While death is inevitable, public health concerns arise when preventable causes of death increase (e.g., influenza) or when new causes of death emerge (e.g., opioid overdose). Mortality rates and leading causes of death vary greatly by age, race/ethnicity, and geography.
Leading Causes of Death

DESCRIPTION
There are over 40,000 deaths in Minnesota each year. While death is inevitable, concerns arise when preventable causes of death increase or new causes of death emerge. There were 4,106 deaths in Ramsey County during 2016. More than half of these were due to the top five causes of death; cancer, heart disease, unintentional injury, chronic lower respiratory disease, and Alzheimer’s disease. The leading causes of death for young people are quite different. Birth conditions, congenital anomalies, unintentional injury, and suicide are leading causes of death for those in younger age groups.

In 1993, researchers offered a new conceptualization of cause-of-death classification, one that acknowledged and quantified the contributions of individual behavior. The most prominent contributor to mortality in 1990 was tobacco, followed by diet and activity patterns. A decade later, updated findings using data from 2000 showed a growing contribution of poor diet and physical inactivity. More recently, Galea et.al. argued for a broader conceptualization of the causes of mortality and estimated the number of deaths in the U.S. attributable to low education, individual poverty, area poverty, low social support, racial segregation and income inequality. They found that deaths attributable to social factors is comparable to the number attributed to disease progression and individual behaviors.

HOW WE ARE DOING
In 2016 in Minnesota, the age-adjusted mortality rate was 647.7 per 100,000 residents, totaling 43,050 deaths, of which 38.4 percent were premature (under 75 years of age). For the top three leading causes of deaths to Minnesotans between 2012 and 2016, the cancer mortality rate was 152.8 per 100,000, 116.6 for heart disease and 41.5 for unintentional injury. In Ramsey County, the mortality rate for all causes of death was 677.6 per 100,000 residents, totaling 4,106 lives lost, of which 41.2 percent were premature. For the top three leading causes of death in Ramsey County between 2012 and 2016, the cancer mortality rate was 155.0 per 100,000 population, 110.8 for heart disease, and 41.8 for unintentional injury.

DISPARITIES
Mortality rates and leading causes of death vary greatly by age, race/ethnicity, and geography. Race disparities are evident when comparing age-adjusted death rates in Ramsey County. Death rates in Ramsey County for cancer, heart disease and unintentional injury, are much higher for African-Americans.

RISK FACTORS
Poor diet and physical inactivity along with tobacco use are the top individual behavior contributors to preventable deaths in the U.S. Education less than high school, poverty, low social support, income inequality and racial segregation are the social factors associated with increase in the risk of death.

WHAT RAMSEY COUNTY GOVERNMENT IS DOING

Ramsey County provides funding to five Ramsey County community clinics to help off-set the cost of services, including primary care, which are provided to uninsured and underinsured clients. These community clinics are located in the City of Saint Paul, serving a racially diverse population. Saint Paul – Ramsey County Public Health maintains a disease surveillance role, monitoring the leading causes of death in Ramsey County.

**Estimate of Deaths Associated with Social Factors, Ramsey County, 2016**

- Racial Segregation
- Income Inequality
- Area-Level Poverty
- Low Social Support
- Individual Poverty
- Low Education

Number (one death can be associated with multiple factors)

**Death Rates by Cause and Race, Ramsey County, 2016**

- Cancer
- Heart Disease
- Unintentional Injury

Age-Adjusted Rate per 100,000

Source: Am J Public Health.²

**Change in Causes of Death, Ramsey County, 2010-2016**

- High Blood Pressure: -24%
- Cirrhosis (liver disease): -85%
- Suicide: -23%
- Diabetes: -50%
- Alzheimer’s Disease: -46%
- Chronic Lower Respiratory Disease: -9%
- Unintentional Injury: -70%
- Stroke: -17%
- Heart Disease: -10%
- Cancer: -4%

Percent Change in Number of Deaths

Source: Minnesota Department of Health.¹²

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Years of Potential Life Lost

DESCRIPTION
Years of potential life lost (YPLL) is a summary measure of premature mortality (early death). It represents the total number of years not lived by people who die before reaching a given age. Deaths among younger persons contribute more to the YPLL measure than deaths among older persons. In the U.S., the age limit is often placed at age 75. The number of years that a death occurs before age 75 are counted as years of potential life lost. YPLL can be measured as death from all causes, or as deaths from specific causes. In the U.S. cancer is the second leading cause of death but accounts for the largest YPLL per 100,000.¹

HOW WE ARE DOING
For Minnesota in 2016, there were 16,555 premature deaths from all causes and an age-adjusted premature death rate of 249.4 (the number of deaths to residents under age 75 per 100,000). During that same year in Ramsey County, there were 1,694 deaths and a premature death rate of 279.2, which is much higher than the state rate. Because these 1,694 occurred before the person turned 75, it translates into 31,202 years of potential life lost. Compared to other metro counties, Ramsey County has the highest rate, with Hennepin County second highest at 239.7, which is lower than the state rate.²

DISPARITIES
In the last 15 years, premature death rates decreased among Hispanics, African-Americans and Asian/Pacific Islanders, due to fewer deaths from cancer, heart disease and HIV. Premature death rates are increasing among whites and American Indian/Alaska Natives nationally, due to drug overdoses, suicide and liver disease.³

RISK FACTORS
U.S. counties with lower incomes, higher prevalence of smoking, and lower education levels are associated with higher premature death rates. These relationships vary in magnitude and significance related to income groups.⁴

WHAT RAMSEY COUNTY GOVERNMENT IS DOING
Saint Paul - Ramsey County Public Health provides data monitoring and reporting for this topic in order to better understand the overall health and current conditions in the community. The information may help inform community partners, policy makers or county program leadership.

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### Years of Potential Life Lost, Ramsey County

#### Number of Premature Deaths & Age Adjusted Rate*, Ramsey County, 2016

![Graph showing number of premature deaths and age-adjusted rate for Ramsey County, 2016.](image)

- **Deaths Before Age 75**: Highlighted bars show the number of deaths before age 75 per census tract.
- **Premature Death Rate**: Line graph depicts the age-adjusted death rate.

*Number of deaths to residents under age 75 per 100,000 persons.

Source: Minnesota Department of Health. County Health.

#### All Deaths Compared to Premature Deaths (before age 75) Ranked by Numbers and Rates, Ramsey County, 2012-2016

<table>
<thead>
<tr>
<th>Cause</th>
<th>All Deaths</th>
<th>Rank</th>
<th>Number</th>
<th>Rate per 100,000</th>
<th>Premature Deaths</th>
<th>Rank</th>
<th>Number</th>
<th>Rate per 100,000</th>
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<tbody>
<tr>
<td>Cancer</td>
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<td>4,434</td>
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<td>1</td>
<td>2,347</td>
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<td>Heart Disease</td>
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<td>2</td>
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<td>Unintentional Injury</td>
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<td>3</td>
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<td>5</td>
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<td></td>
<td>10</td>
<td>94</td>
<td>3</td>
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</tbody>
</table>

Source: Minnesota Department of Health. County Health Tables.

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