year time frame and the 1996 Canadian population data were used to make the data more comparable to the method of standardization used in Alberta. Statistical tests were done to test for significance between neighbourhood groups.

The 2001 population is shown for each of the three socio-economic groups in Figures 3, 4, and 5. The bars show the percentage of the population, by males and females, in each age group. (See the data tables at the back of the report for 2001 population numbers)

### Indicators chosen for this report

From CIHI's Discharge Abstract Database and National Trauma Registry, the following indicators were used:

- Ambulatory care sensitive conditions (ACSC);
- Diabetes;
- Chronic obstructive pulmonary disease (COPD);
- Asthma;
- Injury; and
- Mental health.

From the CCHS, a number of self-reported health indicators were chosen:

- Self-rated health;
- Physical inactivity;
- Smoking;
- Alcohol intake – heavy drinking;
- Overweight or obese;
- Risk factors (self-reported physical inactivity, body mass index (BMI), smoking and/or alcohol intake);
- Influenza immunization; and
- Participation and activity limitation, referred to herein as “activity limitation”.

From the vital statistics databases, the following indicators were used:

- Low birth weight rate
- Preterm birth rate
- Teen birth rate
- Infant mortality rate

- Mortality rates (both all-cause and specific causes)
- Life expectancy

From the 2001 Federal Census, the following indicators were chosen:

- % of aboriginal population
- % of recent immigrants
- % of immigrants
- % of living alone
- % of persons 65 years of age and older living alone
- Incidence of low income
- Incidence of low income among children 0-5 years of age
- % of lone-parent families
- % of children living in lone-parent families
- % with bachelor's degree or higher
- % households that own the dwelling

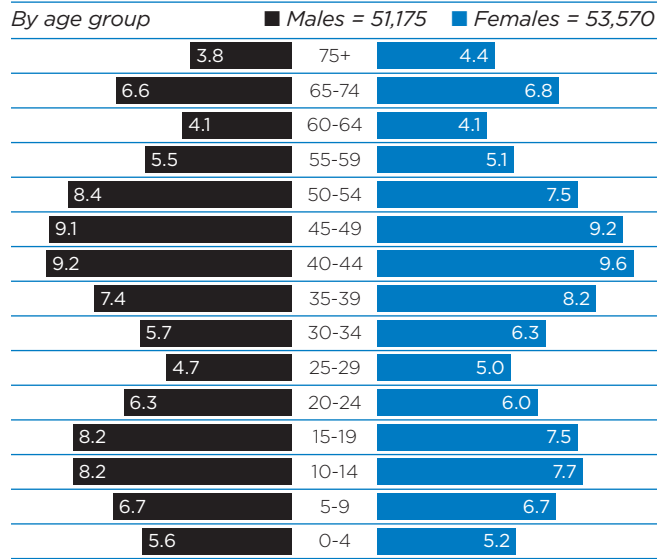
For complete definitions of the indicators see Appendix B.

### Limitations<sup>1</sup>

The methodology employed in this report is subject to several limitations:

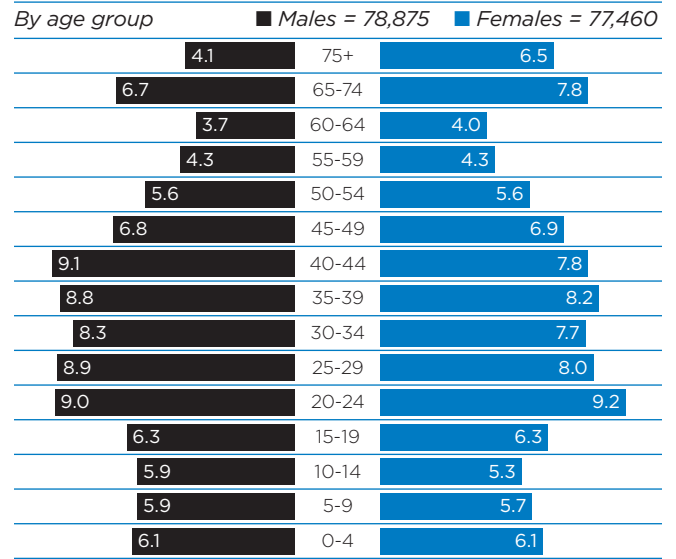
- Aside from the six variables that comprise the material and social components of the Deprivation Index, a number of potentially relevant variables were excluded from the Index. For example, demographic variables, such as ethnicity (that is, recent immigrants or Aboriginal Peoples) and social/cultural variables, such as language, were not considered in the Index.
- Dissemination areas (DAs) that had small populations (e.g. industrial areas) were not included in the report.
- Hospitalization rates and self-reported health percentages presented in this report do not necessarily reflect overall health and health status on their own. Multiple factors can influence hospitalization rates and self-reported health percentages, such as access to primary health care and preventative community services.

**Figure 3: Percentage population by age and sex for the high SES group, Edmonton, 2001**



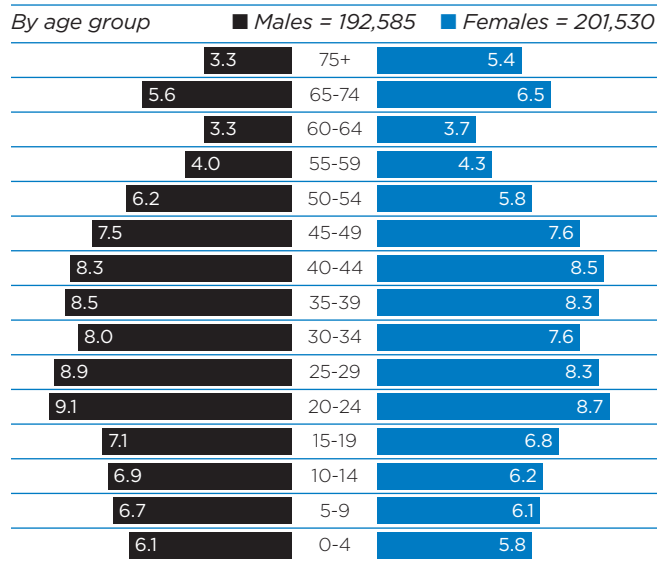
Source: Statistics Canada, Federal Census 2001.

**Figure 5: Percentage population by age and sex for the low SES group, Edmonton, 2001**



Source: Statistics Canada, Federal Census 2001.

**Figure 4: Percentage population by age and sex for the average SES group, Edmonton, 2001**



Source: Statistics Canada, Federal Census 2001.



# Poverty and health in the City of Edmonton



This section presents health data for the City of Edmonton by three socio-economic status groups: High, Average, and Low. Federal census data are presented followed by results obtained from the Canadian Community Health Survey (CCHS). Morbidity data (i.e. hospitalization) are presented along with mortality rates and selected indicators for early childhood and youth health (e.g. low birth weight babies, preterm births, and teen birth rate).

As it was defined in the pan-Canadian report, the term “gradient” refers to observable differences between constructed groups (that is, among the three socio-economic status groups). When visually depicted, an incline or slope is present among the constructed groups for the outcome presented, with varying degrees of steepness or pitch. Significant differences are noted in the text as well as in the data tables at the back of the report.

## Federal census data

Several indicators from the 2001 Federal Census were used to further characterize differences across the SES groups established by the method described earlier.

- % of aboriginal population
- % of recent immigrants
- % of immigrants
- % of living alone
- % of persons 65 years of age and older living alone
- Incidence of low income

- Incidence of low income among children 0-5 years of age
- % of lone-parent families
- % of children living in lone-parent families
- % with bachelor’s degree or higher
- % households that own the dwelling

As shown in Figure 6, several of the Federal census characteristics show a gradient among the groups with the most observable differences in income, education, and the proportion living alone.

In the City of Edmonton, the Low SES group had a higher proportion of Aboriginals (High SES = 1.2%, Average SES = 3.6%, and Low SES = 9.3%), and a higher proportion of people living alone (High SES = 5.4%, Average SES = 11.6%, and Low SES = 16.1%); and this holds for people 65 years of age and older as well, with 35.6% of seniors in the Low SES group living alone. One quarter of the people in the Low SES group were lone-parent families compared to 8.9% in the High SES group. Similarly, 32.1% of children 0-5 years of age live in lone-parent families in the Low SES group compared to 7.3% in the High SES group.

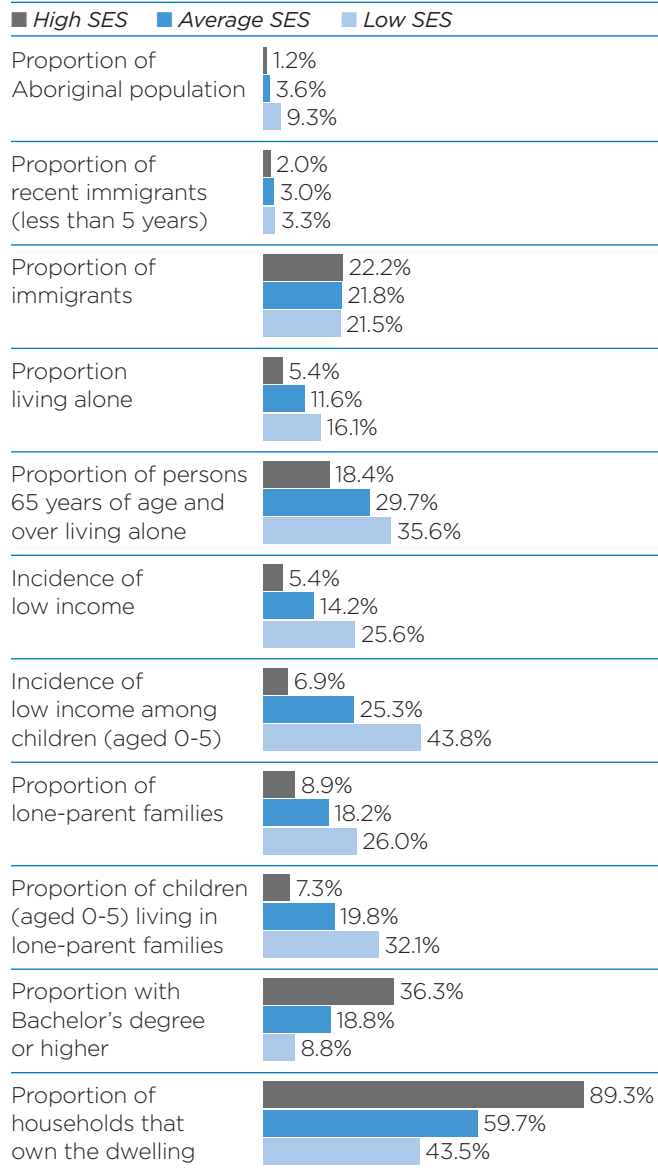
## Canadian Community Health Survey

Canadian Community Health Survey (CCHS) data from 2003 and 2005 were combined to tabulate responses for certain health-related behaviours.<sup>1</sup>

Figure 7 shows the data from the CCHS by socio-economic group for the City of Edmonton. For “smoking” and “self-rated



**Figure 6: Federal Census data by socio-economic status group, City of Edmonton, 2001**



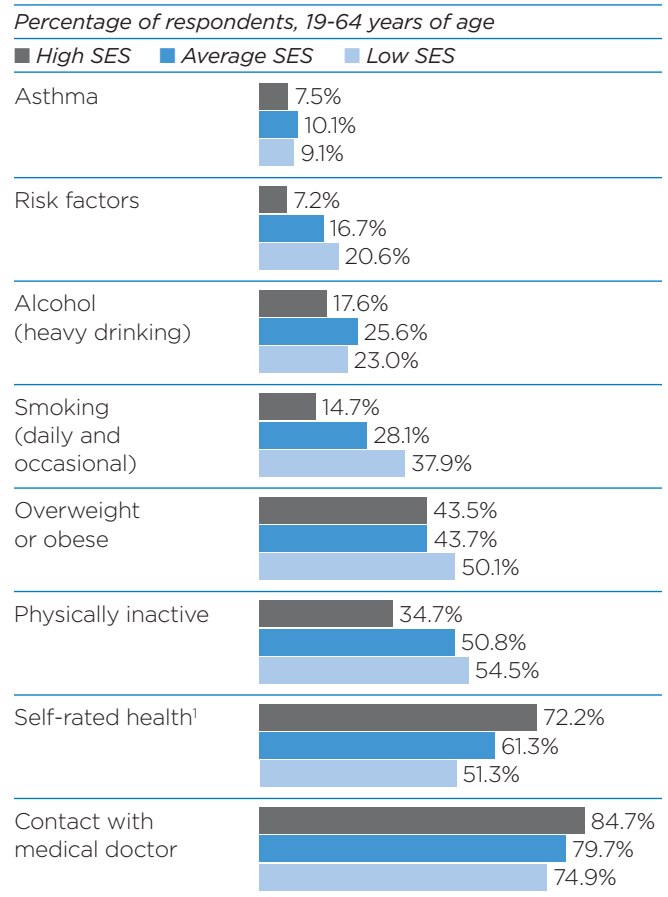
Source: Statistics Canada, 2001 Federal Census.

health”, the differences across the three SES groups were statistically significant at the 95% confidence level.

**Smoking:** The percentage of smokers (daily and occasional) decreased from 37.9% in the Low SES group, to 28.1% in the Average SES group; to 14.7% in the High SES group; and

**Self-rated health:** Focusing specifically on those who rated their overall health as “excellent” or “very good”, 51.3% of those in the Low SES group provided a rating of “excellent” or “very good”, compared with 61.3% in the Average SES group and 72.2% in the High SES group.

**Figure 7: Canadian Community Health Survey indicators by socio-economic status group, City of Edmonton, 2003 and 2005**



Source: CPHI analysis of CCHS 2.1 (2003) and 3.1 (2005), Statistics Canada.

1. Self-rated health includes respondents 12 years of age and older.

Note: See data table for significance testing (Appendix C).

For “alcohol (heading drinking)”, “overweight or obese”, and “asthma” none of the differences among the three SES groups were statistically significant.

For “risk factors”, “physically inactive”, and “contact with medical doctor”, there were statistically significant differences between two groups but not all three.

- **Risk factors:** An index that identifies the percentage of the population with three or more risk factors (physical inactivity, self-reported overweight or obesity, smoking, and alcohol) was statistically significant between the High SES group (7.2%) and the Average SES Group (16.7%); and the High SES group and the Low SES group (20.6%).
- **Physically inactive:** Based on reported levels of physical inactivity that considers the frequency, duration, and intensity of leisure-

time activity, the percentage who reported such inactivity decreased from 54.5% in the Low SES group, to 50.8% in the Average SES group, to 34.7% in the High SES group. Differences between the High/Average SES groups and High/Low SES groups were statistically significant.

- **Contact with medical doctor:** Among people in the High SES group, 84.7% contacted a medical doctor in the past 12 months compared to 74.9% in the Low SES group, with the difference being statistically significant. In the Average SES group, 79.7% reported contacting a medical doctor in the last year; there was no significant difference when comparing the Average SES group to the other two groups.

## Hospitalization

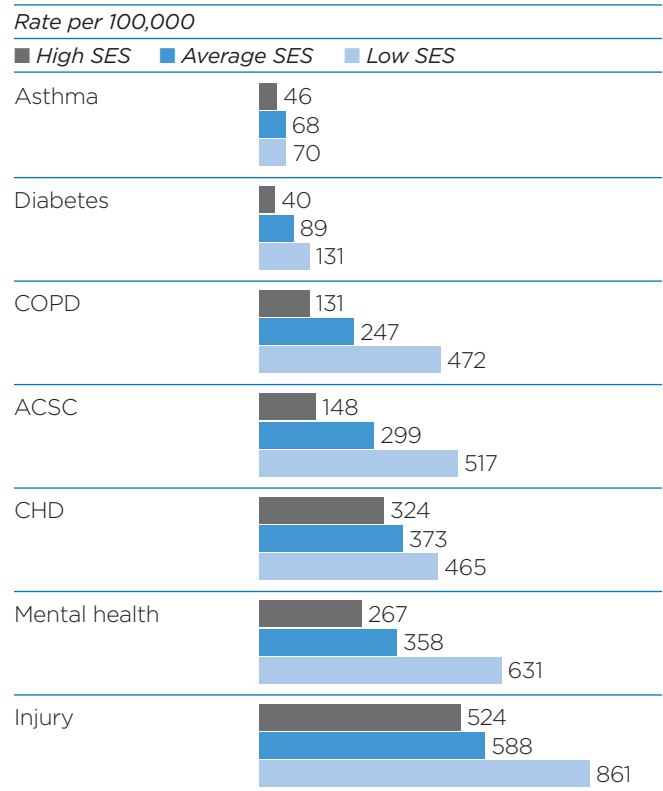
Hospitalization rates were calculated for the City of Edmonton by SES group based on pooled data over the three fiscal years 2003/2004 to 2005/2006. Hospitalization rates were chosen for both longer-term chronic health conditions and acute health problems, and reflect admissions to acute care facilities only. Figure 8 shows the age-standardized hospitalization rates by SES group for seven indicators. Rates are age-standardized to the 1991 Canadian population.

For all but one of the seven diseases/conditions, the differences across the three SES groups were statistically significant at the 95% level. For asthma, the rate for the Average SES group (68 per 100,000) was not significantly different than the rate for the Low SES group (70 per 100,000). However, the rate for the High SES group (46 per 100,000) was significantly lower than the rate in both the Average and Low SES groups.

Other age-standardized rates shown in Figure 8 include:

- **Diabetes:** hospitalization rate of 131 per 100,000 people in the Low SES group, 89 per 100,000 people in the Average SES group, and 40 per 100,000 people in the High SES group;
- **Chronic Obstructive Pulmonary Disease:** hospitalization rate of 472 per 100,000 people in the Low SES group, 247 per 100,000 people in the Average SES group, and 131 per 100,000 people in the High SES group;

**Figure 8: Age-standardized hospitalization rates by socio-economic status group, City of Edmonton, 2003-2005**

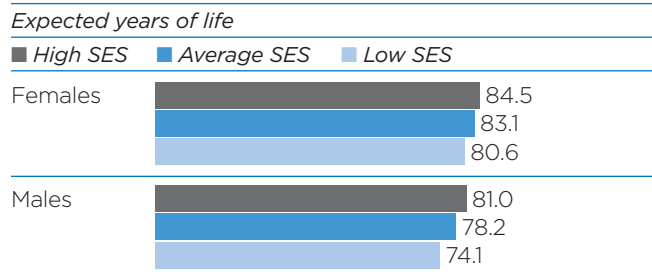


Source: CPHI analysis of 2003-2004 to 2005-2006 Discharge Abstract Database and National Trauma Registry data, CIHI.

Note: See data table for significance testing (Appendix C).

- **Ambulatory Care Sensitive Conditions:** hospitalization rate of 517 per 100,000 people in the Low SES group, 299 per 100,000 people in the Average SES group, and 148 per 100,000 people in the High SES group;
- **Coronary Heart Disease:** hospitalization rate of 465 per 100,000 people in the Low SES group, 373 per 100,000 people in the Average SES group, and 324 per 100,000 people in the High SES group;
- **Mental Health:** hospitalization rate of 631 per 100,000 people in the Low SES group, 358 per 100,000 people in the Average SES group, and 267 per 100,000 people in the High SES group; and
- **Injury:** hospitalization rate of 861 per 100,000 people in the Low SES group, 588 per 100,000 people in the Average SES group, and 524 per 100,000 people in the High SES group.

**Figure 9: Life expectancy at birth, by socio-economic status group, City of Edmonton, 2004-2006 combined mortality data**



Source: Alberta Municipal Affairs (Vital Statistics), Death data 2004-2006.

## Life expectancy

Life expectancy is a hypothetical measure and is an indicator of current health and mortality conditions. Life expectancy at birth is the average number of years a newborn baby can be expected to live if current mortality trends continue. The life expectancy values shown in Figure 9 for the three socio-economic groups are based on 2004-2006 age-specific mortality rates for the City of Edmonton.

For males, there is almost a seven year difference in life expectancy between men in the High SES group and men in the Low SES group (81.0 years of age versus 74.1 years of age). This difference is somewhat smaller (3.9 years) for females but the same gradient is

evident with females in the High SES group expected to live longer (84.5 years of age) than females in the Low SES group (80.6 years of age).

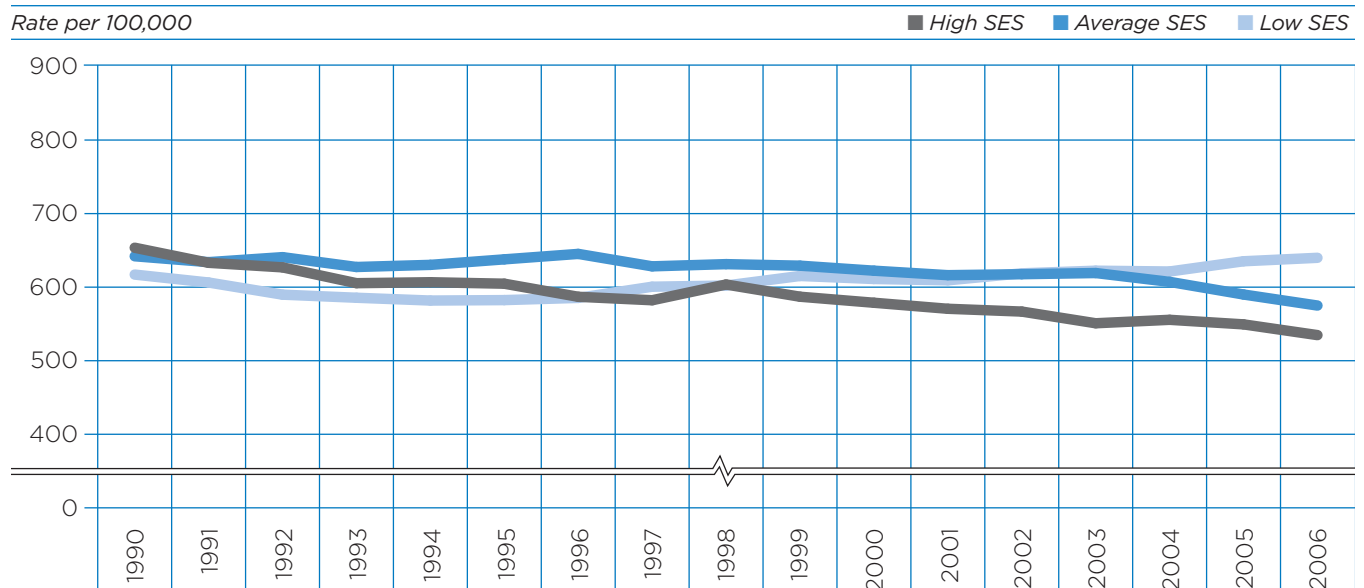
## Mortality

Death data for the calendar years 1986 to 2006 were analyzed for the City of Edmonton by the three socio-economic status groups. Mortality rates are presented per 100,000 people and are age-standardized to the 1996 Canadian population.

The all-cause death rates for females and males, by socio-economic status group, are shown in Figures 10 and 11. Although there has not been much change over the last 20 years in the all-cause mortality rate for females, there has been a slight increase in the rate for females in the Low SES group over the last 10 years. In 1986-1990, the mortality rate for females in the Low SES group was 617.1 per 100,000 and in 2002-2006, the rate increased to 639.9 per 100,000.

For males, there has been a noticeable decrease in the all-cause mortality rate over the last 20 years for the High and Average SES groups. The mortality rate for males in the Low SES groups hasn't changed to the same degree but it has decreased from 833.5 per 100,000 in 1986-1990 to 786.4 per 100,000 in 2002-2006.

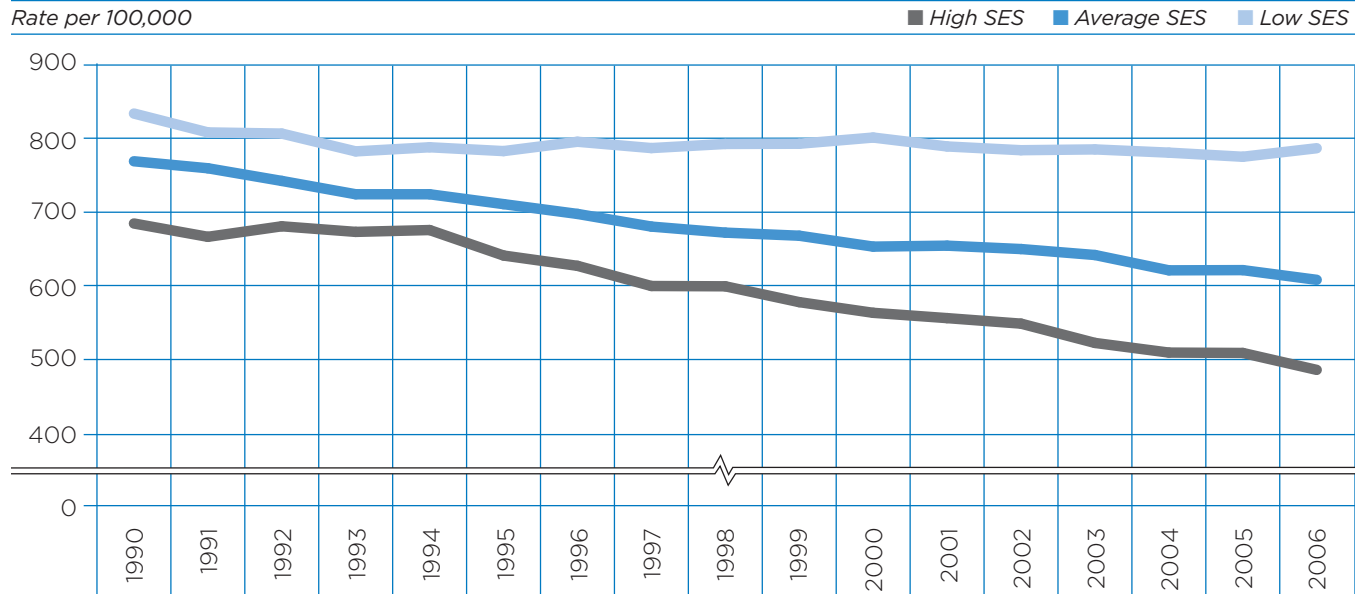
**Figure 10: Age standardized all-cause death rate for females by socio-economic status group, City of Edmonton, 1986-2006 five year rolling average**



Source: Alberta Municipal Affairs (Vital Statistics), Death data 1986-2006.

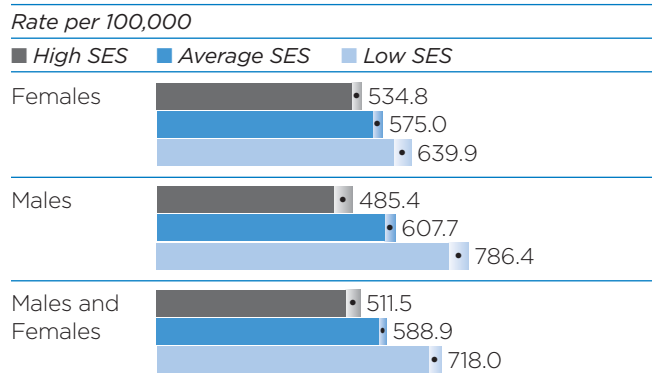
Note: The year shown on the graph represents the last year of the five year average. For example, 1990 represents the years 1986-1990.

**Figure 11: Age standardized all-cause death rate for males by socio-economic status group, City of Edmonton, 1986-2006 five year rolling average**



Source: Alberta Municipal Affairs (Vital Statistics), Death data 1986-2006.  
 Note: The year shown on the graph represents the last year of the five year average. For example, 1990 represents the years 1986-1990.

**Figure 12: Age standardized all-cause death rate by socio-economic status group, City of Edmonton, 2002-2006 five year average**



Source: Alberta Municipal Affairs (Vital Statistics), Death data 2002-2006.

The most recent data are shown in Figure 12. On the charts, the black dot represents the rate while the shaded areas surrounding the dot display the confidence interval. The gradient for males for the all-cause death rate is steeper than the one observed for females with a rate of 485.4 per 100,000 in the High SES group, increasing to 607.7 per 100,000 for those in the Average SES group, and to 786.4 per 100,000 for males in the Low SES group.

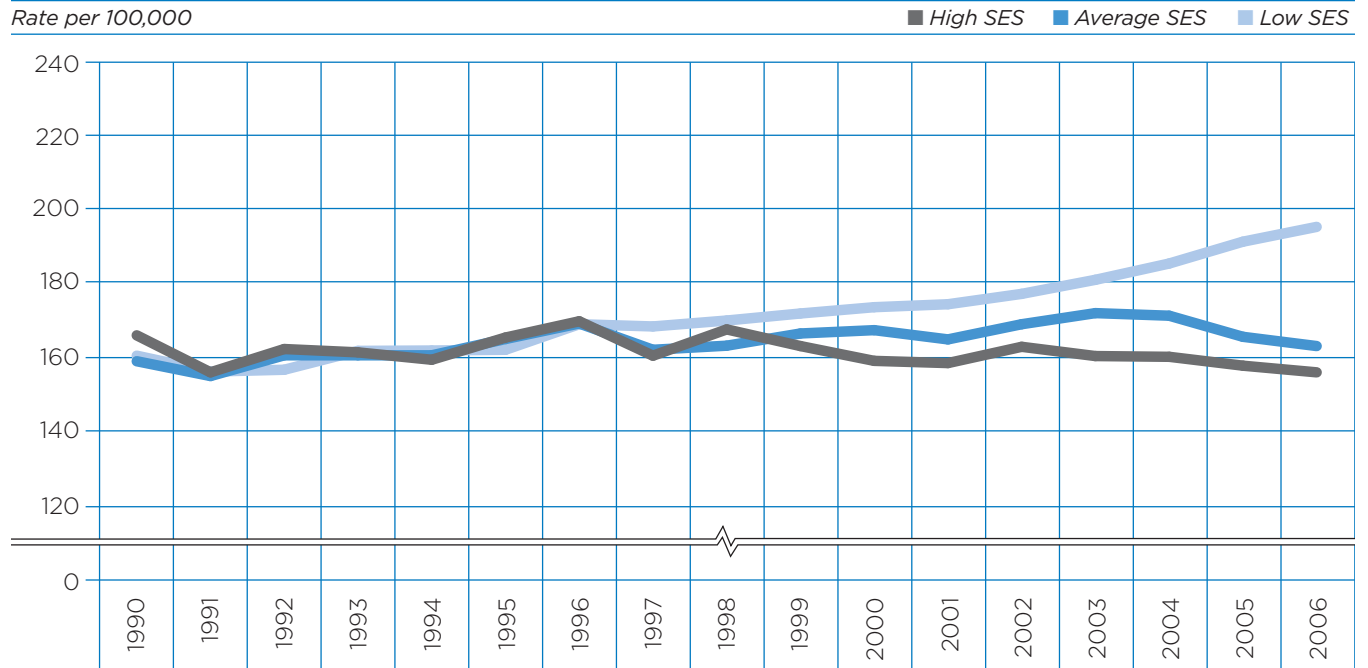
Cancer and circulatory disease are the two major causes of death for people living in the City of

Edmonton, as found in Alberta and Canada. The twenty year trend for the cancer death rate and the circulatory disease death rate are shown in Figures 13, 14 and Figures 16, 17.

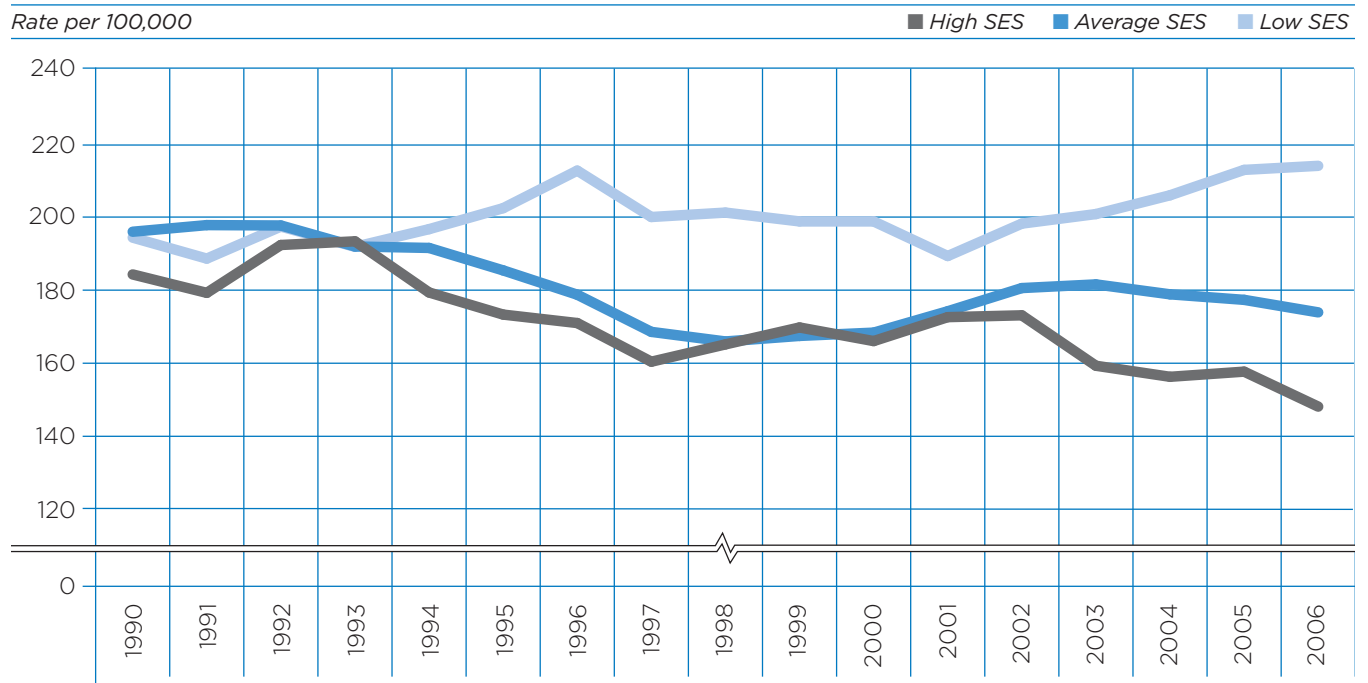
For females in the Low SES group, the cancer death rate has steadily increased since 1994-1998, from 169.9 per 100,000 to 195.2 per 100,000 in 2002-2006; and the gap between the Low SES group and both the High and Average SES groups has widened over the recent years.

For males (Figure 14), the Low SES group has experienced an increase in the cancer death rate over the last five years, with the gap between the Low SES group and both the Average and High SES groups getting wider. In 1997-2001, the rate was at a low of 189.7 per 100,000 and has increased steadily to 214.2 per 100,000 in 2002-2006. For the High SES group, the cancer death rate has shown an overall decrease over the last 20 years although there have been ups and downs along the way. In 1986-1990, the death rate for men in the High SES group was 184.7 per 100,000 compared to 148.8 per 100,000 in 2002-2006. In the Average SES group, the cancer death rate for males has decreased from 196.3 per 100,000 to 174.4 per 100,000 over the same time period.

**Figure 13: Age standardized cancer death rate for females by socio-economic status group, City of Edmonton, 1986-2006 five year rolling average**



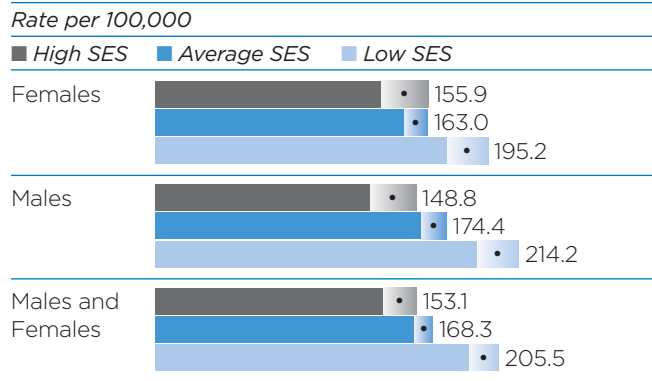
**Figure 14: Age standardized cancer death rate for males by socio-economic status group, City of Edmonton, 1986-2006 five year rolling average**



Source: Alberta Municipal Affairs (Vital Statistics), Death data 1986-2006.

Note: The year shown on the graph represents the last year of the five year average. For example, 1990 represents the years 1986-1990.

**Figure 15: Age standardized cancer death rate by socio-economic status group, City of Edmonton, 2002-2006 five year average**



Source: Alberta Municipal Affairs (Vital Statistics), Death data 2002-2006.

Current cancer death rates are shown in Figure 15. Among males, there is a clear gradient among the three SES groups with males in the Low SES group having a cancer death rate of 214.2 per 100,000, decreasing to 174.4 per 100,000 for the Average SES group; and decreasing again to 148.8 per 100,000 for males in the High SES group.

The trend lines for death due to circulatory disease, for males and females, are shown in Figures 16 and 17. Over the last twenty years, the circulatory disease death rate has decreased for both males and females and for each of the SES groups. It is interesting to note that while the

three trend lines for females have moved closer together over the years, the distance between trend lines for males has widened.

For females, there has been more of a dramatic decrease among females in the High SES group than for females in the other two groups. For males, those in the Average SES group and High SES group have experienced a larger decrease in the rate compared to the males in the Low SES group.

**Females/Low SES:** the rate has decreased from 250.9 per 100,000 to 200.0 per 100,000;

**Females/Average SES:** the rate has decreased from 277.7 per 100,000 to 200.1 per 100,000;

**Females/High SES:** the rate has decreased from 277.8 per 100,000 to 178.5 per 100,000;

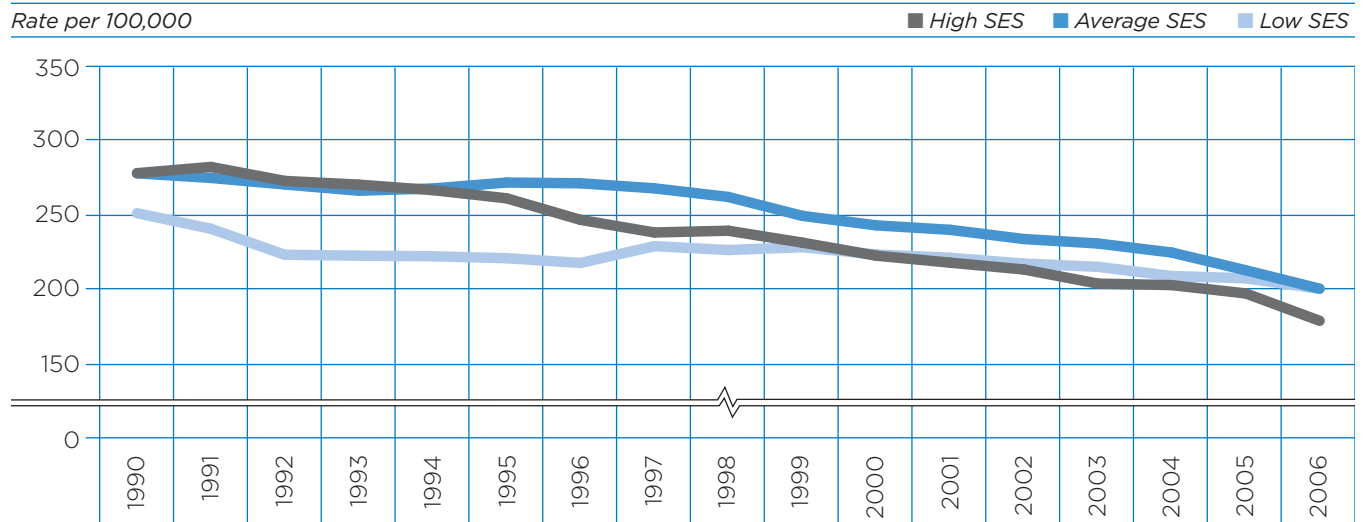
**Males/Low SES:** the rate has decreased from 318.5 per 100,000 to 251.9 per 100,000;

**Males/Average SES:** the rate has decreased from 314.4 per 100,000 to 195.6 per 100,000;

**Males/High SES:** the rate has decreased from 289.9 per 100,000 to 162.1 per 100,000;

Current circulatory disease death rates, age standardized to the 1996 Canadian population, are shown in Figure 18. For females, there is not much of a gradient among the three SES groups with those in the Average and Low groups experiencing the same rate. A gradient is evident among the three groups for males with those in

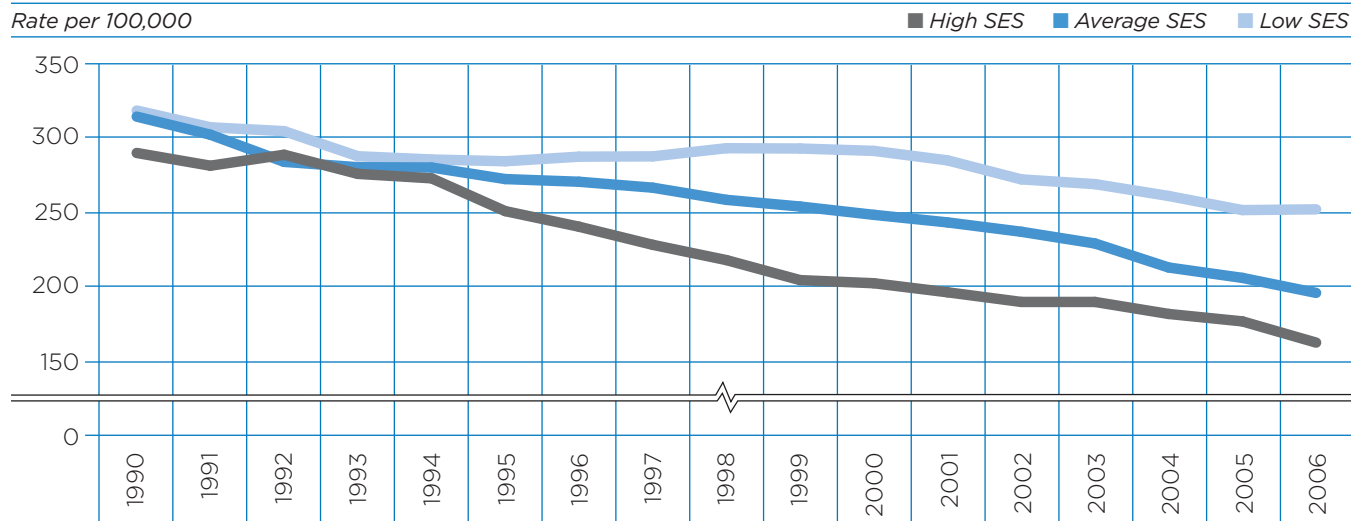
**Figure 16: Age standardized circulatory disease death rate for females by socio-economic status group, City of Edmonton, 1986-2006 five year rolling average**



Source: Alberta Municipal Affairs (Vital Statistics), Death data 1986-2006.

Note: The year shown on the graph represents the last year of the five year average. For example, 1990 represents the years 1986-1990.

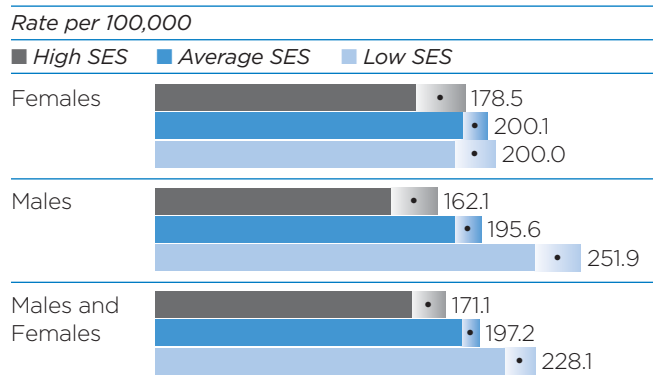
**Figure 17: Age standardized circulatory disease death rate for males by socio-economic status group, City of Edmonton, 1986-2006 five year rolling average**



Source: Alberta Municipal Affairs (Vital Statistics), Death data 1986-2006.

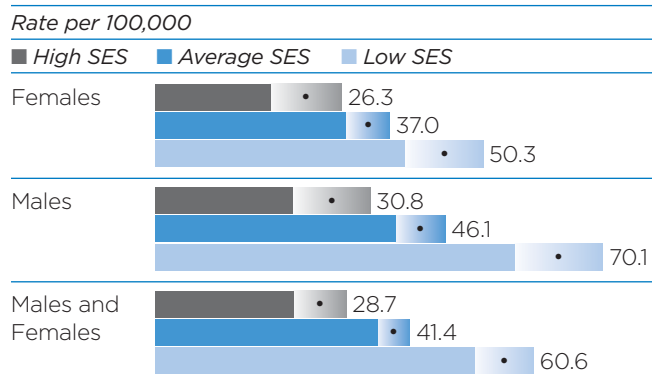
Note: The year shown on the graph represents the last year of the five year average. For example, 1990 represents the years 1986-1990.

**Figure 18: Age standardized circulatory death rate by socio-economic status group, City of Edmonton, 2002-2006 five year average**



Source: Alberta Municipal Affairs (Vital Statistics), Death data 2002-2006.

**Figure 19: Age standardized lung cancer death rate by socio-economic status group, City of Edmonton, 2002-2006 five year average**



Source: Alberta Municipal Affairs (Vital Statistics), Death data 2002-2006.

the Low SES group experiencing the highest rate. In comparing males and females, a higher circulatory disease death rate is experienced by women for both the High and Average SES group; it is only in the Low SES group where males have a higher rate than females.

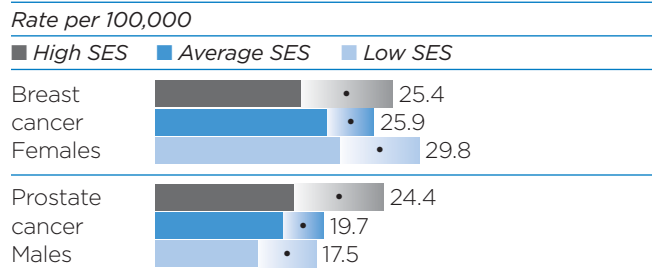
Data for selected causes of death are shown in the following figures. It is interesting to note that for some causes of death, there is a definite gradient for both males and females (e.g. ischemic heart disease) while for other causes of death, the gradient may appear in only females or only males, and this drives the gradient when data for females and males are analyzed together.

For lung cancer deaths, a gradient is observed for both females and males with those in the Low SES group experiencing the highest rates (Figure 19). For each of the SES groups, the lung cancer death rates are lower for females than males with the difference between them highest in the Low SES group (females: 50.3 per 100,000 versus males: 70.1 per 100,000).

Data for breast and prostate cancer are shown in Figure 20. Contrary to the usual gradient pattern, the prostate cancer death rate for males in the High SES group was higher than the rates seen in the Average and Low SES groups. For breast cancer, the death rate for High and Average SES

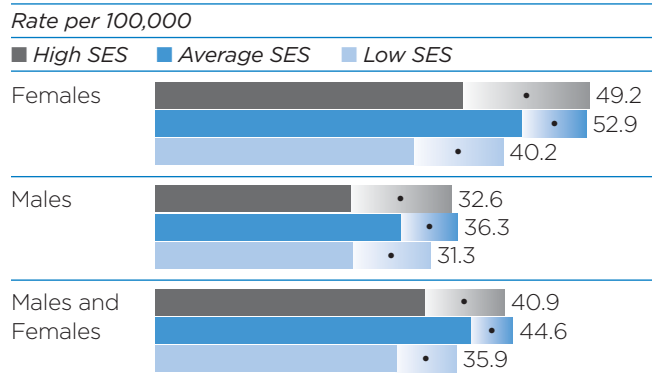


**Figure 20: Age standardized breast and prostate cancer death rate by socio-economic status group, City of Edmonton, 2002-2006 five year average**



Source: Alberta Municipal Affairs (Vital Statistics), Death data 2002-2006.

**Figure 21: Age standardized stroke death rate by socio-economic status group, City of Edmonton, 2002-2006 five year average**



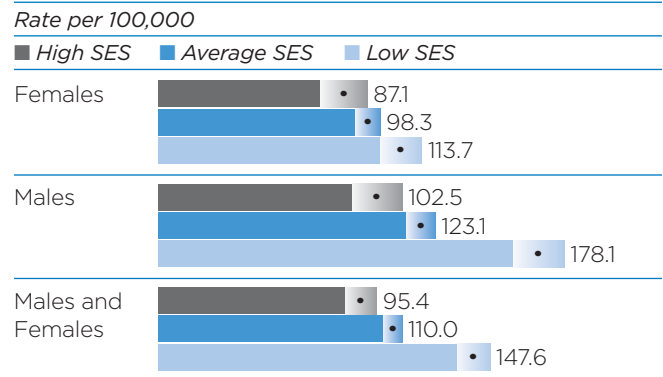
Source: Alberta Municipal Affairs (Vital Statistics), Death data 2002-2006.

groups are very similar; and slightly lower than the rate for females in the Low SES group.

More specific causes of death within the circulatory system include deaths due to ischemic heart disease, a disease which accounts for the majority of all heart disease related deaths, and deaths from cerebrovascular disease, or stroke. Figures 21 and 22 show the age standardized death rates from these two causes for males and females.

In the previous figures, it has been shown that males often have higher death rates for many of the causes of death. However, stroke data show that females have a higher death rate for all three SES groups compared to males (Figure 21). In addition, there is no gradient observed, for either males or females, although the pattern among the SES groups for both females and males is the same. Those among the Low SES group

**Figure 22: Age standardized ischemic heart disease death rate by socio-economic status group, City of Edmonton, 2002-2006 five year average**



Source: Alberta Municipal Affairs (Vital Statistics), Death data 2002-2006.

experience the lowest rate while those in the Average SES group have the highest rate.

The death rate pattern for ischemic heart disease (IHD) looks very different than that for stroke (Figure 22). Clearly, there is a gradient for both females and males among the three SES groups with the gradient being steeper for males.

For females, the IHD death rate increases from 87.1 per 100,000 in the High SES group, to 98.3 per 100,000 in the Average SES group, to 113.7 per 100,000 in the Low SES group. For males, the rate is higher than females for each of the three groups. Among those in the High SES group, the rate is 102.5 per 100,000 and this increases to 123.1 per 100,000 in the Average SES group, and to 178.1 per 100,000 in the Low SES group.

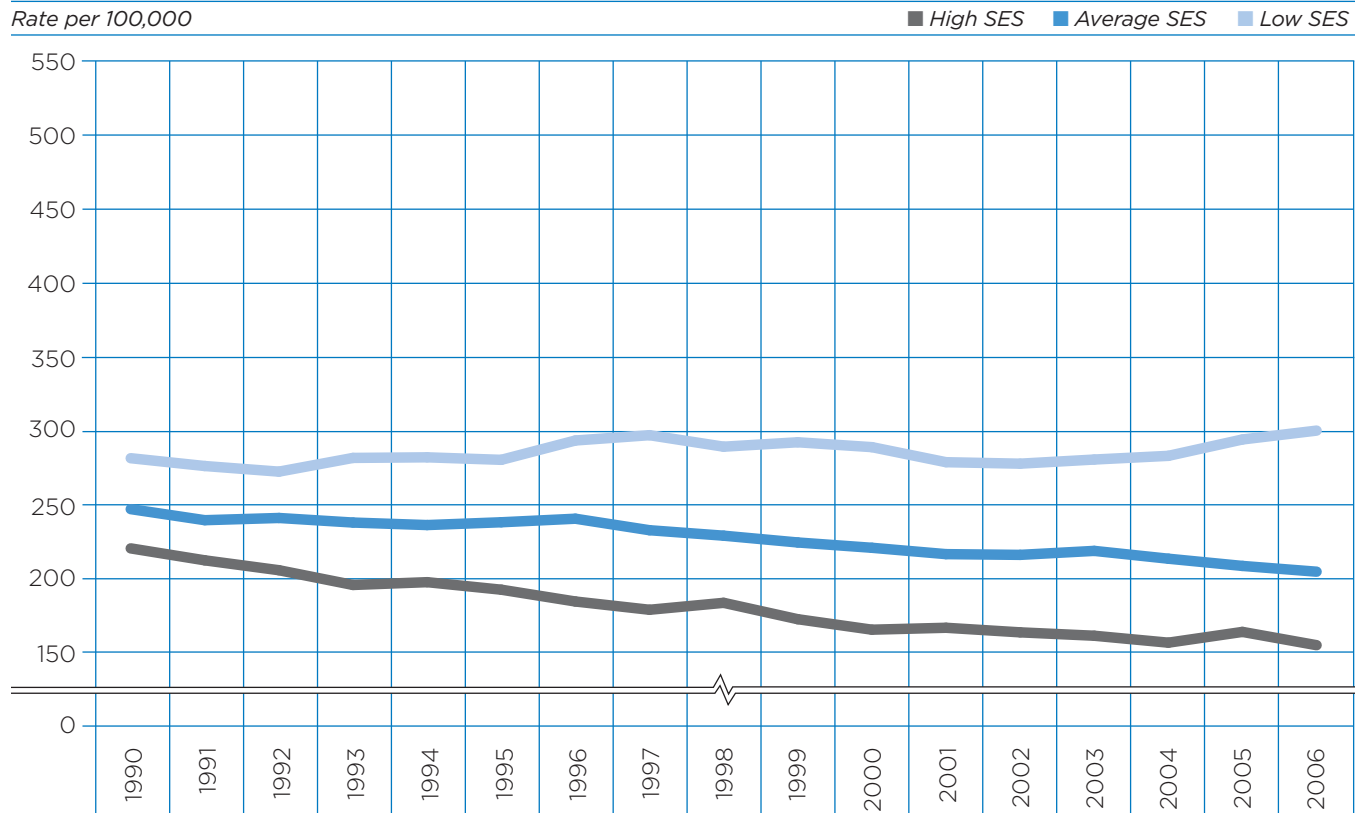
## Premature death

In this report, premature death refers to individuals who have died before their 75th birthday. Figures 23 and 24 show the trend over time for females and males by socio-economic status group.

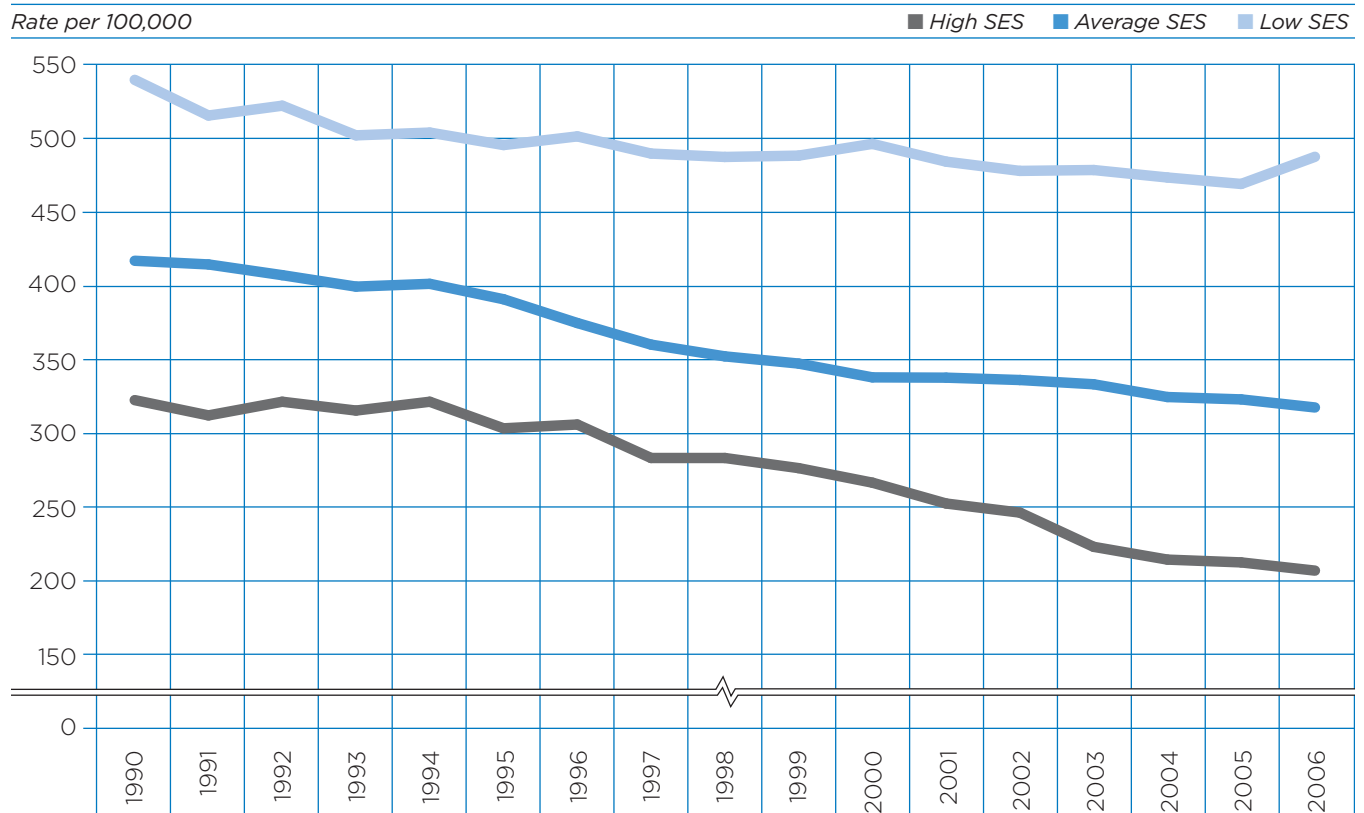
For females, the trend lines for the three socio-economic groups show that the rates for the High and Average socio-economic groups have decreased overall, and the rate for the Low socio-economic group has increased from 281.7 per 100,000 (1986-1990) to 300.4 per 100,000.

For males, all three trend lines have decreased over the years. However, the rate of decrease is higher for the males in the High and Average socio-economic groups than it is for the males in the Low socio-economic group.

**Figure 23: Age standardized all-cause death rate for females less than 75 years of age by socio-economic status group, City of Edmonton, 1986-2006 five year rolling average**



**Figure 24: Age standardized all-cause death rate for males less than 75 years of age by socio-economic status group, City of Edmonton, 1986-2006 five year rolling average**



Source: Alberta Municipal Affairs (Vital Statistics), Death data 1986-2006.

Note: The year shown on the graph represents the last year of the five year average. For example, 1990 represents the years 1986-1990.

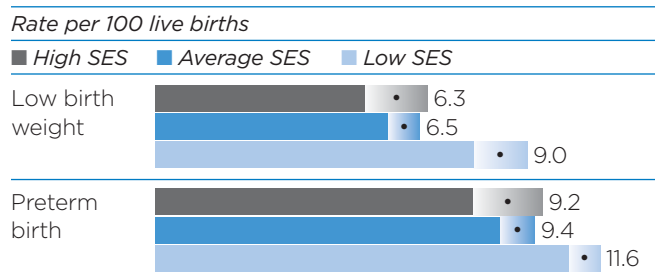
## Early childhood

There is an increased risk for morbidity and/or mortality for babies born at a low birth weight (<2500 grams), born too early (<37 weeks), or both. Figure 25 shows the rates (per 100 live births) for both low birth weight and preterm birth for babies born in the calendar years 2004 through 2006.

For both low birth weight and preterm birth, there is little difference in the rate between the babies in the High SES group and those in the Average SES group. However, the babies in the Low SES group have a significantly higher rate for low birth weight (9.0 per 100 live births) and preterm birth (11.6 per 100 live births) than both the Average and High SES groups.

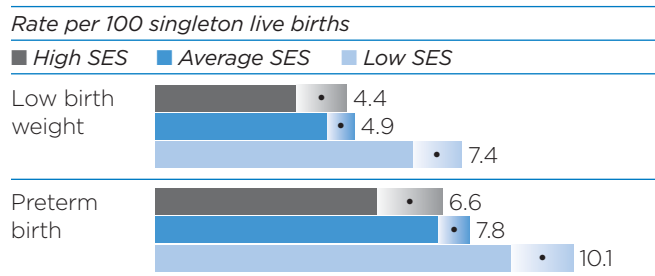
If one looks at singleton births only, the same observation can be made for the three SES groups (Figure 26). The babies born in the Low SES group have a significantly higher rate for both low birth weight and preterm birth when compared to both the Average and High SES group. For example, 10.1% of babies in the Low

**Figure 25: Low birth weight and preterm birth by socio-economic status group, City of Edmonton, 2004-2006**



Source: Alberta Municipal Affairs (Vital Statistics), Birth data 2004-2006.

**Figure 26: Low birth weight and preterm birth for singleton births by socio-economic status group, City of Edmonton, 2004-2006**



Source: Alberta Municipal Affairs (Vital Statistics), Birth data 2004-2006.

SES group are born preterm compared to 6.6% of the babies in the High SES group.

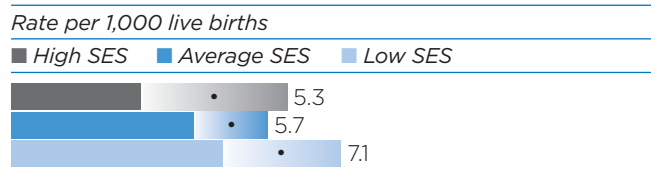
As was seen with low birth weight and preterm birth, the infant mortality rate for babies in the High and Average SES groups (5.3 per 1,000 live births and 5.7 per 1,000 live births) is fairly similar with the rate being the highest for those in the Low SES group (7.1 per 1,000 live births). However, the rates for the three SES groups are not significantly different from one another (Figure 27).

## Children and youth

From the Canadian Community Health Survey, the combined data (2003 and 2005) show that a higher percentage of children and youth (12-18 years) in the Average SES group were classified as physically inactive than the High or Low SES Groups. The differences were not statistically significant and must be used with caution due to high sampling variability.

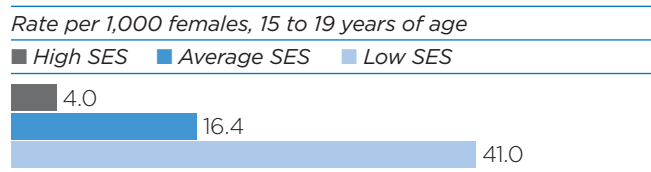
Teen birth rate is the number of live births per 1,000 females aged 15-19 years. There is a steep gradient among the three SES groups with a teen birth rate of 4.0 among those in the High SES group, 16.4 per 1,000 15-19 year olds in the Average SES group, and 41.0 per 1,000 15-19 year olds in the Low SES group (Figure 28).

**Figure 27: Infant mortality rate by socio-economic status group, City of Edmonton, 2002-2006**



Source: Alberta Municipal Affairs (Vital Statistics), Birth and death data 2002-2006.

**Figure 28: Teen birth rate by socio-economic status group, City of Edmonton, 2004-2006**

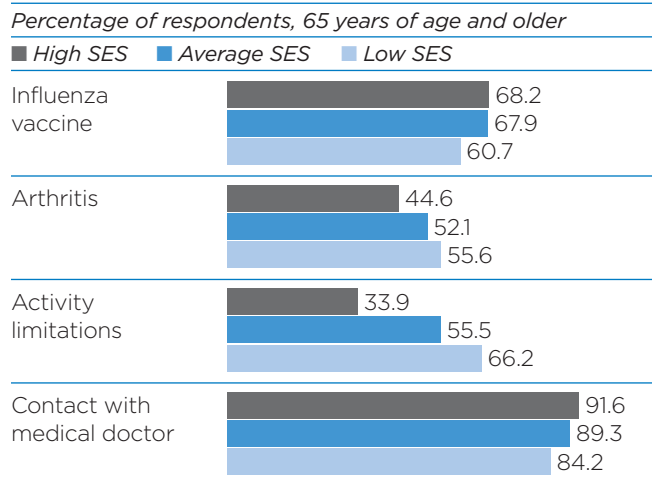


Sources: (1) Alberta Municipal Affairs (Vital Statistics), Birth data 2004-2006. (2) Population data values are for June 30. Values up to March 31, 2007 are interpolations of actual population values from the Alberta Health Care Insurance Plan (AHCIP) Registration Files as of March 31 for each year.

## Seniors

For indicators specific to people 65 years of age and older, data from the Canadian Community Health Survey (2003 and 2005 combined) show that the steepest gradient is observed for activity limitation. While 34% of people in the High SES group report being limited in their activities, 66% of the Low SES group do so. Although a higher percentage of respondents in the High SES group, compared to the Low SES group, indicated they had received the influenza vaccine and had contact with a medical doctor within the past 12 months, none of the differences were statistically significant.

**Figure 29: Canadian Community Health Survey indicators by socio-economic status group, City of Edmonton, 2003-2005**



Source: CPHI analysis of CCHS 2.1 (2003) and 3.1 (2005), Statistics Canada.

Note: See data table for significance testing (Appendix C).

# Discussion



The data presented in the previous section of this report show gradients in health risk factors, health outcomes, mortality, births, and health system utilization across Low socio-economic status (SES), Average SES, and High SES neighbourhoods within the City of Edmonton. On virtually all measures, residents of Low SES neighbourhoods have poorer health than those in Average SES neighbourhoods, who in turn have poorer health than those residing in High SES neighbourhoods. Findings similar to this are very common in urban areas, and are demonstrated in a variety of urban settings throughout Canada<sup>1</sup> as well as internationally.

Much less is known about what can be done by public entities such as health organizations and municipal governments to reduce neighbourhood health inequalities and to improve health outcomes in Low and Average SES neighbourhoods. Part of this knowledge gap has to do with the causes of the gradients for particular conditions or outcomes. We also have little understanding of the types of policies that would be both feasible and effective in the context of Edmonton specifically. Most importantly, we are left with fundamental questions of the significance of these findings and the responsibility for creating change: what do these health inequalities tell us, and who is accountable for the material and social conditions that influence the development and magnitude of health inequalities across Edmonton neighbourhoods?

Most major public policies that affect basic material and social determinants of the

population's health are funded and administered by federal or provincial levels of government. These include income, business, property, and consumption taxation; federal monetary and banking policy; federal social services funding; and provincial minimum wage laws. However, decisions at all levels of government affect access to material and social resources for residents of Edmonton. For example, international trade policies affect where companies choose to locate; this in turn impacts local employment. Actions taken at the municipal level can also be enhanced or diminished by actions implemented at other levels of government. Economic policy is a useful example; federal monetary, trade and taxation policies can increase inflation, which in turn contributes to an increase in the local cost of living. If municipal or provincial initiatives to mitigate these increased costs for low income individuals and families do not keep pace, poverty and local inequity can increase.

## Addressing poverty

Existing federal, provincial, and territorial social and health policies aim to provide universal access to basic lifelong determinants of health such as education and healthcare. Others provide social and material support to specific sub-populations, for example, the temporarily unemployed, the physically disabled and the retired. These policies and programmes are effective but not sufficient to prevent the development of the material and social inequities behind the health gradients identified in Edmonton.



Specific public sector actions to address poverty aim to do the following:

- Direct public resources to places of poverty or to people living in poverty (e.g., tax policies, zoning regulations, or housing subsidies);
- Create incentives and/or remove barriers to the development of resources by or for impoverished subpopulations (e.g., development incentives for low-cost housing stock, job training, addictions treatment services, or property tax subsidies for seniors); and
- Mitigate symptoms of poverty (e.g., financial support for local non-profit social service agencies working one-on-one with clients).

At the local level, the City of Edmonton partners with the Province by directing provincial funds to local housing, social services, and other basic needs initiatives, and the City contributes a share of the total (provincial plus municipal) funding that supports agencies under the Family and Community Support Services (FCSS) umbrella. In terms of neighbourhood design, equity of access to transit, and liveability, the City also has considerable influence. One of the primary emphases is on equalizing access for Edmonton residents both to municipal resources (e.g., recreational facilities) and to resources at other levels of government (e.g., job training programmes). Several City policies deal with issues of public involvement in municipal decision-making processes, the reservation of land for social housing and non-profit housing organization development, and the needs of immigrants and refugees.

Within Alberta Health Services, a variety of programs and services are intended to assist those with limited incomes or special challenges (e.g., lone parenting) as well as individuals from groups with unique health concerns (e.g., recent immigrants, seniors, and homeless men, women and youth). Many health initiatives focus on maternal and child health concerns such as ensuring conditions for adequate antenatal nutrition. All prevention programmes and services either address conditions that affect the health of the entire population of Edmonton or specific high-risk groups.

Policy is only one tool for effecting changes that can reduce material and social inequities and health inequalities. The private sector, non-governmental organizations and individuals are also influential. The interaction of public initiatives, the private sector, and the actions of individuals and organizations are important determinants of the distribution of material and social resources within and across Edmonton neighbourhoods. Exploring these relationships is beyond the scope of this report, but is critical for understanding how health inequalities can be addressed effectively.

## Conclusion

Circumstances and forces beyond the sole control of the City of Edmonton and/or Alberta Health Services affect the development and magnitude of the health gradients demonstrated in this report. These include provincial, federal, and international policies, and non-policy forces operative in Edmonton society. Determinants of the observed health gradients across SES groups in Edmonton also include the material and social conditions experienced by Edmonton residents throughout their lives—and therefore include policy and non-policy forces prevailing in other times and in other locations. This reminds us that the actions we take today will affect the health that Edmonton residents realize in the future.

Health inequalities among Edmonton neighbourhoods cannot be resolved merely through the provision of more advanced healthcare or better access to existing health or community services. They are insufficient. Improving population health in Edmonton by reducing inter-neighbourhood health inequalities will require multi-sectoral long-term commitment, common vision, and consistent collaboration at all levels of government and across all sectors.

Canadians place a high value on universal access to healthcare. Does this value extend to the material and social conditions that create and maintain health? If so, what is required to achieve universal access to these conditions?

# Appendix A: List of neighbourhoods by socio-economic group

## UPHN Neighbourhood Classification: High SES

Aspen Gardens	Falconer Heights	Mill Creek Ravine
Bearspaw	Gariepy	Ogilvie Ridge
Belgravia	Glastonbury/Rural West/The	Oleskiw
Blackmud Creek/Richford/ Rural South West/Rutherford/ Windermere Estates	Grange/The Hamptons/ Cameron Heights/Anthony Henday South West/River Valley Cameron/Wedgewood Heights	Parkview
Blue Quill Estates		Quesnell Heights
Breckenridge Greens/Lewis Farms	Glenora	Ramsay Heights
Industrial/Potter Greens/ Rural West Lewis Farms/ Suder Greens 125	Grandview Heights	Rhatigan Ridge
Brookside	Greenfield	Rideau Park
Bulyea Heights	Haddow	Rio Terrace
Canossa	Henderson Estates	River Valley Capitol Hill
Capilano	Hodgson	River Valley Gold Bar
Carter Crest	Keheewin	River Valley Oleskiw
Chambery/Elsinore/Rural North West/The Palisades	Lake District North East Portion	River Valley Terwilligar
Cloverdale	Lansdowne	Southeast Industrial
Crestwood	Larkspur	Summerlea
Dechene	Laurier Heights	Twin Brooks
Donsdale	Leger	Westbrook Estates
Ellerslie/Rural South East/ Summerside/Ellerslie Area	MacEwan	Westridge
	Maple Ridge Industrial/Meadows Area/Silver Berry/Wild Rose	Whitemud Creek Ravine South
	Matt Berry	Windsor Park
	Menisa	

## UPHN Neighbourhood Classification: Average SES

Aldergrove	Delwood	Idylwyld
Allendale	Dovercourt	Industrial Heights
Argyll	Downtown	Jackson Heights
Avonmore	Duggan	Jamieson Place
Bannerman	Dunluce	Kameyosek
Baranow	Ebbers Industrial/Miller	Kenilworth
Baturyn	Edmonton Municipal Airport	Kensington
Beaumaris	Ekota	Kernohan
Belle Rive/Eaux Claires	Elmwood	Kildare
Belmead	Empire Park	Kilkenny
Belmont	Ermieskin	Kiniski Gardens
Bergman	Forest Heights	Kirkness
Bisset	Fraser	Klarvatten
Blackmud Creek Ravine	Fulton Place	La Perle
Blue Quill	Garneau	Lago Lindo
Bonnie Doon	Gold Bar	Lendrum Place
Brander Gardens	Greenview	Lorelei
Caernarvon	Griesbach	Lymburn
Canon Ridge	Grovenor	Lynnwood
Casselman	Hairsine	Malmo Plains
Clareview Campus	Hazeldean	Mayfield
CPR West	Highlands	Mayliewan
Crawford Plains	Hillview	McKernan
Cumberland/Hudson/Pembina/ Rampart Industrial	Hollick-Kenyon	McLeod
Daly Grove	Holyrood	McQueen
	Homesteader	Meadowlark Park

### **Average SES continued**

Meyokumin	Pleasantview	Steinhauer
Meyonohk	Pollard Meadows	Strathcona
Michaels Park	Prince Charles	Strathearn
Mill Woods Golf Course	Queen Alexandra	Sweet Grass
Mill Woods Park/Mill Woods Town Centre	Ritchie	Tawa
Minchau	River Valley Highlands	Terra Losa
North Glenora	River Valley Victoria	Thornclyff
Northmount	River Valley Walterdale	Tipaskan
Oliver	Riverdale	Tweddle Place
Ormsby Place	Rossdale	University of Alberta Farm
Ottewell	Rosslyn	Virginia Park
Overlanders	Royal Gardens	Weinlos
Oxford/Carlton	Rural North East North Sturgeon	Wellington
Ozerna	Rural North East South Sturgeon	West Meadowlark Park
Parkallen	Sakaw	Westmount
Patricia Heights	Satoo	York
Place La Rue	Sifton Park	
	Skyrattler	

### **UPHN Neighbourhood Classification: Low SES**

Abbottsfeld	Eastwood	Prince Rupert
Alberta Avenue	Elmwood Park	Queen Mary Park
Athlone	Evansdale	Richfield
Balwin	Evergreen	River Valley Kinnaird
Beacon Heights	Glengarry	River Valley Rundle
Bellevue	Glenwood	Rundle Heights
Belvedere	High Park	Sherbrooke
Beverly Heights	Inglewood	Sherwood
Boyle Street	Jasper Park	Spruce Avenue
Britannia Youngstown	Killarney	Terrace Heights
Calder	King Edward Park	West Jasper Place
Callingwood North	Lauderdale	Westview Village
Callingwood South	Lee Ridge	Westwood
Canora	Maple Ridge	Woodcroft
Carlisle	McCauley	Yellowhead Corridor
Central McDougall	Montrose	Youngstown Industrial
Cromdale	Newton	
Delton	Parkdale	

Note: The 2001 Federal Census was used to categorize the neighbourhoods into Socio-Economic Status groups. Neighbourhoods separated with an oblique (/) were considered together because of small populations in individual neighbourhoods.

The population from the 2001 Federal Census for the three SES groups was 105,000 in the High SES group, 395,000 in the Average SES group, and 155,000 in the Low SES group.



# Appendix B:

## List of indicators and data definitions

### Data source for all CCHS variables

Statistics Canada, Canadian Community Health Survey 2005, 2003.

#### (1) Self-rated health

Population (12 years of age and older) who rated their own health status as being either excellent or very good. Self-reported health is an indicator of overall health status. It can reflect aspects of health not captured in other measures, such as: incipient disease, disease severity, aspects of positive health status, physiological and psychological reserves and social and mental function.

**Variable used for CCHS 2.1:** GENCDHDI = (3, 4)  
Very good or Excellent self-rated health

**Variable used for CCHS 3.1:** GENEDHDI = (3, 4)  
Very good or Excellent self-rated health

#### (2) Physical inactivity

Population (19-64 years of age) reporting an inactive level of physical activity, based on their responses to questions about the frequency, duration and intensity of their participation in leisure-time physical activity over the past three months.

**Variable used for CCHS 2.1:** PACCDPAI = 3  
Leisure-time physically inactive

**Variable used for CCHS 3.1:** PACEDPAI = 3  
Leisure-time physically inactive

#### (3) Smoking

Population (19-64 years of age) who reported being a current smoker on either a daily or occasional basis.

Source: Statistics Canada, Canadian Community Health Survey 2005, 2003.

**Variable used for CCHS 2.1:** SMKCDSTY = (1, 2, 3)  
Daily or occasional smoker

**Variable used for CCHS 3.1:** SMKEDSTY = (1, 2, 3)  
Daily or occasional smoker

#### (4) Alcohol intake (heavy drinking)

Population (19-64 years of age) who reported

being a current drinker and having five or more drinks on one occasion, 12 or more times a year.

**Variable used for CCHS 2.1:** ALCC\_3 <= (3, 4, 5, 6)  
At least 5 or more drinks on one occasion in the last 12 months

**Variable used for CCHS 3.1:** ALCE\_3 <= (3, 4, 5, 6)  
At least 5 or more drinks on one occasion in the last 12 months

#### (5) Risk factor index

Population (19-64 years of age) with three or more of the following risk factors: physical inactivity, overweight or obese, daily or occasional smoker and current drinker having five or more drinks on one occasion, 12 or more times a year.

#### (6) Overweight or obese

Population (19-64 years of age) with a body mass index (BMI) of 25 or greater. According to the World Health Organization and Health Canada guidelines, a BMI of 25 or greater is classified as overweight and is associated with increased health risk. A BMI of 30 or greater is classified as obese and is associated with high health risk. BMI is calculated from weight and height data collected from respondents by dividing body weight (in kilograms) by height (in metres) squared.

**Variable used for CCHS 2.1:** HWTCDISW = (3, 4, 5, 6) BMI - self-reported overweight or obese

**Variable used for CCHS 3.1:** HWTEDISW = (3, 4, 5, 6) BMI - self-reported overweight or obese

#### (7) Contact with medical doctors

Population (19-64 years of age and 65 years of age and older) who have consulted with a medical doctor in the past 12 months.

Medical doctor includes family or general practitioners as well as specialists such as surgeons, allergists, orthopaedists, gynaecologists, and psychiatrists.

**Variable used for CCHS 2.1:** HCUCDMDC = (1 to 666) Consulted a medical doctor in the last 12 months

Variable used for CCHS 3.1: HCUEDMDC = (1 to 666) Consulted a medical doctor in the last 12 months

### (8) Asthma

Population (19-64 years of age) who report that they have been diagnosed by a health professional as having asthma.

Variable used for CCHS 2.1: CCCC\_031 = (1) With asthma

Variable used for CCHS 3.1: CCCE\_031 = (1) With asthma

### (9) Influenza immunization

Population (65 years of age and older) who report that they received an influenza immunization (flu shot) within the last 12 months.

Variable used for CCHS 2.1: FLUC\_160 = (1) and FLUC\_162 = (1) Influenza immunization, less than one year ago

Variable used for CCHS 3.1: FLUE\_160 = (1) and FLUE\_162 = (1) Influenza immunization, less than one year ago

### (10) Arthritis or rheumatism

Population (65 years of age and older) who report that they have been diagnosed by a health professional as having arthritis or rheumatism. Arthritis/rheumatism include both rheumatoid arthritis and osteoarthritis, but excludes fibromyalgia.

Variable used for CCHS 2.1: CCCC\_051 = (1) With arthritis or rheumatism

Variable used for CCHS 3.1: CCCE\_051 = (1) With arthritis or rheumatism

### (11) Activity limitation

Population (65 years of age and older) who report being limited in selected activities (home, school, work and other) because of a physical condition, mental condition, or health problem which has lasted or is expected to last six months or longer.

Variable used for CCHS 2.1: RACCDPAL (1, 2) Participation or activity limitation, some or often

Variable used for CCHS 3.1: RACEDPAL (1, 2) Participation or activity limitation, some or often

\* "Secondary diagnosis" refers to a diagnosis other than most responsible.

## Selected variables based on hospital discharge data

### Data Source:

Discharge Abstract Database (DAD), CIHI Census 2001 & 2006, Statistics Canada

### Reference Period:

April 1, 2003 – March 31, 2006

### (1) Mental illness

Age-standardized acute care hospitalization rate for mental illness, per 100,000 population, by three SES groups (low, average and high).

### Method of Calculation:

(Total number of acute care hospital admissions for mental illness for each SES group ÷ Total population in that SES group) × 100,000 (age-standardized to the 1991 Canadian population)

### Numerator:

#### Inclusion criteria:

Any most responsible diagnosis (MRDx) of

- ICD-9 290-319
- ICD-10-CA F00-F99

Secondary diagnosis\* of dementia, only when an MRDx of the following corresponding condition is also present:

Dementia in Alzheimer's disease

- ICD-9 MRDx of 331.0, with a secondary diagnosis of 290.1
- ICD-10-CA MRDx of G30, with type 3 or 6 of F00

Dementia in Pick's disease

- ICD-9 MRDx of 331.1, with a secondary diagnosis of 294.1
- ICD-10-CA MRDx of G31.0, with type 3 or 6 of F02.0

Dementia in Creutzfeldt-Jakob disease

- ICD-9 MRDx of 046.1, with a secondary diagnosis of 294.1
- ICD-10-CA MRDx of A81.0, with type 3 or 6 of F02.1

Dementia in Huntington's disease

- ICD-9 MRDx of 333.4, with a secondary diagnosis of 294.1
- ICD-10-CA MRDx of G10, with type 3 or 6 of F02.2

Dementia in Parkinson's disease

- ICD-9 MRDx of 332, with a secondary diagnosis of 294.1
- ICD-10-CA MRDx of G20, with type 3 or 6 of F02.3

Dementia in HIV disease

- ICD-9 MRDx of 042.9, with a secondary diagnosis of 294.1
- ICD-10-CA MRDx of B24, with type 3 or 6 of F02.4

## (2) Diabetes

Age-standardized acute care hospitalization rate for diabetes, per 100,000 population, by three SES groups (low, average and high).

### *Method of Calculation:*

(Total number of acute care hospital admissions for diabetes for each SES group ÷ Total population in that SES group) x 100,000 (age-standardized to the 1991 Canadian population)

### *Numerator:*

*Inclusion criteria:*

Any most responsible diagnosis code of

- ICD-9 250
- ICD-10-CA E10, E11, E13, E14

## (3) Chronic obstructive pulmonary disease (COPD)

Age-standardized acute care hospitalization rate for chronic obstructive pulmonary disease, per 100,000 population 20 years of age and older, by three SES groups (low, average, and high).

### *Method of Calculation:*

(Total number of acute care hospital admissions for COPD 20 years of age and older for each SES group ÷ Total population 20 years of age and older in that SES group) x 100,000 (age-standardized to the 1991 Canadian population)

### *Numerator:*

*Inclusion criteria:*

Any most responsible diagnosis (MRDx) code of COPD

- ICD-9 491, 492, 494, 496
- ICD-10-CA J41, J42, J43, J44, J47
- MRDx of Acute lower respiratory infection, only when a secondary diagnosis\* of J44 in ICD-10-CA or 496 in ICD-9 is also present
- ICD-9 480 – 486, 466, 487.0

\* "Secondary diagnosis" refers to a diagnosis other than most responsible.

- ICD-10 J10.0, J11.0, J12-J16, J18, J20, J21, J22

*Exclusion criteria:*

Individuals under 20 years of age

## (4) Coronary heart disease (CHD)

Age-standardized acute care hospitalization rate for coronary heart disease, per 100,000 population 20 years of age and older, by three SES groups (low, average and high).

### *Method of Calculation:*

(Total number of acute care hospital admissions for coronary heart disease for those 20 years of age and older for each SES group ÷ Total population 20 years of age and older in that SES group) x 100,000 (age-standardized to the 1991 Canadian population)

### *Numerator:*

*Inclusion criteria:*

Any most responsible diagnosis code of

- ICD9 410- 414
- ICD-10-CA I20-I22, I24-I25

*Exclusion criteria:*

Individuals under 20 years of age

*Note:*

I23 is not included to maintain comparability with ICD-9

## (5) Asthma

Age-standardized acute care hospitalization rate for asthma, per 100,000 population, by three SES groups (low, average and high).

### *Method of Calculation:*

(Total number of acute care hospital admissions for asthma for each SES group ÷ Total population in that SES group) x 100,000 (age-standardized to the 1991 Canadian population)

### *Numerator:*

*Inclusion criteria:*

Any most responsible diagnosis code of:

- ICD-9 493
- ICD-10-CA J45

## (6) Injury

Age-standardized rate of acute care hospitalization due to injury resulting from the transfer of energy (excluding poisoning and other non-traumatic injuries), per 100,000 population, by three SES groups (low, average and high).

### *The Data Source for Injury:*

National Trauma Registry (NTR), CIHI  
Census 2001 & 2006, Statistics Canada

### *Reference Period:*

April 1, 2003 – March 31, 2006

### *Method of Calculation:*

(Total number of acute care hospital admissions for injury for each SES group ÷ Total population in that SES group) x 100,000 (age-standardized to the 1991 Canadian population)

### *Numerator:*

Injury is identified by the first documented external cause of injury code with a diagnosis type of '9':

- ICD-9 E800-E807, E810-E838, E840-E848, E880-E888, E890-E902, E906-E910, E913-E928, E953-E958, E960-E961, E963-E968, E970-E976, E978, E983-E988, E990-E998
- ICD-10-CA V01-V06, V09-V99, W00-W45, W49-W60, W64-W70, W73-W77, W81, W83-W94, W99, X00-X06, X08-X19, X30-X39, X50, X52, X58, X59, X70-X84, X86, X91-X99, Y00-Y05, Y07-Y09, Y20-Y36

### *Comments:*

Poisoning, adverse effects of drugs/medicine, choking, late effects, and several other conditions do not meet the definition of trauma developed by the National Trauma Registry Advisory Committee and are therefore excluded.

## **(7) Ambulatory care sensitive conditions (ACSC)**

### *Definition:*

Age-standardized acute care hospitalization rate for conditions where appropriate ambulatory care prevents or reduces the need for readmission to hospital, per 100,000 population under 75 years of age, by three SES groups (low, average and high).

### *Method of Calculation:*

(Total number of acute care hospital admissions for ambulatory care sensitive conditions under 75 years of age for each SES group ÷ Total population under 75 years of age in that SES group) x 100,000 (age-standardized)

\* "Secondary diagnosis" refers to a diagnosis other than most responsible;

\*\* Code may be recorded in any position. Procedures coded as cancelled, previous and "abandoned after onset" are excluded.

### *Numerator:*

#### *Inclusion criteria:*

Any most responsible diagnosis code (MRDx) of:

Grand mal status and other epileptic convulsions

- ICD-9 345
- ICD-10-CA G40, G41

Chronic obstructive pulmonary disease (COPD)

Any most responsible diagnosis (MRDx) code of COPD

- ICD-9 491, 492, 494, 496
- ICD-10-CA J41, J42, J43, J44, J47

MRDx of Acute lower respiratory infection, only when a secondary diagnosis\* of J44 in ICD-10-CA or 496 in ICD-9 is also present

- ICD-9 480 – 486, 466, 487.0
- ICD-10 J10.0, J11.0, J12-J16, J18, J20, J21, J22

Asthma

- ICD-9 493
- ICD-10-CA J45

Heart failure and pulmonary edema

- ICD-9 428, 518.4
- ICD-10-CA I50, J81

Excluding cases with the following surgical procedures:\*\*

- CCP 48.1, 49.5, 48.02, 48.03, 49.71, 49.72, 49.73, 49.82, 49.86
- CCI 1.IJ.50, 1.IJ.57.GQ, 1.HZ.85, 1.IJ.76, 1.HB.53, 1.HD.53, 1.HZ.53, 1.HB.55, 1.HD.55, 1.HZ.55, 1.HB.54, 1.HD.54

Hypertension

- ICD-9 401.0, 401.9, 402.0, 402.1, 402.9
- ICD-10-CA I10.0, I10.1, I11

Excluding cases with the following surgical procedures:\*\*

- CCP 48.1, 49.5, 48.02, 48.03, 49.71, 49.72, 49.73, 49.82, 49.86
- CCI 1.IJ.50, 1.IJ.57.GQ, 1.HZ.85, 1.IJ.76, 1.HB.53, 1.HD.53, 1.HZ.53, 1.HB.55, 1.HD.55, 1.HZ.55, 1.HB.54, 1.HD.54

Angina

- ICD-9 411, 413
- ICD-10-CA I20, I23.82, I24.0, I24.8, I24.9

Excluding cases with the following surgical procedures:\*\*

- CCP 01.01-01.39, 07.24, 14.01-14.83, 14.88-16.82, 16.89-21.82, 21.89-29.7, 29.82-34.81, 34.89-41.81, 41.83-43.82, 43.84-45.84, 45.88-46.88, 46.90-48.91, 48.99-50.79,

50.91-50.93, 50.96-52.81, 52.89-63.95, 63.97-64.96, 64.98-66.83, 66.89-67.84, 67.89-69.82, 69.89-71.96, 71.98-72.95, 72.97-75.81, 75.89-80.83, 80.89-88.81, 88.89-92.69, 92.80-97.82, or 97.89-98.99

- CCI 1.^,2.^,5.^ (i.e. any procedure from CCI section 1, 2, 5)

Diabetes

- ICD-9 250.0, 250.1, 250.2, 250.7, 250.9
- ICD-10-CA E10.1, E10.6, E10.7, E10.9, E11.0, E11.1, E11.6, E11.7, E11.9, E13.0, E13.1, E13.6, E13.7, E13.9, E14.0, E14.1, E14.6, E14.7, E14.9

*Exclusion criteria:*

Individuals 75 years of age and older  
Death before discharge

## Selected variables based on vital statistics (birth) data

*Data Source:*

Municipal Affairs, Vital Statistics

*Reference Period:*

January 1, 2004 - December 31, 2006

### (1) Low birth weight rate

Low birth weight rate, per 100 live births, by three SES groups (low, average and high).

*Method of Calculation:*

Total number of live births that are low birth weight ÷ Total number of live births x 100

*Numerator:*

Number of live births that weigh less than 2500 grams.

*Denominator:*

Number of live births

### (2) Low birth weight rate for singleton birth

Low birth weight rate, per 100 live singleton births, by three SES groups (low, average and high).

*Method of Calculation:*

Total number of live, singleton births that are low birth weight ÷ Total number of live, singleton births x 100

\* "Secondary diagnosis" refers to a diagnosis other than most responsible;

*Numerator:*

Number of live singleton births that weigh less than 2500 grams.

*Denominator:*

Number of live singleton births

### (3) Preterm birth rate

Preterm birth rate, per 100 live births, by three SES groups (low, average and high).

*Method of Calculation:*

Total number of live births that are born preterm ÷ Total number of live births x 100

*Numerator:*

Number of live births that have a gestation of <37 weeks.

*Denominator:*

Number of live births

### (4) Teen birth rate

Teen birth rate, per 1,000 population, by three SES groups (low, average and high).

*Method of Calculation:*

Total number of live births born to females 15-19 years of age ÷ Total population females 15-19 years of age x 1000

*Numerator:*

Number of live births born to females aged 15-19 years old.

*Denominator:*

Number of females aged 15-19 years

## Selected variables based on vital statistics (death) data

*Data Source:*

Municipal Affairs, Vital Statistics

### (1) Infant mortality rate

Infant mortality rate, per 1,000 live births, by three SES groups (low, average, and high).

*Reference Period:*

January 1, 2002 - December 31, 2006

*Method of Calculation:*

Number of infant deaths for each SES group ÷ Number of live births for each SES group x 1000

*Numerator:*

Number of deaths to children under 1 year of age

*Denominator:*

Number of live births

## (2) All cause death rate

Age-standardized all-cause death rate, per 100,000 population by three SES groups (low, average, and high).

### *Reference Period:*

January 1, 1986 – December 31, 2006

### *Method of Calculation:*

(Total number of deaths for each SES group ÷ Total population in that SES group) x 100,000 (age-standardized to the 1996 Canadian population)

### *Numerator:*

#### *Inclusion criteria:*

All deaths regardless of cause of death code

## (3) Cancer death rate

Age-standardized death rate due to cancer, per 100,000 population by three SES groups (low, average, and high).

### *Reference Period:*

January 1, 1986 – December 31, 2006

### *Method of Calculation:*

(Total number of deaths due to cancer for each SES group ÷ Total population in that SES group) x 100,000 (age-standardized to the 1996 Canadian population)

### *Numerator:*

#### *Inclusion criteria:*

Cancer deaths: ICD10 = C00-C43, C45-C97; ICD9 = 140.0-173.0, 173.9-208.91

#### *Exclusion criteria:*

Other malignant forms of skin cancer

## (4) Circulatory disease death rate

Age-standardized death rate due to circulatory disease, per 100,000 population by three SES groups (low, average, and high).

### *Reference Period:*

January 1, 1986 – December 31, 2006

### *Method of Calculation:*

(Total number of deaths due to circulatory disease by each SES group ÷ Total population in that SES group) x 100,000 (age-standardized to the 1996 Canadian population)

### *Numerator:*

#### *Inclusion criteria:*

Circulatory Disease deaths: ICD10 = I00-I99; ICD9 = 390.0-459.9

## (5) Lung cancer death rate

Age-standardized death rate due to lung cancer, per 100,000 population by three SES groups (low, average, and high).

### *Reference Period:*

January 1, 1986 – December 31, 2006

### *Method of Calculation:*

(Total number of deaths due to lung cancer by each SES group ÷ Total population in that SES group) x 100,000 (age-standardized to the 1996 Canadian population)

### *Numerator:*

#### *Inclusion criteria:*

Lung cancer deaths: ICD10 = C34; ICD9 = 162.2-162.9

## (6) Breast cancer death rate

Age-standardized death rate due to lung cancer, per 100,000 females by three SES groups (low, average, and high).

### *Reference Period:*

January 1, 1986 – December 31, 2006

### *Method of Calculation:*

(Total number of deaths due to lung cancer by each SES group ÷ Total number of females in that SES group) x 100,000 (age-standardized to the 1996 Canadian population)

### *Numerator:*

#### *Inclusion criteria:*

Breast cancer deaths: ICD10 = C50; ICD9 = 174.0-175.9

## (7) Prostate cancer death rate

Age-standardized death rate due to lung cancer, per 100,000 males by three SES groups (low, average, and high).

### *Reference Period:*

January 1, 1986 – December 31, 2006

### *Method of Calculation:*

(Total number of deaths due to lung cancer by each SES group ÷ Total number of males in that SES group) x 100,000 (age-standardized to the 1996 Canadian population)

### *Numerator:*

#### *Inclusion criteria:*

Prostate cancer deaths: ICD10 = C61; ICD9 = 185.0-185.9

## **(8) Stroke (cerebrovascular) death rate**

Age-standardized death rate due to cancer, per 100,000 population by three SES groups (low, average, and high).

### *Reference Period:*

January 1, 1986 – December 31, 2006

### *Method of Calculation:*

(Total number of deaths due to stroke each SES group ÷ Total population in that SES group) × 100,000 (age-standardized to the 1996 Canadian population)

### *Numerator:*

#### *Inclusion criteria:*

Stroke deaths: ICD10 = I60-I69, C45-C97; ICD9 = 430.0-438.9

## **(9) Ischemic heart disease death rate**

Age-standardized death rate due to ischemic heart disease, per 100,000 population by three SES groups (low, average, and high).

### *Reference Period:*

January 1, 1986 – December 31, 2006

### *Method of Calculation:*

(Total number of deaths due to ischemic heart disease each SES group ÷ Total population in that SES group) × 100,000 (age-standardized to the 1996 Canadian population)

### *Numerator:*

#### *Inclusion criteria:*

Ischemic heart disease: ICD10 = I20-I25; ICD9 = 410.0-414.9

## **Data source for population data**

Historical population values (that is, for points in time between June 30, 1986 and March 31, 2007) are interpolations of actual population values (that is, annual values from June 30, 1986 to June 30, 1991 and from March 31, 1992 to March 31, 2007) from the Alberta Health Care Insurance Plan (AHCIP) Registration File. Forecast values (that is, 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 based on forecasts provided by the Health Surveillance Branch of Alberta Health and Wellness. The forecasts have been further adjusted using December 31, 2007 AH&W registration file data.

The following registrants are included in the population estimates: residents of Alberta;

‘residents’ of Alberta temporarily living elsewhere, such as extended visits or vacations or students attending an educational institute outside of Alberta, or Albertans temporarily (up to four years) working outside Alberta; persons during the first three months after they move from Alberta to another Canadian province; dependants of members of the RCMP and Armed Forces; persons from another country who are working or studying in Alberta on valid visas; and Natives/Aboriginals whose premiums are paid by Health Canada, First Nations and Inuit Health Branch. Not included are: members of the Armed Forces and RCMP; inmates at federal penitentiaries; persons from other provinces during their first three months in Alberta; and persons who have not registered for eligibility.

Aboriginal population values, if provided, are the number of Treaty Aboriginals rather than the number of individuals of self-reported Aboriginal status. Statistics Canada’s estimates of self-reported Aboriginals volumes are intended to include any individual that is at least 1/30 Aboriginal ancestry, resulting in significantly higher volumes. Both the Treaty Aboriginal values that we provide and Statistics Canada’s self-reported Aboriginal estimates include Métis.

Slight differences between values provided at this level of aggregation and data provided at other levels of aggregation may occur because of round-off error.

Population values are subject to change without notice when new source data is received.

## Appendix C: Data tables

### *City of Edmonton population by socio-economic status group, 2001*

<i>Age Group</i>	<i>FEMALES</i>			<i>MALES</i>		
	<i>High SES</i>	<i>Average SES</i>	<i>Low SES</i>	<i>High SES</i>	<i>Average SES</i>	<i>Low SES</i>
0-4 years	2,760	11,705	4,725	2,855	11,675	4,840
5-9 years	3,610	12,260	4,385	3,430	12,920	4,650
10-14 years	4,140	12,475	4,130	4,200	13,200	4,635
15-19 years	4,030	13,720	4,865	4,180	13,720	4,970
20-24 years	3,210	17,570	7,145	3,205	17,550	7,135
25-29 years	2,660	16,800	6,190	2,380	17,060	7,020
30-34 years	3,360	15,315	5,995	2,930	15,455	6,570
35-39 years	4,415	16,645	6,340	3,805	16,405	6,925
40-44 years	5,165	17,225	6,065	4,685	16,040	7,155
45-49 years	4,935	15,280	5,345	4,635	14,440	5,400
50-54 years	4,040	11,770	4,375	4,285	11,970	4,450
55-59 years	2,710	8,680	3,335	2,805	7,795	3,400
60-64 years	2,210	7,440	3,125	2,075	6,380	2,945
65-74 years	3,620	13,130	6,020	3,370	10,790	5,285
75+ years	2,370	10,820	5,060	1,955	6,370	3,260
All ages	53,570	201,530	77,460	51,175	192,585	78,875

### *Federal census data by socio-economic status group, City of Edmonton, 2001*

<i>City of Edmonton</i>	<i>High SES</i>	<i>Average SES</i>	<i>Low SES</i>
Proportion of Aboriginal population	1.2%	3.6%	9.3%
Proportion of recent immigrants (less than 5 years)	2.0%	3.0%	3.3%
Proportion of immigrants	22.2%	21.8%	21.5%
Proportion of persons living alone	5.4%	11.6%	16.1%
Proportion of persons 65 years of age and older living alone	18.4%	29.7%	35.6%
Incidence of low income	5.4%	14.2%	25.6%
Incidence of low income among children 0-5 years of age	6.9%	25.4%	43.8%
Proportion of lone-parent families	8.9%	18.2%	26.0%
Proportion of couple families with children	60.1%	57.3%	50.8%
Proportion of children (less than 6 years of age) living in lone-parent families	7.3%	19.8%	32.1%
Proportion with bachelor's degree or higher	36.3%	18.8%	8.8%
Proportion of households that own the dwelling	89.3%	59.7%	43.5%



**Canadian Community Health Survey indicators by socio-economic group, City of Edmonton, 2003 and 2005 combined**

*By percentage, 19-64 years of age*

<i>Self-reported health behaviour/disease</i>	<i>High SES</i>	<i>Average SES</i>	<i>Low SES</i>	<i>Comparison</i>	<i>Significant<sup>1</sup></i>
Asthma	7.5% <sup>2</sup>	10.1%	9.1% <sup>2</sup>	High/Average	N
				Average/Low	N
				High/Low	N
Risk factors (index)	7.2% <sup>2</sup>	16.7%	20.6%	High/Average	Y
				Average/Low	N
				High/Low	Y
Alcohol (heaving drinking)	17.6%	25.6%	23.0%	High/Average	N
				Average/Low	N
				High/Low	N
Smoking (daily and occasional)	14.7%	28.1%	37.9%	High/Average	Y
				Average/Low	Y
				High/Low	Y
Overweight or obese	43.5%	43.7%	50.1%	High/Average	N
				Average/Low	N
				High/Low	N
Physically inactive	34.7%	50.8%	54.5%	High/Average	Y
				Average/Low	N
				High/Low	Y
Self-rated health (excellent or very good) <sup>3</sup>	72.2%	61.3%	51.3%	High/Average	Y
				Average/Low	Y
				High/Low	Y
Contact with medical doctor	84.7%	79.7%	74.9%	High/Average	N
				Average/Low	N
				High/Low	Y

1. Significant testing was done at alpha = 0.05.

2. Use with caution due to high sampling variability.

3. Self-rated health includes respondents 12 years and older.

**Age-standardized hospitalization rates by socio-economic status group,  
City of Edmonton, 2003-2006 fiscal years combined**

Rate per 100,000

City of Edmonton	High SES	Average SES	Low SES	Comparison	Significant <sup>1</sup>
Asthma	46	68	70	High/Average	Y
				Average/Low	N
				High/Low	Y
Diabetes	40	89	131	High/Average	Y
				Average/Low	Y
				High/Low	Y
Chronic obstructive pulmonary disease (COPD)	131	247	472	High/Average	Y
				Average/Low	Y
				High/Low	Y
Ambulatory care sensitive conditions (ACSC)	148	299	517	High/Average	Y
				Average/Low	Y
				High/Low	Y
Coronary heart disease (CHD)	324	373	465	High/Average	Y
				Average/Low	Y
				High/Low	Y
Mental health	267	358	631	High/Average	Y
				Average/Low	Y
				High/Low	Y
Injury	524	588	861	High/Average	Y
				Average/Low	Y
				High/Low	Y

1. Significant testing was done at alpha = 0.05.

**Age-standardized all-cause death rate for females and males by socio-economic status group,  
City of Edmonton, 1986-2006 five year rolling average**

Rate per 100,000

Year	FEMALES			MALES		
	High SES	Average SES	Low SES	High SES	Average SES	Low SES
1990	653.6	642.0	617.1	684.2	768.7	833.5
1991	633.1	634.0	606.3	666.1	759.2	807.9
1992	626.9	640.8	589.8	680.4	742.0	806.3
1993	605.4	627.4	585.6	672.8	723.9	782.1
1994	606.7	630.3	581.8	675.3	723.9	787.7
1995	604.7	637.8	582.4	640.7	710.5	782.5
1996	586.9	645.2	585.4	626.7	697.2	795.2
1997	582.2	628.3	600.6	599.3	680.0	786.6
1998	603.6	631.3	602.2	598.9	671.8	792.2
1999	587.0	629.2	615.2	577.4	667.6	792.5
2000	578.8	622.4	611.1	562.9	652.8	800.9
2001	570.6	616.3	609.3	555.7	654.1	788.8
2002	566.8	617.6	618.8	548.2	649.5	783.7
2003	550.9	619.2	622.4	522.0	641.4	784.8
2004	555.6	607.2	621.3	508.9	620.6	780.4
2005	549.4	590.0	635.2	508.4	620.9	774.8
2006	534.8	575.0	639.9	485.4	607.7	786.4

Note 1: The year indicates the last year of the five years combined. For example, 1990 represents the mortality rate for years 1986-1990 combined.

Note 2: Data are age-standardized to the 1996 Canadian population.

**Age-standardized cancer death rate for females and males by socio-economic status group,  
City of Edmonton, 1986-2006 five year rolling average**

Rate per 100,000

Year	FEMALES			MALES		
	High SES	Average SES	Low SES	High SES	Average SES	Low SES
1990	165.9	158.9	160.4	184.7	196.3	194.7
1991	155.9	154.9	156.1	179.7	198.1	189.0
1992	162.2	160.5	156.6	192.7	198.0	197.7
1993	161.3	160.5	161.7	193.7	192.3	192.2
1994	159.3	160.5	161.8	179.8	191.9	197.0
1995	165.3	164.9	162.0	173.8	185.8	202.7
1996	169.7	169.1	168.9	171.5	179.2	212.9
1997	160.4	162.0	168.3	161.0	169.1	200.3
1998	167.5	163.1	169.9	165.7	166.5	201.5
1999	163.0	166.4	171.8	170.3	168.0	199.1
2000	159.0	167.3	173.5	166.6	168.9	199.1
2001	158.4	164.8	174.3	173.1	174.7	189.7
2002	162.8	168.9	177.1	173.6	181.0	198.5
2003	160.3	171.9	180.9	159.9	182.0	201.1
2004	160.1	171.2	185.3	156.9	179.3	206.2
2005	157.7	165.5	191.2	158.3	177.8	213.1
2006	155.9	163.0	195.2	148.8	174.4	214.2

Note 1: The year indicates the last year of the five years combined. For example, 1990 represents the mortality rate for years 1986-1990 combined.

Note 2: Data are age-standardized to the 1996 Canadian population.

**Age-standardized circulatory disease death rate for females and males by socio-economic status group, City of Edmonton, 1986-2006 five year rolling average**

Rate per 100,000

Year	FEMALES			MALES		
	High SES	Average SES	Low SES	High SES	Average SES	Low SES
1990	277.8	277.7	250.9	289.9	314.4	318.5
1991	282.0	274.6	240.4	281.3	302.2	307.2
1992	272.6	270.2	222.9	288.7	283.9	304.6
1993	270.1	266.0	222.3	275.8	280.3	287.7
1994	266.4	267.5	221.9	272.8	280.1	285.5
1995	260.9	271.5	220.6	250.7	272.3	284.3
1996	246.4	271.0	217.4	240.2	270.5	287.4
1997	237.9	267.6	228.7	228.0	266.5	287.6
1998	239.1	261.8	226.1	217.7	258.3	293.1
1999	231.1	249.1	228.0	204.2	253.8	292.9
2000	222.3	242.7	223.1	202.1	248.2	291.3
2001	217.6	239.7	220.9	196.0	243.1	284.9
2002	213.0	233.5	217.0	189.5	236.8	272.1
2003	203.5	230.5	214.8	189.5	228.9	268.9
2004	202.5	224.4	208.6	181.4	212.7	260.9
2005	196.9	212.5	207.1	176.4	205.7	251.4
2006	178.5	200.1	200.0	162.1	195.6	251.9

Note 1: The year indicates the last year of the five years combined. For example, 1990 represents the years 1986-1990.

Note 2: Data are age-standardized to the 1996 Canadian population.

**Age-standardized death for females by specific cause and socio-economic status group,  
City of Edmonton, 2002-2006 five year average**

Rate per 100,000 females

<i>Cause</i>	<i>High SES</i>	<i>Average SES</i>	<i>Low SES</i>	<i>Comparison</i>	<i>Significant<sup>1</sup></i>
All causes	534.8	575.0	639.9	High/Average	N
				Average/Low	Y
				High/Low	Y
Cancer (all)	155.9	163.0	195.2	High/Average	N
				Average/Low	Y
				High/Low	Y
Lung cancer	26.3	37.0	50.3	High/Average	Y
				Average/Low	Y
				High/Low	Y
Breast cancer	25.4	25.9	29.8	High/Average	N
				Average/Low	N
				High/Low	N
Circulatory disease	178.5	200.1	200.0	High/Average	N
				Average/Low	N
				High/Low	N
Ischemic heart disease	87.1	98.3	113.7	High/Average	N
				Average/Low	N
				High/Low	Y
Stroke	49.2	52.9	40.2	High/Average	N
				Average/Low	N
				High/Low	N

1. Significant testing was done at alpha = 0.05.

Note: Data are age-standardized to the 1996 Canadian population.

**Age-standardized death for males by specific cause and socio-economic status group,  
City of Edmonton, 2002-2006 five year average**

Rate per 100,000 males

Cause	High SES	Average SES	Low SES	Comparison	Significant <sup>1</sup>
All causes	485.4	607.7	786.4	High/Average	Y
				Average/Low	Y
				High/Low	Y
Cancer (all)	148.8	174.4	214.2	High/Average	Y
				Average/Low	Y
				High/Low	Y
Lung cancer	30.8	46.1	70.1	High/Average	Y
				Average/Low	Y
				High/Low	Y
Prostate cancer	24.4	19.7	17.5	High/Average	N
				Average/Low	N
				High/Low	N
Circulatory disease	162.1	195.6	251.9	High/Average	Y
				Average/Low	Y
				High/Low	Y
Ischemic heart disease	102.5	123.1	178.1	High/Average	Y
				Average/Low	Y
				High/Low	Y
Stroke	32.6	36.4	31.3	High/Average	N
				Average/Low	N
				High/Low	N

1. Significant testing was done at alpha = 0.05.

Note: Data are age-standardized to the 1996 Canadian population.

# References

1. Canadian Institute for Health Information, *Reducing Gaps in Health: A Focus on Socio-Economic Status in Urban Canada* (Ottawa, Ontario: CIHI, 2008).
2. Edmonton Economic Development Corporation (2008). [www.edmonton.com](http://www.edmonton.com).
3. Statistics Canada, *Low Income Cut-offs for 2007 and Low Income Measures for 2006, 2006/2007*, Income Statistics Division, Ottawa, Ontario, June 2008. Catalogue no. 75F0002M – No. 004
4. Canada Mortgage and Housing Corporation (1991). Core Housing Needs.
5. In January 2002, Edmonton City Council approved the definition for affordable housing as:
  - rental or ownership housing that is provided to households who have an affordability problem (spend in excess of 30% of their income on housing) and earn less than the median income, but are capable of independent living, without a need for support services;
  - requiring no ongoing government subsidies; and
  - includes housing built by the private, cooperative, non-profit, and public sectors.
6. Ingrid Ledrou and Jean Gervais, *Food insecurity in Canadian households*, Health Reports, Vol. 16, No. 3, May 2005 Statistics Canada, Catalogue 82-003: pp.47-51.
7. R. Pampalon and G. Raymond, *A Deprivation Index for Health and Welfare Planning in Quebec*, Chronic Diseases in Canada 21, 3 (2000): pp. 104-113.



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