

DATA AND TREND ANALYSIS

Causes of Death



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.¹ 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.²

In 1993, researchers offered a new conceptualization of cause-of-death classification, one that acknowledged and quantified the contributions of individual behavior.³ 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.⁴ 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.⁵

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).¹ 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.¹

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.⁶

RISK FACTORS

Poor diet and physical inactivity along with tobacco use are the top individual behavior contributors to preventable deaths in the U.S.⁷ 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.⁵

Information to note

- In 2016 there were 4,106 deaths in Ramsey County, a rate of 677.6 per 100,000 residents, which was higher than the State rate of 647.7.
- Death rates in Ramsey County for cancer, heart disease and unintentional injury, are much higher for African-Americans.

¹ 2017 County Health Tables. Minnesota Department of Health. <http://www.health.state.mn.us/divs/chs/genstats/countytables/profiles2017/index.html>. Accessed June 2018.

² Minnesota Center for Health Statistics. Minnesota Department of Health. <http://www.health.state.mn.us/divs/chs/>. Accessed June 2018.

³ McGinnis J, Foege W. Actual causes of death in the United States. *JAMA*. 1993;270(18):2207-2212. <https://jamanetwork.com/journals/jama/article-abstract/409171>. Accessed June 2018.

⁴ Mokdad A, Marks J, Stroup D, Gerberding J. Actual causes of death in the United States, 2000. *JAMA*. 2004;291(10):1238-1245.

⁵ Galea S, Tracy M, Hoggatt K, DiMaggio C, Karpati A. Estimated deaths attributable to social factors in the United States. *Amer J Pub Health*. 2011;101(8):1456-1465. <https://ajph.aphapublications.org/doi/full/10.2105/AJPH.2010.300086>. Accessed June 2018.

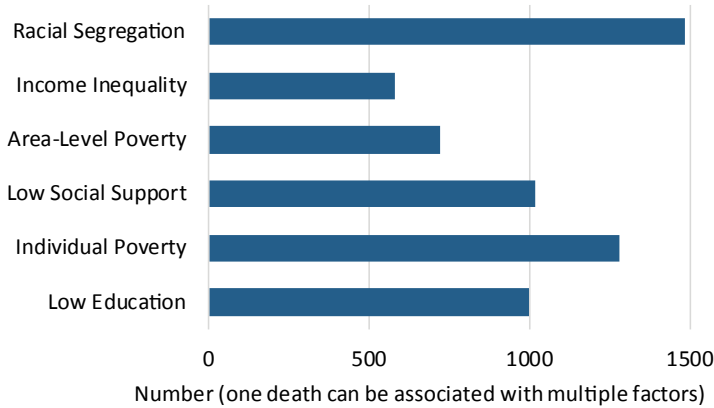
⁶ Vital Statistics Interactive Queries. Minnesota Department of Health. <https://mhsq.web.health.state.mn.us/frontPage.jsp>. Accessed June 2018.

⁷ Murray, C. The State of US Health, 1990-2010. Burden of Diseases, Injuries, and Risk Factors. *JAMA*. 2013. <http://jamanetwork.com/journals/jama/fullarticle/1710486#figure-table-tab>. Published August 14, 2013. Accessed July 27, 2017.

WHAT RAMSEY COUNTY GOVERNMENT IS DOING

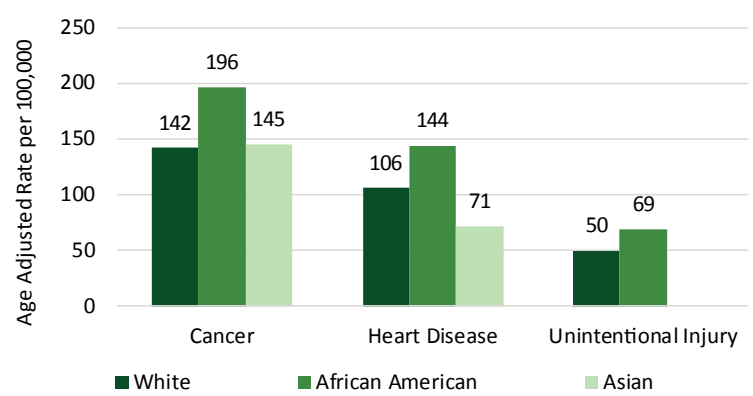
Ramsey County provides funding to five Ramsey County community clinics to help off-set the cost of services, including primary care, which are provided to uninsured and underinsured clients. These community clinics are located in the City of Saint Paul, serving a racially diverse population. Saint Paul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



Source: Am J Public Health.⁸

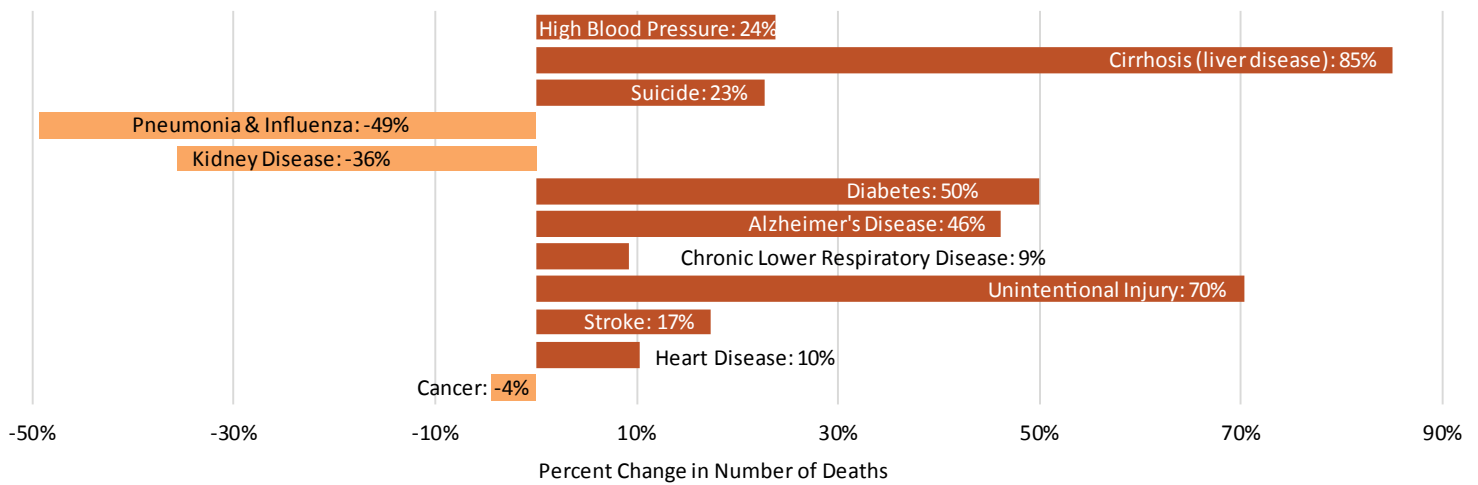
Death Rates by Cause and Race, Ramsey County, 2016



*Not enough data to calculate rate.

Source: Minnesota Department of Health.⁹

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



Source: Minnesota Department of Health.¹⁰

⁸ Saint Paul-Ramsey County Public Health analysis based on Galea T, Hoggatt K, Dimaggio C, Karpati A. Estimated deaths attributable to social factors in the United States. Am J Public Health. 2011;101(8):1456-65.

⁹ Vital Statistics Interactive Queries. Minnesota Department of Health Website. <https://mhsq.web.health.state.mn.us/frontPage.jsp>. Accessed June 2018.

¹⁰ Minnesota Department of Health. Minnesota County Health Tables. <http://www.health.state.mn.us/divs/chs/countytables/index.htm>. Accessed April 27, 2018.

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.

Information to note

- Ramsey County has a higher premature death rate than any other metro county and Minnesota.
- Premature deaths among whites and American Indian/Alaska Natives are increasing due to causes such as drug overdoses, suicide and liver disease.

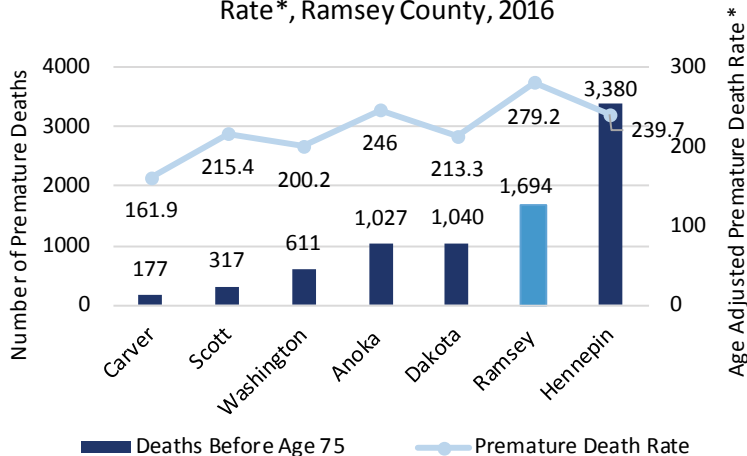
¹ General health status. HealthyPeople 2020. <http://healthypeople.gov/2020/about/GenHealthAbout.aspx>. Accessed August 2018.

² Minnesota County Health Tables. Minnesota Department of Health. <http://www.health.state.mn.us/divs/chs/genstats/countytables/index.htm>. Accessed August 2018.

³ Toich L. Racial disparities in premature death rate discovered. The American Journal of Pharmacy Benefits. 2017. <http://www.ajpb.com/news/racial-disparities-in-premature-death-rate-discovered>. Published February 17, 2017. Accessed August 2018.

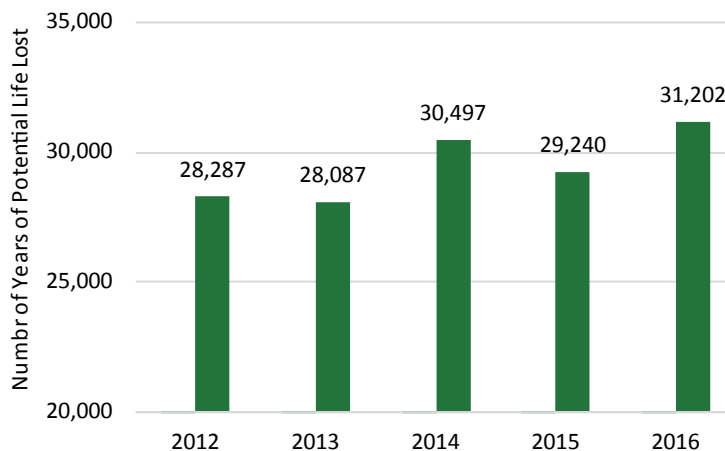
⁴ Cheng E, Kindig D. Disparities in premature mortality between high- and low-income US counties. National Center for Biotechnology Information. 2012; 9: E75. <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC3402341/>. Published March 22, 2012. Accessed August 2018.

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



*Number of deaths to residents under age 75 per 100,000 persons
Source: Minnesota Department of Health. County Health.⁵

Years of Potential Life Lost, Ramsey County



Source: Minnesota Department of Health. Minnesota Vital.⁶

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

Cause	All Deaths			Premature Deaths		
	Rank	Number	Rate per 100,000	Rank	Number	Rate per 100,000
Cancer	1	4,434	115	1	2,347	78
Heart Disease	2	3,350	111	2	1,054	36
Unintentional Injury	3	1,197	42	3	709	26
Chronic Lower Respiratory Disease	4	1,038	37	4	363	12
Suicide	5	306	11	5	289	11
Stroke	6	1,169	40	6	279	10
Diabetes	7	586	21	7	276	10
Cirrhosis	8	310	11	8	271	9
Nephritis	9	348	12	9	114	4
Pneumonia & Influenza	10	294	10	10	94	3

Source: Minnesota Department of Health. County Health Tables.⁵

⁵ Minnesota Department of Health. County Health Tables. <http://www.health.state.mn.us/divs/chs/genstats/countytables/index.htm>. Accessed August 2018.

⁶ Minnesota Department of Health. Minnesota Vital Statistics. <https://mhsq.web.health.state.mn.us/frontPage.jsp>. Accessed August 2018.