

Definition/Description:

Cancer is an abnormal growth of cells which tend to proliferate in an uncontrolled way and, in some cases, to metastasize (spread). Cancer can involve any tissue of the body and have many different forms in each body area. Most cancers are named for the type of cell or organ in which they start.

Cancer accounts for about one-quarter of all deaths in Manitoba, with lung cancer, breast cancer and cancer of the colon accounting for the most cases and deaths. A similar pattern is reflected for the Winnipeg Health Region with lung, breast and prostate cancers accounting for most of the cases.

While this indicator represents estimates of new cancer cases, it is important to note that the overall prevalence of cancer in the Canadian population is approximately 2% among males and 2.5% among females.¹ Of note, just under 1% of the female population are survivors of breast cancer and just over 0.5% of the male population are survivors of prostate cancer¹.

Cancer Incidence Rate

Cancer incidence rate is defined as the rate of new cases of cancer diagnosed each year. In some cases this rate is averaged over a five-year period to give an annual rate as it provides a more stable rate estimate. It is not a percentage as an individual may suffer more than one new malignancy in the five-year period. Therefore, each new diagnosis is counted as a separate event.

Method

Cancers have been identified through the primary site of occurrence. The categories have been identified using the ICD-9 classification codes identified in the tables below.

Regional Comparisons

Annual cancer incidence rates for males and females have been generated for a ten-year period (1992-2001) for each RHA in the Province of Manitoba. Cancer cases were defined as ICD 9 codes 140-208 excluding 173 (non-malignant skin cancer). Crude and Age-adjusted rates have been calculated. Age and sex adjusted rates were standardized using the direct method using Manitoba 1996 as the standard population.

Overall cancer rates and rates by specific types of cancer are provided for males and females at the regional level. Cases were identified for specific cancers based on ICD 9 codes 140-208 and 230-239. Summary totals were generated for Invasive Cancers (ICD 9 codes 140-208, excluding 173), Total Including *in situ* (ICD 9 codes 140-208, 230-234); and Neoplasms (ICD 9 codes 235-239).

Intra-Regional Comparisons

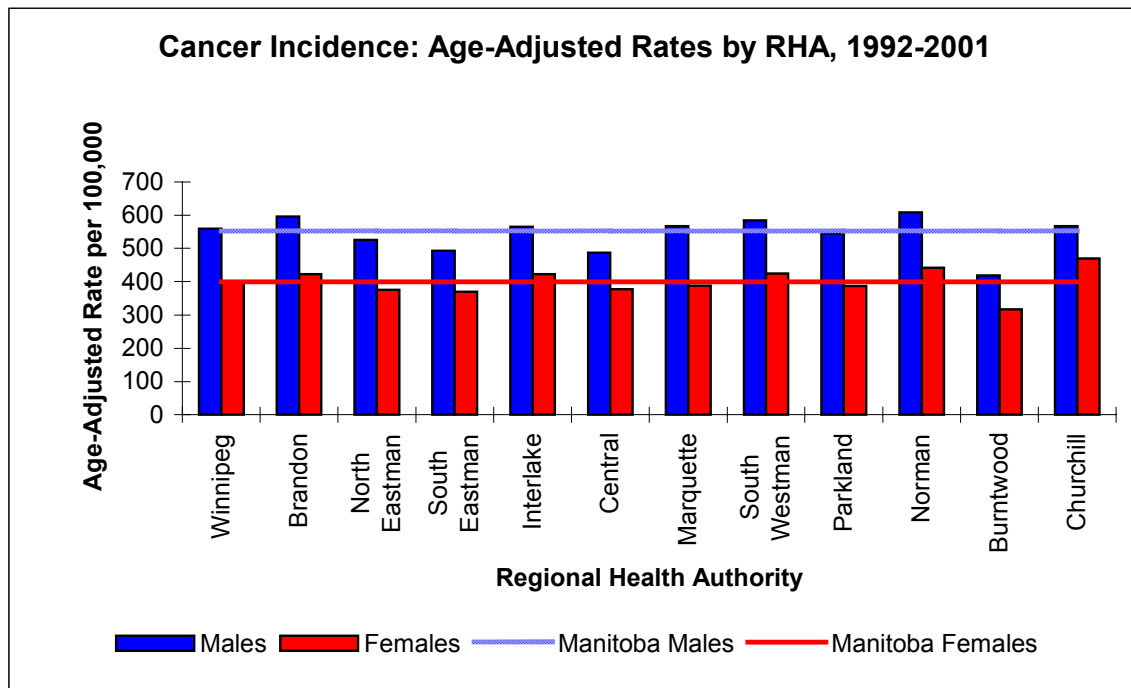
For intra-regional comparisons, five calendar years of CancerCare Manitoba data were used (1991-1995 and 1996-2000). Crude and Age-adjusted rates have been calculated. Age and sex adjusted rates were standardized using the direct method using Manitoba 1996 as the standard population. Age and region of residence were assigned by CancerCare Manitoba. Cases were defined as ICD 9 codes 140-208, plus 230-239 ('In situ' cancers), but excluding ICD 9 code 173 (non-malignant skin cancer). Metastases are not included as incident cases: only new 'primaries' are counted. The age groups for the direct standardization were 0-24, 25-44, 65-74 and 75+. All rates were adjusted for age and sex.

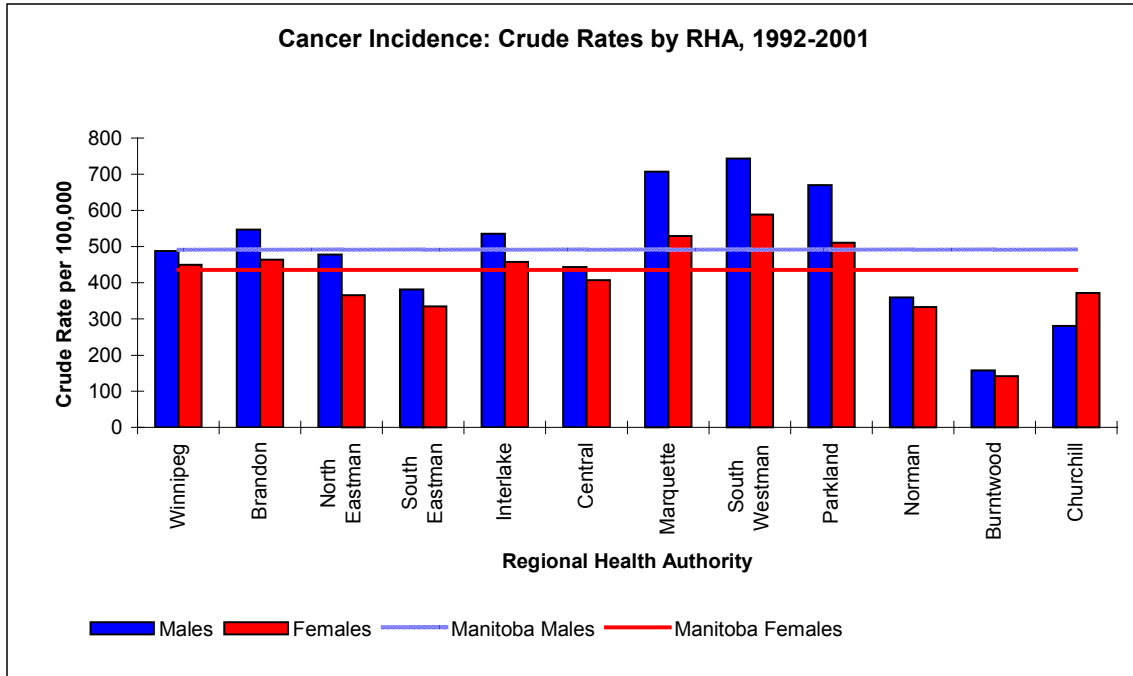
¹ National Cancer Institute of Canada: Canadian Cancer Statistics 2003

Source:

Information on regional and provincial cancer statistics were provided by Cancer Care Manitoba, June 2004. Information on inter-regional cancer incidence rates (Community Area and Neighbourhood Clusters) were provided by the Need to Know Project, Manitoba Centre for Health Policy, 2003. All numerical values, tables and figures (including spatial analyses) were generated by the Population Health and Health System Analysis Unit, Winnipeg Regional Health Authority.

Findings:





Cancer Incidence: Counts and Rates per 100 000 by Regional Health Authority's for 1992-2001

| Males | | | |
|-----------------|-----------------|-------------------|--------------------------|
| RHA | Total 1992-2001 | Annual Crude Rate | Annual Age-Adjusted Rate |
| Unknown | 98 | -- | -- |
| Winnipeg | 15298 | 487.2 | 559.2 |
| Brandon | 1241 | 546.2 | 595.6 |
| North Eastman | 937 | 478.2 | 526.0 |
| South Eastman | 1031 | 381.4 | 492.8 |
| Interlake | 2075 | 535.5 | 564.5 |
| Central | 2168 | 443.5 | 487.1 |
| Marquette | 1311 | 706.5 | 566.6 |
| South Westman | 1264 | 743.3 | 584.6 |
| Parkland | 1483 | 670.1 | 545.2 |
| Norman | 468 | 359.0 | 608.1 |
| Burntwood | 356 | 157.3 | 418.8 |
| Churchill | 16 | 281.0 | 567.7 |
| Total | 27746 | 491.0 | 552.3 |

| Females | | | |
|-----------------|-----------------|-------------------|--------------------------|
| RHA | Total 1992-2001 | Annual Crude Rate | Annual Age-Adjusted Rate |
| Unknown | 81 | -- | -- |
| Winnipeg | 14928 | 449.6 | 400.3 |
| Brandon | 1146 | 463.3 | 423.3 |
| North Eastman | 679 | 365.3 | 375.6 |
| South Eastman | 873 | 334.4 | 369.6 |
| Interlake | 1714 | 458.0 | 423.1 |
| Central | 1975 | 407.1 | 377.9 |
| Marquette | 983 | 529.7 | 387.6 |
| South Westman | 1015 | 588.8 | 424.7 |
| Parkland | 1117 | 510.6 | 386.4 |
| Norman | 415 | 332.6 | 441.8 |
| Burntwood | 301 | 141.4 | 316.7 |
| Churchill | 19 | 371.2 | 469.5 |
| Total | 25246 | 435.6 | 399.2 |

Cancer Incidence: Counts and Rates per 100 000 for Males in the Winnipeg Health Region and Manitoba, 1992-2001

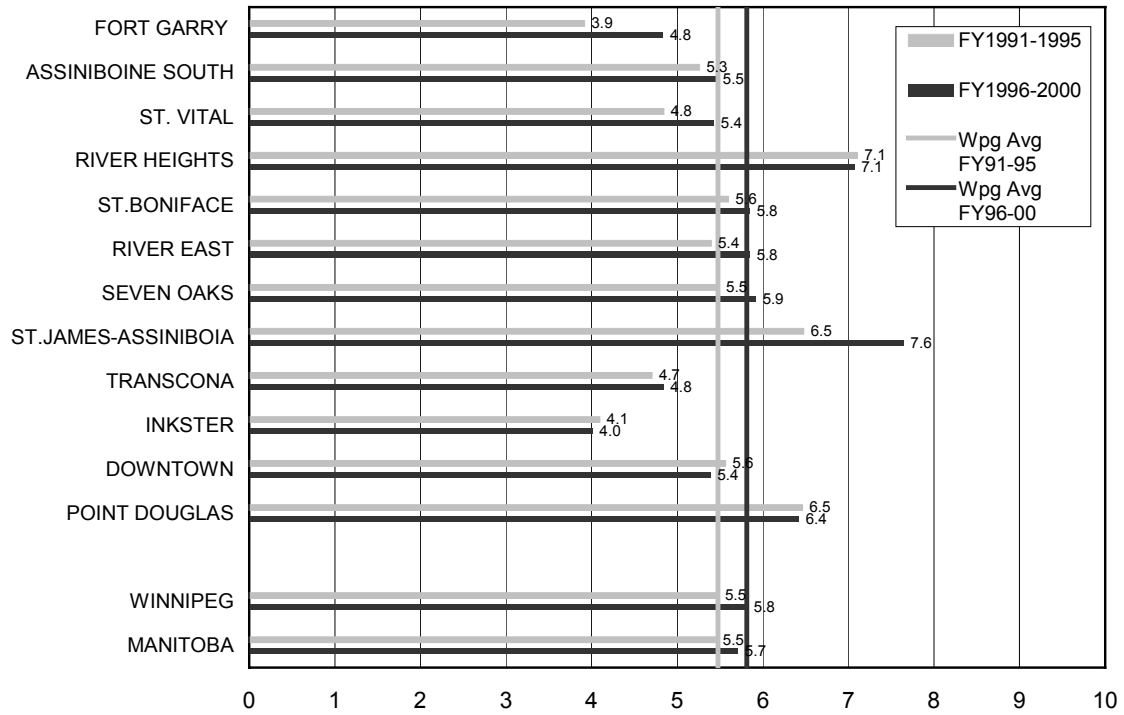
| Diagnosis Groups | ICD-9 Codes | Winnipeg Health Region | | | Manitoba | | |
|--|------------------------------|------------------------|----------------------|------------------------------|--------------------|----------------------|------------------------------|
| | | Total 1992-2001 | Annual Crude Rate | Annual Age- Adjusted Rate | Total 1992-2001 | Annual Crude Rate | Annual Age- Adjusted Rate |
| Prostate | 185 | 4195 | 133.6 | 155.9 | 7867 | 139.2 | 158.8 |
| Lung | 162 | 2589 | 82.5 | 95.6 | 4532 | 80.2 | 90.5 |
| Large Intestine | 153 | 1322 | 42.1 | 49.6 | 2386 | 42.2 | 48.2 |
| Other (rare invasive cancers not listed above) | | 1055 | 33.6 | 38.0 | 1868 | 33.1 | 36.9 |
| Rectum | 154 | 739 | 23.5 | 26.7 | 1417 | 25.1 | 28.0 |
| Bladder | 188 | 737 | 23.5 | 28.0 | 1355 | 24.0 | 27.8 |
| Lymphoma (other) | 200,202 | 735 | 23.4 | 26.3 | 1233 | 21.8 | 24.1 |
| Kidney | 1890 | 504 | 16.1 | 17.9 | 912 | 16.1 | 17.7 |
| Stomach | 151 | 444 | 14.1 | 16.7 | 771 | 13.6 | 15.7 |
| Leukemia | 204-208 | 433 | 13.8 | 15.7 | 781 | 13.8 | 15.3 |
| Skin (melanoma) | 172 | 368 | 11.7 | 12.6 | 633 | 11.2 | 12.0 |
| Pancreas | 157 | 351 | 11.2 | 13.1 | 602 | 10.7 | 12.1 |
| Liver/Biliary | 155-156 | 270 | 8.6 | 9.9 | 452 | 8.0 | 9.0 |
| Multiple Myeloma | 203 | 231 | 7.4 | 8.5 | 416 | 7.4 | 8.3 |
| Brain (malignant) | 191 | 225 | 7.2 | 7.6 | 414 | 7.3 | 7.7 |
| Larynx | 161 | 193 | 6.2 | 6.8 | 314 | 5.6 | 6.1 |
| Esophagus | 150 | 180 | 5.7 | 6.4 | 338 | 6.0 | 6.7 |
| Testis | 186 | 173 | 5.5 | 5.2 | 292 | 5.2 | 5.1 |
| Pharynx | 146-148 | 153 | 4.9 | 5.1 | 231 | 4.1 | 4.3 |
| Lip | 140 | 115 | 3.7 | 4.2 | 432 | 7.6 | 8.7 |
| Connective Tissue | 171 | 106 | 3.4 | 3.8 | 176 | 3.1 | 3.4 |
| Hodgkin's Disease | 201 | 78 | 2.5 | 2.5 | 145 | 2.6 | 2.6 |
| Thyroid | 193 | 72 | 2.3 | 2.3 | 127 | 2.3 | 2.3 |
| Breast, Male (invasive) | 175 | 30 | 1.0 | 1.1 | 52 | 0.9 | 1.1 |
| Breast, Female (invasive) | 174 | 0 | 0.0 | 0.0 | 0 | 0.0 | 0.0 |
| Cervix uteri | 180 | 0 | 0.0 | 0.0 | 0 | 0.0 | 0.0 |
| Corpus uteri | 182 | 0 | 0.0 | 0.0 | 0 | 0.0 | 0.0 |
| Ovary | 183 | 0 | 0.0 | 0.0 | 0 | 0.0 | 0.0 |
| Total: Invasive Cancer | 140-208, excl 173 | 15298 | 559.2 | 487.2 | 27746 | 552.3 | 491.0 |
| Skin (other) | 173 | 5023 | 160.0 | 184.4 | 9957 | 176.2 | 199.4 |
| Skin (in situ) | 232 | 812 | 25.9 | 30.8 | 1461 | 25.9 | 29.7 |
| Breast (in situ) | 2330 | 4 | 0.1 | 0.2 | 6 | 0.1 | 0.1 |
| Cervix (in situ) | 2331 | 0 | 0.0 | 0.0 | 0 | 0.0 | 0.0 |
| Other in situ (excl. skin, breast, cervix) | 230-234 | 532 | 16.9 | 19.3 | 957 | 16.9 | 19.0 |
| Total: Including in situs | 140-208, 230- 234 | 21669 | 793.8 | 690.1 | 40127 | 800.5 | 710.1 |
| Neoplasms (excl.brain) | 235-239 | 779 | 24.8 | 28.9 | 1342 | 23.8 | 27.1 |
| Total: All sites | 140-208, 230- 239 | 22448 | 822.7 | 714.9 | 41469 | 827.6 | 733.9 |

Cancer Incidence: Counts and Rates per 100 000 for Females in the Winnipeg Health Region and Manitoba, 1992-2001

| Diagnosis Groups | ICD-9 Codes | Winnipeg Health Region | | | Manitoba | | |
|--|--------------------------|------------------------|-------------------|--------------------------|-----------------|-------------------|--------------------------|
| | | Total 1992-2001 | Annual Crude Rate | Annual Age-Adjusted Rate | Total 1992-2001 | Annual Crude Rate | Annual Age-Adjusted Rate |
| Breast, Female (invasive) | 174 | 4297 | 129.4 | 117.3 | 7238 | 124.9 | 116.4 |
| Lung | 162 | 2013 | 60.6 | 53.9 | 3160 | 54.5 | 50.0 |
| Large Intestine | 153 | 1407 | 42.4 | 36.0 | 2442 | 42.1 | 37.0 |
| Other (rare invasive cancers not listed above) | | 1044 | 31.4 | 27.1 | 1837 | 31.7 | 28.1 |
| Corpus uteri | 182 | 925 | 27.9 | 25.3 | 1537 | 26.5 | 24.7 |
| Lymphoma (other) | 200-202 | 640 | 19.3 | 17.1 | 1116 | 19.3 | 17.6 |
| Ovary | 183 | 623 | 18.8 | 17.2 | 1035 | 17.9 | 16.8 |
| Rectum | 154 | 501 | 15.1 | 13.2 | 909 | 15.7 | 14.1 |
| Leukemia | 204-208 | 385 | 11.6 | 10.4 | 648 | 11.2 | 10.2 |
| Pancreas | 157 | 374 | 11.3 | 9.5 | 642 | 11.1 | 9.6 |
| Skin (melanoma) | 172 | 341 | 10.3 | 9.4 | 581 | 10.0 | 9.6 |
| Cervix uteri | 180 | 340 | 10.2 | 9.7 | 572 | 9.9 | 9.7 |
| Bladder | 188 | 289 | 8.7 | 7.4 | 457 | 7.9 | 6.9 |
| Kidney | 1890 | 286 | 8.6 | 7.7 | 539 | 9.3 | 8.5 |
| Stomach | 151 | 268 | 8.1 | 6.8 | 431 | 7.4 | 6.5 |
| Thyroid | 193 | 262 | 7.9 | 7.6 | 452 | 7.8 | 7.7 |
| Liver/Biliary | 155-156 | 229 | 6.9 | 5.9 | 401 | 6.9 | 6.1 |
| Multiple Myeloma | 203 | 188 | 5.7 | 4.8 | 333 | 5.8 | 5.1 |
| Brain (malignant) | 191 | 183 | 5.5 | 5.1 | 341 | 5.9 | 5.6 |
| Esophagus | 150 | 81 | 2.4 | 2.1 | 135 | 2.3 | 2.0 |
| Hodgkin's Disease | 201 | 69 | 2.1 | 2.0 | 112 | 1.9 | 1.9 |
| Connective Tissue | 171 | 67 | 2.0 | 1.8 | 114 | 2.0 | 1.8 |
| Pharynx | 146-148 | 52 | 1.6 | 1.4 | 70 | 1.2 | 1.1 |
| Larynx | 161 | 32 | 1.0 | 0.9 | 58 | 1.0 | 0.9 |
| Lip | 140 | 32 | 1.0 | 0.8 | 86 | 1.5 | 1.3 |
| Breast, Male (invasive) | 175 | 0 | 0.0 | 0.0 | 0 | 0.0 | 0.0 |
| Prostate | 185 | 0 | 0.0 | 0.0 | 0 | 0.0 | 0.0 |
| Testis | 186 | 0 | 0.0 | 0.0 | 0 | 0.0 | 0.0 |
| Total: Invasive Cancer | 140-208, excl 173 | 14928 | 400.3 | 449.6 | 25246 | 399.2 | 435.6 |
| Skin (other) | 173 | 4490 | 135.2 | 119.1 | 8327 | 143.7 | 129.6 |
| Skin (in situ) | 232 | 728 | 21.9 | 18.6 | 1403 | 24.2 | 21.3 |
| Breast (in situ) | 2330 | 496 | 14.9 | 13.8 | 771 | 13.3 | 12.7 |
| Cervix (in situ) | 2331 | 2350 | 70.8 | 69.6 | 4090 | 70.6 | 71.9 |
| Other in situ (excl. skin, breast, cervix) | 230-234 | 392 | 11.8 | 10.7 | 637 | 11.0 | 10.3 |
| Total: Including in situs | 140-208, 230-234 | 23384 | 632.2 | 704.3 | 40474 | 645.0 | 698.4 |
| Neoplasms (excl.brain) | 235-239 | 799 | 24.1 | 21.3 | 1351 | 23.3 | 21.3 |
| Total: All sites | 140-208, 230-239 | 24183 | 653.5 | 728.4 | 41825 | 666.3 | 721.7 |

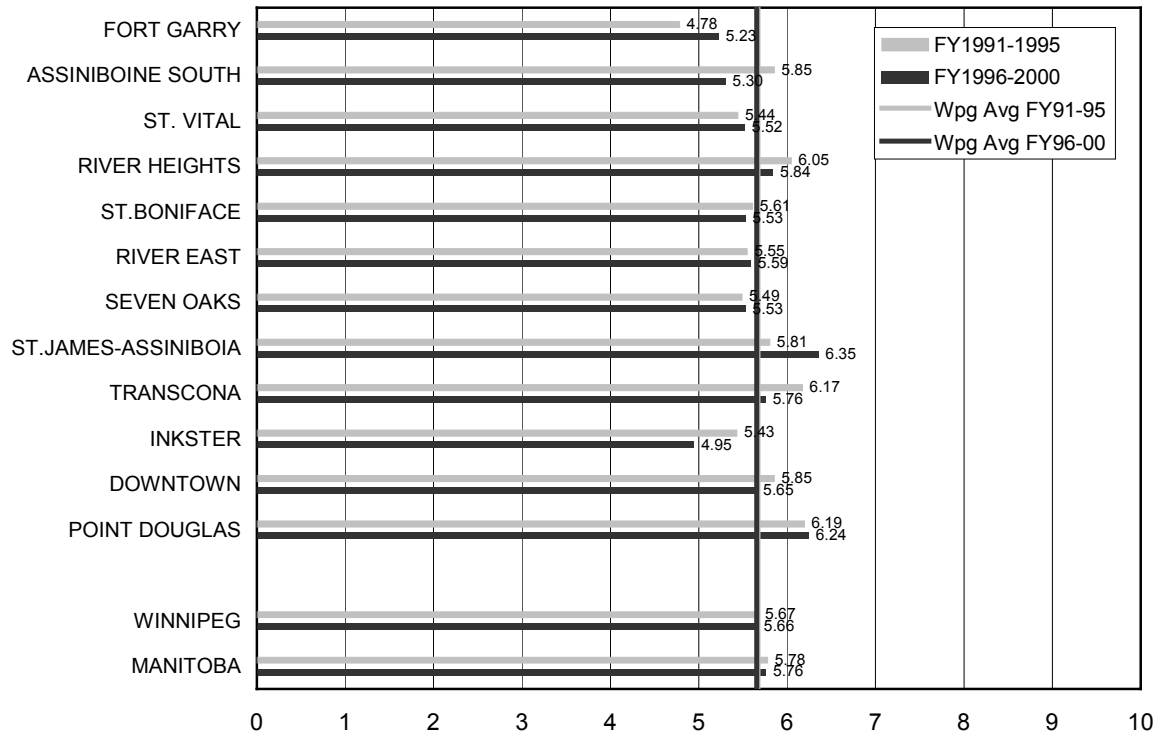
Cancer Incidence: Crude Rates by CA

Crude rate of new cancer cases reported per 1000 residents



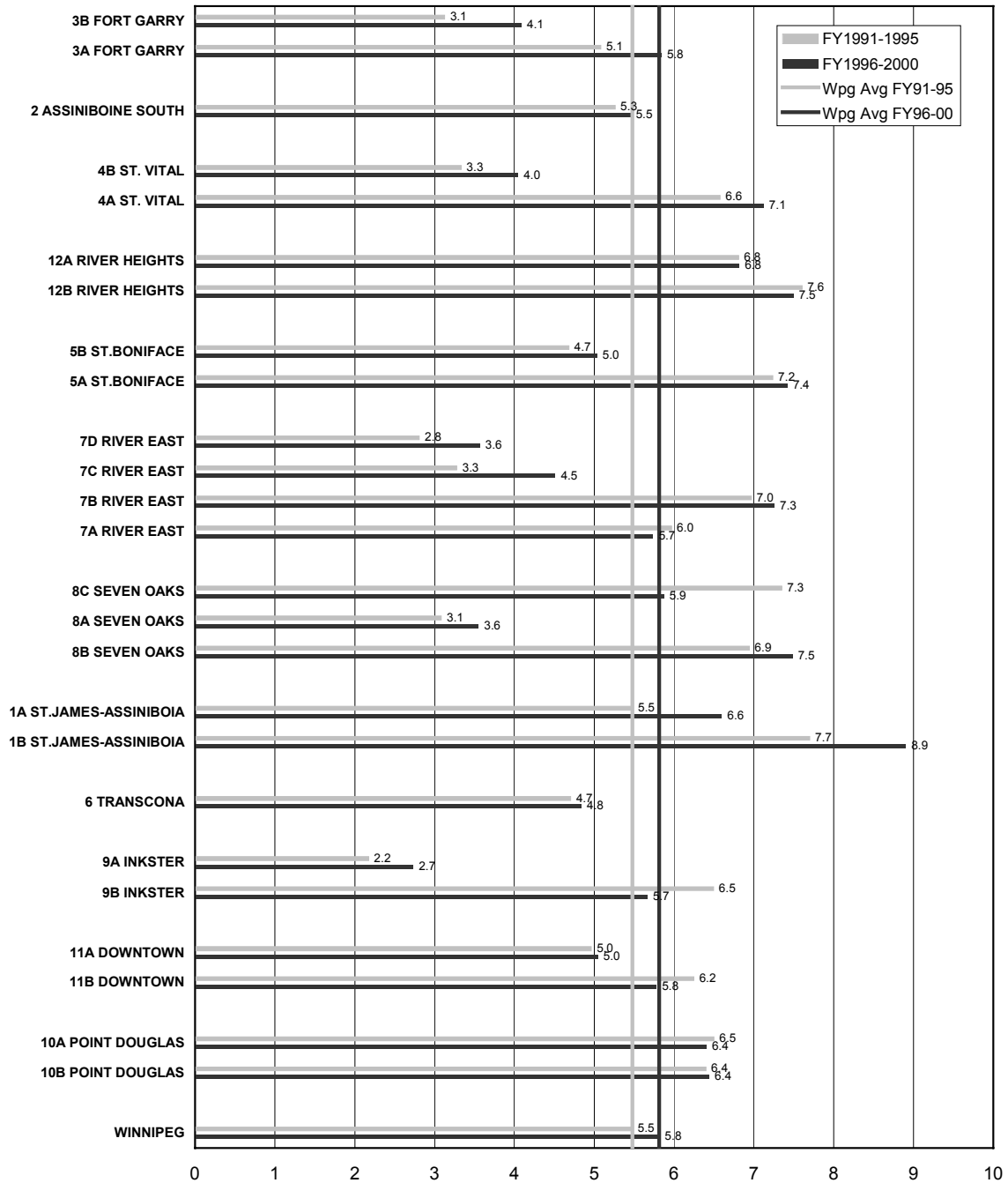
Cancer Incidence: Age-Adjusted by CA

Age- & sex-adjusted rate of new cancer cases reported per 1000 residents



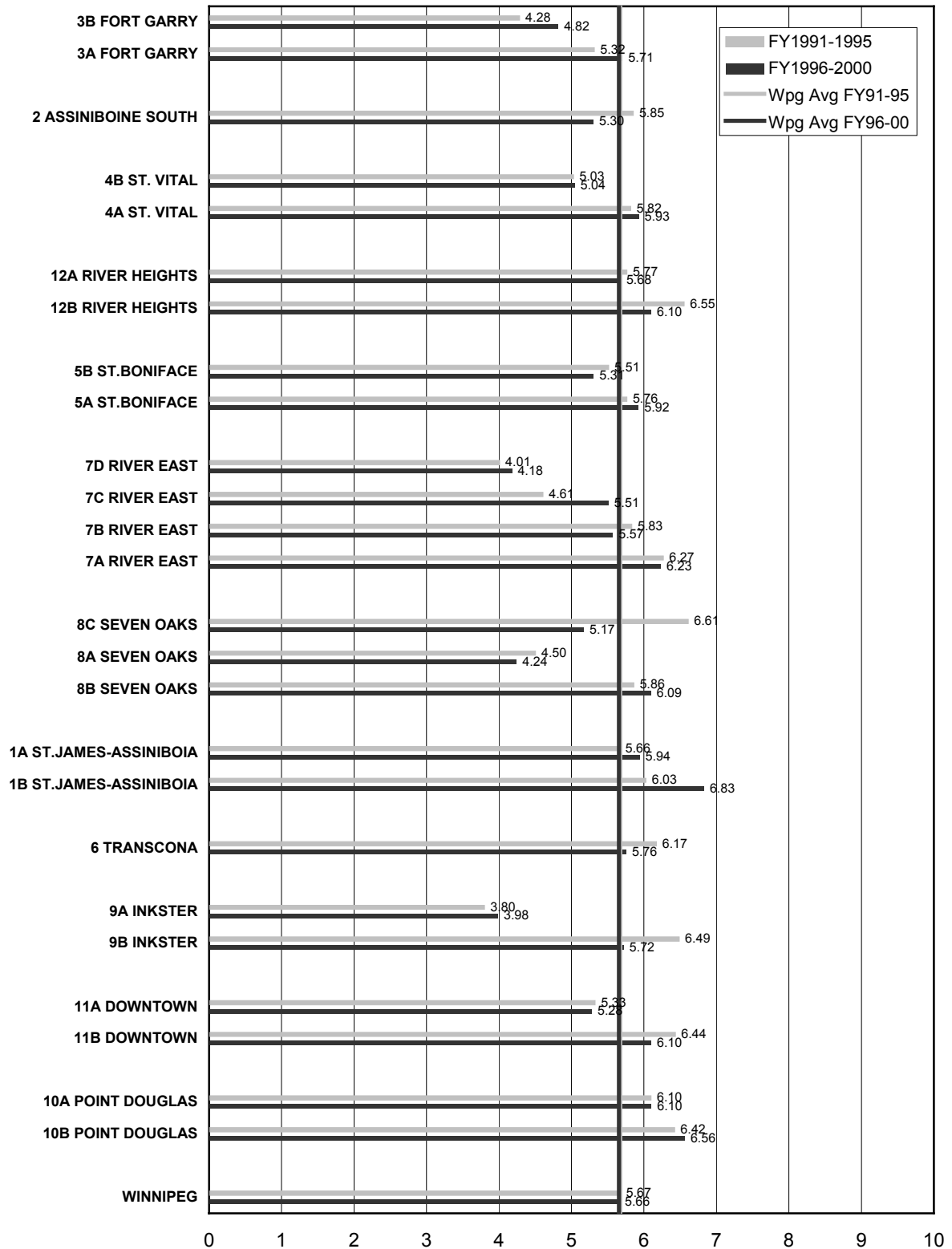
Cancer Incidence: Crude Rates by NC

Crude rate of new cancer cases reported per 1000 residents



Cancer Incidence: Age-Adjusted Rates by NC

Age- & sex-adjusted rate of new cancer cases reported per 1000 residents



Highlights:

Note: The crude rates are referred to in this narrative (unless otherwise stated).

Regional Comparisons

- Overall age-adjusted cancer incidence rates are approximately the same for males (559.2 per 100,000) in the WHR compared to males in the Province (552.3 per 100 000), and females where the age-adjusted cancer incidence rates in the WHR (400.3 per 100 000) are approximately the same compared to the Province (399.2 per 100 000).
- In the WHR, there are approximately 1530 new cases of cancer diagnosed each year for men, and 1493 new cases of cancer diagnosed each year for females. This equates to 55% of all cases for men and 59% of all new cases for females in the Province.
- The incidence of all invasive cancers for females is 400.3 per 100 000 and for males is 559.2 per 100 000.
- The incidence of all cancers (including in situs and neoplasms) is 822.7 and 653.5 per 100,000 males and females respectively, when age and sex adjusted the rates are 714.9 and 728.4 per 100 000 males and females respectively.
- The leading cancers for males in the WHR are: Prostate, Lung, Large Intestine, Rectum and Bladder based on both cases and rates. Similar patterns exist for all males in the Province.
- The leading cancers for females in the WHR are: Breast, Lung, Large Intestine, Uterine and Lymphoma (excluding Hodgkin's Disease). Similar patterns exist for all females in the Province.
- Compared to other RHA's, WRHA has the 7th highest age-adjusted cancer incidence rate for males and 6th highest for females.
- The cancer incidence rate for the WHR appears to be stable between the two time periods 1991-1995 (t_1) and 1996-2000 (t_2).
- The WHR rate increased slightly from 5.5 cases per 1000 population to 5.8 cases per 1,000 population; these rates were slightly lower than those for Manitoba for the same time periods.
- There were minimal differences between the age- & sex-standardized rates and crude rates at the regional level.

Intra-Regional Comparisons

Community Area Rates:

- The lowest rates of cancer incidence were seen in Fort Garry community area for t_1 and in Inkster for t_2 .
- The highest rates of cancer incidence were found in community areas River Heights for t_1 and in St. James-Assiniboia for t_2 ; these rates were also substantially higher than the WHR rate in their respective time periods.
- Many community areas experienced an increase in the rate of cancer incidence between the two time periods. The exceptions include: Inkster, Downtown, and Point Douglas.
- The following community areas had rates that were lower than that of the WHR (both time periods): Fort Garry, Assiniboine South, St. Vital, Transcona, Downtown and Inkster.
- The following community areas had rates that were substantially higher than that of the WHR (both time periods): River Heights, St. James-Assiniboia, and Point Douglas. The remainder were nearly the same as that of the WHR or slightly lower.
- Fort Garry community area appeared to experience a substantial increase between the two time periods.
- Adjusting the rates for age and sex of the population had the overall effect of minimizing the differences seen among the community areas in the crude rates. However, the values in St. James-Assiniboia and Point Douglas, remained the highest after adjustment (in t_2), indicating that the age and sex distribution of the underlying population is less likely to account for differences seen in the crude rates.

Neighbourhood Cluster Rates:

- The lowest rates of cancer incidence were found Inkster 9A for both time periods.
- The highest rates of cancer incidence were found in St. James-Assiniboia 1B and River Heights 12B for both time periods.
- Overall, the rates among the neighbourhood clusters have not changed substantially between the two time periods; however the appears to be a slight upward shift in all rates. (see box plot)
- Almost every neighbourhood cluster experienced an increase in their cancer incidence rate between the two time periods, the exceptions were Seven Oaks 8C, and Inkster 9B. In these neighbourhood clusters there were substantial decreases in their rates.
- St. James-Assiniboia 1A & 1B (both of which already had high rates) experienced significant increases in their rates between the two time periods.
- Inkster 9A appeared to have unusually low rates in both time periods; this is confirmed by examining the age-and sex-adjusted rates.
- The following neighbourhood clusters had rates that were higher than the WHR rate in t_1 : St. Vital 4A, River Heights 12A & 12B, St. Boniface 5A, River East 7B, River East 7A, Seven Oaks 8B & 8C, St. James-Assiniboia 1B, Inkster 9B, Downtown 11B, and Point Douglas 10A & 10B.
- The following neighbourhood clusters had rates that were higher than the WHR rate in t_2 : St. Vital 4A, River Heights 12A & 12B, St. Boniface 5A, River East 7B, Seven Oaks 8B, St. James-Assiniboia 1A & 1B, and Point Douglas 10A & 10B.
- Adjusting the rates for age and sex of the population had the overall effect of minimizing the differences seen among the neighbourhood clusters in the crude rates. However, the values in the neighbourhood clusters of the Point Douglas community area as well as St. James-Assiniboia 1B, remained the highest after adjustment, indicating that the age and sex distribution of the underlying population is less likely to account for differences seen in the crude rates.
- It may also be of interest to note that the age- and sex-adjusted rates of River East 7A, increased to that higher than the WHR rate.