

Vermont Legislative Joint Fiscal Office

One Baldwin Street • Montpelier, VT 05633-5701 • (802) 828-2295 • Fax: (802) 828-2483

Issue Brief

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Prepared by: Neil Schickner and Joyce Manchester

Vermont Population Data –

Mortality Rates Over Time, 1980-2014

Both men and women in Vermont are living longer today than they did 30 years ago as evidenced by falling mortality rates over time. This brief highlights the trends in Vermont male and female mortality rates between 1981 and 2010. The charts below provide a snap-shot of mortality rates in 1981 and then 29 years later in 2010 by single year of age.

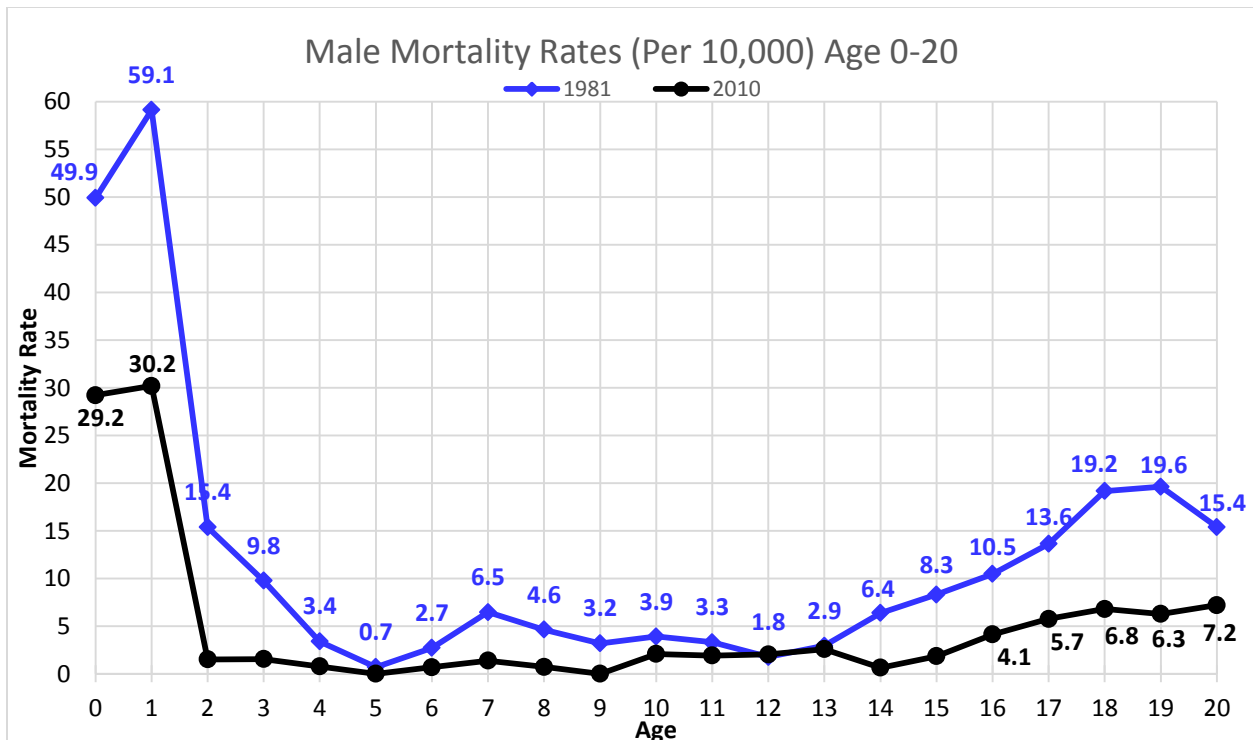
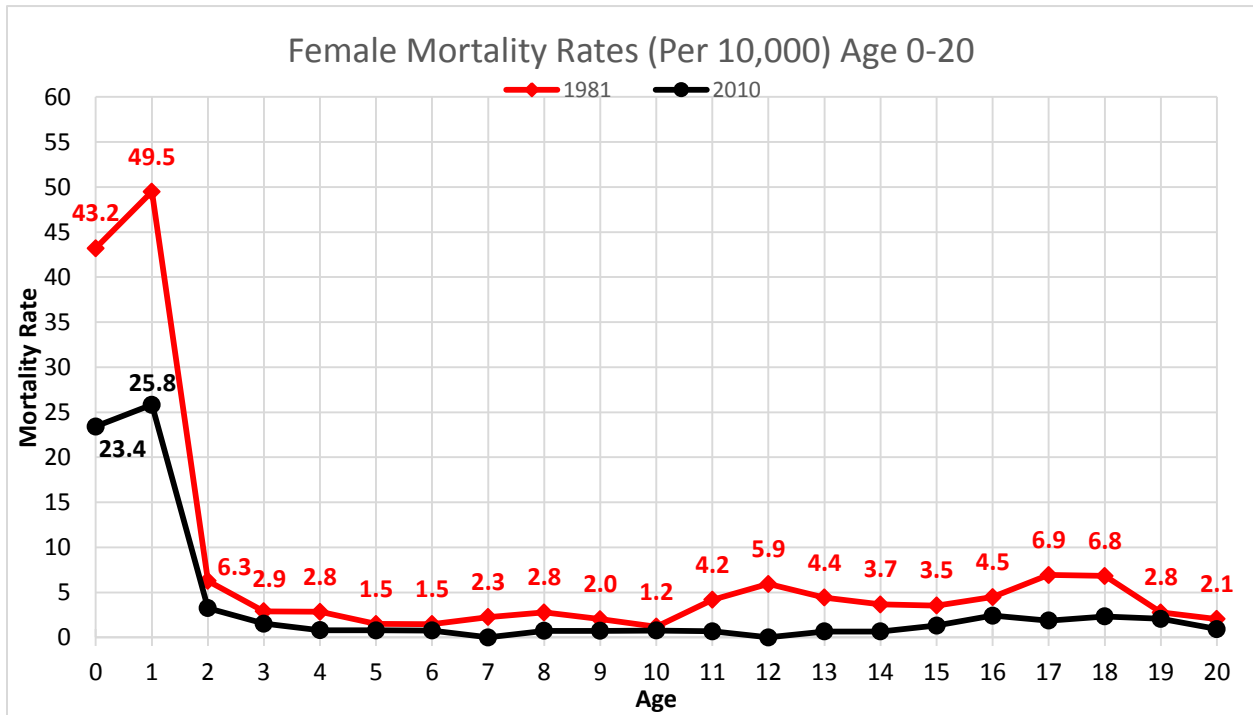
Key findings are

- Dramatic declines in mortality rates for the very young and ages 50+
- A significant decline in mortality rates for four out of five age groups
- Mixed results in the group 21 years of age to 35 years of age

There are 5 different age groupings. For each age group there is a female chart and a male chart. The horizontal axis on all charts is age. The vertical axis is the mortality rate measured as deaths per 10,000 – thus a mortality rate of 30 per 10,000 = 0.0030 = 0.3%. In all the charts the black line is the mortality rate in 2010 and the colored line is the mortality rate in 1981 (red = female; blue = male). For example, the chart “Female Mortality Rates Age 36-50” shows that females age 40 in **1981** experienced a mortality rate of **17.6** and 3 decades later, females age 40 in **2010** experienced a mortality rate of **7.7**.

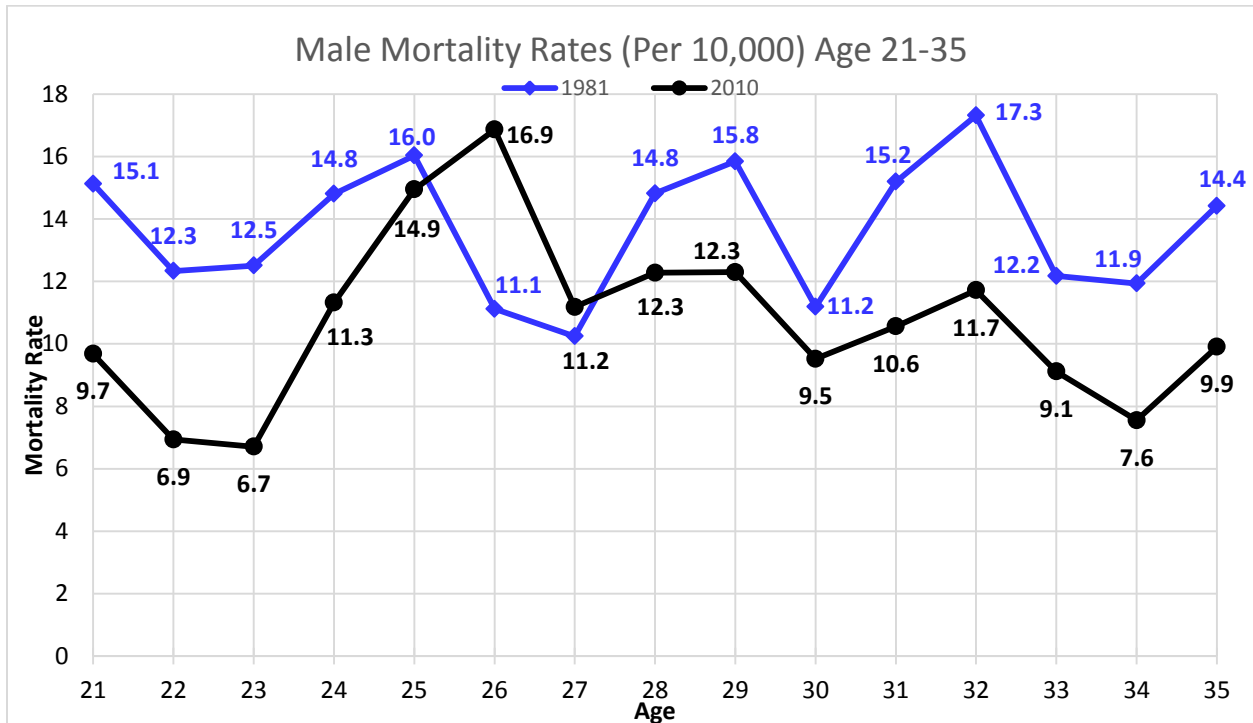
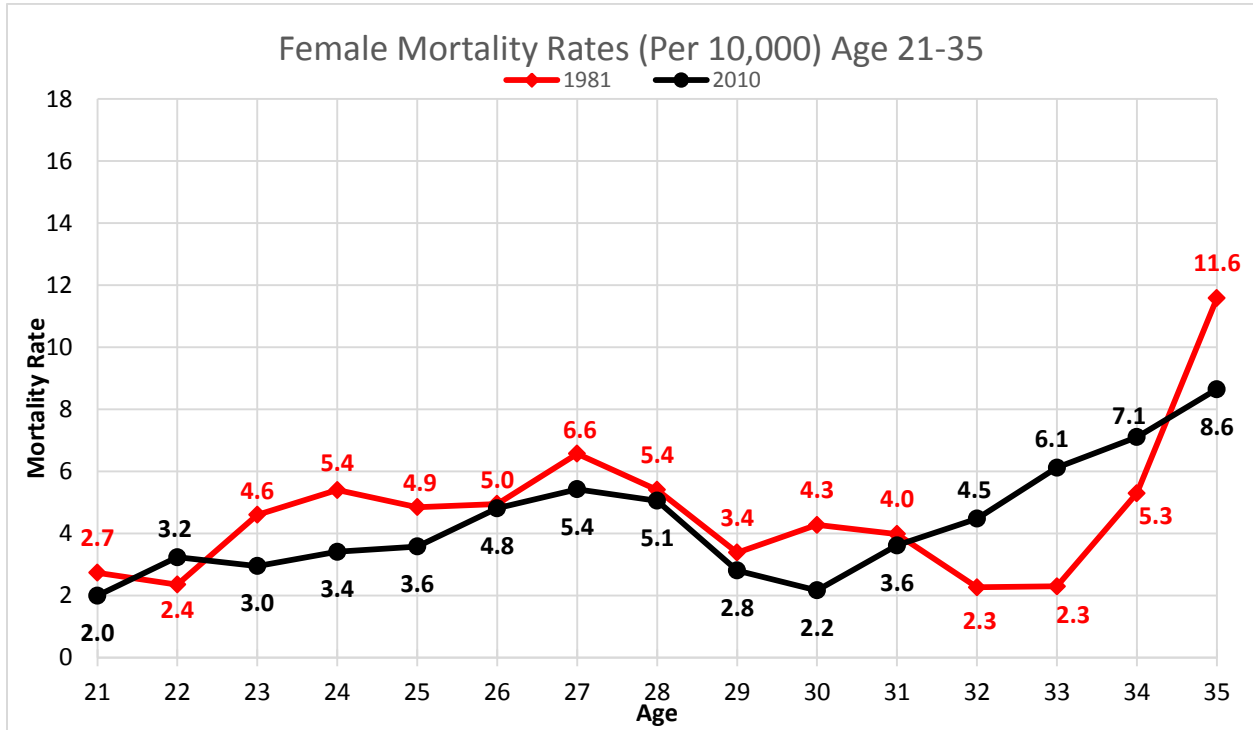
Age 0-20

The dramatic decline over the last century in the mortality of the very young is one of modern medicine's greatest achievements; and the charts below show impressive improvement in just the last 30 years. Between 1981 and 2010 the mortality rate of female new borns declined 46% and 48% for 1 year olds while that of male new borns declined 41% and 49% for 1 year olds.



Age 21-35

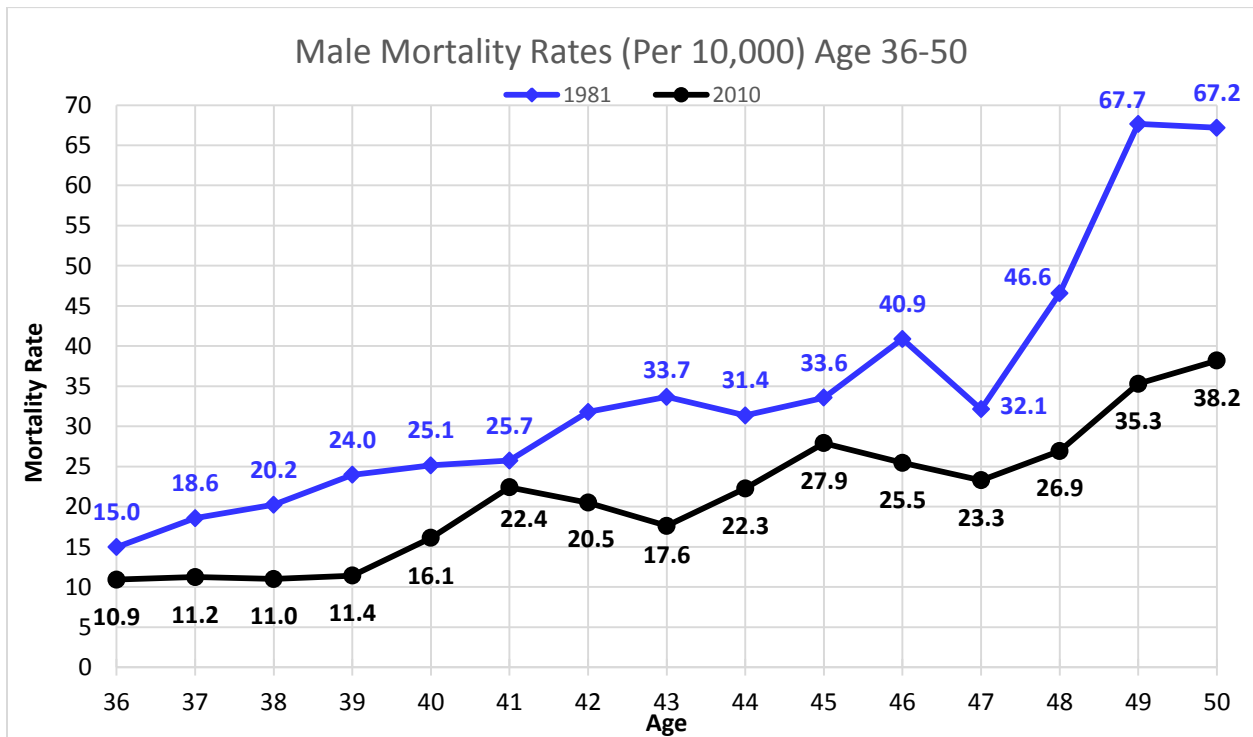
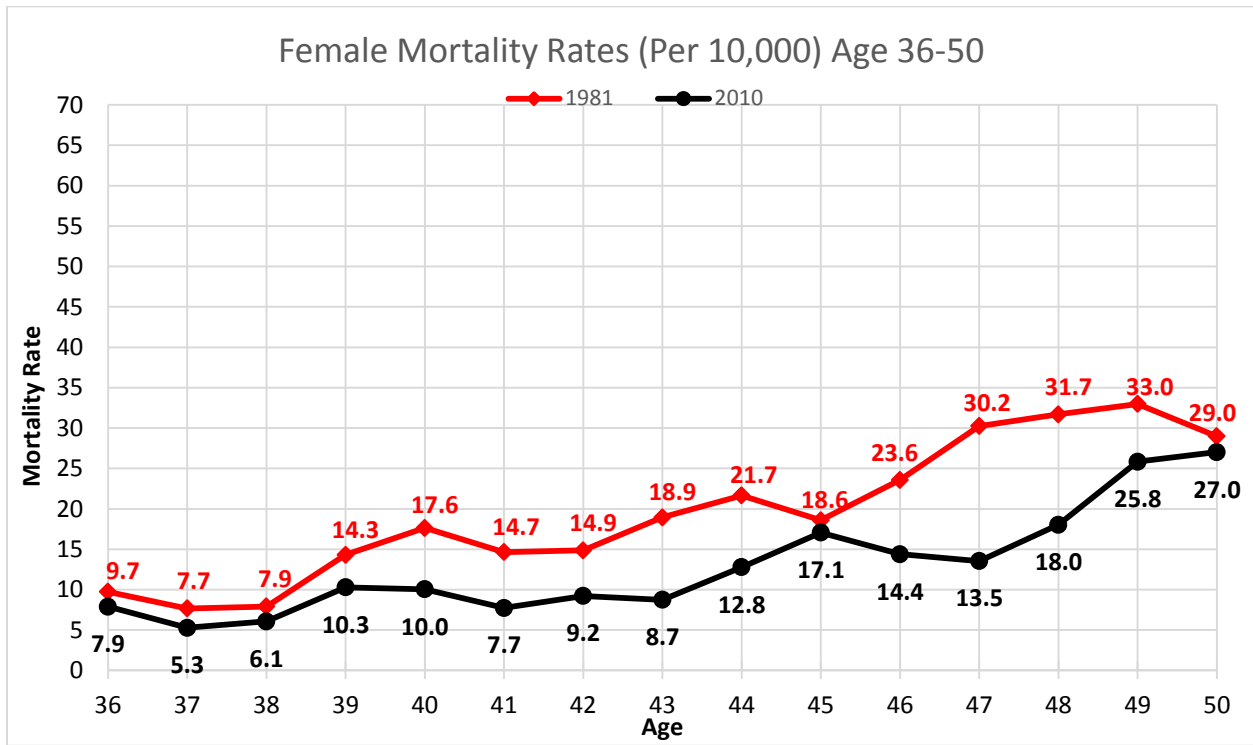
The rates for ages 21-35 are mixed but still suggestive of an improving trend. The crossover pattern of the 1981 and 2010 data could be attributable to the impact of accidents which, according to national data, is a major cause of death for this age group.¹



¹ [National Vital Statistics Reports, Vol 65, No. 4, Table 9, pg 36, June 30, 2016](#)

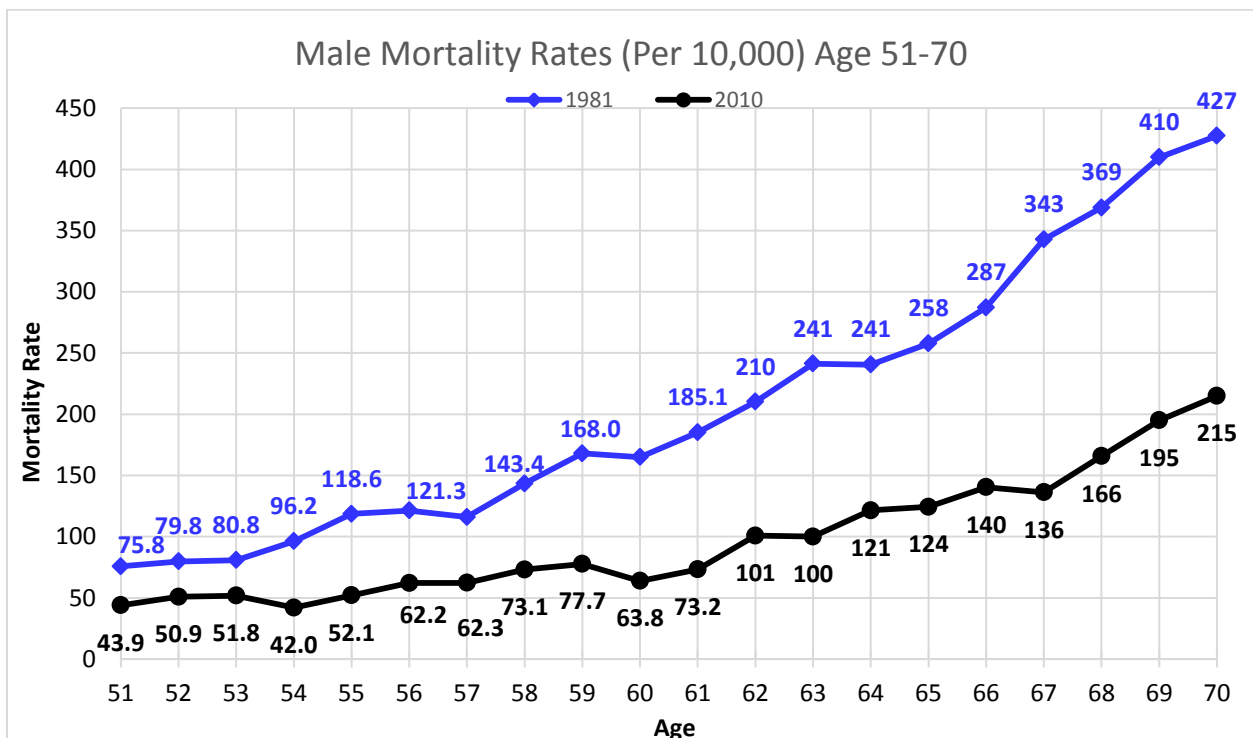
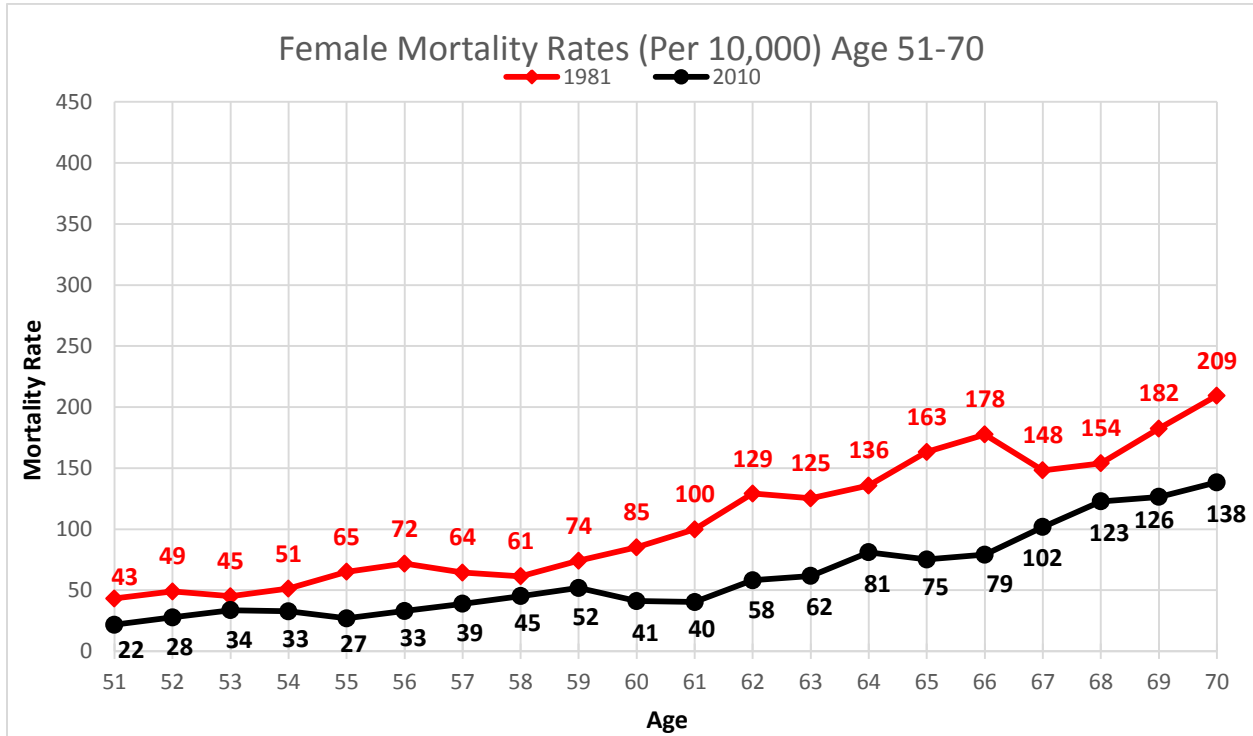
Age 36-50

The improving trend in mortality rates clearly returns in the age group 36-50. Of particular note is the decline in male mortality rates for ages 48-50.



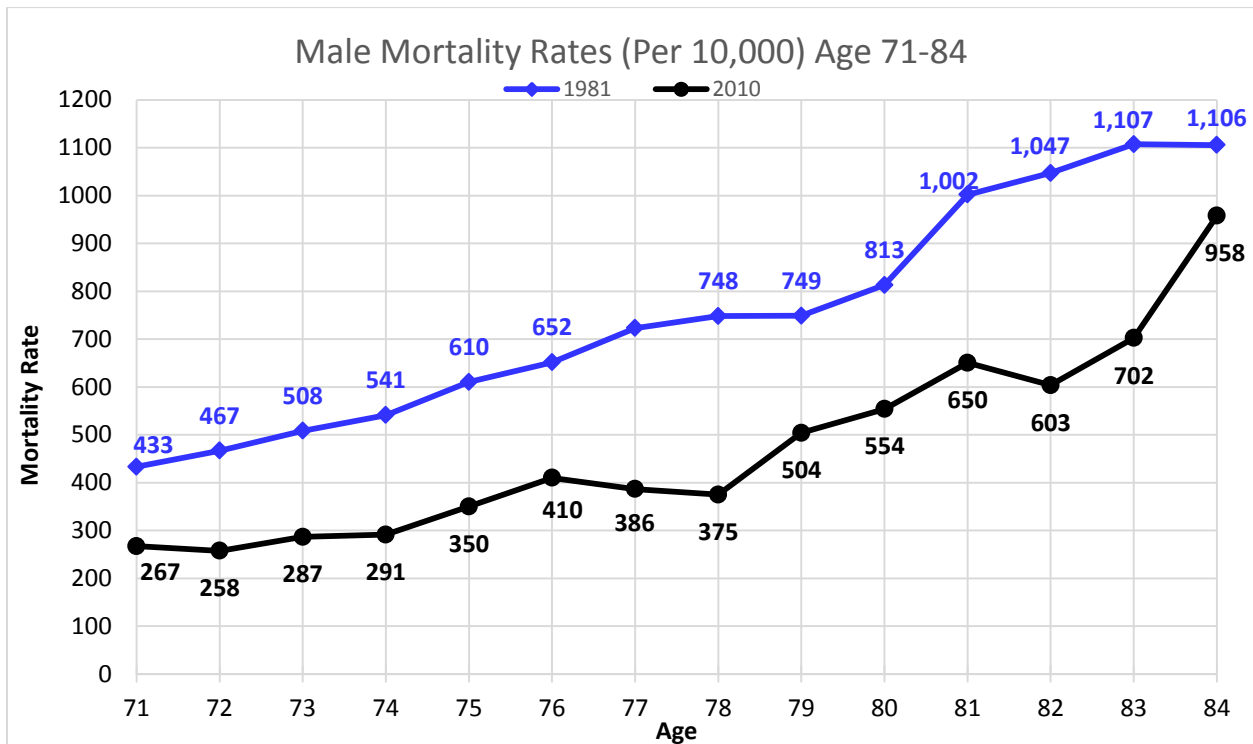
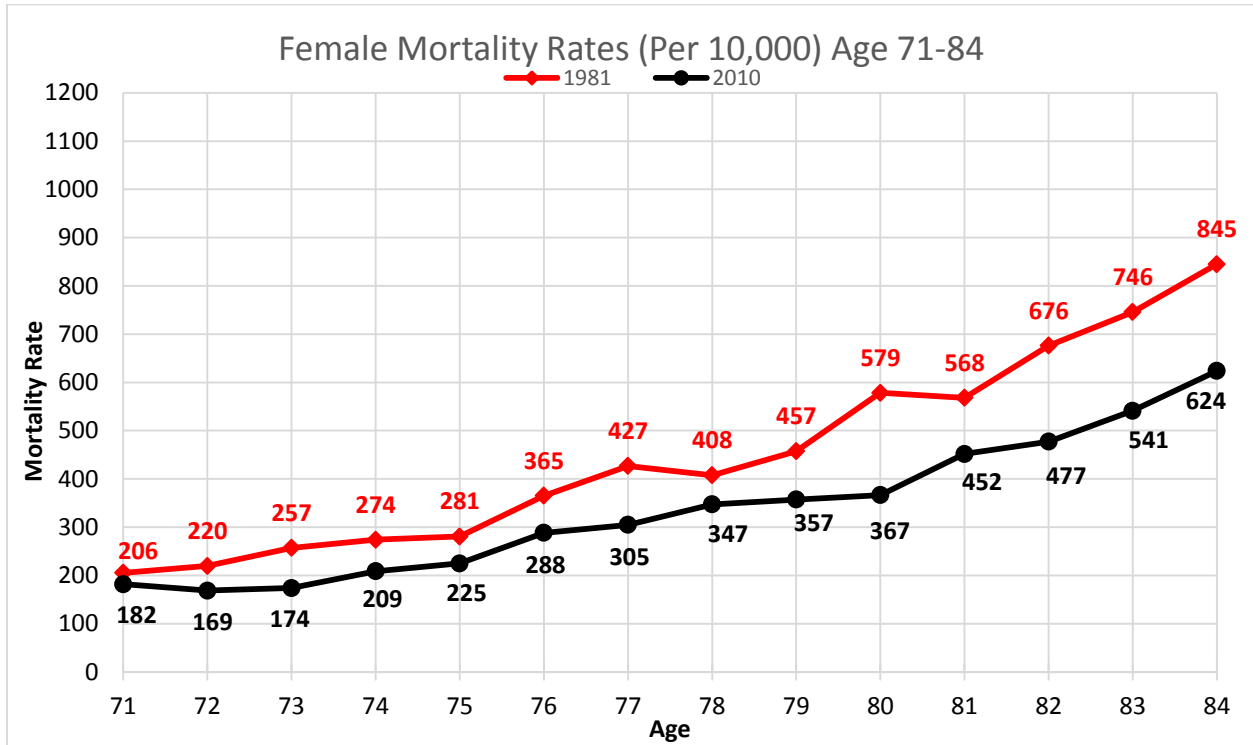
Age 51-70

While male mortality rates in both 1981 and 2010 tended to be consistently higher than female rates in the younger age groups, the male-female gap clearly widens in the age 51-70 group. That said, the flattening of the 2010 male rates for ages 57 and older relative to 1981 is quite impressive.



Age 71-84

The same pattern holds here, namely (1) a clear decline from 1981 to 2010, (2) a large male-female gap and (3) a proportionally larger decline in male relative to female rates.



Age 85+

Census counts by single year of age stop at age 84 with older individuals counted in a group cohort for ages 85-and-older. The charts below show the number count and mortality rates per 10,000 males and females in these group cohorts from 1981 through 2014. In 1981 the youngest members of the 85+ cohorts were born in 1896 and in 2014 the youngest were born in 1929. Using the year 1946 to define the start of the baby boom generation, the oldest of the boomers will not enter this cohort until 2031.

The fact that everyone age 85 or older is included in the cohorts complicates interpretation of the data. As shown in the prior charts, the mortality rates of both males and females under age 85 are declining but as these cohorts turn 85 and join the 85-and-older group cohort, the mortality rate of the group depends on the unknown size and mortality rate of the single-year-of-age cohorts in the group.

Interpretation of the group cohort population number counts, on the other hand, is more straightforward and consistent with the evidence that mortality rates below age 85 are declining. Between 1981 and 2014, the female population age 0-84 grew at an average annual rate of 0.52% while the population of females age 84 grew three times faster at 1.6% per annum. While the number count of 84 year old females was growing their mortality rate between 1981 and 2010 also declined 26%. Logically, given these trends, one would expect the age 85+ population to grow, and to grow faster, than the population feeding into it. And that is exactly what happened as females age 85+ more than doubled between 1981 and 2014, growing at an average annual rate of 2.2%.

The same reasoning applies to males. Between 1981 and 2014, the male population age 0-84 grew at an average annual rate of 0.6% while the population of males age 84 grew almost four times faster at 2.1% per annum. While the number count of 84 year old males was growing their mortality rate between 1981 and 2010 also declined 13%. In turn, between 1981 and 2014, the number count of 85+ males nearly tripled, growing at an average annual rate of 2.8%.

