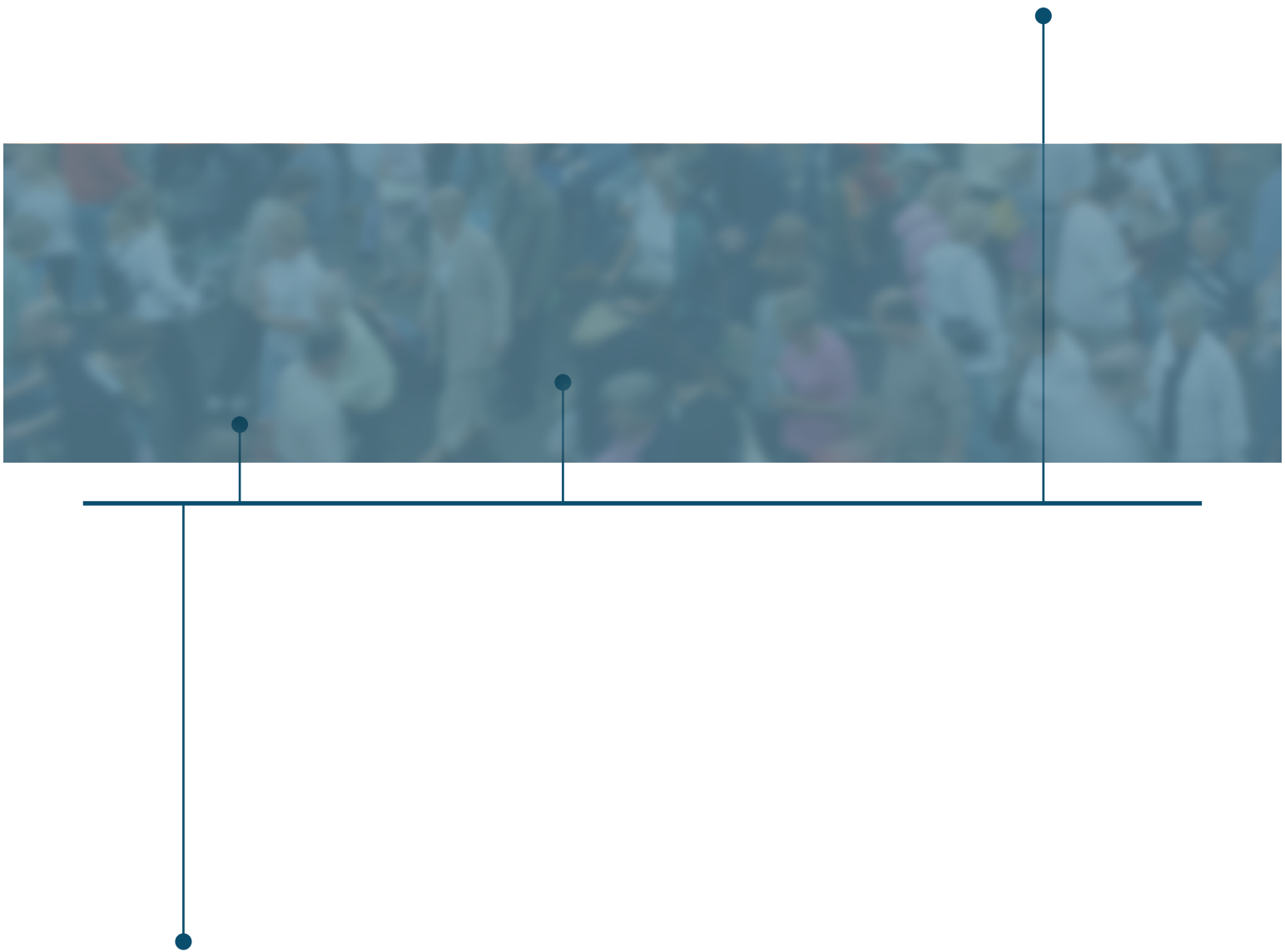


# Trends in Vital Events



### Vital Statistics Information Box

#### ON A TYPICAL DAY IN BRITISH COLUMBIA IN 2010

##### 119 LIVE BIRTHS OCCURRED IN THE PROVINCE TO BC RESIDENTS:

- 61 males and 58 females were born
- 4 were born to teenage mothers
- 28 were born to mothers aged 35 years old or more
- 4 were multiple births
- 37 were cesarean deliveries
- 7 were low birth weight babies
- 9 were pre-term
- 65 live births involved maternal complications
- 41 babies had perinatal complications
- 12 stillbirths every 10 days

##### 86 DEATHS OCCURRED IN THE PROVINCE TO BC RESIDENTS:

- 44 males and 42 females died
- 67 deaths were seniors aged 65 years old or more including
  - 44 deaths aged 80 years old or more
- 6 deaths every 10 days were children less than 15 years old including
  - 4 infant deaths every 10 days
- 25 deaths were due to diseases of the circulatory system including
  - 18 from cardiovascular disease
  - 6 from cerebrovascular disease
- 25 deaths were due to malignant neoplasms (cancer) including
  - 6 from malignant neoplasm of trachea and lung
  - 3 from malignant neoplasm of colon and rectum
  - 2 from malignant neoplasm of female breast
- 9 deaths were due to diseases of the respiratory system including
  - 3 from pneumonia and influenza
  - 4 from chronic pulmonary disease
- 2 deaths every 10 days were due to HIV disease
- 5 deaths were from external causes including
  - 1 suicide
  - 1 motor vehicle accident
  - 1 accidental fall
- 5 deaths were alcohol-related:
  - 1 directly due to alcohol and 4 indirectly due to alcohol
- 1 death was drug-induced
- 17 deaths were attributed to smoking

##### 61 MARRIAGES WERE SOLEMNIZED IN THE PROVINCE:

- 39 were civil ceremonies and 22 were performed by religious representatives
- 41 marriages were to couples where both parties were marrying for the first time
- 1 marriage every 10 days was to a couple where both parties were teenagers

## *Trends Introduction*

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The tables and figures in this part of the Annual Report provide a long term historical review of birth, death, and marriage statistics during the past few decades. They provide a broad context for the recent vital event statistics shown in other parts of this report. Long term trends are useful for evaluating recent events and trends, so the tables and figures are often cross referenced to related tables in subsequent parts of the report.

### **Overview**

This section begins with a review of population, live birth, stillbirth, death, and marriage trends. This is followed by information on natural population increases and vital events by month.

Table 1 summarizes vital events that occurred from 1950-2010 and includes the mid-year BC populations. The BC population has shown a steady increase since 1950 so the columns indicating the rates are the most telling of indicators.

The rate of live births to residents increased steadily from 1950 to 1957 (as shown in Table 1). It levelled until 1960, and then dropped quite rapidly during the next ten years after which the decline moderated but generally continued until 2005. Between 2005 and 2007, there was a slight increase in the rate of live births over previous years but has remained fairly constant in more recent years. The mortality rate has declined from about ten per 1,000 population in 1950 to about seven per 1,000 in the mid 1980s and remained at about that level until 2010.

Marriage information pertains to all marriages solemnized in the province, not only those to residents. The marriage rate was about ten marriages per 1,000 British Columbians in 1950 but declined to about seven per 1,000 in 1960, then rose again to almost the 1950 rate by 1970. Since then, the marriage rate has declined to about five marriages per 1,000 population in 2010.

Regarding stillbirths, readers should be aware that there was a change in definition which led to the apparent 'jump' in numbers and rates in 1963. That change, and another in 1986, is explained under Stillbirth in the Glossary. Other than the increase in 1963 and irregularities due to small numbers of stillbirths, rates generally declined until the early 1990s and have fluctuated around seven per 1,000 total births until 2005. The rates since 2006 have increased from 7.99 to 10.36 in 2010.

Table 2 and Figure 4 show the rate of natural population increase (NPI) in BC and Canada since 1950. Natural population growth is explained in the Glossary. Not counting migration into or out of BC, the population grew "naturally" by 13,647 or at the rate of 2.8 per 1,000 British Columbians in 2010. BC's rate of NPI has been consistently below Canada's except for the first half of the 1980s. Both BC's and Canada's rates have gradually declined since the late 1950s.

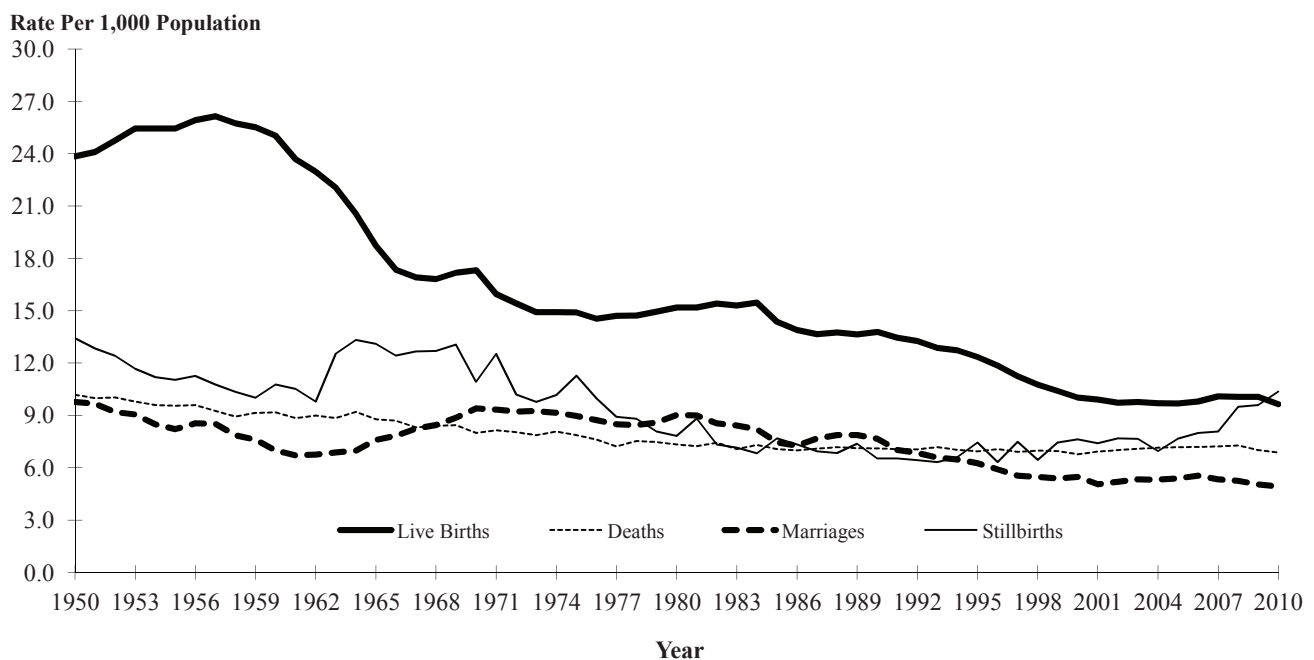
Table 3 and Figure 5 show the number of live births, deaths, marriages, and stillbirths to residents according to the month in which they occurred. The number of marriages each month includes residents and non-residents. The percent columns show the monthly percent of all events to residents, except marriages which show the percent of all marriages. The table also includes the number of live births, deaths and stillbirths to non-residents.

There is continual speculation and anecdotal evidence that vital events tend to occur in particular months or seasons. The data presented in Table 3 and Figure 5 may not put an end to that speculation, but live births and deaths were pretty evenly distributed across the months and seasons in 2010. On the other hand, there was a clear preference to marry during the summer months. Although there were fluctuations in the number and percentage of stillbirths, due to the small number of events, no trend was apparent.

TABLE 1  
**LIVE BIRTHS, DEATHS, MARRIAGES AND STILLBIRTHS**  
 BRITISH COLUMBIA, 1950–2010

| Year | Mid-year<br>Population | Live Births |       | Deaths |       | Marriages |      | Stillbirths |       |
|------|------------------------|-------------|-------|--------|-------|-----------|------|-------------|-------|
|      |                        | Number      | Rate  | Number | Rate  | Number    | Rate | Number      | Rate  |
| 1950 | 1,137,000              | 27,116      | 23.85 | 11,581 | 10.19 | 11,110    | 9.77 | 369         | 13.43 |
| 1951 | 1,165,210              | 28,077      | 24.10 | 11,638 | 9.99  | 11,272    | 9.67 | 365         | 12.83 |
| 1952 | 1,205,000              | 29,827      | 24.75 | 12,080 | 10.02 | 11,081    | 9.20 | 375         | 12.42 |
| 1953 | 1,248,000              | 31,746      | 25.44 | 12,218 | 9.79  | 11,298    | 9.05 | 375         | 11.67 |
| 1954 | 1,295,000              | 32,946      | 25.44 | 12,414 | 9.59  | 10,991    | 8.49 | 373         | 11.19 |
| 1955 | 1,342,000              | 34,138      | 25.44 | 12,816 | 9.55  | 11,011    | 8.20 | 381         | 11.04 |
| 1956 | 1,398,464              | 36,241      | 25.91 | 13,415 | 9.59  | 11,950    | 8.55 | 413         | 11.27 |
| 1957 | 1,482,000              | 38,744      | 26.14 | 13,711 | 9.25  | 12,620    | 8.52 | 422         | 10.77 |
| 1958 | 1,538,000              | 39,577      | 25.73 | 13,741 | 8.93  | 12,094    | 7.86 | 414         | 10.35 |
| 1959 | 1,567,000              | 39,971      | 25.51 | 14,336 | 9.15  | 11,910    | 7.60 | 404         | 10.01 |
| 1960 | 1,602,000              | 40,116      | 25.04 | 14,696 | 9.17  | 11,203    | 6.99 | 437         | 10.78 |
| 1961 | 1,629,100              | 38,591      | 23.69 | 14,403 | 8.84  | 10,935    | 6.71 | 410         | 10.51 |
| 1962 | 1,660,000              | 38,128      | 22.97 | 14,912 | 8.98  | 11,196    | 6.74 | 377         | 9.79  |
| 1963 | 1,699,000              | 37,478      | 22.06 | 15,029 | 8.85  | 11,677    | 6.87 | 476         | 12.54 |
| 1964 | 1,745,000              | 35,897      | 20.57 | 16,051 | 9.20  | 12,158    | 6.97 | 485         | 13.33 |
| 1965 | 1,797,000              | 33,669      | 18.74 | 15,784 | 8.78  | 13,639    | 7.59 | 447         | 13.10 |
| 1966 | 1,873,674              | 32,502      | 17.35 | 16,290 | 8.69  | 14,682    | 7.84 | 409         | 12.43 |
| 1967 | 1,945,000              | 32,899      | 16.91 | 16,170 | 8.31  | 16,026    | 8.24 | 422         | 12.66 |
| 1968 | 2,003,000              | 33,687      | 16.82 | 16,828 | 8.40  | 16,914    | 8.44 | 433         | 12.69 |
| 1969 | 2,060,000              | 35,383      | 17.18 | 17,377 | 8.44  | 18,284    | 8.88 | 468         | 13.05 |
| 1970 | 2,128,000              | 36,861      | 17.32 | 17,020 | 8.00  | 20,020    | 9.41 | 407         | 10.92 |
| 1971 | 2,184,620              | 34,852      | 15.95 | 17,783 | 8.14  | 20,389    | 9.33 | 442         | 12.52 |
| 1972 | 2,241,400              | 34,563      | 15.42 | 18,021 | 8.04  | 20,659    | 9.22 | 356         | 10.20 |
| 1973 | 2,302,400              | 34,352      | 14.92 | 18,095 | 7.86  | 21,303    | 9.25 | 339         | 9.77  |
| 1974 | 2,375,700              | 35,450      | 14.92 | 19,177 | 8.07  | 21,734    | 9.15 | 364         | 10.16 |
| 1975 | 2,433,200              | 36,281      | 14.91 | 19,151 | 7.87  | 21,824    | 8.97 | 414         | 11.28 |
| 1976 | 2,466,610              | 35,848      | 14.53 | 18,788 | 7.62  | 21,536    | 8.73 | 361         | 9.97  |
| 1977 | 2,493,800              | 36,691      | 14.71 | 18,021 | 7.23  | 21,156    | 8.48 | 330         | 8.91  |
| 1978 | 2,530,100              | 37,231      | 14.72 | 19,057 | 7.53  | 21,388    | 8.45 | 331         | 8.81  |
| 1979 | 2,571,200              | 38,432      | 14.95 | 19,204 | 7.47  | 22,087    | 8.59 | 313         | 8.08  |
| 1980 | 2,640,100              | 40,104      | 15.19 | 19,371 | 7.34  | 23,830    | 9.03 | 316         | 7.82  |
| 1981 | 2,744,470              | 41,679      | 15.19 | 19,857 | 7.24  | 24,694    | 9.00 | 371         | 8.82  |
| 1982 | 2,787,700              | 42,942      | 15.40 | 20,704 | 7.43  | 23,831    | 8.55 | 317         | 7.33  |
| 1983 | 2,813,800              | 43,047      | 15.30 | 19,895 | 7.07  | 23,692    | 8.42 | 310         | 7.15  |
| 1984 | 2,847,700              | 44,040      | 15.47 | 20,781 | 7.30  | 23,394    | 8.22 | 303         | 6.83  |
| 1985 | 2,990,000              | 42,989      | 14.38 | 21,131 | 7.07  | 22,270    | 7.45 | 333         | 7.69  |
| 1986 | 3,003,621              | 41,711      | 13.89 | 21,009 | 6.99  | 21,847    | 7.27 | 308         | 7.33  |
| 1987 | 3,048,651              | 41,610      | 13.65 | 21,619 | 7.09  | 23,419    | 7.68 | 291         | 6.94  |
| 1988 | 3,114,761              | 42,859      | 13.76 | 22,358 | 7.18  | 24,520    | 7.87 | 295         | 6.84  |
| 1989 | 3,196,725              | 43,585      | 13.63 | 22,786 | 7.13  | 25,179    | 7.88 | 324         | 7.38  |
| 1990 | 3,292,111              | 45,350      | 13.78 | 23,416 | 7.11  | 25,225    | 7.66 | 298         | 6.53  |
| 1991 | 3,373,787              | 45,346      | 13.44 | 23,821 | 7.06  | 23,667    | 7.01 | 298         | 6.53  |
| 1992 | 3,468,802              | 46,002      | 13.26 | 24,463 | 7.05  | 23,761    | 6.85 | 298         | 6.44  |
| 1993 | 3,567,772              | 45,920      | 12.87 | 25,604 | 7.18  | 23,483    | 6.58 | 292         | 6.32  |
| 1994 | 3,676,075              | 46,810      | 12.73 | 25,832 | 7.03  | 23,776    | 6.47 | 312         | 6.62  |
| 1995 | 3,777,390              | 46,668      | 12.35 | 26,226 | 6.94  | 23,638    | 6.26 | 350         | 7.44  |
| 1996 | 3,874,317              | 45,940      | 11.86 | 27,394 | 7.07  | 22,881    | 5.91 | 292         | 6.32  |
| 1997 | 3,948,583              | 44,379      | 11.24 | 27,271 | 6.91  | 21,884    | 5.54 | 335         | 7.49  |
| 1998 | 3,983,113              | 42,853      | 10.76 | 27,813 | 6.98  | 21,780    | 5.47 | 278         | 6.45  |
| 1999 | 4,011,375              | 41,727      | 10.40 | 27,897 | 6.95  | 21,629    | 5.39 | 313         | 7.45  |
| 2000 | 4,039,230              | 40,479      | 10.02 | 27,355 | 6.77  | 22,096    | 5.47 | 311         | 7.62  |
| 2001 | 4,076,264              | 40,373      | 9.90  | 28,250 | 6.93  | 20,575    | 5.05 | 301         | 7.40  |
| 2002 | 4,098,178              | 39,883      | 9.73  | 28,715 | 7.01  | 21,265    | 5.19 | 309         | 7.69  |
| 2003 | 4,122,396              | 40,292      | 9.77  | 29,159 | 7.07  | 21,984    | 5.33 | 311         | 7.66  |
| 2004 | 4,155,170              | 40,317      | 9.70  | 29,728 | 7.15  | 22,090    | 5.32 | 282         | 6.95  |
| 2005 | 4,196,788              | 40,648      | 9.69  | 30,101 | 7.17  | 22,637    | 5.39 | 314         | 7.67  |
| 2006 | 4,243,580              | 41,569      | 9.80  | 30,544 | 7.20  | 23,518    | 5.54 | 335         | 7.99  |
| 2007 | 4,309,632              | 43,474      | 10.09 | 31,121 | 7.22  | 22,973    | 5.33 | 354         | 8.08  |
| 2008 | 4,383,860              | 44,125      | 10.07 | 31,905 | 7.28  | 22,981    | 5.24 | 423         | 9.50  |
| 2009 | 4,460,292              | 44,887      | 10.06 | 31,240 | 7.00  | 22,475    | 5.04 | 435         | 9.60  |
| 2010 | 4,530,960              | 43,667      | 9.64  | 31,143 | 6.87  | 22,311    | 4.92 | 457         | 10.36 |

FIGURE 3  
**CRUDE RATES OF LIVE BIRTHS, DEATHS,  
 MARRIAGES AND STILLBIRTHS**  
 BRITISH COLUMBIA, 1950–2010



Note: Stillbirth rate per 1,000 total births

#### Notes for Table 1

Rates shown for live births, deaths and marriages are crude rates per 1,000 population. Stillbirth rate is per 1,000 total births (live births plus stillbirths). The definition of a stillbirth was revised in 1963 and 1986 (see Glossary). Population information from BC Stats, Ministry of Labour and Citizens' Services. Above information includes late registrations and amendments. Gender unknown included. Non-residents are excluded from all data except marriages.

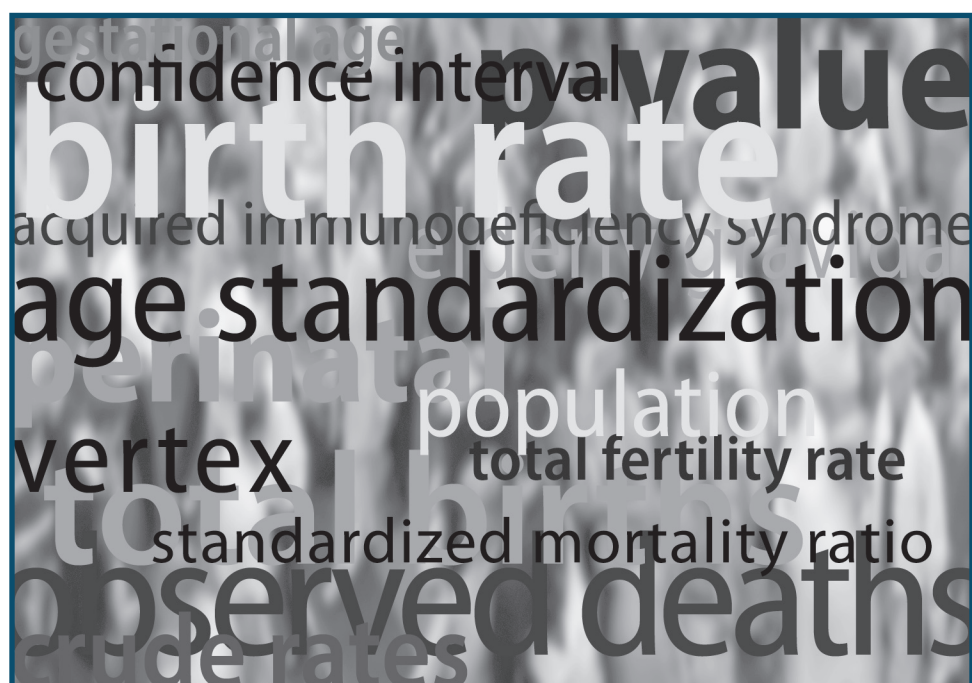


TABLE 2  
**NATURAL POPULATION INCREASES**  
 BRITISH COLUMBIA AND CANADA, 1950–2010

| Year | Rate |        | Year | Rate |        |
|------|------|--------|------|------|--------|
|      | B.C. | Canada |      | B.C. | Canada |
| 1950 | 13.7 | 18.0   | 1980 | 7.9  | 8.3    |
| 1951 | 14.1 | 18.2   | 1981 | 8.0  | 8.0    |
| 1952 | 14.7 | 19.2   | 1982 | 8.0  | 7.9    |
| 1953 | 15.6 | 19.5   | 1983 | 8.2  | 7.8    |
| 1954 | 15.9 | 20.3   | 1984 | 8.2  | 7.8    |
| 1955 | 15.9 | 20.0   | 1985 | 7.3  | 7.5    |
| 1956 | 16.3 | 19.8   | 1986 | 6.9  | 7.2    |
| 1957 | 16.9 | 20.0   | 1987 | 6.6  | 7.0    |
| 1958 | 16.8 | 19.6   | 1988 | 6.6  | 7.0    |
| 1959 | 16.4 | 19.4   | 1989 | 6.5  | 7.4    |
| 1960 | 15.9 | 19.0   | 1990 | 6.7  | 7.7    |
| 1961 | 14.8 | 18.4   | 1991 | 6.4  | 7.4    |
| 1962 | 14.0 | 17.6   | 1992 | 6.2  | 7.1    |
| 1963 | 13.2 | 16.8   | 1993 | 5.7  | 6.4    |
| 1964 | 11.4 | 15.9   | 1994 | 5.7  | 6.1    |
| 1965 | 10.0 | 13.7   | 1995 | 5.4  | 5.7    |
| 1966 | 8.7  | 11.9   | 1996 | 4.8  | 5.2    |
| 1967 | 8.6  | 10.8   | 1997 | 4.3  | 4.4    |
| 1968 | 8.4  | 10.2   | 1998 | 3.8  | 4.1    |
| 1969 | 8.7  | 10.3   | 1999 | 3.4  | 3.8    |
| 1970 | 9.3  | 10.1   | 2000 | 3.3  | 3.9    |
| 1971 | 7.8  | 9.5    | 2001 | 3.0  | 3.5    |
| 1972 | 7.4  | 8.5    | 2002 | 2.7  | 3.4    |
| 1973 | 7.1  | 8.1    | 2003 | 2.7  | 3.4    |
| 1974 | 6.8  | 8.0    | 2004 | 2.5  | 3.4    |
| 1975 | 7.0  | 8.5    | 2005 | 2.5  | 3.4    |
| 1976 | 6.9  | 8.4    | 2006 | 2.6  | 3.7    |
| 1977 | 7.5  | 8.4    | 2007 | 2.9  | 3.9    |
| 1978 | 7.2  | 8.1    | 2008 | 2.8  | 4.0    |
| 1979 | 7.5  | 8.4    | 2009 | 3.1  | 4.0    |
|      |      |        | 2010 | 2.8  | 3.9    |

Note: Rates shown are rates of natural population increase per 1,000 population. Canadian rates from Statistics Canada. Non-residents are excluded.

FIGURE 4  
**TRENDS OF NATURAL POPULATION GROWTH**  
 BRITISH COLUMBIA AND CANADA, 1950–2010

Rates Per 1,000 Population

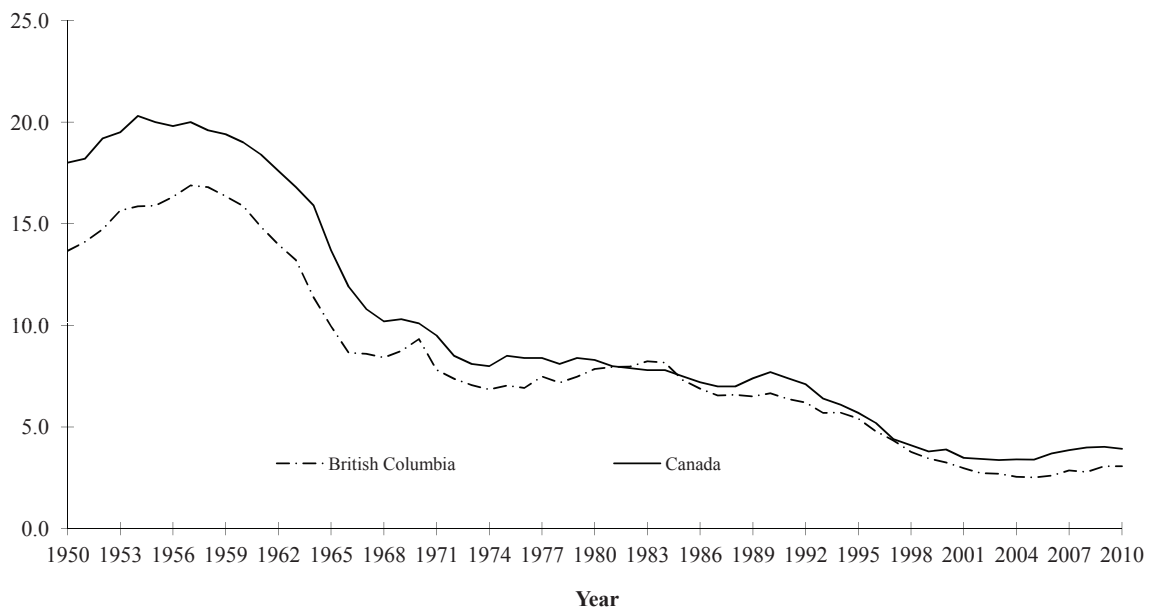


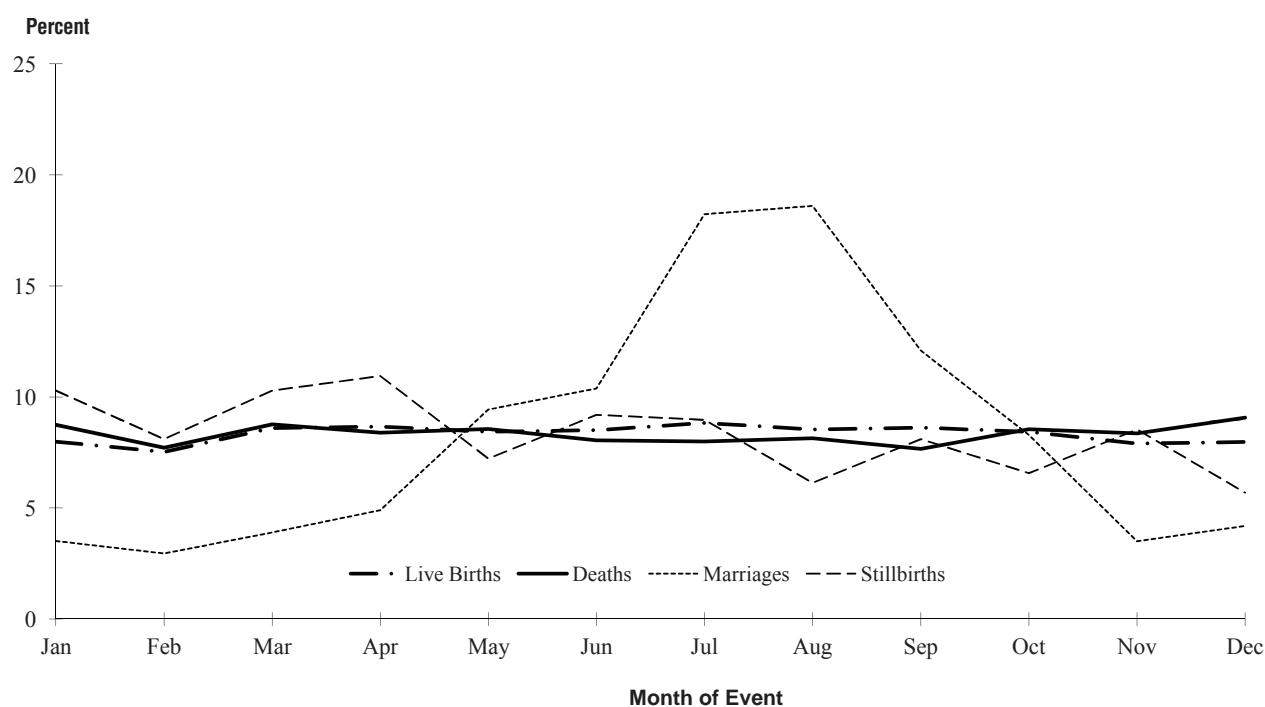
TABLE 3  
**LIVE BIRTHS, DEATHS, MARRIAGES AND STILLBIRTHS BY MONTH**  
 BRITISH COLUMBIA, 2010

| Month         | Live Births   |         | Deaths        |         | Marriages     |         | Stillbirths |         |
|---------------|---------------|---------|---------------|---------|---------------|---------|-------------|---------|
|               | Number        | Percent | Number        | Percent | Number        | Percent | Number      | Percent |
| January       | 3,486         | 8.0     | 2,725         | 8.7     | 785           | 3.5     | 47          | 10.3    |
| February      | 3,285         | 7.5     | 2,403         | 7.7     | 658           | 2.9     | 37          | 8.1     |
| March         | 3,756         | 8.6     | 2,731         | 8.8     | 871           | 3.9     | 47          | 10.3    |
| April         | 3,783         | 8.7     | 2,614         | 8.4     | 1,093         | 4.9     | 50          | 10.9    |
| May           | 3,683         | 8.4     | 2,664         | 8.6     | 2,105         | 9.4     | 33          | 7.2     |
| June          | 3,714         | 8.5     | 2,506         | 8.0     | 2,316         | 10.4    | 42          | 9.2     |
| July          | 3,855         | 8.8     | 2,489         | 8.0     | 4,068         | 18.2    | 41          | 9.0     |
| August        | 3,727         | 8.5     | 2,537         | 8.1     | 4,151         | 18.6    | 28          | 6.1     |
| September     | 3,765         | 8.6     | 2,386         | 7.7     | 2,697         | 12.1    | 37          | 8.1     |
| October       | 3,683         | 8.4     | 2,661         | 8.5     | 1,850         | 8.3     | 30          | 6.6     |
| November      | 3,450         | 7.9     | 2,603         | 8.4     | 781           | 3.5     | 39          | 8.5     |
| December      | 3,480         | 8.0     | 2,824         | 9.1     | 936           | 4.2     | 26          | 5.7     |
| Residents*    | 43,667        | 100.0   | 31,143        | 100.0   | 22,311        | 100.0   | 457         | 100.0   |
| Non-residents | 211           |         | 285           |         | *             |         | 11          |         |
| <b>TOTAL</b>  | <b>43,878</b> |         | <b>31,428</b> |         | <b>22,311</b> |         | <b>468</b>  |         |

Note: Total percentage may not add up to 100 due to rounding.

\*Marriage counts by month are based on event place and include non-residents.

FIGURE 5  
**LIVE BIRTHS, DEATHS, MARRIAGES AND STILLBIRTHS BY MONTH**  
 BRITISH COLUMBIA, 2010



## Fertility and Live Birth Trends

The Total Fertility Rate (TFR) in Table 4 is the number of births 1,000 women can expect during their child bearing years, from 15 to 44 years of age. It is described more fully in the Glossary and an example of the calculation method is shown in the Methodology section.

The fertility rate in BC today is about half the 1950s rate. Shortly after World War II, fertility began to increase, commonly referred to as the post war baby boom. As shown in Table 4, fertility rates increased from 1950 to 1960 after which there was a sharp decline until the late 1970s. This declining trend continued more slowly, with some fluctuations, until 2002. Since then, the fertility rates have increased until 2007 and levelled off in recent years at approximately 100 more births per 1,000 women compared with the 2002 rates. Figure 6 shows the fertility rates for the last two decades. Fertility by LHA and among teenagers is analysed in Table 10 and Figure 29 respectively.

In addition to trends in Total Fertility Rates, this section discusses trends in maternal age, multiple births, low birth weight, and cesarean section deliveries.

Figure 7 shows annual percentages of live births to women in three age groups for the years 1986-2010. The oldest group (aged 35 years or more) is gradually increasing its percentage compared to the two younger groups (less than 20 years and 20 to 34 years old). The average age at which women are bearing children is increasing, but still about three quarters of live births are to women in the 20-34 years age group. Maternal age is related to other important birth characteristics and is a component of several tables in the birth related statistics section of this report.

As illustrated by Figure 8, the percentage of multiple births increased substantially between 1986 and 2010. Multiple birth infants have a higher risk of being preterm, having low birth weight, suffering perinatal death or illness than singletons. Multiple birth infants accounted for 1.9 percent of all live births in 1986 and 3.2 percent in 2010. This was a statistically significant increase at the 95 percent level.

Figures 9 and 10 both illustrate the occurrence of Low Birth Weight (LBW) live births (those births with a birth weight of less than 2,500 grams) over the period 1986-2010. Figure 9 shows both the counts of such births and the rates per 1,000 live births for all mothers. Figure 10 shows the rate per 1,000 live births for mothers 35 years and older. While LBW rates increased gradually from 46.9 in 1986 to 54.5 per 1,000 live births in 2010. The rate in older mothers has increased more sharply from 44.9 in 1986 to 67.9 per 1,000 live births in 2010. The trend in each of these graphs is statistically significant at the 95 percent level.

Three relevant indicators are presented in Figures 11, 12, and 13. The upward trend in the cesarean section rates since 1986 (Figure 11) is statistically significant at the 95 percent level. The rates appear to have levelled slightly in the last couple of years. Cesarean sections by Health Service Delivery Area (HSDA) varied considerably in 2010 (Figure 12) from a low of 25.3 percent of live births to residents of HSDA 42 - Central Vancouver Island to a high of 34.3 percent of live births to residents of HSDA 22 - Fraser North.

An important consideration regarding cesarean sections is the age of the mother. There were clear differences between age groups (Figure 13), with cesarean rates highest for mothers aged 35 or older and lowest for teen mothers. All age groups showed upward trends that were statistically significant at the 95 percent level. The difference between rates also appears to be increasing over the last two decades.

Cesarean deliveries are shown in relation to other modes of delivery in Table 11 and by LHA in Table 12 and Figure 30 in the Birth-related Statistics section of this report.

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<sup>1</sup>[http://www.multiplebirthscanada.org/english/documents/low\\_birth\\_bro\\_final2005.pdf](http://www.multiplebirthscanada.org/english/documents/low_birth_bro_final2005.pdf).



TABLE 4  
**TOTAL FERTILITY RATES**  
 BRITISH COLUMBIA, 1950–2010

| Year | Total Fertility<br>Rate | Live Births | Year | Total Fertility<br>Rate | Live Births |
|------|-------------------------|-------------|------|-------------------------|-------------|
| 1950 | 3,074                   | 27,116      | 1980 | 1,716                   | 40,104      |
| 1951 | 3,201                   | 28,077      | 1981 | 1,718                   | 41,679      |
| 1952 | 3,327                   | 29,827      | 1982 | 1,749                   | 42,942      |
| 1953 | 3,542                   | 31,746      | 1983 | 1,751                   | 43,047      |
| 1954 | 3,656                   | 32,946      | 1984 | 1,781                   | 44,040      |
| 1955 | 3,748                   | 34,138      | 1985 | 1,642                   | 42,989      |
| 1956 | 3,875                   | 36,241      | 1986 | 1,603                   | 41,711      |
| 1957 | 3,921                   | 38,744      | 1987 | 1,606                   | 41,610      |
| 1958 | 3,900                   | 39,577      | 1988 | 1,635                   | 42,859      |
| 1959 | 3,958                   | 39,971      | 1989 | 1,637                   | 43,585      |
| 1960 | 3,949                   | 40,116      | 1990 | 1,670                   | 45,350      |
| 1961 | 3,785                   | 38,591      | 1991 | 1,660                   | 45,346      |
| 1962 | 3,709                   | 38,128      | 1992 | 1,655                   | 46,002      |
| 1963 | 3,564                   | 37,478      | 1993 | 1,633                   | 45,920      |
| 1964 | 3,284                   | 35,897      | 1994 | 1,639                   | 46,810      |
| 1965 | 2,710                   | 33,669      | 1995 | 1,609                   | 46,668      |
| 1966 | 2,442                   | 32,502      | 1996 | 1,544                   | 45,940      |
| 1967 | 2,307                   | 32,899      | 1997 | 1,479                   | 44,379      |
| 1968 | 2,228                   | 33,687      | 1998 | 1,445                   | 42,853      |
| 1969 | 2,223                   | 35,383      | 1999 | 1,419                   | 41,727      |
| 1970 | 2,185                   | 36,861      | 2000 | 1,387                   | 40,479      |
| 1971 | 1,994                   | 34,852      | 2001 | 1,386                   | 40,373      |
| 1972 | 1,890                   | 34,563      | 2002 | 1,380                   | 39,883      |
| 1973 | 1,751                   | 34,352      | 2003 | 1,408                   | 40,292      |
| 1974 | 1,735                   | 35,450      | 2004 | 1,415                   | 40,317      |
| 1975 | 1,682                   | 36,281      | 2005 | 1,428                   | 40,648      |
| 1976 | 1,618                   | 35,848      | 2006 | 1,455                   | 41,569      |
| 1977 | 1,636                   | 36,691      | 2007 | 1,500                   | 43,474      |
| 1978 | 1,620                   | 37,231      | 2008 | 1,492                   | 44,125      |
| 1979 | 1,721                   | 38,432      | 2009 | 1,485                   | 44,887      |
|      |                         |             | 2010 | 1,417                   | 43,667      |

Note: Total Fertility Rate – Sum of age-specific fertility rates multiplied by the number of years in each age group (see Glossary for definition). Rates per 1,000 women age 15 to 44. Non-residents are excluded.

FIGURE 6  
**TOTAL FERTILITY RATES AND NUMBER OF LIVE BIRTHS**  
 BRITISH COLUMBIA, 1986–2010

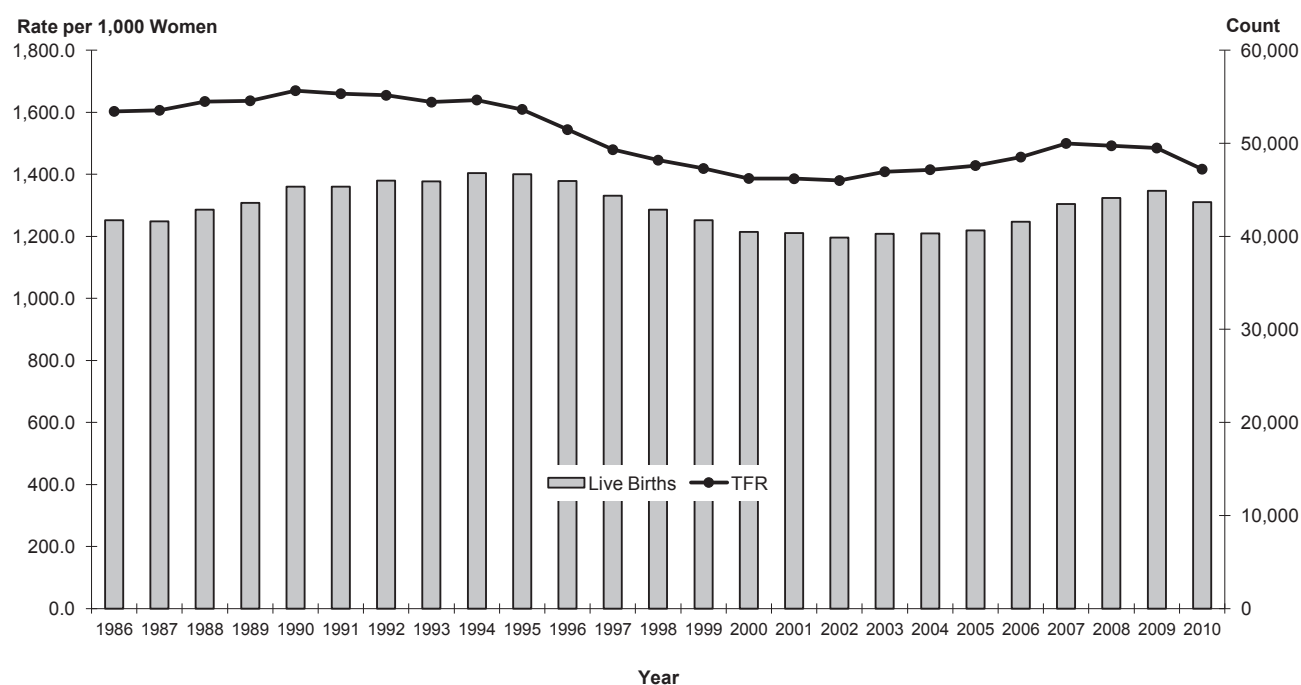


FIGURE 7  
**LIVE BIRTHS BY AGE OF MOTHER**  
 BRITISH COLUMBIA, 1986–2010

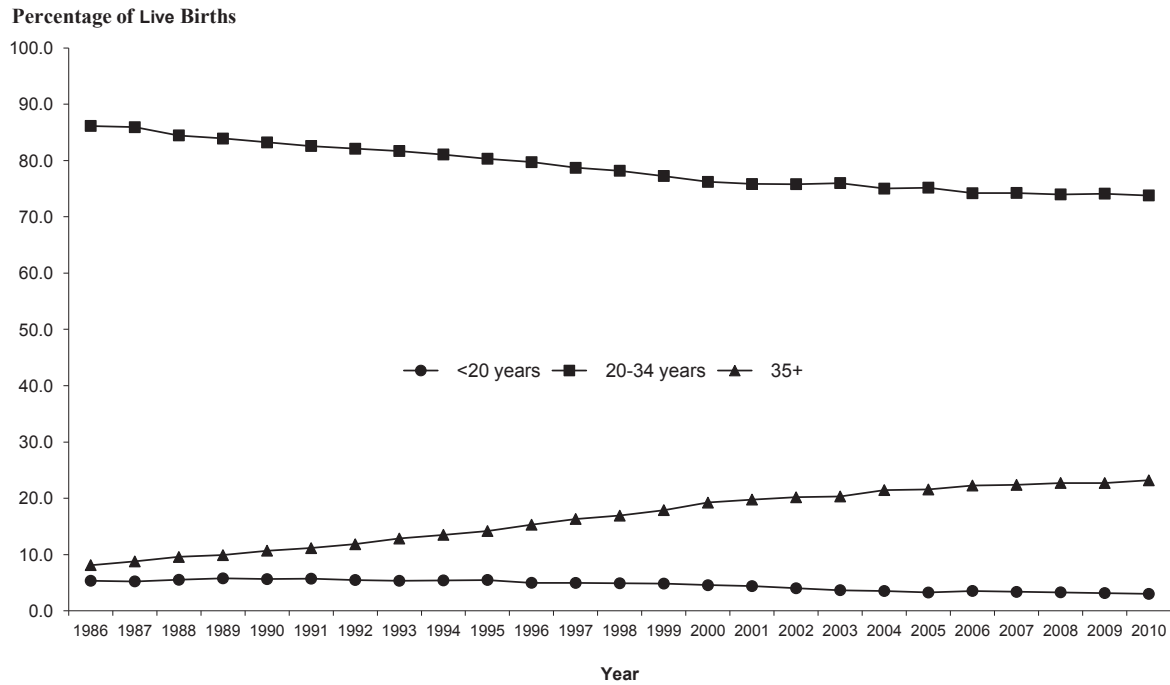


FIGURE 8  
**MULTIPLE BIRTHS AS A PERCENTAGE OF LIVE BIRTHS**  
 BRITISH COLUMBIA, 1986–2010

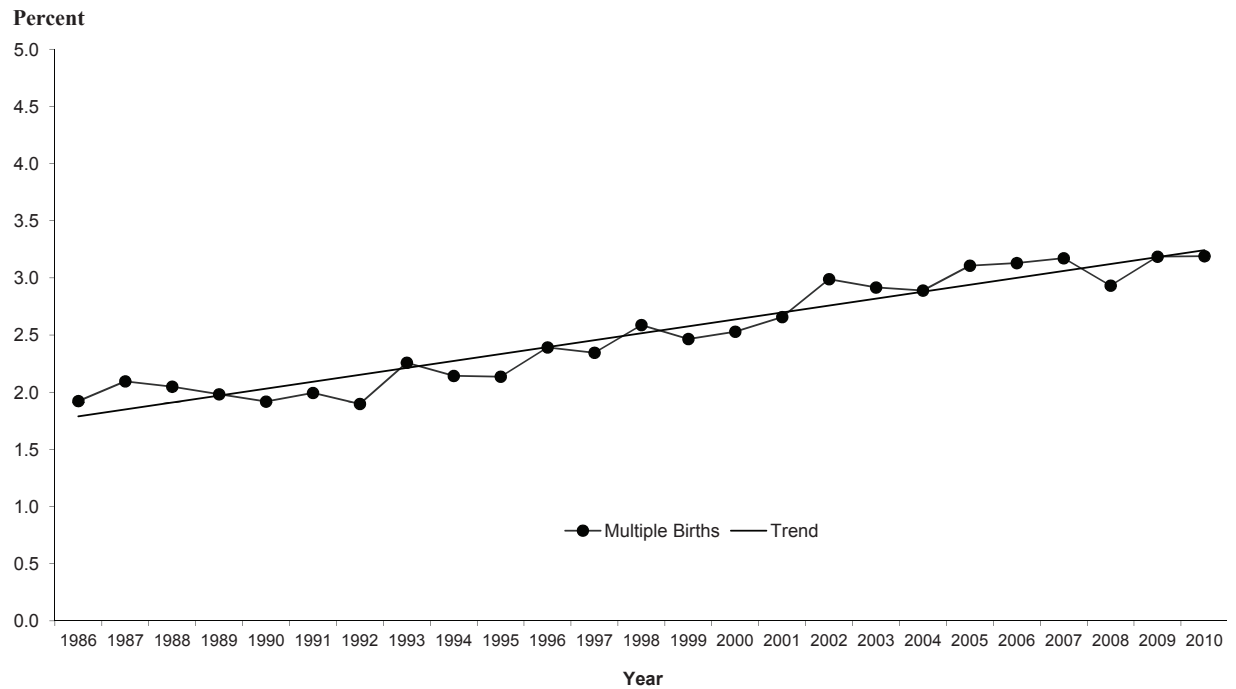


FIGURE 9  
**LOW BIRTH WEIGHT LIVE BIRTHS**  
 BRITISH COLUMBIA, 1986–2010

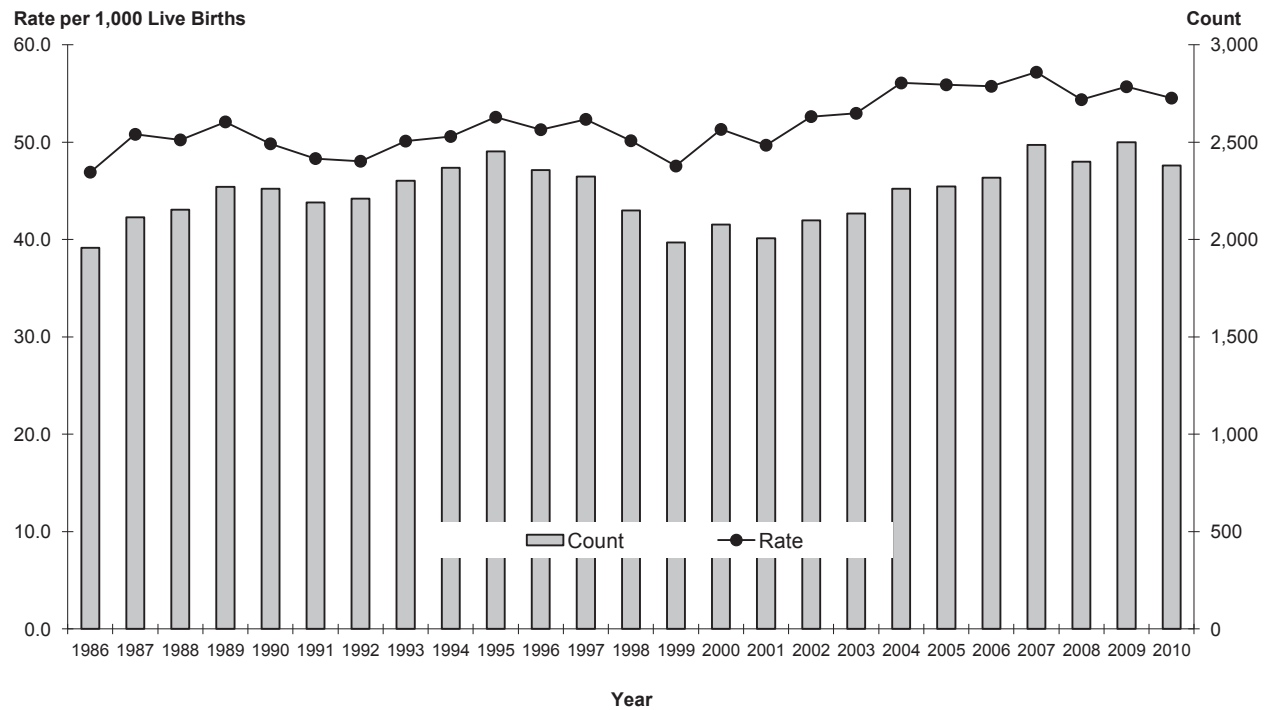


FIGURE 10  
**LOW BIRTH WEIGHT LIVE BIRTHS FOR MOTHERS AGED 35+**  
 BRITISH COLUMBIA, 1986–2010

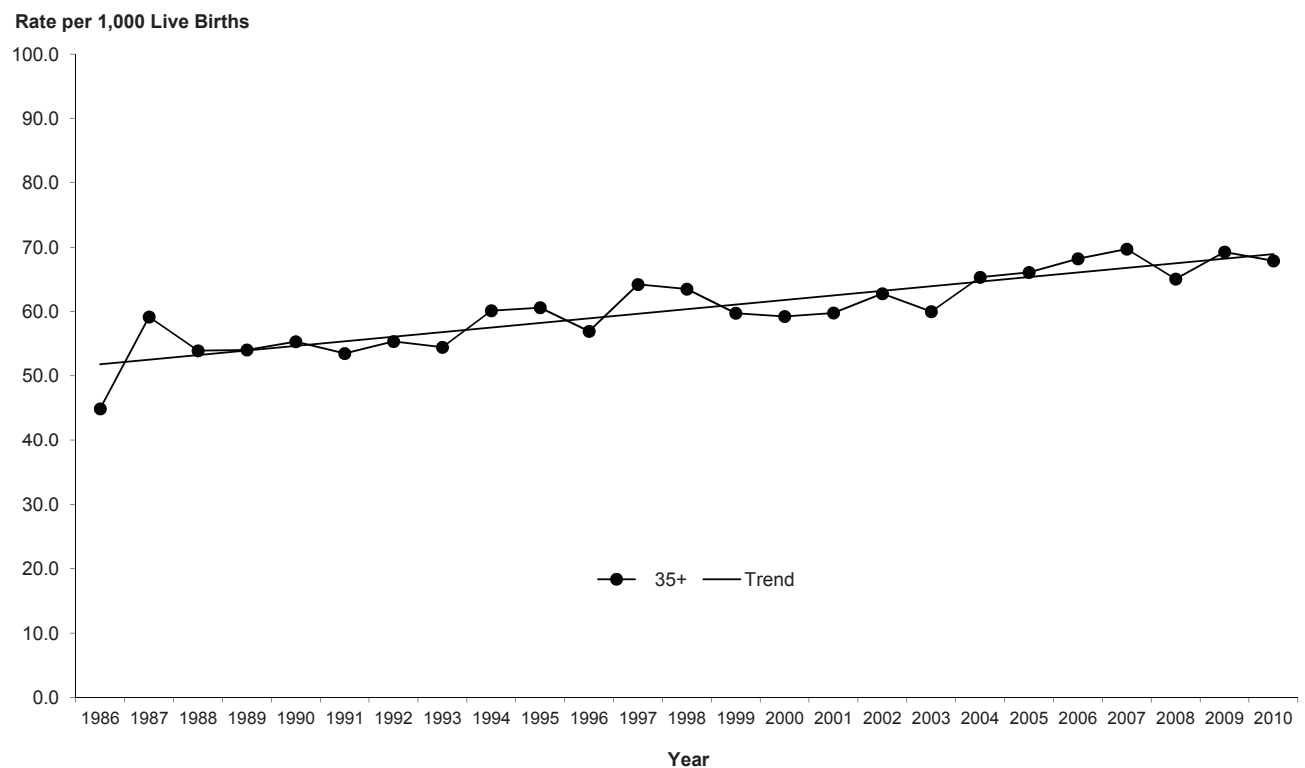


FIGURE 11  
**CESAREAN SECTIONS**  
 BRITISH COLUMBIA, 1986–2010

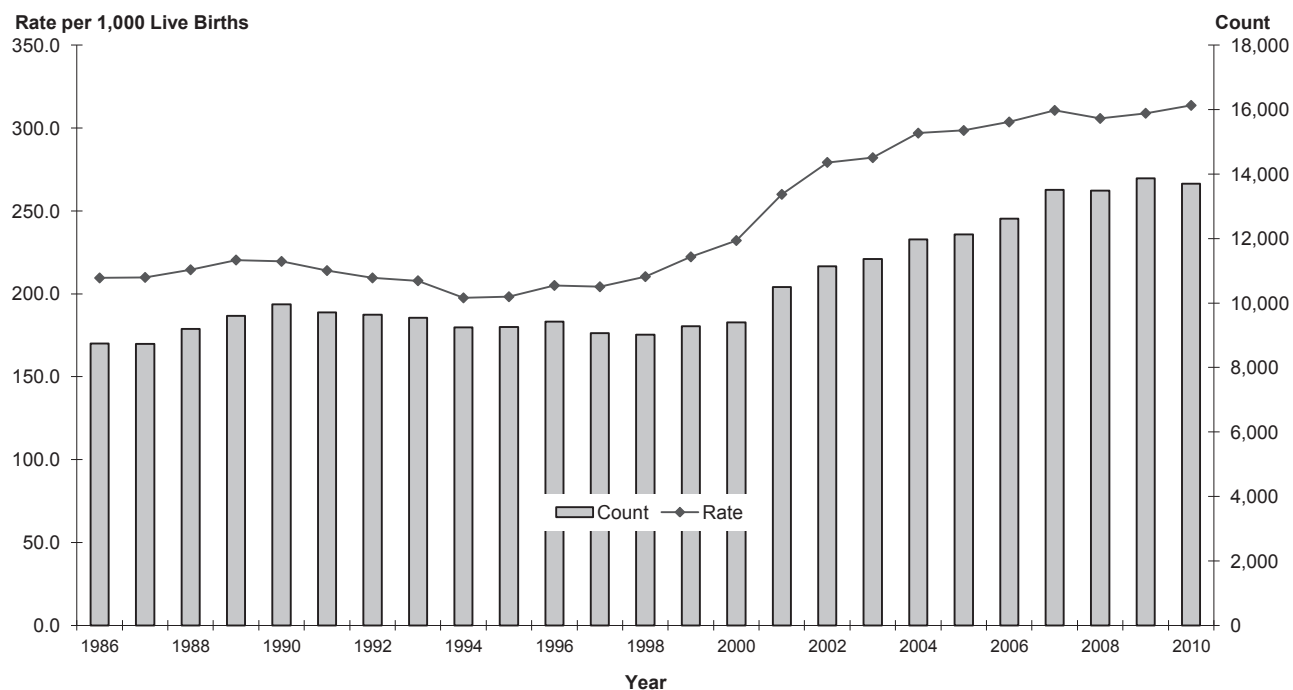


FIGURE 12  
**CESAREAN SECTIONS BY HEALTH SERVICE DELIVERY AREA**  
 BRITISH COLUMBIA, 2010

Health Service Delivery Area

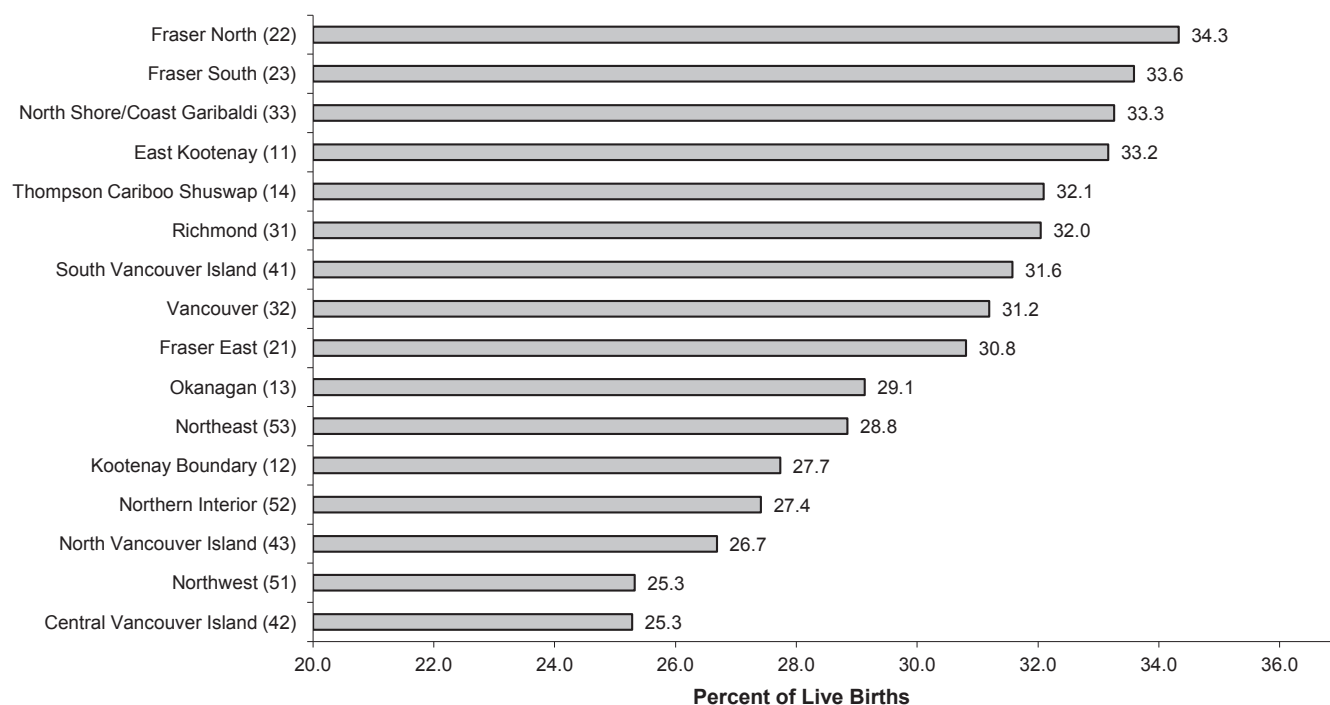
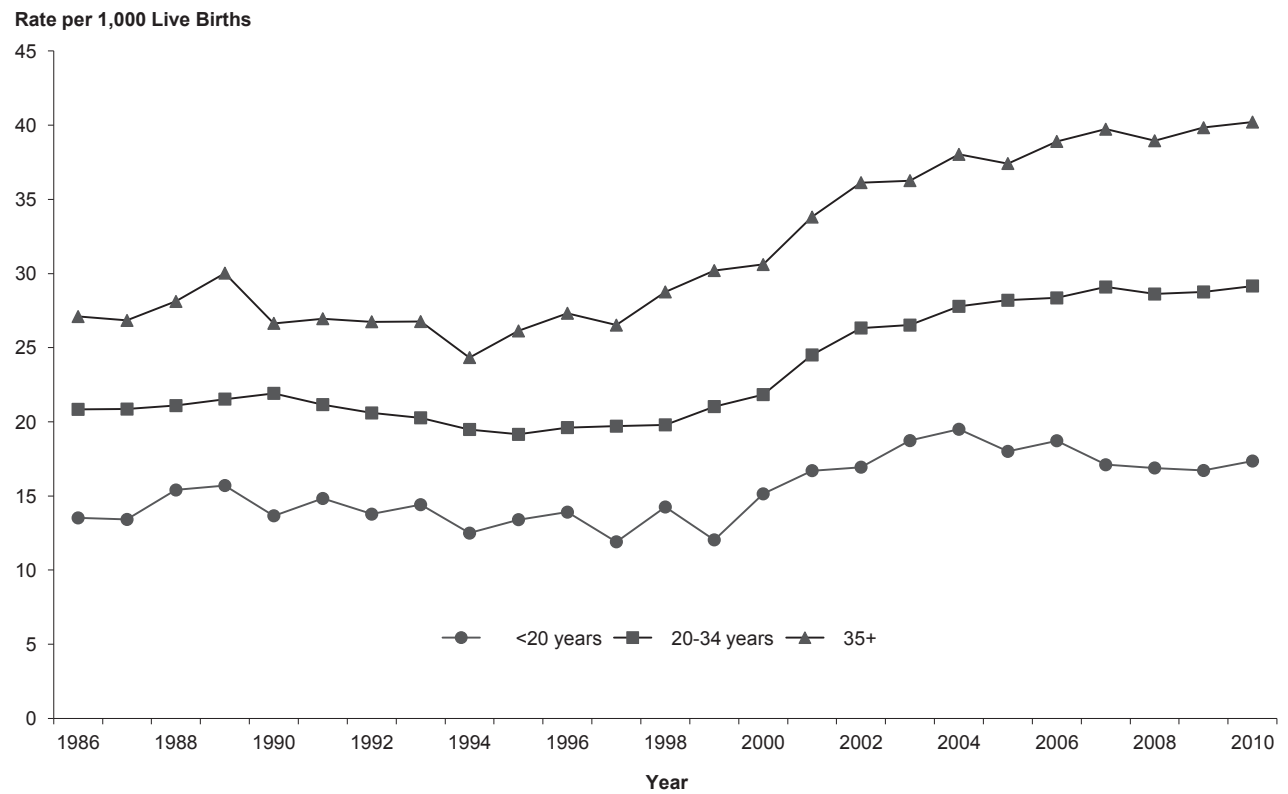


FIGURE 13  
**CESAREAN SECTIONS BY AGE OF MOTHER**  
BRITISH COLUMBIA, 1986–2010



## Infant Mortality Trends

Table 5 shows the number of infants in BC who died before their first birthday in the years 1965-2010. Also shown are the rates at which these deaths occurred per 1,000 live births and the corresponding rates for Canada. The infant death rate in Canada and BC decreased to around one fifth of the 1965 level by 2010. This table shows clearly that over half of infant deaths occur in the first six days of life. The Glossary defines the various divisions of infant deaths according to the infant's age.

For most of the time period covered by Table 5, there is comparable data at the Canadian level. Until 1991, Canada's and BC's infant mortality rates were similar. Since then, BC's rate of infant mortality has been lower than the overall Canadian rate.

Figure 14 illustrates the downward trends in both the number and the rate of infant deaths over the past 25 years. Both trends are statistically significant at the 95 percent level.

Figures 15 and 16 show that historically infant mortality rates have been relatively high among teenage mothers, although only a small proportion of total infant deaths in 2010 were babies born to these young women. A downward trend in infant mortality rates in all age groups is seen in Figure 15. Each of these trends is statistically significant at the 95 percent level.

More information about infant mortality can be seen in the infant mortality section of death related statistics in this report.

FIGURE 14  
**INFANT MORTALITY**  
BRITISH COLUMBIA, 1986-2010

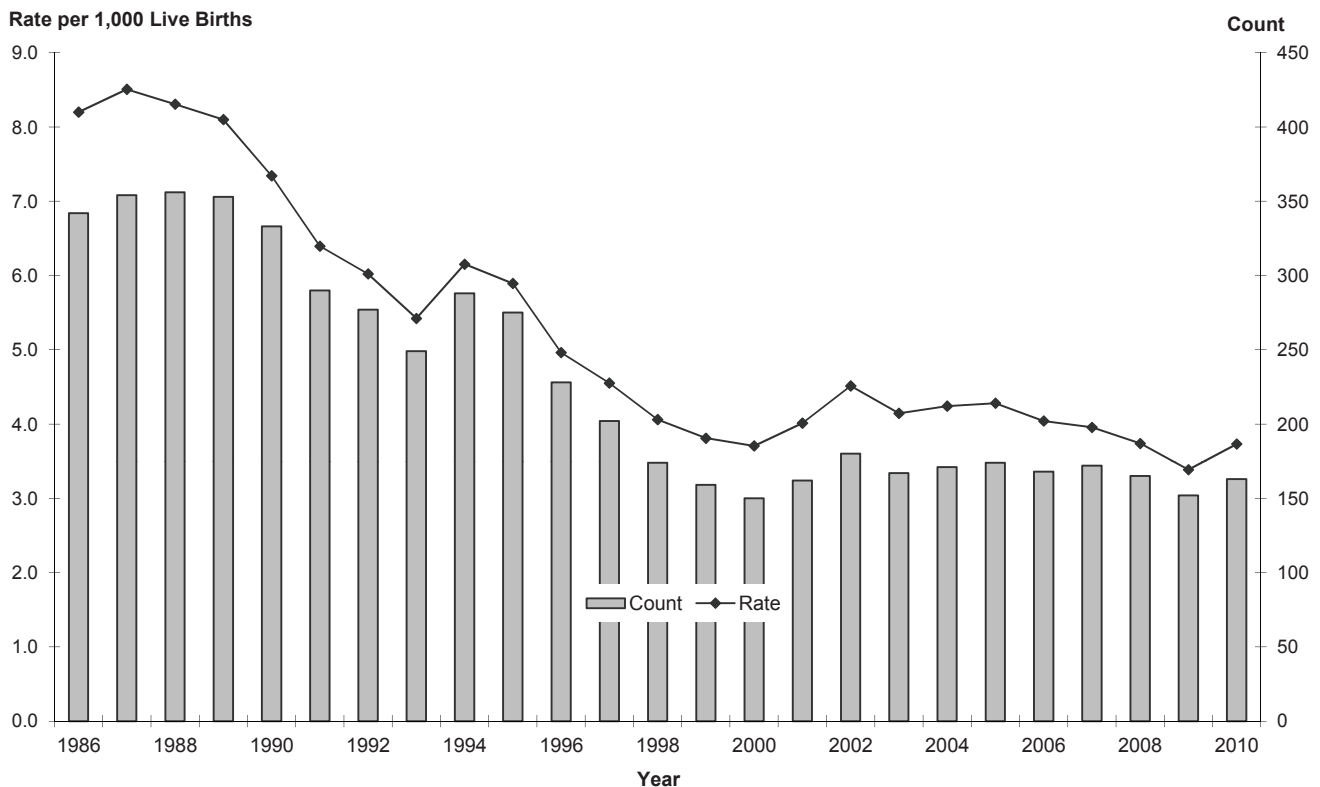


TABLE 5  
**INFANT MORTALITY**  
 BRITISH COLUMBIA AND CANADA, 1965–2010

| Year | British Columbia<br>Age at Death (in Days) |       |           |       |             |      |      |        |       | Canada |
|------|--|-------|-----------|-------|-------------|------|------|--------|-------|--------|
|      | 0-6 Days                                   |       | 0-27 Days |       | 28-364 Days |      | N.S. | Total  |       |        |
|      | Number                                     | Rate  | Number    | Rate  | Number      | Rate |      | Number | Rate  |        |
| 1965 | 415  | 12.33 | 453       | 13.45 | 227         | 6.74 | 3    | 683    | 20.29 | 24.0   |
| 1966 | 435  | 13.38 | 494       | 15.20 | 263         | 8.09 | 4    | 761    | 23.41 | 23.1   |
| 1967 | 429  | 13.04 | 470       | 14.29 | 218         | 6.63 | 1    | 689    | 20.94 | 22.0   |
| 1968 | 375  | 11.13 | 438       | 13.00 | 214         | 6.35 | 4    | 656    | 19.47 | 21.0   |
| 1969 | 329  | 9.30  | 374       | 10.57 | 199         | 5.62 | -    | 573    | 16.19 | 19.0   |
| 1970 | 369  | 10.01 | 416       | 11.29 | 193         | 5.24 | 2    | 611    | 16.58 | 19.0   |
| 1971 | 409  | 11.74 | 450       | 12.91 | 185         | 5.31 | -    | 635    | 18.22 | 17.5   |
| 1972 | 322  | 9.32  | 373       | 10.79 | 195         | 5.64 | 1    | 569    | 16.46 | 17.0   |
| 1973 | 317  | 9.23  | 363       | 10.57 | 185         | 5.39 | 3    | 551    | 16.04 | 16.0   |
| 1974 | 310  | 8.74  | 348       | 9.82  | 196         | 5.53 | 2    | 546    | 15.40 | 15.0   |
| 1975 | 278  | 7.66  | 321       | 8.85  | 169         | 4.66 | 1    | 491    | 13.53 | 14.3   |
| 1976 | 292  | 8.15  | 324       | 9.04  | 152         | 4.24 | 2    | 478    | 13.33 | 13.5   |
| 1977 | 246  | 6.70  | 276       | 7.52  | 200         | 5.45 | -    | 476    | 12.97 | 12.4   |
| 1978 | 245  | 6.58  | 286       | 7.68  | 178         | 4.78 | -    | 464    | 12.46 | 12.0   |
| 1979 | 196  | 5.10  | 239       | 6.22  | 167         | 4.35 | -    | 406    | 10.56 | 10.9   |
| 1980 | 188  | 4.69  | 235       | 5.86  | 186         | 4.64 | -    | 421    | 10.50 | 10.4   |
| 1981 | 232  | 5.57  | 259       | 6.21  | 140         | 3.36 | 3    | 402    | 9.65  | 9.6    |
| 1982 | 217  | 5.05  | 251       | 5.85  | 150         | 3.49 | -    | 401    | 9.34  | 9.1    |
| 1983 | 193  | 4.48  | 212       | 4.92  | 145         | 3.37 | 2    | 359    | 8.34  | 8.5    |
| 1984 | 184  | 4.18  | 205       | 4.65  | 150         | 3.41 | 1    | 356    | 8.08  | 8.1    |
| 1985 | 180  | 4.19  | 198       | 4.61  | 133         | 3.09 | -    | 331    | 7.70  | 8.0    |
| 1986 | 164  | 3.93  | 195       | 4.68  | 147         | 3.52 | -    | 342    | 8.20  | 7.9    |
| 1987 | 158  | 3.80  | 194       | 4.66  | 160         | 3.85 | -    | 354    | 8.51  | 7.3    |
| 1988 | 191  | 4.46  | 220       | 5.13  | 136         | 3.17 | -    | 356    | 8.31  | 7.2    |
| 1989 | 186  | 4.27  | 215       | 4.93  | 138         | 3.17 | -    | 353    | 8.10  | 7.3    |
| 1990 | 183  | 4.04  | 221       | 4.87  | 112         | 2.47 | -    | 333    | 7.34  | 6.8    |
| 1991 | 140  | 3.09  | 164       | 3.62  | 126         | 2.78 | -    | 290    | 6.40  | 6.4    |
| 1992 | 153  | 3.33  | 173       | 3.76  | 104         | 2.26 | -    | 277    | 6.02  | 6.1    |
| 1993 | 121  | 2.64  | 139       | 3.03  | 110         | 2.40 | -    | 249    | 5.42  | 6.3    |
| 1994 | 175  | 3.74  | 198       | 4.23  | 90          | 1.92 | -    | 288    | 6.15  | 6.3    |
| 1995 | 158  | 3.39  | 181       | 3.88  | 94          | 2.01 | -    | 275    | 5.89  | 6.1    |
| 1996 | 133  | 2.89  | 160       | 3.48  | 68          | 1.48 | -    | 228    | 4.96  | 5.6    |
| 1997 | 125  | 2.82  | 146       | 3.29  | 56          | 1.26 | -    | 202    | 4.55  | 5.5    |
| 1998 | 94   | 2.19  | 114       | 2.66  | 60          | 1.40 | -    | 174    | 4.06  | 5.3    |
| 1999 | 87   | 2.09  | 108       | 2.59  | 51          | 1.22 | -    | 159    | 3.81  | 5.3    |
| 2000 | 84   | 2.08  | 105       | 2.59  | 45          | 1.11 | -    | 150    | 3.71  | 5.3    |
| 2001 | 103  | 2.55  | 126       | 3.12  | 36          | 0.89 | -    | 162    | 4.01  | 5.2    |
| 2002 | 98   | 2.46  | 126       | 3.16  | 54          | 1.35 | -    | 180    | 4.51  | 5.4    |
| 2003 | 104  | 2.58  | 120       | 2.98  | 47          | 1.17 | -    | 167    | 4.14  | 5.3    |
| 2004 | 108  | 2.68  | 122       | 3.03  | 49          | 1.22 | -    | 171    | 4.24  | 5.3    |
| 2005 | 104  | 2.56  | 124       | 3.05  | 50          | 1.23 | -    | 174    | 4.28  | 5.4    |
| 2006 | 83   | 2.00  | 118       | 2.84  | 50          | 1.20 | -    | 168    | 4.04  | 5.0    |
| 2007 | 98   | 2.25  | 114       | 2.62  | 58          | 1.33 | -    | 172    | 3.96  | 5.1    |
| 2008 | 87   | 1.97  | 107       | 2.42  | 58          | 1.31 | -    | 165    | 3.74  | *      |
| 2009 | 90   | 2.01  | 104       | 2.32  | 48          | 1.07 | -    | 152    | 3.39  | *      |
| 2010 | 110  | 2.52  | 129       | 2.95  | 34          | 0.78 | -    | 163    | 3.73  | *      |

Note: Rates per 1,000 live births in the specified year.

N.S. – Not stated.

Above information includes late registrations and amendments.

Canadian rates from Statistics Canada.

\*Rates were not available.

Non-residents are excluded.

FIGURE 15  
**INFANT MORTALITY BY AGE OF MOTHER**  
 BRITISH COLUMBIA, 1986-2010

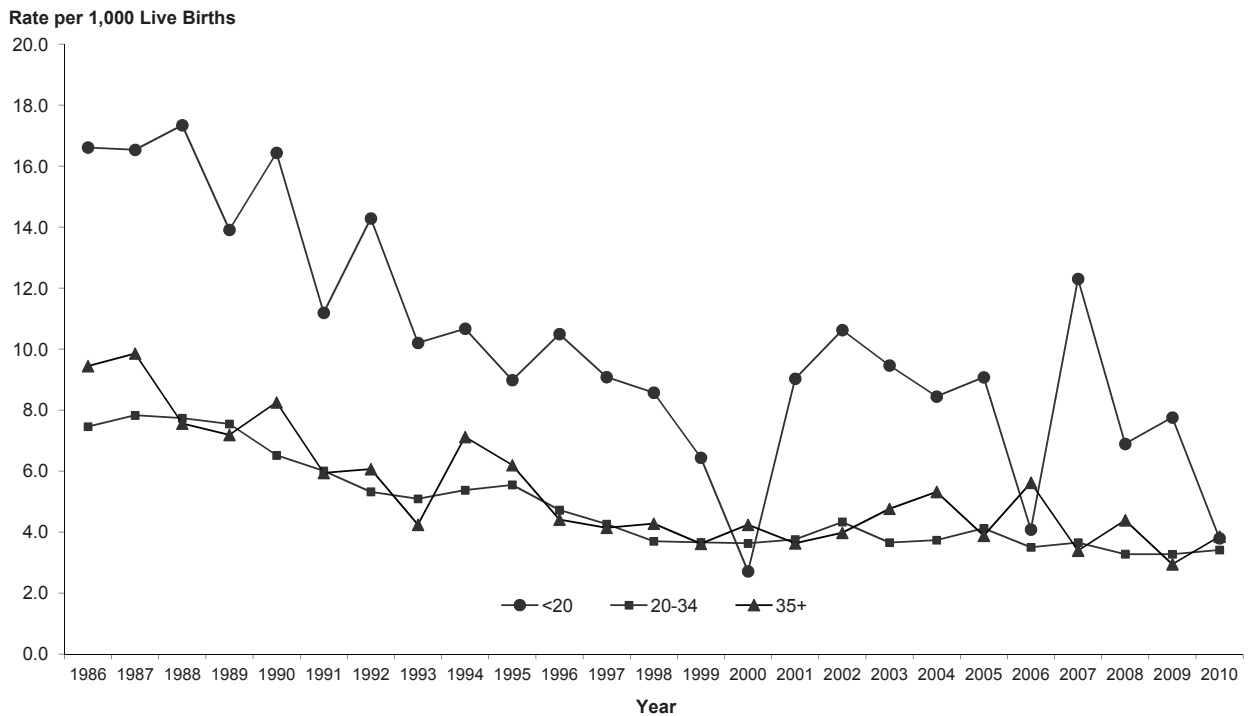
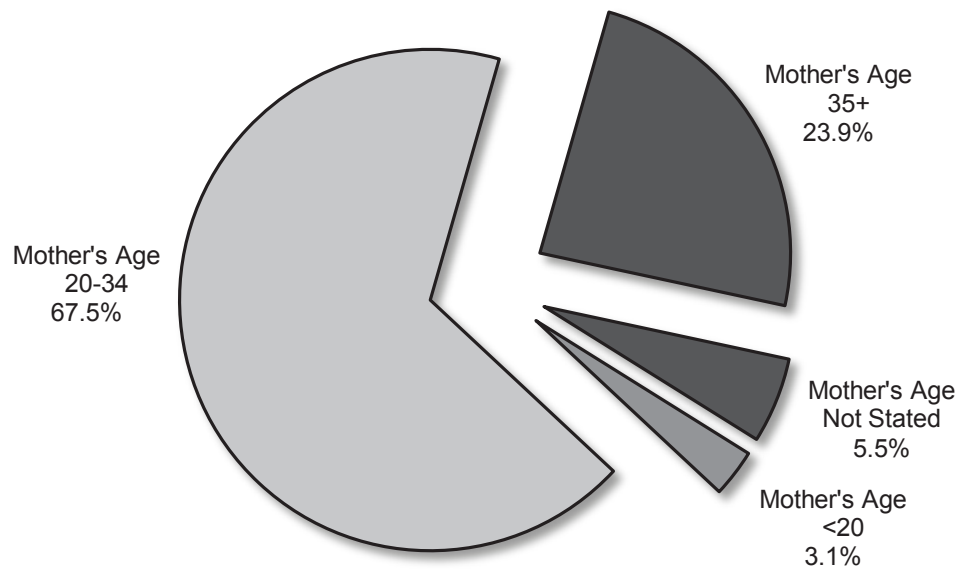


FIGURE 16  
**PERCENTAGE OF INFANT MORTALITY BY AGE OF MOTHER**  
 BRITISH COLUMBIA, 2010





## Death Trends

This section begins with an examination of counts and rates for all causes of death since 1986. This is followed by information on the average age at death, and cause of death trends for malignant neoplasms (cancer), endocrine, nutritional and metabolic diseases, nervous system diseases, cardiovascular diseases, cerebrovascular diseases, and motor vehicle accidents.

All causes are based on the Underlying Cause of Death (UCOD), which is explained in the Glossary. While other causes may have contributed to the death, the underlying cause is defined as the condition or injury that initiated the chain of events leading directly to death.

While Figure 17 shows an increase in the absolute number of deaths from 1986 to 2010, the provincial Age-Standardized Mortality Rate (ASMR) has been on a downward trend since 1986. The trend is not only statistically significant at the 95 percent level, but reached a historic low in 2010.

The rates are quoted per 10,000 population and have been age-standardized to the 1991 Canada census population distribution. See the Glossary for an explanation of ASMR and the Methodology section for an example of the calculation method.

Figure 18 shows that the average age at death among British Columbians has reached an all time high in 2010 at 76.1 years. The trend indicates an increase over the 1986 to 2010 time period, and this trend is statistically significant at the 95 percent level. It should be noted that average age at death is the arithmetic average of the age in years at which people died and is not equivalent to Life Expectancy which is explained in the Glossary.

Figures 19 through 27 refer to selected major causes of death categories. Figures 19, 20, and 21 illustrate trends in cancer death and rates, with death rates expressed as ASMRs.

Figure 19 shows that in the years 1986 to 2010, while the number of deaths due to all types of cancer (malignant neoplasms, ICD-10 codes C00-C97) steadily climbed the ASMR fell. While cancer death incidence climbed, the size of the British Columbian population climbed at an even faster pace.

Figure 20 is a similar graph showing incidence and death rates due to lung cancer (malignant neoplasms of trachea and lung, ICD-10 codes C33-C34). The lung cancer death rate in BC in comparison to all deaths has been falling, while the overall number of lung cancer deaths has increased since 1986.

Figure 21 provides further detail by gender for the lung cancer information shown in Figure 20. The falling trend in lung cancer death rate is being driven by the decline in the rate for men, as there is a gradually increasing trend in the rate of lung cancer deaths among women. The declining trend in lung cancer death rate for men and the increasing trend in the rate for women are both statistically significant at the 95 percent level.

Deaths due to endocrine, nutritional and metabolic diseases in Figure 22 (ICD-10 codes E00-E89) include diseases such as diabetes and cystic fibrosis. A comprehensive list of diseases in this category is provided in Appendix 2 - Detailed Cause of Death by Age and Gender. The death rates and counts for these conditions increased during the period from 2000 to 2005 with a decline between 2006 and 2010.

Diabetes mellitus mortality in 2010, as shown in Figure 23, is 3.1 times that of 1986 in absolute numbers, but the ASMR is only 1.4 times greater over the period. The rate in 2010 has increased slightly over that of 2009.

Deaths due to diseases of the nervous system are shown in Figure 24 and include causes such as Alzheimer's disease, Parkinson's disease, and multiple sclerosis. A comprehensive list of diseases in this category appears in Appendix 2 under ICD-10 codes G00-G99. The number and rate of these deaths increased between 1986 and 2001. From 2001 to 2005, the number levelled off and the rate declined followed by a slight increase for both the number and rate through to 2008. In 2010, while the number of deaths remains consistent, the rate has dropped to the 1994 level. The increasing overall trend from 1986 to 2010 was statistically significant at the 95 percent level.

Figure 25 shows numbers of cardiovascular disease deaths (ICD-10 codes I00-I51) and death rates per 10,000 standard population from 1986 to 2010. While the incidence rose from 1986 to 1996 and then generally declined, the death rate has been steadily falling since 1986. This declining trend is statistically significant at the 95 percent level. See Tables 22 and 23 to compare cardiovascular disease deaths in the context of other causes of death.

Cerebrovascular diseases shown in Figure 26 include ICD-10 codes I60-I69. While the number of people dying from these diseases increased, the standardized rate gradually decreased between 1986 and 2010. This decreasing ASMR trend is statistically significant at the 95 percent level.

In Figure 27, the incidence and death rates for motor vehicle accidents over the period 1986 to 2010 declined. The downward ASMR trend is statistically significant at the 95 percent level. Although motor vehicle deaths have accounted for about 1.3 percent of all deaths (on average since 2000), a substantial share of deaths due to motor vehicle accidents are among young British Columbians, and as such, they remain a concern (See Tables 34 and 35).

Coroner's investigations into "externally caused" deaths can be lengthy, resulting in delays in determining the final causes. For this reason, recent year external cause counts and rates may be underestimated and therefore should be interpreted with caution.

FIGURE 17  
**DEATHS AND DEATH RATES, ALL CAUSES OF DEATH**  
BRITISH COLUMBIA, 1986–2010

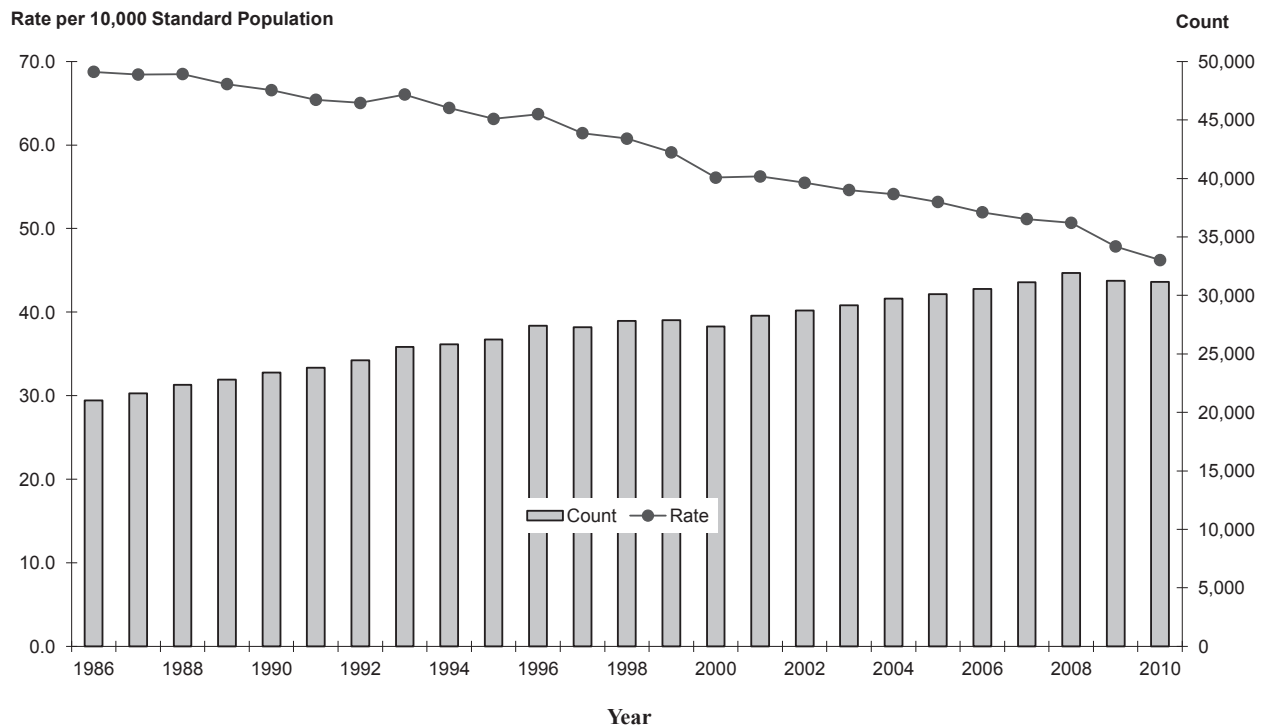
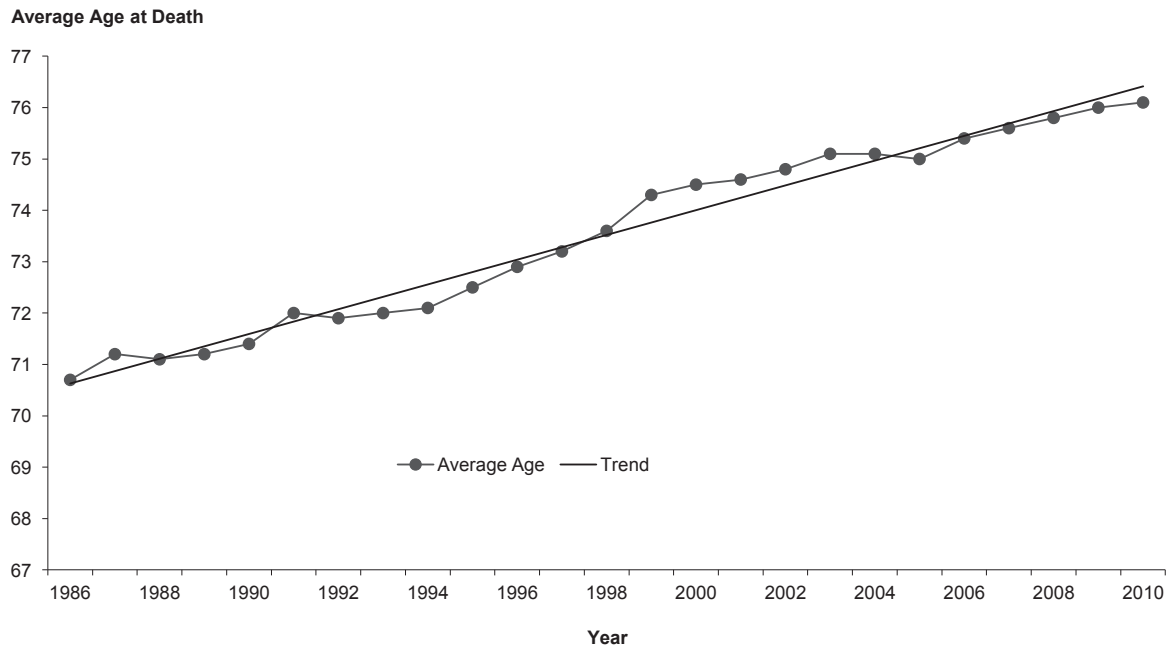


FIGURE 18  
**AVERAGE AGE AT DEATH**  
 BRITISH COLUMBIA, 1986–2010



Based on 5 year age groups to 85+

FIGURE 19  
**DEATHS AND DEATH RATES, MALIGNANT NEOPLASMS (CANCER)**  
 BRITISH COLUMBIA, 1986–2010

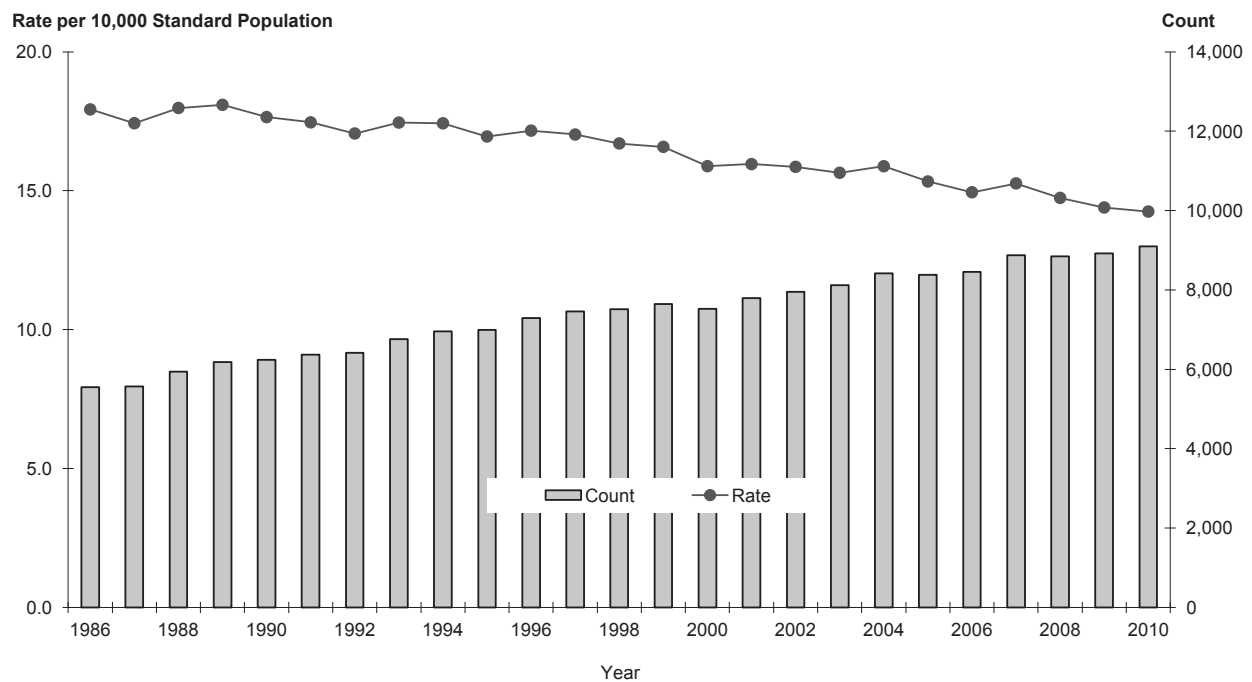


FIGURE 20  
**DEATHS AND DEATH RATES, MALIGNANT NEOPLASM OF LUNG**  
 BRITISH COLUMBIA, 1986-2010

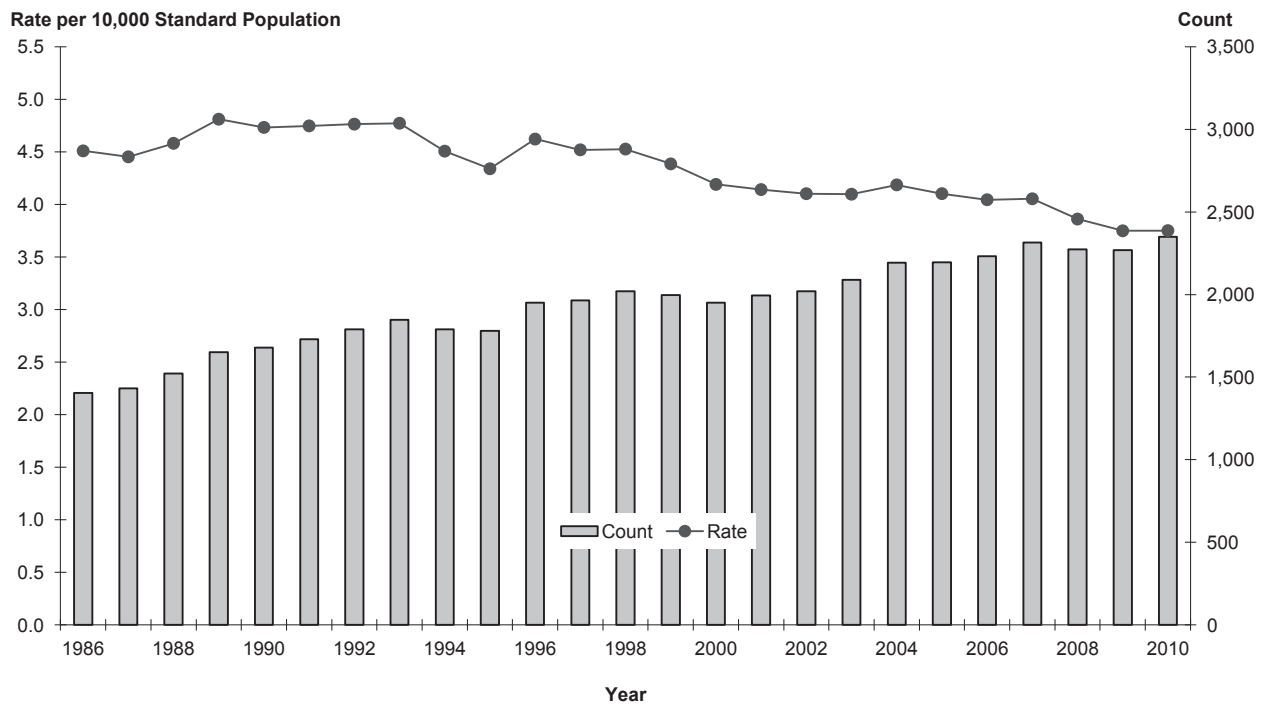


FIGURE 21  
**DEATH RATES BY GENDER, MALIGNANT NEOPLASM OF LUNG**  
 BRITISH COLUMBIA, 1986-2010

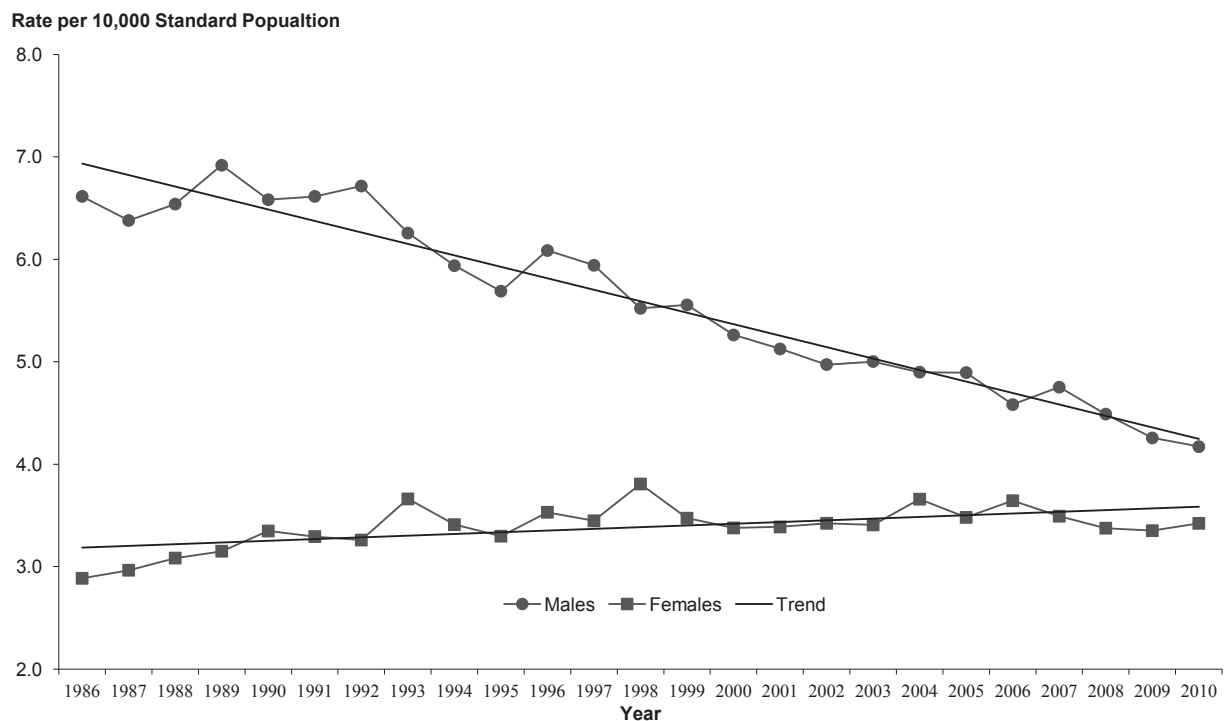


FIGURE 22  
**DEATHS AND DEATH RATES, ENDOCRINE,  
 NUTRITIONAL AND METABOLIC DISEASES**  
 BRITISH COLUMBIA, 1986-2010

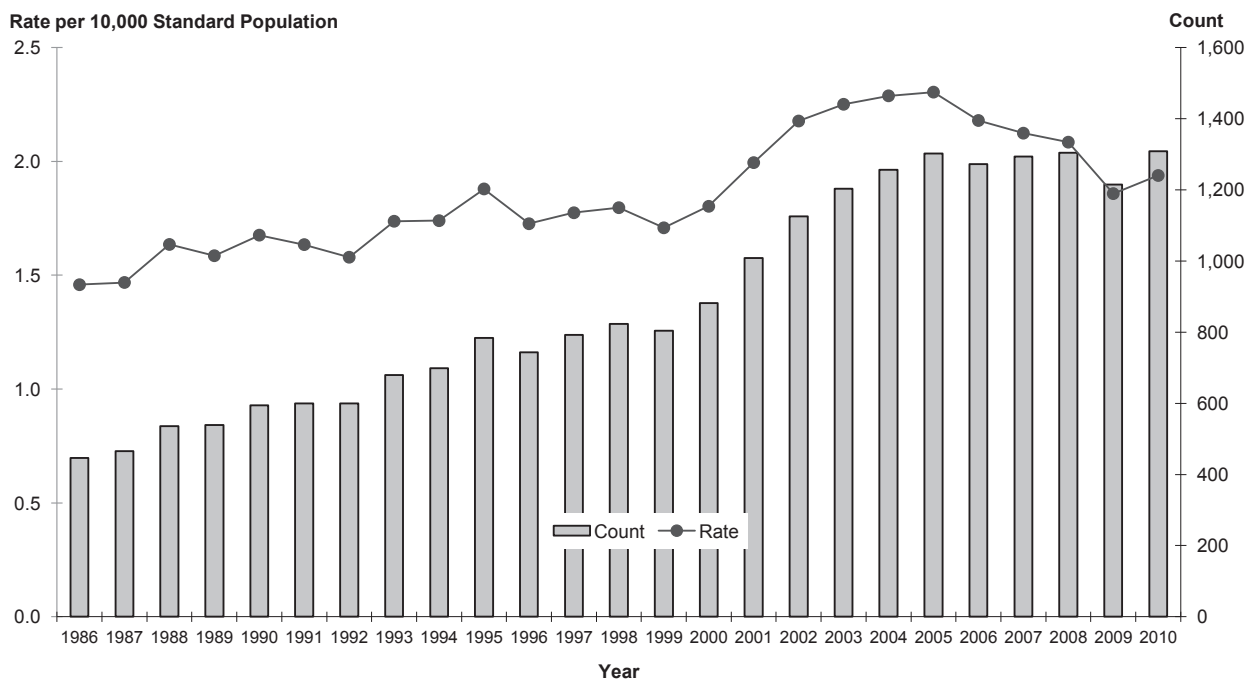
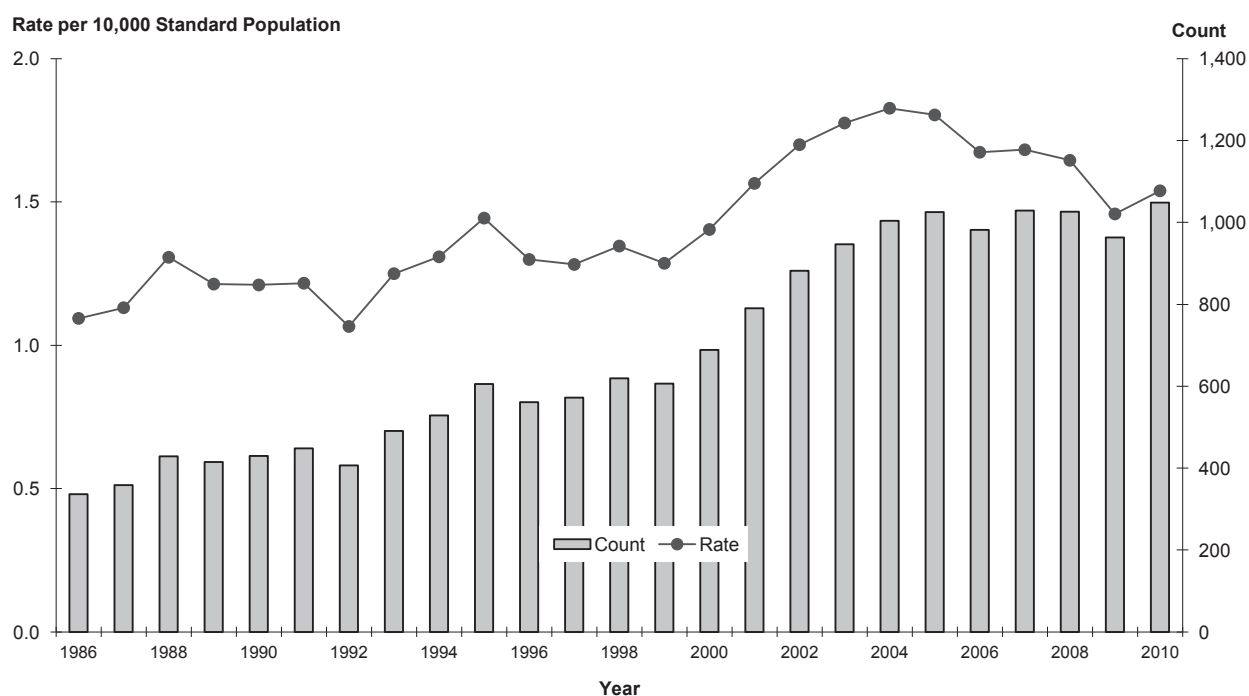
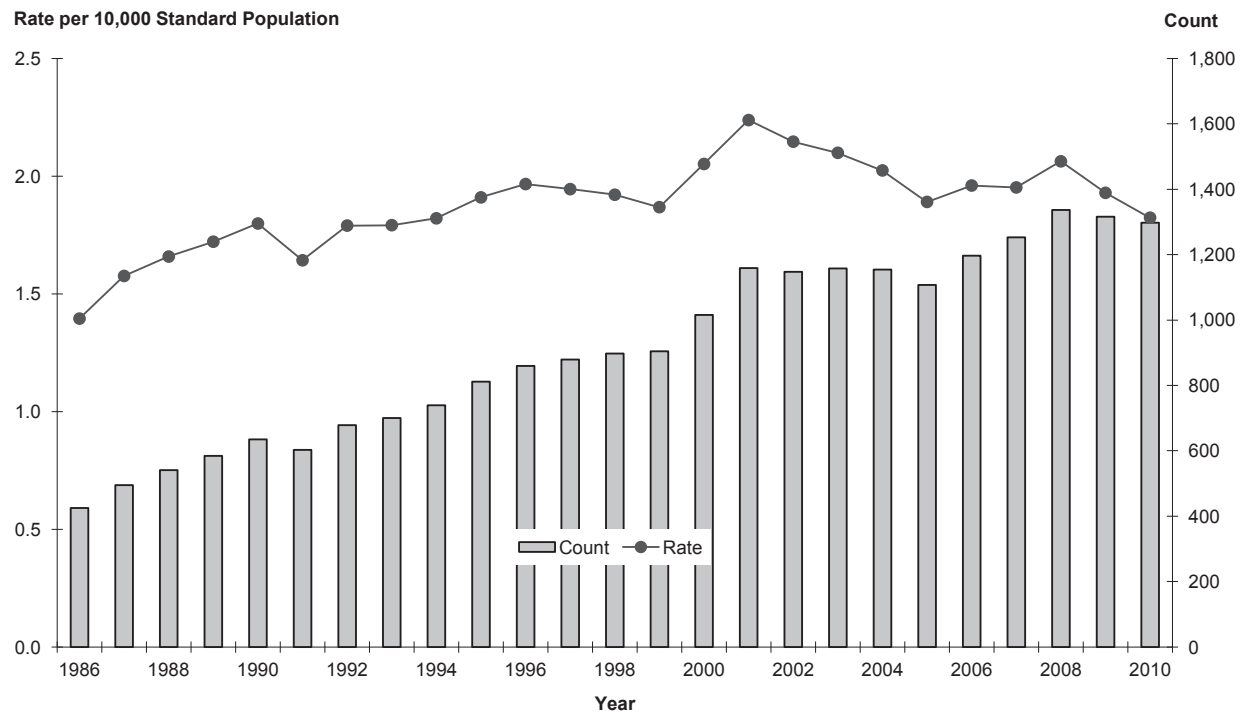


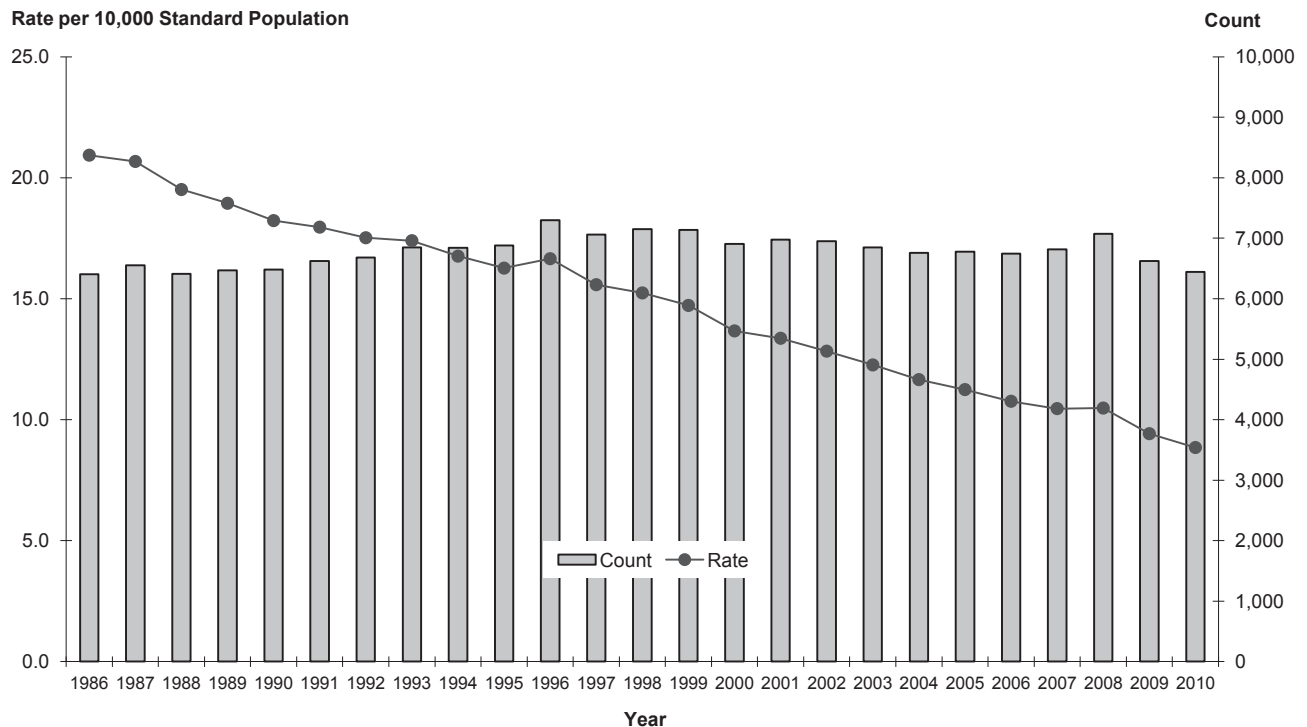
FIGURE 23  
**DEATHS AND DEATH RATES, DIABETES MELLITUS**  
 BRITISH COLUMBIA, 1986-2010



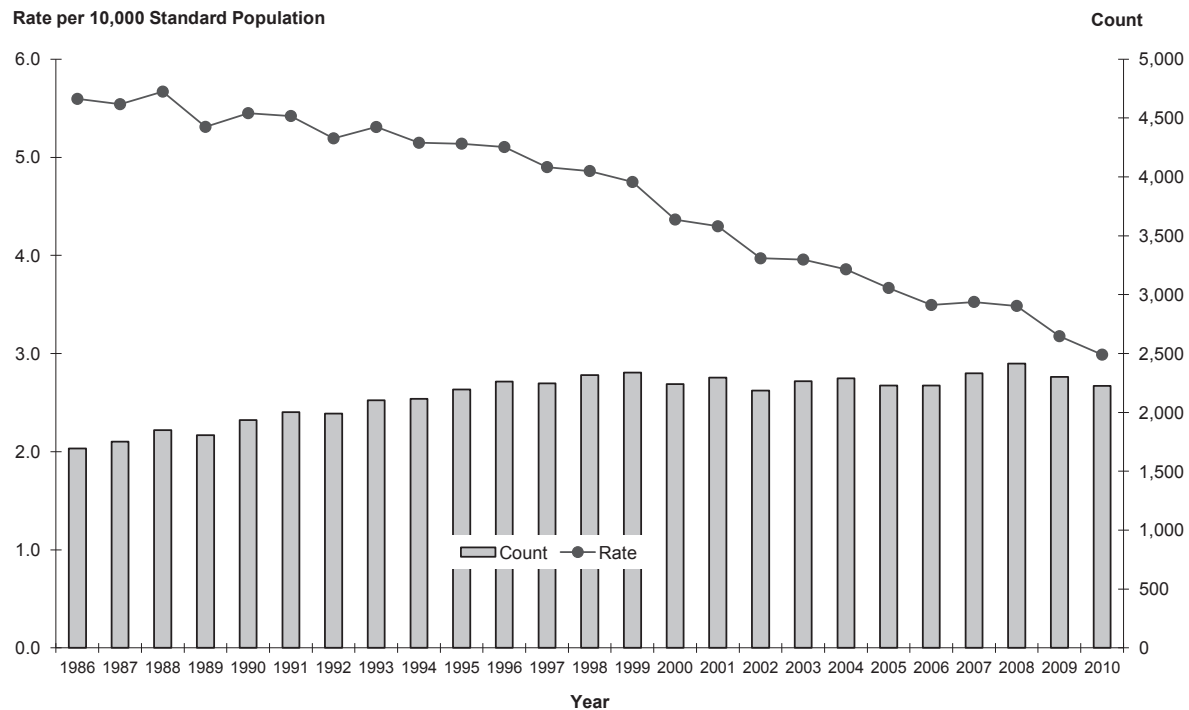
**FIGURE 24**  
**DEATHS AND DEATH RATES, NERVOUS SYSTEM DISEASES**  
 BRITISH COLUMBIA, 1986-2010



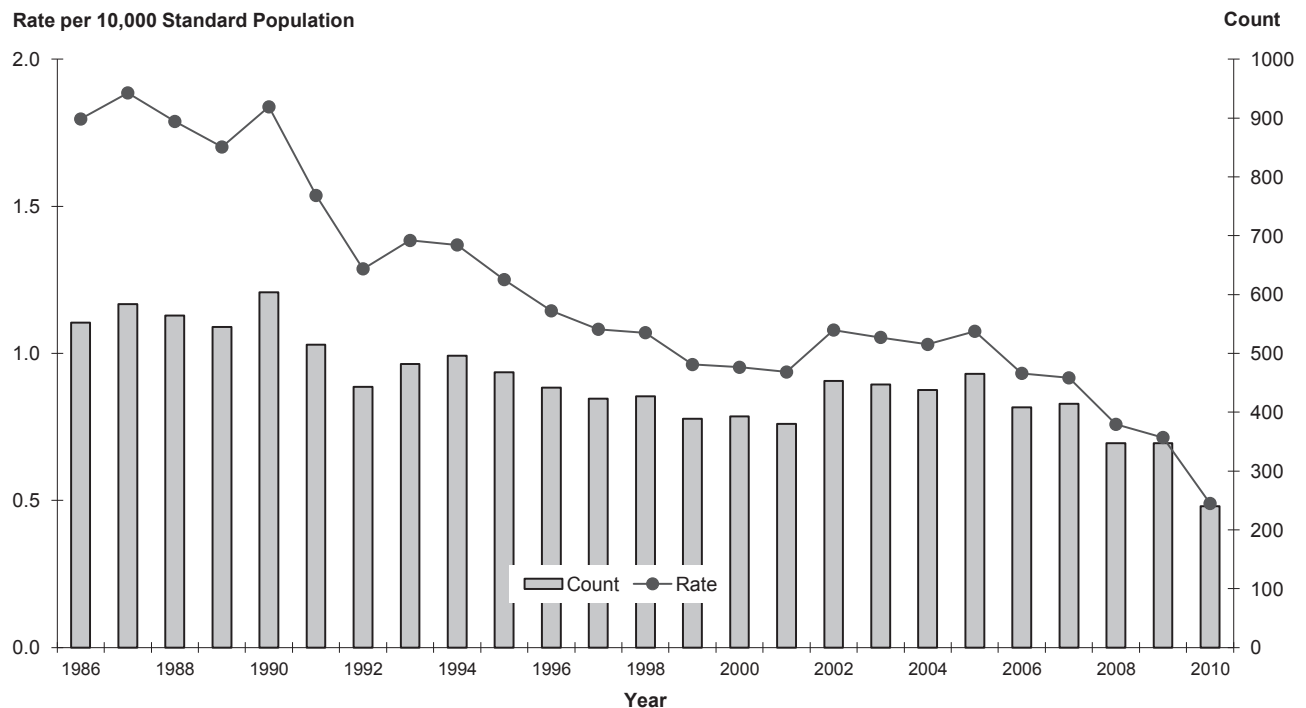
**FIGURE 25**  
**DEATHS AND DEATH RATES, CARDIOVASCULAR DISEASE**  
 BRITISH COLUMBIA, 1986-2010



**FIGURE 26**  
**DEATHS AND DEATH RATES, CEREBROVASCULAR DISEASES**  
 BRITISH COLUMBIA, 1986-2010



**FIGURE 27**  
**DEATHS AND DEATH RATES, MOTOR VEHICLE ACCIDENTS**  
 BRITISH COLUMBIA, 1986-2010



\*Note: Coroner's investigations into "externally caused" deaths can be lengthy, resulting in delays in determining the final causes. For this reason, recent year external cause counts and rates may be underestimated and therefore should be interpreted with caution.

## Marriage Trends

Table 6 and Figure 28 display the average age at which men and women get married. Between 1977 and 2010, the average age for first marriages increased by 6.5 years for men and by 7.2 years for women.

The average age for all marriages increased from 29.3 years to 35.4 years for men and from 26.2 years to 33.3 years for women over the last 34 years.

Over that same time period, the average age of men marrying tended to be 2 to 3 years older than the average age of women marrying. Generally, the age difference at which men and women marry has been greater for all marriages than for first marriages.

TABLE 6  
**AGE OF FIRST AND ALL MARRIAGES**  
BRITISH COLUMBIA, 1977–2010

| Year of Marriage | Average Age (in Years) |         |               |         | Year of Marriage | Average Age (in Years) |         |               |         |
|------------------|------------------------|---------|---------------|---------|------------------|------------------------|---------|---------------|---------|
|                  | First Marriage         |         | All Marriages |         |                  | First Marriage         |         | All Marriages |         |
|                  | Males                  | Females | Males         | Females |                  | Males                  | Females | Males         | Females |
| 1977             | 25.2                   | 22.5    | 29.3          | 26.2    | 1994             | 29.3                   | 27.1    | 33.7          | 30.8    |
| 1978             | 25.2                   | 22.7    | 29.3          | 26.3    | 1995             | 29.4                   | 27.3    | 33.9          | 31.2    |
| 1979             | 25.5                   | 22.9    | 29.6          | 26.6    | 1996             | 29.7                   | 27.6    | 34.5          | 31.7    |
| 1980             | 25.5                   | 23.1    | 29.6          | 26.6    | 1997             | 29.9                   | 27.8    | 34.6          | 31.8    |
| 1981             | 25.7                   | 23.2    | 29.7          | 26.7    | 1998             | 30.1                   | 28.0    | 34.9          | 32.1    |
| 1982             | 26.0                   | 23.6    | 30.0          | 26.9    | 1999             | 30.3                   | 28.2    | 35.2          | 32.3    |
| 1983             | 26.3                   | 23.9    | 30.3          | 27.3    | 2000             | 30.5                   | 28.4    | 35.3          | 32.6    |
| 1984             | 26.6                   | 24.2    | 30.8          | 27.7    | 2001             | 30.6                   | 28.4    | 35.5          | 32.7    |
| 1985             | 26.8                   | 24.5    | 31.1          | 28.0    | 2002             | 30.7                   | 28.6    | 35.8          | 33.0    |
| 1986             | 27.1                   | 24.7    | 31.6          | 28.5    | 2003             | 31.4                   | 29.2    | 36.1          | 33.4    |
| 1987             | 27.6                   | 25.1    | 32.3          | 29.3    | 2004             | 31.5                   | 29.5    | 36.2          | 33.7    |
| 1988             | 27.6                   | 25.3    | 32.2          | 29.2    | 2005             | 31.5                   | 29.5    | 36.2          | 33.7    |
| 1989             | 27.8                   | 25.6    | 32.5          | 29.5    | 2006             | 31.6                   | 29.6    | 36.2          | 33.7    |
| 1990             | 28.0                   | 25.7    | 32.6          | 29.6    | 2007             | 31.5                   | 29.5    | 36.0          | 33.5    |
| 1991             | 28.2                   | 26.1    | 32.8          | 29.9    | 2008             | 31.4                   | 29.5    | 36.0          | 33.4    |
| 1992             | 28.6                   | 26.4    | 33.0          | 30.1    | 2009             | 31.5                   | 29.5    | 35.9          | 33.3    |
| 1993             | 29.2                   | 27.0    | 33.6          | 30.8    | 2010             | 31.7                   | 29.7    | 36.0          | 33.3    |

FIGURE 28  
**AGE OF FIRST AND ALL MARRIAGES**  
BRITISH COLUMBIA, 1977–2010

