



Winnipeg Regional
Health Authority

Office régional de la
santé de Winnipeg

MORTALITY REPORT

Winnipeg Regional
Health Authority
2004

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Mortality Report, Winnipeg Health Region,
February 2004, Population Health and Health Systems Analysis Unit, WRHA

Preface

The purpose of this report is to provide detailed information on mortality in the Winnipeg Health Region (WHR) for the time period 1990-2002. The report is a resource to be used by Winnipeg Regional Health Authority (WRHA) staff and programmes for discussion and evidence-based planning to improve the health of our communities. It is intended to contribute to the ongoing Population Health Assessment activities in the WRHA.

This report has three main sections:

- Measures of mortality (crude mortality rates, age-adjusted rates, potential years of life lost, premature mortality rate, infant mortality rate, and leading causes of death)
- Measures of comparisons of mortality (differences in rates and rate ratios)
- Measures of life expectancy

Information in this report is presented at the regional, community area and neighbourhood cluster levels for residents in the WHR.

Acknowledgements

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Your feedback and input are valued, and important to the ongoing health assessment process and analysis of information. If you wish to provide feedback, please e-mail jwaddell@wrha.mb.ca or fax the Population Health and Health System Analysis Team at 204-947-9970.

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Table of Contents

Highlights	11
Trends	12
Technical Notes	13
Map – Winnipeg Health Region and Sub-geographies	14
Mortality in the Winnipeg Health Region	15
Deaths and Death Rates	15
Death Rates by Geography	19
Relative Ratio and Rate Differences	23
Age-Specific Death Rates	27
Premature Mortality	31
Premature Mortality Rate	31
Premature Mortality Rates by Geography	33
Potential Years of Life Lost	37
Leading Causes of Death	41
Leading Causes of Death	41
Specific Cause of Death	43
Selected Disease Categories	45
Leading Cause of Death by Age	50
Leading Cause of Death by PYLL	52
Leading Causes of Death by Geography	54
Deaths Due to Injury and Poisoning	65
Injury and Poisoning Mortality	65
Totally Injury and PYLL	65
Intent or Manner of Injury Death	66
Unintentional Injury	66
Self-Inflicted Injury	67
Assault	67
Undetermined	67
Adverse Effects	67
Leading Cause of Unintentional Injury	68
Infant Mortality	71
Infant Mortality Rate	71
Leading Causes of Infant Mortality	74
Life Expectancy	75
Life Expectancy	75
Life Expectancy by Geography	77
Disability-Free Life Expectancy	77
Appendix: Definitions	79
Appendix: Tables	83
Appendix: Technical Notes	87

TABLES

Table 1 Mortality in the Winnipeg Health Region by Sex 1990-2002	15	Table 16 Proportions Attributed to Specific Cause of Death for Both Sexes, 1995-1999	44
Table 2 Mortality Rates in the Winnipeg Health Region by Neighbourhood Cluster and Sex, 1995-1999	17	Table 17 Proportions Attributed to Specific Cause of Death for Females, 1995-1999	44
Table 3 Mortality Rates in the Winnipeg Health Region by Neighbourhood Cluster and Sex, 1990-1994	18	Table 18 Proportions Attributed to Specific Cause of Death for Males, 1995-1999	44
Table 4 Relative Ratios and Rate Differences for Mortality Rates in the Winnipeg Health Region by Neighbourhood Cluster and Sex, 1995-1999	23	Table 19 Leading Cause of Death by Selected Disease Categories, 1995-1999	46
Table 5 Age-Specific Mortality Rates in the Winnipeg Health Region, 1995-1999	28	Table 20 Leading Cause of Death by Selected Disease Categories, 1990-1994	47
Table 6 Age-Specific Mortality Rates in the Winnipeg Health Region, 1990-1994	28	Table 21 Potential Years of Life Lost by Selected Disease Categories, 1995-1999	48
Table 7 Age-Specific Mortality Rates per 1000 population in the Winnipeg Health Region by Neighbourhood Cluster for Both Sexes, 1995-1999	29	Table 22 Potential Years of Life Lost by Selected Disease Categories, 1990-1994	49
Table 8 Premature Mortality Rates in the Winnipeg Health Region by Neighbourhood Cluster and Sex, 1995-1999	32	Table 23 Deaths by Age Groups (Years), 1995-1999	51
Table 9 Potential Years Life Lost in the Winnipeg Health Region, by Neighbourhood Cluster and Sex, 1995-1999	38	Table 24 Leading Cause of Death for Ages <1 year, 1995-1999	51
Table 10 Ten Leading Causes of Death for Both Sexes, 1995-1999	41	Table 25 Leading Cause of Death for Ages 1-9, 1995-1999	51
Table 11 Ten Leading Causes of Death for Both Sexes, 1990-1994	41	Table 26 Leading Cause of Death for Ages 10-19, 1995-1999	51
Table 12 Ten Leading Causes of Death for Females, 1995-1999	42	Table 27 Leading Cause of Death for Ages 20-44 year, 1995-1999	51
Table 13 Ten Leading Causes of Death for Females, 1990-1994	42	Table 28 Leading Cause of Death for Ages 45-64, 1995-1999	51
Table 14 Ten Leading Causes of Death for Males, 1995-1999	42	Table 29 Leading Cause of Death for Ages 65 years and over, 1995-1999	51
Table 15 Ten Leading Causes of Death for Males, 1990-1994	42	Table 30 Ten Leading Causes of Death by Potential Years Life Lost Year for Both Sexes, 1995-1999	52

Table 31 Ten Leading Causes of Death by Potential Years Life Lost Year for Both Sexes, 1990-1994	52	Table 42 Injury and Poisoning in the Winnipeg Health Region, 1990-1994	66
Table 32 Ten Leading Causes of Death by Potential Years Life Lost Year for Females, 1995-1999	53	Table 43 Unintentional Injury Deaths for Both Sexes in the Winnipeg Health Region, 1995-1999	69
Table 33 Ten Leading Causes of Death by Potential Years Life Lost Year for Females, 1990-1994	53	Table 44 Unintentional Injury Deaths for Females in the Winnipeg Health Region, 1995-1999	69
Table 34 Ten Leading Causes of Death by Potential Years Life Lost Year for Males, 1995-1999	53	Table 45 Unintentional Injury Deaths for Males in the Winnipeg Health Region, 1995-1999	69
Table 35 Ten Leading Causes of Death by Potential Years Life Lost Year for Males, 1990-1994	53	Table 46 Unintentional Injury Deaths for Both Sexes in the Winnipeg Health Region, 1990-1994	70
Table 36 No. 1 Cause of deaths, for Both Sexes: Ischemic Heart Disease (410-414) in the Winnipeg Health Region by Neighbourhood Cluster and Sex, 1995-1999	55	Table 47 Unintentional Injury Deaths for Females in the Winnipeg Health Region, 1990-1994	70
Table 37 No. 2 Cause of deaths, for Both Sexes: Cerebrovascular Disease (430-438) in the Winnipeg Health Region by Neighbourhood Cluster and Sex, 1995-1999	57	Table 48 Unintentional Injury Deaths for Males in the Winnipeg Health Region, 1990-1994	70
Table 38 No. 3 Cause of deaths, for both sexes: Malignant Neoplasm of Digestive Organ (150-159) in the Winnipeg Health Region by Neighbourhood Cluster and Sex, 1995-1999	59	Table 49 Infant Mortality Rates in the Winnipeg Health Region from 1990-2002	72
Table 39 No. 4 Cause of deaths, both sexes: Malignant Neoplasm of Respiratory Organ (160-165) in the Winnipeg Health Region by Neighbourhood Cluster and Sex, 1995-1999	61	Table 50 Leading Causes of Infant Mortality in the WHR, 1995-1999	74
Table 40 No. 5 Cause of deaths, for both sexes: Other Forms of Heart Disease (420-429) in the Winnipeg Health Region by Neighbourhood Cluster and Sex, 1995-1999	63	Table 51 Life Expectancy at Birth and Age 65 for the Winnipeg Health Region, Manitoba and Canada, 1997	75
Table 41 Injury and Poisoning in the Winnipeg Health Region, 1995-1999	66	Table A1 Premature Mortality in the Winnipeg Health Region by Neighbourhood Cluster and Sex, 1990-1994	84
		Table A2 Potential Years of Life Lost in the Winnipeg Health Region by Neighbourhood Cluster and Sex, 1990-1994	85
		Table B1 Table of Injury Groupings by Intent/Manner	93
		Table B2 Table of Unintentional Injury E-code Groupings	94
		Table B3 Injury Matrix	95

FIGURES

Figure 1 Mortality in the Winnipeg Health Region from 1990-2000 by Sex	16	Figure 13 Difference in Mortality Rate per 1000 Population between each Neighbourhood Cluster and the rest of the Winnipeg Health Region; Males, 1995-1999	26
Figure 2 Comparison of Crude Mortality Rates per 1000 population by Neighbourhood Cluster, 1995-1999	19	Figure 14 Age-Specific Mortality Rates per 1000 population in the Winnipeg Health Region, 1995-1999	27
Figure 3 Mortality Rate for Females in the Winnipeg Health Region by Neighbourhood Cluster, 1995-1999	20	Figure 15 Comparison of Crude Premature Mortality Rates per 1000 population by Neighbourhood Cluster, 1995-1999	33
Figure 4 Mortality Rate for Males in the Winnipeg Health Region by Neighbourhood Cluster, 1995-1999	20	Figure 16 Premature Mortality Rate for Females in the Winnipeg Health Region by Neighbourhood Cluster, 1995-1999	34
Figure 5 Comparison of Age-Adjusted Mortality Rates per 1000 population by Neighbourhood Cluster, 1995-1999	21	Figure 17 Premature Mortality Rate for Males in the Winnipeg Health Region by Neighbourhood Cluster, 1995-1999	34
Figure 6 Age-Adjusted Mortality Rate for Females in the Winnipeg Health Region by Neighbourhood Cluster, 1995-1999	22	Figure 18 Comparison of Age-Adjusted Premature Mortality Rates per 1000 population by Neighbourhood Cluster, 1995-1999	35
Figure 7 Age-Adjusted Mortality Rate for Males in the Winnipeg Health Region by Neighbourhood Cluster, 1995-1999	22	Figure 19 Age-Adjusted Premature Mortality Rate for Females in the Winnipeg Health Region by Neighbourhood Cluster, 1995-1999	36
Figure 8 Relative Ratio of each Neighbourhood Cluster to the rest of the Winnipeg Health Region; Mortality Rate Both Sexes, 1995-1999	24	Figure 20 Age-Adjusted Premature Mortality Rate for Males in the Winnipeg Health Region by Neighbourhood Cluster, 1995-1999	36
Figure 9 Relative Ratio of each Neighbourhood Cluster to the rest of the Winnipeg Health Region; Mortality Rate Females, 1995-1999	24	Figure 21 Potential Years of Life Lost in the Winnipeg Health Region by Neighbourhood Cluster by Both Sexes, 1990-1994 vs 1995-1999	39
Figure 10 Relative Ratio of each Neighbourhood Cluster to the rest of the Winnipeg Health Region; Mortality Rate Males, 1995-1999	24	Figure 22 Comparison of PYLL Rates per 1000 population by Neighbourhood Cluster; 1995-1999	40
Figure 11 Difference in Mortality Rate per 1000 Population between each Neighbourhood Cluster and the rest of the Winnipeg Health Region; Both Sexes, 1995-1999	25	Figure 23 Comparison of Age-Adjusted PYLL Rates per 1000 population by Neighbourhood Cluster, 1995-1999	40
Figure 12 Difference in Mortality Rate per 1000 Population between each Neighbourhood Cluster and the rest of the Winnipeg Health Region; Females, 1995-1999	26		

Figure 24 Leading Causes of Death by Count for Both Sexes, 1995-1999	43	Figure 32 No.4 Cause of death: Malignant Neoplasm of Respiratory Organ (160-165), Comparison of Crude Mortality Rates per 1000 population by leading cause of death, by Neighbourhood Cluster, by Sex, 1995-1999	62
Figure 25 Leading Causes of Death by PYLL for Both Sexes, 1995-1999	52	Figure 33 No.4 Cause of death: Malignant Neoplasm of Respiratory Organ (160-165), Comparison of Age-Adjusted Mortality Rates per 1000 population by leading cause of death, by Neighbourhood Cluster, by Sex, 1995-1999	62
Figure 26 No.1 Cause of death: Ischemic Heart Disease (410-414), Comparison of Crude Mortality Rates per 1000 population by leading cause of death, by Neighbourhood Cluster, by Sex 1995-1999	56	Figure 34 No.5 Cause of death: Other Forms of Heart Disease (420-429), Comparison of Crude Mortality Rates per 1000 population by leading cause of death, by Neighbourhood Cluster, by Sex, 1995-1999	64
Figure 27 No.1 Cause of death: Ischemic Heart Disease (410-414), Comparison of Age-Adjusted Mortality Rates per 1000 population by leading cause of death, by Neighbourhood Cluster, by Sex, 1995-1999	56	Figure 35 No.5 Cause of death: Other Forms of Heart Disease (420-429) Comparison of Age-Adjusted Mortality Rates per 1000 population by leading cause of death, by Neighbourhood Cluster, by Sex, 1995-1999	64
Figure 28 No.2 Cause of death: Cerebrovascular Disease (430-438), Comparison of Crude Mortality Rates per 1000 population by leading cause of death, by Neighbourhood Cluster, by Sex, 1995-1999	58	Figure 36 Infant Mortality Rate per 1000 Livebirths in the Winnipeg Health Region And Canada by Year	71
Figure 29 No.2 Cause of death: Cerebrovascular Disease (430-438), Comparison of Age-Adjusted Mortality Rates per 1000 population by leading cause of death, by Neighbourhood Cluster, by Sex, 1995-1999	58	Figure 37 3 Year Infant Mortality Rate per 1000 Live Births in the Winnipeg Health Region	72
Figure 30 No.3 Cause of death: Malignant Neoplasm of Digestive Organ (150-159), Comparison of Crude Mortality Rates per 1000 population by leading cause of death, by Neighbourhood Cluster, by Sex, 1995-1999	60	Figure 38 Neonatal Mortality Rate per 1000 Livebirths in the Winnipeg Health Region	73
Figure 31 No.3 Cause of death: Malignant Neoplasm of Digestive Organ (150-159), Comparison of Age-Adjusted Mortality Rates per 1000 population by leading cause of death, by Neighbourhood Cluster, by Sex, 1995-1999	60	Figure 39 Life Expectancy at Birth for the Province of Manitoba, 1979-1999	76
		Figure 40 Life Expectancy at Age 65 for the Province of Manitoba, 1979-1999	76

The Mortality Report provides detailed information on mortality in the Winnipeg Health Region for the time period 1990-2002. It is made up of indicators that measure death outcomes in the region. These indicators provide information on death rates, premature mortality, leading causes of death, infant mortality and life expectancy. Mortality information helps to identify opportunities for interventions to improve the health of Winnipeg's residents, particularly where deaths are premature or preventable.

The indicators are measured using counts, crude rates, age-adjusted rates, rate ratios and rate differences. Crude rates are true summary rates and reflect the burden of health care needs. Adjusted rates are modified to account for differences in groups and tell us whether things are getting better or worse in relative terms. Rate ratios and relative differences tell us how one area is doing compared to another.

Mortality data helps to identify opportunities for interventions to improve the health of the residents living in the Winnipeg Health Region, particularly where deaths are premature or preventable.

Positive Trends

Age-adjusted Mortality Rate for Males
Life Expectancy

Neutral Trends

Age-adjusted mortality Rate for Females
Crude death rates (expected due to ageing population)
Infant Mortality Rate (improving for the past three years but still above early 1990 values)

Negative Trends

Geographic variation in Premature Mortality Rate
Age-adjusted Potential Years of Life Lost for Females
Geographic variation in Potential Years of Life Lost
Life Expectancy for Aboriginal People
Geographic variation in Deaths due to Ischemic Heart Disease
Geographic variation in Deaths due to Cancer of Respiratory Tract
Potential Years of Life Lost due to Injury and Poisoning, Ischemic Heart Disease, and Cerebrovascular Disease

Direction is determined by a 10-year trend where possible. In some cases, 12 years and in other cases two five-year rates have been generated.

Highlights

- In 2002, a total of 5435 deaths occurred for residents in the Winnipeg Health Region (WHR).
- The crude death rate for residents in the WHR is 8.42 per 1000 per population. For females the crude death rate was 8.68 and for males the crude death rate was 8.14 per 1000 WHR population.
- The age-adjusted death rate, which eliminates the effects of the ageing population, was 8.30 per 1000 WHR standard population. For females the age-adjusted death rate was 7.03 and for males the age-adjusted death rate was 10.28 per 1000 WHR standard population.
- The leading causes of death for females in the five-year period 1995-1999 were: Ischemic Heart Disease (21%), Cerebrovascular Disease (10%), Malignant Neoplasm of Digestive Organs (7%), Other forms of Health Disease (6%), Malignant Neoplasm of Respiratory Organs (6%).
- The leading causes of death for males in the five-year period 1995-1999 were: Ischemic Heart Disease (23%), Malignant Neoplasm of Respiratory Organs (9%), Malignant Neoplasm of Digestive Organs (8%), Cerebrovascular Disease (7%), Injury and Poisoning (6%).

- In 2002, the infant mortality rate in the WHR was 5.8 infant deaths per 1000 live births which remains higher than the Canadian infant mortality rate of 5.1 infant deaths per 1000 live births in 2000.
- The leading causes of infant death were: Conditions Originating in the Perinatal Period (37%), Congenital Anomalies (21%), Ill-defined Unknown Morbidity Conditions (13%), Maternal causes of Perinatal Morbidity (12%), Injury and Poisonings (4%).
- In Winnipeg, a life expectancy of 75.8 years for males and 80.6 years for females is reported, reflecting a higher life expectancy than the province of Manitoba.
- Life expectancy for Aboriginal peoples is lower than for non-Aboriginal people. Aboriginal peoples in the WHR have a life expectancy of 66 years for males and 71 years for females.

Trends

Positive Trends

- The age-adjusted death rate for males has decreased by 0.1 per 1000 population per year from 1990 to 2002.
- Gaps between men and women continue to narrow, with age-adjusted mortality rates for men decreasing at a rate 10 times greater than that for females. Life expectancy for women is increasing at a smaller rate than the rate of increase for men in the WHR. Currently, life expectancy for men is lagging by 5.7 years.
- Life expectancy is 78 years in the Province of Manitoba, which reflects a steady increase since 1979.

Neutral Trends

- Infant mortality rate continues to fluctuate between 5.1 and 7.9 deaths per 1000 live births per year, with a decline over the past three years. However, the infant mortality rate in the WHR remains above the National average of 5.1 in 2000.

Negative Trends

- The age-adjusted death rate for females has decreased slightly by 0.01 per 1000 population per year from 1990 to 2002.
- Opposite trend directions were found between females and males for potential years of life lost. For females, the age-adjusted rates for potential years of life lost have increased between 1990-1994 and 1995-1999, compared to males who have shown a decrease.
- Death rates have increased for all of the 10 leading causes of death, except for Conditions Originating in the Perinatal Period, which has remained the same.
- Increase in the number deaths due to Cancer, Circulatory Diseases, Respiratory Diseases as well as Injury and Poisonings. Cancer and Circulatory Diseases account for 66.4% of all deaths. Note: Even though these causes of death are potentially preventable, some of the increase is unavoidable due to the ageing population.
- Injury and Poisoning rates are increasing slightly for both males and females. There is a greater burden among males.
- Unintentional injuries have increased mostly due to fall-related deaths.
- There were more Self-inflicted Injury deaths among males than females; however, for females, this is increasing.
- Gaps between sub-geographies persist in the region for the following Neighbourhood Clusters: Point Douglas 10B, Downtown 11B, St. James-Assiniboia 01B, Inkster 09B and St. Boniface 05A. Age-adjusted death rates range from 9.1 to 13.6 per 1000 population which result in death rates between 1.6 to 2.3 times greater than the rest of the WHR; and 5 to 10 more deaths per 1000 population than the rest of the WHR.

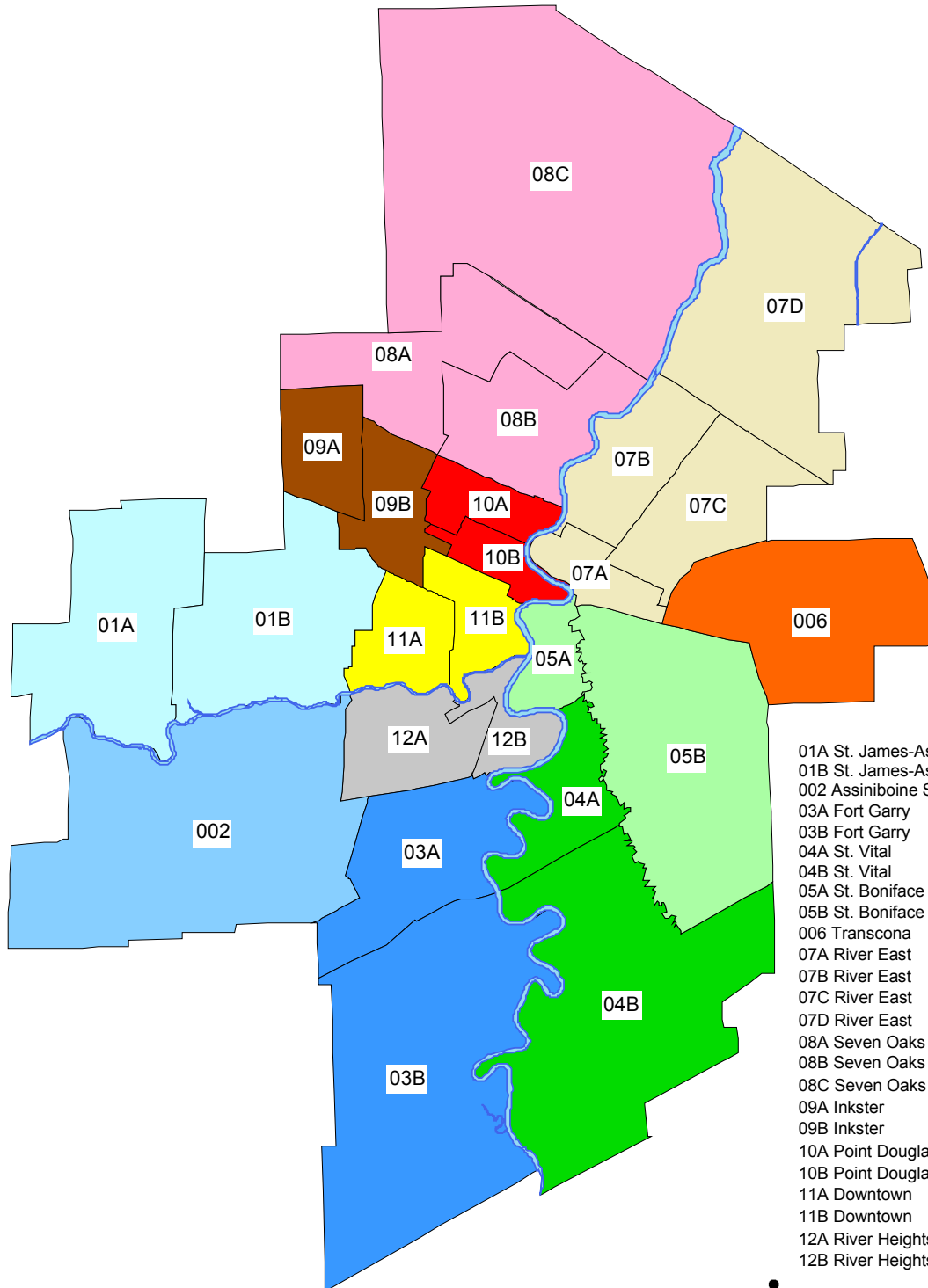
Technical Notes

- Source of information: Manitoba Vital Statistics is the source of the information on the number of deaths, leading causes of death and the potential years of life lost. The live-birth database from Manitoba Health was used to calculate infant mortality rates.
- Year 2000 Population Standard: The WHR year 2000 population is the standard population used to calculate age-adjusted rates.
- Age-adjusted rates are computed by the direct-standardization method, using age groups: under 1, 1-4, 5-9, 10-14, ...70-74, 75-79, 80-84, 85 and over.
- International Classification of Diseases: Cause of death categories were based on ICD-9 methodology. A new cause-of-death classification system, International Classification of Diseases 10 (ICD-10), was introduced in the Province of Manitoba in 2000. Leading causes of death categories are yet to be restructured based on the new coding classification system. For this reason, the cause of death data were analysed for only 1990-1999 data. Causes of death have been categorized (or grouped) using the Clinical Diagnostic Grouper, which groups all ICD-9 codes into 119 categories (Manitoba Health, 2000).
- Actual counts and age-adjusted rates have been calculated using 1990-2002 data.
- Geography: The WHR has been divided into sub-geographies to provide a more meaningful analysis of population health information. The sub-geographies are based on existing communities within the region. A total population size of approximately 30000 is ideal when studying health outcomes in a population. Therefore, the report uses two levels of sub-geographies in the region: Community Areas(Cas) and Neighbourhood Clusters (NCs). (See map on the following page for sub-geographies in the WHR.)
- Data Limitations: Limitations of the data relate to the recording and reporting of mortality information. Examples include inaccuracies in completing death certificates (recording). Often multiple factors may contribute to a death, but only the most responsible factor is recognized (reporting).
- Data Analysis: Data on residents of Winnipeg were extracted from the Vital Statistics data using the February 2002 Postal Code Conversion file produced in a collaborative effort by the Community Data Network. Differences between the rates reported in this document and other documents (external to the WRHA) might be due, in part, to the assignment of residents through another Postal Code file or another method of allocating residents.
- For a description of the categories used to group causes of death and coding classifications used in this report, see Appendix: Technical Notes.
- Relative ratios and rate differences were used to calculate measures of comparison in this report. Definitions and descriptions of relative ratios and rate differences are provided in the Appendix: Technical Notes.
- Formatting and style used throughout this document have been based on *The Canadian Style: A Guide To Writing and Editing*, which is produced by Public Works and Government Services Canada Translation Bureau.

ACRONYMS

CA – Community Area
 ICD-9-CM – International Classification of Diseases – 9 – Clinical Modification
 IMR – Infant Mortality Rate
 NC – Neighbourhood Cluster
 PMR – Premature Mortality Rate
 PYLL – Potential Years of Life Lost
 WHR – Winnipeg Health Region

Winnipeg Health Region: Community Areas and Neighbourhood Clusters



Winnipeg Regional Health Authority Office régional de la santé de Winnipeg

Mortality in the Winnipeg Health Region

Deaths and Death Rates

The total number of deaths for residents in the Winnipeg Health Region has been increasing since 1990 (Table 1 and Figure 1). In 2002 there were 5435 deaths.

There was a 12.9% increase in the number of deaths (25887) in 1995-1999 compared to the number of deaths (22933) in 1990-1994 (tables 2 and 3). The crude death rate has increased by 12.5% over this same time period, from 7.2 per 1000 population in 1990-1994 to 8.1 per 1000 population in 1995-1999. Increases in numbers of deaths are anticipated with a larger ageing population. These trends are noted for males and females in Table 1 and Figure 1.

The average rate of change in the crude death rate from 1990-2002 for females is 0.14 deaths per 1000 population per year. The average rate of change in the crude death rate from 1990-2002 for males is also increasing, at a rate of 0.05 deaths per 1000 population per year. This results in a change in rate three times greater for females than to males over that time period.

Table 1
Mortality in the Winnipeg Health Region by Sex, 1990-2002

Year	Measures of Mortality								
	Both Genders			Females			Males		
	Number of Deaths	Crude Rate	Age-Adjusted Rate	Number of Deaths	Crude Rate	Age-Adjusted Rate	Number of Deaths	Crude Rate	Age-Adjusted Rate
1990	4622*	7.28	8.80	2281	6.98	7.12	2341	7.59	11.51
1991	4821*	7.54	8.97	2412	7.34	7.29	2409	7.76	11.62
1992	4151*	6.50	7.59	2045	6.23	6.10	2106	6.80	9.98
1993	4604*	7.17	8.27	2263	6.84	6.57	2341	7.52	10.99
1994	4729	7.32	8.26	2395	7.20	6.78	2334	7.44	10.58
1995	5037	7.82	8.68	2554	7.69	7.10	2483	7.95	11.20
1996	5186	8.11	8.81	2703	8.20	7.39	2483	8.01	11.07
1997	5049	7.90	8.46	2651	8.05	7.13	2398	7.73	10.48
1998	5312	8.35	8.70	2777	8.48	7.29	2535	8.22	10.90
1999	5303	8.33	8.57	2674	8.16	6.93	2629	8.50	11.22
2000	5407	8.44	8.53	2799	8.50	7.06	2608	8.38	10.73
2001	5314	8.26	8.24	2722	8.23	6.69	2592	8.30	10.59
2002	5435	8.42	8.30	2881	8.68	7.03	2554	8.14	10.28

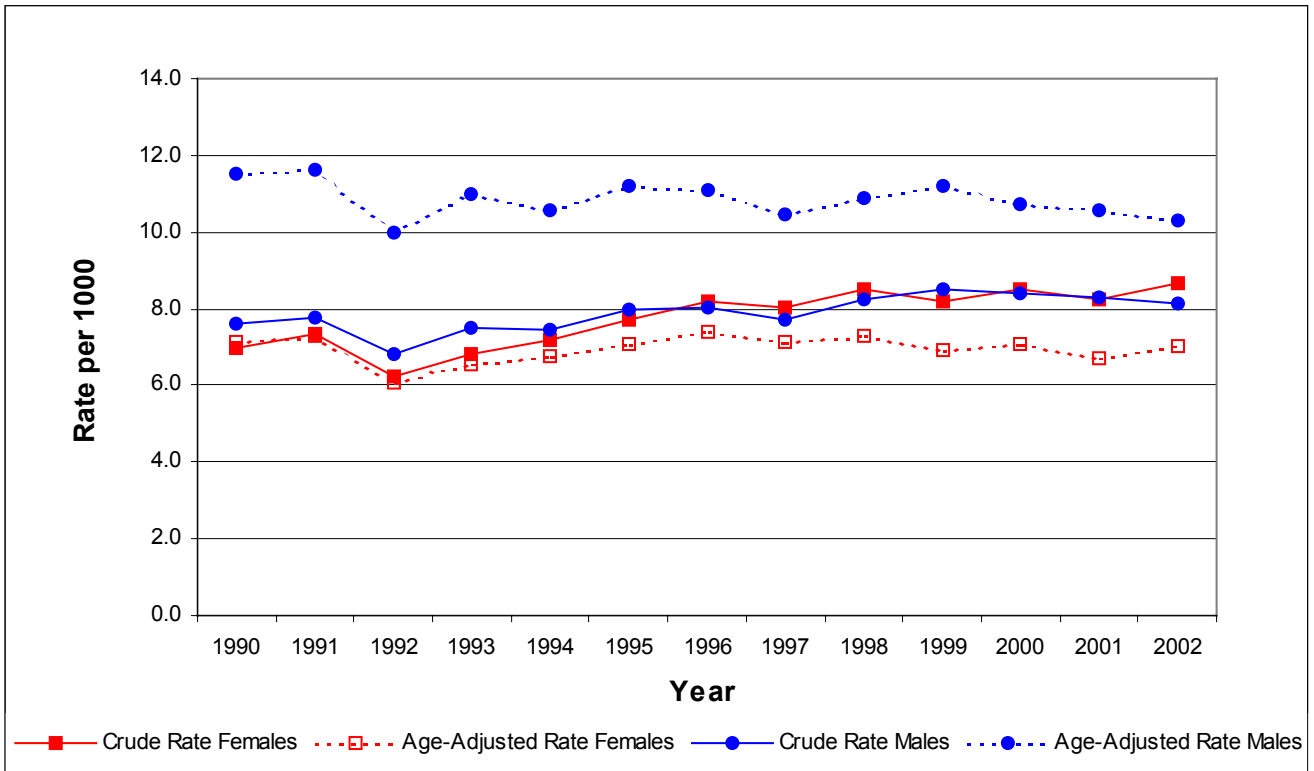
*Excludes 2 deaths in 1990, 2 deaths in 1991, 1 death in 1992, 1 death in 1993.

These 6 deaths were excluded from all rate calculations due to unknown ages.

Both crude rates and age-adjusted rates provide valuable information to describe populations. The former describe actual events, while the latter are indicators of relative risk when comparing mortality among sub-populations (geographies or sex) that have different age characteristics.

Standardized mortality rate (SMR) is a traditional measure of mortality. SMR is the number of deaths age standardized to a reference or standard population. In other words, age-adjusted to a standard population. Age-adjusted rates are constructs that show what the level of mortality would be if no changes occurred in the age composition of the population from year to year (Center for Disease Control and Prevention, 2003). Age-adjusted rates are used to compare relative mortality risks among groups over time. For this report, age-adjusted rates were computed using the direct-standardized method and the 2000 WHR population as the standard population.

Figure 1
Mortality in the Winnipeg Health Region from 1990-2000 by Sex



In 2002, the age-adjusted death rate for females is 7.03 deaths per 1000 WHR standard population and the age-adjusted death rate for males in 2002 is 10.28 deaths per 1000 WHR standard population. Since 1990, the age-adjusted death rate for females has fluctuated between 6.10 and 7.39 deaths per 1000 WHR standard population, reflecting an overall decrease of 0.01 deaths per 1000 population per year. Similarly, the age-adjusted death rate for males has fluctuated between 9.98 and 11.62 deaths per 1000 WHR standard population, reflecting a larger overall decrease of 0.1 deaths per 1000 population per year in this same time frame (Figure 1).

There are many possible explanations for the increase in number of deaths and crude death rates. Very preliminary explanations are evident in changes in the age distribution of the population over the past ten years. There has been an increase in the size of the ageing population due to the influx of baby boomers living longer, in addition to a larger number of females than males. This results in a larger number of deaths due to a growing ageing population.

The question as to why age-adjusted death rates are higher for males than females when the crude death rates are similar between the sexes may be explained by differences known to exist in life expectancies.

These and other factors are explored in the following sections of this report in order to obtain a better understanding of mortality in the WHR.

Table 2
Mortality Rates in the Winnipeg Health Region by Neighbourhood Cluster and Sex,
1995-1999

Community Area	Neighbourhood Cluster	Both Sexes			Females			Males		
		Deaths	Crude Rate per 1000	Age-Adjusted Rate per 1000	Deaths	Crude Rate per 1000	Age-Adjusted Rate per 1000	Deaths	Crude Rate per 1000	Age-Adjusted Rate per 1000
St. James-Assiniboia	01A	1168	7.1	8.0	587	6.8	6.5	581	7.3	10.9
	01B	2042	14.9	10.6	1032	14.3	8.5	1010	15.6	13.9
Assiniboine South	002	1425	7.9	8.6	837	8.9	7.7	588	6.8	10.3
Fort Garry	03A	757	6.0	7.3	413	6.3	6.5	344	5.6	8.3
	03B	602	3.5	6.2	272	3.1	4.9	330	4.0	8.1
St. Vital	04A	1193	8.7	7.6	607	8.4	6.4	586	9.1	9.8
	04B	956	5.9	10.1	535	6.4	9.2	421	5.4	11.3
St. Boniface	05A	1052	13.4	9.2	609	14.7	7.7	443	12.0	11.6
	05B	618	4.1	6.3	286	3.8	5.3	332	4.5	7.6
Transcona	006	856	5.5	8.8	424	5.4	7.4	432	5.6	10.9
River East	07A	680	7.6	9.2	319	7.1	7.6	361	8.1	11.4
	07B	1835	9.5	7.5	916	8.9	5.9	919	10.1	10.4
	07C	882	6.5	10.9	491	7.1	9.8	391	5.8	12.5
	07D	115	3.8	8.0	47	3.1	5.7	68	4.4	12.7
Seven Oaks	08A	580	5.6	9.7	308	5.8	8.4	272	5.3	11.6
	08B	1517	9.3	8.2	781	9.1	7.2	736	9.5	9.5
	08C	340	17.5	13.0	218	22.0	11.7	122	12.8	15.4
Inkster	09A	204	2.3	5.8	103	2.3	5.4	101	2.3	6.3
	09B	643	9.5	10.4	314	9.1	8.5	329	9.8	13.2
Point Douglas	10A	1054	7.9	7.9	487	7.2	6.3	567	8.7	10.2
	10B	1285	17.9	14.9	669	19.2	11.7	616	16.6	19.8
Downtown	11A	1294	6.7	7.2	634	6.5	5.6	660	7.0	9.8
	11B	2052	12.9	12.7	961	12.6	9.7	1091	13.2	17.3
River Heights	12A	1629	9.1	7.4	901	9.5	6.2	728	8.8	9.6
	12B	1108	10.4	8.1	608	10.6	6.8	500	10.2	10.6
Winnipeg Health Region		25887	8.1	8.6	13359	8.1	7.2	12528	8.1	11.0

Table 3
Mortality Rates in the Winnipeg Health Region by Neighbourhood Cluster and Sex,
1990-1994

Community Area	Neighbourhood Cluster	Both Sexes			Females			Males		
		Deaths	Crude Rate per 1000	Age-Adjusted Rate per 1000	Deaths	Crude Rate per 1000	Age-Adjusted Rate per 1000	Deaths	Crude Rate per 1000	Age-Adjusted Rate per 1000
St. James-Assiniboia	01A	973	5.7	7.8	460	5.2	6.1	513	6.2	10.8
	01B	1691	12.1	9.4	856	11.6	7.6	835	12.6	12.3
Assiniboine South	002	1256	6.9	9.2	700	7.5	7.8	556	6.3	11.8
Fort Garry	03A	672	6.0	8.0	348	6.1	6.8	324	6.0	10.0
	03B	557	3.4	7.4	248	2.9	6.0	309	3.8	9.4
St. Vital	04A	970	6.9	6.8	484	6.6	5.6	486	7.4	8.9
	04B	759	5.0	10.1	421	5.4	8.9	338	4.6	12.1
St. Boniface	05A	1028	12.6	9.1	536	12.3	6.9	492	12.9	12.9
	05B	552	3.9	6.5	239	3.3	5.1	313	4.4	8.3
Transcona	006	776	5.0	9.0	381	4.9	7.7	395	5.1	10.8
River East	07A	647	7.1	8.5	280	6.0	6.5	367	8.2	11.0
	07B	1499	7.6	7.1	746	7.2	5.6	753	8.1	9.6
	07C	557	4.2	8.9	279	4.1	7.6	278	4.2	10.7
	07D	33	1.9	6.5	10	1.2	4.2	23	2.6	11.4
Seven Oaks	08A	458	4.6	10.5	259	5.1	9.7	199	4.1	12.3
	08B	1274	7.9	7.6	598	7.1	6.2	676	8.8	9.4
	08C	263	14.5	10.9	185	19.9	10.4	78	8.9	12.4
Inkster	09A	151	1.8	6.5	61	1.4	5.2	90	2.2	8.1
	09B	618	8.8	10.2	308	8.7	8.6	310	9.0	12.6
Point Douglas	10A	1130	8.1	8.2	485	6.8	6.2	645	9.5	10.9
	10B	1268	15.9	13.6	607	15.5	9.6	661	16.2	18.6
Downtown	11A	1329	6.7	7.3	613	6.1	5.5	716	7.3	10.3
	11B	1886	10.8	11.1	891	10.5	8.3	995	11.1	15.2
River Heights	12A	1550	8.4	7.3	868	8.8	6.2	682	8.0	9.3
	12B	1030	9.4	7.8	533	8.9	6.1	497	9.9	10.7
Winnipeg Health Region*		22927	7.2	8.4	11396	6.9	6.8	11531	7.4	10.9

* Winnipeg Health Region total excludes 6 deaths between 1990-1994
 These 6 deaths were excluded from all rate calculations due to unknown ages.

Death Rates by Geography

Mortality rates are often calculated for sub-geographies. Two types of rates by geography have been generated to identify potential problem areas: crude mortality rates and age-adjusted mortality rates. The rates have been generated for sub-geographies within the WHR called NCs (See Neighbourhood Cluster Map on page 14).

A comparison of crude mortality rates per 1000 population by NC for the time period of 1995-1999 is shown in Figure 2. The highest crude mortality rates for males, females, and both sexes combined were found in the following NCs for the period 1995-1999: Point Douglas 10B, Seven Oaks 08C, St. James-Assiniboia 01B, St. Boniface 05A, and Downtown 11B. The NCs found to have the lowest crude mortality rates for males, females, and both sexes combined within the same time period were Inkster 09A, Fort Garry 03B, River East 07D, St. Boniface 05B and Transcona 006.

Figure 2
Comparison of Crude Mortality Rates per 1000 population by Neighbourhood Cluster, 1995-1999

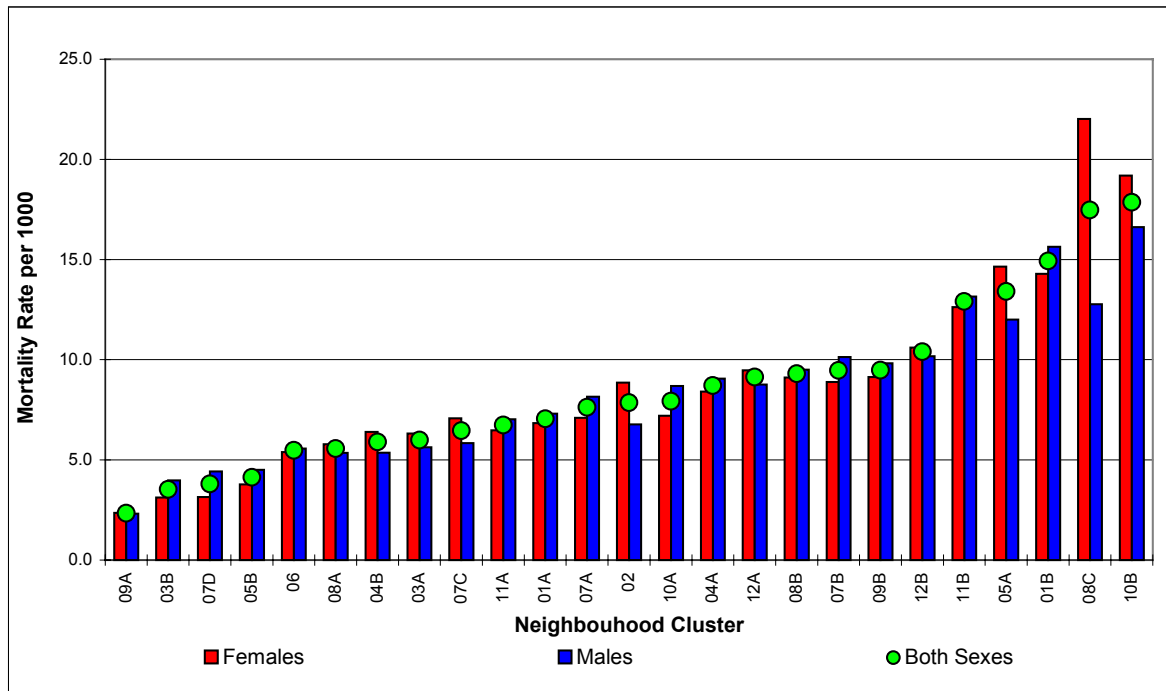
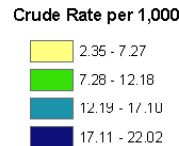
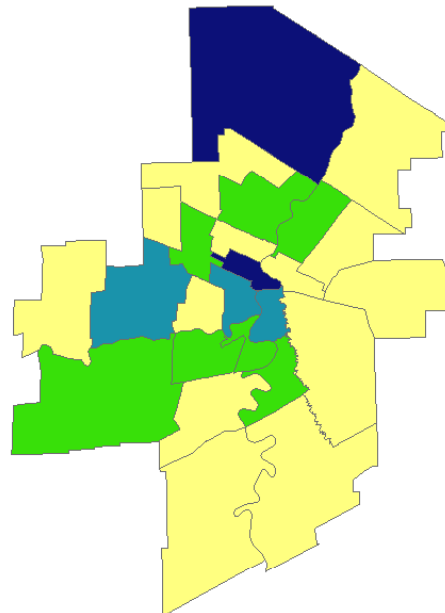


Figure 3
Mortality Rate for Females in the Winnipeg Health Region by Neighbourhood Cluster, 1995-1999

A spatial representation of the crude mortality rates for females is shown in Figure 3. The highest crude mortality rates were found in:

- Seven Oaks - 08C
- Point Douglas - 10B
- St. Boniface - 05A
- St. James-Assiniboia - 01B
- Downtown - 11B

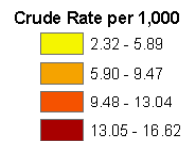
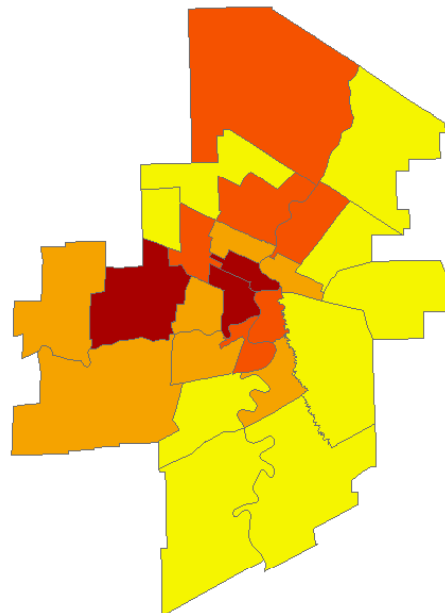


Note: Seven Oaks 08C has the highest crude mortality rate. However, the reader should be cautious when interpreting, as 08C has a small population and a large personal-care home, which may contribute to a higher crude rate. When the rates are age-adjusted, the difference narrows. (Figure 5)

Figure 4
Mortality Rate for Males in the Winnipeg Health Region by Neighbourhood Cluster, 1995-1999

A spatial representation of the crude mortality rates for males is shown in Figure 4. The highest crude mortality rates were found in:

- Point Douglas - 10B
- St. James-Assiniboia - 01B
- Downtown - 11B
- Seven Oaks - 08C
- St. Boniface - 05A



Age-adjusted rates have been calculated for each of the NCs to adjust for any population differences accountable to age distribution at the NC level (See Appendix: Tables A1 and A2). Comparisons of age-adjusted mortality rates per 1000 population by NC for males, females, and both sexes for the time period 1995-1999 are shown in Figure 5.

Differences in age-adjusted mortality rates exist among the 25 NCs. Age-adjusted mortality rates among the NCs range from 5.8 to 14.9 per 1000 population for both sexes for the five-year period 1995-1999. The highest rates were found in: Point Douglas 10B, Seven Oaks 08C, Downtown 11B, River East 07C, and St. James-Assiniboia 01B. The lowest rates were found in Inkster 09A, Fort Garry 03B, St. Boniface 05B, Downtown 11A, and Fort Garry 03A.

Figure 5
Comparison of Age-Adjusted Mortality Rate per 1000 population by Neighbourhood Cluster, 1995-1999

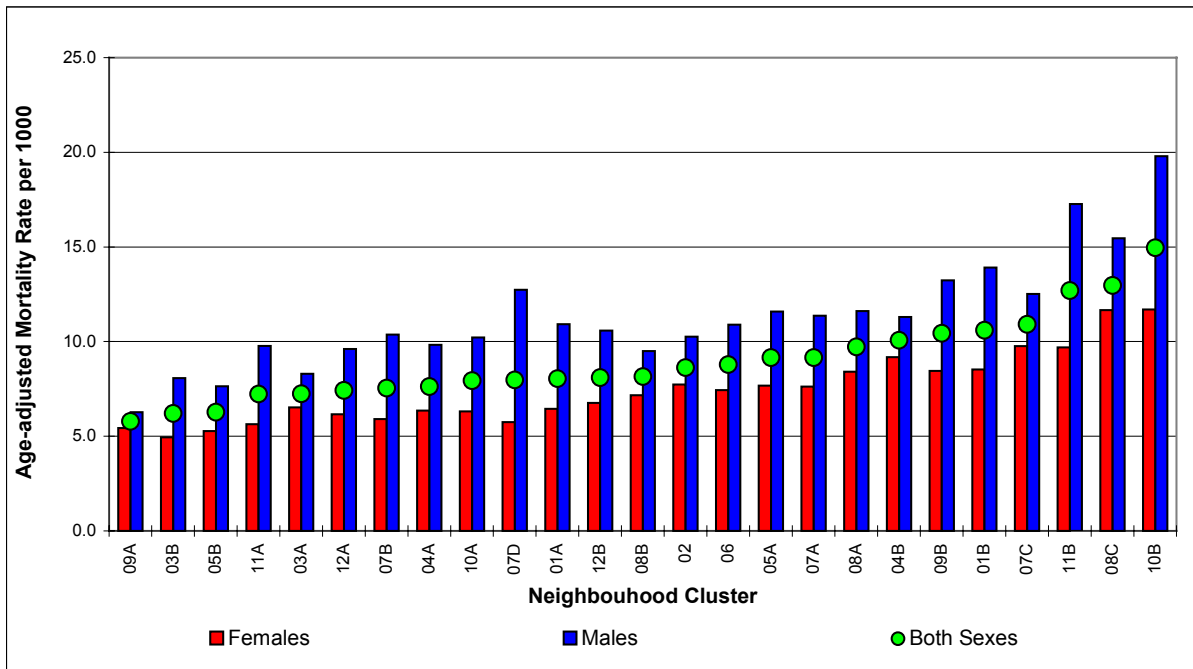


Figure 6
Age-Adjusted Mortality Rate for Females in the Winnipeg Health Region by Neighbourhood Cluster, 1995-1999

A spatial representation of the age-adjusted mortality rates for females is shown in Figures 6. The highest age-adjusted mortality rates were found in:

- Point Douglas - 10B
- Seven Oaks - 08C
- Downtown - 11B
- River East - 07C
- St. Vital - 04B

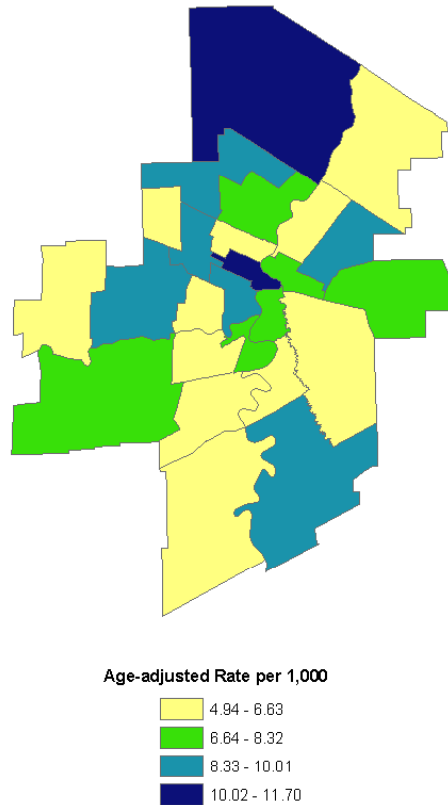
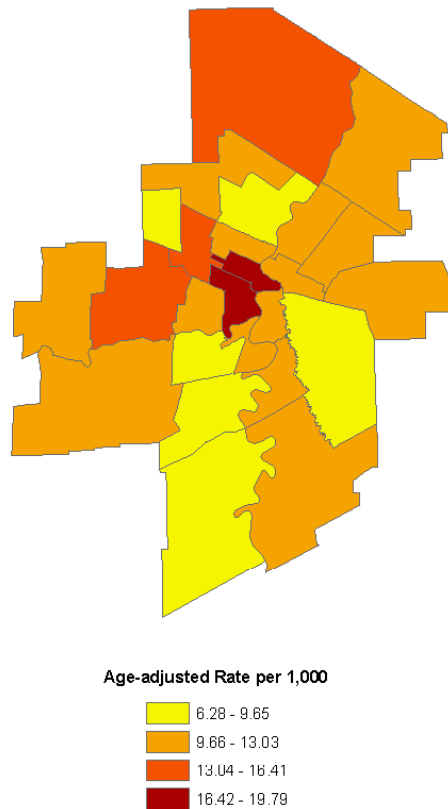


Figure 7
Age-Adjusted Mortality Rate for Males in the Winnipeg Health Region by Neighbourhood Cluster, 1995-1999

A spatial representation of the age-adjusted mortality rates for males is shown in Figure 7. The highest age-adjusted mortality rates were found in:

- Point Douglas - 10B
- Downtown - 11B
- Seven Oaks - 08C
- St. James-Assiniboia - 01B
- Inkster - 09B



Relative Ratio and Rate Differences

Two other measures of comparison have been included in this report: relative ratios and rate differences. Both have been calculated to identify comparisons between rates and differences in rates. Relative ratios and rate differences for the mortality rates by NC are reported in Table 4 for both sexes, males, and females.

Table 4
Relative Ratios and Rate Differences for Mortality Rates in the Winnipeg Health Region by Neighbourhood Cluster and Sex, 1995-1999

Community Area	Neighbourhood Cluster	Both Sexes		Females		Males	
		*Relative Ratio of each NC compared to the rest of the WHR	** Difference in Rate per 1000 between each NC and the rest of the WHR	*Relative Ratio of each NC compared to the rest of the WHR	** Difference in Rate per 1000 between each NC and the rest of the WHR	*Relative Ratio of each NC compared to the rest of the WHR	** Difference in Rate per 1000 between each NC and the rest of the WHR
St. James-Assiniboia	01A	0.9	-1.1	0.8	-1.4	0.9	-0.8
	01B	1.9	7.1	1.8	6.5	2.0	7.9
Assiniboine South	002	1.0	-0.3	1.1	0.8	0.8	-1.4
Fort Garry	03A	0.7	-2.2	0.8	-1.9	0.7	-2.5
	03B	0.4	-4.8	0.4	-5.3	0.5	-4.3
St. Vital	04A	1.1	0.6	1.0	0.3	1.1	1.0
	04B	0.7	-2.3	0.8	-1.8	0.7	-2.9
St. Boniface	05A	1.7	5.4	1.8	6.7	1.5	4.0
	05B	0.5	-4.2	0.5	-4.6	0.5	-3.8
Transcona	006	0.7	-2.8	0.7	-2.9	0.7	-2.7
River East	07A	0.9	-0.5	0.9	-1.0	1.0	0.1
	07B	1.2	1.5	1.1	0.8	1.3	2.2
	07C	0.8	-1.7	0.9	-1.1	0.7	-2.4
	07D	0.5	-4.3	0.4	-5.0	0.5	-3.7
Seven Oaks	08A	0.7	-2.6	0.7	-2.4	0.7	-2.8
	08B	1.2	1.3	1.1	1.0	1.2	1.5
	08C	2.2	9.4	2.7	14.0	1.6	4.7
Inkster	09A	0.3	-5.9	0.3	-5.9	0.3	-5.9
	09B	1.2	1.4	1.1	1.0	1.2	1.8
Point Douglas	10A	1.0	-0.2	0.9	-1.0	1.1	0.6
	10B	2.3	10.0	2.4	11.3	2.1	8.7
Downtown	11A	0.8	-1.4	0.8	-1.7	0.9	-1.1
	11B	1.6	5.1	1.6	4.7	1.7	5.4
River Heights	12A	1.1	1.1	1.2	1.4	1.1	0.7
	12B	1.3	2.4	1.3	2.6	1.3	2.2

* A measure of the relative risk of that area with respect to the rest of the Winnipeg Health Region

** A measure of the number of individuals per 1000 in the area potentially at risk compared to the rest of the Winnipeg Health Region

Measurement of the relative risk of death rates reported for the NCs in the WHR is shown in figures 8, 9 and 10. Relative ratios were calculated to determine how each NC rate compares to the rest of Winnipeg. The absolute differences in rates have also been calculated in Table 4 and shown in figures 11, 12 and 13. Differences in rates are generated to determine how much the rates differ in the population. In other words, relative ratios are generated to determine the magnitude of the risk that exists between areas, and rate differences are generated to quantify the risk. For further information on how to interpret relative ratios and rate differences see Appendix B.

Figure 8

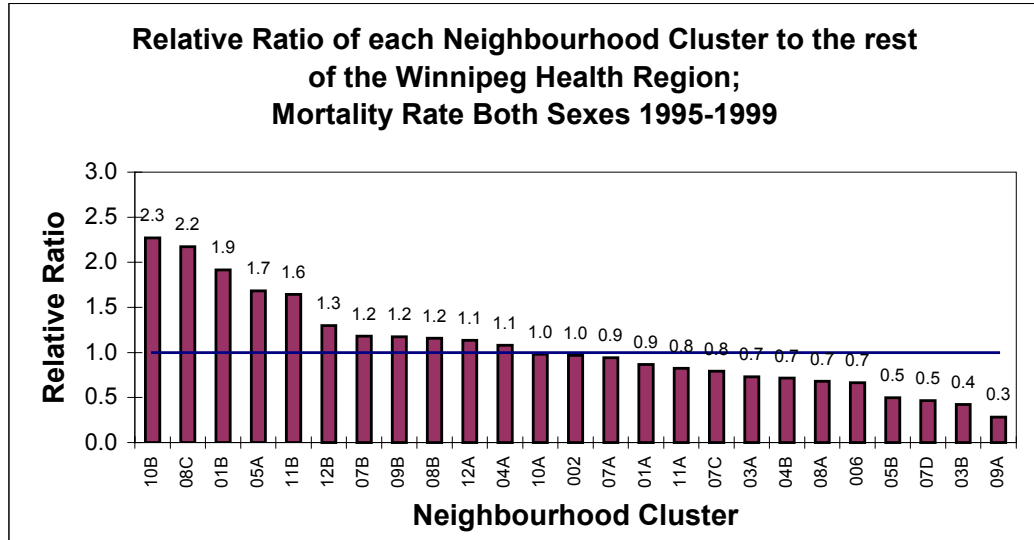


Figure 9

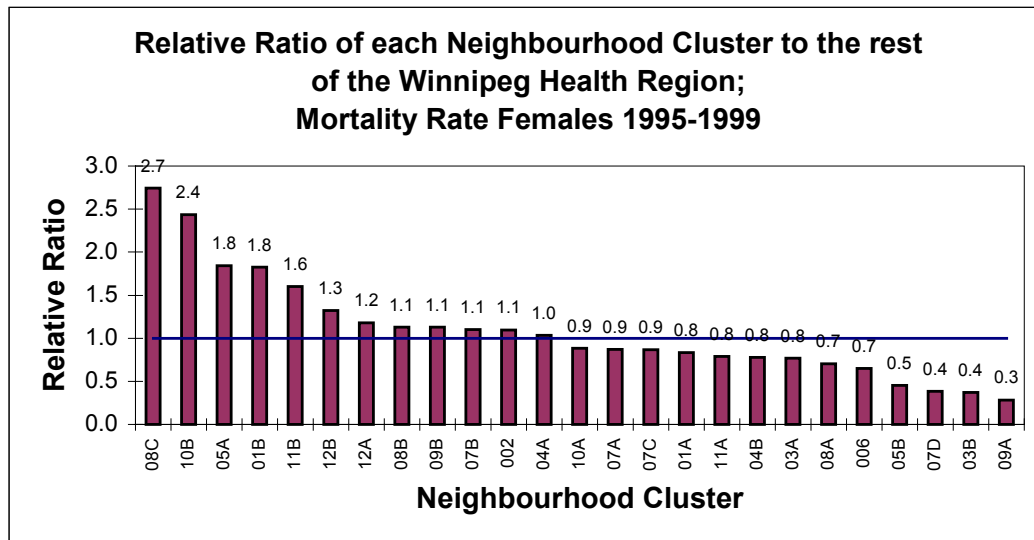


Figure 10

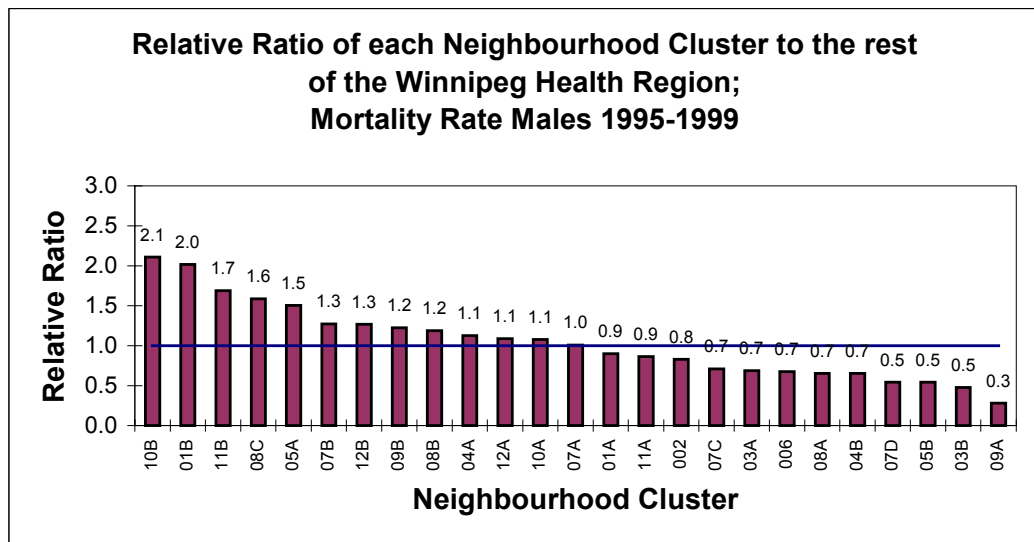
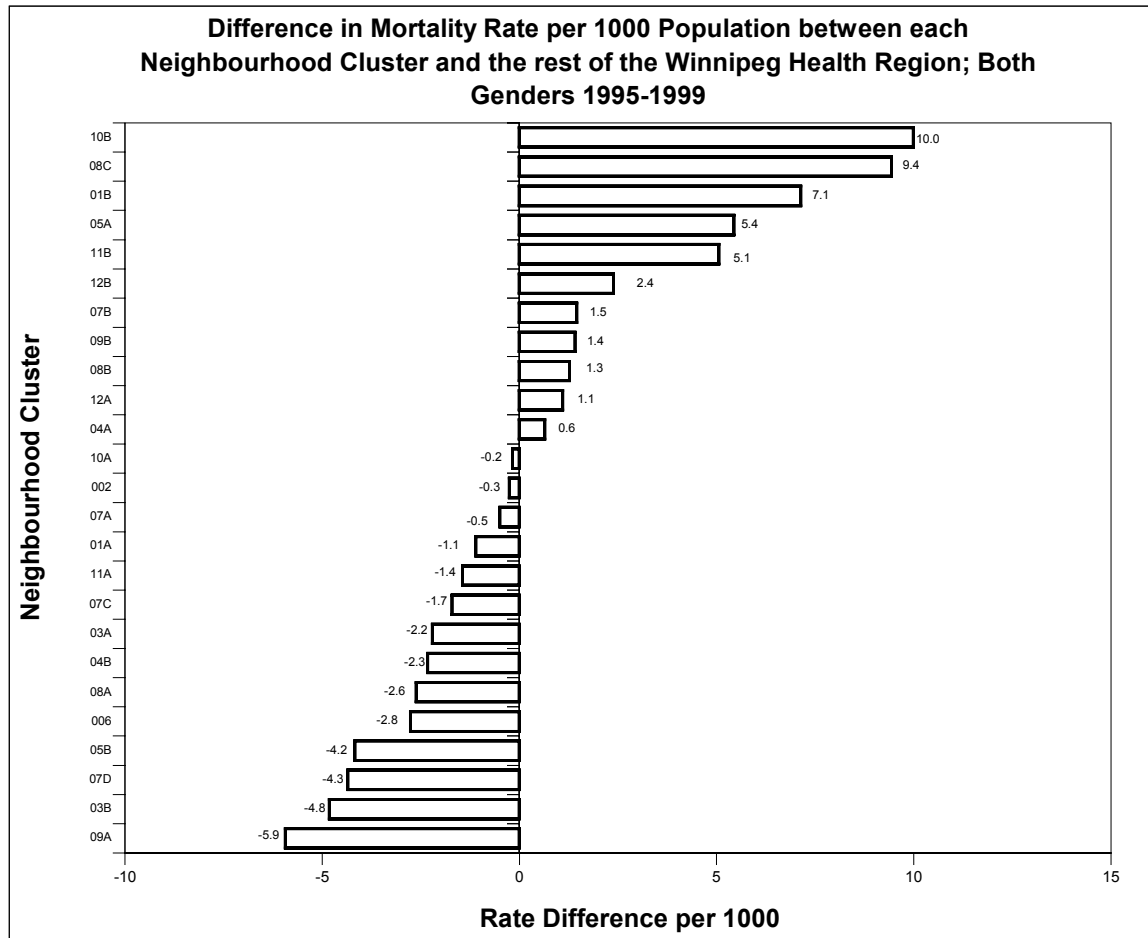


Figure 11



Overall, NCs St. James-Assiniboia 01B, Seven Oaks 08C and Point Douglas 10B have a death rate between 1.9 and 2.3 times greater than the rest of the WHR. Inkster 09A, Fort Garry 03B, River East 07D, and St. Boniface 05B have the lowest relative ratio compared to the rest of the WHR, ranging from 0.3 to 0.5. Differences in mortality rates between NCs reflect the actual number of deaths per 1000 population (Figure 11). For example, the NC Point Douglas 10B shows a rate difference of 10.0, which translates into 10 more deaths per 1000 population than the rest of the region. Concurrently, Inkster 09A has a rate difference of -5.9 , which translates into approximately 6 fewer deaths per 1000 population than the rest of the region.

Females in NC St. James-Assiniboia 01B have a relative ratio of 1.8, which means that females in this NC have a death rate 1.8 times greater than females in the rest of the WHR (Figure 9). The rate difference between St. James-Assiniboia 01B and the rest of the WHR was 6.5 more deaths per 1000 female population (Figure 12). In absolute terms, this represents 6.5 more deaths per 1000 female population than the rest of the WHR. These comparisons can be repeated for each of the NCs.

Figure 12

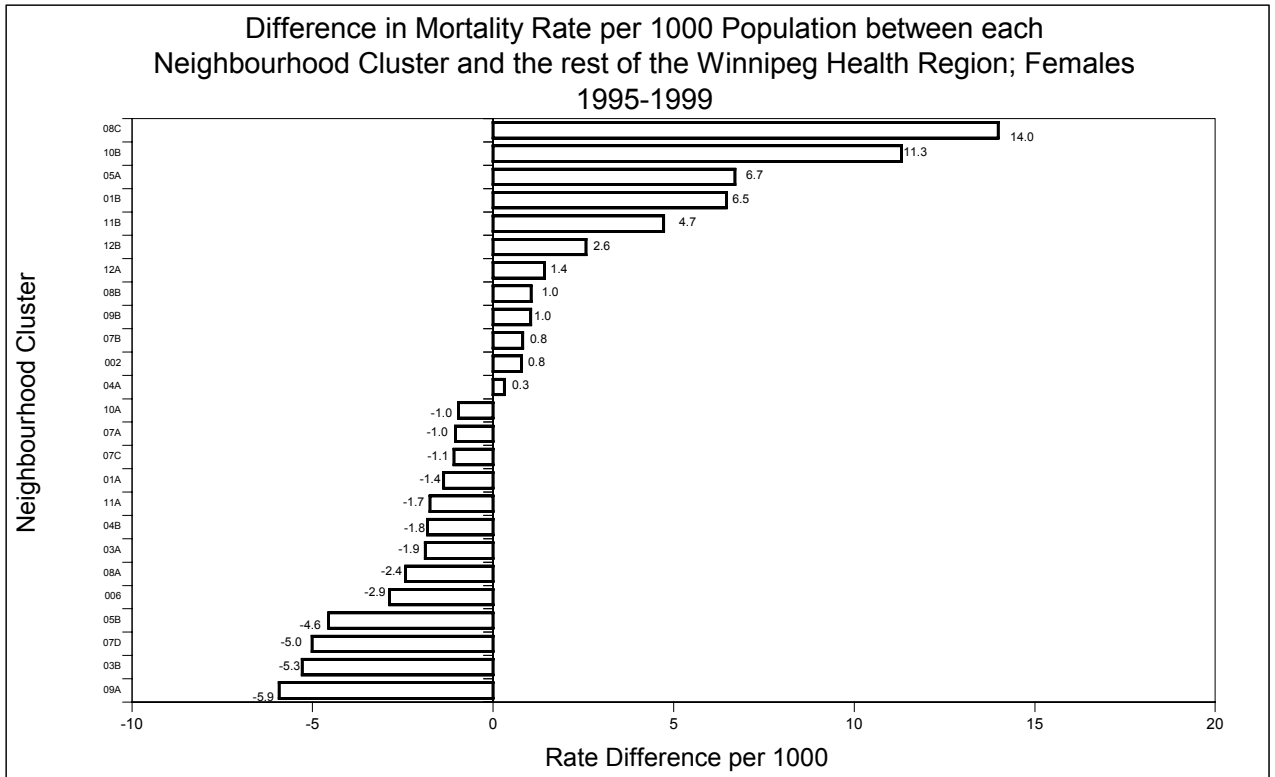
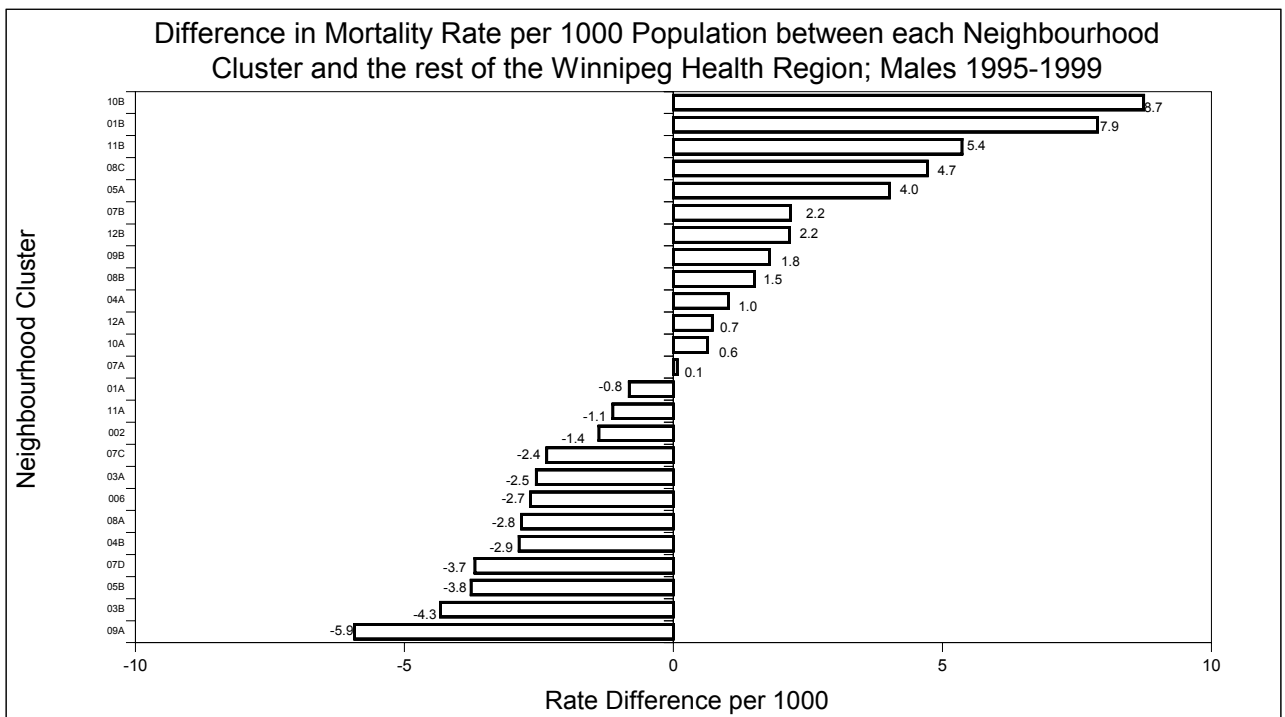


Figure 13

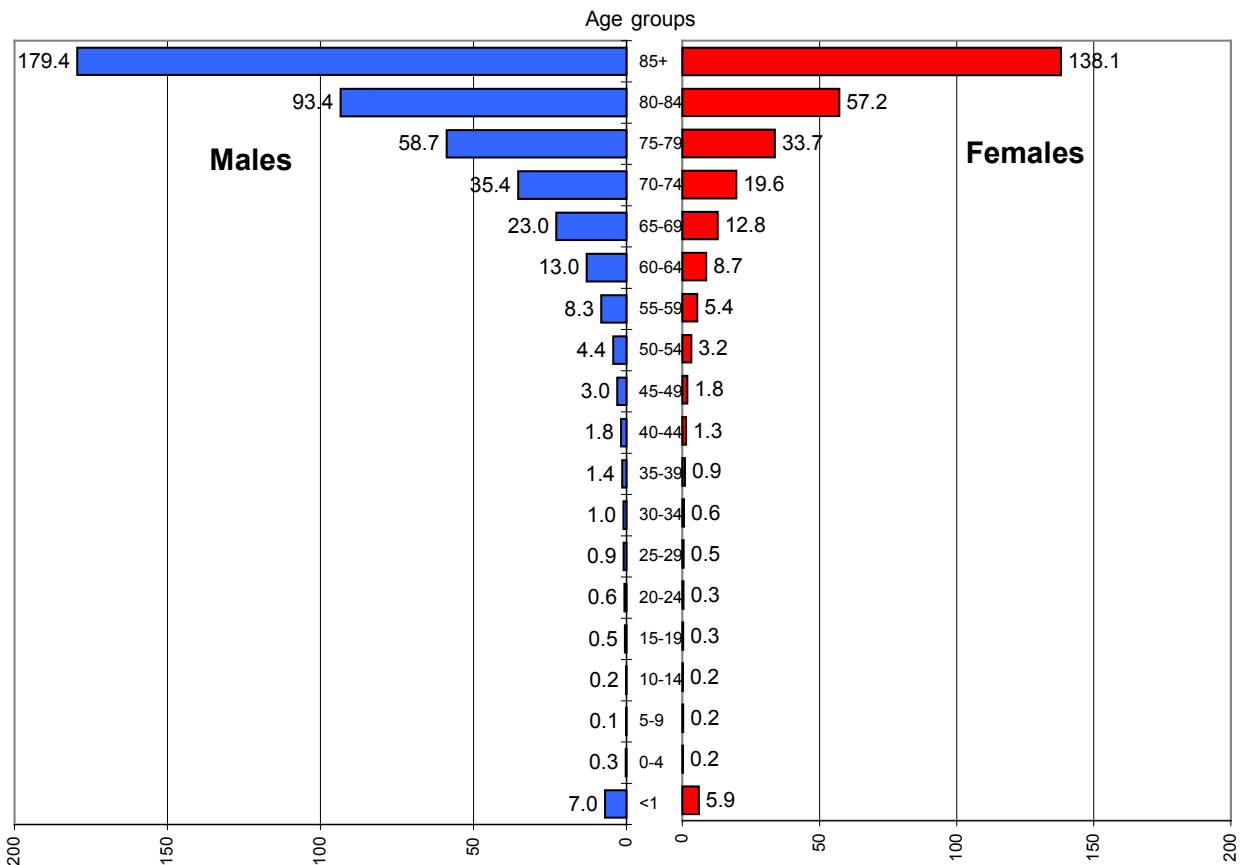


Age-Specific Death Rates

Another way to compare death rates in one area to another is to calculate age-specific death rates. Age-specific death rates have been calculated to show differences in death rates over time in the WHR and between the NCs. Age-specific rates are also used to remove the effects of the differences due to age distributions.

Five-year, age-specific death rates have not changed dramatically between 1990-1994 and 1995-1999 within the WHR (tables 5 and 6). As expected, higher death rates are noted in the older age groups (Figure 14).

Figure 14
Age-Specific Mortality Rates per 1000 population in the Winnipeg Health Region, 1995–1999



Age-specific death rates for each of the NCs have also been generated to show differences between the sub-geographies within the WHR for the time period 1995-1999. A wide range of age-specific rates are revealed when comparisons are made between the geographies in Table 7. These differences demonstrate that factors other than age alone influence the mortality rate. Other factors might include differences in socio-economic status and other determinants of health, however, this report does not explore these influences on mortality rates.

For the time period 1995-1999, age-specific death rates have also been generated for males and females. The tables for these rates, however, have not been included in this report, as the rates generated by NC and by sex are often based on small numbers, which may yield imprecise and highly variable rates.

Table 5
Age-Specific Mortality Rates in the Winnipeg Health Region, 1995-1999

Age Group (years)	Both Sexes		Females		Males	
	Deaths	Age-Specific Rate per 1000	Deaths	Age-Specific Rate per 1000	Deaths	Age-Specific Rate per 1000
<1	261	6.5	116	5.9	145	7.0
1-4	38	0.2	16	0.2	22	0.3
5-9	39	0.2	25	0.2	14	0.1
10-14	35	0.2	15	0.2	20	0.2
15-19	75	0.4	26	0.3	49	0.5
20-24	109	0.5	38	0.3	71	0.6
25-29	164	0.7	54	0.5	110	0.9
30-34	212	0.8	79	0.6	133	1.0
35-39	325	1.2	124	0.9	201	1.4
40-44	395	1.5	169	1.3	226	1.8
45-49	546	2.4	208	1.8	338	3.0
50-54	689	3.8	298	3.2	391	4.4
55-59	937	6.8	382	5.4	555	8.3
60-64	1327	10.8	556	8.7	771	13.0
65-69	2074	17.4	836	12.8	1238	23.0
70-74	2973	26.2	1298	19.6	1675	35.4
75-79	3912	43.5	1858	33.7	2054	58.7
80-84	4339	69.9	2311	57.2	2028	93.4
85+	7437	149.6	4950	138.1	2487	179.4

Table 6
Age-Specific Mortality Rates in the Winnipeg Health Region, 1990-1994

Age Group (years)	Both Sexes		Females		Males	
	Deaths	Age-Specific Rate per 1000	Deaths	Age-Specific Rate per 1000	Deaths	Age-Specific Rate per 1000
<1	273	5.9	120	5.3	153	6.5
1-4	58	0.3	25	0.3	33	0.4
5-9	23	0.1	15	0.1	8	0.1
10-14	28	0.1	11	0.1	17	0.2
15-19	86	0.4	22	0.2	64	0.6
20-24	131	0.5	33	0.3	98	0.8
25-29	185	0.6	61	0.4	124	0.9
30-34	207	0.7	65	0.4	142	1.0
35-39	266	1.0	100	0.7	166	1.2
40-44	334	1.4	123	1.0	211	1.8
45-49	468	2.5	197	2.1	271	2.9
50-54	600	4.1	240	3.2	360	5.0
55-59	870	6.6	334	4.9	536	8.2
60-64	1399	10.8	545	7.9	854	14.0
65-69	2194	17.2	895	12.4	1299	23.3
70-74	2856	26.5	1221	19.3	1635	36.5
75-79	3535	42.4	1642	31.9	1893	59.2
80-84	3575	67.0	1905	54.7	1670	90.1
85+	5839	141.2	3842	128.6	1997	173.7

Table 7
Age-Specific Mortality Rates per 1000 population in the Winnipeg Health Region by
Neighbourhood Cluster for Both Sexes, 1995-1999

Community Area	Neighbourhood Cluster	Age Group (Years)																		
		<1	1-4	5-9	10-14	15-19	20-24	25-29	30-34	35-39	40-44	45-49	50-54	55-59	60-64	65-69	70-74	75-79	80-84	85+
St. James-Assiniboia	01A	3.7	0.3	0.0	0.1	0.4	0.2	0.3	0.4	1.0	1.3	1.7	3.3	4.8	9.6	13.1	23.4	38.2	62.2	168.0
	01B	7.7	0.0	0.1	0.0	0.1	0.2	0.5	0.7	1.2	2.5	3.5	3.9	9.9	10.9	20.4	37.0	53.3	81.6	186.8
Assiniboine South	002	4.6	0.0	0.2	0.1	0.2	0.2	0.4	0.4	0.7	1.1	1.1	2.5	3.2	7.3	13.9	24.6	47.1	79.6	179.6
Fort Garry	03A	4.6	0.1	0.4	0.0	0.7	0.3	0.3	0.6	1.0	1.5	1.2	2.6	6.4	7.1	13.3	18.0	36.0	63.2	138.6
	03B	4.7	0.1	0.4	0.1	0.2	0.3	0.2	0.5	0.2	0.6	1.8	2.5	4.1	7.1	10.8	17.5	33.7	61.3	106.4
St. Vital	04A	2.9	0.0	0.0	0.1	0.4	0.3	0.8	1.0	1.8	1.5	2.9	4.4	7.0	11.1	17.6	24.9	33.7	60.1	118.3
	04B	6.1	0.7	0.4	0.6	0.8	0.8	1.4	1.0	1.1	1.1	1.3	2.9	4.5	8.1	17.1	22.4	47.7	89.6	219.2
St. Boniface	05A	6.6	0.3	0.0	0.0	0.5	0.6	0.0	1.2	1.7	1.7	3.3	3.6	10.6	13.5	19.4	27.2	44.6	65.9	154.2
	05B	3.4	0.1	0.1	0.0	0.3	0.2	0.5	0.7	0.5	0.9	2.1	2.9	4.9	7.8	11.1	20.2	38.3	65.2	84.7
Transcona	006	2.4	0.0	0.1	0.1	0.1	0.3	0.2	0.6	1.2	1.3	2.2	2.9	7.8	10.6	20.0	27.0	44.4	73.7	155.6
River East	07A	6.2	0.5	0.2	0.2	0.0	1.1	0.5	0.6	1.6	2.4	3.6	6.2	5.7	19.5	25.2	29.6	42.1	70.6	122.7
	07B	6.2	0.1	0.1	0.0	0.2	0.2	0.7	0.5	0.9	1.1	2.0	3.3	7.2	10.2	16.7	23.1	40.5	62.0	121.1
	07C	4.9	0.3	0.2	0.1	0.2	0.6	0.6	0.4	0.6	0.9	1.8	3.5	4.5	7.9	15.2	33.6	60.4	93.0	234.3
	07D	15.4	0.0	0.4	0.0	0.4	0.0	1.0	0.0	0.3	0.6	1.4	5.7	5.0	8.6	14.6	18.3	33.6	66.7	166.7
Seven Oaks	08A	7.1	0.0	0.0	0.1	0.2	0.5	0.3	0.3	0.9	0.9	1.4	2.1	5.2	10.9	20.1	32.7	55.7	81.1	181.8
	08B	6.5	0.1	0.0	0.4	0.3	0.3	1.2	0.9	1.3	1.3	2.4	4.5	7.3	9.1	15.8	25.1	40.4	69.0	133.1
	08C	0.0	0.0	0.0	0.0	0.8	0.9	0.0	0.0	0.0	0.5	1.7	3.5	10.0	15.7	11.2	27.6	85.3	129.8	263.9
Inkster	09A	7.8	0.0	0.0	0.0	0.3	0.2	1.0	0.7	0.2	1.5	1.7	2.0	6.4	12.3	9.4	16.7	25.8	40.3	102.5
	09B	10.7	0.2	0.4	0.2	0.7	0.4	0.2	0.7	0.5	1.9	2.8	5.3	9.4	16.2	22.7	30.2	50.8	82.0	178.4
Point Douglas	10A	8.0	0.2	0.2	0.5	0.3	0.6	0.8	0.5	2.2	1.4	2.7	4.9	9.6	13.4	16.7	27.2	39.4	65.9	98.1
	10B	11.2	0.8	0.3	0.8	1.1	1.6	2.4	1.5	3.4	5.6	5.1	8.7	14.8	20.5	32.1	51.3	75.6	98.7	211.6
Downtown	11A	10.1	0.3	0.2	0.3	0.5	1.1	1.0	1.0	1.2	2.1	3.3	3.2	7.3	13.0	16.9	22.2	34.0	57.3	93.1
	11B	11.5	0.8	0.3	0.1	0.8	1.0	1.2	2.4	3.0	4.1	6.8	9.2	15.4	19.6	35.7	43.9	58.1	73.5	159.0
River Heights	12A	3.9	0.0	0.0	0.0	0.5	0.3	0.7	0.5	0.7	1.6	1.9	3.2	4.0	9.2	14.0	20.5	36.5	63.2	140.2
	12B	8.1	0.2	0.2	0.3	0.2	0.5	0.8	1.2	1.4	1.0	3.5	6.7	8.9	9.2	20.7	20.7	45.3	65.8	106.2

Premature Mortality

Premature Mortality Rate

The literature suggests that Premature Mortality Rate (PMR) is the best single indicator of health status. Higher rates of premature mortality have been associated with higher need for health-care resources and other measures of health status (e.g., self-reported measures of health status and rates of self-reported acute illness). However, one limitation of PMR is that it is difficult to interpret. It might be helpful to remember that a higher PMR value is associated with a lower level of health status.

PMR is a ratio based on the annual number of deaths per population of individuals who are less than 75 years of age. For health regions in Manitoba, the expected length of life has been arbitrarily defined as 75 years of age for both sexes. Therefore, PMR is calculated by the number of deaths occurring before the age of 75, divided by the number of individuals in the population who are younger than 75 years of age, over a specified period of time. The PMR is generated to focus on potentially-preventable deaths.

For the period 1995-1999, 10199 of the 25887 total deaths in the WHR were premature based on the definition above. This represents 39.4% of all deaths. The crude PMR is 3.4 per 1000 population for both sexes, 2.8 per 1000 population for females, and 4.0 per 1000 population for males (Table 8). The age-adjusted rates remain similar to the crude rates, at 3.4 per 1000 population for both sexes, 2.6 per 1000 population for females, and 4.3 per 1000 population for males. In other words, between 3 and 4 persons per 1000 population will die annually before the age of 75. There is a slight increase when comparing either crude or age-adjusted PMR values between the two time periods from 1990-1994 to 1995-1999 (Appendix: Table A1).

The WHR has a PMR that is mid-range compared to those of the other Health Regions whose PMRs for both sexes range from 2.5 per 1000 deaths in South Eastman Health Region to 4.3 per 1000 deaths in Marquette Health Region. The PMR of the WHR is approximately equal to that of Manitoba, which is 3.3 per 1000 deaths in 1996-2000 (MCHP, 2003).

Table 8
Premature Mortality Rates in the Winnipeg Health Region by Neighbourhood Cluster and Sex,
1995-1999

Community Area	Neighbourhood Cluster	Both Sexes			Females			Males		
		Deaths	Crude Rate per 1000	Age-Adjusted Rate per 1000	Deaths	Crude Rate per 1000	Age-Adjusted Rate per 1000	Deaths	Crude Rate per 1000	Age-Adjusted Rate per 1000
St. James-Assiniboia	01A	503	3.2	2.7	201	2.5	2.1	302	3.9	3.5
	01B	653	5.4	4.2	269	4.3	3.2	384	6.5	5.5
Assiniboine South	002	399	2.3	2.5	182	2.1	2.2	217	2.6	2.8
Fort Garry	03A	303	2.5	2.5	143	2.3	2.2	160	2.7	2.9
	03B	297	1.8	2.1	125	1.5	1.7	172	2.1	2.7
St. Vital	04A	509	4.1	3.5	222	3.4	2.8	287	4.7	4.3
	04B	361	2.3	3.0	154	1.9	2.4	207	2.7	3.7
St. Boniface	05A	310	4.5	3.9	134	3.8	2.9	176	5.2	5.2
	05B	342	2.4	2.4	143	2.0	2.0	199	2.8	2.9
Transcona	006	433	2.9	3.3	177	2.4	2.6	256	3.4	4.1
River East	07A	348	4.1	4.5	152	3.6	3.8	196	4.6	5.5
	07B	699	4.0	3.1	304	3.3	2.3	395	4.7	4.0
	07C	327	2.5	3.1	134	2.0	2.4	193	2.9	3.9
	07D	70	2.4	2.8	28	1.9	2.5	42	2.8	3.0
Seven Oaks	08A	239	2.4	3.3	103	2.0	2.6	136	2.7	4.1
	08B	602	4.0	3.3	264	3.4	2.7	338	4.7	4.2
	08C	60	3.4	3.1	25	2.8	2.6	35	3.9	3.6
Inkster	09A	140	1.6	2.5	66	1.5	2.2	74	1.7	2.8
	09B	268	4.2	4.3	101	3.2	2.9	167	5.3	5.8
Point Douglas	10A	489	4.0	3.9	212	3.4	3.1	277	4.5	4.9
	10B	432	6.6	7.3	162	5.3	5.5	270	7.7	9.2
Downtown	11A	583	3.2	3.6	228	2.5	2.6	355	3.9	4.8
	11B	975	6.6	7.0	332	4.9	5.0	643	8.1	9.0
River Heights	12A	480	3.0	2.6	204	2.4	2.0	276	3.6	3.5
	12B	377	3.9	3.7	175	3.5	3.0	202	4.4	4.6
Winnipeg Health Region		10199	3.4	3.4	4240	2.8	2.6	5959	4.0	4.3

Premature Mortality Rates by Geography

Even though the WHR has a PMR that is mid-range when compared to other health regions in the province, great variation exists among the sub-geographies within the WHR, as displayed in Figure 15. The crude PMR values for both sexes range from 6.6 in Point Douglas 10B and Downtown 11B to 1.6 in Inkster 09A. This range exceeds the PMR range found among the health regions in the Province. The highest PMR value for both sexes is well above that found in Marquette Health Region, which has a PMR of 4.3 per 1000.

For females, the highest PMR values are 5.3 and 4.9 found in Point Douglas 10B and Downtown 11B respectively. For females, the lowest PMR values are found in Fort Garry 03B and Inkster 09A, both at 1.5 (Table 8). The following map shows the distribution of PMR for females by NC in the WHR (Figure 16).

For males, the highest PMR values are 8.1 and 7.7 found in Downtown 11B and Point Douglas 10B respectively. For males, the lowest PMR values are 1.7 and 2.1 found in Fort Garry 03B and Inkster 09A respectively (Table 8). The following map (Figure 17) shows the distribution of PMR for males by NC in the WHR.

Figure 15
Comparison of Crude Premature Mortality Rates per 1000 population by Neighbourhood Cluster, 1995-1999

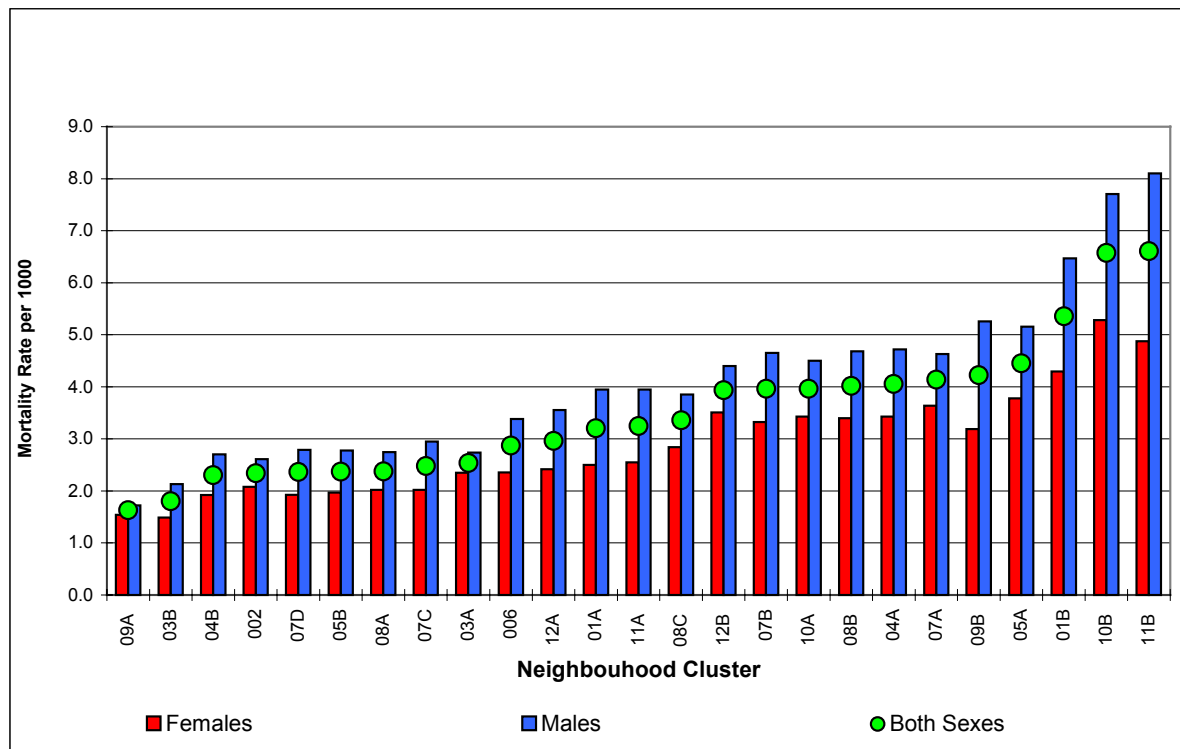


Figure 16
Premature Mortality Rate for Females in the Winnipeg Health Region by Neighbourhood Cluster, 1995-1999

A spatial representation of the PMR for females is shown in Figure 16. The highest crude premature mortality rates were found in:

- Point Douglas - 10B
- Downtown - 11B

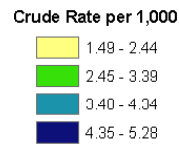
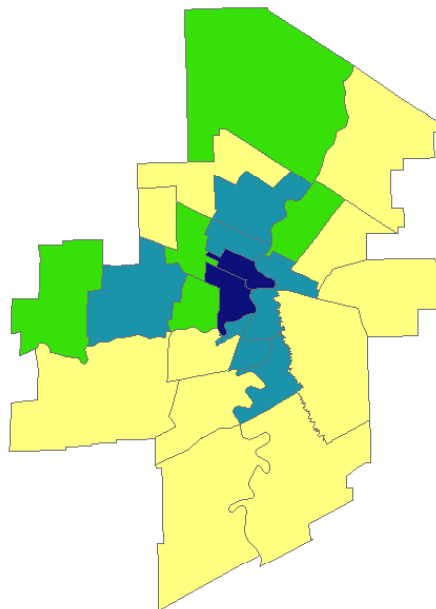
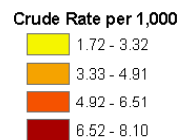
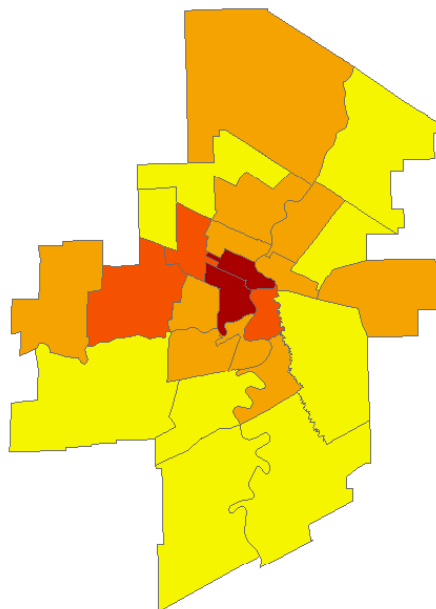


Figure 17
Premature Mortality Rate for Males in the Winnipeg Health Region by Neighbourhood Cluster, 1995-1999

A spatial representation of the PMR for males is shown in Figure 17. The highest crude premature mortality rates were found in:

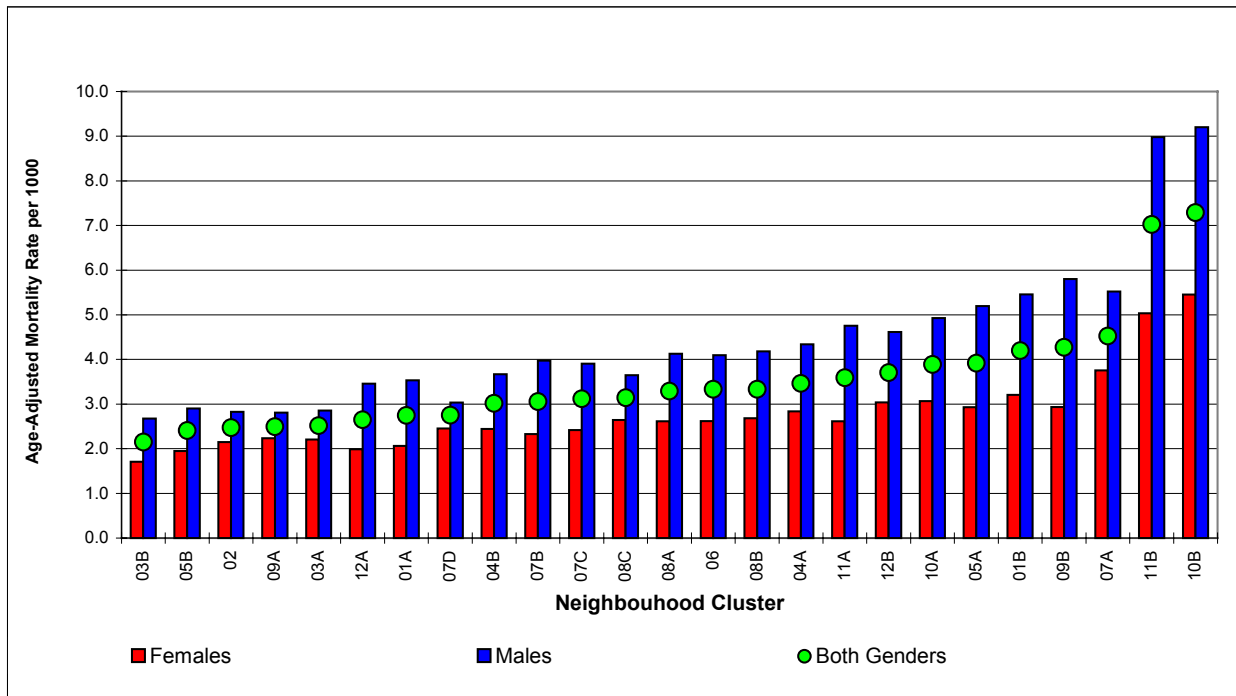
- Downtown - 11B
- Point Douglas - 10B



Age-adjusted PMRs continue to show Downtown 11B and Point Douglas 10B as the NCs with the highest PMRs for both sexes, females and males in 1995-1999. The remaining NCs show a gradual decline from 4.5 in River East 07A to 2.1 in Fort Garry 03B (Table 8).

The variation shown in Figure 18 provides further evidence of the range of health needs that exists in the region, if one uses PMR as a proxy measure for health status. Of importance are the NCs Downtown 11B and Point Douglas 10B, which have a notably greater PMR value for both sexes, suggesting a lower level of health status in these areas.

Figure 18
Comparison of Age-Adjusted Premature Mortality Rates per 1000 population by Neighbourhood Cluster, 1995-1999



By adjusting for differences in the age distribution among the neighbourhood clusters, a comparison is presented for females in Figure 19 and for males in Figure 20. The maps demonstrate the geographical relationship that exists between Downtown 11B and Point Douglas 10B. Both Downtown 11B and Point Douglas 10B neighbour one another.

Figure 19
Age-Adjusted Premature Mortality Rate for Females in the Winnipeg Health Region by Neighbourhood Cluster, 1995-1999

A spatial representation of the age-adjusted PMR for females is shown in Figure 19. The highest age-adjusted premature mortality rates were found in:

- Point Douglas - 10B
- Downtown - 11B

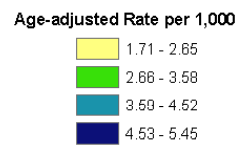
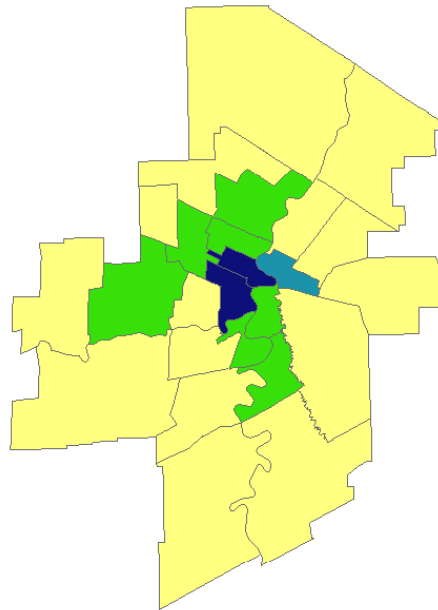
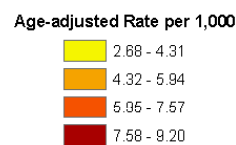
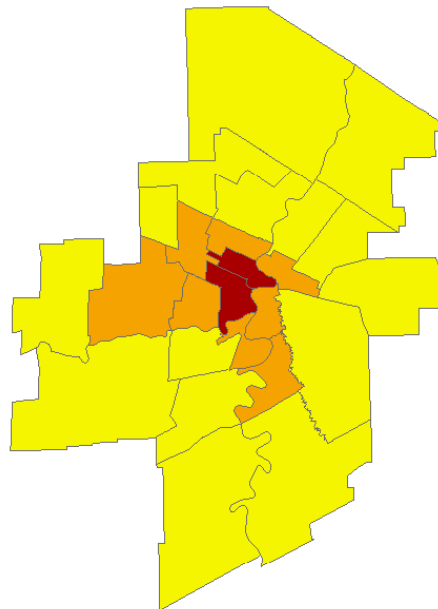


Figure 20
Age-Adjusted Premature Mortality Rate for Males in the Winnipeg Health Region by Neighbourhood Cluster, 1995-1999

A spatial representation of the age-adjusted PMR for males is shown in Figure 20. The highest age-adjusted premature mortality rates were found in:

- Point Douglas - 10B
- Downtown - 11B



Potential Years of Life Lost

Potential Years of Life Lost

Potential years of life lost (PYLL) is the number of years of life “lost” when a person dies prematurely before age 75. PYLL has been generated by cause of death as well as (overall measure) to better understand premature deaths in the WHR. PYLL have been used as an indicator to measure the impact of premature death, as it compares death occurrence and cause of death. PYLL only considers deaths before age 75 and weights them by age and by cause of death.

One limitation of this indicator is the setting of the arbitrary value of 75. This might give the impression that the younger years of life are more valuable, especially since the life expectancy for both males and females in the WHR exceed this value. PYLL should be interpreted carefully, as the number of PYLL in a disease category may be due to many deaths that occurred later in life (closer to the age of 75); or may be due to fewer deaths that occurred early in life (farther from the age of 75); or may be due to a combination of the above. It is for these reasons that this indicator provides only additional information and should be interpreted along with the information from the other mortality indicators.

Up to 2001, an average of 66246 potential years of life were lost each year for residents in Manitoba. As seen earlier, 10199 of the 25887 (39.4%) total deaths over five years in the WHR were premature. The 10199 deaths result in a total PYLL of 164018. Therefore an average of 32804 potential years of life were lost each year for residents in the WHR. Crude and age-adjusted PYLL rates have been calculated by NC for males and females for 1995-1999 (Table 9) and 1990-1994 (Appendix: Table A2). Comparison of both crude and age-adjusted PYLL show that although there has been a slight increase in the WHR overall, the majority of the increase is attributable to females as the males show a slight decline in the rates between the two time periods (tables 9 and A2). It is important to note that the total PYLL males remain substantially higher than for females. In addition, a comparison between the two time periods is made among geographies within the WHR in Figure 21. Fluctuations in age-adjusted PYLL between NCs reflect differences in the magnitude and in direction over time (Figure 21). For example, Downtown 11A and 11B show an increase over time with a greater increase in Downtown 11B while Fort Garry 03A shows an increase overtime and Fort Garry 03B shows a decrease.

Table 9
Potential Years of Life Lost in the Winnipeg Health Region by Neighbourhood Cluster and Sex, 1995-1999

Community Area	Neighbourhood Cluster	Both Sexes			Females			Males		
		PYLL	PYLL Rate per 1000 Population	Age-Adjusted PYLL Rate per 1000 Population	PYLL	PYLL Rate per 1000 Population	Age-Adjusted PYLL Rate per 1000 Population	PYLL	PYLL Rate per 1000 Population	Age-Adjusted PYLL Rate per 1000 Population
St. James-Assiniboia	01A	6952	42.0	38.0	2904	33.8	30.8	4047	50.9	46.2
	01B	7930	58.0	57.5	3268	45.3	46.1	4662	72.2	70.0
Assiniboine South	002	5667	31.3	31.5	2683	28.4	29.3	2984	34.4	33.8
Fort Garry	03A	5067	40.1	39.7	2173	33.2	32.7	2894	47.4	47.0
	03B	5426	31.9	32.0	2538	29.1	29.8	2888	34.8	34.8
St. Vital	04A	7089	51.8	50.7	3269	45.3	45.8	3821	59.1	56.7
	04B	8365	51.6	52.7	3625	43.3	44.1	4740	60.3	62.0
St. Boniface	05A	4455	56.8	58.7	1913	46.0	47.7	2542	68.9	71.7
	05B	5373	35.9	34.1	2312	30.5	28.9	3061	41.5	39.5
Transcona	006	6329	40.5	41.9	2405	30.6	31.3	3924	50.5	52.8
River East	07A	5663	63.5	67.2	2421	53.9	58.2	3242	73.2	76.8
	07B	8612	44.5	42.9	3323	32.3	30.2	5289	58.3	56.6
	07C	5234	38.4	39.8	2265	32.7	33.1	2969	44.3	46.9
	07D	1371	45.3	47.4	623	41.7	51.8	749	48.8	44.1
Seven Oaks	08A	3806	36.5	39.3	1661	31.2	33.3	2146	42.2	45.4
	08B	8639	53.0	52.1	3930	45.8	45.5	4709	60.9	59.9
	08C	747	38.4	35.8	346	34.9	35.7	401	42.0	36.4
Inkster	09A	3190	36.5	39.9	1443	32.9	36.4	1747	40.1	43.7
	09B	4303	63.4	64.3	1441	41.9	41.7	2862	85.5	87.9
Point Douglas	10A	7999	60.2	62.3	3422	50.6	52.1	4577	70.1	73.4
	10B	8357	116.2	123.5	2927	83.9	94.0	5430	146.5	150.3
Downtown	11A	11984	62.5	63.2	4486	45.8	47.0	7498	79.8	80.2
	11B	18205	114.5	115.8	6037	79.3	86.0	12168	146.7	141.5
River Heights	12A	6886	38.6	38.4	2613	27.4	27.5	4273	51.4	50.5
	12B	6369	59.8	62.0	2907	50.7	54.6	3462	70.4	70.9
Winnipeg Health Region		164018	51.3	51.4	66931	40.7	41.2	97087	62.6	62.4

Figure 21
Potential Years of Life Lost in the Winnipeg Health Region by Neighbourhood Cluster
By Both Sexes, 1990-1994 vs 1995-1999

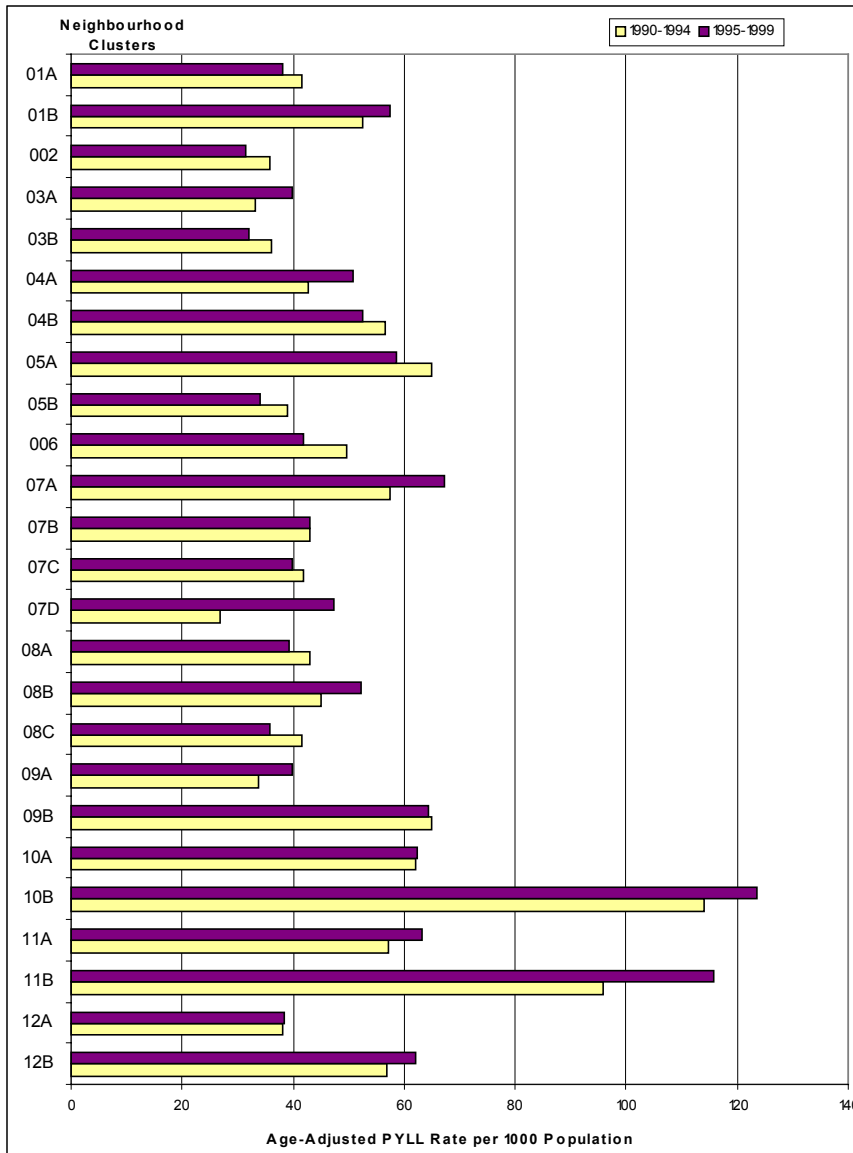


Figure 22 provides a comparison of PYLL crude rates per 1000 population by NC for 1995-1999 by both sexes, males, and females. The highest PYLL rates are found in Downtown 11B and Point Douglas 10B for both sexes, males, and females, which is a similar pattern to that found with the PMR. When adjusting for age distribution differences among the NCs, the same pattern persists for Downtown 11B and Point Douglas 10B, which is approximately 2-3 times higher than the other neighbourhood clusters (Figure 23). This continues to reinforce the differences in health-care needs across the region, where areas like Downtown 11B and Point Douglas 10B have either more deaths occurring in later life or fewer number of deaths occurring in early life, or a combination of the above. It is known that these two NCs also have higher death rates and higher PMRs, when in combination with higher years of life lost does support a poor population health outcome and an increase in the burden of illness for residents who live in Downtown 11B and Point Douglas 10B.

Figure 22
Comparison of PYLL Rates per 1000 population by Neighbourhood Cluster, 1995-1999

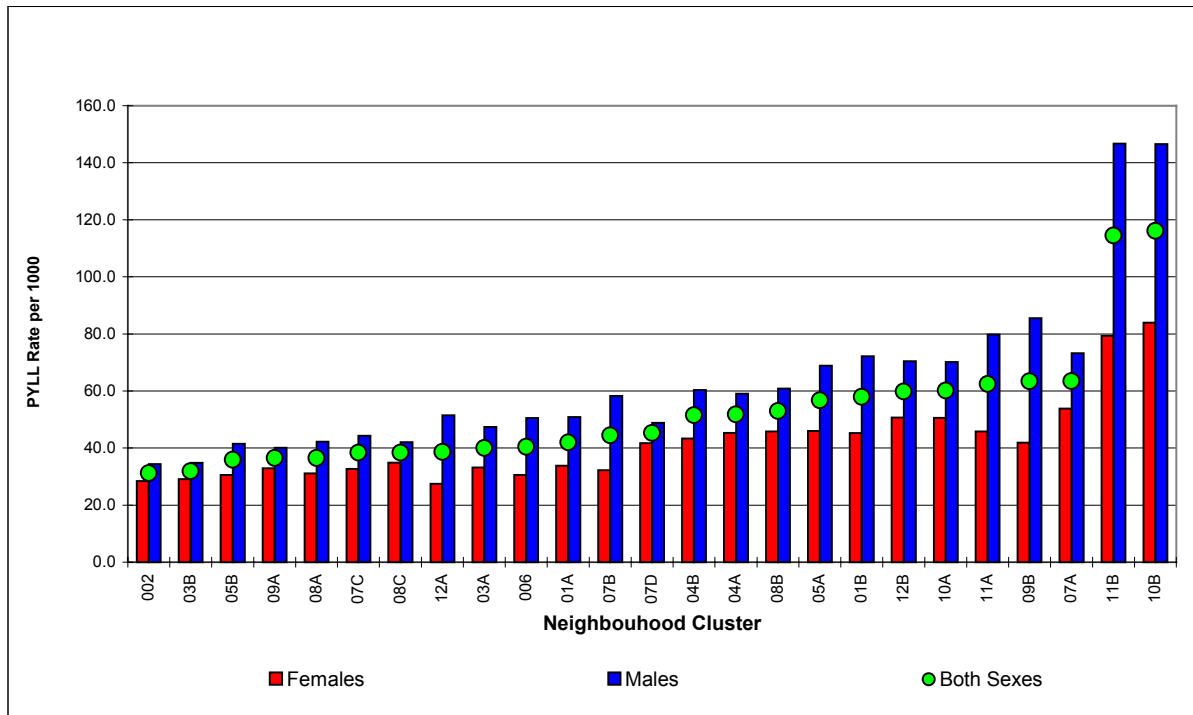
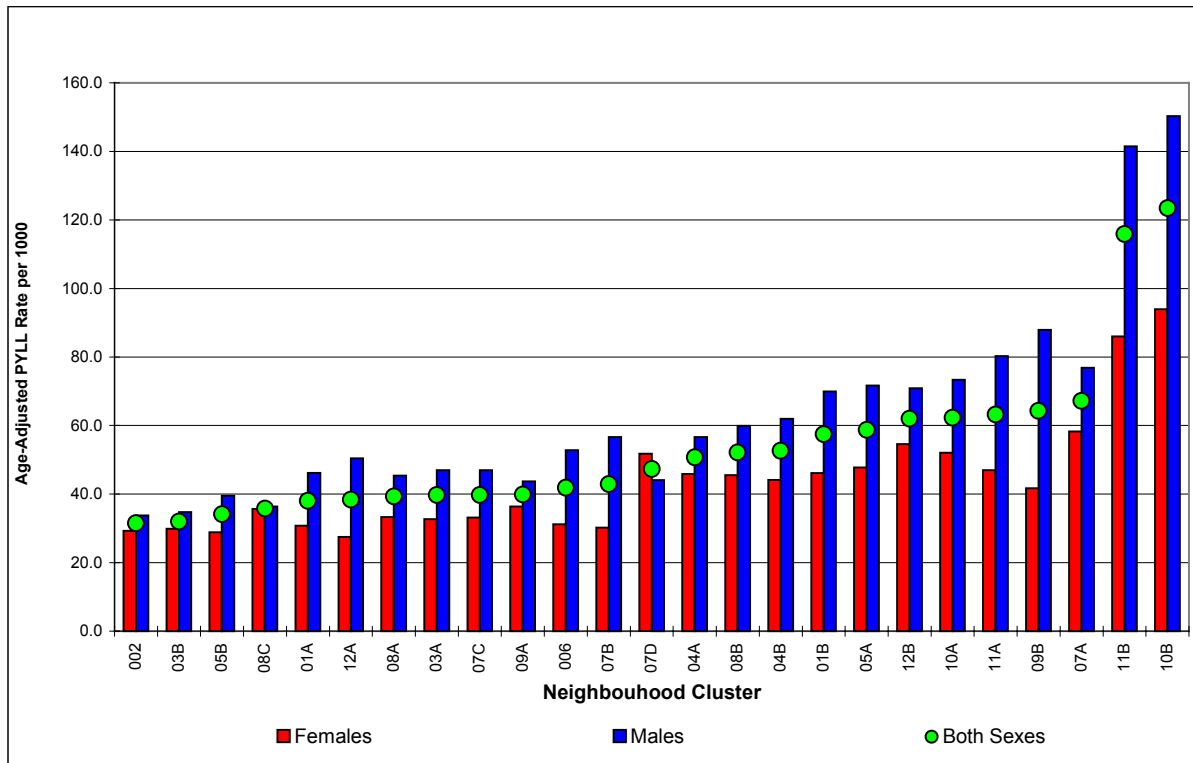


Figure 23
Comparison of Age-Adjusted PYLL Rates per 1000 population by Neighbourhood Cluster, 1995-1999



Leading Cause of Death

Leading Causes of Death

This section presents the leading causes of death in the WHR by age, sex, geography, and PYLL. The leading causes of death were ranked by count and by PYLL.

The 10 leading causes of death were ranked based on the Diagnostic Classification Code using ICD-9CM for the data from 1990-1994 and 1995-1999. Causes of death were not determined for the data from 2000 to 2002 as the coding changed from ICD-9 to ICD-10 in the year 2000. The resulting classification categories for the ICD-10 codes are currently being developed. As a result, the data from 1990-1999 are used to categorize the leading causes of death.

The 10 leading causes of death for 1995-1999, in order of rank, were: Ischemic Heart Disease, Cerebrovascular Disease, Malignant Neoplasm of the Digestive Organs, Malignant Neoplasm of the Respiratory Organs, Other Forms of Heart Disease (Heart Failure, Acute pericarditis, etc.), Injury and Poisonings, Malignant Neoplasms of Genitourinary Organs, Pneumonia and Influenza, Chronic Obstructive Pulmonary Disease and Malignant Neoplasm of Bone, Skin and Breast (Table 10). A similar list of 10 leading causes of death was found for the prior five years (Table 11). The 10 leading causes of death account for approximately 70% of all deaths. The 10 leading causes of death for males and females are found in Tables 12-15 for both time periods.

Ten Leading Causes of Death

Table 10
Both Sexes, 1995-1999

Diagnostic Classification Codes (ICD-9CM Codes)	Deaths	Rate per 1000	Percentage of Deaths
Ischemic Heart Disease (410-414)	5670	1.774	21.9
Cerebrovascular Disease (430-438)	2129	0.666	8.2
Malignant Neoplasm of Digestive Organ (150-159)	1875	0.587	7.2
Malignant Neoplasm of Respiratory Organ (160-165)	1859	0.582	7.2
Other Forms of Heart Disease (420-429)	1406	0.440	5.4
Injury and poisoning (E800-E999)	1321	0.413	5.1
Malignant Neoplasm of Genitourinary Organ (179-189)	1032	0.323	4.0
Pneumonia and Influenza (480-487)	1022	0.320	3.9
Chronic Obstructive Pulmonary Disease (490-496)	1019	0.319	3.9
Malignant Neoplasm of Bone, Skin, Breast (170-175)	727	0.227	2.8

Table 11
Both Sexes, 1990-1994

Diagnostic Classification Codes (ICD-9CM Codes)	Deaths	Rate per 1000	Percentage of Deaths
Ischemic Heart Disease (410-414)	5267	1.645	23.0
Cerebrovascular Disease (430-438)	1900	0.593	8.3
Malignant Neoplasm of Digestive Organ (150-159)	1740	0.544	7.6
Malignant Neoplasm of Respiratory Organ (160-165)	1635	0.511	7.1
Other Forms of Heart Disease (420-429)	1146	0.358	5.0
Injury and poisoning (E800-E999)	1053	0.329	4.6
Malignant Neoplasm of Genitourinary Organ (179-189)	1018	0.318	4.4
Pneumonia and Influenza (480-487)	929	0.290	4.1
Chronic Obstructive Pulmonary Disease (490-496)	820	0.256	3.6
ILL-Defined, Unknown Morbidity, Mortality (797-799)	680	0.212	3.0

Mortality Report 2004

Table 12
Females, 1995-1999

Diagnostic Classification Codes (ICD-9CM Codes)	Deaths	Rate per 1000	Percentage of Deaths
Ischemic Heart Disease (410-414)	2819	1.713	21.1
Cerebrovascular Disease (430-438)	1281	0.778	9.6
Malignant Neoplasm of Digestive Organ (150-159)	880	0.535	6.6
Other Forms of Heart Disease (420-429)	784	0.476	5.9
Malignant Neoplasm of Respiratory Organ (160-165)	779	0.473	5.8
Malignant Neoplasm of Bone, Skin, Breast (170-175)	650	0.395	4.9
Pneumonia and Influenza (480-487)	555	0.337	4.2
Injury and poisoning (E800-E999)	513	0.312	3.8
Chronic Obstructive Pulmonary Disease (490-496)	476	0.289	3.6
Malignant Neoplasm of Genitourinary Organ (179-189)	418	0.254	3.1

Table 13
Females, 1990-1994

Diagnostic Classification Codes (ICD-9CM Codes)	Deaths	Rate per 1000	Percentage of Deaths
Ischemic Heart Disease (410-414)	2516	1.527	22.1
Cerebrovascular Disease (430-438)	1131	0.687	9.9
Malignant Neoplasm of Digestive Organ (150-159)	806	0.489	7.1
Malignant Neoplasm of Respiratory Organ (160-165)	624	0.379	5.5
Other Forms of Heart Disease (420-429)	612	0.372	5.4
Malignant Neoplasm of Bone, Skin, Breast (170-175)	595	0.361	5.2
Pneumonia and Influenza (480-487)	512	0.311	4.5
Malignant Neoplasm of Genitourinary Organ (179-189)	405	0.246	3.6
ILL-Defined, Unknown Morbidity, Mort. (797-799)	354	0.215	3.1
Injury and poisoning (E800-E999)	352	0.214	3.1

Table 14
Males, 1995-1999

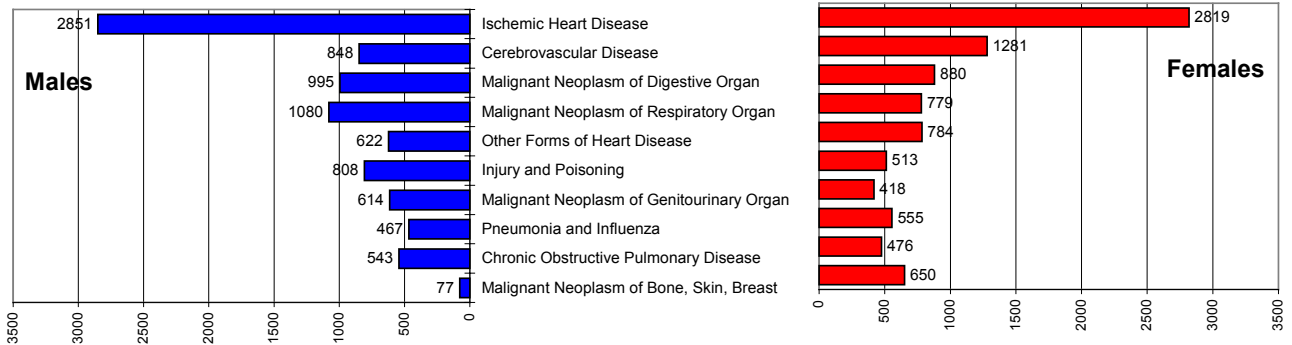
Diagnostic Classification Codes (ICD-9CM Codes)	Deaths	Rate per 1000	Percentage of Deaths
Ischemic Heart Disease (410-414)	2851	1.839	22.8
Malignant Neoplasm of Respiratory Organ (160-165)	1080	0.697	8.6
Malignant Neoplasm of Digestive Organ (150-159)	995	0.642	7.9
Cerebrovascular Disease (430-438)	848	0.547	6.8
Injury and poisoning (E800-E999)	808	0.521	6.4
Other Forms of Heart Disease (420-429)	622	0.401	5.0
Malignant Neoplasm of Genitourinary Organ (179-189)	614	0.396	4.9
Chronic Obstructive Pulmonary Disease (490-496)	543	0.350	4.3
Pneumonia and Influenza (480-487)	467	0.301	3.7
Malignant Neoplasm of Lymphatic Hematopoietic Tissue (200-208)	391	0.252	3.1

Table 15
Males, 1990-1994

Diagnostic Classification Codes (ICD-9CM Codes)	Deaths	Rate per 1000	Percentage of Deaths
Ischemic Heart Disease (410-414)	2751	1.770	23.9
Malignant Neoplasm of Respiratory Organ (160-165)	1011	0.651	8.8
Malignant Neoplasm of Digestive Organ (150-159)	934	0.601	8.1
Cerebrovascular Disease (430-438)	769	0.495	6.7
Injury and poisoning (E800-E999)	701	0.451	6.1
Malignant Neoplasm of Genitourinary Organ (179-189)	613	0.394	5.3
Other Forms of Heart Disease (420-429)	534	0.344	4.6
Chronic Obstructive Pulmonary Disease (490-496)	471	0.303	4.1
Pneumonia and Influenza (480-487)	417	0.268	3.6
Malignant Neoplasm of Lymphatic Hematopoietic Tissue (200-208)	332	0.214	2.9

The distribution of deaths by leading cause for both males and females is provided in Figure 24. Ischemic Heart Disease is notably the leading cause of death for both sexes when total deaths are compared to the Diagnostic Classification Codes. Both males and females have the same leading four causes of death. The fifth leading cause is different for males (Injury and Poisoning) from females (Other Forms of Heart Disease).

Figure 24
Leading Causes of Death by Count for Both Sexes, 1995-1999



Specific Causes of Death

Total deaths for specific diseases such as Acute Myocardial Infarction (AMI), Stroke, Lung Cancer, Breast Cancer and Unintentional Injury account for the majority of the leading causes of death and 30% of all deaths (tables 16, 17 and 18). Of importance is the following:

- AMI accounts for 47.1% of deaths in the Ischemic Heart Disease category
- Stroke account for 87.5% of deaths in the Cerebrovascular Disease category
- Lung Cancer accounts for 96.2% of deaths in the Malignant Neoplasm of the Respiratory Organs category
- Unintentional Injury accounts for 58.1% of deaths in the Injury and Poisoning category
- Breast Cancer accounts for 80.2% of deaths in the Malignant Neoplasm of Bone, Skin and Breast category.

Information on specific disease is also provided for females and males in tables 17 and 18.

Table 16
Proportions Attributed to Specific Cause of Death for Both Sexes, 1995-1999

Diagnostic Classification Codes (ICD-9CM)	Deaths	Percentage of Deaths
Ischemic Heart Disease (410-414)	5670	
*AMI(410)	2671	47.1
Cerebrovascular Disease (430-438)	2129	
*All Stroke (430-437, 434, 436)	1863	87.5
Malignant Neoplasm of Respiratory Organ (160-165)	1859	
*Lung Cancer (162)	1789	96.2
Injury and Poisoning (E800-E999)	1321	
*Unintentional Injury (E800-E929 exclude E870-879)	767	58.1
Malignant Neoplasm of Bone, Skin, Breast (170-175)	727	
*Breast Cancer (174)	583	80.2

Table 17
Proportions Attributed to Specific Cause of Death for Females, 1995-1999

Diagnostic Classification Codes (ICD-9CM)	Deaths	Percentage of Deaths
Ischemic Heart Disease (410-414)	2819	
*AMI (410)	1355	48.1
Cerebrovascular Disease (430-438)	1281	
* All Stroke (430-437, 434, 436)	1134	88.5
Malignant Neoplasm of Respiratory Organ (160-165)	779	
*Lung Cancer (162)	765	98.2
Malignant Neoplasm of Bone, Skin, Breast (170-175)	650	
*Breast Cancer (174)	581	89.4
Injury and Poisoning (E800-E999)	513	
*Unintentional Injury (E800-E929 exclude E870-879)	338	65.9

Table 18
Proportions Attributed to Specific Cause of Death for Males, 1995-1999

Diagnostic Classification Codes (ICD-9CM)	Deaths	Percentage of Deaths
Ischemic Heart Disease (410-414)	2851	
*AMI (410)	1316	46.2
Malignant Neoplasm of Respiratory Organ (160-165)	1080	
*Lung Cancer (162)	1024	94.8
Cerebrovascular Disease (430-438)	848	
*All Stroke (430-437, 434, 436)	729	86.0
Injury and Poisoning (E800-E999)	808	
*Unintentional Injury (E800-E929 exclude E870-879)	429	53.1
Malignant Neoplasm of Genitourinary Organ (179-189)	614	
*Prostate Cancer (185)	391	63.7

Selected Disease Categories

Other measures that are being tracked in the Province of Manitoba as part of the ongoing health assessment activities include deaths due to all Cancers, deaths due to all Respiratory Diseases, and deaths due to all Circulatory Diseases. The majority of all deaths (75.7%) are attributed to these three categories:

- All Circulatory Diseases (39.5%)
- All Cancers (26.9%)
- All Respiratory Diseases (9.3%)

Similar proportions are reflected for both males and females and for the two time periods 1990-1994 and 1995-1999 (tables 19 and 20).

PYLL have also been calculated based on the above three category of diseases for the two time periods (tables 21 and 22). Over half (53%) of all PYLL were also attributed to these categories of diseases:

- All Cancers (30.1%)
- All Circulatory Diseases (18.9%)
- All Respiratory Diseases (4.0%)

Similar proportions are reflected for both males and females and for the two time periods.

Table 19
Leading Causes of Death by Selected Disease Categories, 1995-1999

Community Area	Neighbourhood Cluster	All Cancers ICD-9 (140-208)			All Respiratory Disease ICD-9 (460-519)			All Circulatory Disease ICD-9 (390-459)		
		Both Sexes	Females	Males	Both Sexes	Females	Males	Both Sexes	Females	Males
St. James-Assiniboia	01A	367	169	198	100	61	39	429	214	215
	01B	471	236	235	290	141	149	804	421	383
Assiniboine South	002	330	172	158	181	101	80	573	347	226
Fort Garry	03A	252	129	123	65	38	27	274	164	110
	03B	186	96	90	73	29	44	206	88	118
St. Vital	04A	406	217	189	86	44	42	454	229	225
	04B	224	102	122	87	55	32	394	238	156
St. Boniface	05A	253	138	115	82	36	46	453	274	179
	05B	246	111	135	31	14	17	217	104	113
Transcona	006	278	131	147	71	32	39	322	162	160
River East	07A	200	95	105	55	17	38	263	135	128
	07B	553	276	277	150	60	90	742	389	353
	07C	205	98	107	72	49	23	375	208	167
	07D	45	23	22	7	2	5	39	13	26
Seven Oaks	08A	147	71	76	54	28	26	227	123	104
	08B	443	226	217	112	50	62	637	345	292
	08C	43	22	21	41	22	19	142	92	50
Inkster	09A	66	39	27	12	7	5	72	34	38
	09B	157	61	96	58	33	25	246	124	122
Point Douglas	10A	319	138	181	69	27	42	433	209	224
	10B	231	100	131	135	67	68	549	317	232
Downtown	11A	356	170	186	95	42	53	522	277	245
	11B	416	184	232	190	89	101	786	378	408
River Heights	12A	416	222	194	186	111	75	666	358	308
	12B	356	203	153	104	59	45	396	212	184
Winnipeg Health Region		6966	3429	3537	2406	1214	1192	10221	5455	4766
Group Selected Disease Categories as a Percentage of Total Deaths in WHR		26.9	25.7	28.2	9.3	9.1	9.5	39.5	40.8	38.0

Table 20
Leading Causes of Death by Selected Disease Categories, 1990-1994

Community Area	Neighbourhood Cluster	All Cancers ICD-9 (140-208)			All Respiratory Disease ICD-9 (460-519)			All Circulatory Disease ICD-9 (390-459)		
		Both Sexes	Females	Males	Both Sexes	Females	Males	Both Sexes	Females	Males
St. James-Assiniboia	01A	286	133	153	68	31	37	403	196	207
	01B	427	192	235	208	101	107	747	413	334
Assiniboine South	002	269	139	130	152	90	62	536	305	231
Fort Garry	03A	218	100	118	67	37	30	270	148	122
	03B	190	85	105	59	24	35	203	86	117
St. Vital	04A	307	158	149	67	33	34	372	181	191
	04B	160	80	80	79	46	33	304	184	120
St. Boniface	05A	253	129	124	85	39	46	452	261	191
	05B	232	106	126	32	15	17	178	69	109
Transcona	006	247	124	123	41	20	21	297	147	150
River East	07A	206	87	119	41	17	24	249	114	135
	07B	463	224	239	106	46	60	616	342	274
	07C	161	76	85	34	18	16	229	124	105
	07D	12	3	9	0	0	0	11	4	7
Seven Oaks	08A	104	59	45	33	16	17	171	91	80
	08B	347	143	204	90	41	49	576	282	294
	08C	36	21	15	23	13	10	117	81	36
Inkster	09A	47	20	27	12	5	7	49	21	28
	09B	179	83	96	46	21	25	251	128	123
Point Douglas	10A	340	157	183	69	19	50	433	179	254
	10B	276	112	164	123	53	70	513	263	250
Downtown	11A	354	160	194	112	57	55	517	243	274
	11B	390	184	206	179	90	89	719	346	373
River Heights	12A	410	233	177	165	98	67	649	350	299
	12B	363	196	167	76	36	40	380	203	177
Winnipeg Health Region*		6277	3004	3273	1967	966	1001	9242	4761	4481
Group Selected Disease Categories as a Percentage of Total Deaths in WHR		27.4	26.4	28.4	8.6	8.5	8.7	40.3	41.8	38.9

* Winnipeg Health Region total excludes 6 deaths between 1990-1994
 These 6 deaths were excluded from all PYLL calculations due to unknown ages.

Table 21
PYLL by Selected Disease Categories, 1995-1999

Community Area	Neighbourhood Cluster	PYLL All Cancers ICD-9 (140-208)			PYLL All Respiratory Disease ICD-9 (460-519)			PYLL All Circulatory Disease ICD-9 (390-459)		
		Both Sexes	Females	Males	Both Sexes	Females	Males	Both Sexes	Females	Males
St. James-Assiniboia	01A	2615	1242	1373	190	97	93	1611	410	1201
	01B	2650	1443	1207	410	188	222	1665	488	1177
Assiniboine South	002	2198	1256	942	135	51	83	1153	399	754
Fort Garry	03A	2073	1038	1034	190	117	72	779	397	382
	03B	1994	1197	797	270	134	136	788	320	468
St. Vital	04A	2717	1557	1161	182	98	83	1472	596	876
	04B	2382	1077	1305	735	455	280	932	364	567
St. Boniface	05A	1408	720	687	104	14	90	985	352	633
	05B	2236	1141	1096	97	54	43	962	211	752
Transcona	006	2212	1139	1072	392	169	223	1380	339	1041
River East	07A	1486	773	714	334	65	269	1175	502	673
	07B	2968	1402	1567	198	85	113	1709	582	1127
	07C	1625	765	861	190	164	27	1073	276	797
	07D	435	267	168	15	0	15	299	110	189
Seven Oaks	08A	1132	615	517	88	43	46	910	347	563
	08B	3162	1775	1387	222	98	124	1617	606	1011
	08C	354	171	183	17	7	10	210	50	160
Inkster	09A	996	586	410	102	54	48	604	213	391
	09B	1018	310	708	130	103	28	934	263	671
Point Douglas	10A	2103	1129	974	333	141	192	1669	535	1134
	10B	1418	578	840	290	170	119	1392	543	848
Downtown	11A	2591	1127	1464	573	195	378	2037	582	1455
	11B	3173	1103	2070	779	292	487	3404	962	2442
River Heights	12A	2478	1325	1154	270	41	229	1374	394	979
	12B	1889	1019	870	286	113	173	933	337	596
Winnipeg Health Region		49315	24755	24560	6531	2947	3583	31067	10178	20889
Group Selected Disease Categories as a Percentage of Total Deaths in WHR		30.1	37.0	25.3	4.0	4.4	3.7	18.9	15.2	21.5

Table 22
PYLL by Selected Disease Categories, 1990-1994

Community Area	Neighbourhood Cluster	PYLL All Cancers ICD-9 (140-208)			PYLL All Respiratory Disease ICD-9 (460-519)			PYLL All Circulatory Disease ICD-9 (390-459)		
		Both Sexes	Females	Males	Both Sexes	Females	Males	Both Sexes	Females	Males
St. James-Assiniboia	01A	2684	1233	1451	138	54	84	1561	465	1095
	01B	2547	1212	1335	404	187	218	1631	580	1050
Assiniboine South	002	1974	996	978	208	92	116	1208	429	779
Fort Garry	03A	1551	897	653	272	65	207	769	326	443
	03B	1927	915	1012	304	45	259	984	266	718
St. Vital	04A	1902	1054	848	279	204	75	1059	420	639
	04B	1627	730	897	762	405	356	1143	444	698
St. Boniface	05A	1458	778	681	128	33	94	1087	324	762
	05B	2204	1065	1139	269	135	134	917	229	688
Transcona	006	2218	1041	1177	149	92	58	1388	437	952
River East	07A	1213	436	777	82	62	20	919	298	621
	07B	2992	1415	1577	259	69	190	1714	576	1137
	07C	1539	618	920	26	20	6	1075	338	737
	07D	76	7	69	0	0	0	57	0	57
Seven Oaks	08A	1255	817	438	55	32	23	935	296	639
	08B	2406	1135	1271	147	55	93	1926	571	1354
	08C	174	112	62	13	13	0	191	102	89
Inkster	09A	659	422	237	219	145	74	365	183	182
	09B	1212	466	746	184	55	129	926	263	663
Point Douglas	10A	1909	1013	897	145	24	121	1672	570	1102
	10B	1254	411	843	414	104	311	1481	395	1086
Downtown	11A	2298	1099	1199	458	223	235	1569	528	1041
	11B	2454	863	1592	803	310	494	3080	817	2263
River Heights	12A	2469	1383	1086	178	107	72	1664	739	925
	12B	1730	994	737	175	78	97	1110	348	762
Winnipeg Health Region*		43733	21112	22621	6073	2607	3465	30432	9946	20486
Group Selected Disease Categories as a Percentage of Total Deaths in WHR		27.3	34.1	23.1	3.8	4.2	3.5	19.0	16.1	20.9

* Winnipeg Health Region total excludes 6 deaths between 1990-1994
 These 6 deaths were excluded from all PYLL calculations due to unknown ages.

Leading Cause of Death by Age

Leading cause of death by age is presented in this report to show differences in cause of death across the life span (tables 23-29). The same Disease Classification Categories were used to identify leading causes of death by age as were used on page 41. Six age groups were used to identify the leading causes of death by age (in years): <1, 1-9, 10-19, 20-44, 45-64 and 65 years and over.

Over 50% of the deaths in infants (less than one year of age) were due to Conditions Originating in the Perinatal Period and Congenital Anomalies (Table 24). While age groups 1-9 and 10-19 years had a wide range of causes of death, from Congenital Anomalies to Injuries (tables 25, 26), and the 20-44 year old age group clearly had Suicide and Self-inflicted Injury as the leading causes of death (Table 27). The older age groups, 45-64 and 65 years and over had Ischemic Heart Disease and Cancers as the leading causes of death.

Injury and Poisonings are more prevalent in the younger age groups while Cancers, Ischemic Heart Disease and Cerebrovascular Diseases are more prevalent in the older age groups.

Leading Cause of Death by Age Group, 1995-1999

Table 23

Age Group (Years)	Deaths	Percentage of Deaths
<1	261	1.0
1-9	77	0.3
10-19	110	0.4
20-44	1205	4.7
45-64	3499	13.5
65+	20735	80.1
Total	25887	100.0

Table 24

Age Group <1	Deaths	Percentage of Deaths
Other Conditions Originating in Perinatal Period (764-779)	97	37.2
Congenital Anomalies (740-759)	55	21.1
ILL-Defined, Unknown Morbidity, Mortality (797-799)	34	13.0
Maternal causes of Perinatal Morbidity (760-763)	31	11.9
Homicide and Injury Purposely Inflicted By Other People (E960-E969)	6	2.3
Accidents Caused By Submersion, Suffocation and Foreign Bodies (E910-E915)	3	1.1
Hereditary and Degenerative Disease of Central Nervous System (330-337)	3	1.1
Pneumonia and Influenza (480-487)	3	1.1

Table 25

Age Group '1-9	Deaths	Percentage of Deaths
Congenital Anomalies (740-759)	11	14.3
Motor Vehicle Traffic Accidents (E810-E819)	8	10.4
Accidents Caused By Fire and Flames (E890-E899)	7	9.1
Accidents Caused By Submersion, Suffocation and Foreign Bodies (E910-E915)	6	7.8
Malignant Neoplasm of other Unspecified Sites (190-199)	6	7.8
Pneumonia and Influenza(480-487)	5	6.5

Table 26

Age Group 10-19	Deaths	Percentage of Deaths
Motor Vehicle Traffic Accidents (E810-E819)	20	18.2
Suicide And Self-Inflicted Injury (E950-E959)	14	12.7
Malignant Neoplasm of Bone, Skin, Breast (170-175)	10	9.1
Homicide And Injury Purposely Inflicted By Other People (E960-E969)	6	5.5
Other Disorders of Central Nervous System (340-349)	6	5.5
Accidental Falls (E880-E888)	4	3.6
Congenital Anomalies (740-759)	4	3.6
Malignant Neoplasm of Bone, Skin, Breast (170-175)	4	3.6

Table 27

Age Group 20-44	Deaths	Percentage of Deaths
Suicide And Self-Inflicted Injury (E950-E959)	183	15.2
Ischemic Heart Disease (410-414)	73	6.1
Malignant Neoplasm of Bone, Skin, Breast (170-175)	61	5.1
Motor Vehicle Traffic Accidents (E810-E819)	53	4.4
Injury Undetermined Wheather Accidentally or Purposely (E980-E989)	52	4.3
Malignant Neoplasm of Lymphatic Hematopoietic Tissue (200-208)	46	3.8
Malignant Neoplasm of other Unspecified Sites (190-199)	46	3.8
Malignant Neoplasm of Digestive Organ (150-159)	42	3.5
Other Forms of Heart Disease (420-429)	42	3.5
Homicide And Injury Purposely Inflicted By Other People (E960-E969)	40	3.3

Table 28

Age Group 45-64	Deaths	Percentage of Deaths
Ischemic Heart Disease(410-414)	627	17.9
Malignant Neoplasm of Respiratory Organ (160-165)	480	13.7
Malignant Neoplasm of Digestive Organ (150-159)	387	11.1
Malignant Neoplasm of Bone, Skin, Breast (170-175)	236	6.7
Malignant Neoplasm of Genitourinary Organ (179-189)	165	4.7
Malignant Neoplasm of Lymphatic Hematopoietic Tissue (200-208)	158	4.5
Malignant Neoplasm of other Unspecified Sites (190-199)	142	4.1
Cerebrovascular Disease (430-438)	140	4.0
Disease of other Endocrine Glands (250-259)	111	3.2
Other Disease of Digestive System (570-579)	110	3.1

Table 29

Age Group 65+	Deaths	Percentage of Deaths
Ischemic Heart Disease(410-414)	4970	24.0
Cerebrovascular Disease (430-438)	1953	9.4
Malignant Neoplasm of Digestive Organ (150-159)	1446	7.0
Malignant Neoplasm of Respiratory Organ (160-165)	1343	6.5
Other Forms of Heart Disease (420-429)	1263	6.1
Chronic Obstructive Pulmonary Disease (490-496)	959	4.6
Pneumonia and Influenza (480-487)	945	4.6
Malignant Neoplasm of Genitourinary Organ (179-189)	833	4.0
Diseases of Arteries, Arterioles (440-448)	551	2.7
Disease of other Endocrine Glands (250-259)	531	2.6

Leading Cause of Death by PYLL

The 10 leading causes of death by PYLL for 1995-1999, in order of rank, were Injury and Poisonings, Ischemic Heart Disease, Malignant Neoplasm of the Respiratory Organs, Malignant Neoplasm of the Digestive Organs, Malignant Neoplasm of Bone, Skin, and Breast, Other Conditions Originating in the Perinatal Period, Malignant Neoplasm of Lymphatic Hematopoietic Tissue, Congenital Anomalies, Malignant Neoplasms of Other Unspecified Sites, and Malignant Neoplasm of Genitourinary Organs (Table 30). The majority of the top causes of death by PYLL were similar to the prior five years (Table 31). The 10 leading causes of death for males and females are found in Figure 25 and tables 32-35.

Ten Leading Causes of Death by PYLL

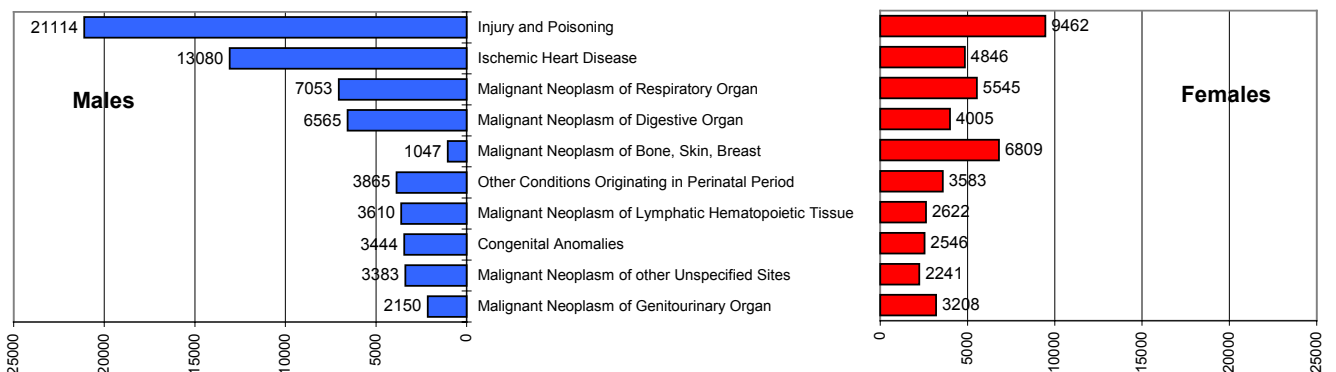
Table 30
Both Sexes, 1995-1999

Diagnostic Classification Codes (ICD-9CM Codes)	Deaths	Rate per 1000	PYLL
Injury and Poisoning (E800-E999)	1321	0.413	30576
Ischemic Heart Disease (410-414)	5670	1.774	17925
Malignant Neoplasm of Respiratory Organ (160-165)	1859	0.582	12598
Malignant Neoplasm of Digestive Organ (150-159)	1875	0.587	10570
Malignant Neoplasm of Bone, Skin, Breast (170-175)	727	0.227	7856
Other conditions originating in Perinatal Period (764-779)	101	0.032	7448
Malignant Neoplasm of Lymphatic Hematopoietic Tissue (200-208)	710	0.222	6232
Congenital Anomalies (740-759)	127	0.040	5990
Malignant Neoplasm of other Unspecified Sites (190-199)	634	0.198	5624
Malignant Neoplasm of Genitourinary Organ (179-189)	1032	0.323	5358

Table 31
Both Sexes, 1990-1994

Diagnostic Classification Codes (ICD-9CM Codes)	Deaths	Rate per 1000	PYLL
Injury and Poisoning (E800-E999)	1053	0.329	30076
Ischemic Heart Disease (410-414)	5267	1.645	17284
Malignant Neoplasm of Respiratory Organ (160-165)	1635	0.511	11042
Malignant Neoplasm of Digestive Organ (150-159)	1740	0.544	10596
ILL-Defined, Unknown Morbidity, Mortality (797-799)	680	0.212	9618
Other conditions originating in Perinatal Period (764-779)	101	0.032	7502
Congenital Anomalies (740-759)	125	0.039	7289
Malignant Neoplasm of Bone, Skin, Breast (170-175)	665	0.208	6503
Malignant Neoplasm of Genitourinary Organ (179-189)	1018	0.318	5244
Cerebrovascular Disease (430-438)	1900	0.593	5081.7

Figure 25
Leading Causes of Death by PYLL, Both Sexes, 1995-1999



Mortality Report 2004

Tables 32
Females, 1995-1999

Diagnostic Classification Codes (ICD-9CM Codes)	Deaths	Rate per 1000	PYLL
Injury and Poisoning (E800-E999)	513	0.312	9462
Malignant Neoplasm of Bone, Skin, Breast (170-175)	650	0.395	6809
Malignant Neoplasm of Respiratory Organ (160-165)	779	0.473	5545
Ischemic Heart Disease (410-414)	2819	1.713	4846
Malignant Neoplasm of Digestive Organ (150-159)	880	0.535	4005
Other conditions originating in Perinatal Period (764-779)	49	0.030	3583
Malignant Neoplasm of Genitourinary Organ (179-189)	418	0.254	3208
Cerebrovascular Disease (430-438)	1281	0.778	2669
Malignant Neoplasm of Lymphatic Hematopoietic Tissue (200-208)	319	0.194	2622
Congenital Anomalies (740-759)	52	0.032	2546

Table 33
Females, 1990-1994

Diagnostic Classification Codes (ICD-9CM Codes)	Deaths	Rate per 1000	PYLL
Injury and Poisoning (E800-E999)	352	0.214	8580
Malignant Neoplasm of Bone, Skin, Breast (170-175)	595	0.361	5441
Malignant Neoplasm of Digestive Organ (150-159)	806	0.489	4312
Ischemic Heart Disease (410-414)	2516	1.527	4291
Malignant Neoplasm of Respiratory Organ (160-165)	624	0.379	4279
Other conditions originating in Perinatal Period (764-779)	47	0.029	3524
ILL-Defined, Unknown Morbidity, Mort. (797-799)	354	0.215	3512
Malignant Neoplasm of Genitourinary Organ (179-189)	405	0.246	3139
Congenital Anomalies (740-759)	54	0.033	2704
Cerebrovascular Disease (430-438)	1131	0.687	2399

Tables 34
Males 1995-1999

Diagnostic Classification Codes (ICD-9CM Codes)	Deaths	Rate per 1000	PYLL
Injury and Poisoning (E800-E999)	808	0.521	21114
Ischemic Heart Disease (410-414)	2851	1.839	13080
Malignant Neoplasm of Respiratory Organ (160-165)	1080	0.697	7053
Malignant Neoplasm of Digestive Organ (150-159)	995	0.642	6565
Other conditions originating in Perinatal Period (764-779)	52	0.034	3865
Malignant Neoplasm of Lymphatic Hematopoietic Tissue (200-208)	391	0.252	3610
ILL-Defined, Unknown Morbidity, Mortality (797-799)	123	0.079	3596
Congenital Anomalies (740-759)	75	0.048	3444
Malignant Neoplasm of other Unspecified Sites (190-199)	300	0.194	3383
Other Forms of Heart Disease (420-429)	622	0.401	3274

Table 35
Males, 1990-1995

Diagnostic Classification Codes (ICD-9CM Codes)	Deaths	Rate per 1000	PYLL
Injury and Poisoning (E800-E999)	701	0.451	21496
Ischemic Heart Disease (410-414)	2751	1.770	12994
Malignant Neoplasm of Respiratory Organ (160-165)	1011	0.651	6763
Malignant Neoplasm of Digestive Organ (150-159)	934	0.601	6285
ILL-Defined, Unknown Morbidity, Mort. (797-799)	326	0.210	6106
Congenital Anomalies (740-759)	71	0.046	4585
Other conditions originating in Perinatal Period (764-779)	54	0.035	3979
Malignant Neoplasm of Lymphatic Hematopoietic Tissue (200-208)	332	0.214	2991
Other Forms of Heart Disease (420-429)	534	0.344	2757
Cerebrovascular Disease (430-438)	769	0.495	2683

Leading Cause of Death by Geography

As noted earlier with mortality rates, age specific rates, PMR and PYLL, geography is an underlying factor that identifies differences in populations. Leading causes of death by geography were investigated to see if there were also geographic differences in mortality rates by NC for leading causes of death.

Based on the five overall leading causes of death, crude and age-adjusted mortality rates were determined by NC for both sexes, males, and females (tables 36-40 and figures 26-35). The five overall leading causes of death were based on the Disease Classification Codes presented on page 32:

- No. 1 Ischemic Heart Disease
- No. 2 Cerebrovascular Disease
- No. 3 Malignant Neoplasm of Digestive Organ
- No. 4 Malignant Neoplasm of Respiratory Organ
- No. 5 Other Forms of Heart Disease.

For Ischemic Heart Disease, age-adjusted rates ranged from 1.2 to 3.4 per 1000 population (Table 36). Males had a consistently higher age-adjusted rate compared to females across all the NCs (Figure 27).

For Cerebrovascular Disease, age-adjusted rates ranged from 0.5 to 1.7 per 1000 population (Table 37). Males had a slightly higher age-adjusted rate compared to females across all the NCs (Figure 29).

For Malignant Neoplasm of Digestive Organ, age-adjusted rates ranged from 0.3 to 0.9 per 1000 population (Table 38). There is a substantial amount of variability among the NCs for males and females (Figure 31).

For Malignant Neoplasm of Respiratory Organ, age-adjusted rates ranged from 0.4 to 1.1 per 1000 population (Table 39). Males had a consistently higher age-adjusted rate compared to females across all the NCs. For some geographies, the rate for males has doubled compared to the rate for females (Figure 33).

Other Forms of Heart Disease has age-adjusted rates ranging from 0.3 to 0.8 per 1000 population (Table 40). Males had a slightly higher age-adjusted rate compared to females across the NCs, except for Fort Garry 03A, St. Boniface 05B and Inkster 09A where the females had a higher rate (Figure 35).

The NCs rates have been ordered in the figures from lowest to highest for each of the top five causes of death. The resulting rank order of NCs changes among the top five leading causes of death. This suggests that a different burden of illness exists across the NCs in the WHR.

One NC that always had one of the highest rates was Point Douglas 10B. As evident from other geographic comparisons in this report, it is clear that the burden of illness in this NC is very different from the rest of the WHR. Of importance, however, is that this section has also shown that there are different types of burdens of illness among our NCs as the rank order of the NCs changes dependent upon the cause of death.

Table 36
No. 1 Cause of death, for both sexes: Ischemic Heart Disease (410-414) in the Winnipeg Health Region by Neighbourhood Cluster and Sex, 1995-1999

Community Area	Neighbourhood Cluster	Both Sexes			Females			Males		
		Deaths	Crude Rate per 1000	Age-Adjusted Rate per 1000	Deaths	Crude Rate per 1000	Age-Adjusted Rate per 1000	Deaths	Crude Rate per 1000	Age-Adjusted Rate per 1000
St. James-Assiniboia	01A	251	1.5	1.8	119	1.4	1.4	132	1.7	2.6
	01B	422	3.1	2.1	197	2.7	1.5	225	3.5	3.1
Assiniboine South	002	330	1.8	2.0	196	2.1	1.7	134	1.5	2.4
Fort Garry	03A	149	1.2	1.5	78	1.2	1.3	71	1.2	1.7
	03B	107	0.6	1.2	41	0.5	0.8	66	0.8	1.8
St. Vital	04A	267	2.0	1.7	125	1.7	1.3	142	2.2	2.4
	04B	235	1.4	2.7	140	1.7	2.5	95	1.2	3.0
St. Boniface	05A	267	3.4	2.2	159	3.8	1.8	108	2.9	2.8
	05B	126	0.8	1.5	52	0.7	1.2	74	1.0	1.8
Transcona	006	182	1.2	1.9	72	0.9	1.3	110	1.4	2.8
River East	07A	149	1.7	2.1	71	1.6	1.7	78	1.8	2.6
	07B	387	2.0	1.6	183	1.8	1.1	204	2.2	2.4
	07C	161	1.2	2.0	83	1.2	1.7	78	1.2	2.6
	07D	24	0.8	1.7	6	0.4	0.8	18	1.2	3.1
Seven Oaks	08A	132	1.3	2.3	68	1.3	1.9	64	1.3	2.7
	08B	385	2.4	2.1	209	2.4	1.9	176	2.3	2.3
	08C	59	3.0	2.2	37	3.7	1.7	22	2.3	2.8
Inkster	09A	41	0.5	1.3	16	0.4	1.1	25	0.6	1.6
	09B	116	1.7	1.9	52	1.5	1.4	64	1.9	2.5
Point Douglas	10A	273	2.1	2.1	124	1.8	1.5	149	2.3	2.8
	10B	303	4.2	3.4	168	4.8	2.6	135	3.6	4.4
Downtown	11A	289	1.5	1.6	149	1.5	1.3	140	1.5	2.2
	11B	452	2.8	2.8	200	2.6	1.9	252	3.0	4.2
River Heights	12A	342	1.9	1.5	163	1.7	1.0	179	2.2	2.4
	12B	221	2.1	1.5	111	1.9	1.1	110	2.2	2.3
Winnipeg Health Region		5670	1.8	1.9	2819	1.7	1.5	2851	1.8	2.6

Figure 26
No. 1 Cause of death: Ischemic Heart Disease (410-414)
Comparison of Crude Mortality Rates per 1000 population by leading cause of death, Neighbourhood Cluster, and by Sex, 1995-1999

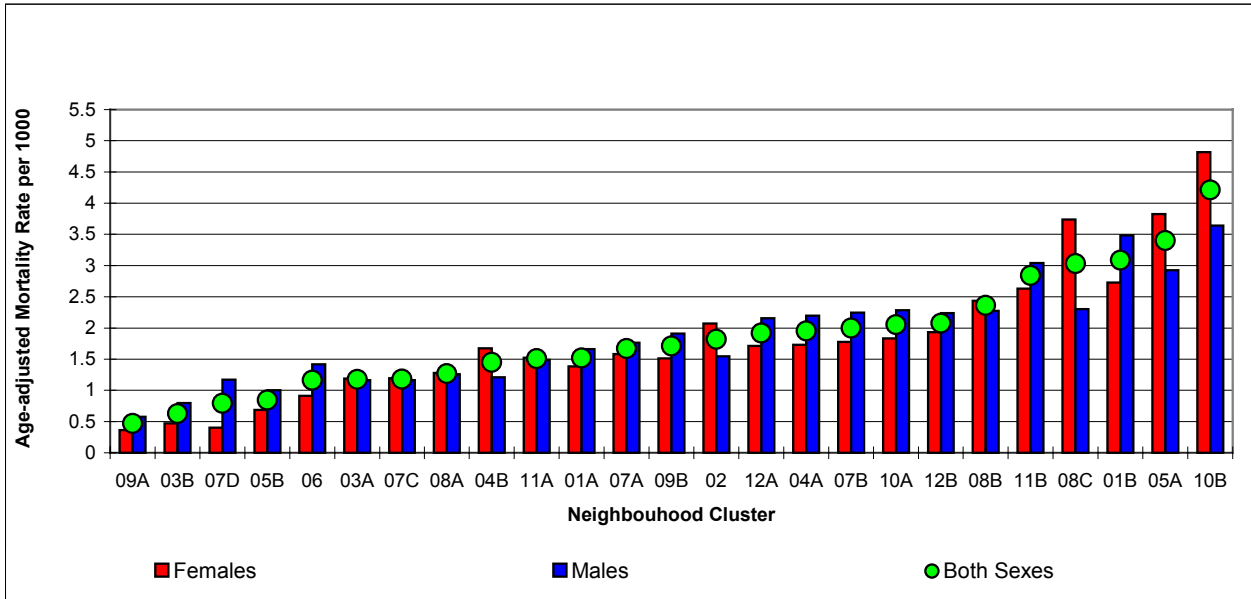


Figure 27
No. 1 Cause of death: Ischemic Heart Disease (410-414)
Comparison of Age-Adjusted Mortality Rates per 1000 population by leading cause of death, Neighbourhood Cluster, and Sex, 1995-1999

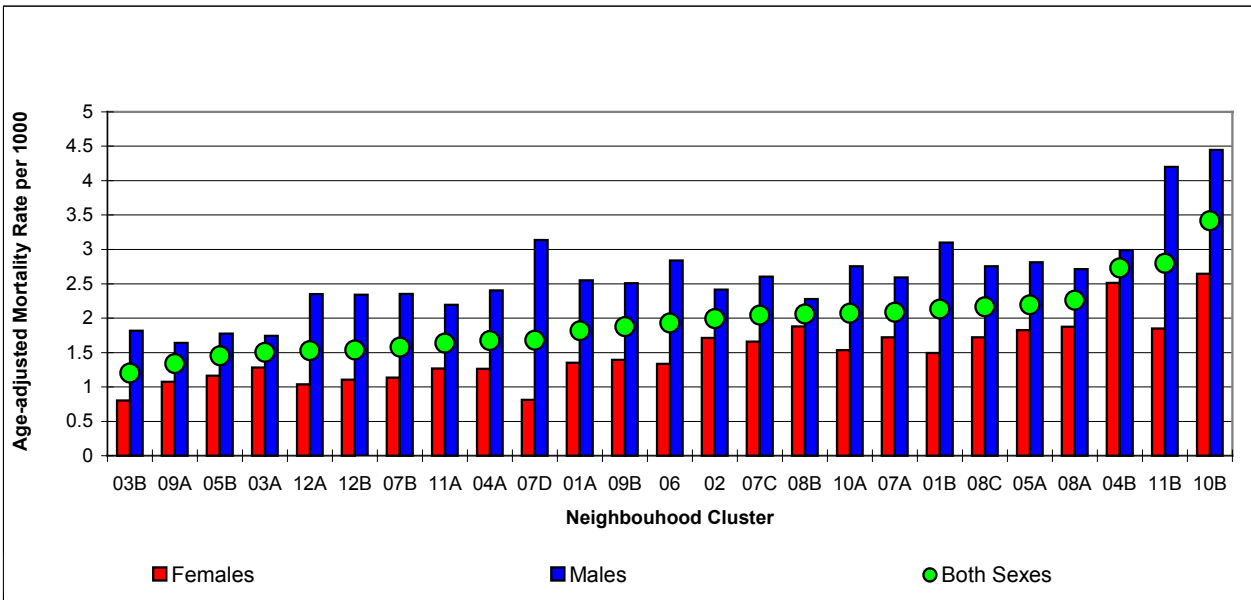


Table 37
No. 2 Cause of death, for both sexes: Cerebrovascular Disease (430-438) in the Winnipeg Health Region by Neighbourhood Cluster and Sex, 1995-1999

Community Area	Neighbourhood Cluster	Both Sexes			Females			Males		
		Deaths	Crude Rate per 1000	Age-Adjusted Rate per 1000	Deaths	Crude Rate per 1000	Age-Adjusted Rate per 1000	Deaths	Crude Rate per 1000	Age-Adjusted Rate per 1000
St. James-Assiniboia	01A	63	0.4	0.5	36	0.4	0.4	27	0.3	0.6
	01B	191	1.4	0.9	117	1.6	0.9	74	1.1	1.0
Assiniboine South	002	109	0.6	0.7	70	0.7	0.6	39	0.4	0.7
Fort Garry	03A	68	0.5	0.7	47	0.7	0.8	21	0.3	0.7
	03B	47	0.3	0.6	22	0.3	0.5	25	0.3	0.7
St. Vital	04A	95	0.7	0.6	56	0.8	0.6	39	0.6	0.7
	04B	91	0.6	1.0	57	0.7	1.0	34	0.4	1.0
St. Boniface	05A	108	1.4	0.9	68	1.6	0.8	40	1.1	1.0
	05B	34	0.2	0.5	21	0.3	0.5	13	0.2	0.5
Transcona	006	61	0.4	0.7	43	0.5	0.8	18	0.2	0.6
River East	07A	49	0.5	0.7	31	0.7	0.7	18	0.4	0.7
	07B	168	0.9	0.7	104	1.0	0.6	64	0.7	0.7
	07C	128	0.9	1.7	76	1.1	1.5	52	0.8	2.0
	07D	5	0.2	0.5	1	0.1	0.2	4	0.3	0.8
Seven Oaks	08A	49	0.5	0.9	28	0.5	0.8	21	0.4	0.9
	08B	114	0.7	0.6	65	0.8	0.6	49	0.6	0.7
	08C	39	2.0	1.4	24	2.4	1.1	15	1.6	2.1
Inkster	09A	14	0.2	0.5	6	0.1	0.4	8	0.2	0.7
	09B	65	1.0	1.1	37	1.1	1.0	28	0.8	1.2
Point Douglas	10A	69	0.5	0.5	38	0.6	0.5	31	0.5	0.6
	10B	113	1.6	1.2	69	2.0	1.1	44	1.2	1.4
Downtown	11A	108	0.6	0.6	61	0.6	0.5	47	0.5	0.8
	11B	127	0.8	0.8	73	1.0	0.7	54	0.7	0.9
River Heights	12A	140	0.8	0.6	88	0.9	0.6	52	0.6	0.7
	12B	74	0.7	0.5	43	0.7	0.4	31	0.6	0.7
Winnipeg Health Region		2129	0.7	0.7	1281	0.8	0.7	848	0.5	0.8

Figure 28
No. 2 Cause of Death: Cerebrovascular Disease (430-438)
Comparison of Crude Mortality Rates per 1000 population by leading cause of death, Neighbourhood Cluster, and Sex, 1995-1999

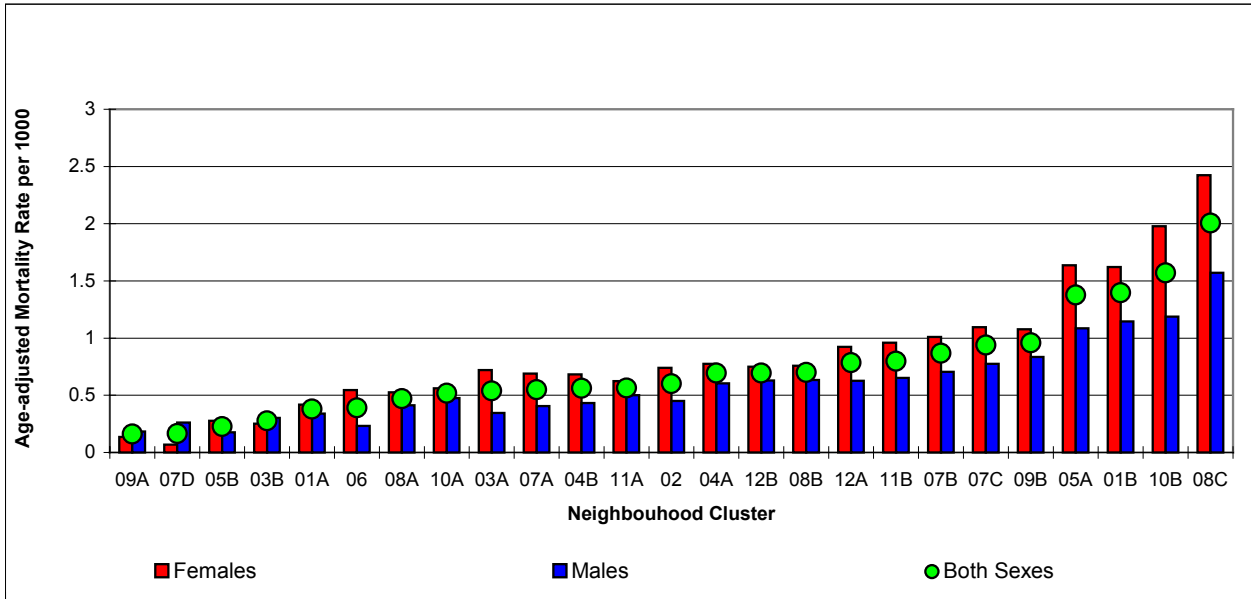


Figure 29
No. 2 Cause of Death: Cerebrovascular Disease (430-438)
Comparison of Age-Adjusted Mortality Rates per 1000 population by leading cause of death, Neighbourhood Cluster, and Sex, 1995-1999

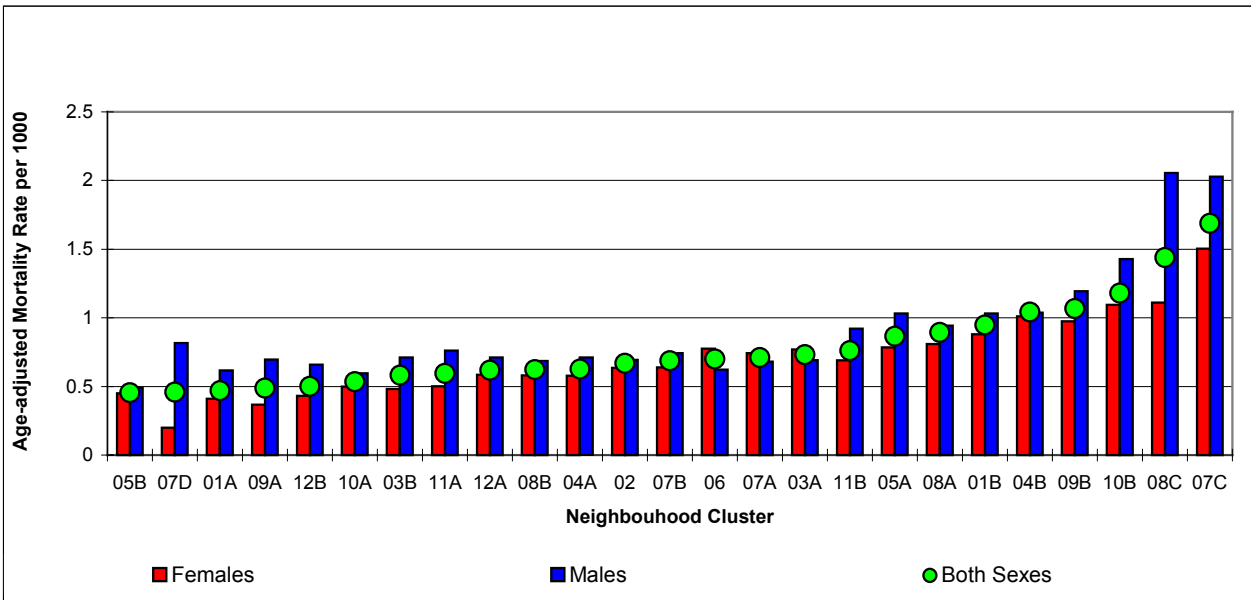


Table 38
No. 3 Cause of death, for both sexes: Malignant Neoplasm of Digestive Organ (150-159) in the Winnipeg Health Region by Neighbourhood Cluster and Sex, 1995-1999

Community Area	Neighbourhood Cluster	Both Sexes			Females			Males		
		Deaths	Crude Rate per 1000	Age-Adjusted Rate per 1000	Deaths	Crude Rate per 1000	Age-Adjusted Rate per 1000	Deaths	Crude Rate per 1000	Age-Adjusted Rate per 1000
St. James-Assiniboia	01A	86	0.5	0.5	36	0.4	0.4	50	0.6	0.8
	01B	130	1.0	0.7	54	0.7	0.5	76	1.2	1.1
Assiniboine South	002	81	0.4	0.5	36	0.4	0.4	45	0.5	0.7
Fort Garry	03A	69	0.5	0.6	40	0.6	0.6	29	0.5	0.6
	03B	45	0.3	0.4	19	0.2	0.3	26	0.3	0.5
St. Vital	04A	105	0.8	0.7	52	0.7	0.5	53	0.8	0.8
	04B	60	0.4	0.6	22	0.3	0.4	38	0.5	0.9
St. Boniface	05A	83	1.1	0.8	45	1.1	0.6	38	1.0	1.0
	05B	66	0.4	0.6	30	0.4	0.5	36	0.5	0.7
Transcona	006	69	0.4	0.7	37	0.5	0.6	32	0.4	0.8
River East	07A	46	0.5	0.6	24	0.5	0.5	22	0.5	0.6
	07B	149	0.8	0.6	74	0.7	0.5	75	0.8	0.8
	07C	69	0.5	0.8	34	0.5	0.7	35	0.5	0.8
	07D	10	0.3	0.6	4	0.3	0.5	6	0.4	0.9
Seven Oaks	08A	43	0.4	0.6	15	0.3	0.4	28	0.6	1.1
	08B	124	0.8	0.6	58	0.7	0.5	66	0.9	0.8
	08C	21	1.1	0.9	11	1.1	0.8	10	1.0	1.0
Inkster	09A	12	0.1	0.3	6	0.1	0.3	6	0.1	0.3
	09B	41	0.6	0.6	13	0.4	0.3	28	0.8	1.0
Point Douglas	10A	94	0.7	0.7	31	0.5	0.4	63	1.0	1.1
	10B	71	1.0	0.9	33	0.9	0.7	38	1.0	1.3
Downtown	11A	90	0.5	0.5	44	0.4	0.4	46	0.5	0.7
	11B	111	0.7	0.7	50	0.7	0.5	61	0.7	1.0
River Heights	12A	109	0.6	0.5	57	0.6	0.4	52	0.6	0.6
	12B	91	0.9	0.6	55	1.0	0.5	36	0.7	0.8
Winnipeg Health Region		1875	0.6	0.6	880	0.5	0.5	995	0.6	0.8

Figure 30
No. 3 Cause of Death: Malignant Neoplasm of Digestive Organ (150-159)
Comparison of Crude Mortality Rates per 1000 population by leading cause of death, Neighbourhood Cluster, and Sex, 1995-1999

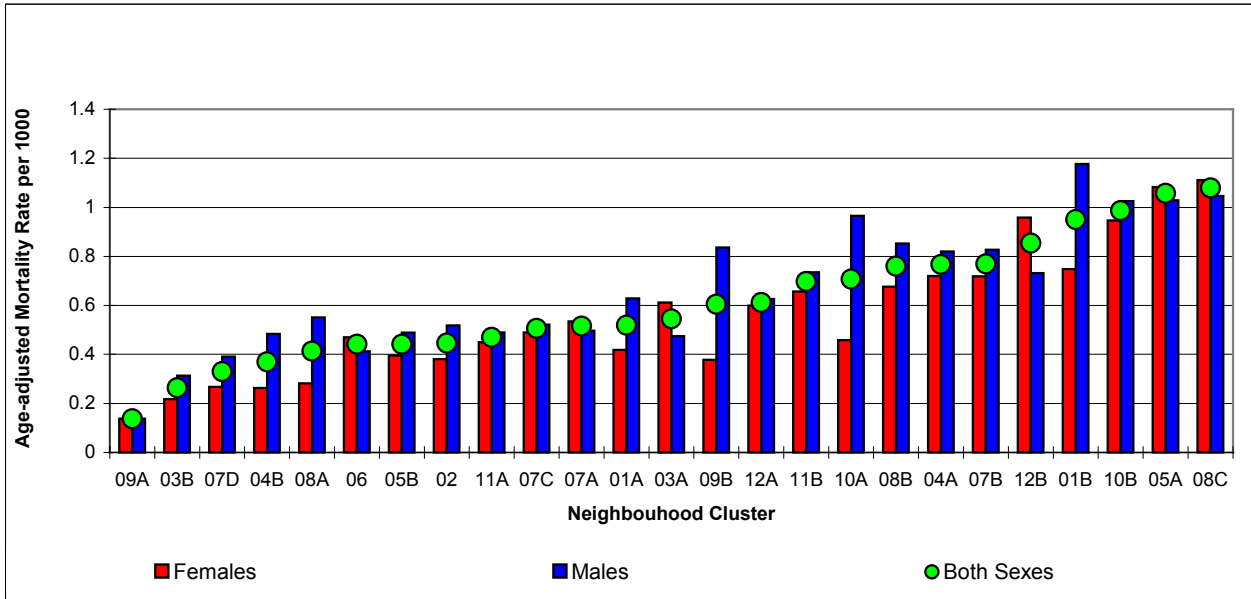


Figure 31
No. 3 Cause of Death: Malignant Neoplasm of Digestive Organ (150-159)
Comparison of Age-Adjusted Mortality Rates per 1000 population by leading cause of death, Neighbourhood Cluster, and Sex, 1995-1999

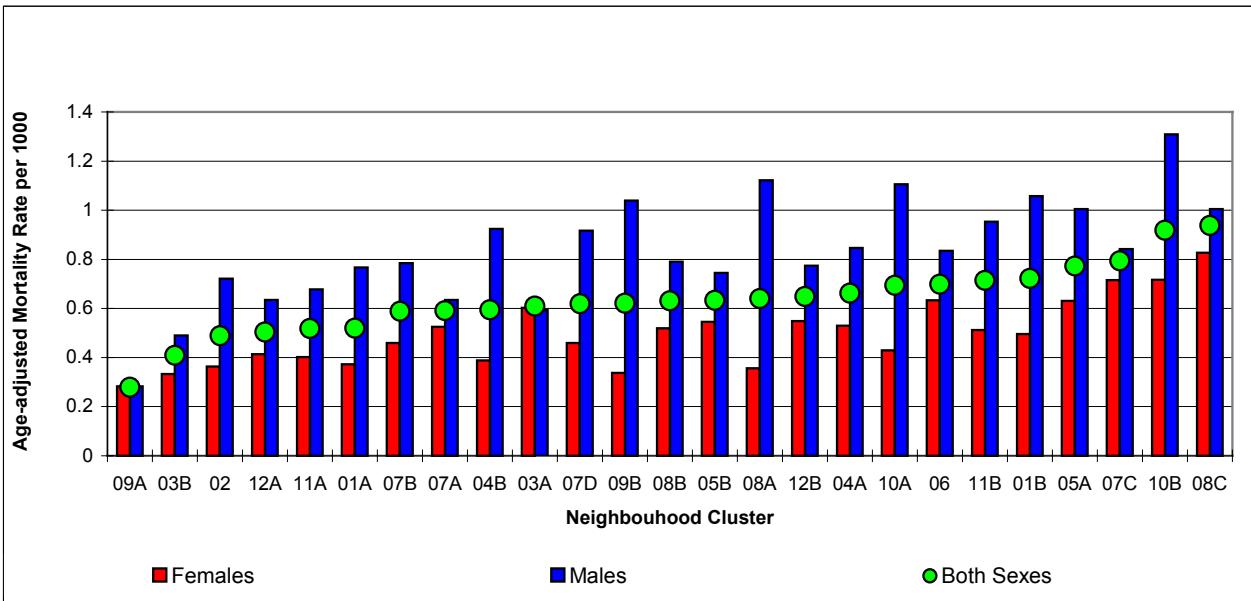


Table 39
No. 4 Cause of death, for both sexes: Malignant Neoplasm of Respiratory Organ (160-165)
in the Winnipeg Health Region by Neighbourhood Cluster and Sex, 1995-1999

Community Area	Neighbourhood Cluster	Both Sexes			Females			Males		
		Deaths	Crude Rate per 1000	Age-Adjusted Rate per 1000	Deaths	Crude Rate per 1000	Age-Adjusted Rate per 1000	Deaths	Crude Rate per 1000	Age-Adjusted Rate per 1000
St. James-Assiniboia	01A	98	0.6	0.6	43	0.5	0.4	55	0.7	0.8
	01B	119	0.9	0.7	56	0.8	0.5	63	1.0	0.8
Assiniboine South	002	80	0.4	0.5	37	0.4	0.4	43	0.5	0.6
Fort Garry	03A	59	0.5	0.5	29	0.4	0.4	30	0.5	0.6
	03B	48	0.3	0.4	25	0.3	0.4	23	0.3	0.5
St. Vital	04A	119	0.9	0.7	55	0.8	0.6	64	1.0	1.0
	04B	46	0.3	0.5	17	0.2	0.3	29	0.4	0.6
St. Boniface	05A	59	0.8	0.6	26	0.6	0.5	33	0.9	0.9
	05B	65	0.4	0.5	24	0.3	0.3	41	0.6	0.8
Transcona	006	74	0.5	0.7	29	0.4	0.4	45	0.6	1.0
River East	07A	68	0.8	0.9	25	0.6	0.6	43	1.0	1.4
	07B	142	0.7	0.6	63	0.6	0.4	79	0.9	0.8
	07C	52	0.4	0.6	20	0.3	0.4	32	0.5	0.9
	07D	16	0.5	1.1	7	0.5	0.7	9	0.6	1.8
Seven Oaks	08A	33	0.3	0.5	15	0.3	0.4	18	0.4	0.6
	08B	102	0.6	0.5	41	0.5	0.4	61	0.8	0.7
	08C	9	0.5	0.4	4	0.4	0.4	5	0.5	0.6
Inkster	09A	17	0.2	0.4	8	0.2	0.3	9	0.2	0.5
	09B	46	0.7	0.7	21	0.6	0.6	25	0.7	0.9
Point Douglas	10A	81	0.6	0.6	30	0.4	0.4	51	0.8	0.9
	10B	74	1.0	1.1	28	0.8	0.7	46	1.2	1.6
Downtown	11A	110	0.6	0.6	43	0.4	0.4	67	0.7	1.0
	11B	145	0.9	1.0	48	0.6	0.6	97	1.2	1.5
River Heights	12A	90	0.5	0.4	39	0.4	0.3	51	0.6	0.6
	12B	107	1.0	0.8	46	0.8	0.5	61	1.2	1.3
Winnipeg Health Region		1859	0.6	0.6	779	0.5	0.4	1080	0.7	0.9

Figure 32
No. 4 Cause of Death: Malignant Neoplasm of Respiratory Organ (160-165)
Comparison of Crude Mortality Rates per 1000 population by leading cause of death, Neighbourhood Cluster, and Sex, 1995-1999

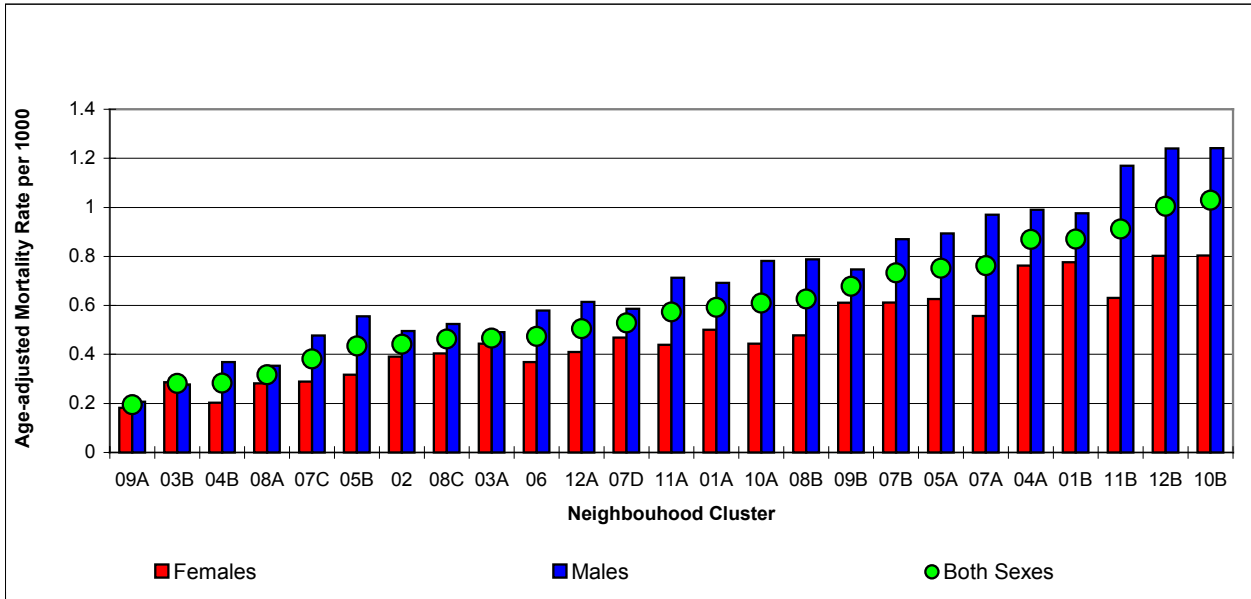


Figure 33
No. 4 Cause of Death: Malignant Neoplasm of Respiratory Organ (160-165)
Comparison of Age-Adjusted Mortality Rates per 1000 population by leading cause of death, Neighbourhood Cluster, and Sex, 1995-1999

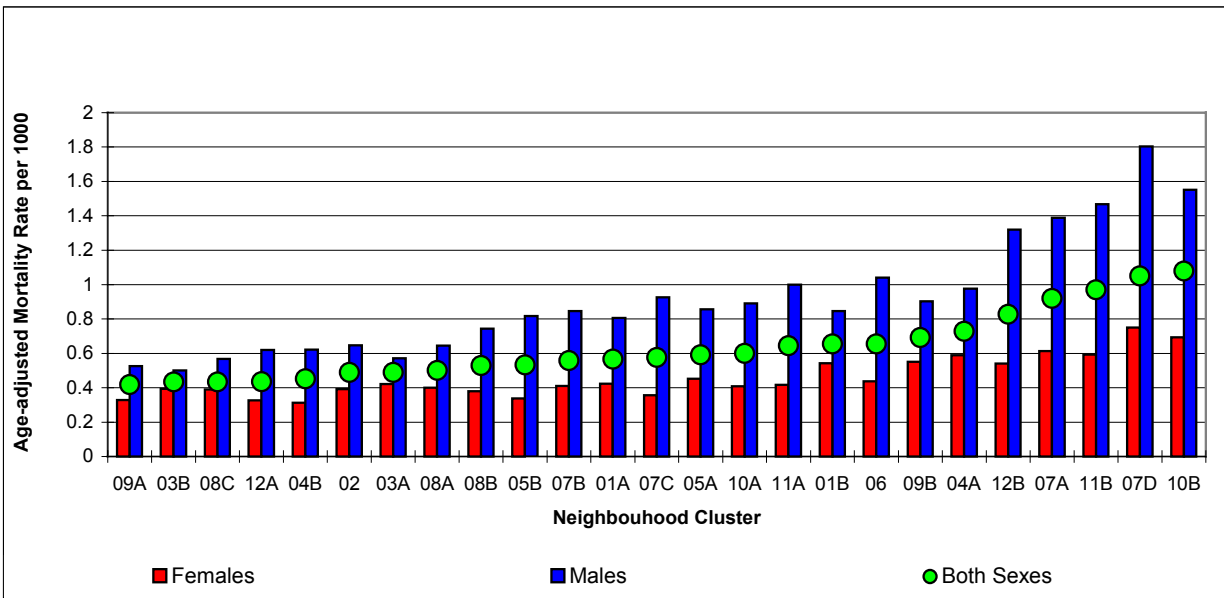


Table 40
No. 5 Cause of death, for both sexes: Other Forms of Heart Disease (420-429) in the
Winnipeg Health Region by Neighbourhood Cluster and Sex, 1995-1999

Community Area	Neighbourhood Cluster	Both Sexes			Females			Males		
		Deaths	Crude Rate per 1000	Age-Adjusted Rate per 1000	Deaths	Crude Rate per 1000	Age-Adjusted Rate per 1000	Deaths	Crude Rate per 1000	Age-Adjusted Rate per 1000
St. James-Assiniboia	01A	62	0.4	0.5	34	0.4	0.4	28	0.4	0.6
	01B	108	0.8	0.5	58	0.8	0.5	50	0.8	0.7
Assiniboine South	002	69	0.4	0.4	34	0.4	0.3	35	0.4	0.6
Fort Garry	03A	32	0.3	0.3	25	0.4	0.4	7	0.1	0.2
	03B	31	0.2	0.4	13	0.1	0.3	18	0.2	0.5
St. Vital	04A	50	0.4	0.3	22	0.3	0.2	28	0.4	0.5
	04B	48	0.3	0.6	30	0.4	0.5	18	0.2	0.5
St. Boniface	05A	48	0.6	0.4	29	0.7	0.3	19	0.5	0.5
	05B	32	0.2	0.4	21	0.3	0.4	11	0.1	0.2
Transcona	006	41	0.3	0.5	27	0.3	0.6	14	0.2	0.4
River East	07A	35	0.4	0.5	18	0.4	0.4	17	0.4	0.5
	07B	101	0.5	0.4	58	0.6	0.4	43	0.5	0.5
	07C	48	0.4	0.6	24	0.3	0.5	24	0.4	0.8
	07D	7	0.2	0.6	3	0.2	0.4	4	0.3	1.4
Seven Oaks	08A	15	0.1	0.3	7	0.1	0.2	8	0.2	0.3
	08B	80	0.5	0.4	41	0.5	0.4	39	0.5	0.5
	08C	23	1.2	0.8	16	1.6	0.6	7	0.7	0.9
Inkster	09A	7	0.1	0.4	6	0.1	0.6	1	0.0	0.0
	09B	50	0.7	0.8	26	0.8	0.7	24	0.7	1.0
Point Douglas	10A	55	0.4	0.4	31	0.5	0.4	24	0.4	0.5
	10B	86	1.2	0.8	50	1.4	0.7	36	1.0	1.1
Downtown	11A	76	0.4	0.4	45	0.5	0.4	31	0.3	0.5
	11B	125	0.8	0.7	63	0.8	0.6	62	0.7	1.1
River Heights	12A	116	0.7	0.5	70	0.7	0.4	46	0.6	0.7
	12B	61	0.6	0.4	33	0.6	0.3	28	0.6	0.6
Winnipeg Health Region		1406	0.4	0.5	784	0.5	0.4	622	0.4	0.6

Figure 34
Comparison of Crude Mortality Rates per 1000 population by leading cause of death, Neighbourhood Cluster, and Sex, 1995-1999
No. 5 Cause of Death: Other Forms of Heart Disease (420-429)

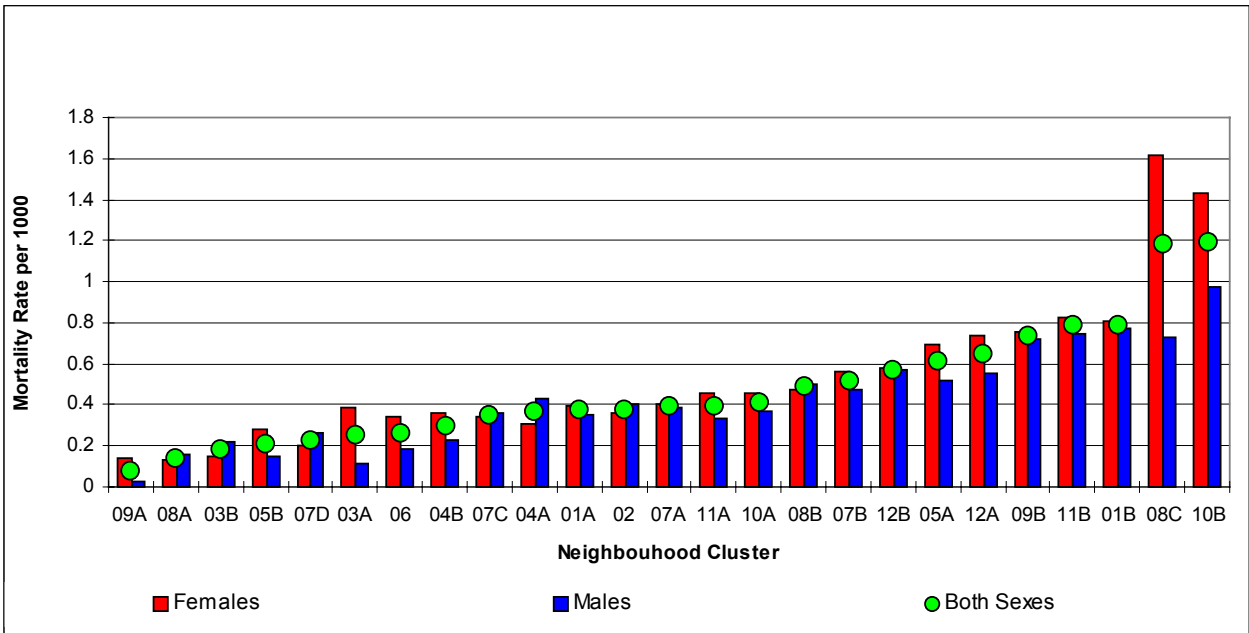
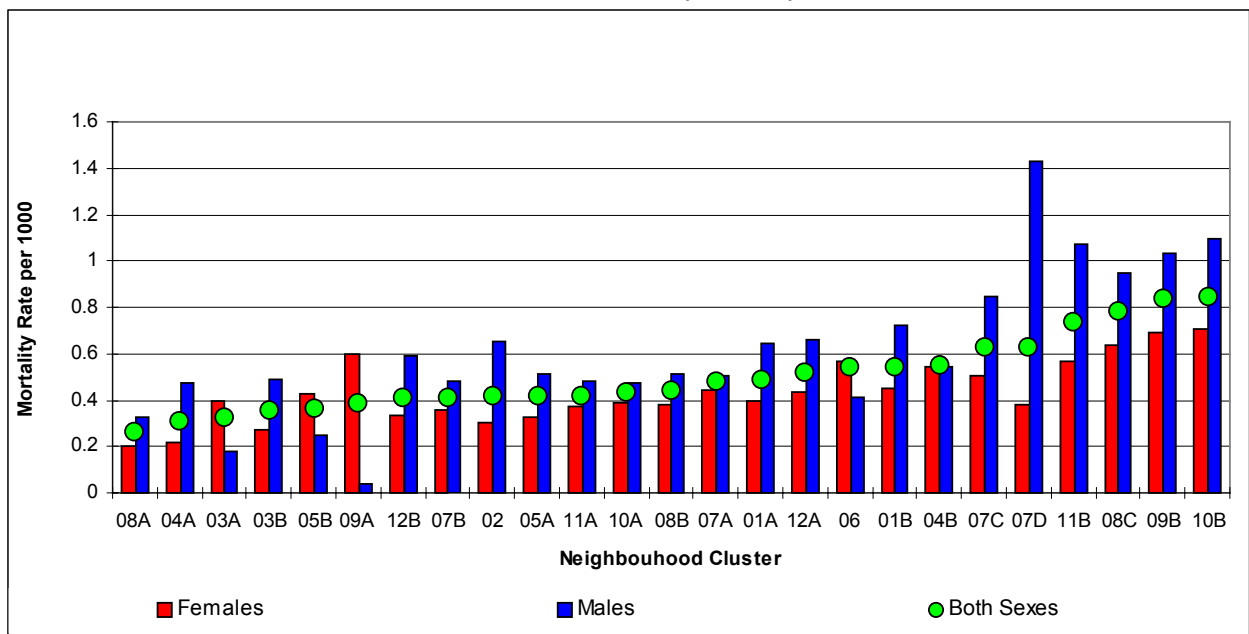


Figure 35
Comparison of Age-Adjusted Mortality Rates per 1000 population by leading cause of death, Neighbourhood Cluster, and Sex, 1995-1999
No. 5 Cause of Death: Other Forms of Heart Disease (420-429)



Deaths Due to Injury and Poisoning

Injury and Poisoning Mortality

This section presents the analysis of injury and poisoning mortality in the WHR for two five-year periods, 1990-1994 and 1995-1999. Deaths due to injury or poisoning account for 5.1% of total deaths between 1995-1999 and 18.6% of the total PYLL.

When analysing injury data, it is important to consider the cause or mechanism of the injury as well as the underlying intent. In order to facilitate this, Health Canada recommends the use of an 'Injury Matrix'.¹ (For further information about the Injury Matrix, please refer to the Technical Notes section of the Appendix). There are five categories of intent in the Injury Matrix used in this analysis:

- Unintentional
- Self-inflicted
- Assault
- Undetermined
- Other

Two additional categories were utilized in the summary of the injury mortality data: Adverse Effects and Unable to Categorize. It should be noted that Adverse Effects are not traditionally included in total injury counts, as this category is not considered to be a public-health issue. However, it is of interest to health system planning and was included in the Total Injury counts. An additional category, 'Unable to Categorize', was created to account for those codes which were found to be invalid on the fourth and final digit of the E-code. This was done for completeness in accounting of the data (further detail is presented in the Appendix).

In addition, Unintentional Injury is sub-divided into categories by mechanism or cause of the injury death, as defined by the Injury Matrix (based upon 4-digit E-codes), and presented with a brief discussion. Further exploration of injury in the WHR will be presented in a future report on injury in the WHR. The Technical Notes section of the Appendix provides a detailed description of the categories used for the injury mortality data.

Total Injury and PYLL

In the 1990-1994 time period, the total number of deaths attributed to injury was 1053. This number had risen in the 1995-1999 time period to 1321: an increase of approximately 20 per cent. However, the potential years of life lost (PYLL) increased only slightly from 30077 PYLL to 30576 PYLL (tables 41 and 42).

Injury deaths among males were approximately twice that of females in the 1990-1994 time period (i.e., a male-to-female ratio of 2 to 1). In the 1995-1999 time period, this ratio decreased to 1.6 to 1.0 as the number of injury deaths among females increased. The injury PYLL among males also decreased slightly between the two time periods, while for females, the injury PYLL increased slightly.

¹ Child Injury Division, Bureau of Reproductive and Child Health, Laboratory Centre for Disease Control, Health Protection Branch, Health Canada. October, 1999.

Table 41
Injury and Poisoning in the WHR, 1995-1999

Manner/Intent	Both Sexes			Females			Males		
	Number of Deaths	Per Cent Injury Deaths	PYLL	Number of Deaths	Per Cent Injury Deaths	PYLL	Number of Deaths	Per Cent Injury Deaths	PYLL
Unintentional	763	57.8%	13105	336	65.5%	3902	427	52.8%	9203
Self-inflicted	344	26.0%	10638	94	18.3%	2913	250	30.9%	7725
Assault	80	6.1%	3151	26	5.1%	1224	54	6.7%	1927
Undetermined	100	7.6%	3130	36	7.0%	1045	64	7.9%	2085
Other	1	0.1%	0	0	0.0%	0	1	0.1%	0
Adverse Effects	24	1.8%	345	15	2.9%	247	9	1.1%	98
Unable to Categorize*	9	0.7%	207	6	1.2%	131	3	0.4%	76
Total Injury	1321	100.0%	30576	513	100.0%	9462	808	100.0%	21114

Table 42
Injury and Poisoning in the WHR, 1990-1994

Manner/Intent	Both Sexes			Females			Males		
	Number of Deaths	Per Cent Injury Deaths	PYLL	Number of Deaths	% Injury Deaths	PYLL	Number of Deaths	Per Cent Injury Deaths	PYLL
Unintentional	586	55.7%	14881	210	59.7%	4083	376	53.6%	10797
Self-inflicted	331	31.4%	10977	81	23.0%	2674	250	35.7%	8303
Assault	54	5.1%	2371	26	7.4%	1223	28	4.0%	1148
Undetermined	44	4.2%	1308	15	4.3%	390	29	4.1%	918
Other	0	0.0%	0	0	0.0%	0	0	0.0%	0
Adverse Effects	23	2.2%	219	14	4.0%	138	9	1.3%	81
Unable to Categorize*	15	1.4%	321	6	1.7%	72	9	1.3%	249
Total Injury	1053	100.0%	30077	352	100.0%	8580	701	100.0%	21496

*Unable to assign to a manner/intent category, due to error in coding

Intent or Manner of Injury Death

Unintentional Injury

Unintentional Injury deaths, in both sexes, accounted for approximately half of the total injury deaths in both time periods (tables 41-42). The number of Unintentional Injury deaths increased between 1990-1994 and 1995-1999, particularly for females. The PYLL for Unintentional Injury accounted for approximately half of the total injury PYLL in 1990-1994 but decreased slightly in 1995-1999.

Unintentional Injury deaths comprised a greater proportion of the total injury deaths for females (65.5%) than for males (52.9%) compared to the five other intent/manner categories, in 1995-1999. However, Unintentional Injury appears to be a greater burden among males compared to females, as indicated by the greater PYLL for males in both time periods. Further discussion about the causes associated with Unintentional Injury appears later in this section.

Self-inflicted Injury

Self-inflicted injury (suicide) comprised a substantial proportion of injury deaths for both sexes in both time periods. Although the actual number of Self-inflicted injuries in the 1995-1999 time period increased slightly from the 1990-1994 time period, (from n=331 to n=344), its “share” of the total deaths due to injury decreased from 31.4% of all injury deaths (1990-1994) to 26.0% (1995-1999). This decrease is explained by the increases in the Unintentional Injury, Assault and Undetermined categories in the 1995-1999 time period.

Self-inflicted injury deaths accounted for the second largest proportion of PYLL due to injury. In both time periods, the PYLL for Self-inflicted injury was approximately one-third of the PYLL for total injury.

Self-inflicted injury death is a greater burden among males than females. The number of Self-inflicted injury deaths among males was approximately three times that of females in 1990-1994, and approximately two and a half times that of females in the 1995-1999 time period. One-third of the total injury PYLL for males was due to Self-inflicted injury. This was more than three times that for females. However, the number and PYLL for Self-inflicted injury deaths for females increased between the two time periods.

Assault

There was a substantial increase in the number of deaths due to Assault in 1995-1999 compared to 1990-1994, from n=54 to n=80. This is most notable among males, where the deaths due to Assault nearly doubled between the two time periods. The PYLL also increased substantially between the two time periods. For females, both the number of deaths and PYLL in this category remained the same between the two time periods.

Undetermined

Injury deaths, where it was unclear whether the intent was intentional or unintentional, were classified as Undetermined. The number of deaths in this category between 1990-1994 and 1995-1999 more than doubled, from n=44 to n=100. This number was also substantially greater for males than for females in both time periods. PYLL (for both sexes) also increased between the two time periods.

Adverse Effects

The number of deaths due to Adverse Effects remained nearly the same between the two time periods, however, the PYLL increased. The number of deaths and PYLL due to Adverse Effects were substantially greater for females than males.

Leading Causes of Unintentional Injury

During the period of 1995-1999, the leading cause of Unintentional Injury deaths was Fall, followed by Motor Vehicle Traffic and Poisoning (Table 43). While the number of Motor Vehicle Traffic deaths has decreased since 1990-1994, the number of Fall-related deaths nearly doubled between the two time periods (from n=133 to n=265). The increase in Unintentional Injury deaths, noted earlier, can be mostly attributed to the increase in the Fall category. Perhaps this is indicative of an increase in the reporting of falls as an underlying cause of death in the WHR.

One concern in the injury mortality data was the substantial number of deaths that were categorized as "Unspecified".* The Unspecified category has been excluded when determining the leading causes of injury death in this discussion because this category is of a non-specific nature relative to cause.

The three leading causes of Unintentional Injury PYLL (among both sexes) for 1995-1999 were Motor Vehicle Traffic, Fall, and Poisoning. The PYLL for Motor Vehicle Traffic have decreased since 1990-1994 period, however, the PYLL for Fall has nearly doubled (tables 43 and 46). The Unintentional Injury PYLL for females and males are nearly equal, in spite of the fact that females have a lower number of Unintentional Injury deaths.

For females, Fall, Motor Vehicle Traffic, and Poisoning were the three leading causes of Unintentional Injury deaths in 1995-1999 (Table 44). This did not change from that of 1990-1994. The number of deaths due to Fall increased for females substantially between the two time periods (from n=67 to n=127). The number of Unintentional Injury deaths that can be attributed to causes other than Fall was fairly stable between the two time periods (with the exception of the Unspecified category).

In contrast to the leading causes by number of Unintentional Injury deaths, the leading causes of Unintentional Injury PYLL for females in 1995-1999 were Motor Vehicle Traffic, Fire/burn, and Poisoning. It may be of interest to note the low PYLL for the Fall category among females compared to other cause categories (Table 44) and compared to the Fall PYLL of males (Table 45). This might indicate that death due to a fall is a concern among older females, as well as younger males.

For males, Fall, Motor Vehicle Traffic, and Poisoning were the three leading causes of Unintentional Injury death in 1995-1999 (Table 45). This is a change from 1990-1994, where Motor Vehicle Traffic, Fall, and Drowning/submersion were the leading causes of Unintentional Injury death. Motor Vehicle Traffic and Drowning/submersion deaths showed a substantial decrease between the two periods, while the number of fall-related deaths increased.

The leading causes of Unintentional Injury PYLL for males in 1995-1999 were Motor Vehicle Traffic, Fall, and Poisoning. The PYLL for Motor Vehicle Traffic and Drowning/submersion among males decreased between the two periods, while the PYLL for Fall increased substantially.

* The majority of deaths in the Unspecified category were coded as "Fracture, cause unspecified" (E-code E877), which is a Fall code in ICD9. However, the most current definition of Fall as a category of cause of injury death recommended by ICE (International Collaborative Effort on Injury Statistics) removes this code from the Fall category and places it in the Unspecified category. This is the definition used in this report. It might be of interest to note that if the number of deaths with the code for "Fracture, cause unspecified" was added to the Fall category, the increase in the number of Falls between the two time periods would be even more pronounced. Please see the Technical Notes section of the Appendix for further information.

Table 43
Unintentional Injury Deaths for Both Sexes in the WHR, 1995-1999

Mechanism or Cause	Count	Per Cent of Total Count	PYLL
Fall	265	34.7%	1608
Motor Vehicle Traffic	164	21.5%	4695
Unspecified*	123	16.1%	395
Poisoning	49	6.4%	1375
Suffocation	41	5.4%	1031
Fire/burn	31	4.1%	1040
Drowning/submersion	30	3.9%	1224
Transport, Other	19	2.5%	718
Natural/environmental	14	1.8%	145
Other Specified, Classifiable	11	1.4%	257
Firearm	6	0.8%	236
Other**	10	1.3%	382
Total	763	100.0%	13105

*Majority of injuries are E887: Fracture, Cause unspecified.

**Other includes the following: Struck by/against; Machinery; Pedestrian, Other; Other specified, NEC.

Table 44
Unintentional Injury Deaths for Females in the WHR, 1995-1999

Mechanism or Cause	Count	Per Cent of Total Count	PYLL
Fall	127	37.8%	352
Unspecified*	75	22.3%	116
Motor Vehicle Traffic	64	19.0%	1651
Poisoning	20	6.0%	443
Fire/burn	16	4.8%	513
Suffocation	16	4.8%	272
Drowning/submersion	9	2.7%	383
Other**	9	2.7%	173
Total	336	100.0%	3903

*Majority of injuries are E887: Fracture, Cause unspecified.

**Other includes the following: Natural/environmental; Transport, Other; Other specified, classifiable; Other specified, NEC.

Table 45
Unintentional Injury Deaths for Males in the WHR, 1995-1999

Mechanism or Cause	Count	Per Cent of Total Count	PYLL
Fall	138	32.2%	1256
Motor Vehicle Traffic	100	23.4%	3043
Unspecified*	48	11.2%	279
Poisoning	29	6.8%	931
Suffocation	25	5.8%	759
Drowning/submersion	21	4.9%	842
Transport, Other	17	4.0%	656
Fire/burn	15	3.5%	526
Natural/environmental	11	2.6%	139
Other Specified, Classifiable	8	1.9%	205
Firearm	6	1.4%	236
Other**	9	2.1%	329
Total	427	100.0%	9202

*Majority of injuries are E887: Fracture, Cause unspecified.

**Other includes the following: Struck by/against; Machinery; Pedestrian, Other; Other specified, NEC.

Table 46
Unintentional Injury Deaths for Both Sexes in the WHR, 1990-1994

Mechanism or Cause	Count	Per Cent of Total Count	PYLL
Motor Vehicle Traffic	190	32.4%	6798
Fall	133	22.7%	818
Unspecified*	48	8.2%	334
Poisoning	47	8.0%	1257
Drowning/submersion	46	7.8%	1707
Fire/burn	39	6.7%	1302
Suffocation	37	6.3%	1058
Transport, Other	13	2.2%	552
Natural/environmental	13	2.2%	394
Other Specified, Classifiable	6	1.0%	161
Struck by, against	5	0.9%	180
Other**	9	1.5%	320
Total	586	100.0%	14881

*Majority of injuries are E887: Fracture, Cause unspecified.

**Other includes the following: Machinery; Pedestrian, Other; Cut/Pierce; Firearm.

Table 47
Unintentional Injury Deaths for Females in the WHR, 1990-1994

Mechanism or Cause	Count	Per Cent of Total Count	PYLL
Fall	67	31.9%	221
Motor Vehicle Traffic	61	29.0%	2017
Unspecified*	21	10.0%	28
Poisoning	18	8.6%	474
Fire/burn	14	6.7%	387
Drowning/submersion	11	5.2%	405
Suffocation	10	4.8%	242
Other**	8	3.8%	310
Total	210	100.0%	4084

*Majority of injuries are E887: Fracture, Cause unspecified.

**Other includes the following: Transport, Other; Natural/environmental; Cut/Pierce; Pedestrian, other; Struck by, against.

Table 48
Unintentional Injury Deaths for Males in the WHR, 1990-1994

Mechanism or Cause	Count	Per Cent of Total Count	PYLL
Motor Vehicle Traffic	129	34.3%	4781
Fall	66	17.6%	597
Drowning/submersion	35	9.3%	1301
Poisoning	29	7.7%	783
Suffocation	27	7.2%	816
Unspecified*	27	7.2%	306
Fire/burn	25	6.6%	916
Natural/environmental	11	2.9%	345
Transport, Other	10	2.7%	401
Other Specified, Classifiable	6	1.6%	161
Other**	11	2.9%	390
Total	376	100.0%	10797

*Majority of injuries are E887: Fracture, Cause unspecified.

**Other includes the following: Machinery; Struck by, against; Pedestrian, Other; Firearm.

Infant Mortality

Infant Mortality Rate

Infant mortality is internationally recognized as a population health measure of a community. It is considered a health status indicator for the level of mortality, health status, health care of a country, and the effectiveness of preventive and pre-natal care received by the mother. Caution must be used when interpreting and comparing this indicator to other populations as limitations include differences in the definition of live births and stillbirths and differences in the time period used in the denominator to generate the rate. This is particularly important when international comparisons are made. For the purposes of this report, international comparisons were not made.

Infant mortality rate (IMR) refers to the death of a live born infant within the first year of life. Perinatal deaths are the combination of stillbirths and early neonatal deaths. Early neonatal deaths occur within the first seven days of life while late neonatal deaths occur between 8 and 28 days of life. Infant mortality and neonatal mortality rates have been generated for this report. The IMR is defined as the ratio of deaths less than 1 year of age to the number of live births in a given period of time.

Over the past 13 years in the WHR, the IMR has fluctuated between 5.1 deaths per 1000 live births in 1992 and 1994 and 7.9 deaths per 1000 live births in 1999 (figures 36 and 37 and Table 49). In 2002, the IMR in the WHR was 5.8 deaths per 1000 live births. Over the past three years, there has been a decrease in the IMR, coming closer to the Canadian IMR of 5.1 per 1000 live births in 2000 (Canadian Perinatal Health Report, 2003). Table 49 also shows a decrease in the number of deaths occurring in infants between 28 days and 1 year.

In comparison to the other RHAs in Manitoba, the WHR has reported the 4th smallest IMR for the period 1995-1999 (MCHP, 2003). In the Province of Manitoba, IMR range from 3.5 deaths per 1000 live births in Parkland Health Region to 10.2 deaths per 1000 live births in Burntwood Health Region for this same time period. The WHR rate is lower than that for Manitoba (6.9 deaths per 1000 live births; MCHP, 2003).

Figure 36
Infant Mortality Rate per 1000 Live Births in the Winnipeg Health Region and Canada by Year

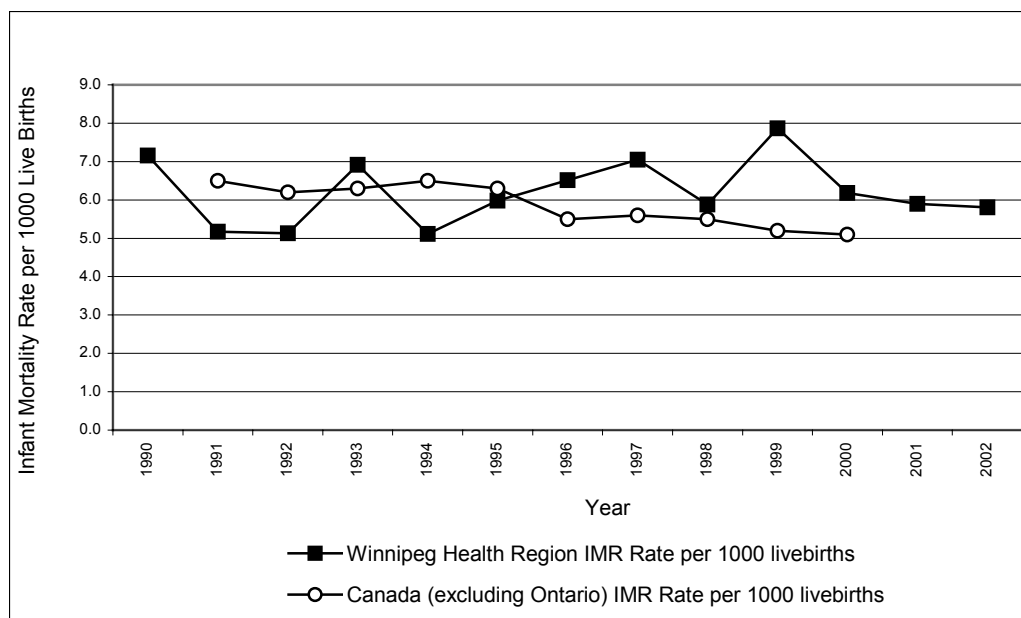
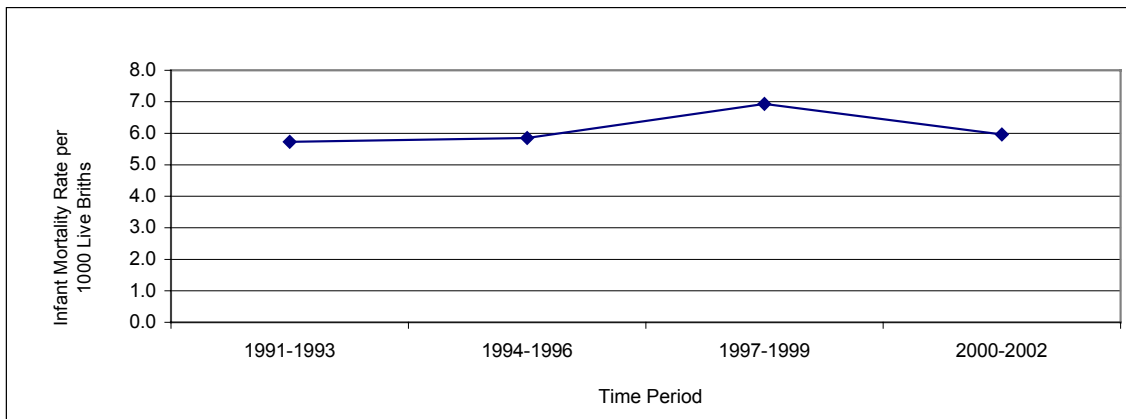


Table 49
Infant Mortality in the Winnipeg Health Region, 1990-2002

YEAR	Infant Deaths (< 1 year of age)	IMR Rate per 1000 livebirths	Postnatal Deaths (>28 Days)	Neonatal Deaths (<= 28 Days)	Per Cent of Neonatal Deaths (<= 28 Days per year)	Neonatal (<= 28 days) Mortality Rate per 1000 livebirths
1990	68	7.2	20	48	70.6	5.0
1991	49	5.2	18	31	63.3	3.3
1992	47	5.1	18	29	61.7	3.2
1993	63	6.9	18	45	71.4	4.9
1994	46	5.1	15	31	67.4	3.4
1995	50	6.0	17	33	66.0	3.9
1996	54	6.5	19	35	64.8	4.2
1997	54	7.0	16	38	70.4	5.0
1998	44	5.9	13	31	70.5	4.1
1999	59	7.9	17	42	71.2	5.6
2000	45	6.2	19	26	57.8	3.6
2001	43	5.9	14	29	67.4	4.0
2002	41	5.8	17	24	58.5	3.4
Total 1990-2002	663	6.2	221	442	66.7	4.1

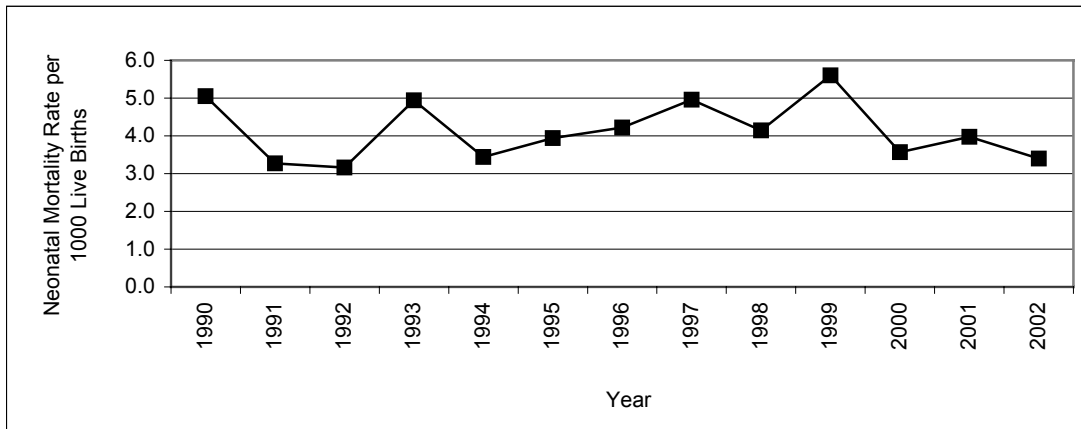
To determine if there was a trend in infant mortality rates over the past 12 years, a 3 year rate was generated (Figure 37). While the rate remains higher than the early 1990's, there is a notable decrease in the most recent three year rate from 2000-2002.

Figure 37
3 Year Infant Mortality Rate per 1000 Live Births in the Winnipeg Health Region



Another infant mortality indicator that is becoming more widely reported is early and late neonatal mortality rates. Due to the small numbers, early and late neonatal mortality rates were not separately calculated. However, a combined neonatal mortality rate was generated. The neonatal mortality rate is defined as the ratio of deaths for infants less than or equal to 28 days to the number of live births in 1 year. Approximately 4.1% of deaths per 1000 live births in the WHR between 1990-2002 would be considered early or late neonatal deaths (Table 49). The neonatal mortality rate has also fluctuated between 3.2 and 5.6 deaths per 1000 live births occurring between birth and 28 days, which do not reflect a noticeable change over time (Figure 38). Approximately 67% of infant deaths occur on or before 28 days.

Figure 38
Neonatal Mortality Rate per 1000 Live Births in the Winnipeg Health Region



Leading Causes of Infant Mortality

The largest proportion of infant deaths between 1995-1999 was due to Conditions Originating in the Perinatal Period (37%) and Congenital Anomalies (21%) (Table 50). The Diagnostic Classification Code -Conditions Originating in the Perinatal Period - includes ICD9-CM from 764 to 779. Within this category, the majority of deaths were due to disorders related to short gestation and low birth weight and respiratory conditions of the fetus and newborn, including respiratory distress syndrome. For Congenital Anomalies (ICD-9CM 740-759), the majority of these deaths were due to congenital anomalies of the heart or respiratory system and chromosomal anomalies.

Among the other leading causes of death were Ill-defined, Unknown Morbidity Conditions (13%) and Maternal Causes of Perinatal Morbidity (12%). The majority of deaths in the Ill-defined category (ICD-9CM 797-799) were primarily due to sudden death with cause unknown. Maternal Causes of Perinatal Morbidity (ICD-9CM 760-763) included maternal complications of pregnancy or complications of placenta, cord, and membranes affecting the fetus of the newborn.

Injury and Poisonings accounted for approximately 4% of the infant deaths. Over half of the deaths related to Injury and Poisonings were attributed to homicide or assault.

All other causes of infant mortality include a wide range of 27 diagnostic classifications codes which account for 38 deaths.

Table 50
Leading Causes of Infant Mortality in the Winnipeg Health Region 1995-1999

Diagnostic Classification Code (ICD-9CM Code)	Deaths	Percentage of Deaths
Other Conditions Originating In Perinatal Period (764-779)	97	37.2
Congenital Anomalies (740-759)	55	21.1
Ill-defined, Unknown Morbidity Conditions (797-799)	34	13.0
Maternal Causes Of Perinatal Morbidity (760-763)	31	11.9
Injury and Poisoning (E810-819, E910-E915, E960-E969, E980-E989)	11	4.2
Other Causes	33	12.6
Total	261	100.0

Life Expectancy

Life Expectancy

Life expectancy is recognized as an indicator of the overall health of the community. Life expectancy is the number of years a person could be expected to live, starting from birth (for life expectancy at birth) or at age 65 (for life expectancy at age 65), on the basis of the mortality statistics for a given observation period. Four measures are considered in this report: life expectancy at birth, life expectancy at age 65, disability-free life expectancy at birth, and disability-free life expectancy at age 65.

A higher life expectancy at birth exists for residents living in the WHR compared to the Province of Manitoba, yet lower compared to the rest of Canada. In Winnipeg, a life expectancy at birth of 75.8 years for males and 80.6 years for females in 1997 (Table 51).

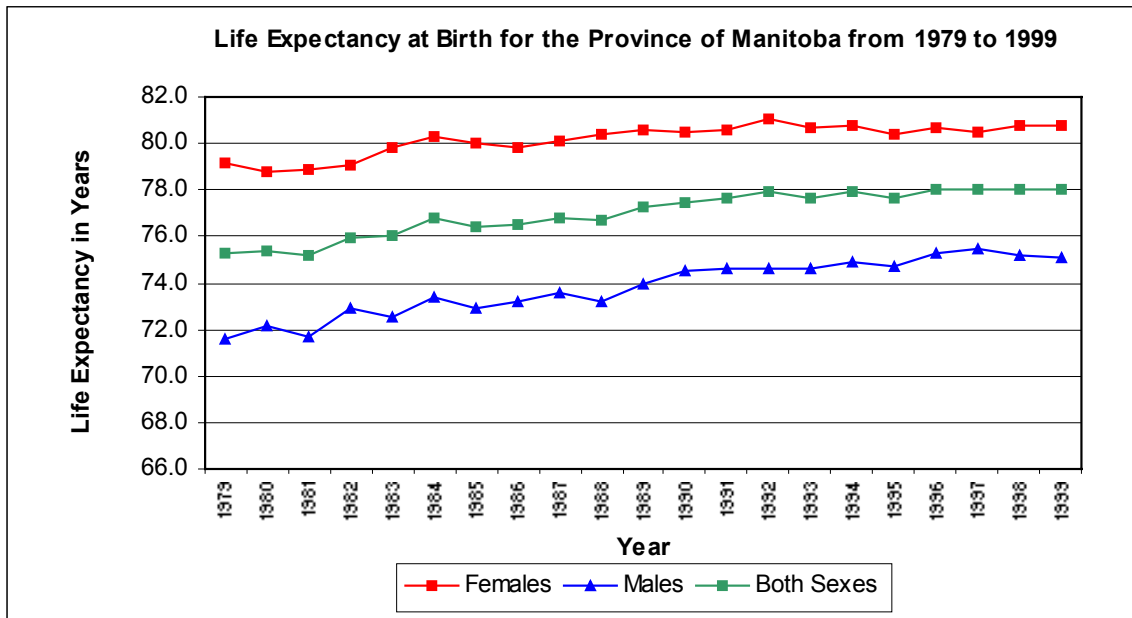
Table 51
Life Expectancy at Birth and at Age 65 for the Winnipeg Health Region, Manitoba and Canada, 1997

Life Expectancy	Geography	Both Genders		Males		Females	
		Years	95% Confidence Interval	Years	95% Confidence Interval	Years	95% Confidence Interval
At Birth	Canada	78.5	78.5,78.6	75.7	75.7,75.8	81.3	81.3,81.3
	Manitoba	77.9	77.8,78.1	75.3	75.1,75.5	80.6	80.4,80.8
	Winnipeg RHA	78.2	78.0,78.4	75.8	75.5,76.1	80.6	80.3,80.9
At Age 65	Canada	18.2	18.1,18.2	16.2	16.2,16.2	20.0	20.0,20.0
	Manitoba	18.1	18.0,18.2	16.2	16.1,16.4	19.9	19.7,20.0
	Winnipeg RHA	18.1	17.9,18.2	16.2	16.0,16.4	19.8	19.7,20.0

In 1999, life expectancy at birth is 78.0 years in the Province of Manitoba, which reflects a steady increase in life expectancy since 1979. Life expectancy at birth was 75.1 years for males and 80.8 years for females in the Province of Manitoba in 1999. Life expectancy for women is increasing at a smaller rate than the rate of increase for men in the WHR (Figure 39).

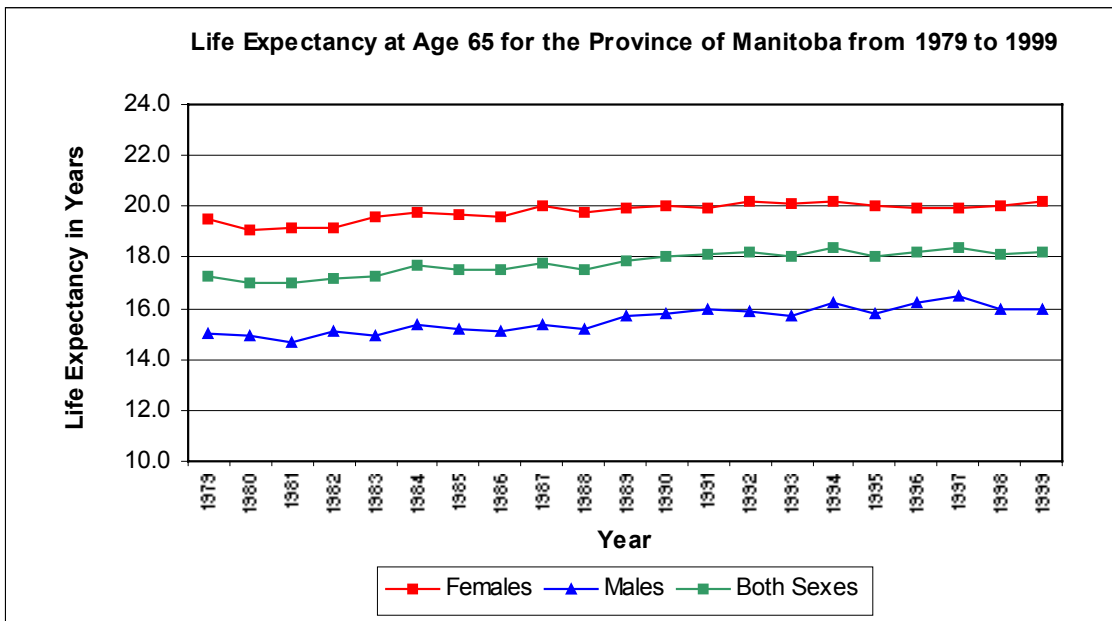
Life expectancy at age 65 is similar for residents in the WHR compared to the Province of Manitoba and Canada (Table 51). Women can expect to live an additional 20 years on average once they reach age 65, whereas men can expect to live an additional 16 years on average once they reach age 65. Life expectancy at age 65 is 18.2 in the Province of Manitoba in 1999. Over the past 20 years, an additional year has been gained by both sexes to the LE at age 65 (Figure 40).

Figure 39



Globally, life expectancies vary by ethnic origin. Of local importance is the recognition of health disparities among Aboriginal peoples in the WHR (WRHA Board Measures 2002-2005). Very little information exists on the health outcomes of Aboriginal peoples living in the WHR. A recent report by the Manitoba Centre for Health Policy focussed on Aboriginal Health in which a variety of measures were reported. Life expectancy was one of these measures. Life expectancy for Aboriginal peoples is lower than for non-Aboriginal people. Aboriginal peoples in the WHR have a life expectancy of 66 years for males and 71 years for females (MCHP, 2002).

Figure 40



Life Expectancy By Geography

Life expectancy at birth by the WHR sub-geographies (Neighbourhood Clusters and Community Areas) as at 1998/99 were recently reported in a study by the Manitoba Centre for Health Policy (Indicators of Health Status and Health Service use in the Winnipeg Regional Health Authority, 2001). As one would expect, differences in life expectancy were documented between males and females, but also between neighbourhood clusters. Even neighbourhood clusters in the same community area had different life expectancies.

The community area with the longest life expectancy was Fort Garry, where life expectancy for men was 80 years and for women, 83.9 years. Residents of Point Douglas community area has the shortest life expectancy at 72.2 years and 78.8 years for men and women respectively. When the data is examined at the Neighbourhood level, it has been reported that the longest life expectancy for males was in Inkster 09A at 82.7 years and the longest life expectancy for females was enjoyed by residents of River East 07D at 84.3 years. Point Douglas 10B had the lowest life expectancy for both men and women at 67.5 and 75.7 years for men and women respectively.

Disability-Free Life Expectancy

Disability-Free life expectancy is a more comprehensive indicator than that of life expectancy because it introduces one of the domains of quality of life. It is used to distinguish between years of life free of any activity limitation and years experienced with at least one activity limitation (Statistics Canada, 1996). Disability-free life expectancy establishes a threshold based on the nature of such limitations. As a result, years of life lived in conditions above this threshold are counted in full while those lived in conditions below the threshold are not counted. Thus, the emphasis for this indicator is not entirely on the length of life, as is the case for life expectancy, but also on one of the domains of quality of life – functional status.

For residents of the WHR, disability-free life expectancy at birth was 68.0 years for both sexes, 66.6 years for males, and 69.3 years for females in 1996 (Statistics Canada, 2003). In other words, on average, a person can expect to live approximately 68 years at birth free of any activity limitations.

Disability-free life expectancy at age 65 is 11.3 years for both sexes, 10.5 years for males, and 12.0 years for females for residents of the WHR. Therefore, at age 65, a person can expect to live an additional 11 years on average free from any activity limitations. There is a slight increase in the number of years without any activity limitations for females compared to males.

***APPENDIX:
DEFINITIONS***

Annual Crude Mortality Rate 1995-1999 per 1000 population is defined as:

$$\frac{\text{total number of deaths during years 1995 - 1999 (January 1, 1995 to December 31, 1999)}}{\sum_{i=1995}^{1999} (\text{total population as of June 1})_i} * 1,000$$

Annual Specific Mortality Rate 1995-1999 per 1000 population is defined as:

$$\frac{\text{total number of deaths in a specific subgroup during years 1995 - 1999 (January 1, 1995 to December 31, 1999)}}{\sum_{i=1995}^{1999} (\text{total population in specific subgroup as of June 1})_i} * 1,000$$

Age-adjusted or Standardized Mortality Rate

Age-adjusted rate computed by direct standardization method using age groups (under 1, 1-4, 5-9, 10-14, ..., 70-74, 75-79, 80-84, 85+). Winnipeg Health Region year 2000 population used as the standard population.

Annual Premature Crude Mortality Rate 1995-1999 per 1000 population is defined as:

$$\frac{\text{total number of deaths during years 1995 - 1999 (January 1, 1995 to December 31, 1999) less than 75 years of age}}{\sum_{i=1995}^{1999} (\text{total population less than 75 years of age as of June 1})_i} * 1,000$$

Premature Age-adjusted or Premature Standardized Mortality Rate

Age-adjusted rate computed by direct standardization method using age groups (under 1, 1-4, 5-9, 10-14, ..., 60-64, 65-69, 70-74). Winnipeg Health Region year 2000 population used as the standard population.

Potential Years of Life Lost (PYLL)

Years of life lost before age 75.

Each death before age 75 contributes 75 – x years. A death occurring at age 75 or older contributes 0 PYLL's.

PYLL Rate 1995-1999 is defined as

$$\frac{\sum_{i=1995}^{1999} (\text{PYLL contribution for all deaths})_i}{\sum_{i=1995}^{1999} (\text{total population as of June 1})_i} * 1,000$$

Infant Mortality Rate is defined as

$$\frac{\text{Number of deaths among infants under 1 year of age for a given period of time}}{\text{Total live births during the period of time}} * 1,000$$

Early and Late Neonatal Infant Mortality Rate is defined as

$$\frac{\text{Number of deaths among infants under 29 days of age for a given period of time}}{\text{Total live births during the period of time}} * 1,000$$

Direct Method of Age-Adjusting

Let ${}_n D_x$ be the number of deaths between the ages x and $x+n$ among residents in a community during a specified time period, and let ${}_n P_x$ be the population between ages x and $x+n$ living in that community during the specified time period, then the age-specific mortality rate is

$${}_n m_x = \frac{{}_n D_x}{{}_n P_x} k$$

where k is a constant generally taken as 1000.

Let ${}_n m_x$ be the age-specific mortality rate and let ${}_n P_x^S$ be the number of persons between ages x and $x+n$ in the standard population, then the age-adjusted mortality rate is

$$\frac{\sum_x {}_n m_x {}_n P_x^S}{\sum_x {}_n P_x^S}$$

Let ${}_n^f m_x$ and ${}_n^m m_x$ be the age-specific mortality rate for females and males respectively, then the age-adjusted mortality rate is

$$\frac{\sum_x {}_n^f m_x {}_n P_x^S}{\sum_x {}_n P_x^S} \text{ for females and } \frac{\sum_x {}_n^m m_x {}_n P_x^S}{\sum_x {}_n P_x^S} \text{ for males.}$$

Note: To compare age-adjusted mortality rates for females and males, the same standard population is used for each Sex.

***APPENDIX:
TABLES***

Table A1
Premature Mortality in the Winnipeg Health Region by Neighbourhood Cluster and Sex,
1990-1994

Community Area	Neighbourhood Cluster	Both Sexes			Females			Males		
		Deaths	Crude Rate per 1000	Age-Adjusted Rate per 1000	Deaths	Crude Rate per 1000	Age-Adjusted Rate per 1000	Deaths	Crude Rate per 1000	Age-Adjusted Rate per 1000
St. James-Assiniboia	01A	486	2.9	2.9	179	2.1	2.0	307	3.8	3.9
	01B	615	4.8	3.7	251	3.8	2.7	364	5.9	4.9
Assiniboine South	002	396	2.3	2.7	156	1.8	2.0	240	2.8	3.4
Fort Garry	03A	300	2.8	2.7	127	2.3	2.2	173	3.3	3.5
	03B	308	1.9	2.6	124	1.5	2.0	184	2.3	3.3
St. Vital	04A	445	3.4	3.0	199	3.0	2.4	246	3.9	3.8
	04B	327	2.2	3.3	134	1.8	2.6	193	2.7	4.1
St. Boniface	05A	364	5.0	4.3	147	3.9	2.9	217	6.1	6.0
	05B	348	2.5	2.8	135	1.9	2.1	213	3.1	3.6
Transcona	006	427	2.8	3.6	174	2.3	2.8	253	3.4	4.7
River East	07A	334	3.9	3.7	125	2.9	2.5	209	4.9	5.2
	07B	660	3.6	2.9	279	3.0	2.1	381	4.3	3.9
	07C	269	2.1	2.9	105	1.6	2.2	164	2.5	3.7
	07D	19	1.1	1.7	4	0.5	1.1	15	1.7	2.4
Seven Oaks	08A	196	2.0	3.0	98	2.0	2.9	98	2.0	3.3
	08B	551	3.7	3.0	213	2.7	2.2	338	4.6	4.1
	08C	46	2.8	3.1	25	3.0	3.3	21	2.5	2.9
Inkster	09A	101	1.2	2.3	39	0.9	1.6	62	1.5	3.2
	09B	305	4.6	4.4	130	3.9	3.3	175	5.3	5.6
Point Douglas	10A	549	4.2	3.9	223	3.4	2.9	326	5.1	5.0
	10B	466	6.4	6.9	142	4.1	4.0	324	8.4	9.7
Downtown	11A	607	3.3	3.5	247	2.7	2.6	360	3.9	4.6
	11B	881	5.4	5.9	302	3.9	4.0	579	6.7	7.8
River Heights	12A	554	3.3	2.8	273	3.1	2.4	281	3.5	3.2
	12B	424	4.3	3.8	176	3.4	2.7	248	5.3	5.4
Winnipeg Health Region*		9978	3.3	3.4	4007	2.6	2.5	5971	4.0	4.4

*Winnipeg Health Region total excludes 6 deaths between 1990-1994
 These 6 deaths were excluded from all rate calculations due to unknown ages

Table A2
Potential Years of Life Lost in the Winnipeg Health Region by Neighbourhood Cluster and Sex, 1990-1994

Community Area	Neighbourhood Cluster	Both Sexes			Females			Males		
		PYLL	PYLL Rate per 1000 Population	Age-Adjusted PYLL Rate per 1000 Population	PYLL	PYLL Rate per 1000 Population	Age-Adjusted PYLL Rate per 1000 Population	PYLL	PYLL Rate per 1000 Population	Age-Adjusted PYLL Rate per 1000 Population
St. James-Assiniboia	01A	7577	44.1	41.6	2515	28.5	26.3	5062	60.7	57.4
	01B	7513	53.6	52.5	2989	40.5	40.9	4524	68.2	65.5
Assiniboine South	002	6312	34.9	35.7	2413	25.9	26.9	3899	44.4	44.9
Fort Garry	03A	3824	34.2	33.3	1893	32.9	32.1	1931	35.6	35.1
	03B	5643	34.0	36.0	2471	29.2	30.0	3173	38.9	42.4
St. Vital	04A	6218	44.5	42.6	2666	36.2	35.9	3552	53.8	50.7
	04B	8462	55.5	56.6	3487	44.5	46.0	4975	67.2	67.9
St. Boniface	05A	5084	62.1	64.9	1887	43.2	44.0	3198	83.7	88.2
	05B	5699	39.9	38.9	2077	28.8	28.2	3622	51.2	49.2
Transcona	006	7188	46.3	49.5	2923	37.4	40.0	4265	55.3	59.4
River East	07A	5434	59.4	57.3	1895	40.7	37.2	3540	78.7	79.1
	07B	8855	45.1	43.0	3123	30.1	28.3	5732	61.8	59.3
	07C	5339	40.1	42.0	2075	30.7	32.2	3264	49.7	52.4
	07D	390	22.2	26.8	57	6.6	12.7	333	37.6	40.0
Seven Oaks	08A	3785	37.7	43.0	1835	35.8	41.8	1951	39.7	45.1
	08B	7442	46.0	45.0	2932	34.6	33.4	4511	58.4	58.0
	08C	729	40.3	41.5	328	35.2	36.4	401	45.7	47.1
Inkster	09A	2518	30.0	33.8	1047	24.8	26.8	1471	35.4	41.4
	09B	4447	63.6	65.0	1863	52.4	50.0	2584	75.0	81.8
Point Douglas	10A	8649	62.2	62.1	3406	48.0	48.4	5243	77.1	77.1
	10B	8343	104.3	114.0	2491	63.5	65.1	5852	143.6	157.5
Downtown	11A	11356	57.2	57.2	4826	47.8	47.8	6530	66.9	67.9
	11B	15765	90.1	95.8	4968	58.3	63.4	10797	120.2	124.3
River Heights	12A	7167	39.1	38.1	3382	34.4	33.9	3785	44.4	43.0
	12B	6207	56.5	56.9	2356	39.5	41.8	3851	76.7	75.7
Winnipeg Health Region*		159948	50.0	50.2	61903	37.6	38.0	98045	63.1	63.4

*Winnipeg Health Region total excludes 6 deaths between 1990-1994
 These 6 deaths were excluded from all rate calculations due to unknown ages

APPENDIX:
TECHNICAL NOTES

Relative Ratio and Rate Differences

Relative Ratio for a Neighbourhood Cluster (NC) as compared to the rest of the WHR for event X

$$= \frac{\text{Number of event X in NC}}{\text{Number of event X in rest of WHR}} \times \frac{\text{population at risk in rest of WHR}}{\text{population at risk in NC}}$$

This is a relative ratio of the number of event X in a NC to the number of event X in the rest of the WHR, multiplied by a population(at risk) factor which adjusts for differences in populations. Event X could be any variable or indicator of interest such as teenage pregnancies, low birth weight, or diabetes, etc.

Example and Interpretation

Suppose the event X rate in year 2000 for Area A was 50 cases per 1000 population at risk and the comparable event X in all other areas in the region combined (excluding Area A) was 25 cases per 1000 population at risk. The two groups can be compared by the ratio of their rates (see above). Considering all areas in the region combined (excluding the area to be compared) as the reference, we can calculate the ratio in area A compared with all other areas in the region combined (excluding area A) as $50/25 = 2.0$. Thus, we can say that the event X rate in Area A is 2 times that of the rest of the region.

Difference in Event Rates per 1000 population:

Difference in event X per 1000 between a Neighbourhood Cluster (NC) and the rest of the WHR :

$$= \left(\left(\frac{\text{Number of event X in NC}}{\text{Population at risk in NC}} \right) - \left(\frac{\text{Number of event X in rest of WHR}}{\text{Population at risk in rest of WHR}} \right) \right) * 1000$$

Example and Interpretation

Suppose that the event X rate in year 2000 for area A was 50 cases per 1000 population at risk and the comparable event X rate for all other areas in the region combined (excluding area A) was 25 cases per 1000 population at risk. The two groups can be compared by a rate difference (see above). We can calculate the rate difference between area A with all other areas in the region combined (excluding area A) as $50 - 25 = 25$ cases per 1000. This difference indicates how much, in absolute rather than relative terms, the event X rates differ in these two populations. Thus, we can say there are 25 per 1000 more persons in Area A potentially at risk compared to the rest of the Winnipeg Health Region. Similarly, if the event X rate in area A was 10 cases per 1000 and the comparable incidence rate in all other areas in the region combined (excluding area A) was 25 cases per 1000 population, the difference in event X per 1000 would be $10 - 25 = -15$. Therefore, there are 15 per 1000 population fewer individuals potentially at risk compared to the rest of the Winnipeg Health Region.

Using Relative Ratios and Rate Differences

Both the relative ratio and rate difference should be examined together when data permit.

Example 1:

Area	Event Rate per 1000 Year 1	Event Rate per 1000 Year 2	Relative Ratio (Rate Year 2 / Rate Year 1)	Rate Difference per 1000 (Rate Year 2 – Rate Year 1)
A	9	20	2.22	11
B	30	65	2.17	35

The relative ratio of the event rate in year 2 compared to year 1 is slightly greater for Area A (i.e., the year 2 rate was 2.22 times the year 1 rate). However, the rate difference from year 2 to year 1 is greater for Area B. If each area had a population of 10000, the public health impact due to a similar twofold increase in both areas would result in an increase of 110 cases in Area A and 350 cases in Area B.

Example 2:

Area	Event Rate Per 1000 Year 1	Event Rate per 1000 Year 2	Relative Ratio (Rate Year 2 / Rate Year 1)	Rate Difference Per 1000 (Rate Year 2 – Rate Year 1)
A	12	125	10.4	113
B	150	265	1.8	115

The relative ratio of the event rate in year 2 compared to year 1 is greater for Area A (i.e., the year 2 rate was 10.4 times the year 1 rate). However, the rate difference from year 2 to year 1 is slightly greater for Area B. The public health impact due to a twofold increase in Area B is similar to a tenfold increase in Area A. That is, if each area had a population of 10000, the twofold increase in disease for Area B would have resulted in 1150 additional cases and the tenfold increase in disease for Area A would have resulted in 1130 additional cases.

Example 3:

NC Area	Cases	NC Area rate per 1000	Rate of the rest of Region excluding NC per 1000	*Relative Ratio of each NC Area as compared to the rest of the Region	**Difference in Rates per 1000 between each NC Area and the rest of the Region
B	227	179.9	146.8	1.23	33.1

The rate per 1000 population at risk in area B is 1.23 times the rest of the region. In order for Area B to have the same rate per 1000 population at risk as the rest of the region (or a relative ratio of 1), the number of cases would need to be reduced by 42 (i.e.

$33.1 \times \left(\frac{227}{179.9} \right)$). That is, if area B could reduce the number of cases from the current 227 to 185 the rate per 1000 population at risk would be approximately equivalent to the rest of the region.

Classification of Diseases

ICD-9 and ICD-9-CM

ICD-9 refers to the *Manual of the International Statistical Classification of Diseases, Injuries, and Causes of Death, Ninth Revision*, produced by the World Health Organization (WHO) in 1977.² ICD-9-CM refers to *International Classification of Diseases 9th Revision Clinical Modification*, the clinical modification of ICD-9 developed and used for morbidity coding in the United States. The latter is also used in Manitoba for coding of hospitalization data. ICD-9-CM provides a more detailed diagnostic coding system for healthcare billing by adding fourth and fifth digits to the standard three digit ICD-9 code. The *International Classification of Diseases 9th Revision Clinical Modification Fifth Edition 1998* was the resource used for defining ICD-9 codes for this report.³

Specific details about the comparability between ICD-9 and ICD-9-CM as relevant to this mortality report are as follows:

- The ICD-9-CM three-digit rubric and their contents (i.e. descriptions) do not differ from ICD9.
- The sequence of three-digit rubrics is unchanged from ICD-9.
- No three-digit rubrics are added to the ICD-9-CM.
- American spellings of medical terms are used.

Further details about fourth and fifth digit rubrics can be found in the ICD-9-CM reference.

² World Health Organization. *International Classification of Diseases. Manual of the international statistical classification of diseases, injuries, and causes of death. Volume 1.* Geneva: World Health Organization, 1977.

³ *International Classification of Diseases 9th Revision Clinical Modification Fifth Edition (1998)*

Injury Mortality –Technical Notes

Injury Matrix

In order to facilitate the analysis of injury data, Health Canada recommends the use of an “Injury Matrix” for the grouping of ICD9 E-codes by cause and intent/manner.⁴ This method of summarizing data is useful in public health planning and monitoring trends over time. This Injury Matrix was first presented by the United States Centers for Disease Control, and is recommended by ICE (International Collaborative Effort on Injury Statistics) for the presentation of injury data.⁵ It has been modified slightly by Health Canada in order to monitor specific injuries of interest to Canadians (e.g. those due to snow mobiles, or excessive cold).¹ The Injury Matrix follows this discussion (Table B3).

Intent or Manner Categories

There are five categories of intent or manner: Unintentional, Self-inflicted, Assault, Undetermined, and Other used in the Injury Matrix. The injury mortality data presented has been grouped into these categories of intent using the same groupings of ICD9 E-codes as in the Injury Matrix (summarized in the Table B1, below). It should also be noted that although the Adverse Effects category is traditionally not included in total injury counts, (as this category is not considered to be a public health issue) they are presented in this report as a sixth category with the Intent/Manner categories and was included in the total injury counts, this differs from the Injury Matrix. However, the same grouping of E-codes for Adverse Effects was used for this report as is used in the Injury Matrix. If one wishes to determine the total injury count with the Adverse Effects category excluded, one may simply subtract this category from the Total Injury count in the data table.

An additional category, “Unable to Categorize” was created to account for those codes, which were found to be invalid on the fourth and final digit of the E-code. Since it is unknown where in the code the error lies, these codes were counted as an injury but were unable to be categorized into a specific cause or intent/manner category in the Injury Matrix. For the ten-year time period, this accounts for 24 cases (deaths) or 1% of the total number of deaths due to injury.

Unintentional Injury Causes and Mechanisms

Unintentional Injury is presented in this report by the major category groupings of causes from the Injury Matrix. Please refer to Table B2, which presents the E-codes as well as a brief description of the types of injuries in these injury categories. These descriptions were derived from the MMWR, 1997 article.² As noted in the main report, a more detailed examination of injury death data using the full Injury Matrix is forthcoming in a future WHR injury report.

⁴ Child Injury Division, Bureau of Reproductive and Child Health, Laboratory Centre for Disease Control, Health Protection Branch, Health Canada. October, 1999.

⁵ Centers for Disease Control and Prevention. Recommended Framework for Presenting Injury Mortality Data. MMWR 1997;46 (No.RR-14).

Unspecified Cause Category

An issue of concern found upon analysis of the injury death data was the substantial number of deaths that were coded as “Unspecified”. This can be mainly attributed to the Fall category code for “Fractures, cause unspecified” (ICD9 code E887). Of special concern is the large increase in the number of deaths attributed to this cause between the two time periods, particularly for females. This E-code is meant to be used for cases of fractures when nothing is known about the cause.² This may indicate a methodological concern in the actual coding of cause of death in the administrative database used in this project, and should be identified as a possible misclassification error. This has been noted in other injury death data reports, and is a particular concern among the elderly.¹ The low PYLL associated with this sub-category, in this dataset, demonstrates this point. For this report the “Unspecified” category was treated as an issue of data quality and was excluded when determining the leading causes of Unintentional Injury death in the discussion. However, the “Unspecified” category is presented in the data tables, for completeness in accounting of the data. Further investigation of this issue is ongoing and will be presented in the forthcoming injury report.

Table B1:

Table of Injury Groupings by Intent/Manner		
Intent/Manner	ICD9 E-Code	Description
Unintentional	E800.0-E869.9, E880-E929.9	Unintentional injuries of various causes/mechanisms (see next table).
Self-inflicted	E950.0-E959	Intentional self-harm (including suicide). Includes mechanisms such as: cut/pierce, drowning, fall, poisoning, suffocation, firearms, fire/burn.
Assault	E960.0-E969	Intentional harm by others. Includes mechanisms such as: cut/pierce, firearm, fire/burn, struck by, against, child maltreatment.
Undetermined	E980.0-E989	Unable to determine the Manner/Intent of the injury. Some examples of mechanisms include: drowning, fire/burn, poisoning, suffocation.
Other	E970-E978, E990-E999	This includes injury caused by legal intervention, and operations of war. Includes military personnel and civilians.
Adverse effects	E870.0- E879.9,E930.0- E949.9	A series of codes clustered under "misadventures to patients during surgical and medical care", "surgical and medical procedures as the cause of abnormal reaction of patient or later complication without mention of misadventure at the time of procedure"; "drugs, medicinal, and biological substances causing adverse effects in therapeutic use". Excludes accidental overdose or wrong drug administered.
Unable to Categorize	Various codes	Error in fourth digit of E-code, and unable to categorize into any of the above categories.

Reference: Centers for Disease Control and Prevention. Recommended Framework for Presenting Injury Mortality Data. MMWR 1997;46 (No.RR-14).

Table B2

Table of Unintentional Injury E-code Groupings		
Mechanism/Cause	ICD9 Code	MMWR Description
Cut/pierce	E920.0-.9	Deaths caused by cutting and piercing instruments
Drowning/submersion	E830.0-.9, E832.0-.9, E910.0-.9	Deaths from drowning and submersion with and without involvement of watercraft.
Fall	E880.0-E886.9, E888	Deaths from falls associated with various mechanisms. Excludes E887: Fracture, cause unspecified.
Fire/burn	E890.0-E899, E924.0-.9	Deaths from fire and flames and from hot objects and substances.
Firearm	E922.0-.3,.8, .9	Includes codes related to death from firearms (excludes air guns).
Machinery	E919 (.0-.9)	Includes codes associated with machinery used in various industrial and occupational activities (including agricultural).
Motor vehicle traffic	E810-E819 (.0-.9)	Deaths resulting from motor-vehicle-traffic injuries involving automobiles, vans, trucks, motor cycles, and other motorized cycles known or assumed to be traveling on public roads or highways.
Pedal cyclist, other	E800-E807 (.3), E820-E825 (.6), E826.1,.9, E827-E829(.1)	Deaths among pedal cyclists not involving motor-vehicle traffic accidents. Includes persons hit by a train or by a motor vehicle while not in traffic, or in collision with another pedal cycle.
Pedestrian, other	E800-807(.2), E820-E825(.7), E826-E829(.0)	Includes codes for pedestrians hit by a train, a motor vehicle where the collision did not occur in traffic (i.e. on a public road or highway).
Transport, other	E800-E807 (.0,.1,.8,.9), E820-E825 (.0-.5,.8,.9), E826.2-.8, E827-E829 (.2-.9), E831.0-.9, E833.0-E845.9	Deaths associated with various other means of transportation: railway, off-road and other motor vehicles not in traffic. Includes other surface transport (e.g. snowmobiles), water, and aircraft.
Natural/environmental	E900.0-E909, E928.0-.2	Includes, but is not limited to, deaths due to excessive heat, excessive cold, hunger, cataclysmic storms (e.g. tornados, floods, and hurricanes) as well as bites and stings from insects or animals.
Overexertion	E927	Examples include: excessive physical exercise, overexertion from lifting, pulling, pushing. Strenuous movements in: recreational activities, other activities.
Poisoning	E850.0-E869.9	Includes all codes referring to poisoning. Includes drugs and medicinal substances, and gases.
Struck by, against	E916-E917.9	Injuries resulting from being struck by or striking against objects or persons.
Suffocation	E911-E913.9	Includes inhalation or ingestion of food or other objects that block respiration and by other mechanical means that hinder breathing (e.g. plastic bag over nose or mouth, suffocation by bedding, unintentional hanging or strangulation).
Other specified, classifiable	E846-E848, E914-E915, E918, E921.0-.9, E922.4, E923.0-.9, E925.0-E926.9, E928.3, E929.0-.5	Causes of injury deaths not assigned to the specific categories within the matrix. Includes (but not limited to) foreign body entering an orifice, caught accidentally between objects, explosions, electric current.
Other specified, NEC	E928.8, E929.8	Codes for mechanisms of injury that have been reported on the death certificate but for which no specified E-codes exists.
Unspecified	E887, E928.9, E929.9	Codes used to indicate cases where the mechanisms are not recorded on a death certificate. The largest contributor to this category is E887: Fracture, cause unspecified. Also includes: unspecified accidents (E928.9), and late effects of unspecified accidents (E929.9).
Reference: Centers for Disease Control and Prevention. Recommended Framework for Presenting Injury Mortality Data. MMWR 1997;46 (No.RR-14).		

Table B3

Injury Matrix
E-code Groupings

Mechanism/Cause	Unintentional	Self-inflicted	Assault	Undetermined	Other
Cut/pierce	E920.0-9	E956	E966	E986	E974
Drowning/submersion	E830.0-9, E832.0-9, E910.0-9	E954	E964	E984	
Fall	E880.0-E886.9, E888	E957.0-9	E968.1	E987.0-9	
Fire/burn	E890.0-E899, E924.0-9	E958.1, 2, 7	E961, E968.0, 3	E988.1, 2, 7	
Fire/flame	E890.0-E899	E958.1	E968.0	E988.1	
Private home conflagration	E890(0-9)				
Ignition of clothing	E893(0-9)				
Hot object/substance	E924.0-9	E958.2, 7	E961, E968.3	E988.2, 7	
Firearm	E922.0-3, 8, 9	E955.0-4	E965.0-4	E985.0-4	E970
Machinery	E919 (0-9)				
Agricultural machines	E919.0				
Motor vehicle traffic	E810-E819 (0-9)	E958.5	E968.5	E988.5	
Occupant	E810-E819 (0,1)				
Motorcyclist	E810-E819 (2,3)				
Pedal cyclist	E810-E819 (6)				
Pedestrian	E810-E819 (7)				
Unspecified	E810-E819 (9)				
Pedal cyclist, other	E800-E807 (3), E820-E825 (6), E826.1, 9, E827-E829 (1)				
Pedestrian, other	E800-807(2), E820-E825(7), E826- E829(0)				
Transport, other	E800-E807 (0, 1, 8, 9), E820-E825 (0- 5, 8, 9), E826.2-8, E827-E829 (2- 9), E831.0-9, E833.0-E845.9	E958.6		E988.6	
Snowmobile	E820(0,1,9)				
Other off-road vehicle	E821(0,1,9)				
Water transport, ex. Drowning	E831(0-9), E833-E838(0-9)				
Air & space transport	E840.0-E845.9				
Natural/environmental	E900.0-E909, E928.0-2	E958.3		E988.3	
Excessive cold	E901(0-9)	E958.3		E988.3	
Bites and stings	E905.0-6, 9, E906.0-4, 5, 9				
Overexertion	E927				
Poisoning	E850.0-E869.9	E950.0-E952.9	E962.0-9	E980.0-E982.9	E972
Medication	E850.0-E858.9	E950.0-5	E962.0	E980.0-5	
Alcohol	E860(0-9)				
Motor vehicle exhaust	E868.2	E952.0		E982.0	
Other carbon monoxide	E868(3, 8, 9)	E952.1		E982.1	
Struck by, against	E916-E917.9		E960.0, E968.2		E973, E975
Suffocation	E911-E913.9	E953.0-9	E963	E983.0-9	
Choking on food	E911				
Choking, non-food	E912				
Suffocation, plastic bag	E913.1	E953.1			
Suffocation in bed or cradle	E913.0				
Hanging ex in bed or cradle	E913.8	E953.0	E963	E983.0	
Other specified, classifiable	E846-E848, E914-E915, E918, E921.0- 9, E922.4, E923.0-9, E925.0- E926.9, E928.3, E929.0-5	E955.5, 6, 9, E958.0, 4	E960.1, E965.5-9, E967.0-9, E968.4, 6, .7	E985.5, 6, E988.0, 4	E971, E978, E990-E994, E996, E997.0-2
Child maltreatment			E967(0-9)		
Other specified, NEC	E928.8, E929.8	E958.8, E959	E968.8, E969	E988.8, E989	E977, E995, E997.8, E998, E999
Unspecified	E887, E928.9, E929.9	E958.9	E968.9	E988.9	E976, E997.9
Fracture, cause unspecified	E887				
All injury	E800.0-E869.9, E880-E929.9	E950.0-E959	E960.0-E969	E980.0-E989	E970-E978, E990-E999
Adverse effects					E870.0-E879.9, E930.0- E949.9
Medical care					E870.0-E879.9
Drugs					E930.0-E949.9
All external causes					E800.0-E999.9

Reference: Child Injury Division, Bureau of Reproductive and Child Health, Laboratory Centre for Disease Control, Health Protection Branch, Health Canada. October, 1999.

Unable to Categorize

The purpose of this technical note is to provide a rationale for the development of the Unable to Categorize category in the Injury and Poisoning chapter. Injury and Poisoning as a leading cause of death category was determined using the ICD-9 Clinical Diagnostic Grouper, which groups the records by their three-digit ICD-9 codes. Injury and Poisoning deaths were further examined by use of the four-digit ICD-9 codes, and the previously described Injury Matrix. In doing this, coding errors were found in the fourth digit of the ICD-9 code of 24 records. At this point, it could not be determined if the error was in the fourth digit only, or if the error was in the first, second or third digits of the ICD-9 code. A change in any one of the first three digits of the ICD-9 code can change the cause of the injury death. The approach taken was to assume that the error could be in any one of the four digits that make-up the ICD-9 code (i.e. we now could not assume that the first three digits were correct) and not to attempt to place these records into sub-categories. These records were consequently grouped as "Unable to Categorize" (in Tables 41 and 42). This was done in order to: (1) employ a consistent methodology for categorizing these erroneous codes; (2) to utilize the Injury Matrix properly; and (3) to avoid the potential for over-reporting in any one specific injury cause or intent/manner category.

If however, one wishes to assume that the first three digits of the ICD-9 code were correct, then the 24 records may be further categorized by Intent/manner (within Injury and Poisoning) as follows:

1990-1994

Unintentional Injury: 6 cases (can be further subdivided as: Fall, 4 cases; Transport, other, 1 case; Suffocation, 1 case; Other specified, classifiable, 1 case); Self-inflicted: 7 cases; and Other: 1 case.

1995-1999

Unintentional Injury: 4 cases (Suffocation, 4 cases); Self-inflicted: 2 cases; Other: 2 cases; and Adverse Effects: 1 case.

It is important to note that the addition of these cases to the Intent/manner sub-categories in Tables 41 and 42 would not significantly affect the proportions that these sub-categories comprise of Total Injury, nor the interpretation of the data in the Injury and Poisoning chapter. The same can be said of the Unintentional Injury causes (Tables 43-48).