

The Health of Southwest Health and Human Service

Community Health Assessment

2014



Lincoln, Lyon, Murray, Pipestone, Redwood, and Rock Counties



Public Health
Prevent. Promote. Protect.



Southwest Health & Human Service
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507-537-6713

Message to the Community



I am pleased to present the Southwest Health and Human Services (SWHHS) Community Health Assessment (CHA). The CHA provides a snapshot of the health of people who live in our region and the many factors that impact our health. Health is defined by the World Health Organization as “a state of complete physical, mental, and social well-being and not merely the absence of disease or infirmity.” This kind of health is not just about individuals, but includes families, communities and systems. This kind of health starts long before illness is manifest: it begins where we live, learn, work, and play.

The purpose of the CHA is to collect and analyze data and helps determine important health priorities. Based on this data, we’ve been able to develop effective strategies to improve the health of our residents. These strategies can be found in the Community Health Improvement Plan (CHIP) and are a plan of action to improve the community's health.

We welcome your feedback on this report and encourage you to use this information in your work with communities in Lincoln, Lyon, Murray, Pipestone, Redwood and Rock Counties.

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Acknowledgements

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2014 Southwest Health & Human Services Community Health Assessment

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Introduction

In 2013, Southwest Health and Human Services became the first and largest joint-powers health and human services agency in Minnesota. The model of this agency, at its core, is sustainable local government that provides continuity of service across a six-county region of Lincoln, Lyon, Murray, Pipestone, Redwood and Rock Counties.

MISSION: Southwest Health and Human Service (SWHHS) is a multi-county agency committed to strengthening individuals, families and communities by providing quality services in a respectful, caring and cost-effective manner.

Governance is provided by each County sending a specified number of Commissioners based on population and one lay person to serve on the governing board.

Southwest Health and Human Services is divided into three divisions: public health, human services, and business division. Each division has a Division Director that is overseen by the Agency Director. There are separate fund accounts for public health and human services.

The Healthy Southwest Health and Human Services Partnership

Every five years public health agencies are required to assess the health of their community to determine if interventions and programs are on target for the population the public health agency serves. Planning is done for the next five years based on the data collected about the service area.

Since public health cannot be provided in a bubble, community input about health priorities and concerns from residents, community leaders, and service organizations is key to developing plans that are on target for the implementation period to come. Where data is lacking, local surveys have helped fill the void.

Public Input

The Health of Southwest Health and Human Services was made available to community members for review. Any comments and additional data provided by the community were reviewed and incorporated as needed.

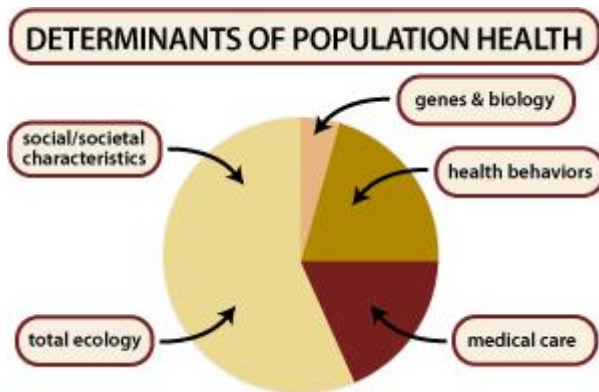
Limitations

The data collected in this document does not represent a total picture of the health of Southwest Health and Human Services. It was meant to be a snapshot of where the health of citizens in the six-county area is at and to help focus decision makers as to where to place limited resources. Data collection was limited by the availability of county level data or lack of study or survey in an area. All areas of health were not covered due to the sheer volume of topics and time limitations of this assessment process.

Community Health Assessment Data was collected from the 2010 Southwest/South Central Adult Health Survey, Minnesota Student Survey 1998 through 2013, Minnesota Center for Health Statistics, Atlas of Minnesota Online, Minnesota State Demographer, Minnesota Department of Natural Resources, various departments at Minnesota Department of Health, Behavioral Risk Factor Surveillance System, U. S. Census Bureau, Centers for Disease Control, and other various local, state, and federal data sources.

A Framework for Assessing Health

Social determinants of health are conditions that influence the health of people and communities. These conditions are economic and social in nature and are influenced by the amount of money, power, and resources that people have. The factors affect policy that affect health outcomes like early childhood development, education, employment, occupation, food security, access to quality health services, housing, income and assets, discrimination and social support.(1)



Source: Centers for Disease Control and Prevention (1)

A person's current state of health is influenced by determinants of health. A person's determinant factors may be biological, socioeconomic, behavioral, psychosocial or social in nature. (1)

These determinants can be extended to the population in the form of five determinants of health of a population; genes and biology, behaviors, social environment or social characteristics, physical environment or total ecology, health services or medical care. (1)

Additional influences could also include social status, culture, and healthy child development. It is not known what portion of what determinant contributes to what portion of population health. The figure above is scientists' best estimate of the influence of five determinants. (1)

The reasons this community health assessment is looking at these various determinants is to ensure that programs that are put in place to address health needs that are identified by community input and data collection have a health equity component to them. As populations of color increase in the six-county area, SWHHS staff can be mindful of how to eliminate health disparities.

Organization

The organization of this document is modeled after *The Health of Minnesota: Statewide Health Assessment, Part One* and *The Health of Minnesota: Statewide Health Assessment, Part Two*.

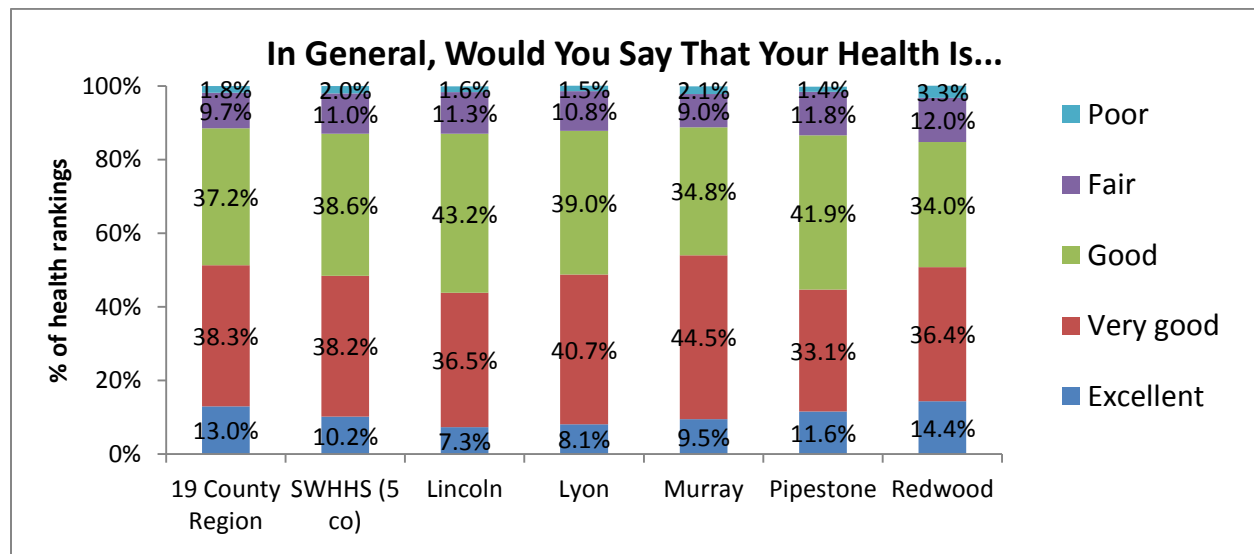
There are four main sections to this document. The first three sections review conditions and factors that assure health and the fourth section focuses on outcomes of health, including the diseases, conditions, and injuries that health-related strategies, programs, and services hope to prevent. The four sections are:

- People and Place: Who we are and our natural environment; the people of SWHHS counties; and the air, water and land that surround them
- The Opportunity for Health in Southwest Health and Human Services: The social, economic, and community factors that have a potent influence on our health
- Healthy Living in SWHHS Counties: The ways in which individuals and communities act to protect and improve health
- Health Outcomes: Where are health outcomes at now for residents of SWHHS counties

General Health Status

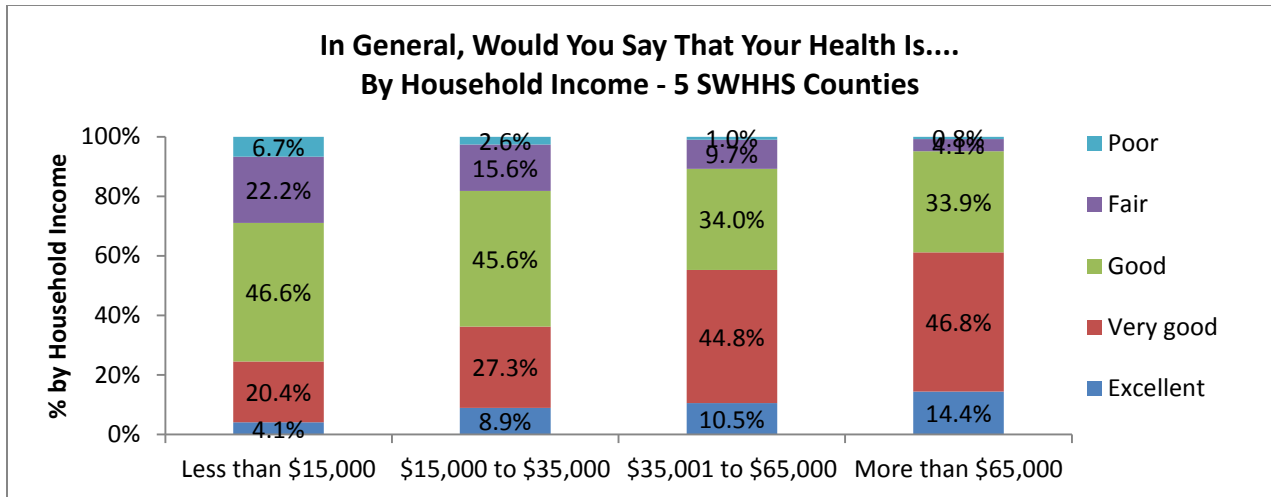
In 2010, Southwest Health and Human Services (formally known as Lincoln, Lyon, Murray, and Pipestone (LLMP)) and Redwood County Public Health participated in a regional adult health survey through the Statewide Health Improvement Plan. Because of limited funding, 19 counties joined with Wilder Foundation to complete the Southwest/South Central Adult Health Survey. Nobles-Rock Community Health, consisting of Nobles and Rock counties, did not participate in the regional survey.

Overall, the data obtained from this survey has been valuable for determining a snapshot of adult health in the SWHHS coverage area. 2010 survey results showed SWHHS residents felt their overall general health status was lower than the rest of the citizens in the region. 10.2 percent of residents in the SWHHS counties ranked their health as “excellent” in comparison with the regional 13.0 percent. However, SWHHS and the region experienced similar outcomes to the percent of residents who ranked their health as “very good.” (SWHHS- 38.2 percent vs. Region- 38.3 percent)(52)



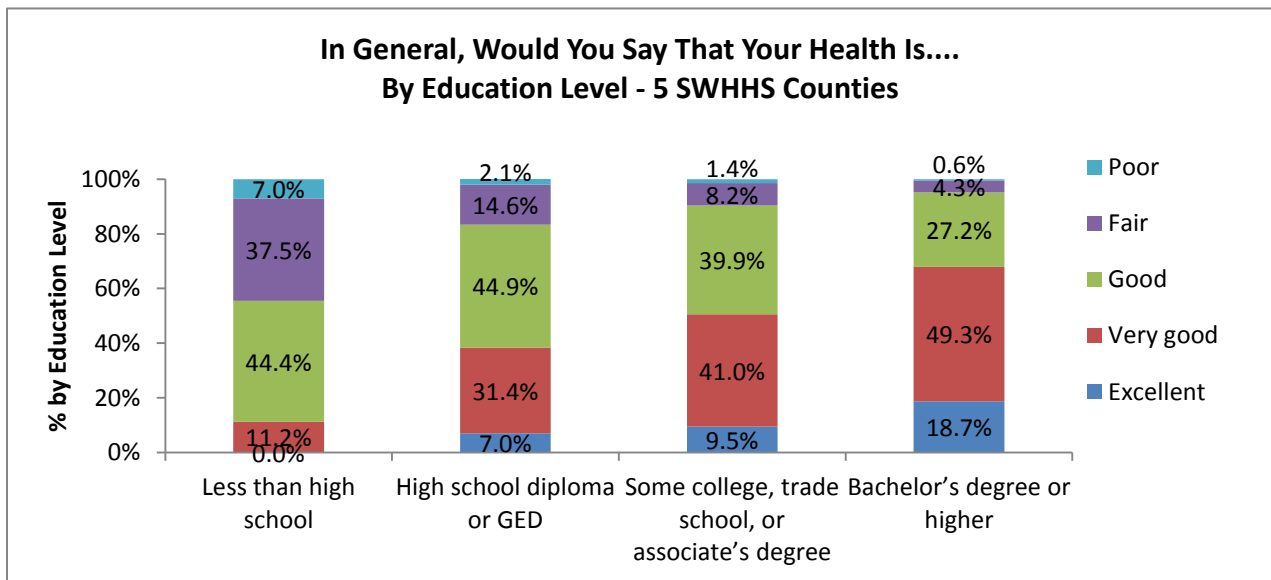
Source Data: 2010 Southwest/South Central Adult Health Survey (2013). (52)
 * Rock did not participate in 2010 Southwest/South Central Adult Health Survey

A comparison of overall health status and household income for SWHHS residents showed that the higher an individual’s household income was, the more likely they would rank their health as “excellent” or “very good.” (52)



Source Data: 2010 Southwest/South Central Adult Health Survey (2013). (52)
 * Rock did not participate in 2010 Southwest/South Central Adult Health Survey

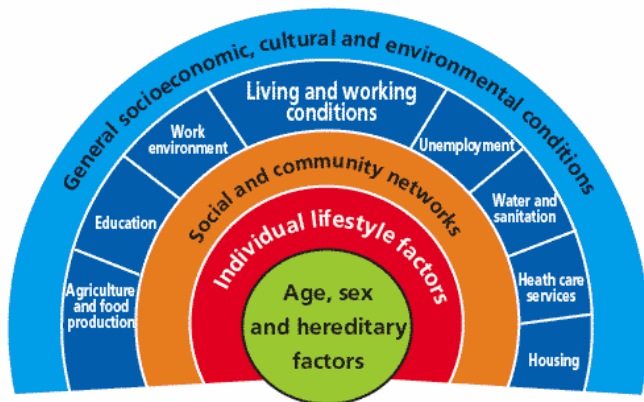
Similar trends were seen with residents who obtained a higher educational degree: residents who lived in the SWHHS counties with a bachelor degree or higher were more likely to rank their overall general health in the “excellent” or “very good” range. (52)



Source Data: 2010 Southwest/South Central Adult Health Survey (2013). (52)
 * Rock did not participate in 2010 Southwest/South Central Adult Health Survey

Health Disparities and Health Equity

Multiple factors affect health including the dynamic between people and their environments. When assessing a community’s health, it is important to consider the interconnected factors of where and how an individual lives, where they work, socialize, and learn. Lifestyle behaviors and genetic disposition affect a person’s health but so does more upstream factors including employment status and quality of housing. The social determinants of health framework address the distribution of wellness and illness among a population- its patterns, origins, and implications.



Source: Dalgren and Whitehead (1991) (101)

When groups face serious social, economic, and environmental disadvantages, such as structural racism and a widespread lack of economic and educational opportunities, health inequities are the result. A health disparity is a population-based difference in health outcomes (ex: women have more breast cancer than men). A health inequity is a health disparity based in inequitable, socially-determined circumstances (ex: American Indians have higher rates of diabetes due to the disruption of their way of life and replacement of traditional foods with unhealthy commodity). Because health inequities have social causes, change is possible.

Addressing health inequities through policy, systems, and environmental (PSE) changes are different from the traditional way of administering programs. Traditionally, Public Health programs are implemented to change behavior in individuals and community. However, there is a growing emphasis on addressing societal factors that affect behavior. Those would be through addressing PSE. Policy strategies may be a law, ordinance or rule (both formal and informal). System strategies involve changes to the economic, social, or physical environment.

The work of Southwest Health and Human Services aims to be a catalyst in the movement upstream to address causes and improve environments in our communities, neighborhoods, schools, and work places with the ultimate goal of health equity for all individuals of Southwest Minnesota.

Health Disparities in Southwest Minnesota

A 2008 report published through the South Carolina Rural Health Research Center highlighted the many health disparities that rural residents across the United States face: higher premature mortality rate, infant mortality rate, and age-adjusted death rate. (89) Rural adults are more likely to have a poorer health status, higher chronic disease prevalence, lower use of preventative services, and more likely to be uninsured. In addition, rural residents are older, poorer, and have fewer physicians to care for them which further contribute to the challenges of having positive health outcomes. (82)

In Southwest Minnesota, all six SWHHS counties have a higher percentage of people who are physically inactive and higher prevalence of diabetes than the state average. (6) In addition, nearly two-thirds of the rural counties in the U.S. are designated health professional shortage areas (HPSAs). Rock and Pipestone counties have U.S. Dept. of Health & Human Services Health Resources and Services Administration (HRSA)-designated Medically Underserved Populations (MUPs) and five of our counties

(Redwood, Pipestone, Murray, Lyon, and Lincoln) have designated Medically Underserved Areas (MUAs). Lincoln and Lyon counties have a combined five MUAs. (43)

From 2007-2011, all SWHHS counties saw a higher percentage of people living at or below 200 percent of poverty. Pipestone County experienced the highest rate at 35.0 percent. (90) The 2011 CDC Health Disparities & Inequities Report showed persons whose household incomes were below or near the federal poverty level had substantially higher prevalence of smoking, compared with persons whose household incomes were above the federal poverty level. (91)

Heart disease, diabetes, obesity, elevated blood lead level, and low birth weight are more prevalent among individuals with low income and low educational attainment. (92) According to the 2012 US Census, all six counties in the SWHHS service area had below average number of persons age 25+ with a high school diploma and a bachelor's degree or higher. (90)

Pockets of minority populations live throughout the service area of SWHHS. Lyon County has a higher Hispanic population than the state average; the communities of Marshall and Tracy (both located in Lyon County) have the largest concentration of Hispanic, Somali, and Hmong populations combined within the six-county area. (90) Redwood County is home to the Lower Sioux Indian Tribe; in which 6.6 percent of Redwood Falls' population is Native American. (90) Population-specific data from our service area and state highlights healthy inequities facing our rural minority populations.

- The 2009 Minnesota Department of Health (MDH) data report on health disparities showed American Indians in Minnesota having higher diabetes, heart disease, cancer, and stroke mortality rates than other populations. This same report showed Asian populations in Minnesota experience disparities in the following chronic disease indicators: higher stroke, cancer, and heart disease mortality rates. (93)
- The 2011 Wilder Research Community Assessments of Native American, Somali, Hispanic, and Hmong populations in Southwest Minnesota showed high unemployment and high smoking rates in our local minority populations. Hmong and Hispanic populations had higher rates of diabetes and pre-diabetes than the general population. (95)

People and Place

Southwest Health and Human Services serves a largely rural area with rolling farmland in Lincoln, Lyon, Murray, Pipestone, Redwood, and Rock. This primarily agricultural area produces corn, soybeans, winter wheat, hogs, feeder cattle, dairy products, and in Pipestone County, lambs and sheep.

Lincoln County

Lincoln County was organized in 1873 and includes the cities of Lake Benton, Wilno, Tyler, Ivanhoe, Hendricks, and Arco. The citizens are Polish, Danish, Norwegian and Icelandic heritage. Ivanhoe is the home of the county seat. Lincoln County is 100 percent rural and has the dubious distinction of being the only county in Minnesota without a traffic light. The county is one of the smallest and poorest counties in Minnesota. Lake Benton is home to the Lake Benton Opera House, which is on the National Registry of Historic Buildings, and Heritage & Wind Power Learning Center. In Hendricks you will find Lincoln County Pioneer Museum where you can see a one room school house, Icelandic church, train depot and a Sears house furnished with turn of the century décor.

Lyon County

Lyon County is the largest of the six counties and was settled between 1868 and 1892 in the communities of Lynd, Tracy, Taunton, Minneota, Ghent, Russell, Garvin, Cottonwood, and Marshall by people of Icelandic, Belgian, Swedish, and Norwegian heritage. Lynd was the county seat but was moved to Marshall. Marshall is now the largest city in the county and in Southwest Minnesota. Marshall is the home of The Schwan Food Company, an international food processing and distribution company; ADM, a corn processing plant; and Turkey Valley Foods, a turkey processing plant. Due to the availability of jobs in these companies, Lyon County is the home of several minority populations, including Hispanic, Somalis, and Hmong. Marshall is also the home of Southwest Minnesota State University (SMSU), rated by U.S. News and World Report as the top public liberal arts university in the upper Midwest.

Murray County

Murray County was created in 1857 through a bill passed in the Minnesota legislature. The first city established in Murray County was Currie in 1872 followed by Fulda, Hadley, Avoca, Iona, Slayton, Lake Wilson, and Chandler. Primarily the county was settled by Irish Catholics, Norwegians, and Dutch immigrants. The county seat is Slayton; however, Currie and Slayton competed for the county seat. Murray County is also home to Lake Shetek and Lake Shetek State Park providing water and trail recreational opportunities. End-O-Line Railroad Park and Museum is located in Currie which is next to the Casey Jones Bike Trail. Murray County is host to Fenton Wind Farm, Minnesota's largest wind farm project located on the Buffalo Ridge.

Pipestone County

Pipestone County was established in 1857- although the City of Pipestone, the largest city in Pipestone County and county seat, was settled in 1874. The cities of Edgerton, Woodstock, Trosky, Jasper, Holland, Rudhton, and Ihlen were then settled primarily by immigrants from Norway and Holland. Pipestone National Monument is located in Pipestone, which is the "Home of the Peace Pipe", because of its rock formation which yielded the stone used by Native Americans to make peace pipes. Edgerton is the home of Dutch Festival in July, while in August, Pipestone Civil War Days in Pipestone provides a glimpse into a Civil War battle field. Split Rock Creek State Park is located north of Jasper and has amenities such as boating, fishing, swimming, and walking trails available to the public.

Redwood County

Redwood County was established in 1862 and settled by German, Norwegian, Irish, English, Swedish, and Danish immigrants. Communities include Belview, Clements, Delhi, Lamberton, Lucan, Milroy, Morgan, Revere, Sanborn, Seaforth, Vesta, Wabasso, Wanda, Redwood Falls, and Walnut Grove which is the childhood home of the Laura Ingalls Wilder and hosts pageant weekends in July. Walnut Grove is also home to a large Hmong community. The Lower Sioux Indian Community, who is part of the Mdewakanton Band of Dakota, calls the northeast portion of Redwood County home. Redwood County has the Minnesota River as its northeastern border. Redwood Falls is the county seat and home to Minnesota's largest municipal park, Alexander Ramsey Park, which contains a beautiful waterfall, trails, and camping. In August, Minnesota Farmfest calls the historic Gilfillan Farm Estate home, which is located between Redwood Falls and Morgan.

Rock County

Rock County, which is situated in the southwest corner of Minnesota, bordering South Dakota on the west and Iowa to the south, was established by the Original Act of 1857. Rock County was named for the immense quantities of rock within its borders. Cities included in Rock County are Jasper, Hardwick, Kenneth, Beaver Creek, Luverne, Magnolia, Hills, and Steen. Rock County was primarily settled by German, Dutch and Norwegian immigrants. Blue Mounds State Park is located near the town of Luverne and is named after a linear formation of Sioux Quartzite bedrock which is said to have appeared blue in the distance to early settlers. The park contains 100 foot cliffs for rock climbing, campsites, prairie hiking trails, and a state owned bison herd which grazes on one of the state's largest prairie remnants. The county seat of Luverne has the Verne Drive-In Theater, the only drive-in theater for hundreds of miles and hosts the Tri-State Band Festival in September, which has taken place for over 60 years.

Pressures on Rural Counties

The political systems in Lincoln, Lyon, Murray, Pipestone, Redwood, and Rock Counties are dominated by conservative thinking. The pressure on rural counties continues to be to cut property taxes and provide more services, a pressure that will only continue to grow as the population ages. The demand for improved roads, bridges, and ditches for residents of rural areas continue as levy limits continue to deny counties flexibility in assigning costs. The increased cost of road maintenance activities will directly impact the availability of the rural population to access needed services and markets.

More and more youth are leaving the area for educational and work opportunities and not coming back. This is leaving the area with a low percentage of youth compared to an increasingly older general population. Only Marshall, with Southwest Minnesota State University and numerous job opportunities, is able to retain a portion of its youth.

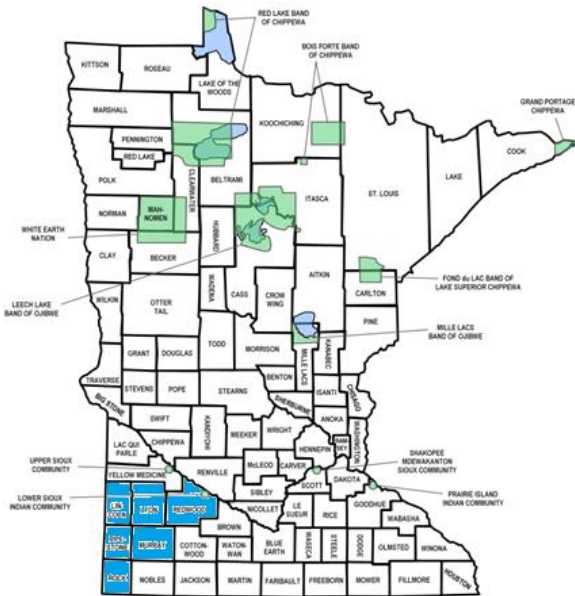
The healthcare systems in Lincoln, Lyon, Murray, Pipestone, Redwood, and Rock Counties are beginning to become more integrated as clinic systems take over management responsibilities at local hospitals and clinics. The connectivity with major health systems has increased the availability for a specialty referral and can transfer patients to specialists or bring specialists to the area for care. Without support from the health systems, local hospitals would have greater trouble maintaining a strong financial standing and thus would have trouble staying open. This has become more evident as Federal cuts have come to Medicare and Medicaid programs and payment models begin to move away from fee for service models.

School systems also struggle to remain viable. Some schools have joined together while others continue to put a lot of resources into maintaining the school system in the community. Both public and private schools are available to residents as well as secondary schools in Pipestone, Marshall, and Redwood Falls.

Urban and Rural Population Trends

The current population as of 2010 in the six-county area is 75,820. The largest city within the service area is Marshall with a population of 13,680. (3)

Minnesota counties and tribal nations



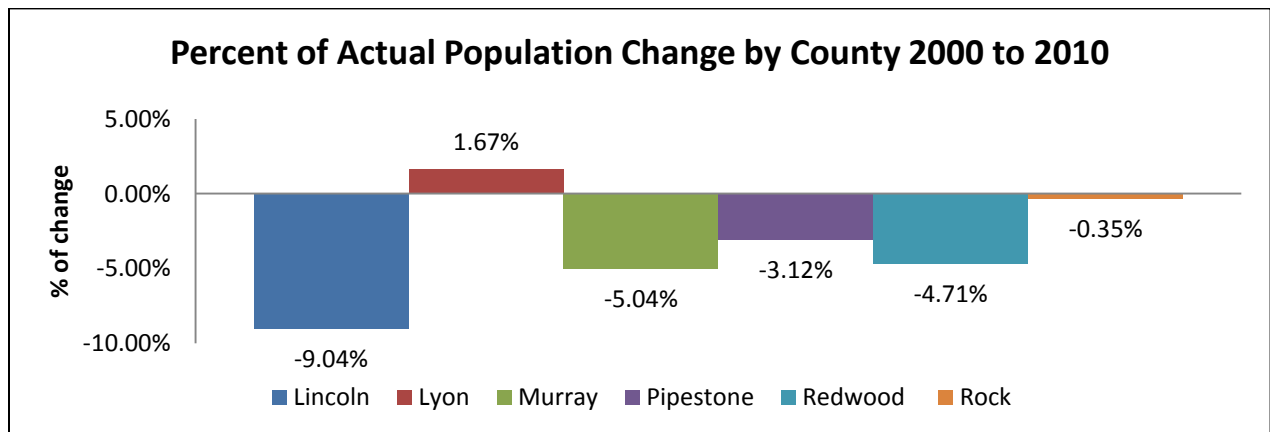
Source: Minnesota Department of Health. (2014). (2)

Marshall, 13,680; Redwood Falls, 5,254; Luverne, 4,745; Pipestone, 4,317; Tracy, 2,163; Slayton, 2,153; Minnetota, 1,392; Fulda, 1,318; Cottonwood, 1,212; and Edgerton, 1,189 are the top ten cities in population and represent nearly fifty percent of the total population in the SWHHS counties. (4)

SWHHS has one federally recognized American Indian tribe which is the Lower Sioux Indian Community in Redwood County.

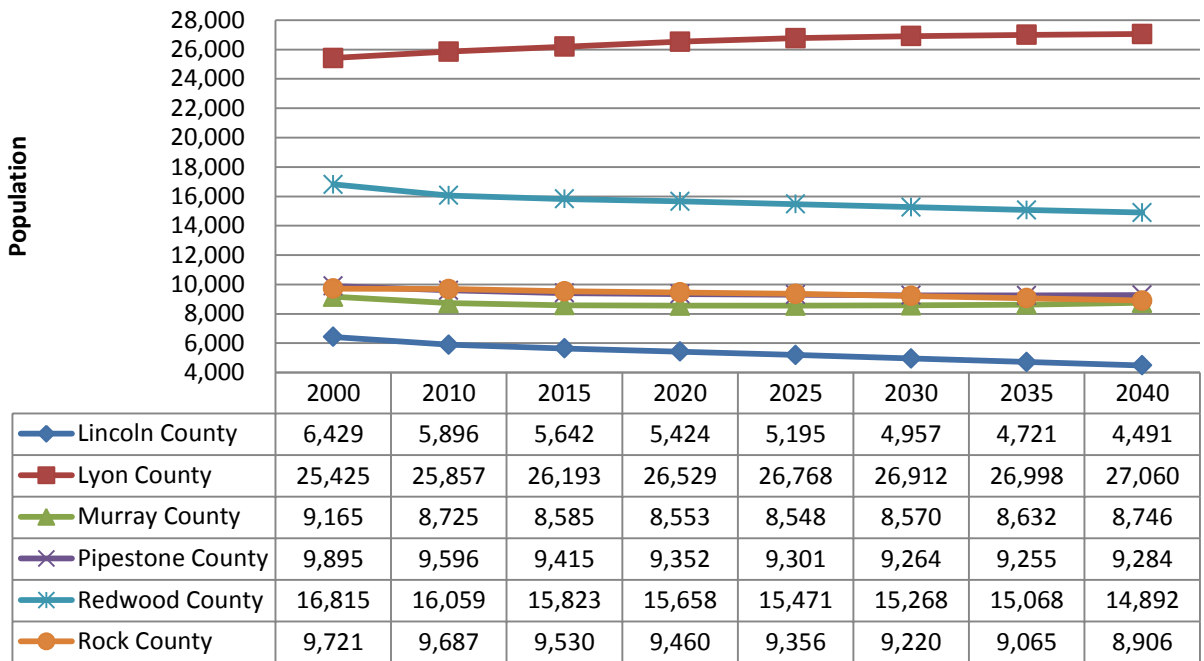
Overall, population has been on the decline in five of the six counties that are represented by SWHHS. From 2000 to 2010, Lyon County was the only county (out of the six) with a population gain. (5)

Demographic projections for SWHHS population shows that the trend will continue with Lyon County gaining population and Murray County having a slight upturn in population starting in 2030. The rest of the counties will continue to decrease in population. (5)



Source: Minnesota State Demographic Center. (2012). (5)

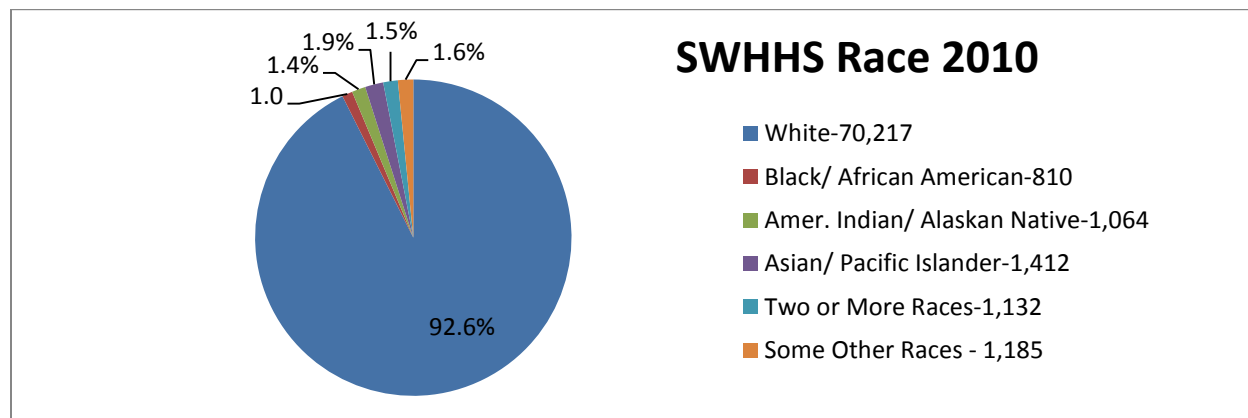
SWHHS Population Projections 2000 to 2040



Source: Minnesota State Demographic Center. (2012). (5)

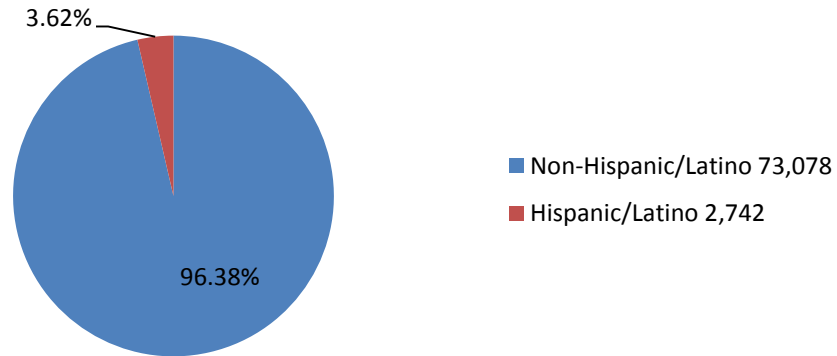
Immigration and Growing Diversity

The population within Southwest Health and Human Services, though remains a high percentage of white, saw a shift in the distribution of populations of color from 98.6 percent white in 1990 to 92.6 percent in 2010. (6) For Lyon and Murray Counties, this represented over a 500 percent increase; Redwood and Rock over 300 percent increase; Lincoln over 200 percent increase; and Pipestone over 150 percent increase in the populations of color. (87) In 2011-2012, two SWHHS school districts had 35.1 percent or higher minority student population; a third district had 25.1 to 35 percent of minority student population. (88)



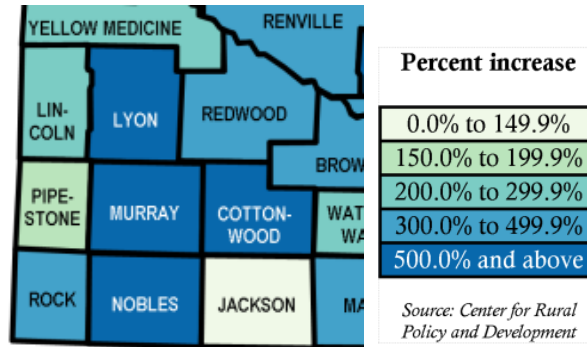
Source: Minnesota Department of Health. Minnesota Center for Health Statistics. (2011). (6)

SWHHS Hispanic/Latino Population, Any Race, 2010



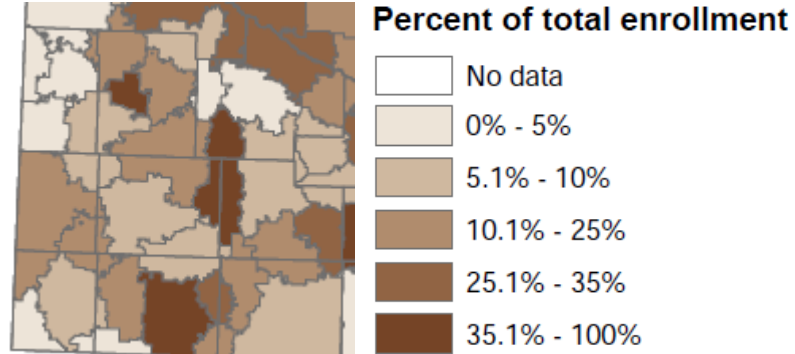
Source: Minnesota Department of Health. Minnesota Center for Health Statistics. (2011). (6)

Change in the Distribution of People of Color: 1990-2010



Source: Center for Rural Policy and Development. (2011). (87)

Students of Color, 2011-2012

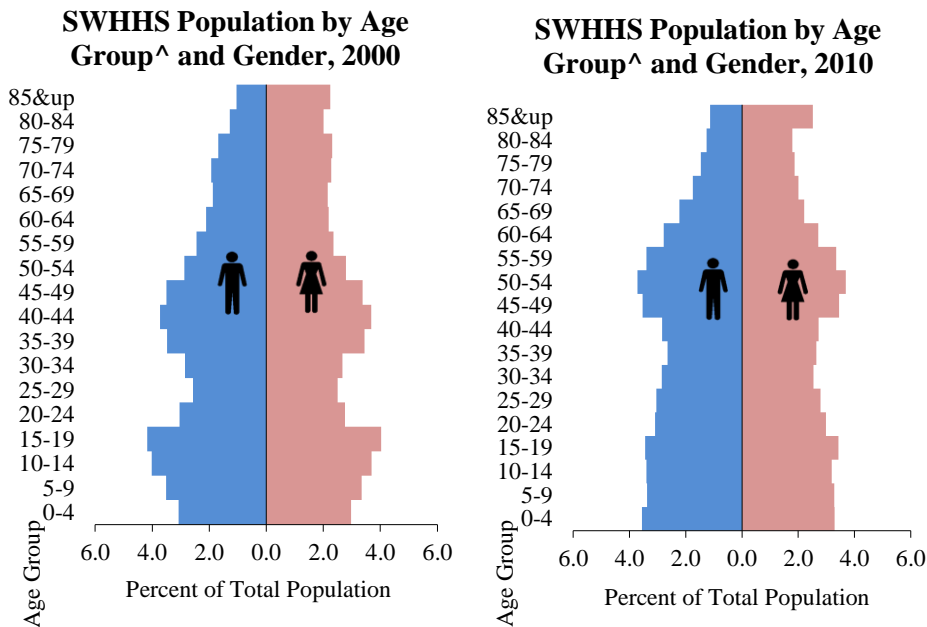


Source: Center for Rural Policy and Development. (2011). (88)

Aging and Retirement

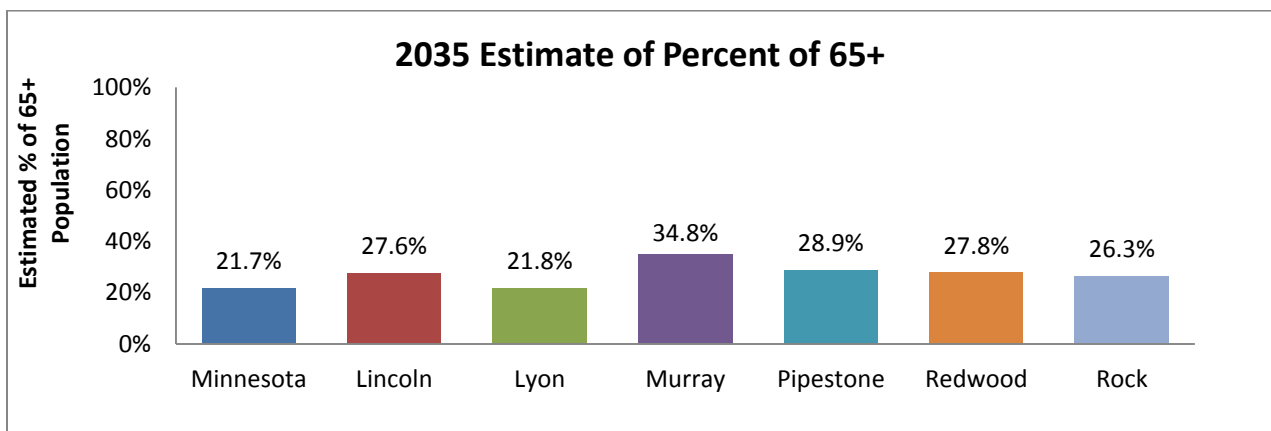
Demographics for the SWHHS counties show that the population is continuing to get older. From 2000 to 2010, there was a sharp increase of 3,708 people in the 50-69 age ranges. In 2000 there were two

bulges in the graph: one 35-49 age range and the other in the 10-19 age range. By 2010, the 10-19 year old population bulge shrunk by 2,120 children. However, children in the 0-4 age range increased by 510 children in 2010. (6)



^Note the 15-17 and 18-19 age groups were combined for the graph.
Source: Minnesota Department of Health. Minnesota Center for Health Statistics. (2011). (6)

In five out of six counties, the percent of the population 65 and over is higher than the state average. Lyon County, at 21.8 percent, is very close to the state average of 21.7 percent. In 2035, Murray County is projected to have 34.8 percent of their population 65 and over. This is 13.1 point difference between the two counties. Because of these projected population trends, programs around elder care will need to be addressed. (6)

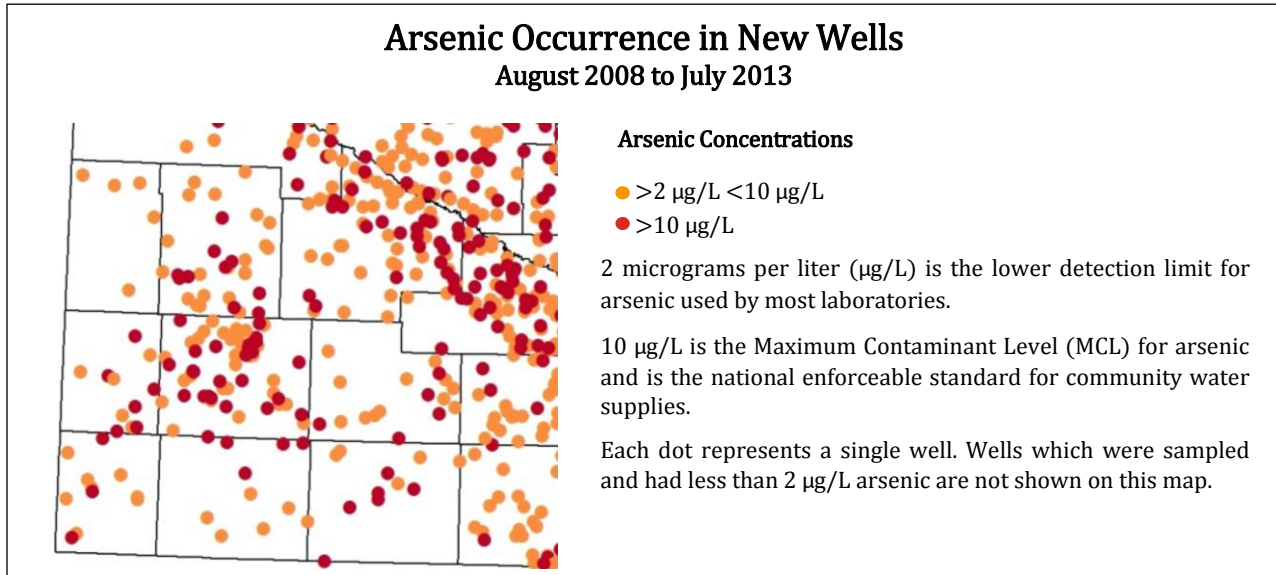


Source: Minnesota State Demographic Center. (2012). (5)

Water, Weather, and the Air

Water

Clean and safe water is essential for good health. There are a variety of contaminants that occur naturally in the ground like arsenic and those that are man-made that can get into well water like volatile organic chemicals. New well testing reported to the State of Minnesota from August 2008 to July 2013 showed that five of the six counties had wells come back with arsenic greater than 10 µg/L. (7)



Source: Minnesota Department of Health. Well Management Section. (2014). (7)

Weather and Climate

Climate has an impact on health from increasing the habitat that breeds infectious disease vectors like mosquitos to causing exposure-related illnesses. The normal precipitation range for the SWHHS counties is between 24 and 30 inches annually. (8) Snowfall in the region annually ranges from 35 to 40 inches. (9) Annual mean temperatures range from 16° to 72° Fahrenheit in the six-county region. (10) This does not reflect the extremes temperature fluctuation that can happen. Lamberton in Redwood County currently holds the record for the largest 24 hour temperature change of 71° F on April 3, 1982. (11)

Normal Mean Temperature (Last Updated May 2003)

| County | Spring | Summer | Fall | Winter |
|------------------|--------|--------|--------|--------|
| Lincoln County | 44-46° | 68-72° | 44-48° | 16-18° |
| Lyon County | 44-46° | 68-72° | 44-48° | 16-18° |
| Murray County | 44-46° | 68-70° | 44-48° | 16-18° |
| Pipestone County | 44-46° | 68-70° | 44-48° | 16-18° |
| Redwood County | 44-46° | 68-72° | 46-48° | 16-18° |
| Rock County | 44-46° | 68-72° | 44-48° | 16-18° |

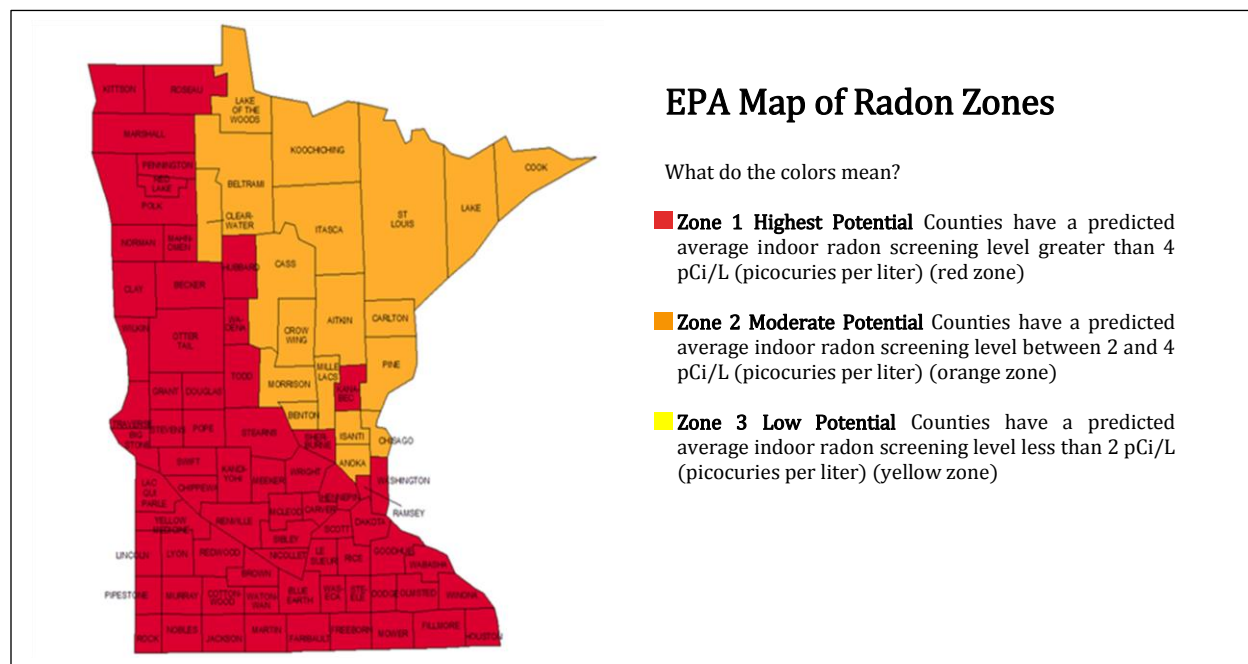
Source: University of Minnesota. Minnesota State Climatology Office. (2014). (10)

The lowest low temperature can reach -40° F while the highest high temperature can be upward of 109° F.(12) Those temperature extremes can impact health in negative ways from frost bite to heat stroke if a person does not manage them properly.

Air Quality

Radon

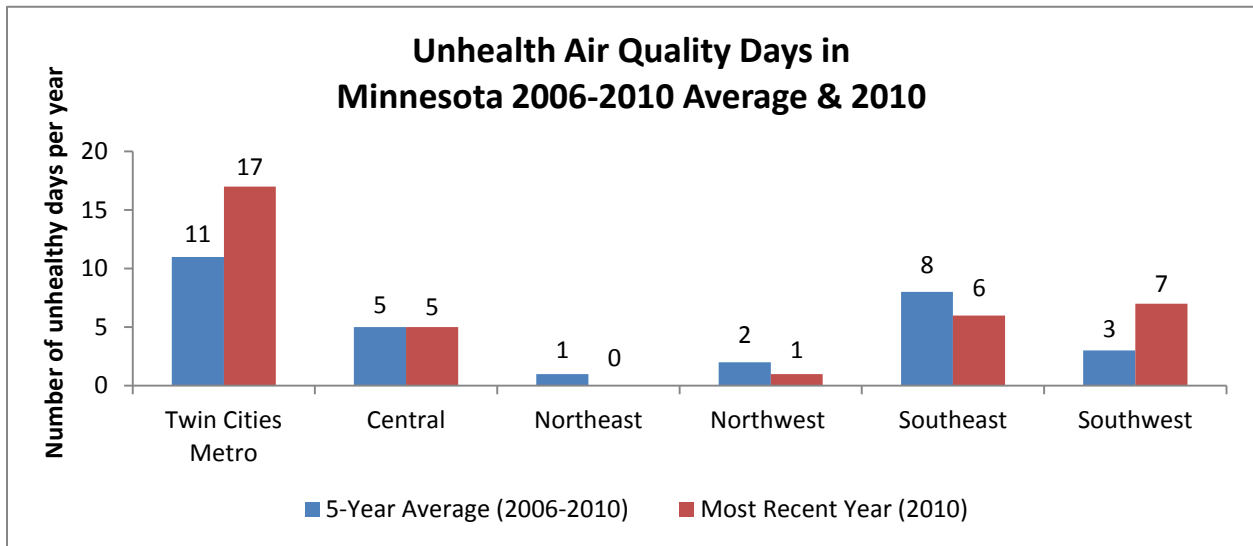
Radon is a colorless and odorless gas that occurs in the environment naturally, but is the leading cause of lung cancer in non-smokers. According to the EPA map of Radon Zones, all of the counties in SWHHS are in the high category. (13) Because of this, SWHHS has been offering short and long-term radon testing at a nominal price to citizens in SWHHS catchment area.



Source: United States Environmental Protection Agency. (2014). (13)

Air Pollution

Air quality, if heavy with ground level ozone, air particulate pollution, sulfur dioxide, and carbon monoxide can make it hard for people to breath and cause illness. Some of the causes of ground level ozone and air particulate pollution are combustion from motor vehicles, power plants, residential wood burning, forest and agricultural fires and some industrial processes. Unhealthy air can irritate your respiratory system, reduce your lung function, damage and inflame the lining of your lungs, make your lungs more susceptible to infections, aggravate other chronic lung diseases like asthma, chronic bronchitis, COPD, emphysema, and cause permanent lung damage. (14) From 2006-2010, the Southwest region of Minnesota averaged three unhealthy air days per year.

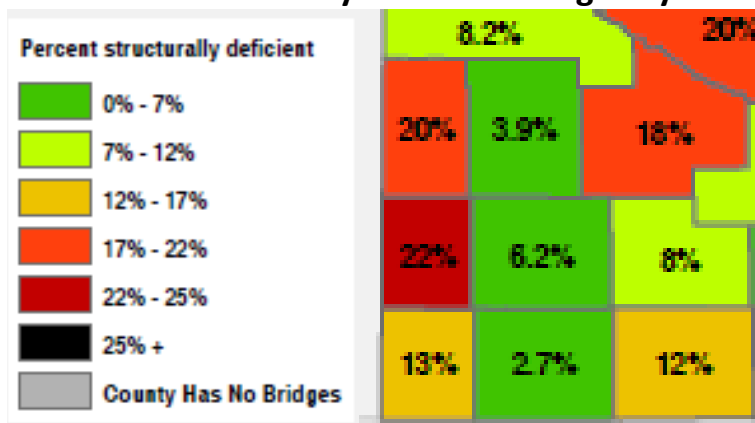


Source: United States Environmental Protection Agency. (2014). (14)

Roads, Highways, and Bridges

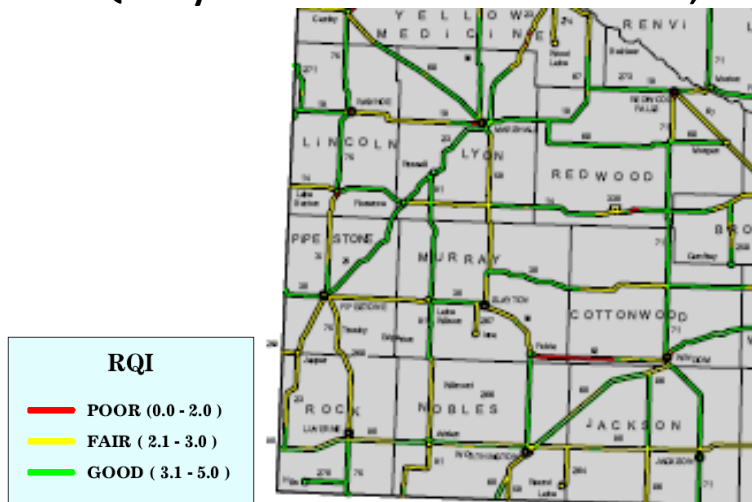
Properly maintained roads and bridges are important to commerce and the ability for citizens to be able to get to work, access healthy foods, and health care. Below is a snapshot of the percent of bridges that are structurally deficient in each of the six SWHHS counties. In 2010, four of the counties had rankings above 17 percent of their bridges with structural deficiencies. (15) The next graph shows the road quality index for southwest Minnesota. The lower the index, the more likely the road is in need of repair. (16) As different departments vie for funding at the state and county level it can be difficult for decision makers to see public health programs in the same light as more tangible programs like road and bridge funding. The impact of Public Health dollars can be harder to demonstrate since Public Health is long-term outcome/impact.

Percent of Structurally Deficient Bridges By County in Minnesota, 2010



Source: Transportation For America. (2013). (15)

Road Quality Index in Southwest Minnesota, 2012



Source: Minnesota Department of Transportation. (2014). (16)

The Opportunity for Health in SWHHS

Education and Employment

Education

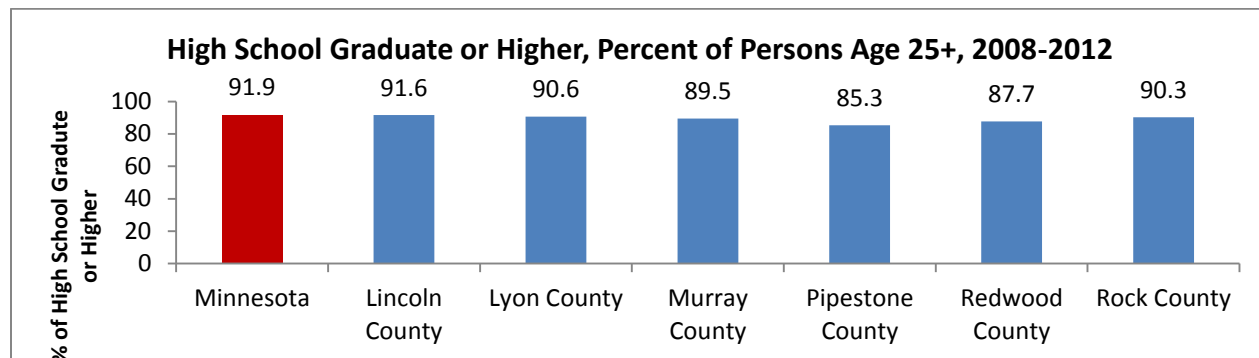
Education is a key component to social determinates of health as it is a predictor to the quality and longevity of a person’s life. (1) Starting in early childhood all the way to providing opportunities for high school students to graduate and move on to college, education will impact the earning potential of the individual. (17) It has been determined through research that the more education a person has, the more likely they are to have a higher income and have better health outcomes than those with less education. (18)

Percent of High School Students Graduating On Time By County, 2004-2013, 5 Years Averages

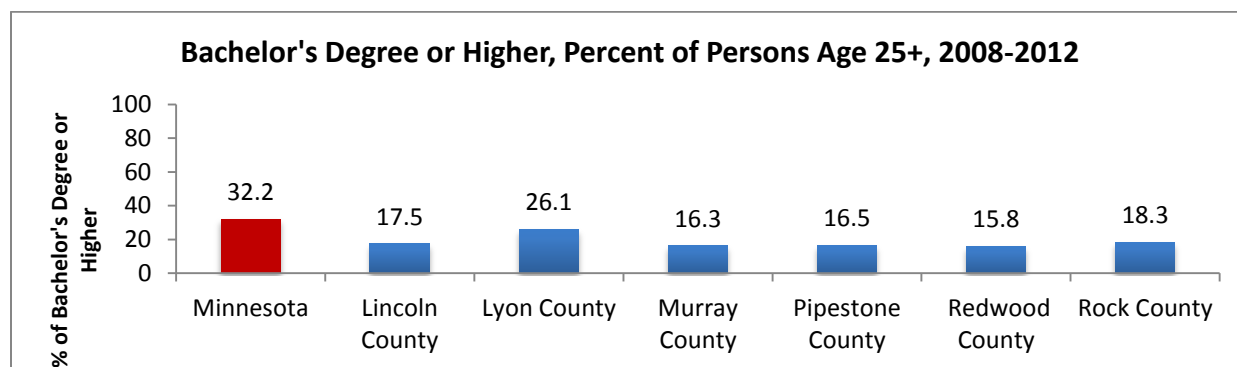
| | 2004-2008 | 2009-2013 |
|------------------|-----------|-----------|
| Minnesota | 74.5% | 76.8% |
| Lincoln | 89.0% | 80.5% |
| Lyon | 86.0% | 86.1% |
| Murray | 89.4% | 91.9% |
| Pipestone | 79.0% | 84.6% |
| Redwood | 87.6% | 86.6% |
| Rock | 81.1% | 81.2% |

Source: Minnesota Department of Education. (2014). (19)

From 2004 to 2013, SWHHS counties had higher rates of high school students graduating on-time than that of the State of Minnesota average. (19) Yet, the rate of high school or higher education in people age 25 and older and the percent of persons living in SWHHS counties with Bachelor degrees or higher, are below the State of Minnesota averages. (3) A common trend in rural communities across Minnesota is a phenomenon called “brain drain,” in which high school students leave for college but do not return because of limited job opportunities. This leaves the rural population less likely to have an advanced degree or high school diploma.



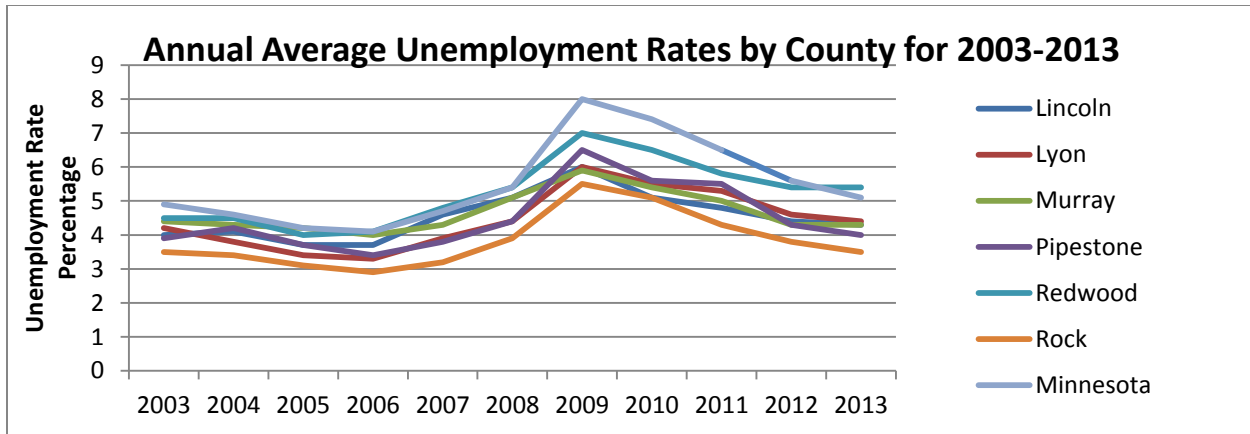
Source: United States Census Bureau. State and County QuickFacts. (2014). (22)



Source: United States Census Bureau. State and County QuickFacts. (2014). (22)

Employment

Employment that provides a living wage can decrease overall stress in a person’s life. In addition, employee benefits, especially medical insurance, provide medical care access and necessary care to improve health. In the past ten years, unemployment rates in the SWHHS counties have remained below the State of Minnesota’s unemployment rates. In 2013, Redwood County did see their unemployment rate rise slightly higher to 5.4 percent verses Minnesota’s 5.1 percentage rate. (20)



Source: Minnesota Department of Employment and Economic Development. (2014). (20)

Income and Poverty

Income

The income you have determines the access you have to healthy food, medical care, transportation, the type of housing you live in, and your ability to participate in physical activity. The less income you have the fewer choices you have. From 2008-2012, the per capita income for the SWHHS counties was, on average, under the state average with the exception of 2012. In 2012, the overall average for the six counties was greater than the Minnesota average by \$1,725. With the region being an agriculture-driven economy, the reason for the increase may have been a reflection of commodity prices being high until the beginning of 2014. It is expected that the income after 2014 will drop below the Minnesota average as agricultural grain prices drop. (21)

Per Capita Income - Adjusted to 2012 Dollars

| | 2008 | 2009 | 2010 | 2011 | 2012 |
|------------------|----------|----------|----------|----------|----------|
| Minnesota | \$45,927 | \$44,094 | \$44,871 | \$46,069 | \$46,925 |
| SWHHS | \$41,622 | \$40,324 | \$42,792 | \$45,432 | \$48,650 |
| Lincoln | \$37,487 | \$37,886 | \$40,750 | \$45,011 | \$48,751 |
| Lyon | \$39,960 | \$38,886 | \$40,829 | \$42,811 | \$45,162 |
| Murray | \$46,349 | \$44,238 | \$48,048 | \$53,313 | \$56,393 |
| Pipestone | \$41,590 | \$40,683 | \$43,332 | \$45,371 | \$48,986 |
| Redwood | \$42,161 | \$41,435 | \$43,323 | \$44,615 | \$49,299 |
| Rock | \$43,441 | \$39,894 | \$43,141 | \$47,034 | \$49,555 |

Source: Minnesota Department of Health. Minnesota Center for Health Statistics. (2014). (21)

Poverty

Choices are limited for people who live in poverty. Limited incomes hinder a person's ability to have reliable transportation, to purchase high quality healthy food, live in safe housing, have health insurance and medical care, the ability to get a college education, and choose their type of employment. Poverty also causes chronic stress which can lead to health problems.

Poverty levels in SWHHS counties, on average, were below the State of Minnesota poverty levels from 2008-2012, but over the same time-frame, the overall level of poverty increased by 1.1 percent in the SWHHS counties. (21)

During this same time-frame, Lyon County experienced above state-level poverty percentages in four of the five years. This could be attributed to the down-sizing of industries and a greater number of diverse populations living in this county. Poverty is higher in populations of color and from 2008-2012, Lyon County had the seconded greatest percentage of populations of color with 9.7 percent and the greatest diversity of races compared to the other counties in SWHHS. (22)

Percent of All Ages Living in Poverty¹

| | 2008 | 2009 | 2010 | 2011 | 2012 |
|-------------------------|------|------|------|------|------|
| Minnesota | 9.6 | 10.9 | 11.5 | 11.8 | 11.4 |
| SWHHS | 10.0 | 10.5 | 10.4 | 11.2 | 11.1 |
| Lincoln County | 10.0 | 9.2 | 10.0 | 9.8 | 10.3 |
| Lyon County | 10.5 | 11.7 | 11.4 | 12.1 | 12.3 |
| Murray County | 8.9 | 10.2 | 8.9 | 9.4 | 10.0 |
| Pipestone County | 10.6 | 10.6 | 10.5 | 12.7 | 11.2 |
| Redwood County | 9.9 | 10.0 | 9.6 | 10.4 | 11.1 |
| Rock County | 9.0 | 9.2 | 10.8 | 10.9 | 9.6 |

¹ US Census www.census.gov Poverty estimates and median household income
Source: Minnesota Department of Health. Minnesota Center for Health Statistics. (2014). (21)

Percent of All Ages by Race Living in Poverty

| | White | American Indian/ Alaskan Native | Black or African American | Asian | Hispanic or Latino Origin (of any race) |
|-------------------------|-------|------------------------------------|---------------------------|-------|---|
| Minnesota | 8.7 | 35.1 | 38.0 | 17.1 | 25.0 |
| SWHHS | 10.0 | 49.5 | 26.6 | 23.2 | 33.9 |
| Lincoln County | 7.4 | 0.0 | 29.2 | 0.0 | 7.8 |
| Lyon County | 11.4 | 44.7 | 69.3 | 25.0 | 43.5 |
| Murray County | 10.0 | 33.3 | 36.8 | 15.2 | 22.3 |
| Pipestone County | 8.4 | 13.7 | 18.8 | 0.0 | 59.4 |
| Redwood County | 9.0 | 95.8 | 20.4 | 26.2 | 16.3 |
| Rock County | 11.6 | 67.7 | 30.0 | 0.0 | 53.8 |

An '-' entry in the estimate column indicates that either no sample observations or too few sample observations were available to compute an estimate, or a ratio of medians cannot be calculated because one or both of the median estimates falls in the lowest interval or upper interval of an open-ended distribution.

Source: United States Census Bureau. (2014). (22)

The poverty by race figure above shows a large disparity between populations of color and white populations. Redwood County's American Indian/Native Alaskan population was estimated to have 95.8 percent of the population in poverty, while Lyon County's Black or African American population was estimated to have 69.3 percent of the population in poverty. (22) This is compared to the SWHHS's white population, which was estimated to be at 10 percent of the population living in poverty.

Children in Poverty

Poverty has a negative effect on both adults and children. Children who grow up in a chronic stress environment caused by poverty have a greater risk of developing health problems. Studies have also shown that the quality and stability of the parent-infant relationship is diminished by poverty. This relationship impacts the child's cognitive stimulation, speech development, and emotional and behavioral development. (23)

Researchers have also linked brain, cognitive, and behavioral development in early childhood to the outcomes of chronic disease, smoking, drug use, obesity and depression in adulthood. Early childhood development also influences health-related behaviors and education attainment as self-regulation is impacted. (23)

From 2008-2012, SWHHS experienced an increase in the poverty in those people under 18 years (2.8 percent) while the State of Minnesota experienced a 3.2 percent increase. Lyon County experienced the largest increase of 4.3 percent while Lincoln County experienced a decrease of 0.2 percent. Poverty levels for people under 18 years by race were not available at the county level. (21)

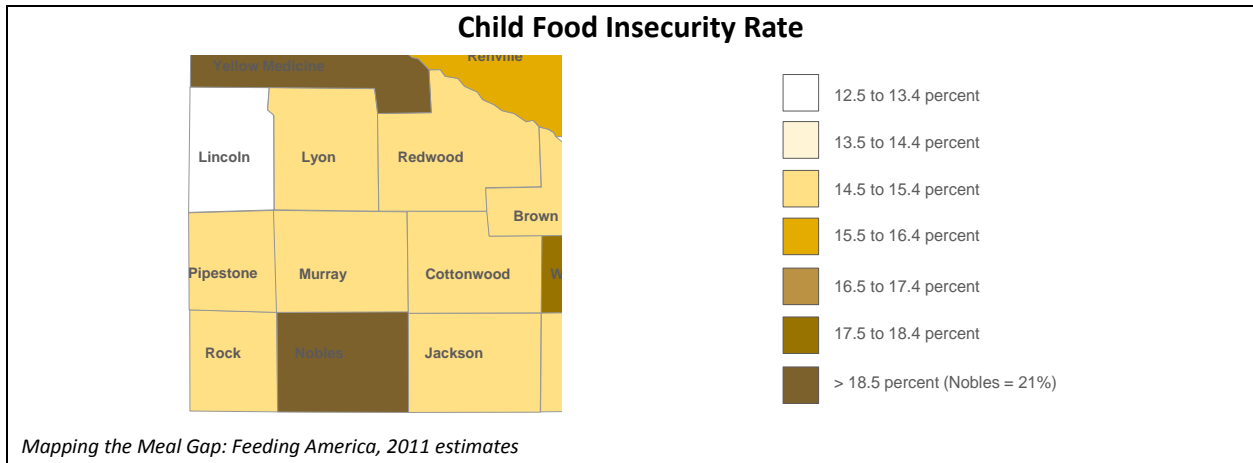
Percent of People under 18 Years Living in Poverty

| | 2008 | 2009 | 2010 | 2011 | 2012 |
|-------------------------|------|------|------|------|------|
| Minnesota | 11.4 | 13.9 | 15.0 | 15.3 | 14.6 |
| SWHHS | 12.0 | 13.1 | 14.2 | 15.3 | 14.8 |
| Lincoln County | 13.1 | 12.7 | 14.5 | 12.7 | 12.9 |
| Lyon County | 11.5 | 13.5 | 14.0 | 16.3 | 15.8 |
| Murray County | 11.0 | 13.7 | 13.3 | 13.5 | 13.4 |
| Pipestone County | 14.1 | 14.2 | 15.9 | 17.8 | 15.2 |
| Redwood County | 12.2 | 12.9 | 13.9 | 14.5 | 15.9 |
| Rock County | 11.2 | 11.5 | 14.0 | 14.6 | 11.8 |

Source: Minnesota Department of Health. Minnesota Center for Health Statistics. (2014). (21)

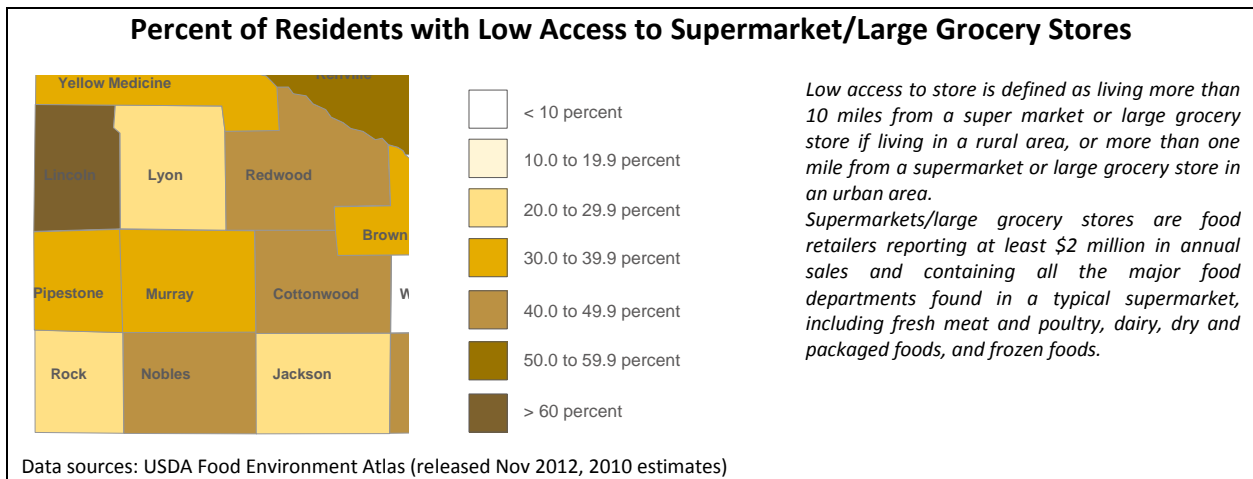
Food Security

On average, children in the SWHHS counties experience 14.5-15.4 percent food insecurity. (24) Food security, according to the Economic Research Service at the USDA, means, "access by all people at all times to enough food for an active, healthy life." (25) Children who grow up food insecure can have lifelong health consequences because development of the body is optimal when enough healthy food is available. When food is available for the food insecure child, the quality of the food is likely to be high in calories and low in nutrition. Exposure to food choices that are inadequate nutritionally can lead to childhood obesity. (23)



Source: University of Minnesota Extension. (2013). (24)

As SWHHS counties lose population, businesses, including grocery stores, no longer have enough population to sustain a profit margin that business owners can live on. Many small towns have a convenience store that sells gas and a few food staples like milk and bread, but many residences must drive 30 miles to find a grocery store that has fresh fruit and vegetable choices. A growing trend across the SWHHS counties has seen summer farmers markets spring up, but those also tend to be in the most populated cities of SWHHS counties which require reliable transportation to get to. Lincoln County has greater than 60 percent of its residents with low access to a grocery store. (26)

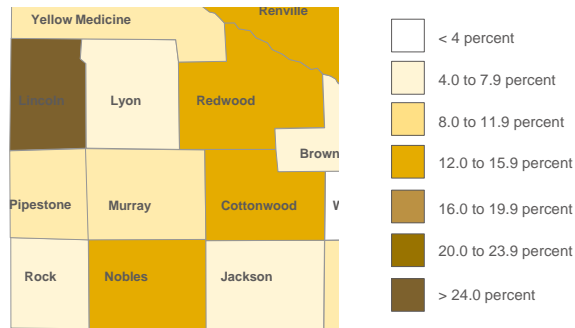


Source: University of Minnesota Extension. (2013). (26)

Low income residents have an additional burden of not having reliable transportation to purchase food along with not enough money to buy the more expensive healthy food needed to promote good health. This is the case in Lincoln County where it is estimated that over 24 percent of its residents are in low income households with low access to a grocery store. Redwood County falls into the 12.0 to 15.9 percent range of households with low income and low food access. (26)

Percent of Low-income Households with Low Access to Supermarket/Large Grocery Store

Low-income is defined as 200% of Poverty Level



Data sources: USDA Food Environment Atlas (released Nov 2012, 2010 estimates)

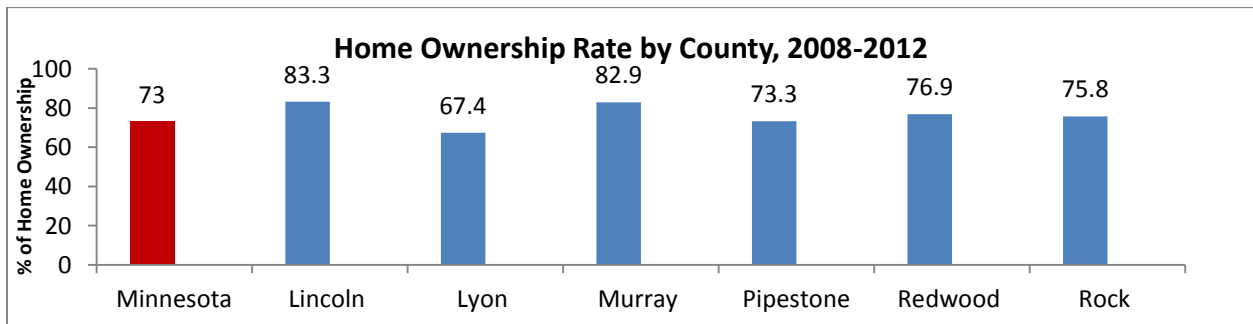
Source: University of Minnesota Extension. (2013). (26)

Housing and Home Ownership

As one of the determinants of health, stable, safe, and affordable housing is an important factor. Housing that is considered “safe” is free of mold, lead-based paint, plumbing that is free of lead solder, and asbestos. Older housing tends to have lead-based paint if built before 1978, asbestos wrapped duct work or flooring, and old lead soldered pipes. Older homes also tend to be more affordable for low income buyers with limited resources to address the potential safety issues that may be present in the home. (27)

Home ownership can provide a source of financial stability as you build home equity as an asset. Control of one living situation is also a benefit of home ownership. With that feeling of control home owners feel the need to participate in their community through crime prevention activities like community watch, environmental awareness, civic organizations and social life of their community. Children that live in a home owned by their parents perform better in school, are more likely to graduate high school, less likely to become pregnant as a teen, and have better health outcomes. (28)

From 2008-2012, home ownership rates in five of the six counties were at or exceeded the State of Minnesota home ownership rate of 73 percent. Only Lyon County’s home ownership rate of 67.4 percent was lower than Minnesota’s. Lyon County has a higher number of college rentals and larger immigrant population which contribute to a lower ownership rate. (3)



Source: United States Census Bureau. State & County Quickfacts. (2014) (3)

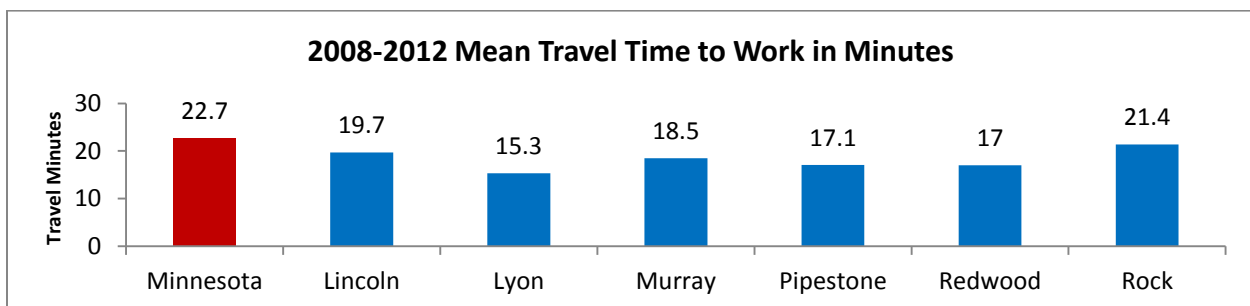
Outdoor and Indoor Environments

The environments that a person lives in can be inferred from their income. If a person is low income it is more likely that they will live in an older indoor environment that has lead paint, radon, and asbestos. Options for where the housing is will also be reduced and include less desirable areas that may have higher traffic, close proximity to industrial areas, or even outdoor areas that have been contaminated. Many rural cities do not have sidewalks or sidewalks that are not well maintained. This can make it difficult to walk or ride bike in a community. (2)

Transportation

Transportation across the SWHHS counties can be challenging if you are a low income resident. Many of the jobs, food, and health care tend to be in larger communities. If a person does not have reliable transportation it can make it difficult to maintain a job, get to or purchase quality food, or get to health care appointments. There are very few public transit options in the SWHHS counties. The systems that do function in the area are a shared ride option which means all rides are coordinated with as many passengers as possible based on when and where passengers need to be transported. (29) The figure below showed the mean travel time to work in minutes for SWHHS counties from 2008-2012. All of the counties were below the State of Minnesota average. (22)

Having a health-oriented transportation system should include systems that make it easy to walk and bike and avoid driver, pedestrian, and bicyclist injury. Providing a safe transportation environment would also include well-maintained sidewalks and bike lanes which maximizes physical activity in a community.



Source: United States Census Bureau. (2014). (22)

Parks and Playgrounds

Parks and playgrounds in communities, if well maintained, provide ways for people to get physically active on a regular basis. There are four state parks, over 75 county and city parks and 248 state wildlife management areas in the SWHHS counties. (30)

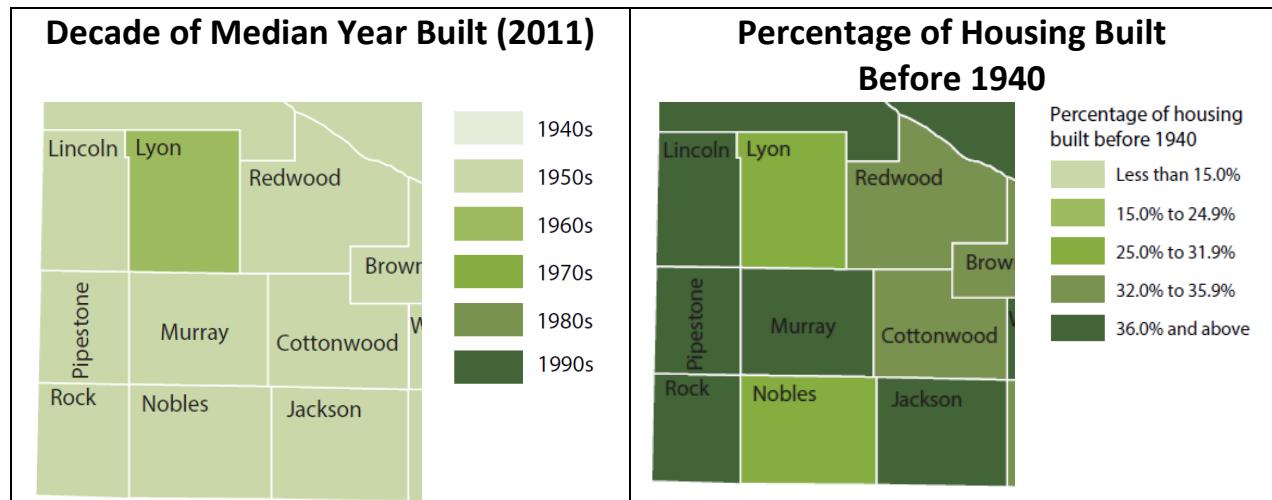
Lead, Mold, Asbestos

Lead

Lead is an environmental factor that can be seen in both the indoor and outdoor environment. The main cause of contamination is lead paint, which was banned in residential use in 1978. There are other ways of being exposed to lead; contaminated soil from lead gasoline, hobbies like stain glass or jewelry

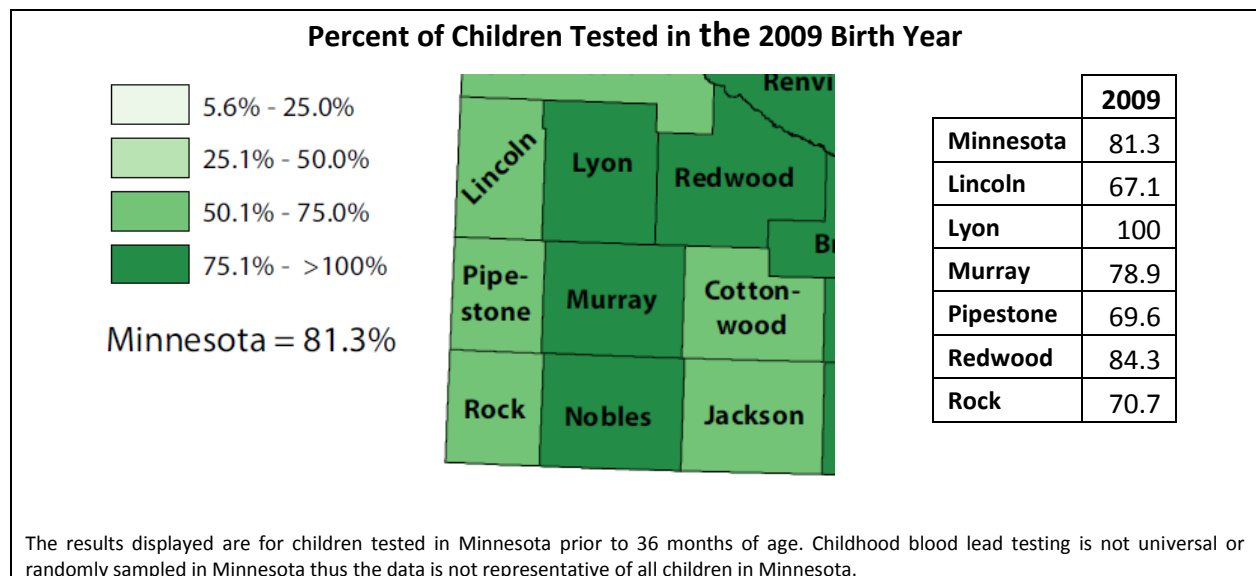
making, some imported products, traditional remedies, etc. Because of the variety of ways one can come in contact with lead it is the most common environmental threat to children. Exposure to lead can result in lowered IQ, behavioral problems, and learning difficulties. (31)

SWHHS counties' median house was built in the 1950s, with four of the six counties having above 36 percent of their houses built before 1940. (32) Because lead paint was not banned until 1978, it puts a large percent of population at risk for lead poisoning across the SWHHS counties. (31)



Source U.S. census Bureau™ Center for Rural Policy and Development. (2014). (32)

Because of this high risk to the SWHHS population, lead testing is promoted. In SWHHS counties there are a wide range of testing levels from 100 percent in Lyon County to 67 percent in Lincoln County. (33)

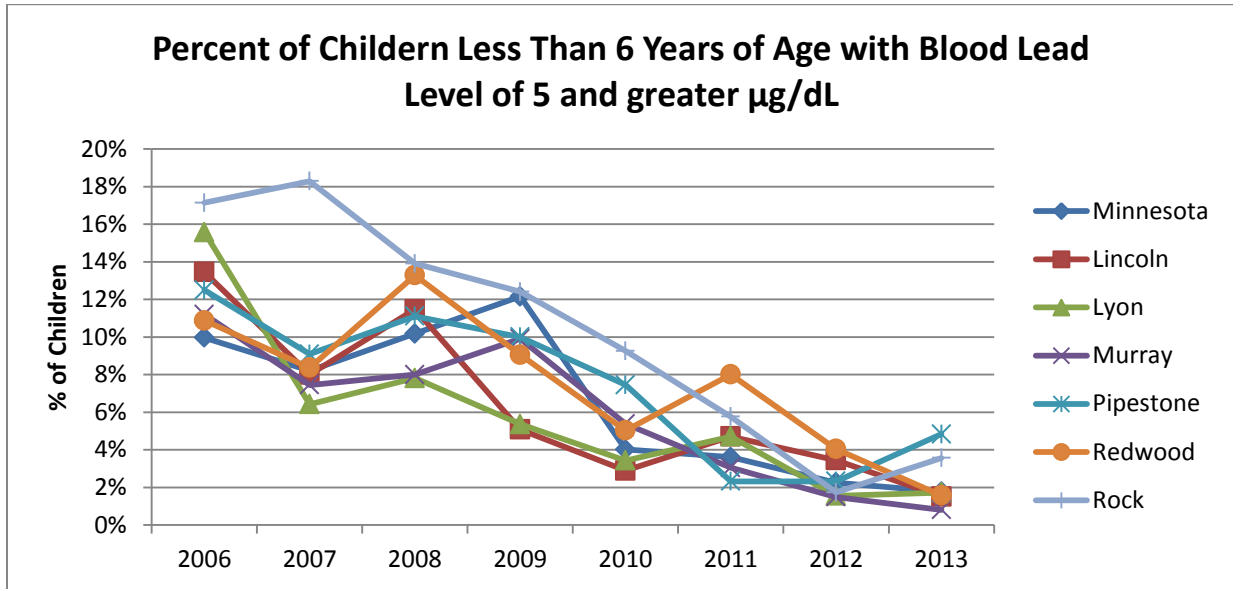


The results displayed are for children tested in Minnesota prior to 36 months of age. Childhood blood lead testing is not universal or randomly sampled in Minnesota thus the data is not representative of all children in Minnesota.

Source: Minnesota Department of Health. Minnesota Public Health Data Access. (2014). (33)

Since 2006 the number of children aged six and under testing with a blood lead level of 5 and greater µg/dL has decreased from between 10.9 and 17.1 percent to 0.8 to 4.8 percent. Health promotion that is

provided to pregnant women at prenatal visits along with testing at nine months and 24 months is key to maintaining this downward trend. (34)



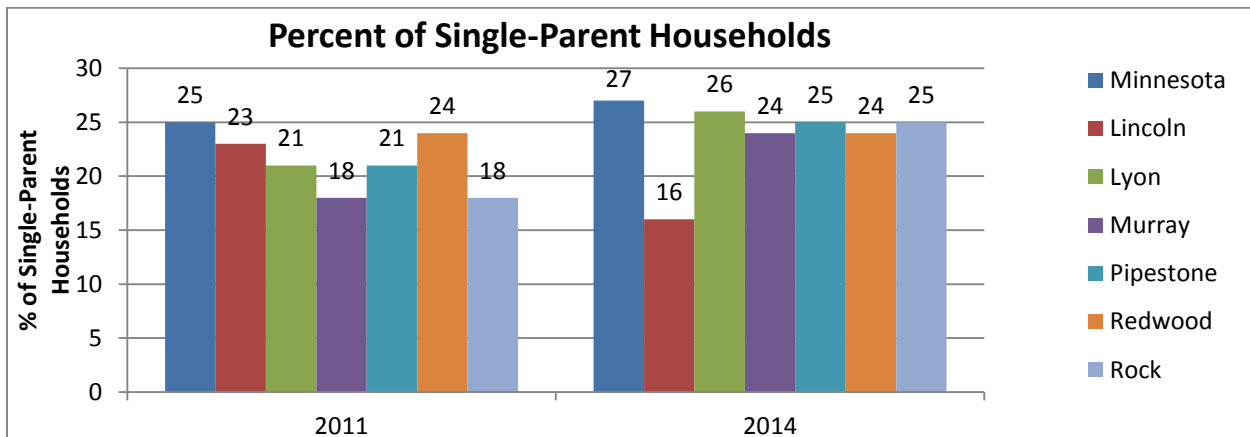
Source: Minnesota Department of Health. Minnesota Blood Lead Surveillance Data Table. (2014). (34)

Social Connectedness

Single-Parent Families

A single-parent family can develop in a variety of ways from those that have chosen not to marry to those that have experienced divorce or the death of a spouse. When a single-parent household also is a low income household, children are at a disadvantage. Children and adults in these households are likely to experience chronic stress due to economic factors, stigma, and social isolation. This chronic stress can lead to unhealthy outcomes and behaviors. (2)

From 2011 to 2014, the six counties within SWHHS service area have a lower percentage of single-parent families than the Minnesota average. (35)

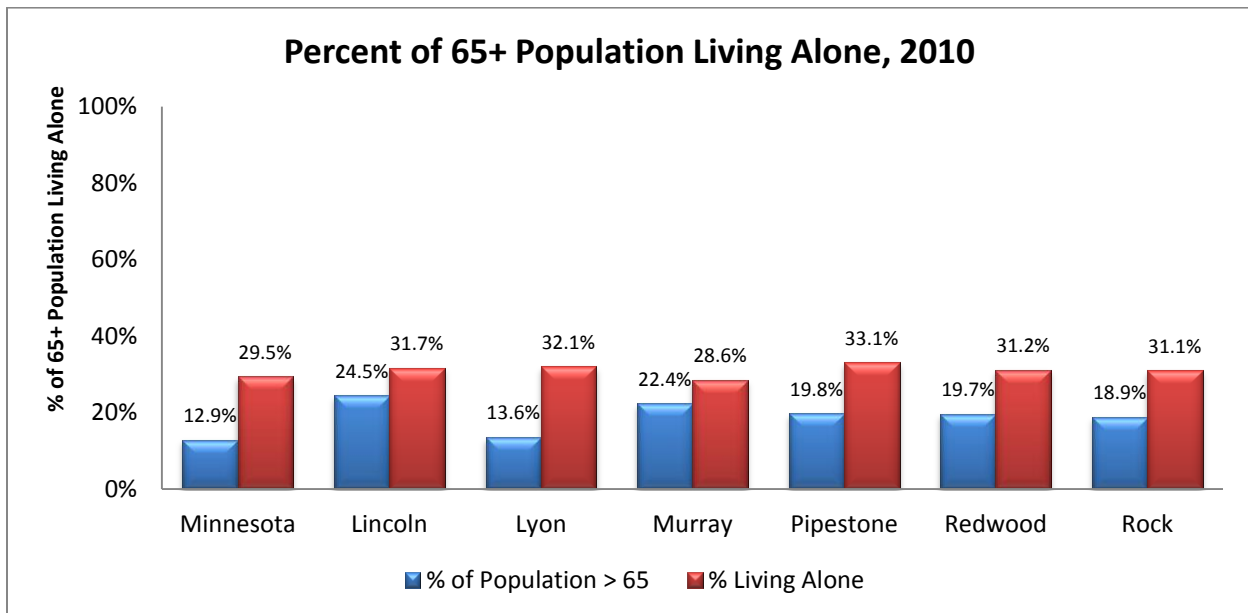


Source: County Health Rankings. (2014). (35)

Growing Older

SWHHS counties experience a higher percent of aging population than the state average. Along with an older population comes loneliness (loss of life partner) and increased health issues. This can cause mobility within the community to become more challenging. In rural areas, resources are more likely available in the small cities and less available in the smaller towns.

In reviewing demographic information from all six SWHHS counties, they all have a greater percentage of elderly population than the Minnesota average. Additionally, all counties, except Murray, have more elderly living alone than the Minnesota average. (36)

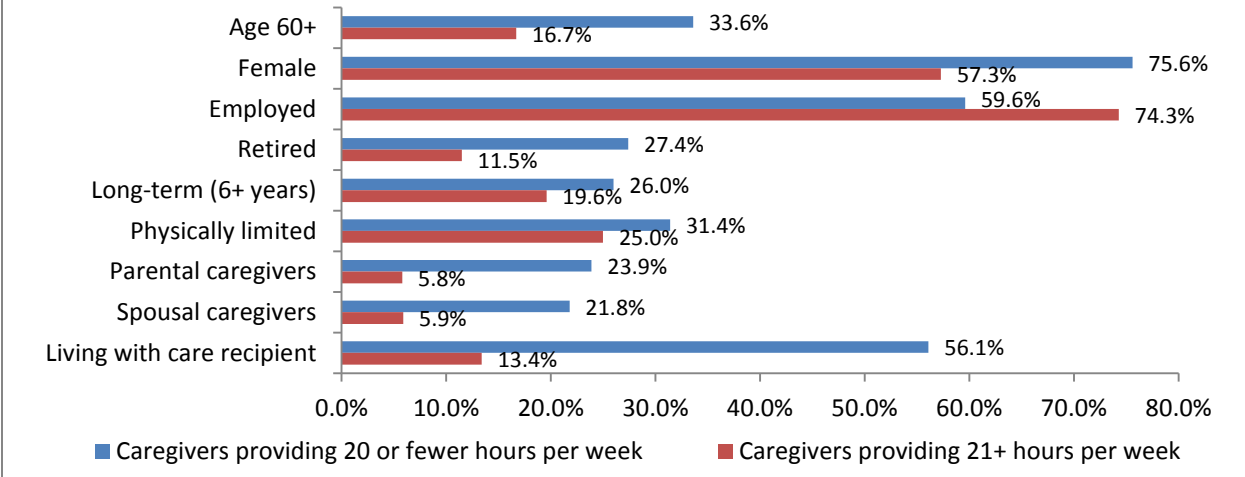


Source: Aging 2030 –Minnesota Department of Human Services and Minnesota Department of Health. (2014). (36)

Informal Caregivers

Informal caregivers in Minnesota, according to research done by the Centers for Disease Control and Prevention, tend to be female over age 60, employed, and either take care of their parents or spouse most often. (37) Depending on the amount of time needed for care, informal caregivers will most likely be living with the person that needs care because of chronic disease, physical disabilities, or cognitive impairment. Caregiving can have negative effects on the caregivers like reduced income and later reduced social security payments and an increase in chronic stress and chronic conditions like heart disease, depression, and diabetes. (38)

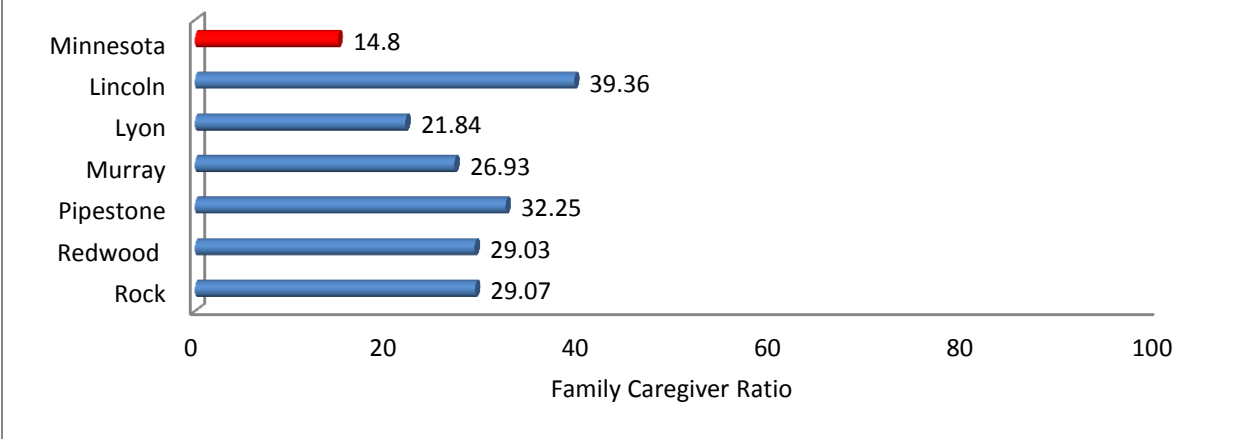
Characteristics of Minnesota's Informal Caregivers: 2008



Source: Centers for Disease Control and Prevention. (2009). Metropolitan Area Agency on Aging. (2009). (37)

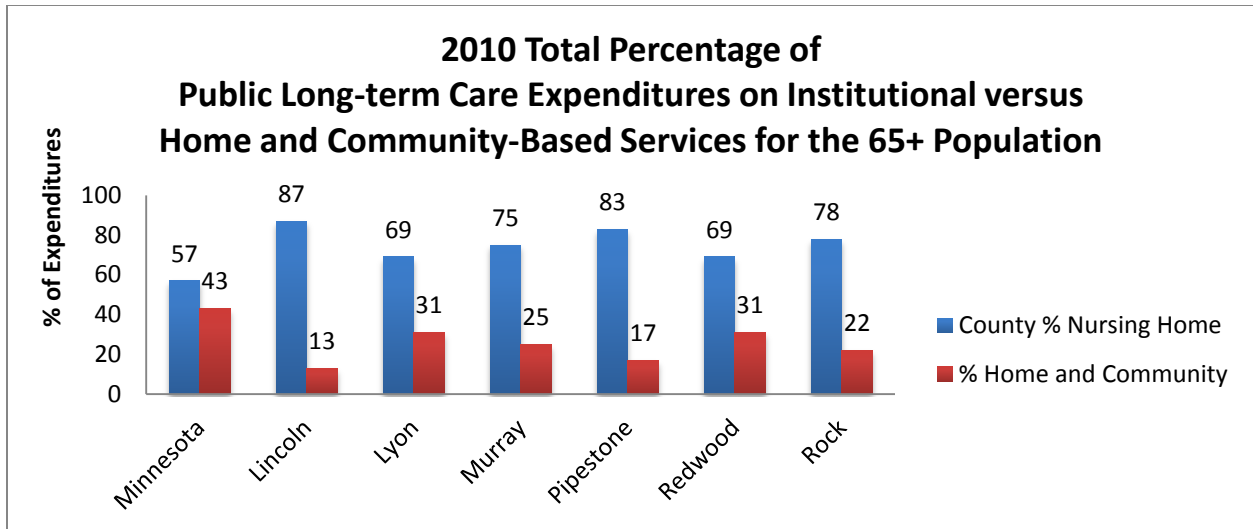
The family caregiver ratio across the SWHHS counties, which is the ratio of older adults age 85 and older to the number of females ages 45-64 who typically are the caregivers, follows the demographic trends reviewed in an earlier demographic section of this document. The six-county region family caregiver ratio is, on average, twice that of the State of Minnesota. (39) Programing for the elderly needs to keep the needs of, not only the elderly in mind, but also the caregivers. Because much of the caregiver population is employed, extended or flexible business hours may need to be added to accommodate caregiver involvement in decisions.

2010 Family Caregiver Ratio



Source: Minnesota Department of Human services & Minnesota Department of Health. (2014). (36)

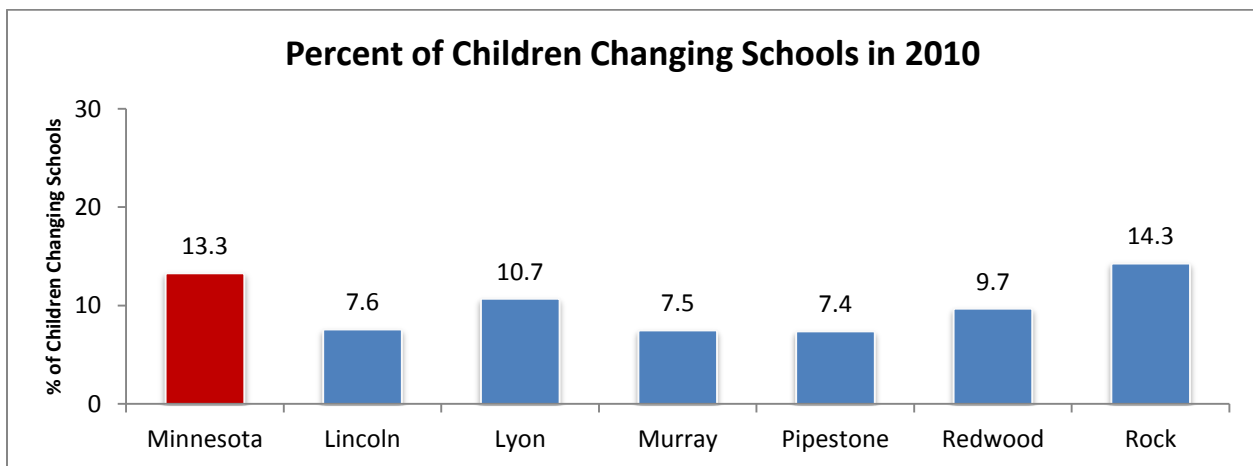
Another trend across the SWHHS counties are higher than state averages on the expenditures of people in nursing homes versus those that are taken care of in their home and community setting. Nursing home expenditures are, on average, 20 percent higher in the region while home and community care expenditures are 19 percent less than the Minnesota average. (39)



Source: Minnesota Department of Human services & Minnesota Department of Health. (2014). (36)

School Mobility

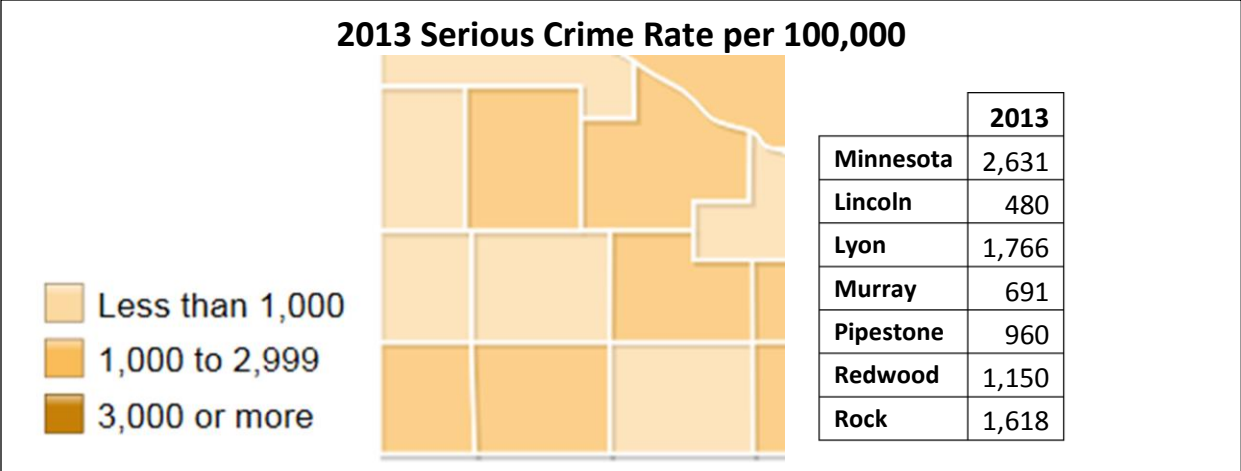
The more frequently a child moves, the less they feel part of the community. This creates issues with learning due to the disruption and the ability to form attachments for the parent and child. Minority students, according to Minnesota state data, are three to four times more likely to move at least once during the school year. With the exception of Rock County, the other five counties within SWHHS service area had lower than the State of Minnesota average of children changing schools in 2010. (40)



Source: Minnesota Kids Count. Kids Count Data Center. (2014). (40)

Community and Personal Safety

Violence and crime can negatively impact a community and the people that live there. High crime areas are less likely to have people go outdoors which limits physical activity and decreases community connectedness. People in SWHHS counties enjoy some of the lowest violent crime rates in the State of Minnesota. (41)



Source: Minnesota Department of Public Safety, U.S. Census Bureau. (2014). (41)

Percent of 9th Graders Who Skipped School One or More Days In the Last 30 Days Due to Feeling Unsafe At or On the Way To School

| | 1998 | 2001 | 2004 | 2007 | 2010 |
|-----------|------|------|------|------|------|
| Minnesota | 4 | 7 | 6 | 5 | 5 |
| SWHHS | 4 | 10 | 5 | 4 | 5 |
| Lincoln | 4 | 5 | 5 | 1 | 2 |
| Lyon | 4 | 7 | 6 | 5 | 5 |
| Murray | 6 | 4 | 7 | 0 | 5 |
| Pipestone | 4 | 7 | 6 | 5 | 5 |
| Redwood | 3 | 18 | 5 | 5 | 7 |
| Rock | 3 | 1 | 2 | 6 | 5 |

Source: Minnesota Department of Health. Minnesota Student Survey. (2014). (42)

Violence can also impact children in school by making them feel like they need to skip school to avoid it. According to Minnesota Student Survey results, 9th grade students in the SWHHS counties skipped school at a rate similar to the average rate of students in Minnesota. (42)

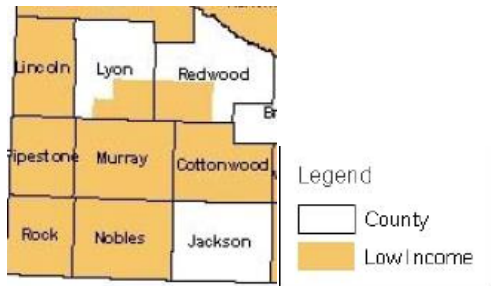
Access to Health Care

Health care access can depend on several factors such as the availability of health professionals in an area to the affordability of insurance. Insurance affordability generally depends on employment of the person along with whether the employer offers a subsidized employee health plan or if the person needs to obtain insurance on the open market. Those that need to utilize the open market are scrutinized based on health history, age and smoking history, among other things to determine pricing. If you have a chronic condition your choice is to pay out of pocket or purchase insurance through the high risk insurance pool with limited coverage and high deductible. With the start of the Affordable Care Act, the hope is these paradigms will be changing.

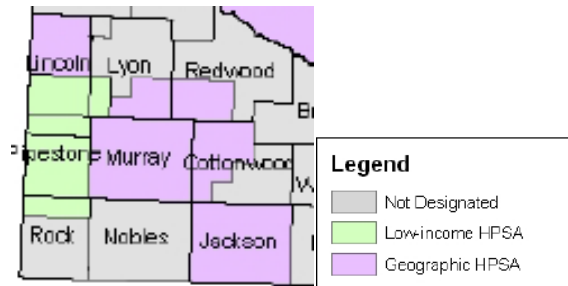
Health Care Workforce

Rural areas of Minnesota struggle with the recruitment and retention of dentists, physicians, and mental health workers. SWHHS counties have been designated as underserved in all three areas. (43)

Dental Shortage Map, 2011



HPSA's: Primary Care, 2011



Source: MN Department of Health. (2014). (43)

Mental Health Underserved Designation, January 2013

(SW Central Region)

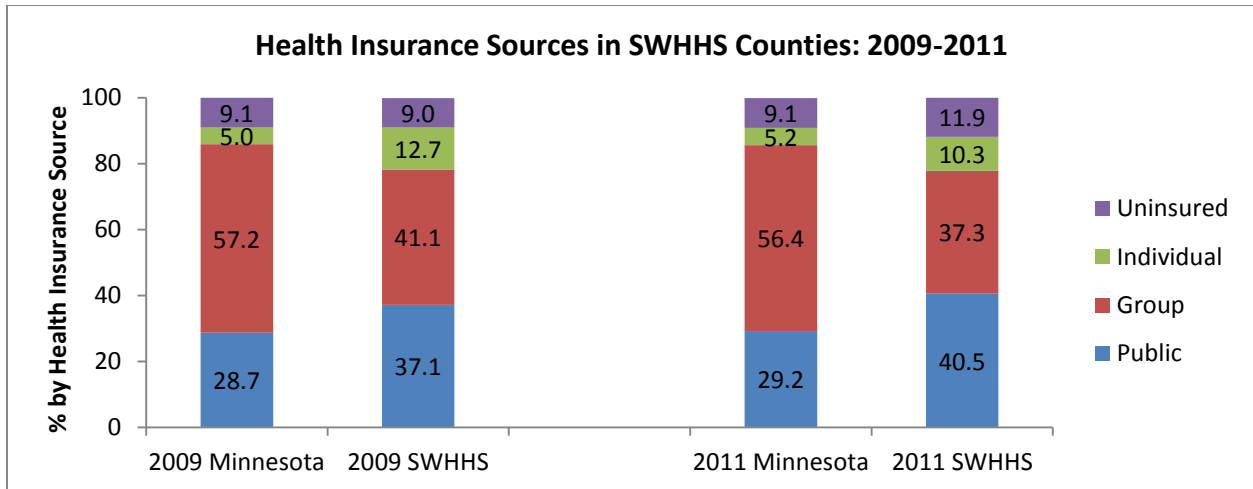


Source: MN Department of Health. (2014). (43)

For people that are low income across the SWHHS counties, the dental shortage is at a crisis level as many dental providers will not take clients that have Medical Assistance or Prepaid Medical Assistance. Adults and children that have these payment sources are forced to go without dental care or travel long distances and wait several months for care. Many end up in the emergency room looking for relief from dental pain because primary preventative dental care was not available to them. (81)

Insurance Coverage

Adequate insurance coverage can provide people with better health outcomes since people with adequate insurance tend to go in for more preventative care exams and are less likely to delay coming to the doctor when not feeling well because of cost concerns. Early intervention in disease treatment can translate into better health outcomes and reduce financial risk associated with uninsured and underinsured people. For those that are uninsured and underinsured, hospital-based charities help with costs, but do not cover the gap that adequate insurance coverage would. People find themselves turning to their community to do fundraisers to help with the financial burden of illness.



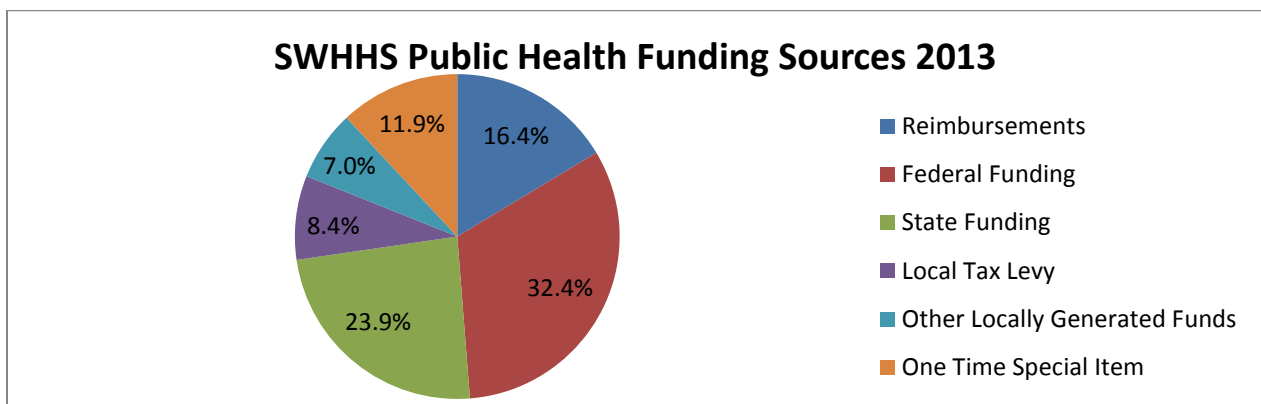
Source: Minnesota Department of Health. Health Economics Program. (2012). (44)

From 2009 to 2011, the SWHHS counties experienced a 2.9 percent increase in individuals being uninsured. During the same timeframe, 3.4 percent of individuals in the region reached out to public insurance programs for help. (44)

Public Health Infrastructure

Public Health Funding

Funding from federal, state, local tax levy, and other local sources are critical to providing strong public health infrastructure for public health programs that prevent disease, promote health, and address population based issues and unhealthy social norms. In 2013, Federal funding provided nearly one-third of the SWHHS funding while local funding was 8.4 percent of the agency's funding. During 2013, funding for five of the SWHHS counties was set at \$6.00 per resident with Redwood coming in at \$22.00 per resident with the agreement that the per-resident rate would transition downward. Funding in the Southwest Region in 2012 was \$55.89 per capita according to the Local Public Health Planning and Performance Measurement Reporting System (PPMRS) which provides data reporting on all public health expenditures in the state. (108) Minnesota ranks 46th out of 50 states in combined state and federal funding for public health per resident at \$44.93. (2)



Healthy Living in SWHHS Counties

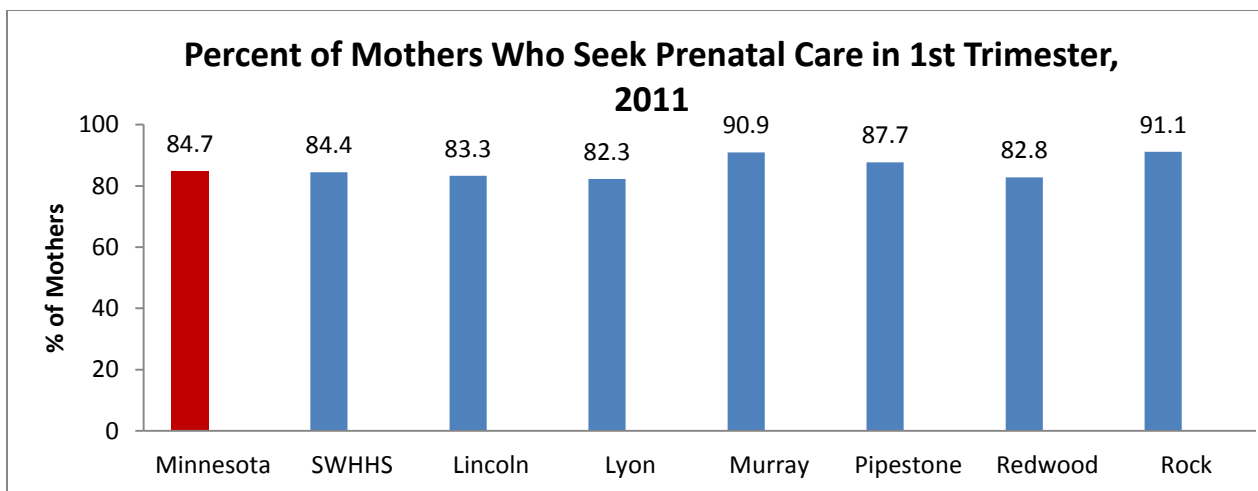
Healthy living is a choice that an individual and a community make. Healthy communities make choices to spend local resources and promote social norms in a way that promotes active living, healthy food options, safe housing, and appropriate alcohol and tobacco use among other things. Individuals make choices everyday about how active they will be, what food choices they will make, what type of housing they will live in, and how much tobacco and alcohol they will use. The individual choices are influenced by determinants of health as described on page 8 of this document. (1)

A Healthy Start for Children

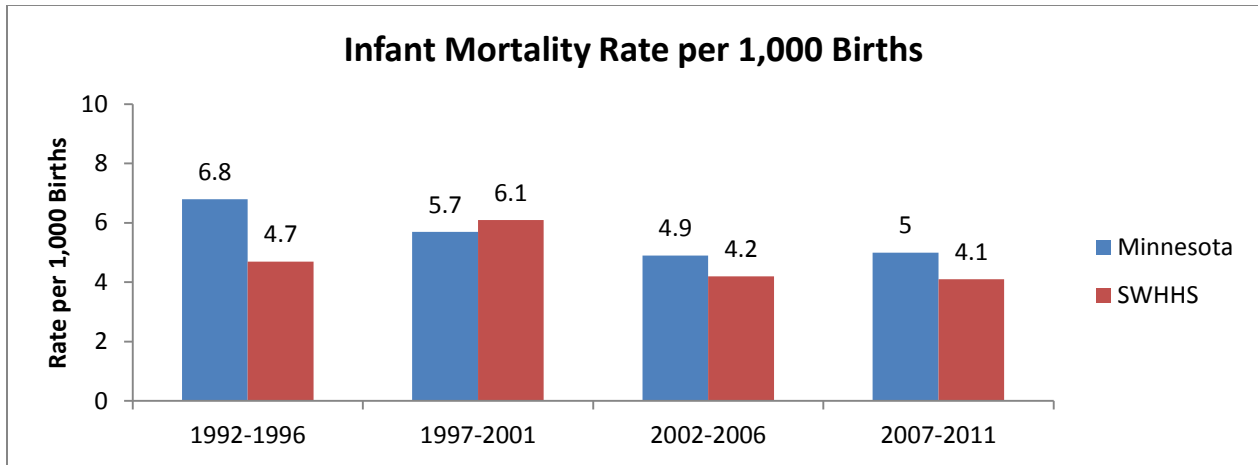
Children from birth to age eighteen have much of their future adult health impacted by childhood health experiences. Poor nutrition, lack of parental attachment, physical or sexual abuse, smoking exposure, violence in the home, substance abuse, a parent that is incarcerated, divorced or separated parents, for example, can adversely impact child health and increase the rates of depression, suicide, addiction to alcohol, drugs, or tobacco, obesity, sexually transmitted infections, and chronic disease. (2)

Prenatal Care and Healthy Pregnancies

Early prenatal care is the building block of a healthy pregnancy and prevents low birth weight and premature babies which in turn decreases infant mortality and reduces health care costs. Prenatal care can be delayed by a number of factors which include inadequate insurance, a misunderstanding of the importance of prenatal care in the first trimester, etc. In 2011, 84.4 percent of mothers across the six SWHHS counties sought prenatal care in the first trimester, which was virtually identical to the state average of 84.7 percent. Lyon and Redwood Counties, the most populated of the six counties, were below the state average by 1.9 to 2.4 percentage points. (6)



Source: Minnesota Department of Health, Minnesota County Health Tables 2012, (2014). (6)



Source: Minnesota Department of Health, Vital Statistics Trend Reports. (2014). (21)

Infant mortality rates across the SWHHS counties are, with the exception of 1997-2001, below the State of Minnesota rates. (21)

Smoking and Alcohol Use during Pregnancy

One of the most preventable causes of maternal and infant illness and death is smoking during pregnancy. Smoking during pregnancy increases the risk of still birth, premature birth, and lowers birth rates. Once the baby is born, there is an increase in the risk of sudden infant death (SIDS), respiratory problems, behavior and cognitive delays in the infant if the mother smokes, and these children are more than twice as likely to grow up to be smokers as children of non-smoking mothers. (2)

On average, SWHHS counties saw a steady increase in the percent of woman who reported smoking during pregnancy. Between 1992 and 2011, there was a 3.9 percentage point increase across the six counties. (21)

Percent of Births in which Mothers Reported Smoking During Pregnancy

| State/County/CHB | 1992-1996 | 1997-2001 | 2002-2006 | 2007-2011 |
|------------------|-----------|-----------|-----------|-----------|
| Minnesota | 14.0 | 11.9 | 9.8 | 10.7 |
| SWHHS | 11.4 | 13.2 | 13.4 | 15.3 |
| Lincoln | 15.9 | 16.7 | 13.3 | 15.9 |
| Lyon | 10.2 | 12.5 | 11.5 | 11.7 |
| Murray | 8.1 | 11.0 | 13.3 | 17.1 |
| Pipestone | 11.5 | 14.7 | 17.0 | 18.9 |
| Redwood | 13.4 | 15.1 | 16.9 | 18.9 |
| Rock | 11.5 | 10.1 | 9.4 | 10.4 |

Source: Minnesota Department of Health, Vital Statistics Trend Reports. (2014). (21)

Fetal alcohol disorders (FASDs), stillbirth, and miscarriage can be caused by drinking alcohol during pregnancy. Currently, there is no known safe amount of alcohol or time to drink during pregnancy. (2)

County-level data is not available on mothers who drink during pregnancy. In Minnesota, data is collected on a mother's alcohol use during the three months prior to pregnancy. According to the Minnesota Pregnancy Risk Assessment Monitoring System, women who are white, non-Hispanic, have

greater than 12 years of education, and an annual income of \$50,000 or more are three times more likely to drink during the three months before pregnancy than other women. (2)

Breastfeeding

Breastfeeding is one way to boost an infant’s immune system, promote maternal-child bonding, and prevent obesity. Healthy Minnesota 2020 has a goal of exclusive breastfeeding until six months of age, while the American Academy of Pediatrics recommends “exclusive breastfeeding for about the first six months of a baby’s life, followed by breastfeeding in combination with the introduction of complementary foods until at least 12 months of age, and continuation of breastfeeding for as long as mutually desired by mother and baby.” (45) (46) The World Health Organization recommendation includes “Exclusive breastfeeding...up to 6 months of age, with continued breastfeeding along with appropriate complementary foods up to two years of age or beyond.” (47)

In 2013, mothers in four of the six SWHHS counties who participated in the Minnesota Women, Infants and Children (WIC) program were below the state average of 76.8 percent in initiating breastfeeding. In 2012, mothers in five of the six counties were also below the state average in initiation rates. Breastfeeding duration rates followed the same trend as initiation, at 3, 6, and 12 months, all six counties were below the State of Minnesota average. (48)

Percent of Breastfeeding Initiation for MN WIC Infants Born During Calendar Year 2013 by County

| Minnesota | Lincoln | Lyon | Murray | Pipestone | Redwood | Rock |
|-----------|---------|------|--------|-----------|---------|------|
| 76.8 | * | 75.9 | 91.7 | 85.9 | 76.2 | 62.8 |

*Lincoln County counts under reporting threshold
Source: Minnesota WIC Information System. (2014). (48)

Breastfeeding Initiation and Duration at Three, Six, and Twelve Months for MN WIC Infants Born During Calendar Year 2012 by County of Residence

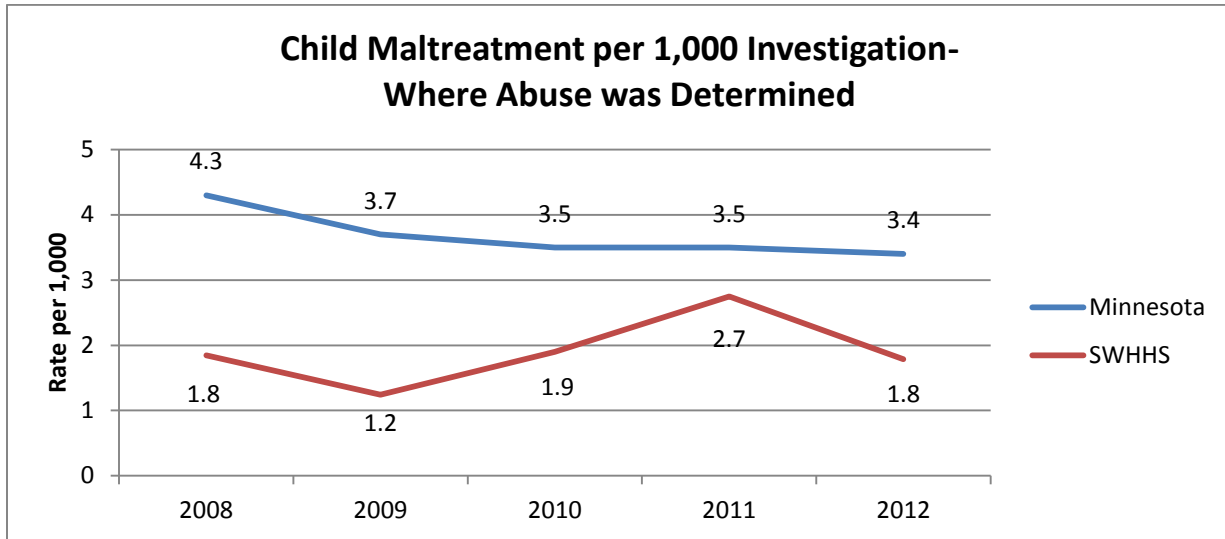
| County | Initiated Breastfeeding | Breastfed 3 Months | Breastfed 6 Months | Breastfed 12 Months |
|-----------|-------------------------|--------------------|--------------------|---------------------|
| Minnesota | 76 | 43.2 | 32.1 | 13.6 |
| Lincoln | * | * | * | * |
| Lyon | 69.1 | 35.3 | 22.2 | 12.6 |
| Murray | 58.7 | 30.4 | 21.7 | 6.5 |
| Pipestone | 87.8 | 42.5 | 26.3 | 3.8 |
| Redwood | 65 | 26.2 | 16.5 | 9.7 |
| Rock | 62.7 | 25.9 | 13.8 | 3.4 |

*Lincoln County counts under reporting threshold
Source: Minnesota WIC Information System. (2014). (48)

Violence Against Children and Teens

Child Abuse

Child abuse can lead to poor health outcomes by causing emotional and physical harm to the child. In 2012, thirty-two children across the six counties had been determined after investigation to have been abused or neglected. From 2008 to 2012, the rate of child maltreatment in the region was lower than the State of Minnesota. In 2012, of the children that were maltreated in the SWHHS counties, 60 percent was from neglect, 17 percent was from sexual abuse, and 11 percent was from medical maltreatment. (49)



Source: Minnesota Child Welfare Reports. Minnesota Department of Human Services. (2014) (49)

Percent by Maltreatment Type for Children Investigation Where Abuse was Determined 2012*

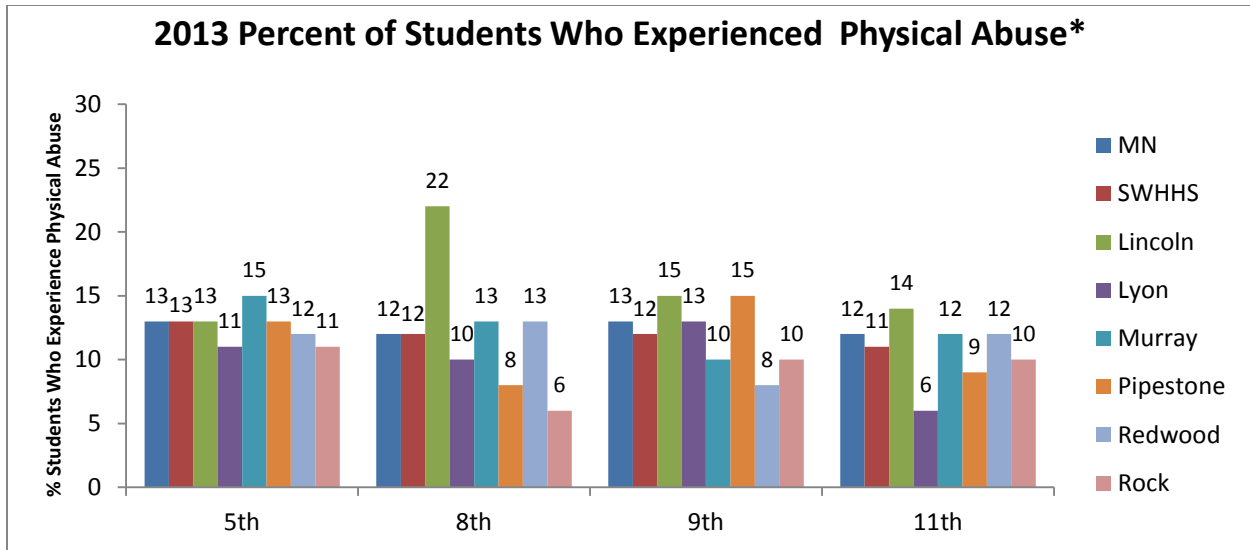
| | Neglect (non-medical) | Physical Abuse | Sexual Abuse | Mental Injury | Medical Neglect |
|--------------|-----------------------|----------------|--------------|---------------|-----------------|
| SWHHS | 60 | 11 | 17 | 0 | 14 |
| MN | 68 | 20 | 19 | 1 | 1 |

*Percentages are great than 100 as a child can have more than one type of abuse recorded

Source: Minnesota Child Welfare Reports. Minnesota Department of Human Services. (2014) (49)

Physical Abuse

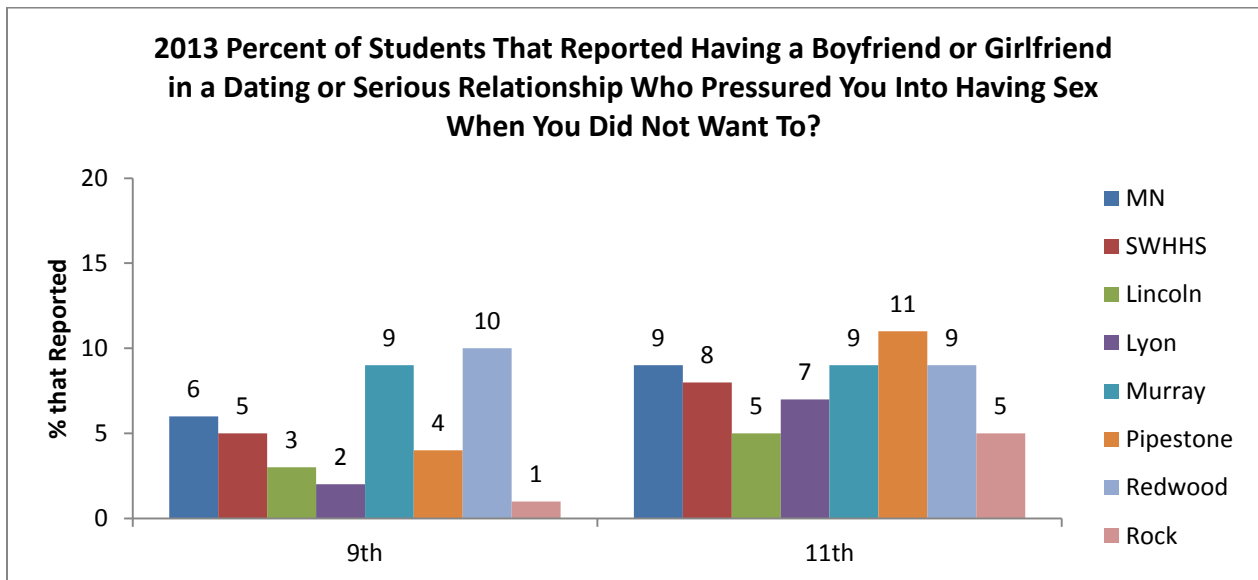
Physical abuse can have lasting negative health outcomes for children. Abused children are much more likely to participate in risky behaviors like sexual activity at an early age, alcohol and drug use, and violence. (2) The 2013 Minnesota Student Survey showed that SWHHS students were experiencing physical abuse at a roughly similar rate as other students in Minnesota. (42)



*Has a parent or other adult in your household ever hit, beat, kicked or physically hurt you in any way?
 Source: Minnesota Department of Health. Minnesota Student Survey. (2014). (42)

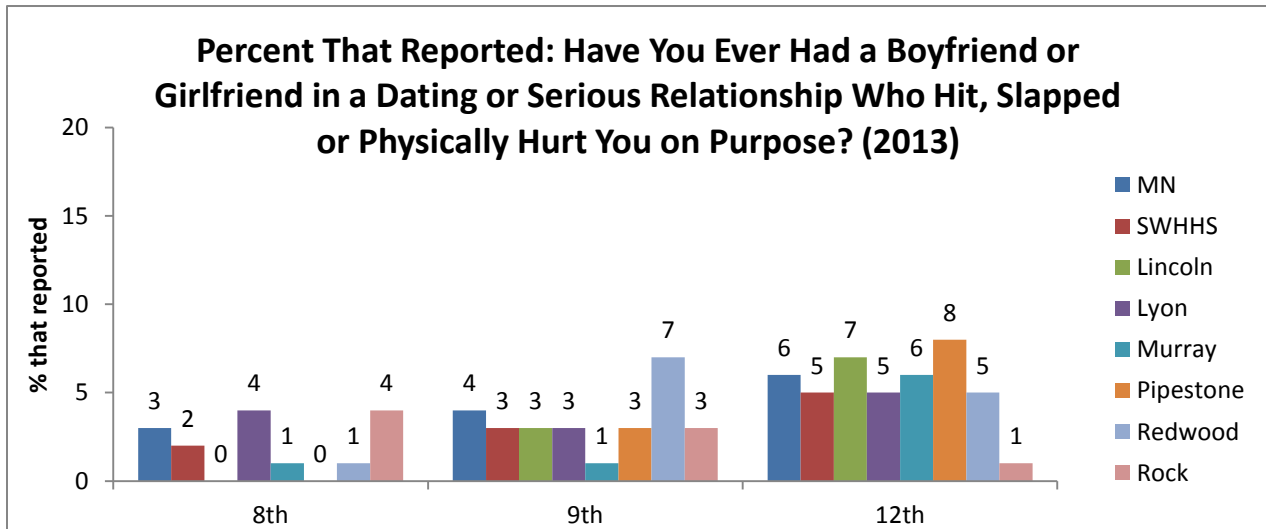
Sexual and Relationship Violence

Dating violence, sexual or physical, is not limited to adults. In the 2013 Minnesota Student Survey, on average, SWHHS students were below the state average for feeling pressured to have sex when they didn't want to. However, Murray and Redwood 9th graders reported this at a higher rate than the State of Minnesota and Murray, Pipestone, and Redwood County 11th grade students were either at the State average or above. (42)



Source: Minnesota Department of Health. Minnesota Student Survey. (2014). (42)

Rates of physical dating violence in the SWHHS counties are also, on average, lower than the State of Minnesota rates. However, similar to the trends above, several counties are above the state average. In 8th grade, Lyon and Rock are higher than the State of Minnesota; in 9th grade, Redwood is nearly twice as high as the State of Minnesota; and in 12th grade, Lincoln and Pipestone counties are higher. (42)

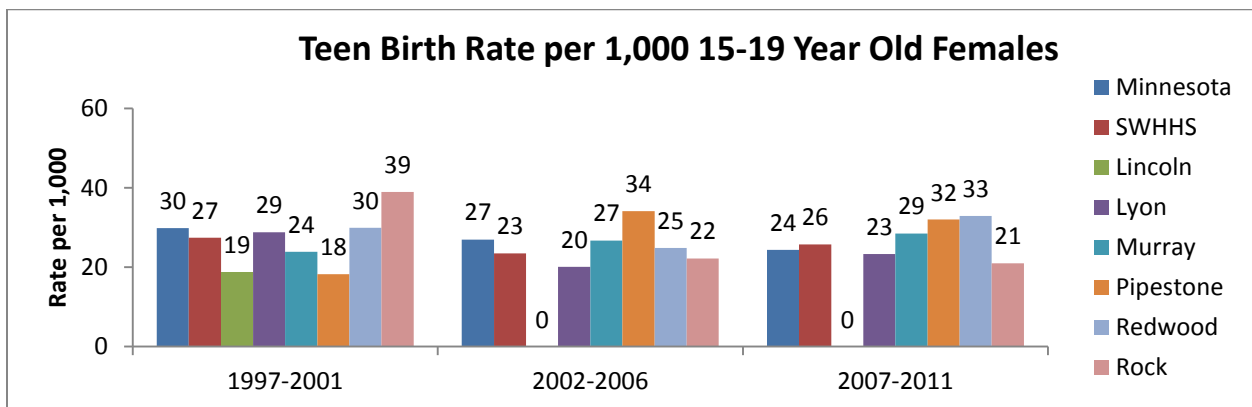


Source: Minnesota Department of Health. Minnesota Student Survey. (2014). (42)

Teen Parenting

Teen parents are less likely to graduate from high school, which can result in higher rate of poverty and reliance on government assistance. Prenatal care is less likely to happen for a teen mom, which can cause low birth rates and later, children that perform poorly on cognitive and behavioral tests in school. Children of teen parents are much more likely to become teen parents themselves. (2)

Teen birth rates in SWHHS counties overall have been lower than the State of Minnesota average- with the exception of the 2007-2011 timeframe when SWHHS counties were at 25.7 percent and the State of Minnesota was at 24.3 percent. (21)



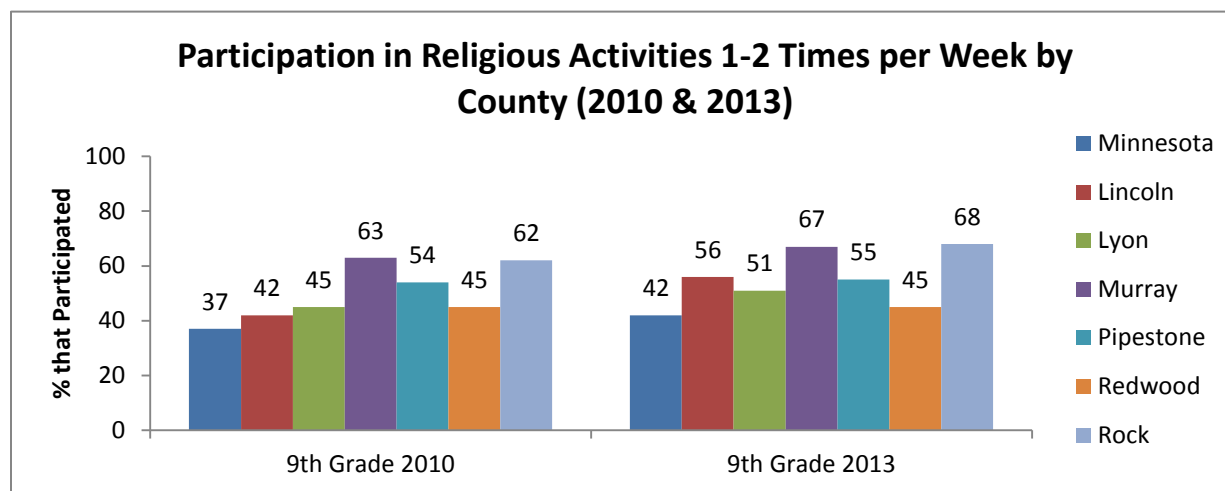
*Note: The number of teen births in Lincoln County for 2002-2006 and 2007-2011 were less than 20, therefore rates were not presented for these time periods.

Source: Minnesota Department of Health. Minnesota Center for Health Statistics. (2014). (21)

Youth-Community Involvement

Youth involvement in communities, according to Restless Development and the United Nations Programme on Youth, builds trust and social capital, and prevents and reduces vulnerability to economically, politically, and socially unstable environments. (50)

Data from the 2010 and 2013 Minnesota Student Surveys showed SWHHS 9th grade youth were above the State of Minnesota average for participation in religious activities. (42)



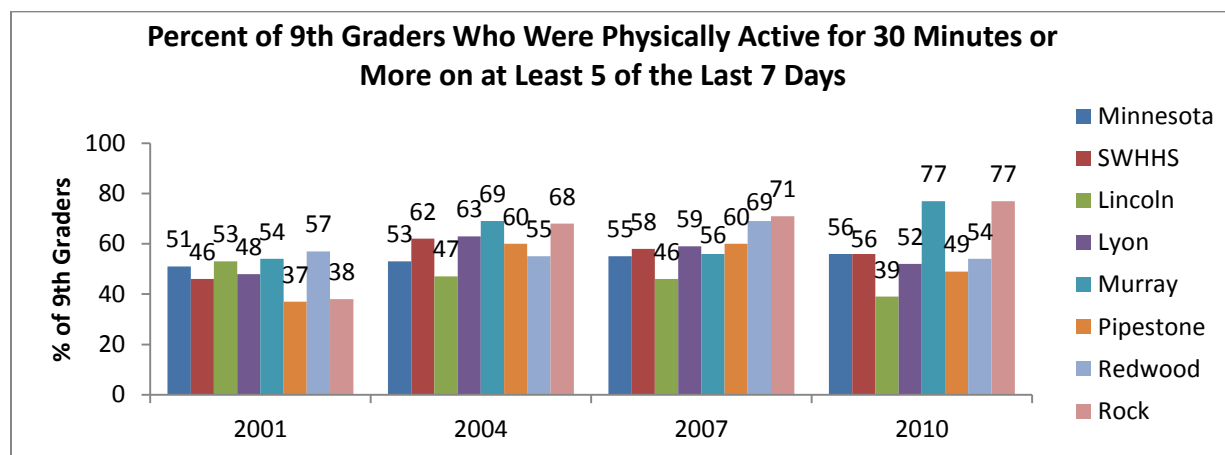
Source: Minnesota Department of Health. Minnesota Student Survey. (2014). (42)

Physical Activity and Eating Habits

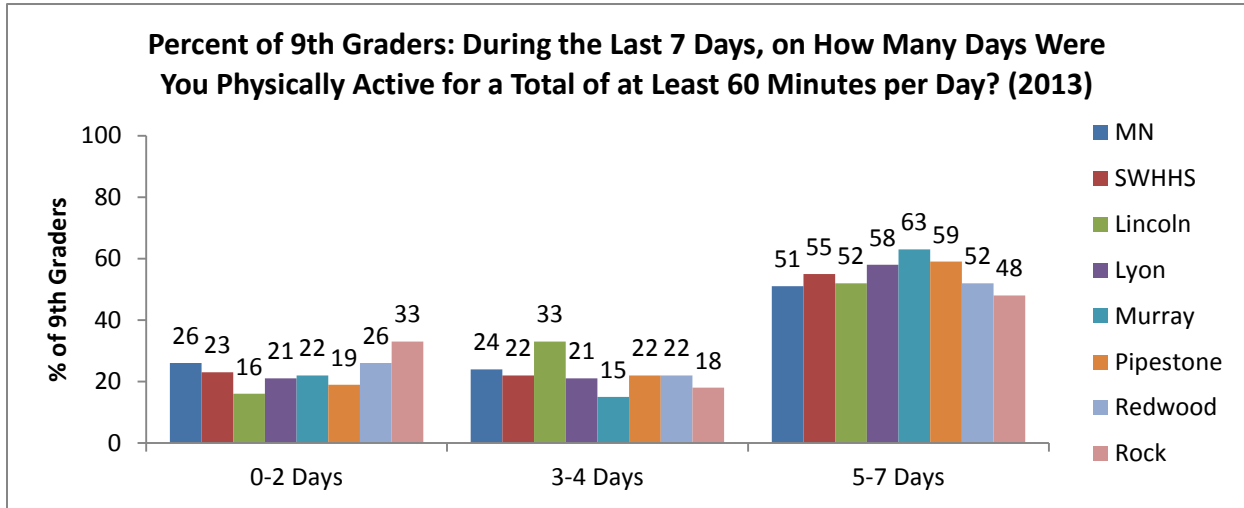
Physical Activity

Being physically active is important at any age for overall health and wellbeing. National physical activity guidelines recommend that youth participate in 60 minutes of moderate and vigorous physical activity throughout the day. Adults are recommended to participate in 150 minutes of moderate physical activity per week. (51)

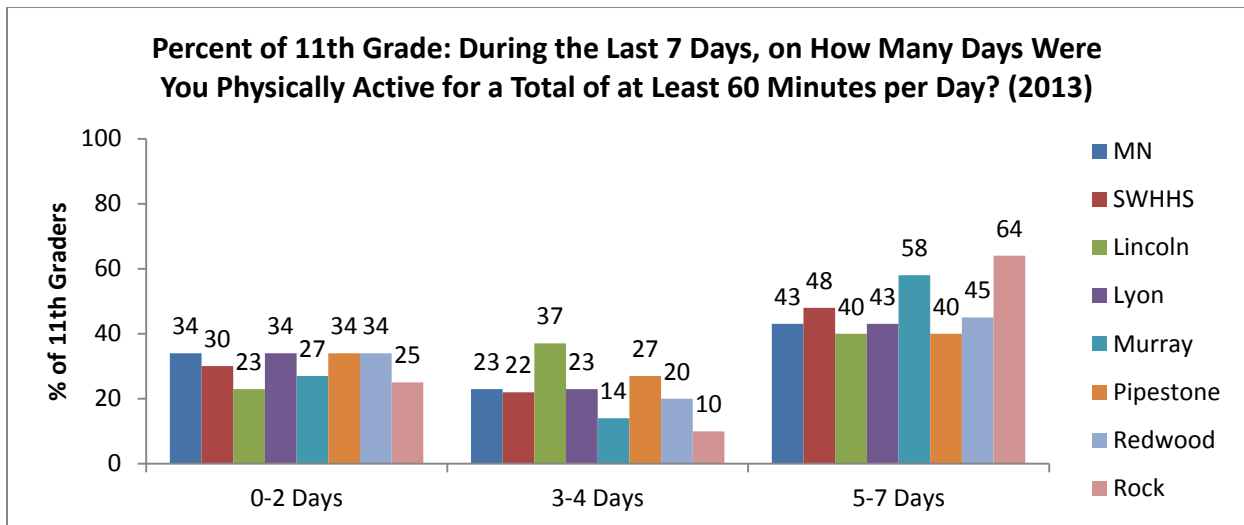
Minnesota Student Survey results from 1998 through 2010 showed that SWHHS 9th grade physical activity fluctuated from a low of 46 percent in 2001 to a high of 62 percent in 2004 and then trended down to 56 percent in 2010. In 2013, the survey question changed to sixty minutes per day from thirty minutes. The response on average for SWHHS 9th graders in 2013 was 58 percent. (42)



Source: Minnesota Department of Health. Minnesota Student Survey. (2014). (42)



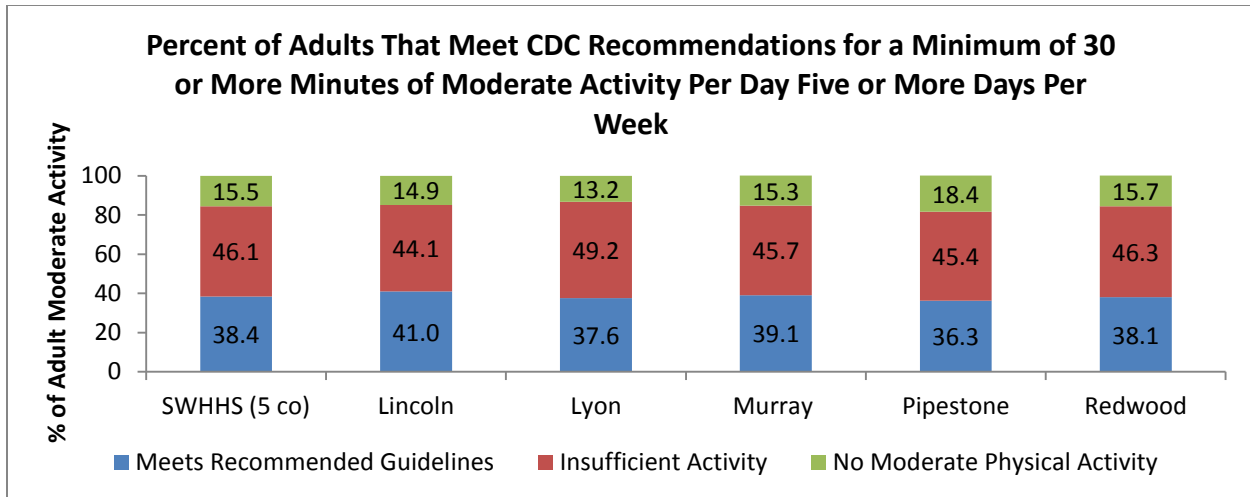
Source: Minnesota Department of Health. Minnesota Student Survey. (2014). (42)



Source: Minnesota Department of Health. Minnesota Student Survey. (2014). (42)

2013 Minnesota Student Survey data for 9th and 11th grade activity showed a decrease among the older students. In Minnesota schools, physical education is offered through 9th grade. This leaves students that are not participating in team sports without required activity starting in 10th grade. (42)

Adult physical activity information was gathered in a 2010 Wilder Research Study covering five of the six SWHHS counties (Lincoln, Lyon, Murray, Pipestone, and Redwood). The average adult physical activity that met recommended guidelines for those surveyed was 38.4 percent.



*Rock did not participate in 2010 Southwest/South Central Adult Health Survey
 Source: Amherst H. Wilder Foundation. 2010 Wilder Research Study. (2014). (52)

Eating Habits

Food plays a big role in how healthy a person is. Dairy, grains, proteins, fruits and vegetables that are recommended by the United States Department of Agriculture on “ChooseMyPlate.gov” are important for the nutrients that they provide. (53) Poor eating habits at any age can decrease the amount of nutrients that can result in obesity which increases rates of chronic diseases like diabetes, stroke, and heart disease. Poor eating habits can also affect dental health and cause increased tooth decay from drinking sugary drinks. (2)

From 1998 to 2010, SWHHS 9th grade students were at or below the state average for eating five or more servings of fruit and vegetables the day prior. (42)

Percent of 9th Graders Who Ate Five or More Servings of Fruit, Fruit Juice, or/and Vegetables Yesterday

| State/CHB/ County | 1998 | 2001 | 2004 | 2007 | 2010 |
|-------------------|------|------|------|------|------|
| Minnesota | 14 | 15 | 15 | 18 | 18 |
| SWHHS | 15 | 15 | 15 | 17 | 14 |
| Lincoln | 13 | 12 | 11 | 10 | 5 |
| Lyon | 16 | 15 | 14 | 19 | 15 |
| Murray | 15 | 22 | 23 | 11 | 19 |
| Pipestone | 17 | 12 | 16 | 22 | 13 |
| Redwood | 12 | 11 | 17 | 14 | 10 |
| Rock | 12 | 14 | 16 | 13 | 17 |

Source: Minnesota Department of Health. Minnesota Student Survey. (2014). (42)

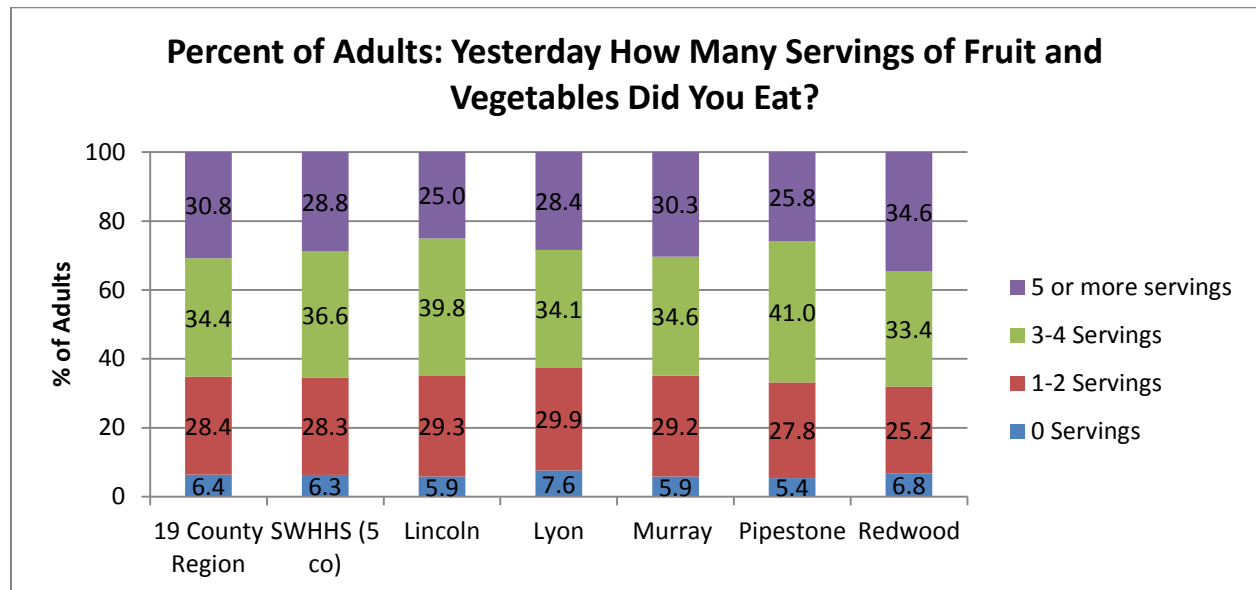
In the 2013 Minnesota Student Survey, the fruit and vegetable question was separated into two specific questions: “During the last 7 days, how many times did you eat green salad, potatoes, carrots, or other vegetables?” and “During the last 7 days, how many times did you eat fruit?” Student data below shows those 9th graders who ate vegetables two or more times per day and those who ate fruit two or more times per day. Results showed only 20 percent of SWHHS 9th graders ate vegetables two or more times per day; the state average was 21 percent. 24 percent of 9th grade students ate fruit two or more times per day in comparison with the state average of 27 percent. (42)

Percent of 9th graders: During the Last 7 days, How Many Times Did You Eat: (2013)

| State/CHB/ County | fruit 2 or more times per day | vegetables 2 or more times per day |
|-------------------|-------------------------------|------------------------------------|
| Minnesota | 27 | 21 |
| SWHHS | 24 | 20 |
| Lincoln | 32 | 23 |
| Lyon | 28 | 21 |
| Murray | 21 | 20 |
| Pipestone | 26 | 20 |
| Redwood | 17 | 14 |
| Rock | 17 | 20 |

Source: Minnesota Department of Health. Minnesota Student Survey. (2014). (42)

In the 2010 Wilder Research Study, responses from SWHHS adults on servings of fruits and vegetables consumed in the past day showed 65.4 percent eating three or more servings yesterday. This was similar to the overall 19-County survey response of 65.2 percent. Individuals that ate zero servings and one to two servings locally and regionally were similar in data trends, too. (52)



Rock did not participate in 2010 Southwest/South Central Adult Health Survey
 Source: Amherst H. Wilder Foundation. 2010 Wilder Research Study. (2014). (52)

Use of Alcohol, Tobacco and Prescription & Illicit Drugs

Like most things, alcohol and prescription drugs, if used in moderation or as directed and with a sense of responsibility, can be used with few problems. Issues arise when prescription drugs are mixed with alcohol, too much of a substance is used, addiction becomes an issue, or a person engages in unsafe behavior like driving under the influence or risky sexual behavior because of the influence a person is under due to these substances.

According to the Centers for Disease Control, “Tobacco use is the leading preventable cause of death” and “For every smoking death there are 30 more people suffering from at least one serious illness from

smoking”. These serious illnesses range from a variety of lung ailments like COPD, emphysema, and bronchitis to other chronic diseases like cancer, heart disease, diabetes, and stroke. Oral tobacco use can cause nicotine addiction, oral cancers in the mouth, lip, tongue, pharynx, and cancer of the esophagus. (54)

Tobacco use does not only impact the user, it also impacts people that breathe in the smoke that the smoker exhales. Infants and children of smoking parents are more likely to have asthma, higher rates of respiratory infections, and sudden infant death syndrome (SIDS) than children of non-smoking parents. Adults that are exposed to second hand smoke (SHS) have a higher occurrence of lung cancer, heart disease, and stroke than adults who are not exposed to SHS. (55)

Alcohol Use and Binge Drinking

Alcohol use in our society is part of the social fabric. When people drink alcohol in excess, poor outcomes may occur. People who drink in excess have higher rates of injury, violence, alcohol poisoning, risky sexual behaviors, miscarriage, stillbirth, and children born with fetal alcohol syndrome than people who drink more moderately or who don’t drink at all. Long term excessive alcohol use can lead to heart disease, cancer, learning and memory problems, mental health problems, and addiction. (56)

Binge drinking is defined as a pattern of drinking that brings a person’s blood alcohol concentration to 0.08 grams percent or above. People who consume alcohol in a two hour period would need to drink four or more drinks for a woman or five or more drinks for a man to exceed 0.08 grams percent or above. According to the Centers for Disease Control, most people who binge drink are not alcohol dependent. Binge drinkers are more likely to be men than women and have household incomes of \$75,000 or more than to have lower incomes. Binge drinking is thought to be a college problem when in reality 70 percent of binge drinkers are age 26 and older. When teens and young adults under the age of 21 in the United States consume alcohol, 90 percent of the time they are binge drinking. (57)

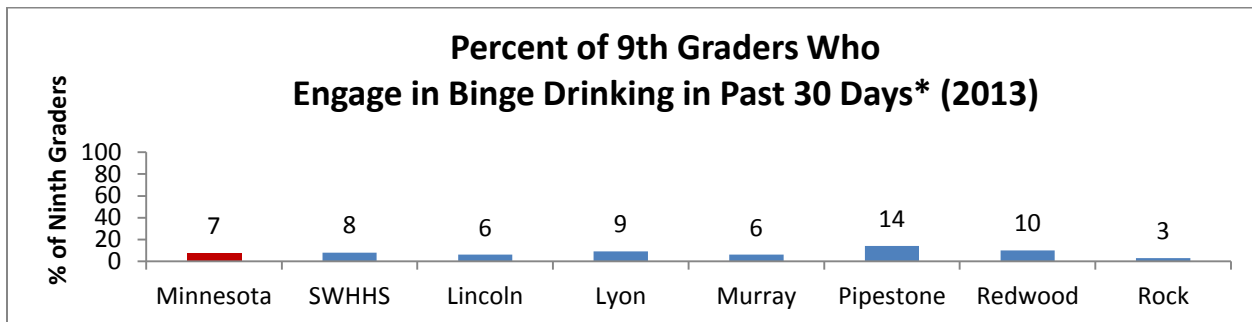
Minnesota Student Survey data from 1998 to 2010 showed SWHHS 9th grade student binge drinking declining. During this time-frame, SWHHS students exceeded the state average three to six percentage points until 2010. The binge drinking rates for five of the six counties stabilized or declined in 2007 except for Redwood County, which saw a seven percentage point increase. All county rates declined or were stable between 2007 and 2010. (42)

Percent of 9th Graders Who Engaged in Binge Drinking in the Last Two Weeks

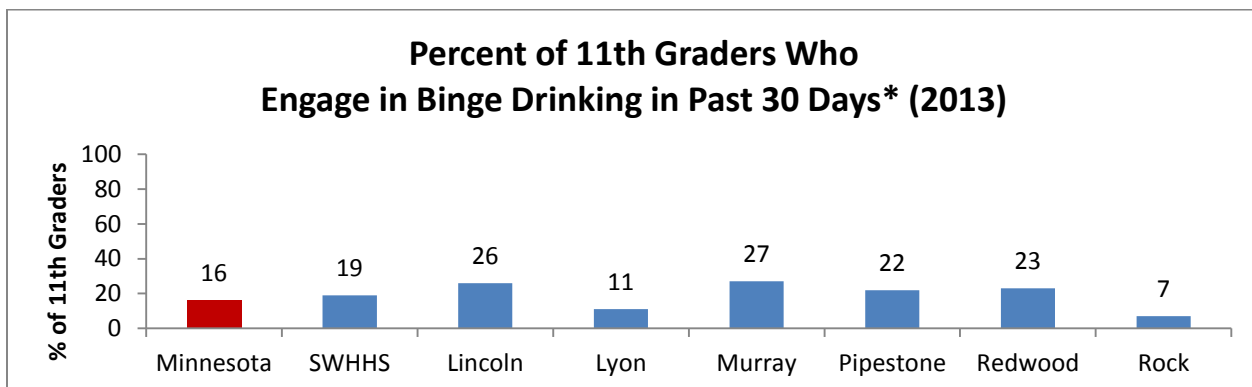
| State/CHB/County | 1998 | 2001 | 2004 | 2007 | 2010 |
|------------------|------|------|------|------|------|
| Minnesota | 20 | 16 | 15 | 13 | 10 |
| SWHHS | 21 | 20 | 18 | 15 | 10 |
| Lincoln | 24 | 19 | 18 | 14 | 11 |
| Lyon | 23 | 21 | 22 | 13 | 8 |
| Murray | 29 | 31 | 22 | 16 | 11 |
| Pipestone | 24 | 25 | 13 | 14 | 14 |
| Redwood | 7 | 14 | 10 | 17 | 14 |
| Rock | 25 | 14 | 15 | 16 | 6 |

Source: Minnesota Department of Health. Minnesota Student Survey. (2014). (42)

In the 2013 Minnesota Student Survey, the binge drinking question was change from “last two weeks” to “past 30 days.” SWHHS 9th grade data, on average, was lower than the 2010 two week question. When compared to Minnesota data, SWHHS 9th graders were one percentage point higher. 11th grade students binge drinking levels were higher than the 9th grade levels (eight percent versus nineteen percent). The State of Minnesota saw a similar difference in binge drinking between the grades. (42)



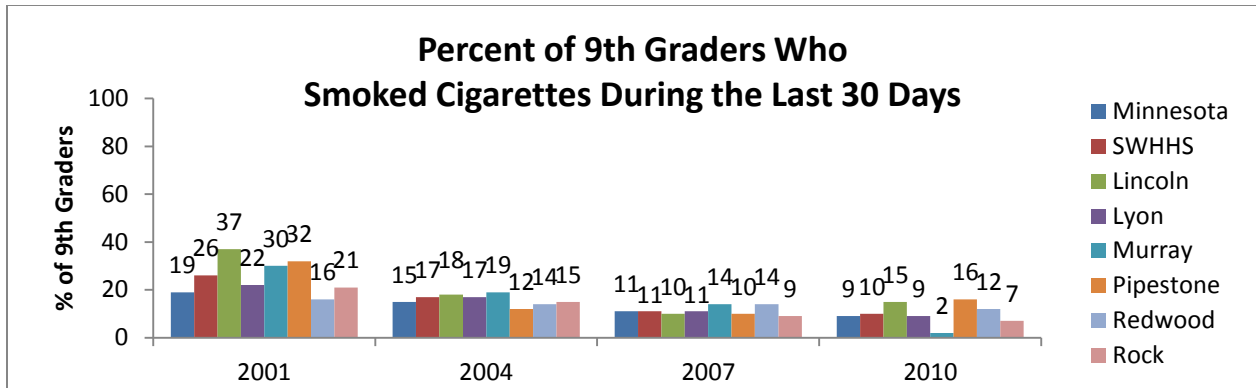
*5 or more drinks in a row within a couple of hours
 Source: Minnesota Department of Health. Minnesota Student Survey. (2014). (42)



*5 or more drinks in a row within a couple of hours
 Source: Minnesota Department of Health. Minnesota Student Survey. (2014). (42)

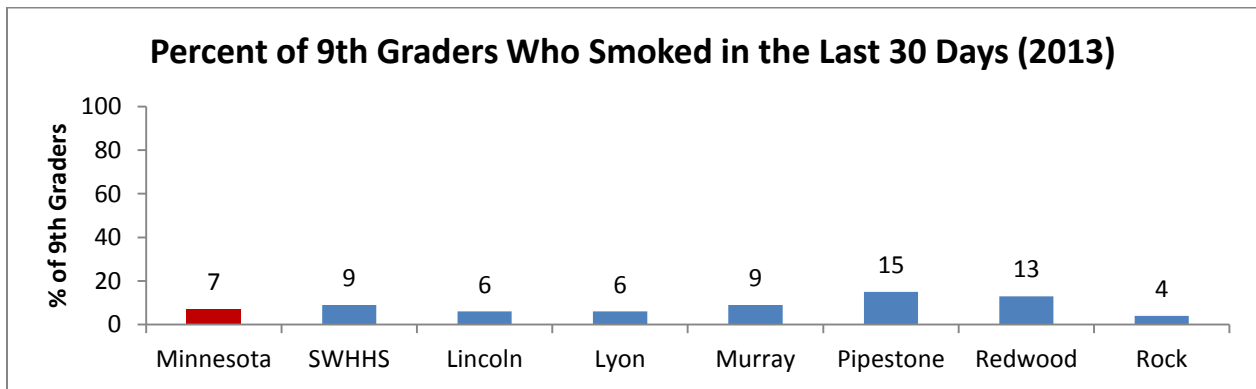
Tobacco Use and Exposure to Secondhand Smoke

From 1998 to 2010, SWHHS 9th graders saw a downward trend in smoking, from 31 percent to 10 percent, which was consistent with state-level data. In the 2010 survey results, 9th grade student smoking occurred at higher levels in Pipestone, Lincoln, and Redwood Counties than in the other counties. (42)



Source: Minnesota Department of Health. Minnesota Student Survey. (2014). (42)

In the 2013 Minnesota Student Survey, the smoking question was changed slightly from “smoked cigarettes during the last 30 days” to “smoked in the last 30 days.” When measured against the previous figure, the trend continued to decrease slightly, from ten percent in 2010 to nine percent in 2013. (42)



Source: Minnesota Department of Health. Minnesota Student Survey. (2014). (42)

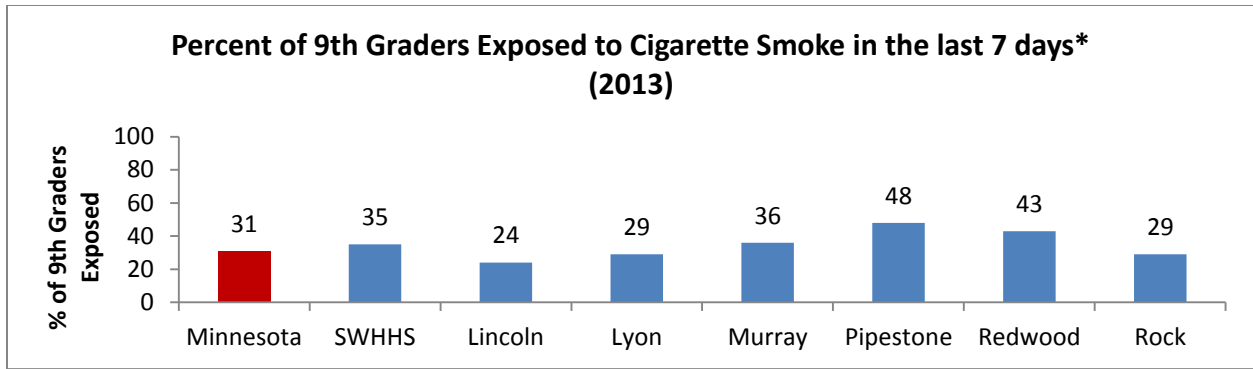
Adult participants in the 2010 Wilder Research Study reported a 13.7 percent current smoking rate across the SWHHS counties. This was a lower rate than the 19-County region by 1.4 percentage points. (52)

Percent of Adults Who are Current Smokers

| Region/CHB/ County | 2010 |
|--------------------|------|
| 19 County Region | 15.1 |
| SWHHS (5 Counties) | 13.7 |
| Lincoln | 15.0 |
| Lyon | 14.2 |
| Murray | 11.6 |
| Redwood | 12.8 |
| Pipestone | 14.8 |
| Rock | * |

*Rock did not participate in 2010 Southwest/South Central Adult Health Survey
Source: Amherst H. Wilder Foundation. 2010 Wilder Research Study. (2014). (52)

Starting in 2013, the Minnesota Student Survey asked about student exposure to second hand smoke. The survey reported 35 percent of SWHHS 9th grade students had been exposed to cigarette smoke in the last seven days versus 31 percent for the State of Minnesota. (42)



* in the same room as someone who was smoking cigarettes- 1 to 7 day range combined
Source: Minnesota Department of Health. Minnesota Student Survey. (2014). (42)

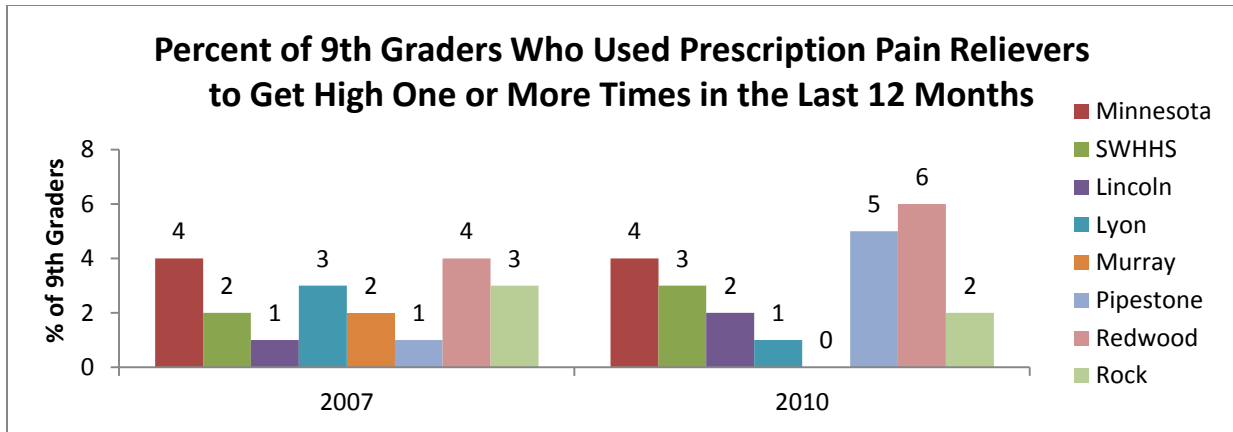
In Minnesota, in the Past 7 Days, Has Anyone Smoked Near You at Any Place Besides Your Home, Workplace, or Car?

| | | Of those who answered "yes" to the question above; The last time this happened in Minnesota, where were you? | | | | | |
|-------------------------|-------|--|-----------------------------------|-----------------------------------|---------------------------------|------------------|----------------------------|
| | Yes | A restaurant's or bar's outdoor area | A park or outdoor recreation area | An outdoor community sports event | A sidewalk or building entrance | Some other place | Multiple responses checked |
| 19 County Region | 35.9% | 11.9% | 3.4% | 1.4% | 26.5% | 31.2% | 25.5% |
| SWHHS | 32.7% | 13.3% | 4.4% | 0.5% | 24.8% | 36.7% | 20.3% |
| Lincoln | 33.4% | 15.1% | 4.4% | 0.5% | 26.2% | 41.1% | 12.7% |
| Lyon | 33.2% | 6.8% | 3.7% | 0.0% | 32.5% | 29.8% | 27.1% |
| Murray | 28.3% | 16.9% | 1.6% | 0.4% | 24.6% | 41.4% | 15.1% |
| Pipestone | 32.8% | 12.1% | 5.9% | 0.7% | 20.5% | 33.6% | 27.3% |
| Redwood | 36.0% | 15.6% | 6.2% | 1.0% | 20.4% | 37.6% | 19.1% |
| Rock | * | * | * | * | * | * | * |

*Rock did not participate in 2010 Southwest/South Central Adult Health Survey
Source: Amherst H. Wilder Foundation. 2010 Wilder Research Study. (2014). (52)

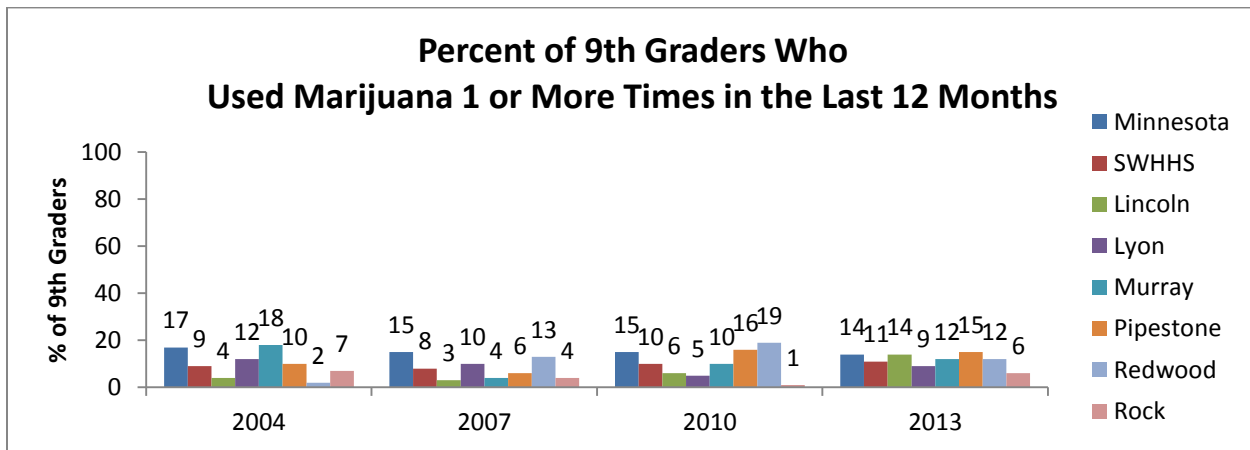
Prescription and Illicit Drug Use

Prescription drug use among SWHHS 9th grade students was overall lower than the state average by one to two percentage points in both the 2007 and 2010 Minnesota Student Surveys.* (42)



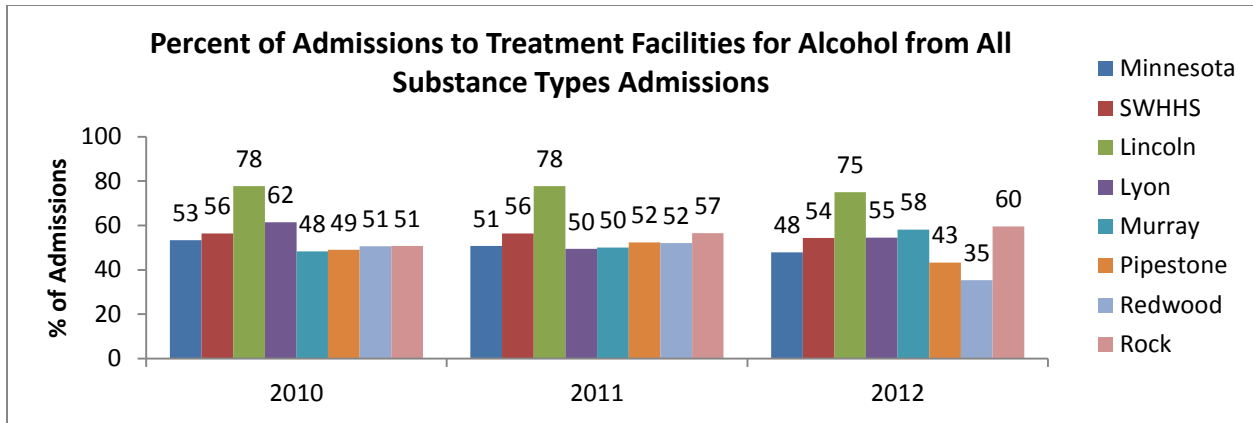
*2007 was the first time the prescription drug use question was asked.
 Source: Minnesota Department of Health. Minnesota Student Survey. (2014). (42)

Before 2007, the average percent of SWHHS 9th grade students that used marijuana in the past 12 months had been on the decline. Based on 2010 Minnesota Student Survey results, marijuana use in SWHHS 9th graders increased three percentage points to eleven percent, but still remained under the Minnesota rate of fourteen percent. (42)

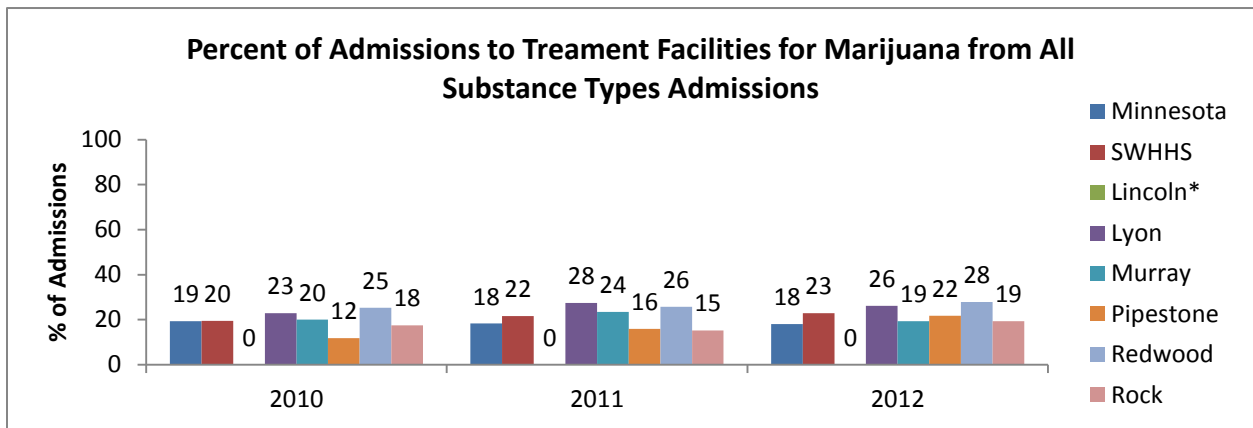


Source: Minnesota Department of Health. Minnesota Student Survey. (2014). (42)

Of all treatment sought by people for alcohol and illicit drug substances, alcohol has the highest percentage of all substances in the SWHHS counties. Alcohol treatment is, on average, sought out by SWHHS residents at a higher level than the state average. That is also true of people who seek treatment for marijuana addiction. Finally, from 2010-2012, data showed methamphetamine treatment at higher rates for SWHHS residents than for the State as a whole. (58)

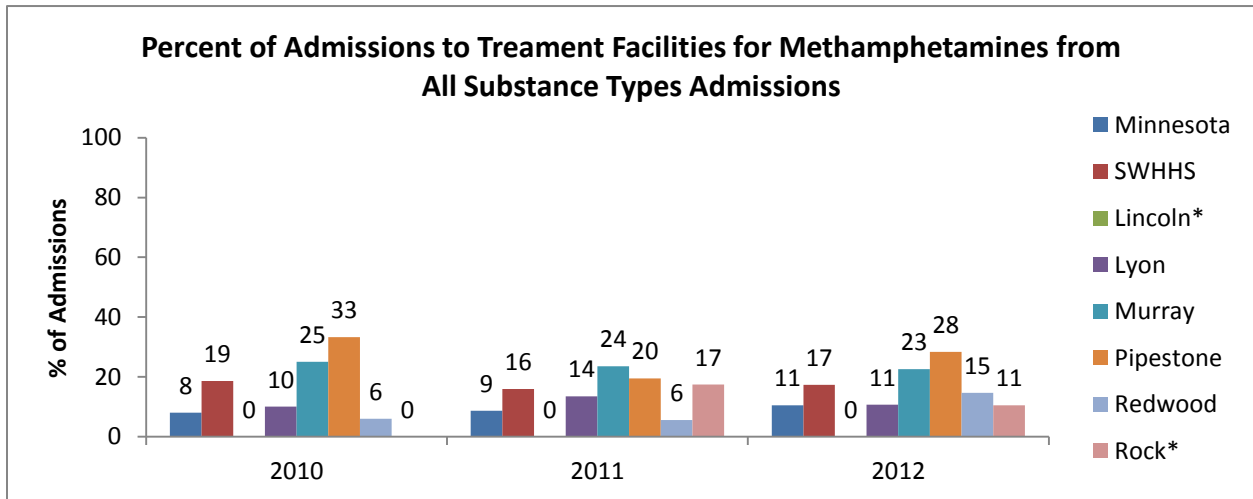


Source: Substance Use in Minnesota. (2014). (58)



* Indicates numbers are 5 or under so no percentage given in certain years

Source: Substance Use in Minnesota. (2014). (58)

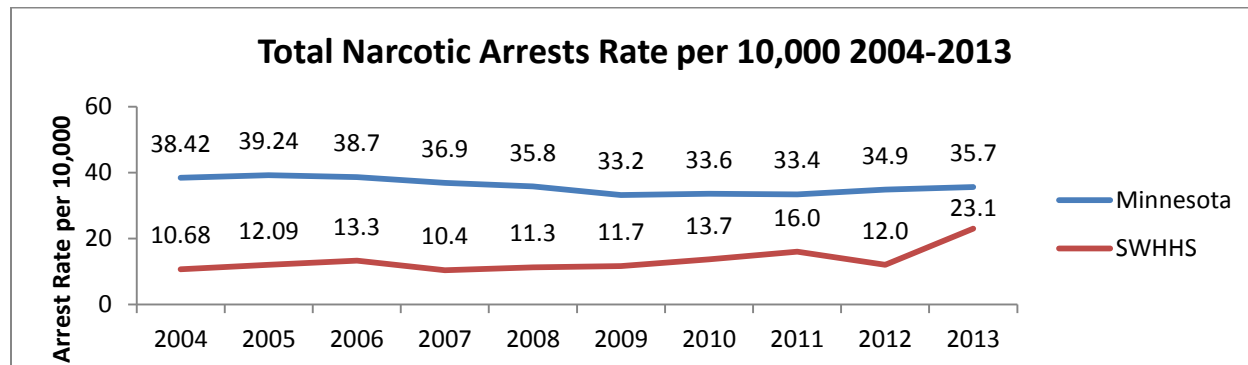


* Indicates numbers are 5 or under so no percentage given in certain years

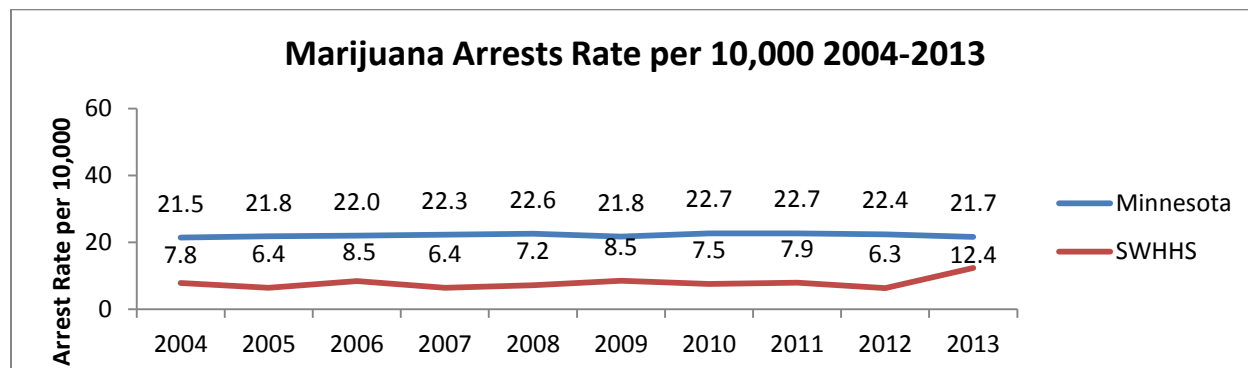
Source: Substance Use in Minnesota. (2014). (58)

Arrests per 10,000 individuals for narcotics in SWHHS counties are below the state rate by nearly half or more in most years. The top narcotic to be arrested for in the SWHHS counties and Minnesota is marijuana, followed by “other” (usually meth). From 2004 to 2013, overall narcotic arrests in the

SWHHS counties totaled between 85 and 175 arrests, with marijuana making up 56.7 percent of the arrests. (59)



* Reported as zero narcotic arrests in all reports from 2004-2013
 Source: Bureau of Criminal Apprehension. (2014). (59)

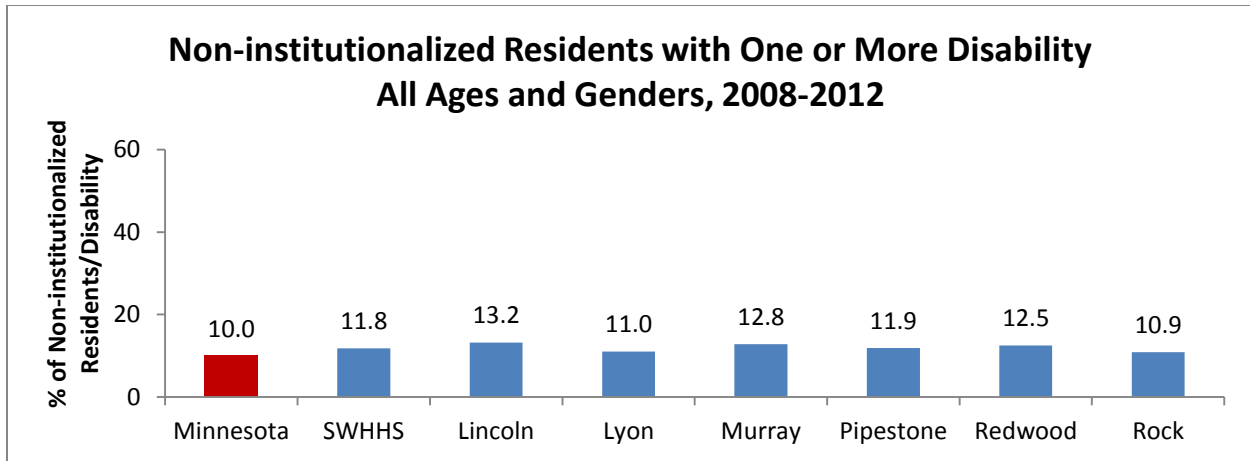


* Reported as zero narcotic arrests in all reports from 2004-2013
 Source: Bureau of Criminal Apprehension. (2014). (59)

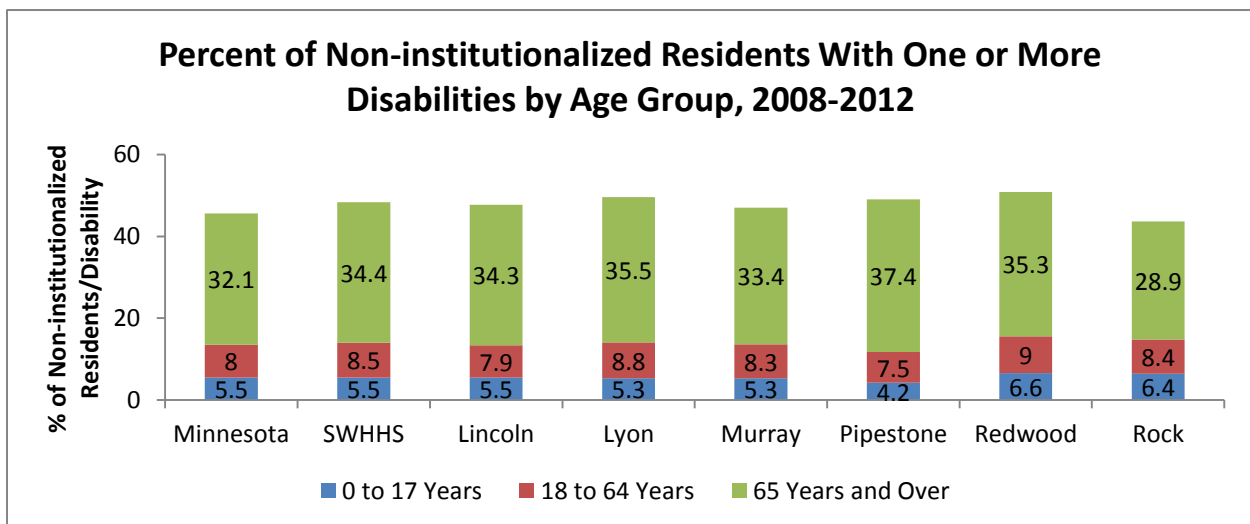
Preventing and Managing Chronic Conditions

Living with a Disability

Disabilities vary, from difficulty with hearing, vision, cognitive, ambulatory, self-care, and independent living, but disabilities do not automatically indicate poor health. Determining the number of people with disabilities can be a challenge as some organizations count disability difficulties differently from others. According to the 2008 – 2012 U. S. Census Bureau American Community Survey results, nearly 11.8 percent of SWHHS residents live with one or more disabilities. This is slightly higher than the State of Minnesota rate of 10.0 percent. The age group with the largest percent of disability is 65 years and over, with an average rate for the SWHHS counties of 34.4 percent. The smallest percent is children under 5 years, with an average rate of 1.1 percent of the population having a disability. (22)



Source: United States Census Bureau. (2014). (22)



Source: United States Census Bureau. (2014). (22)

Children with Special Health Care Needs

Children with special health care needs are defined as, “Those who have, or who are at increased risk for a chronic physical, developmental, behavioral, or emotional condition. They also require health and related services of a type or amount beyond that generally required.” (60) In Minnesota, this makes up about 14 percent of all children. (2)

Some of the most common conditions affecting children in Minnesota are allergies, asthma, anxiety, attention deficit hyperactivity disorder, conduct disorders, depression, and developmental delays. (61) It is unclear what percent of children in the SWHHS counties have special health care needs as this data is not collected at a county level. Special education enrollment is tracked at a school district and county level, which can give a glimpse at the size of the population since not every child that has a special health care need will qualify to be enrolled in special education during the IEP process. In the 2013-2014 school year, SWHHS counties saw 14.2 percent of their K-12 students enrolled in special education, which was slightly higher than Minnesota’s rate of 13.4 percent. This rate, which was 11.7 percent in the 2004-2005 school year, has steadily increased while overall K-12 enrollment numbers have dropped from 12,347 in 2004-2005 to 11,462 in 2013-2014 school year. It is unclear why more children are in

need of special education. One thought is with the emphasis on early intervention more children are being identified earlier. Another thought is children are, overall, healthier than past generations. (62)

K-12 Special Education Students Percent Enrolled

| | 2004-2005 | 2005-2006 | 2006-2007 | 2007-2008 | 2008-2009 | 2009-2010 | 2010-2011 | 2011-2012 | 2012-2013 | 2013-2014 |
|------------------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|
| Minnesota | 12.4 | 12.6 | 12.7 | 12.9 | 13.0 | 13.2 | 13.3 | 13.4 | 13.4 | 13.4 |
| SWHHS | 11.7 | 12.5 | 12.6 | 13.0 | 13.6 | 13.8 | 14.5 | 14.0 | 14.0 | 14.2 |
| Lincoln | 12.7 | 10.3 | 11.5 | 12.0 | 13.0 | 13.2 | 13.7 | 12.3 | 12.7 | 12.9 |
| Lyon | 11.7 | 11.7 | 11.9 | 12.1 | 12.9 | 13.6 | 15.1 | 15.1 | 15.0 | 15.7 |
| Murray | 11.1 | 14.8 | 13.9 | 15.0 | 15.8 | 16.6 | 16.4 | 15.5 | 15.2 | 13.5 |
| Pipestone | 11.4 | 12.5 | 13.0 | 13.5 | 14.1 | 15.0 | 13.5 | 13.7 | 12.6 | 13.4 |
| Redwood | 12.3 | 13.1 | 12.4 | 13.2 | 13.1 | 13.0 | 14.3 | 13.6 | 14.0 | 14.5 |
| Rock | 11.5 | 13.1 | 14.1 | 13.7 | 14.6 | 12.7 | 13.6 | 12.0 | 12.4 | 11.6 |

Source: Minnesota Department of Education. (2014). (62)

Cancer Screening

Cancer screening practices have shown to be effective in detecting cancer at earlier stages in the disease process. In 2010 the State of Minnesota screened for cancer at a higher rate than the United States average. (2)

Preventing Diabetes

There are a variety of risk factors like weight, smoking status, cholesterol and blood pressure levels that contribute to diabetes. Of these risk factors, 78 percent of individuals in Minnesota with pre-diabetes are overweight or obese, 42 percent have high blood pressure, 38 percent have high cholesterol, and 16 percent smoke. In order to prevent diabetes, people need to make healthy choices early on when it comes to types, quality, and quantity of food they eat and their physical activity levels. (2)

Similar to the State of Minnesota rate, SWHHS adults have experienced an increased diagnosis rate of diabetes. From 2004 to 2009, all SWHHS counties increased in diagnosis rates. At the same time, the range at which these rates increased (in comparison with the state average) was from .5 to 1.3 percentage points.

Age-Adjusted Estimates of the Percentage of Adults† with Diagnosed Diabetes

| | 2004 | 2005 | 2006 | 2007 | 2008 | 2009 |
|------------------|------|------|------|------|------|------|
| Minnesota | 5.4 | 5.5 | 5.6 | 5.6 | 5.8 | 6.1 |
| Lincoln | 5.6 | 5.7 | 5.9 | 6.1 | 6.4 | 6.6 |
| Lyon | 5.6 | 5.8 | 6.1 | 6.3 | 6.4 | 7.1 |
| Murray | 5.7 | 6.0 | 6.0 | 6.2 | 6.4 | 7.0 |
| Pipestone | 5.8 | 5.9 | 5.9 | 6.2 | 6.6 | 7.4 |
| Redwood | 5.8 | 5.9 | 6.1 | 6.2 | 6.6 | 6.9 |
| Rock | 5.9 | 6.1 | 6.1 | 6.2 | 6.5 | 6.7 |

† ≥ 20 years old. See glossary for definition of indicator.

Source: Centers for Disease Control and Prevention: National Diabetes Surveillance System. (2014). (63)

Oral Health

Good oral health is important to a person's overall health. Poor oral health can lead to cavities, gum disease, and potentially tooth loss. Gum disease has been linked to other chronic conditions such as endocarditis, cardiovascular disease, low birth weight, and premature death. Many diseases can, in turn, affect oral health like diabetes, immune system disorders, and osteoporosis. These diseases can cause tooth loss and bone and gum infections which can impact a person's self-esteem, increase the use of sick-time, and reduce employment opportunities. (2)

Dental providers are hard to come by in the SWHHS counties and this region has been designated as a dental provider shortage area by Minnesota Department of Health. Those providers that are providing services to SWHHS residents are not required by law to provide services to people with Medical Assistance, which covers dental services. Anecdotally, many dental providers who choose not to cover these patients claim that Medical Assistance reimbursement rates do not cover their costs to provide the care needed. As a result, many Medical Assistance clients either go without care or end up traveling to the metro area for treatment. A phone survey conducted by SWHHS staff in August 2014 found that only four providers are taking new Medical Assistance clients and 9 out of 24 dental providers are continuing to see Medical Assistance clients. (64)

Children with Medical Assistance are tracked through the Child and Teen Check-up (C&TC) program. In the 2012-2013 timeframe, only 31.6 percent of C&TC children in the SWHHS counties received any dental services, which was 8.7 percentage points lower than the state rate of 40.3 percent. (65)

Percent of Dental Services for Children Through Child & Teen Check-up Program For the period of 10/01/2012 through 09/30/2013

| | Lincoln | Lyon | Murray | Pipestone | Redwood | Rock | SWHHS | MN |
|---|---------|------|--------|-----------|---------|------|-------|------|
| Total Receiving Any Dental Services | 31.6 | 34.0 | 38.2 | 25.3 | 32.1 | 26.2 | 31.6 | 40.3 |
| Total Receiving Preventive Dental Services | 28.6 | 30.1 | 35.3 | 22.9 | 27.5 | 22.9 | 28.0 | 36.1 |
| Total Receiving Dental Treatment Services | 10.2 | 16.5 | 16.5 | 10.7 | 16.2 | 12.1 | 14.6 | 16.9 |
| Total Receiving Sealant on a Permanent Molar | 5.8 | 5.5 | 9.2 | 5.7 | 3.9 | 5.2 | 5.5 | 5.5 |
| Total Receiving Diagnostic Dental Services | 30.6 | 32.0 | 36.7 | 22.9 | 28.8 | 24.2 | 29.3 | 37.1 |
| Total Rec Oral Health Services by Non-Dentist | 8.0 | 9.6 | 8.5 | 15.0 | 6.0 | 12.5 | 9.8 | 5.5 |
| Total Receiving any Dental/Oral Health Service | 37.6 | 41.2 | 45.2 | 38.3 | 36.5 | 35.8 | 39.3 | 43.6 |

Source: Minnesota Department of Human Service. Child and Teen Check-up Program. (2014). (65)

Preventing Disease and Injury

Immunizations

Immunizations that one person receives protect the community as a whole. They also protect those who are unable to be immunized, like children that are too young, those with medical conditions that cannot be immunized, or those that have not developed immunity.

In 2013, SWHHS counties' immunization rates, ranging from 76.4 to 88 percent, were higher than the state average of 62.9 percent. SWHHS counties have had consistently higher immunizations rates than the State of Minnesota. (66)

Percent of Children 24-35 Months with Recommended Immunizations (series)*

| | 2010 | 2011 | 2012 | 2013 |
|------------------|------|------|------|------|
| Minnesota | 43.5 | 55.7 | 62.3 | 62.9 |
| SWHHS | 58.2 | 69.8 | 84.0 | 82.1 |
| Lincoln | 58.2 | 67.7 | 92 | 82.4 |
| Lyon | 57.3 | 73.7 | 78.8 | 88.0 |
| Murray | 51.0 | 67.0 | 79.3 | 80.5 |
| Pipestone | 61.3 | 63.4 | 83.7 | 78.6 |
| Redwood | 61.3 | 80.1 | 82.5 | 86.5 |
| Rock | 60.2 | 66.7 | 87.9 | 76.4 |

*Recommended # of doses by 19 months Series of recommended vaccines for children between 24 and 35 months old: 4+ DTaP (Diphtheria, tetanus and acellular pertussis), 3+ polio, 1+ MMR (Measles, mumps and rubella), Completed Hib (Haemophilus influenza type b), 3+ Hep B (Hepatitis B), 1+ varicella (chickenpox), Completed Prevnar (Pneumococcal conjugate vaccine by brand name).

Source: Minnesota Public Health Data Access. Childhood Immunization Data. MIIC. (2014). (66)

Preventing Sexually Transmitted Infections

Delay of Sexual Activity

Delaying sexual activity is one important tool in preventing the spread of sexually transmitted infections and decreasing the teen birth rate. In 2013, SWHHS 9th and 11th grade students, on average, had a higher percent of ever having had sexual intercourse than the State of Minnesota by three percentage points in 9th grade students and seven percentage points in 11th grade students. (42)

Percent of 9th Graders Who Have Ever Had Sexual Intercourse

| State/CHB/County | 1998 | 2001 | 2004 | 2007 | 2010 |
|------------------|------|------|------|------|------|
| Minnesota | 23 | 19 | 19 | 19 | 20 |
| SWHHS | 23 | 22 | 18 | 18 | 15 |
| Lincoln | 21 | 16 | 14 | 24 | 13 |
| Lyon | 21 | 22 | 18 | 14 | 13 |
| Murray | 31 | 19 | 15 | 31 | 17 |
| Pipestone | 20 | 32 | 21 | 18 | 18 |
| Redwood | 18 | 13 | 10 | 16 | 24 |
| Rock | 26 | 17 | 24 | 14 | 20 |

Source: Minnesota Department of Health. Minnesota Student Survey. (2014). (42)

Percent of 12th Graders Who Have Ever Had Sexual Intercourse

| State/CHB/County | 1998 | 2001 | 2004 | 2007 | 2010 |
|------------------|------|------|------|------|------|
| Minnesota | 50 | 49 | 48 | 49 | 51 |
| SWHHS | 50 | 57 | 50 | 51 | 48 |
| Lincoln | 53 | 57 | 51 | 64 | 69 |
| Lyon | 48 | 56 | 47 | 50 | 39 |
| Murray | 59 | 57 | 62 | 53 | 65 |
| Pipestone | 54 | 64 | 57 | 49 | 51 |
| Redwood | 56 | 45 | 42 | 52 | 45 |
| Rock | 30 | -- | 35 | 42 | 45 |

Source: Minnesota Department of Health. Minnesota Student Survey. (2014). (42)

Vaccination

Human papillomavirus (HPV) is the most common sexually transmitted infection, accounting for nearly all of the 12,000 cervical cancer occurrences each year in the United States. Sexually active males and females are at high risk of contracting the infection with nearly half contracting HPV at some point in their lives. HPV is a vaccine preventable infection, with two vaccines on the market for females and one for males. Vaccination is recommended for females age 11 and 12 years old, and for those that missed the first vaccination window, is recommended for 13 through 26 year olds, while males are recommended to receive the vaccine between 9 through 26 years of age. (2)

Unfortunately, stigma around giving a child a vaccine to prevent a sexually transmitted infection prevents many parents from giving this vaccination. If the parents are counting on abstinence from sexual intercourse as a safeguard, they may want to consider all types of sexual experimentation. During a study of young women ages 13 to 21 years old, those that were considered to be sexually inexperienced, 11.6 percent had contracted HPV through hand-genital or genital-skin contact. (67)

In July 2014, SWHHS counties with a 53.2 percent rate on average ranked higher than the State of Minnesota with 45.5 percent rate for percent of HPV series completion rates. (68)

MIIC July 2014 Adolescent HPV Immunization Coverage in Minnesota, by County Percent of Adolescents Age 13-17 Years Up to Date with a Vaccine Series and Individual Vaccines

| | 2012 Population Estimate | MIIC Population* | MIIC Population with 2+ Non-Influenza Shots | Percent with 1+ HPV | Percent with 3+ HPV | Percent with HPV Series Completion |
|-----------|--------------------------|------------------|---|---------------------|---------------------|------------------------------------|
| Minnesota | 354,757 | 409,374 | 377,889 | 35.8 | 16.3 | 45.5 |
| Lincoln | 336 | 327 | 307 | 28.1 | 16.5 | 58.7 |
| Lyon | 1,655 | 2,054 | 1,941 | 44.7 | 26 | 58.2 |
| Murray | 559 | 494 | 473 | 27.5 | 13 | 47.1 |
| Pipestone | 640 | 584 | 557 | 14.6 | 8.7 | 60 |
| Redwood | 1,072 | 1,081 | 1,046 | 36.2 | 17.9 | 49.6 |
| Rock | 682 | 590 | 564 | 29.5 | 13.4 | 45.4 |

Source: Minnesota Department of Health. MDH Immunization Program. Southwest Minnesota Immunization Information Connection. (2014). (68)

Condom Use

Condom use is another effective way to prevent sexually transmitted infection. When condoms are used with another method of birth control like birth control pills, pregnancy prevention increases.

According to 12 years of Minnesota Student Survey data, condom use across the SWHHS student population increased in sexually active 9th grade students, from 45 percent in 1998 to 65 percent in 2010. 12th grade students did not maintain the use that had started in 9th grade, but increased use from 41 percent in 1998 to 50 percent in 2010. When data of the same class was compared (1998 9th grade students to 2001 12th grade students), there was a decrease in condom use as the students got older. This was true for each student grouping across the survey years. In general, condom use rates from SWHHS counties were below state averages until 2007 for 9th grade students and 2010 for 12th grade students. (42)

Among Sexually Active Students, Percent of 9th Graders Reporting Always Using a Condom

| State/CHB/County | 1998 | 2001 | 2004 | 2007 | 2010 |
|------------------|------|------|------|------|------|
| Minnesota | 52 | 59 | 58 | 59 | 56 |
| SWHHS | 45 | 56 | 53 | 63 | 65 |
| Lincoln | 46 | 63 | 50 | 78 | 67 |
| Lyon | 49 | 49 | 58 | 71 | 62 |
| Murray | 42 | 65 | 67 | 56 | 57 |
| Pipestone | 42 | 66 | 47 | 37 | 50 |
| Redwood | 52 | 61 | 54 | 65 | 44 |
| Rock | 41 | 47 | 37 | 67 | 85 |

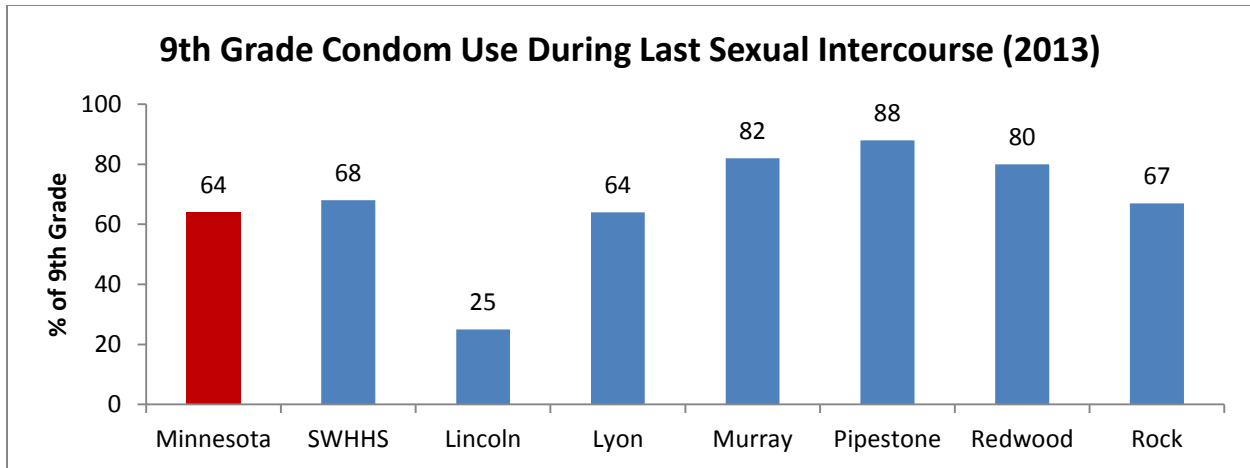
Source: Minnesota Department of Health. Minnesota Student Survey. (2014). (42)

Percent of 12th Graders Reporting Always Using a Condom

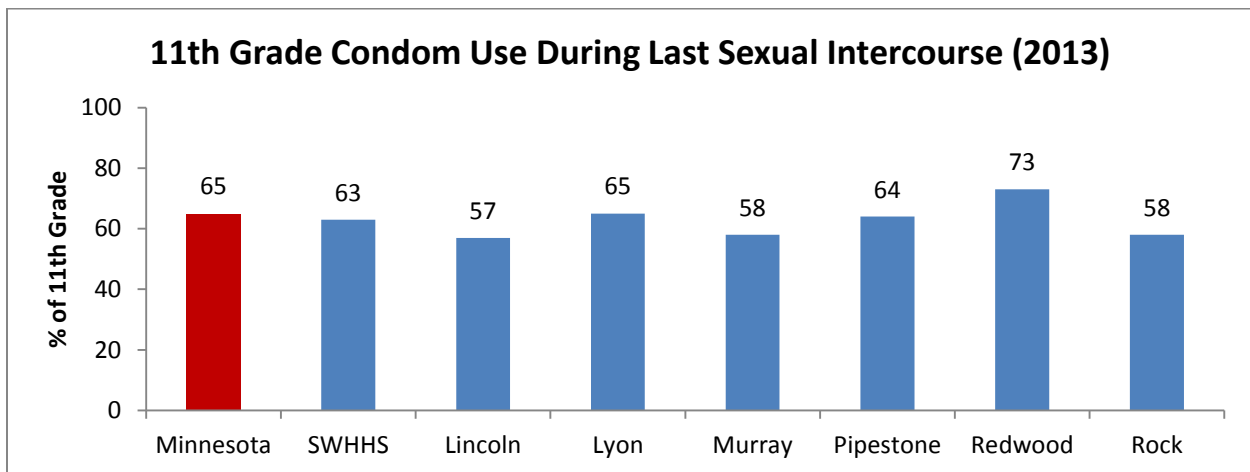
| State/CHB/County | 1998 | 2001 | 2004 | 2007 | 2010 |
|------------------|------|------|------|------|------|
| Minnesota | 40 | 43 | 46 | 47 | 45 |
| SWHHS | 41 | 42 | 44 | 43 | 50 |
| Lincoln | 57 | 29 | 47 | 42 | 49 |
| Lyon | 41 | 46 | 52 | 39 | 47 |
| Murray | 31 | 43 | 27 | 36 | 29 |
| Pipestone | 48 | 75 | 63 | 75 | 60 |
| Redwood | 34 | 57 | 42 | 50 | 23 |
| Rock | 50 | -- | 38 | 54 | 65 |

Source: Minnesota Department of Health. Minnesota Student Survey. (2014). (42)

In 2013, the Minnesota Student Survey changed the survey question from “always uses a condom” to “use a condom during last sexual intercourse.” SWHHS 9th grade students were above the State of Minnesota average of 64 percent, while 11th grade students were below the state average of 65 percent. (42)



Source: Minnesota Department of Health. Minnesota Student Survey. (2014). (42)



Source: Minnesota Department of Health. Minnesota Student Survey. (2014). (42)

Safety Belts, Car Seats and Booster Seats

The best way to reduce injuries and death in a motor vehicle crash is by using safety belts and car seats. In 2009, Minnesota adopted the Primary Seat Belt Law, which has increased the rate of seat belt use in the state to its highest level ever of 94 percent in 2012. Young males that drive pickup trucks tend to be less likely to use a safety belt than the rest of the population. (69)

Federally approved car seats and booster seats have been required by Minnesota State Law since July 2009 to be used by children that are age 7 and under unless the child is 4'9" or taller. In a 2011 survey conducted by the Minnesota Department of Public Safety, 27 percent of children were in a booster seat when the driver did not wear a safety belt and only half of young caregivers ages 16-29 years used booster seats for children riding with them. (69)

From 2008 to 2012, there were 4,393 crashes across the SWHHS counties with a total of 65 deaths. Unbelted deaths, on average, made up 32.3 percent of all motor vehicle deaths. Overall crashes that resulted in death occurred in 1.5 percent of crashes in SWHHS counties, which is higher than the State of Minnesota average of 0.6 percent. (70)

2008-2012 Minnesota Crash Statistics by County, Unbelted Deaths

| | Crashes | All Deaths | Unbelted Motor Vehicle Occupant Deaths | Percent of Deaths that were Unbelted | Percent of Crashes the Resulted in Death |
|------------------|---------|------------|--|--------------------------------------|--|
| Minnesota | 368,014 | 2,050 | 642 | 31.3% | 0.6% |
| SWHHS | 4,393 | 65 | 21 | 32.3% | 1.5% |
| Lincoln | 402 | 5 | 2 | 40.0% | 1.2% |
| Lyon | 1,616 | 14 | 3 | 21.4% | 0.9% |
| Murray | 414 | 4 | 3 | 75.0% | 1.0% |
| Pipestone | 453 | 9 | 2 | 22.2% | 2.0% |
| Redwood | 743 | 18 | 4 | 22.2% | 2.4% |
| Rock | 765 | 15 | 7 | 46.7% | 2.0% |

Source: Minnesota Department of Public Safety. (2014). (70)

From 2008 to 2012, alcohol-related crash deaths across the SWHHS counties were at 23.1 percent, which was, on average, below the Minnesota average of 31.3 percent. (70)

2008-2012 Minnesota Crash Statistics by County, Alcohol Related Deaths

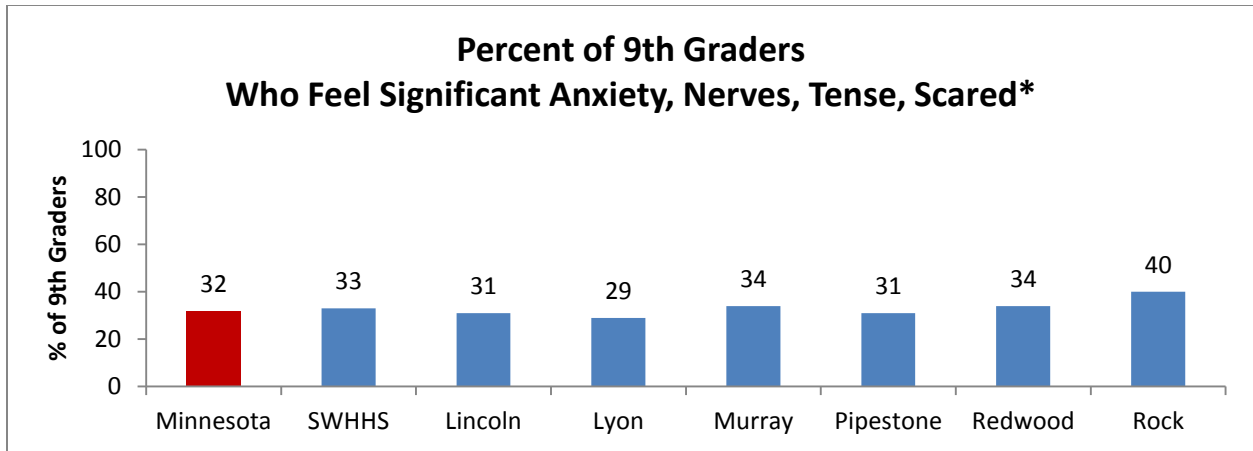
| | Crashes | All Deaths | Alcohol Related Deaths | Percent of Deaths that were Alcohol Related | Percent of Crashes the Resulted in Death | DWI's |
|------------------|---------|------------|------------------------|---|--|---------|
| Minnesota | 368,014 | 2,050 | 642 | 31.3% | 0.6% | 156,933 |
| SWHHS | 4,393 | 65 | 15 | 23.1% | 1.5% | 2,071 |
| Lincoln | 402 | 5 | 2 | 40.0% | 1.2% | 125 |
| Lyon | 1,616 | 14 | 3 | 21.4% | 0.9% | 845 |
| Murray | 414 | 4 | 3 | 75.0% | 1.0% | 127 |
| Pipestone | 453 | 9 | 2 | 22.2% | 2.0% | 234 |
| Redwood | 743 | 18 | 4 | 22.2% | 2.4% | 552 |
| Rock | 765 | 15 | 1 | 6.7% | 2.0% | 188 |

Source: Minnesota Department of Public Safety. (2014). (70)

Promoting Mental Health

Everyday functioning can be affected by mental and emotional health from relationships, physical activity, and the ability to work. Physical and medical conditions can also affect one's mental and emotional health. As people struggle with pain management, depression can become an issue. Depression is reported present in more than 65 percent of adults with a medical disorder. (2)

Poor mental health can also strike young adults. In the 2013 Minnesota Student Survey, many SWHHS 9th graders reported anxiety, nervousness, tenseness, being scared, or panicked feelings during the last 12 months. One third (or higher) of students reported those feelings when asked through the survey. (42)

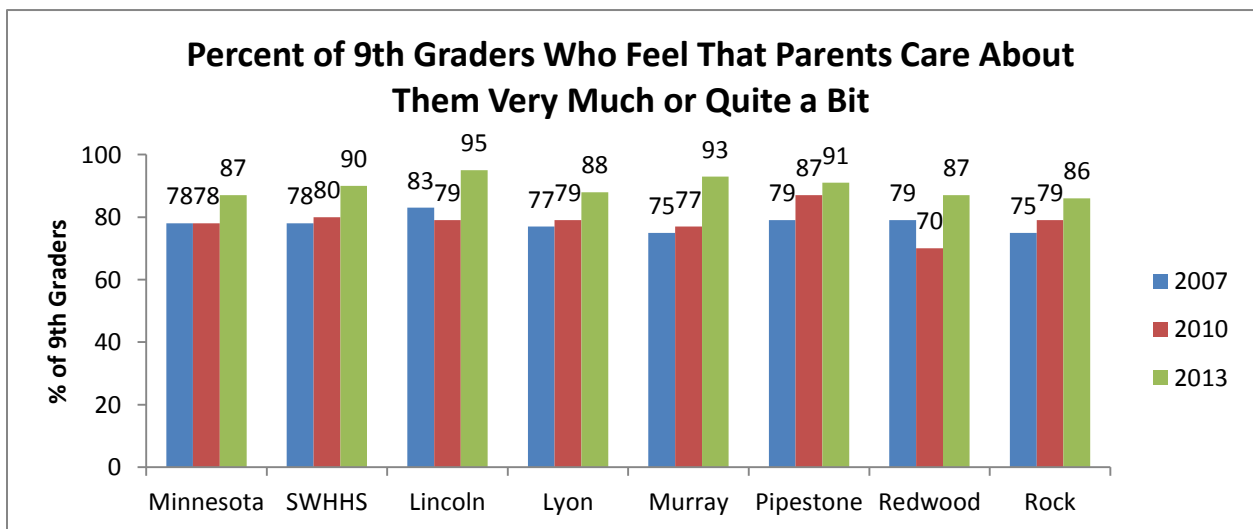


*During the last 12 months, have you had significant problems with feeling very anxious, nervous, tense, scared, panicked or like something bad was going to happen?

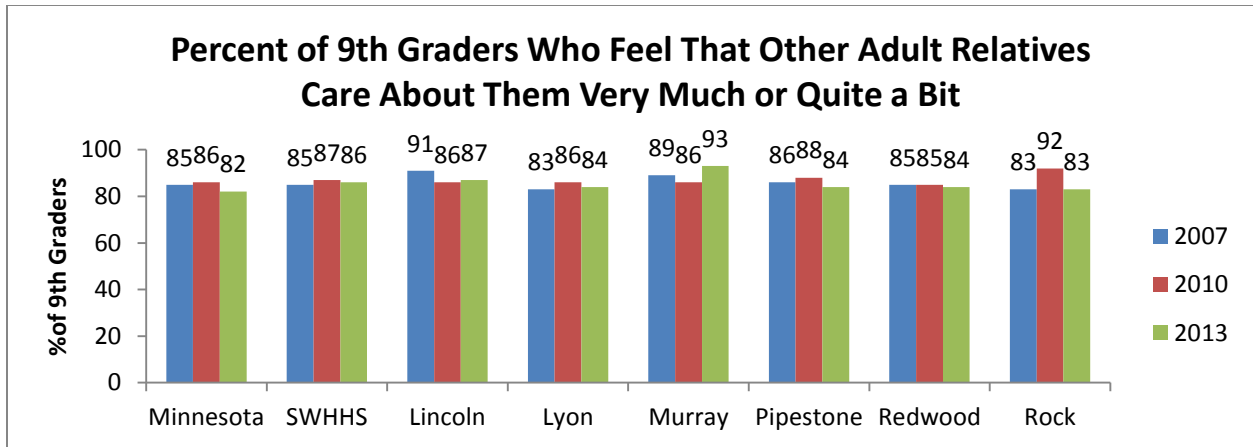
Source: Minnesota Department of Health. Minnesota Student Survey. (2014). (42)

Development, making sound decisions, and learning can be affected when adolescents experience emotional distress. Some of the decisions that are made under emotional distress can lead adolescents to extreme behaviors like “cutting” and other forms of self-harm, along with an increase in suicide. (2)

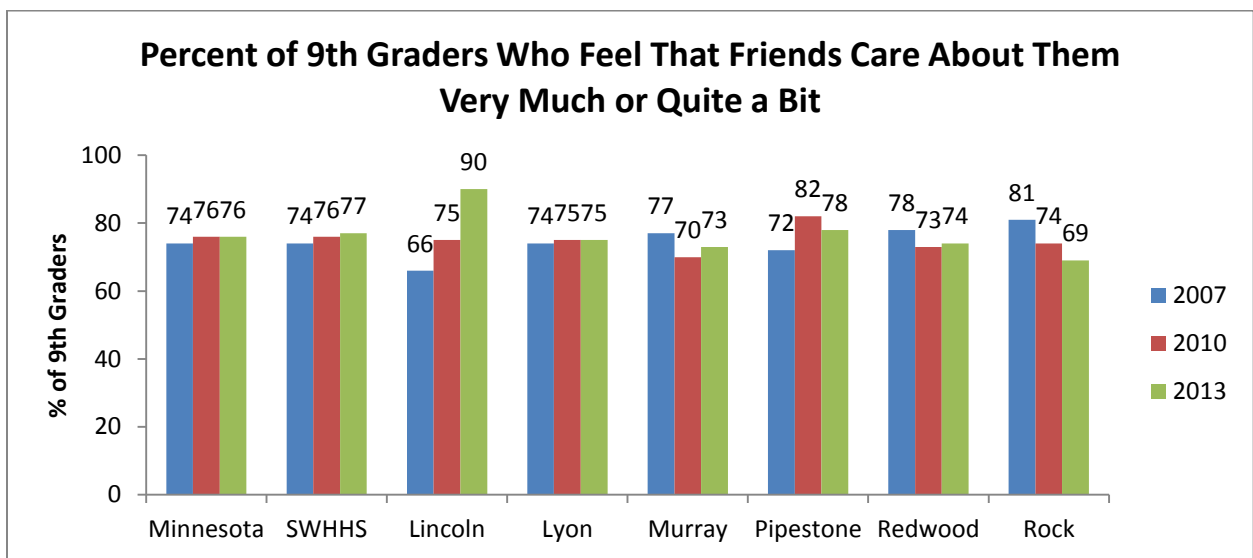
Adolescents that have at least one caring adult around them are much more likely to be better equipped to handle the emotional challenges of being an adolescent. (2) Since 1998, 9th grade SWHHS students have increasingly felt that their parents care about them. Perceptions of the caring of other adult relatives and friends have also increased over these same years. (42) Caring friendships are also a protective factor for increased adolescent emotional wellbeing. (2)



Source: Minnesota Department of Health. Minnesota Student Survey. (2014). (42)

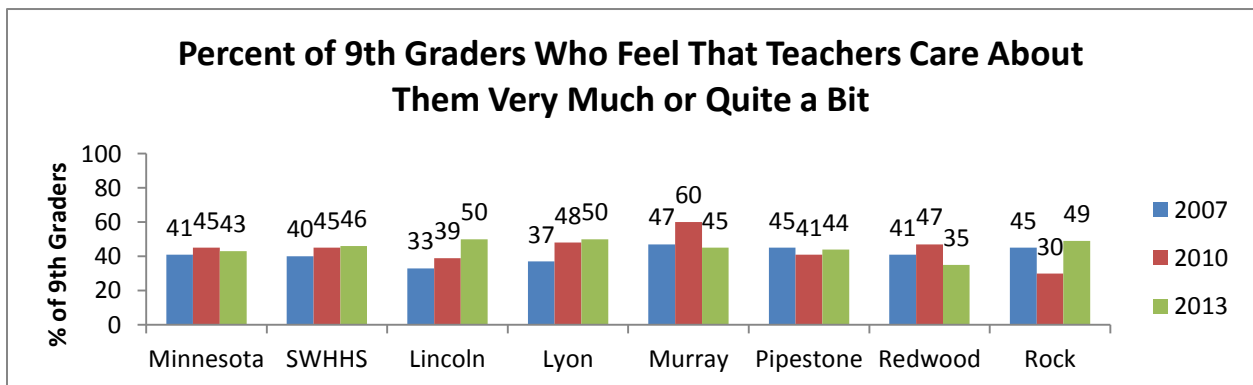


Source: Minnesota Department of Health. Minnesota Student Survey. (2014). (42)

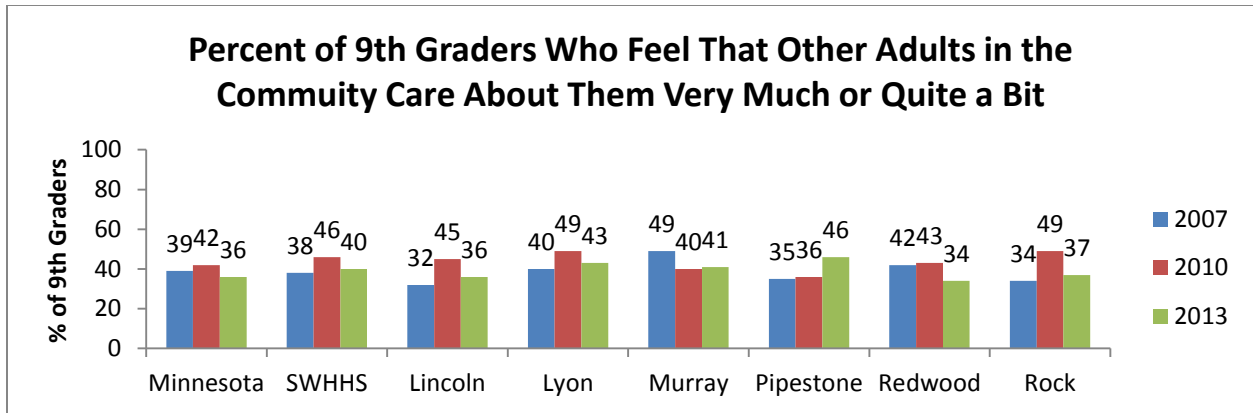


Source: Minnesota Department of Health. Minnesota Student Survey. (2014). (42)

On average, SWHHS 9th grade students have felt teachers increasingly care about them very much or quite a bit (31 percent to 46 percent). This is relatively consistent with what other 9th grade students across Minnesota have felt. (42)



Source: Minnesota Department of Health. Minnesota Student Survey. (2014). (42)



Source: Minnesota Department of Health. Minnesota Student Survey. (2014). (42)

Health Outcomes

Leading Causes of Death

In 2011, the leading causes of death across the SWHHS counties were heart disease, cancer, chronic lower respiratory disease, stroke, and Alzheimer's disease. That same year, the State of Minnesota saw cancer, heart disease, unintentional injury, chronic lower respiratory disease, and stroke as the overall leading causes of death. Mortality from heart disease and cancer are very close in rankings in the southwest region of Minnesota. (21)

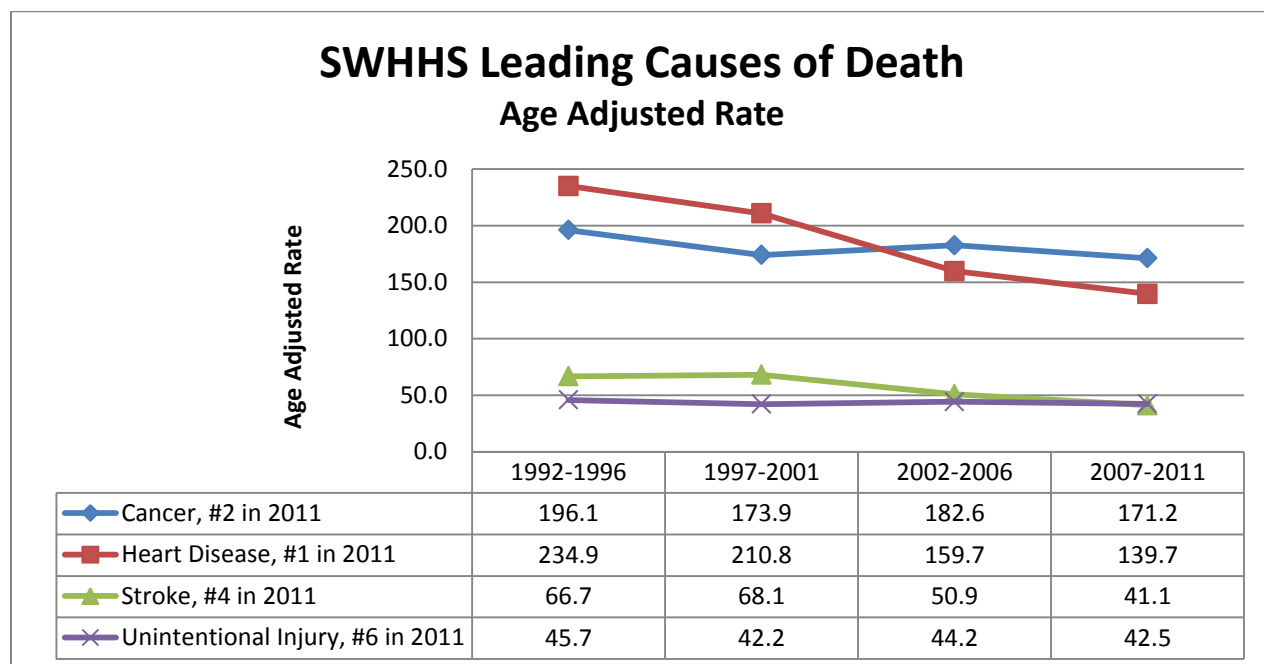
Minnesota and SWHHS's 15 Leading Causes of Death by Age Group by State and County, 2011

| Cause | Minnesota | | SWHHS | | Lincoln | Lyon | Murray | Pipestone | Redwood | Rock |
|---------------------------------|-----------|--------|-------|--------|---------|------|--------|-----------|---------|------|
| | Rank | Number | Rank | Number | Rank | Rank | Rank | Rank | Rank | Rank |
| Alzheimer's Disease | 6 | 1449 | 5 | 44 | 3 | 10 | 4 | 3 | 6 | 3 |
| Cancer | 1 | 9468 | 2 | 176 | 2 | 1 | 2 | 1 | 2 | 2 |
| Chronic lower respiratory dis. | 4 | 2174 | 3 | 53 | 6 | 3 | 3 | 4 | 3 | 4 |
| Cirrhosis | 13 | 436 | 13 | 6 | 8 | 10 | 13 | 12 | 10 | 10 |
| Diabetes | 7 | 1179 | 7 | 26 | 4 | 6 | 7 | 6 | 10 | 7 |
| Heart Disease | 2 | 7234 | 1 | 178 | 1 | 2 | 1 | 2 | 1 | 1 |
| Hypertension | 11 | 489 | 15 | 2 | 13 | 13 | 13 | 12 | 13 | 13 |
| Nephritis | 8 | 708 | 8 | 14 | 8 | 8 | 11 | 10 | 6 | 13 |
| Parkinsons | 12 | 475 | 8 | 14 | 13 | 13 | 7 | 7 | 8 | 8 |
| Pneumonia and Influenza | 10 | 669 | 12 | 10 | 8 | 13 | 13 | 11 | 8 | 9 |
| Pneumonitis due to solids/liqui | 15 | 321 | 10 | 11 | 8 | 8 | 11 | 7 | 13 | 10 |
| Septicemia | 14 | 338 | 14 | 4 | 13 | 10 | 7 | 12 | 15 | 13 |
| Stroke | 5 | 2145 | 4 | 47 | 4 | 4 | 6 | 4 | 4 | 5 |
| Suicide | 9 | 684 | 10 | 11 | 8 | 7 | 7 | 12 | 10 | 10 |
| Unintentional Injury | 3 | 2309 | 6 | 36 | 6 | 5 | 5 | 7 | 5 | 6 |

These are the 15 leading causes of death for Minnesota in 2011, the causes may change from year to year and are not necessarily the 15 leading causes of death for each county or CHB.

Source: Minnesota Department of Health, Center for Health Statistics. (2014). (21)

Since 1992, death from heart disease and stroke has trended downward across the SWHHS counties with the exception of cancer, which has fluctuated a bit over the years, and unintentional injury, which is relatively stable. These are very similar trends that are also seen at the state level. (21)



Source: Minnesota Department of Health, Center for Health Statistics. (2014). (21)

Chronic Disease Conditions

Chronic disease conditions are long-term illnesses that impact quality of life and contribute to lasting disability. These conditions are the leading cause of death and are contributors to premature death in the SWHHS counties and Minnesota.

Alzheimer’s Disease

About 94,000 Minnesotans are estimated to have Alzheimer’s disease, which is the most common cause of dementia among older adults. Generally, Alzheimer disease risk increases at a dramatic rate after age 65, with it doubling every five years beyond age 65. It is much less common for adults that are younger than age 65 to develop the disease. (71)

In 2011, Alzheimer’s disease was the sixth leading cause of death across the SWHHS counties. Lincoln, Pipestone, and Rock Counties had Alzheimer’s disease as their third leading cause of death for residents, while Redwood County listed it as sixth; Lyon County listed it as tenth. (21) Rankings reflect the demographics of the SWHHS counties as the counties with a faster growing elderly population have a higher diagnosis rate of Alzheimer’s disease. As population shifts with the aging baby boom population to more and more over 65, the leading cause of death rankings are expected to increase.

Arthritis

Over 100 medical conditions affecting the musculoskeletal system are considered to be in the arthritis family of disease. Arthritis conditions affect the joints and are a major cause of disability in Minnesota and the United States. Among the causes of work limitation, arthritis is ranked third. Because work is limited, income also becomes limited. (71) A 2003 survey of both SWHHS-county and Minnesota residents showed that 42 percent of the adult population was estimated to have an activity limitation due to arthritis. (72)

Estimated Number and Percent of Adults With Activity Limitations Due to Arthritis in Minnesota by County, 2003

| | N | Percent Among All Adults | Percent Among Adults With Arthritis |
|------------------|--------|--------------------------|-------------------------------------|
| MN | 397000 | 11% | 42% |
| Lincoln | 600 | 14% | 42% |
| Lyon | 2000 | 11% | 41% |
| Murray | 900 | 13% | 42% |
| Pipestone | 900 | 13% | 42% |
| Redwood | 1100 | 13% | 42% |
| Rock | 900 | 13% | 42% |

Source: Minnesota Department of Health. Minnesota Arthritis Program. (2014). (72)

In addition, 2003 data showed SWHHS adults with a higher rate of physician-diagnosed arthritis than the state. (72)

Estimated Number and Percentage of Adults with Physician-Diagnosed Arthritis in Minnesota by County 2003 Behavior Risk Factor Surveillance System

| County | N | % |
|------------------|--------|-----|
| MN | 955000 | 26% |
| Lincoln | 1500 | 33% |
| Lyon | 4800 | 27% |
| Murray | 2200 | 31% |
| Pipestone | 2200 | 31% |
| Redwood | 3700 | 31% |
| Rock | 2200 | 31% |

Source: Minnesota Department of Health. Minnesota Arthritis Program. (2014). (72)

Asthma

In Minnesota, asthma affects nearly 392,000 residents with 90,000 of those residents being children. Prevention is key to managing asthma and keeping those with the disease out of the emergency room and hospital. When a person with asthma manages their triggers (secondhand smoke, mold, air pollution, pollen, dust mites, stress and viral infections), uses medication, and continually monitors their disease appropriately, hospitalizations, and emergency room visits go down. The main barriers to regular asthma care are lack of health insurance and poor patient education. (71)

Asthma hospitalization rates per 10,000 for the SWHHS counties were higher than the state average for the time-frame of 2006-2011. In contrast, asthma emergency department visits were lower than the state average. (73)

Asthma Hospitalizations Rate (per 10,000)

| | 2006-2008 | 2009-2011 |
|------------------|-----------|-----------|
| Minnesota | 8.4 | 6.9 |
| Lincoln | 24.9 | 15.0 (UR) |
| Lyon | 7.2 | 8.3 |
| Murray | 13 | 11.5 (UR) |
| Pipestone | 14.4 | 10.8 (UR) |
| Redwood | 12.1 | 9.7 |
| Rock | 11.1 (UR) | 15.6 (UR) |

* To protect an individual's privacy hospitalizations and ED visit counts from 1 to 5 are suppressed if the underlying population is less than or equal to 100,000.

UR = Unstable Rate. Rates based on numerators less than or equal to 20 may be unstable and should be interpreted with caution.

Source: Minnesota Department of Health. Minnesota Public Health Data Access. (2014). (73)

Asthma Emergency Department Visits Rate (per 10,000)

| | 2006-2008 | 2009-2011 |
|------------------|-----------|-----------|
| Minnesota | 38.2 | 38.7 |
| Lincoln | 33.1 | 22.8 |
| Lyon | 20.2 | 24.6 |
| Murray | 33.9 | 25 |
| Pipestone | 24 | 14.6 |
| Redwood | 20.5 | 27.1 |
| Rock | 20.8 | 20.4 |

* To protect an individual's privacy hospitalizations and ED visit counts from 1 to 5 are suppressed if the underlying population is less than or equal to 100,000.

UR = Unstable Rate. Rates based on numerators less than or equal to 20 may be unstable and should be interpreted with caution.

Source: Minnesota Department of Health. Minnesota Public Health Data Access. (2014). (73)

According to the 2010 Wilder Research Survey, 9.4 percent of SWHHS adults were reported to have asthma, which was lower than the overall 19-county region at 11.3 percent. Of those that reported a health professional asthma diagnosis, 64.3 percent reported still having asthma. (52)

Have You Ever Been Told by a Doctor, Nurse, or Other Health Professional That You Have Had Any of the Following? Asthma

| | Overall | 18-34 | 35-44 | 45-54 | 55-64 | 65-74 | 75+ |
|-------------------------|---------|-------|-------|-------|-------|-------|-------|
| 19 County Region | 11.3% | - | - | - | - | - | - |
| SWHHS (5 co) | 9.4% | 10.9% | 9.0% | 5.7% | 10.2% | 6.8% | 14.0% |
| Lincoln | 4.4% | 0.0% | 1.2% | 3.1% | 9.0% | 5.5% | 9.7% |
| Lyon | 12.9% | 16.0% | 20.2% | 8.6% | 8.4% | 7.0% | 13.7% |
| Murray | 10.6% | 19.4% | 13.4% | 5.4% | 5.5% | 5.6% | 14.0% |
| Pipestone | 9.5% | 9.9% | 7.9% | 5.0% | 9.3% | 8.3% | 18.3% |
| Redwood | 9.6% | 9.0% | 2.4% | 6.5% | 18.8% | 7.6% | 14.5% |
| Rock | * | * | * | * | * | * | * |

* Rock did not participate in 2010 Southwest/South Central Adult Health Survey

- Information for 19 County Region not available

Source: Amherst H. Wilder Foundation. 2010 Wilder Research Study. (2014). (52)

(Of those who answered “yes” to the question above) Do You Still Have Asthma?

| | Overall |
|-------------------------|---------|
| 19 County Region | 64.9% |
| SWHHS (5 co) | 64.3% |
| Lincoln | 70.9% |
| Lyon | 62.4% |
| Murray | 54.6% |
| Pipestone | 59.2% |
| Redwood | 74.3% |
| Rock | * |

* Rock did not participate in 2010 Southwest/South Central Adult Health Survey

Source: Amherst H. Wilder Foundation. 2010 Wilder Research Study. (2014). (52)

Cancer

Cancer is the second leading cause of death in the SWHHS counties and the leading cause of death in Minnesota. The most commonly diagnosed forms of cancer in the SWHHS counties are prostate, female breast, colon and rectum, and lung and bronchus, while these same forms also cause the most cancer deaths. Older age increases the likelihood that a person will develop cancer with 50 percent of males and 40 percent of females in Minnesota develop a potentially serious form of cancer in their lifetime. (71)

The two leading risk factors for cancer are smoking and obesity. People living in poverty are much more likely to smoke, be obese, and live in an unhealthy environment. Because access to cancer screening is limited in impoverished populations, cancer, when found, generally is found at later stages of the illness. Treatment options tend to be much more limited at the later the stage of the illness which creates a higher potential for death. (71)

Average Number of New Cancer Cases Diagnosed Each Year for Selected Cancers by County, Minnesota, 2003-2007

| | Lincoln | Lyon | Murray | Pipestone | Redwood | Rock |
|--------------------------|---------|------|--------|-----------|---------|------|
| All sites (SWHHS rank) | 42 | 124 | 64 | 74 | 96 | 55 |
| Female Breast (2) | 5 | 16 | 8 | 8 | 15 | 8 |
| Cervix Uteri (10) | 1 | 1 | <1 | 1 | <1 | <1 |
| Colon & Rectum (3) | 5 | 14 | 11 | 9 | 10 | 6 |
| Corpus & Uterus, NOS (7) | 1 | 4 | 3 | 2 | 4 | 3 |
| Leukemia (9) | 1 | 4 | 2 | 1 | 3 | 1 |
| Lung & Bronchus (4) | 5 | 14 | 8 | 10 | 11 | 4 |
| Melanoma (8) | 2 | 5 | 1 | 4 | 2 | 2 |
| NHL (6) | 1 | 6 | 3 | 3 | 3 | 4 |
| Prostate (1) | 11 | 24 | 9 | 15 | 20 | 9 |
| Urinary Bladder (5) | 1 | 5 | 5 | 4 | 5 | 3 |

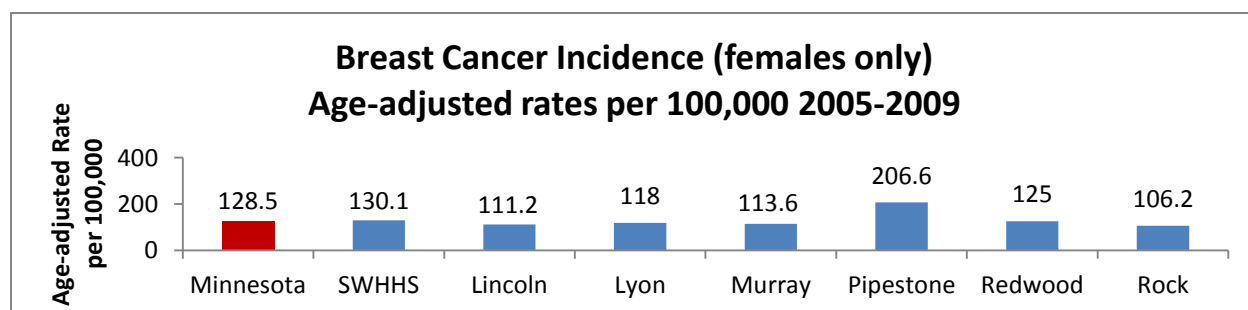
Source: American Cancer Society, Midwest Division. (2011). (2014). (89)

Average Number of Cancer Deaths Each Year for Selected Cancers by County, Minnesota, 2003-2007

| | Lincoln | Lyon | Murray | Pipestone | Redwood | Rock |
|-----------------|---------|------|--------|-----------|---------|------|
| All sites | 21 | 55 | 28 | 28 | 45 | 26 |
| Brain | <1 | <1 | 1 | 1 | 1 | <1 |
| Female Breast | 1 | 5 | 2 | 2 | 3 | 3 |
| Colon & Rectum | 4 | 6 | 2 | 3 | 4 | 3 |
| Leukemia | 2 | 3 | 1 | 2 | 2 | 0 |
| Liver | 1 | 2 | <1 | 1 | <1 | <1 |
| Lung & Bronchus | 5 | 12 | 6 | 5 | 10 | 4 |
| NHL | <1 | 2 | 1 | 1 | 2 | 2 |
| Ovary | <1 | 1 | <1 | 1 | 1 | 1 |
| Pancreas | 1 | 4 | 2 | 1 | 3 | 1 |
| Prostate | 2 | 6 | 3 | 1 | 5 | 2 |

Source: American Cancer Society, Midwest Division. (2011). (2014). (89)

Between 2005-2009, breast cancer age-adjusted rates per 100,000 were slightly higher in the SWHHS counties with an average of 130.1 versus the state rate of 128.5. Pipestone County's rate of 206.6 had the largest gap between the Minnesota rate and other SWHHS counties.



Source: Minnesota Department of Health. Minnesota Center for Health Statistics. (2012). (6)

Chronic Obstructive Pulmonary Disease

Emphysema and chronic bronchitis are two types of slowly progressing lung diseases that make up chronic obstructive pulmonary disease or COPD. These diseases obstruct air flow and normal breathing. Environmental exposures can make COPD worse during the fall and winter months of the year. Some of the airborne irritants are smoke, mold, dust mites, and air pollution. Even though not all tobacco smokers develop COPD, tobacco smoke is the most common cause. (71)

COPD hospitalization rates per 10,000 are much higher in the SWHHS counties than those across Minnesota. The lowest hospitalization rates from 2009-2011 were in Pipestone County while the highest rate was in Murray County. Both rates were well above the state average.

COPD Hospitalizations, Ages 45+, All Genders, Rate (per 10,000)

| | 2005-2007 | 2006-2008 | 2008-2010 | 2009-2011 |
|------------------|-----------|-----------|-----------|-----------|
| Minnesota | 31.3 | 31.9 | 32.6 | 30.8 |
| Lincoln | 44.9 | 56.9 | 59.3 | 44.0 |
| Lyon | 56.3 | 54.4 | 46.7 | 43.4 |
| Murray | 47.8 | 55.0 | 50.9 | 69.3 |
| Pipestone | 36.5 | 39.9 | 36.0 | 32.5 |
| Redwood | 42.1 | 43.4 | 45.5 | 51.9 |
| Rock | 47.6 | 57.6 | 46.3 | 49.6 |

Source: MN Public Health Data Access Portal. (2014). (73)

Heart Disease

In 2011, the leading cause of death in the SWHHS counties was heart disease and in Minnesota, it ranked second. From 2006-2011, SWHHS rates for heart attack hospitalizations declined, but were still overall higher than the state.

Heart Attack Hospitalizations, ages 35+ Combined, Rate per 10,000

| | 2006-2008 | 2009-2011 |
|------------------|-----------|-----------|
| Minnesota | 33 | 29.6 |
| Lincoln | 71.6 | 43.7 |
| Lyon | 38.9 | 39 |
| Murray | 41.3 | 31.6 |
| Pipestone | 52.7 | 40.7 |
| Redwood | 50.8 | 34.7 |
| Rock | 49.6 | 47.5 |

UR = Unstable Rate. Rates based on numerators less than or equal to 20 may be unstable and should be interpreted with caution.

* To protect an individual's privacy, hospitalizations and ED visit counts from 1 to 5 are suppressed if the underlying population is less than or equal to 100,000.

** Person-years is equal to the sum of the population for each year.

Counties that have greater than or equal to 50% of heart attack hospitalizations occurring out-of-state. Only Minnesota resident data from Minnesota hospitals are included in this table. Because of this, hospitalization rates for counties in which residents are likely to cross state lines for care are underestimated.

Source: Minnesota Department of Health. Minnesota Public Health Data Access. (2014). (73)

In the 2010 Wilder Research Survey, participating SWHHS counties reported a higher rate of physician-diagnosed hypertension (high blood pressure) and coronary disease than the 19-county region as a whole.

Have You Ever Been Told by a Doctor, Nurse, or Other Health Professional That You Have Had Any of the Following? Hypertension, Also Called High Blood Pressure.

| | Overall | 18-34 | 35-44 | 45-54 | 55-64 | 65-74 | 75+ |
|-------------------------|---------|-------|-------|-------|-------|-------|-------|
| 19 County Region | 30.4% | - | - | - | - | - | - |
| SWHHS (5 co) | 33.3% | 5.2% | 11.6% | 29.0% | 45.0% | 57.9% | 71.2% |
| Lincoln | 39.0% | 9.9% | 13.4% | 26.3% | 48.6% | 61.2% | 78.1% |
| Lyon | 27.6% | 1.0% | 11.7% | 34.6% | 39.0% | 50.1% | 76.4% |
| Murray | 35.4% | 6.3% | 13.7% | 27.5% | 45.6% | 58.8% | 72.2% |
| Pipestone | 30.4% | 2.4% | 4.9% | 33.3% | 47.8% | 56.7% | 58.7% |
| Redwood | 33.9% | 6.6% | 14.4% | 23.5% | 43.8% | 62.6% | 70.8% |
| Rock | * | * | * | * | * | * | * |

* Rock did not participate in 2010 Southwest/South Central Adult Health Survey
Source: Amherst H. Wilder Foundation. 2010 Wilder Research Study. (2014). (52)

Have You Ever Been Told by a Doctor, Nurse, or Other Health Professional That You Have Had Any of the Following? A Heart Attack, Also Called a Myocardial Infarction.

| | Overall | 18-34 | 35-44 | 45-54 | 55-64 | 65-74 | 75+ |
|-------------------------|---------|-------|-------|-------|-------|-------|-------|
| 19 County Region | 4.3% | | | | | | |
| SWHHS (5 co) | 4.8% | 0.1% | 0.1% | 1.1% | 3.9% | 9.4% | 21.1% |
| Lincoln | 4.8% | 0.0% | 0.0% | 0.0% | 3.6% | 10.2% | 18.3% |
| Lyon | 3.2% | 0.0% | 0.7% | 2.3% | 2.4% | 6.4% | 17.5% |
| Murray | 5.0% | 0.0% | 0.0% | 1.6% | 7.0% | 10.1% | 15.7% |
| Pipestone | 6.2% | 0.0% | 0.0% | 0.7% | 3.8% | 12.8% | 30.6% |
| Redwood | 4.7% | 0.6% | 0.0% | 0.8% | 2.7% | 7.3% | 23.2% |
| Rock | * | * | * | * | * | * | * |

* Rock did not participate in 2010 Southwest/South Central Adult Health Survey
Source: Amherst H. Wilder Foundation. 2010 Wilder Research Study. (2014). (52)

Have You Ever Been Told by a Doctor, Nurse, or Other Health Professional That You Have Had Any of the Following? Angina, or Coronary Heart Disease.

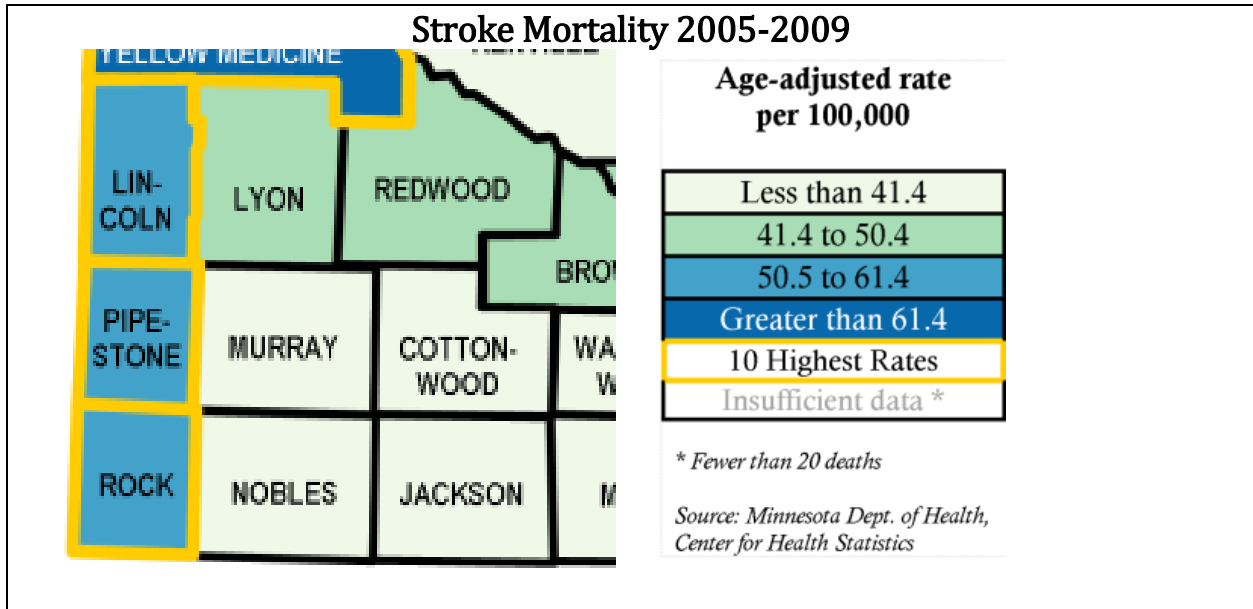
| | Overall | 18-34 | 35-44 | 45-54 | 55-64 | 65-74 | 75+ |
|-------------------------|---------|-------|-------|-------|-------|-------|-------|
| 19 County Region | 5.2% | | | | | | |
| SWHHS (5 co) | 6.0% | 0.1% | 0.9% | 3.4% | 6.4% | 11.4% | 21.2% |
| Lincoln | 8.0% | 0.0% | 0.0% | 6.6% | 4.0% | 9.6% | 30.4% |
| Lyon | 5.0% | 0.0% | 2.9% | 3.3% | 7.4% | 15.1% | 16.7% |
| Murray | 5.8% | 0.0% | 0.0% | 4.0% | 7.6% | 14.6% | 13.7% |
| Pipestone | 5.5% | 0.0% | 1.8% | 1.7% | 6.0% | 7.4% | 23.8% |
| Redwood | 5.7% | 0.6% | 0.0% | 1.5% | 7.0% | 10.5% | 21.2% |
| Rock | * | * | * | * | * | * | * |

* Rock did not participate in 2010 Southwest/South Central Adult Health Survey
Source: Amherst H. Wilder Foundation. 2010 Wilder Research Study. (2014). (52)

Stroke

Stroke is much more likely to cause death in a person that is over age 75. In addition, stroke mortality rates are higher in people that live in rural areas. (71)

Data from 1995-2009 showed mortality rates from strokes fell in all of the SWHHS counties, with Murray County falling below the Minnesota average. The other five counties remain above the state average with Pipestone ranking second, Lincoln County sixth, and Rock County seventh among the highest rates in the state. (90)



Source: Minnesota Department of Health Center for Health Statistics. (2012). (6)

Stroke Age Adjusted Mortality Rates, All Ages, Per 100,000 1995-2009

| | 1995-1999 | 2000-2004 | 2005-2009 |
|------------------|-----------|-----------|-----------|
| Minnesota | 62.3 | 50.2 | 37.4 |
| Lincoln | 86.6 | 68.1 | 51.7 |
| Lyon | 79.3 | 56.1 | 44.4 |
| Murray | 55.5 | 43.4 | 29 |
| Pipestone | 73 | 56.2 | 53 |
| Redwood | 53.7 | 56.1 | 43.1 |
| Rock | 64.3 | 68.6 | 51.6 |

Stroke was defined as ICD-9 codes 430-438 and ICD-10 codes I60-I69.

Source: Minnesota Department of Health. Minnesota Heart Disease and Stroke Prevention Unit. (2014). (90)

Three percent of SWHHS residents who participated in the 2010 local Wilder Research Survey reported a stroke diagnosis by a healthcare professional, while the region as a whole reported a slightly lower rate of diagnosis. (52)

Have You Ever Been Told by a Doctor, Nurse, or Other Health Professional That You Have Had Any of the Following? A Stroke.

| | Overall | 18-34 | 35-44 | 45-54 | 55-64 | 65-74 | 75+ |
|-------------------------|---------|-------|-------|-------|-------|-------|-------|
| 19 County Region | 2.8% | - | - | - | - | - | - |
| SWHHS (5 co) | 3.0% | 0.1% | 0.5% | 1.9% | 3.1% | 5.5% | 11.1% |
| Lincoln | 4.4% | 0.0% | 1.2% | 3.1% | 9.0% | 5.5% | 9.7% |
| Lyon | 3.2% | 0.0% | 1.4% | 2.3% | 3.5% | 10.2% | 11.9% |
| Murray | 2.4% | 0.0% | 0.0% | 1.6% | 2.1% | 5.4% | 7.6% |
| Pipestone | 3.0% | 0.0% | 0.0% | 1.6% | 0.0% | 2.7% | 17.0% |
| Redwood | 2.0% | 0.6% | 0.0% | 0.8% | 0.9% | 3.6% | 9.2% |
| Rock | * | * | * | * | * | * | * |

* Rock did not participate in 2010 Southwest/South Central Adult Health Survey
 Source: Amherst H. Wilder Foundation. 2010 Wilder Research Study. (2014). (52)

Diabetes

Diabetes is the leading cause of blindness, chronic kidney disease, and complications among mothers giving birth in Minnesota. The primary risk factor associated with diabetes is being overweight and obese. In Minnesota, the American Indian population is five times more likely to die from diabetes complication than the state's White population. (71)

From 2004 to 2009, the number of SWHHS adults diagnosed with diabetes increased. SWHHS rates during that time-frame also stayed above the state diabetes rate. (63)

Age-Adjusted Estimates of the Percentage of Adults† with Diagnosed Diabetes

| | 2004 | 2005 | 2006 | 2007 | 2008 | 2009 |
|------------------|------|------|------|------|------|------|
| Minnesota | 5.4 | 5.5 | 5.6 | 5.6 | 5.8 | 6.1 |
| Lincoln | 5.6 | 5.7 | 5.9 | 6.1 | 6.4 | 6.6 |
| Lyon | 5.6 | 5.8 | 6.1 | 6.3 | 6.4 | 7.1 |
| Murray | 5.7 | 6.0 | 6.0 | 6.2 | 6.4 | 7.0 |
| Pipestone | 5.8 | 5.9 | 5.9 | 6.2 | 6.6 | 7.4 |
| Redwood | 5.8 | 5.9 | 6.1 | 6.2 | 6.6 | 6.9 |
| Rock | 5.9 | 6.1 | 6.1 | 6.2 | 6.5 | 6.7 |

† ≥ 20 years old. See glossary for definition of indicator.

Source: Centers for Disease Control and Prevention: National Diabetes Surveillance System. (2014). (63)

The 2010 local Wilder Research survey reported that 8.7 percent of residents had a clinical diagnosis of diabetes. This was slightly higher than the overall 8.1 percent of residents in the region who had been diagnosed by a health care professional. (52)

Have You Ever Been Told by a Doctor, Nurse, or Other Health Professional That You Have Had Any of the Following? Diabetes.

| | Overall | 18-34 | 35-44 | 45-54 | 55-64 | 65-74 | 75+ |
|-------------------------|---------|-------|-------|-------|-------|-------|-------|
| 19 County Region | 8.1% | - | - | - | - | - | - |
| SWHHS (5 co) | 8.7% | 0.7% | 1.7% | 5.5% | 14.3% | 17.1% | 20.5% |
| Lincoln | 7.8% | 0.0% | 0.0% | 3.5% | 12.1% | 13.1% | 21.5% |
| Lyon | 8.1% | 0.7% | 2.1% | 4.8% | 17.8% | 21.0% | 17.8% |
| Murray | 8.3% | 0.0% | 0.0% | 1.8% | 14.0% | 21.4% | 18.6% |
| Pipestone | 8.4% | 0.0% | 1.5% | 8.3% | 12.5% | 19.6% | 17.5% |
| Redwood | 10.7% | 3.0% | 5.0% | 8.9% | 15.2% | 10.5% | 27.0% |
| Rock | * | * | * | * | * | * | * |

* Rock did not participate in 2010 Southwest/South Central Adult Health Survey
Source: Amherst H. Wilder Foundation. 2010 Wilder Research Study. (2014). (52)

Additionally, 7.3 percent of surveyed SWHHS residents reported having pre-diabetes or borderline diabetes. The 19-County region reported an average of 8.6 percent. (52)

Have You Ever Been Told by a Doctor, Nurse, or Other Health Professional That You Have Had Any of the Following? Pre-diabetes or Borderline Diabetes.

| | Overall | 18-34 | 35-44 | 45-54 | 55-64 | 65-74 | 75+ |
|-------------------------|---------|-------|-------|-------|-------|-------|-------|
| 19 County Region | 8.6% | - | - | - | - | - | - |
| SWHHS (5 co) | 7.3% | 2.2% | 2.1% | 6.9% | 9.1% | 13.9% | 15.1% |
| Lincoln | 8.5% | 0.8% | 2.7% | 12.1% | 6.7% | 18.5% | 13.6% |
| Lyon | 5.3% | 3.9% | 1.4% | 4.6% | 12.7% | 1.7% | 11.2% |
| Murray | 6.0% | 1.6% | 1.1% | 4.0% | 7.2% | 16.2% | 11.0% |
| Pipestone | 8.1% | 0.0% | 3.4% | 1.0% | 14.3% | 20.7% | 20.7% |
| Redwood | 8.5% | 4.5% | 1.9% | 12.8% | 4.6% | 12.5% | 19.0% |
| Rock | * | * | * | * | * | * | * |

* Rock did not participate in 2010 Southwest/South Central Adult Health Survey
Source: Amherst H. Wilder Foundation. 2010 Wilder Research Study. (2014). (52)

Mental Illness

People who live with serious mental illnesses like schizophrenia, schizoaffective disorder and bipolar affective disorder are more likely to have a significant increase in mortality, homelessness, lack of social support and be uninsured. In a recent study of Minnesota Health Care Program recipients with serious mental illness, it was determined that the average life expectancy was age 58 while those on the program without serious mental illness lived to be an average of 82. (71)

Obesity

Obesity is a risk factor in many of the chronic disease conditions like diabetes, heart disease, cancer, and stroke, and affects all sectors of the population. Healthy eating habits and physical activity are the primary ways a person can maintain a healthy weight. (71)

Body mass index (BMI) is one reliable indicator used to measure if a person is overweight or obese. For adults, it is calculated by using height and weight measurements to calculate a score. Adults that score

between 25.0 and 29.9 are considered overweight; scores of 30.0 and higher are considered obese. For children, the formula also takes into account age and gender to calculate BMI-for-age percentiles. Overweight children fall in the 85th to less than the 95th percentile, and obese children are equal to or greater than 95th percentile. (74)

In the 2010 Wilder Research Survey, 30.5 percent of SWHHS participants were at a healthy body mass index. This was lower than the 19-county region at 33.7 percent. (52)

Weight Status According to Body Mass Index (BMI), Calculated Based on Respondent’s Weight and Respondent’s Height

| | Not Over Weight | Overweight but not obese | Obese |
|-------------------------|-----------------|--------------------------|-------|
| 19 County Region | 33.7% | 35.7% | 30.5% |
| SWHHS (5 co) | 30.5% | 38.9% | 30.6% |
| Lincoln | 32.4% | 40.7% | 26.9% |
| Lyon | 32.9% | 33.8% | 33.3% |
| Murray | 31.0% | 39.9% | 29.1% |
| Pipestone | 31.5% | 38.4% | 30.1% |
| Redwood | 24.5% | 41.7% | 33.7% |
| Rock | * | * | * |

* Rock did not participate in 2010 Southwest/South Central Adult Health Survey
Source: Amherst H. Wilder Foundation. 2010 Wilder Research Study. (2014). (52)

From the 2007-2013 Minnesota Student Survey results, the percentage of SWHHS 9th graders who were considered overweight or obese according to their body mass index (BMI) increased from 25 to 29 percent. During this same time-frame, state-level data increased from 22 to 23 percent. Locally, there was a wide range of outcomes between each county in 2013. Murray County 9th graders were lowest at 16 percent obese; Rock County had the largest percent of obese students at 37 percent. One notable comparison is between actual weight measurements and if students feel that they are overweight. In 2013, 29 percent of 9th grade students across the SWHHS counties were overweight or obese by BMI measurement, but only 22 percent of 9th graders felt that they were overweight. (42)

Percent of 9th Graders Who Are Overweight OR Obese According to Body Mass Index

| State/County/CHB | 2007 | 2010 | 2013 |
|------------------|------|------|------|
| Minnesota | 22 | 22 | 23 |
| SWHHS | 25 | 27 | 29 |
| Lincoln | 34 | 44 | 32 |
| Lyon | 21 | 28 | 26 |
| Murray | 25 | 10 | 16 |
| Pipestone | 24 | 32 | 35 |
| Redwood | 27 | 29 | 28 |
| Rock | 25 | 17 | 37 |

Source: Minnesota Department of Health. Minnesota Student Survey. (2014). (42)

Percent of 9th Graders Who Feel That They Are Overweight

| State/County/CHB | 1998 | 2001 | 2004 | 2007 | 2010 | 2013 |
|------------------|------|------|------|------|------|------|
| Minnesota | 23 | 23 | 22 | 23 | 21 | 19 |
| SWHHS | 24 | 25 | 21 | 24 | 21 | 22 |
| Lincoln | 23 | 29 | 25 | 22 | 34 | 19 |
| Lyon | 28 | 26 | 21 | 23 | 20 | 17 |
| Murray | 25 | 22 | 21 | 29 | 28 | 13 |
| Pipestone | 20 | 26 | 23 | 24 | 24 | 26 |
| Redwood | 20 | 23 | 22 | 29 | 19 | 26 |
| Rock | 23 | 29 | 17 | 21 | 15 | 29 |

Source: Minnesota Department of Health. Minnesota Student Survey. (2014). (42)

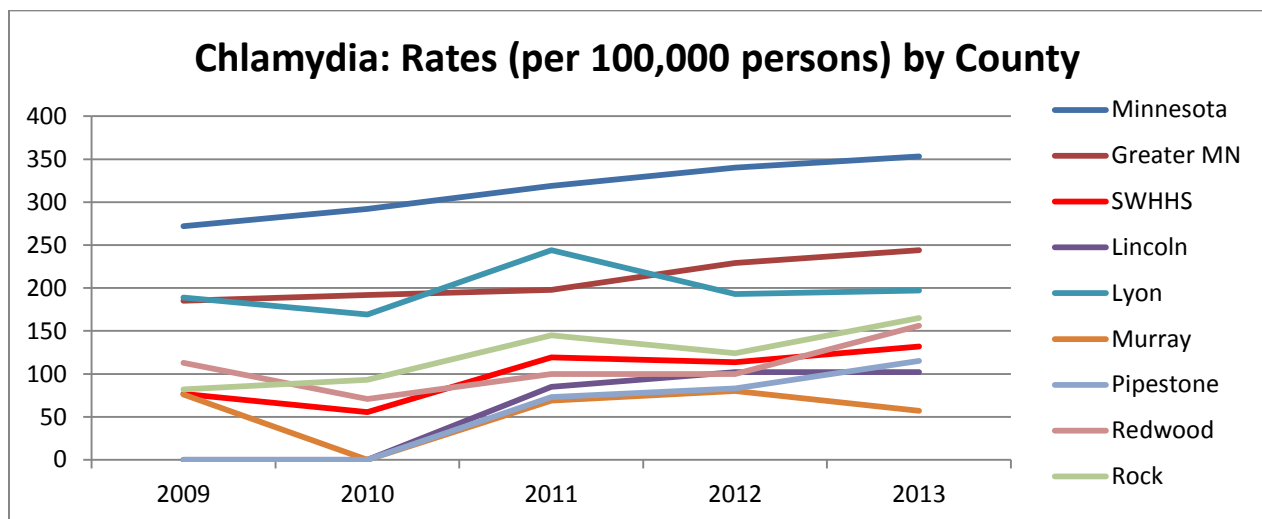
Infectious Disease

HIV and AIDS

Human Immunodeficiency Virus (HIV) and Acquired Immune Deficiency Syndrome (AIDS) affected 7,680 people in Minnesota in 2013. SWHHS residents that have HIV or AIDS make up 0.3 percent of the Minnesota cases. HIV & AIDS cases across the region have remained relatively stable in the last 10 years, while the State of Minnesota numbers rose from 4,873 in 2003 to 7,680 in 2013. (75)

Sexually Transmitted Infections

Nearly 70 percent of all commonly reported communicable diseases in Minnesota were sexually transmitted infection (STIs)- formerly called sexually transmitted diseases. (71) From 2009 to 2013, SWHHS showed an increase in Chlamydia infection rates per 100,000 from 77 to 132. This is under the state's and Greater Minnesota's rate of infection, which are also seeing an overall increase. In 2009 and 2010, Lincoln, Pipestone, and Murray Counties' rates were not calculated because there were fewer than five cases. (76)



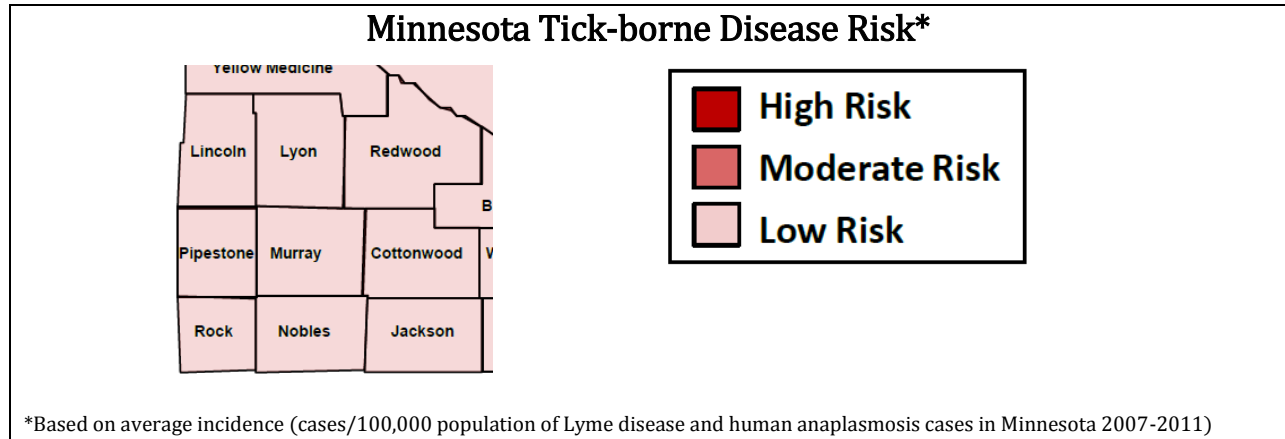
- Rates not calculated for counties with fewer than 5 cases.

Source: Minnesota Department of Health. STD Surveillance Program. (2014). (76)

Gonorrhea infection rates were not calculated for the SWHHS counties as there were fewer than five cases. (76)

Tick-borne Disease

Tick-borne disease in Minnesota tends to be more prevalent in forested areas of the state. Statewide, there were 912 confirmed cases of Lyme disease in 2012 and 507 confirmed cases of human anaplasmosis. Tick-borne disease county-level data was not available from the Minnesota Department of Health. (77)



Injury and Violence

Fall-related Injury

Falls among adults age 65 and over are the leading cause of injury death in Minnesota. The leading cause of injury in children under age 19 is also falls. Fall injuries can range in severity from sprains to hip fractures and head trauma. (71)

Fall data from 2008 to 2012 for all ages and genders across the SWHHS counties showed lower rates than the state and Greater Minnesota. (78)

Falls, All Ages and Genders, Fatal & Non-fatal, Age Adjusted Rates per 100,000

| | 2008 | 2009 | 2010 | 2011 | 2012 |
|--------------------------|-------|-------|-------|-------|-------|
| Minnesota | 1,947 | 1,958 | 2,026 | 1,886 | 1,909 |
| Greater Minnesota | 1,941 | 1,992 | 2,066 | 2,040 | 2,042 |
| SWHHS | 1,534 | 1,396 | 1,669 | 1,567 | 1,552 |
| Lincoln | 1,538 | 1,098 | 1,014 | 1,237 | 1,214 |
| Lyon | 1,804 | 634 | 2,021 | 1,794 | 1,829 |
| Murray | 1,393 | 1,678 | 1,812 | 1,446 | 1,556 |
| Pipestone | 1,510 | 1,755 | 1,545 | 1,670 | 1,552 |
| Redwood | 1,610 | 1,589 | 1,924 | 1,731 | 1,549 |
| Rock | 1,346 | 1,623 | 1,700 | 1,524 | 1,611 |

Source: Minnesota Department of Health. Injury Prevention Unit. Minnesota Injury Data Access System Report. (2014). (78)

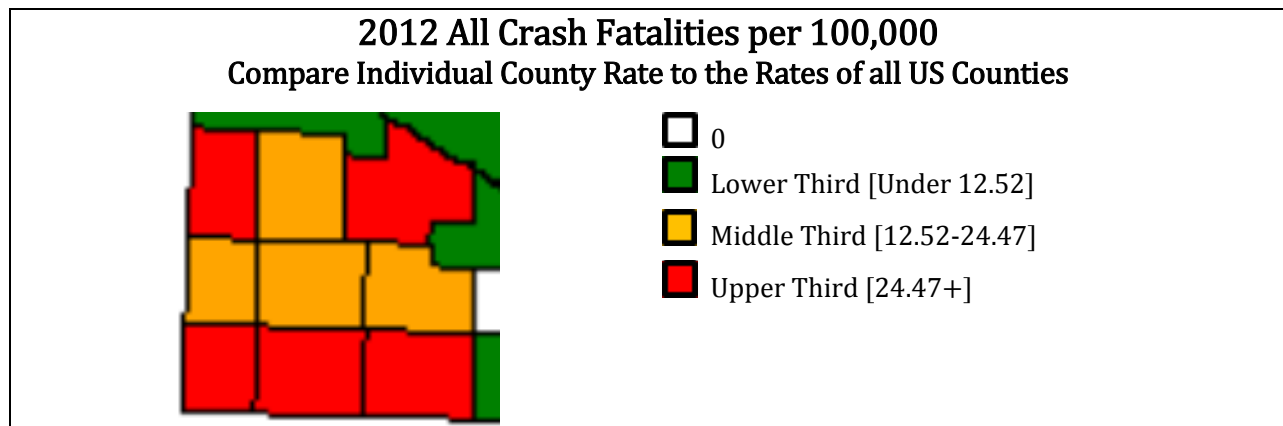
Firearm Injury

In Minnesota, firearms are the second leading cause of traumatic brain injury death. Suicide makes up nearly 75 percent of firearm related deaths in Minnesota. (71)

Across the region in 2012, there were three firearm-related injuries in the 5-14 year old age range. All three were ruled unintentional. That same year in Minnesota, there were 697 injuries; 233 of these in Greater Minnesota. Overall, SWHHS counties made up 0.43 percent of total firearm injuries. In comparison to Greater Minnesota, SWHHS counties made up 1.3 percent of total firearm injuries in the region in 2012. (78)

Motor Vehicle Injuries

Motor vehicle injuries between 2000 and 2009 were the leading cause of injury-related death for Minnesotans age 1-44 and age 55-64. Teens 15 to 19 died 48 percent of the time from motor vehicle injuries compared to all other injury-related deaths, while young adults age 20-24 died 38 percent of the time from motor vehicle injuries. (71)



Source: National Highway Traffic Safety Administration. (2014). (91)

On average, SWHHS counties' motor vehicle injury and fatalities rates are similar to the State of Minnesota and Greater Minnesota rates. (78)

Motor Vehicle-All Types, All Ages & Genders, Injury & Fatal, Age Adjusted Rate per 100,000

| | 2008 | 2009 | 2010 | 2011 | 2012 |
|--------------------------|--------|--------|--------|-------|--------|
| Minnesota | 88.84 | 84.64 | 87.48 | 81.73 | 77.42 |
| Greater Minnesota | 85.56 | 84.29 | 85.56 | 74.83 | 66.81 |
| SWHHS | 87.56 | 76.20 | 107.64 | 71.96 | 75.16 |
| Lincoln | 78.01 | 44.40 | 116.88 | 48.80 | 40.69 |
| Lyon | 77.59 | 50.15 | 93.71 | 60.66 | 46.06 |
| Murray | 77.37 | 122.84 | 106.38 | 95.37 | 90.95 |
| Pipestone | 127.91 | 77.90 | 124.32 | 64.29 | 167.07 |
| Redwood | 104.36 | 113.81 | 123.27 | 86.91 | 43.85 |
| Rock | 60.08 | 48.05 | 81.28 | 75.69 | 62.29 |

Covers 5 categories MV traffic-motorcyclist, -occupant, -other/unspecified, -pedal cyclist, -pedestrian
Source: Minnesota Department of Health. Injury Prevention Unit. Minnesota Injury Data Access System Report. (2014). (78)

Poisonings

Intentional and unintentional poisonings were in the top ten leading causes of injury death for Minnesotans between 2000 and 2009. (71)

From 2008-2012, unintentional poisonings in the SWHHS counties were lower than the rates for Minnesota and Greater Minnesota. (78)

Unintentional Poisonings, All Ages & Genders, Fatal & Non-fatal, Age Adjusted Rate per 100,000

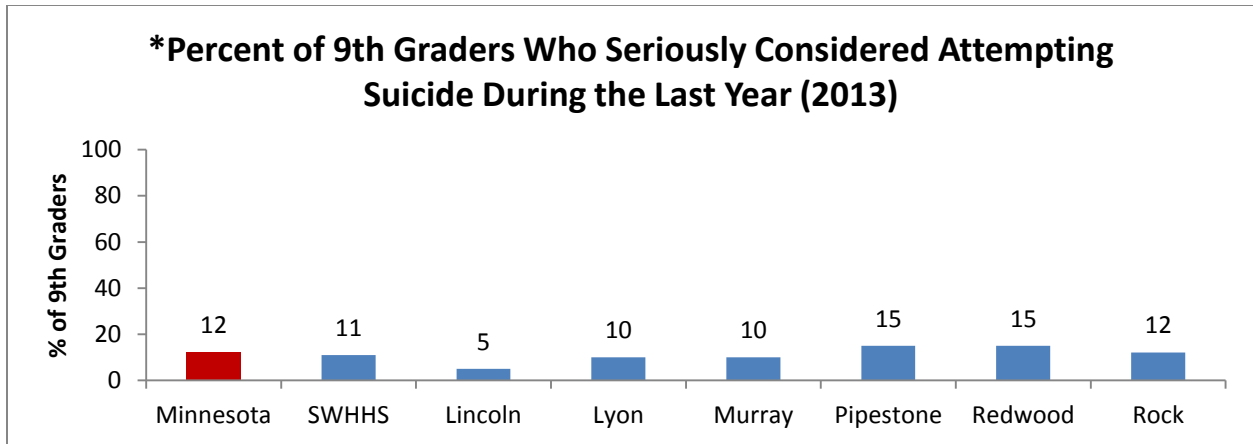
| | 2008 | 2009 | 2010 | 2011 | 2012 |
|--------------------------|--------|--------|--------|--------|--------|
| Minnesota | 103.39 | 97.88 | 104.54 | 99.65 | 101.11 |
| Greater Minnesota | 102.53 | 93.69 | 99.66 | 93.61 | 98.29 |
| SWHHS | 70.73 | 60.09 | 78.91 | 53.41 | 75.75 |
| Lincoln | 110.84 | 18.39 | 64.35 | 0 | 104.17 |
| Lyon | 60.07 | 43.36 | 58.91 | 36.52 | 85.98 |
| Murray | 91.27 | 124.25 | 105.69 | 51.31 | 74.75 |
| Pipestone | 49.54 | 40.71 | 84.62 | 55.07 | 21.26 |
| Redwood | 66.03 | 68.71 | 69.01 | 76.03 | 56.87 |
| Rock | 46.60 | 65.10 | 90.84 | 101.53 | 111.45 |

Source: Minnesota Department of Health. Injury Prevention Unit. Minnesota Injury Data Access System Report. (2014). (78)

Suicide

Minnesota's suicide rate, like that in the United States, has been steadily climbing over the past 10+ years, from 8.9 per 100,000 in 2000 to 12.4 per 100,000 in 2011. Suicide is often thought to be a teen problem, when in fact rates are highest among males over the age of 35 and teen rates of suicide have remained somewhat stable. (71) Suicides, which are rarely random events, are preventable. Of those that die by suicide, 90 percent had an underlying mental illness or substance abuse problem. Minnesota's prevention model is based on mental illness being treatable. (79)

In the 2013 Minnesota Student Survey, 11 percent of SWHHS 9th grade students seriously considered attempting suicide during the last year; in Minnesota, the rate among 9th graders was 12 percent. In Redwood and Pipestone Counties, 15 percent of 9th grade students seriously considered attempting suicide. (42)



*Have you ever seriously considered attempting suicide? Yes, during the last year.
 Source: Minnesota Department of Health. Minnesota Student Survey. (2014). (42)

Suicide rates for SWHHS county adults are considered unreliable because of the low number of deaths. In total, from 2007-2011, the region experienced 38 deaths due to suicide, with 10 people being age 24 and under; 22 people being age 25-64; and 6 people being age 65 and older. (79)

Vulnerable Adult

A vulnerable adult is a person age 18 and older with physical or mental disabilities. Where the person lives does not make a difference in vulnerable adult cases. Types of vulnerable adult abuse can be financial exploitation, physical, emotional or sexual abuse, neglect by a caregiver or self. On average, the SWHHS counties has 1.7 percent of the state's vulnerable adult reports, while the region's total population is 1.5 percent of the state's total population. (80)

Vulnerable Adult Reports

| | 2011 | 2012 | 2013 |
|-----------------------|-------|-------|--------------|
| Minnesota | 26049 | 32062 | 34172 |
| Pipestone | 12 | 11 | **SWHHS Data |
| Redwood | 115 | 153 | **SWHHS Data |
| Rock | 46 | 10 | **SWHHS Data |
| *SWHHS | 235 | 277 | 556 |
| All 6 Counties | 408 | 451 | 556 |

*2011 -SWHHS was made up of Lincoln, Lyon, Murray Counties & 2012-SWHHS was made up of Lincoln, Lyon, Murray, Rock Counties

**2013 SWHHS contains Lincoln, Lyon, Murray, Pipestone, Redwood, Rock Counties

Source: Minnesota Department of Human Services. (2014). (80)

Youth Violence

Minnesota Student Survey data through 2010 shows that hitting or beating up another person is relatively common in younger grades (6th and 9th grade) while less common among 12th grade students. SWHHS 9th grade students are two to four percentage points different from the state average for never hitting or beating up another person. (42)

9th Grade During the Last 12 Months, How Often Have You Hit or Beat Up Another Person?

| | 1998 Never | 2001 Never | 2004 Never | 2007 Never | 2010 Never | 2013 Never |
|------------------|------------|------------|------------|------------|------------|------------|
| Minnesota | 62 | 64 | 67 | 74 | 78 | 89 |
| SWHHS | 62 | 60 | 70 | 76 | 80 | 87 |
| Lincoln | 61 | 47 | 70 | 83 | 82 | 82 |
| Lyon | 63 | 58 | 68 | 73 | 81 | 89 |
| Murray | 54 | 64 | 65 | 80 | 79 | 91 |
| Pipestone | 58 | 53 | 72 | 72 | 68 | 86 |
| Redwood | 67 | 65 | 75 | 74 | 84 | 87 |
| Rock | 63 | 63 | 71 | 85 | 79 | 89 |

Source: Minnesota Department of Health. Minnesota Student Survey. (2014). (42)

Community Health Themes and Rankings

Multiple methods were used to identify the top public health issues in the SWHHS counties. First, Southwest Health and Human Services staff worked together to identify public health concerns by topic area through data collection and review. This information was pulled from county, regional, and state-level data. This committee then utilized the PEARL Method (Propriety, Economic Feasibility, Acceptability, Resources, and Legality) to identify the top ten public health priorities. The priorities are listed below. Once the top ten public health priorities were identified, a survey was created and disseminated to gain further input from key informants across the six-county area. This survey, called “Top Public Health Problems Data,” was distributed at the SWHHS’s “Pitch the Commissioner” event on August 28, 2014 and through e-mailing and personal contact with key community informants across the six counties. The last page of the report asked that community members rank in importance from 1 (most important health issue) to 10 (least important health issue) the concerns by topic area. Over 50 community members were contacted, with 29 members returning surveys. County participation was also tracked to make sure the voices from each county were heard. In addition, the respondent’s profession was tracked to be sure that a cross section of professions in the community were engaged in the process. The outcomes of this survey were utilized to formulate the agency’s CHIP.

Top Ten Public Health Issues/Concerns by Topic Area

The topics below represent the results of the community ranking and the data that was presented to the community members.

Preventing/Management of Chronic Disease

- **Diabetes:** Diabetes is notably higher than the state average in the SWHHS counties.
- **Asthma:** Asthma hospitalization rates are higher in the SWHHS counties than the state rates. In more populated areas (Redwood and Lyon) – number of asthma related ER visits increased from 2006-2008 to 2009-2011.

- **Cancer:** 2nd leading cause of death in SWHHS counties is cancer. Prostate is leading new cancer diagnosis. Breast cancer is 2nd leading new cancer diagnosis. Lung cancer is the leading cause of death by cancer type.
- **COPD:** Higher rate of COPD hospitalizations in SWHHS counties compared to Minnesota.
- **Heart Attack:** Leading cause of death in SWHHS counties is heart disease. SWHHS counties have a slightly higher rate in heart attacks and heart disease than other (19 counties) in the region. Heart attack hospitalizations are higher in all SWHHS counties compared to the state.
- **Stroke:** Stroke mortality rates have declined over the past 10 years in SWHHS counties, but are still higher than the state average (with the exception of Murray). Pipestone ranked second highest in the state, Lincoln ranked sixth and Rock ranked seventh.
- **High Blood Pressure:** Over 30 percent of adults in SWHHS counties have a diagnosis of high blood pressure.
- **High Cholesterol:** Over 30 percent of adults in SWHHS counties have a diagnosis of high blood cholesterol.

Access to Care

- **Mental Health Professional Shortage:** All 6 SWHHS counties are underserved in mental health services.
- **Dental Professional Shortage:** Larger shortage of Dental Providers; most of SWHHS counties is in a dental shortage area.
- **Medical Professional Shortage:** Larger shortage of Physicians; most of SWHHS counties is in a medical shortage area.

Physical Activity/ Eating Habits/Obesity

- **Adult and Youth Obesity Rates:** A higher percent of SWHHS population is obese or overweight. 30 percent of SWHHS population is not overweight or obese (lower than the 19 county region – which is worse). Redwood County is 24 percent (which is poorer). About 30 percent of 9th graders in SWHHS counties are overweight or obese.
- **Youth Intake of Fruit/Vegetables:** SWHHS 9th grade students who eat vegetable 2 or more times daily are lower than Minnesota rate (2013 Minnesota 21 percent and SWHHS counties 20 percent).
- **Youth Intake of Fruit/Vegetables:** SWHHS 9th grade students who ate fruit or/ & vegetable 5+ times yesterday are lower than Minnesota rate (2010 Minnesota 18 percent and SWHHS counties 14 percent).
- **Youth Physical Activity:** Physical activity notably decreases from 9th to 11th grade in SWHHS counties.
- **Adult Physical Activity:** Physical activity is increasing in adults, but it's still low (54 percent getting 3-5x/week).

Mental Health in Youth

- **Anxiety, Nervous, Tense Youth:** One third or higher of 9th graders in SWHHS counties in the last 12 months feel significant problems with anxious, nervous, tense, scared or panicked or like something bad was going to happen.
- **Youth Contemplating Suicide:** 15 percent of 9th grade students seriously consider attempting suicide in Redwood and Pipestone Counties.

Alcohol, Tobacco & Other Drugs

- **Youth Smoking Rates:** Adults and 9th graders smoking rates are decreasing in SWHHS counties (higher in Lincoln and Pipestone, lower in Rock – 9th graders).
- **Youth Exposure to Second Hand Smoke:** Second hand smoke is decreasing in SWHHS counties (but still over 50 percent). Although data is not currently available SWHHS staff expects to see an increase in exposure via e-cigarettes.
- **Prenatal Smoking:** Percent of birth mothers who smoke is higher in SWHHS six county area versus state averages.
- **Binge Drinking:** Binge drinking in 9th graders who engaged in last 2 weeks is higher than Minnesota in 4 of 6 SWHHS counties.

High Risk Behaviors

- **Rising Chlamydia Rates:** Chlamydia rates are under state and greater Minnesota rates but are climbing in SWHHS.
- **Youth Sexual Intercourse Rate:** SWHHS counties are higher than the state average for sexual intercourse in both 9th and 12th graders (Rock is lower for sex, tobacco, alcohol).
- **Teen Birth Rates:** Teen Birth rate 3 of 6 counties in SWHHS is higher than Minnesota in 2007-2011.

Advanced Aging Population

- **Home & Community-based Service for Long-term Care**
 - Higher percent of people utilize nursing homes for care versus home & community care options in SWHHS counties.
 - In SWHHS long term care expenditures are high than state average; home & community based service expenditures 65+ is lower than Minnesota average.

Injury Prevention

- **Motor Vehicle Crashes and Deaths:** Percent of deaths that were unbelted is higher in SWHHS counties than Minnesota and percent of crashes that result in death are higher in SWHHS counties than in Minnesota.

Healthy Start for Children and Adolescents

- **Breastfeeding Rates:** Breastfeeding initiation is lower than Minnesota average in 4 of 6 SWHHS counties; Breastfeeding duration at 3, 6, & 12 mo. is lower than Minnesota average in SWHHS counties.

Environmental Health

- **Radon:** Homes in SWHHS are at high risk for radon exposure.

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