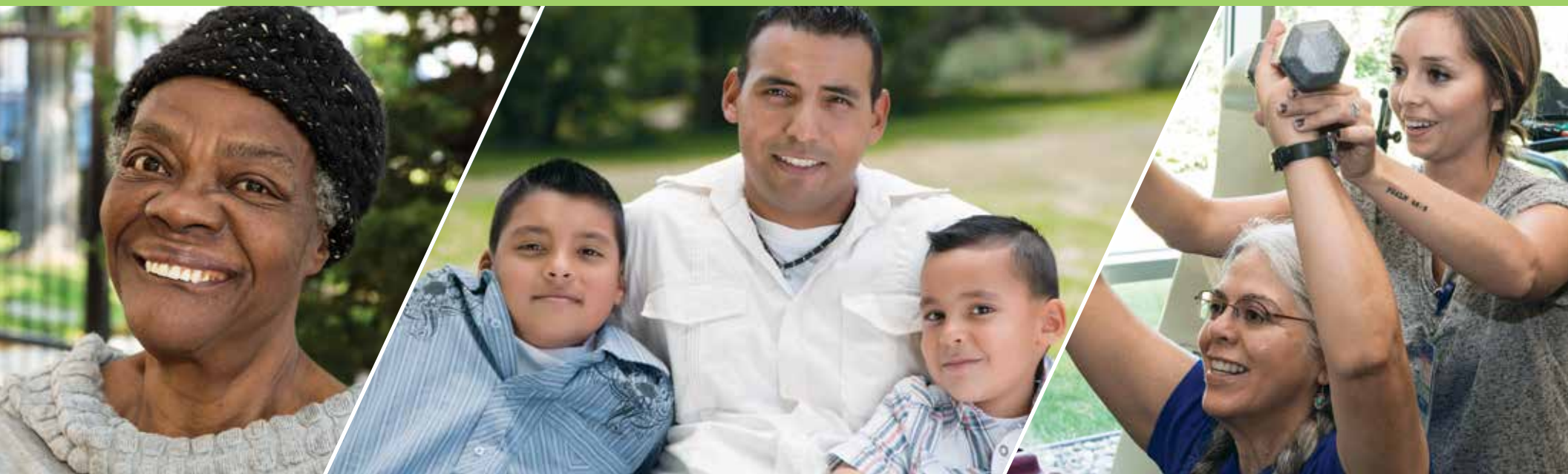


# 2016

## Community Health Needs Assessment



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# INTRODUCTION

## Assessing the Needs of the Community

Virginia Mason Memorial, part of the Virginia Mason Health System, is a 226-bed acute-care, nonprofit community hospital that has served Central Washington's Yakima valley for more than 60 years. Memorial Family of Services includes primary care practices and specialty care services including high-quality cardiac care; cancer care through North Star Lodge; breast health at 'Ohana Mammography Center; acute hospice and respite care at Cottage in the Meadow, winner of the Circle of Life Award from the American Hospital Association for innovative palliative and end-of-life care; pain management at Water's Edge; an advanced NICU unit, the only place in Central Washington that offers specialty care for at-risk infants; advanced services for children with special health care needs at Children's Village; and The Memorial Foundation, a separate 501c(3) organization that raises funds for innovative health care programs in the Yakima Valley.

This assessment document is a map and through the following four-stage approach we will make progress toward improved health and TRANSFORMING Yakima:

- **Plan:** Identify priorities for services and community health improvement processes
- **Partner:** Identify those who can work together to best meet community needs

- **Do:** Design programs and approaches to improve access to high quality health care services
- **Improve:** Improve the health outcomes of Yakima County

As a result of the CHNA, health priorities were selected, and using our four-stage approach we will develop an action plan to address these priorities and positively influence the health and well-being of the community.

This 2016 Community Health Needs Assessment was approved at the November 29, 2016 meeting of the Virginia Mason Memorial Board of Trustees.'

## 2013-2015 Priority Area Update

Virginia Mason Memorial identified seven priority areas after completing our 2013 Community Health Needs Assessment:

1. Access to care
2. Disparities in health outcomes—children with special healthcare needs, obesity, infant mortality rate, coronary heart disease and diabetes
3. Adverse Childhood Experiences (ACEs)—community evaluation tool and education
4. Mental Health
5. Unintentional non-fatal hospitalizations
6. Food insecurity

7. Maternal child health gap analysis priorities—pre-term birth, infant mortality rate, teen birth, and children with special healthcare needs

Virginia Mason Memorial identified three of these priorities based on greatest need and our ability to address those need as our 'primary' priority areas. Those needs were: Access to care, Disparities in Health Outcomes, and Adverse Childhood Experiences.

### Access to Care

Virginia Mason Memorial facilitates the education of patients, employees and community members on accessing Washington State Health Benefits Exchange. We are working with partners as part of the Accountable Communities of Health (ACHs) to explore development of a regional health improvement collaborative. We have instituted a number of internal initiatives to reduce patient wait time to get an appointment and during an appointment. We partner with and financially support local community colleges and health profession education programs at: Pacific Northwest University, Heritage University, Yakima Valley Community College, Washington State University and Central Washington Family Medicine. Virginia Mason Memorial mentors and trains local students from health care related college programs across the county. This

allows students to practice in their respective field of study as required to complete their degree and sit for associated exams. After training and completion of coursework, each health professional is ready for the workforce and to fill much needed vacancies within the community. Virginia Mason Memorial also provides a number of continuing medical education programs each year to serve the medical professionals across the community; allowing them to renew licensing and to continue to practice in Yakima County.

#### **Disparities in Health Outcomes**

Virginia Mason Memorial is working on initiatives to improve the collection of demographic data (e.g. Race, Ethnicity, Age and Preferred Language). We developed a Cultural Competency Action Plan to better serve our diverse community. We have established community education and prevention programs for the top four disease states identified in the 2013 Community Health Needs Assessment which are: Cardiovascular Disease, Cancer, Diabetes and Obesity. These programs are available in both Spanish and English and include: Diabetes Education Prevention, Chronic Disease Management, *ACT! Get Moving!* Childhood Obesity Program, Healthy for Life Exercise and Cooking classes Finally, Virginia Mason Memorial's pharmacy provides access

to medications to those in the community who cannot otherwise afford it.

#### **Adverse Childhood Experiences (ACEs)**

Virginia Mason Memorial has worked to mitigate ACEs by implementing evidence based practices proved to decrease long-term poor health outcomes. Nurse Family Partnerships (NFP) is an evidence-based nurse home visitation program that enrolls first-time low-income mothers early in their pregnancy and follows them throughout their child's second birthday. The goal of NFP is to improve child health and development by helping parents provide responsible and competent care for their children. Furthermore, families economic self-sufficiency is improved by helping parents develop a vision for their own future, plan future pregnancies, continue their education and find work. Healthy Pregnancy is an enhanced preventive health and education service intervention for eligible pregnant clients. Services are provided anytime in pregnancy based on the mother's individual risks and needs. Infant case care management provides services to improve the welfare of infants by providing their parents with information and assistance for necessary medical, social, educational and other services throughout the infant's first year.

Two priority areas were selected as 'secondary' priority areas: Maternal Child Health Gap Analysis Priorities and Unintentional Non-Fatal Hospitalizations; for these we partnered with

and support other community groups and collaboratives who were focusing on these issues.

#### **Unintentional Non-Fatal Hospitalizations—Falls**

The 2013 Community Health Needs Assessment showed that unintentional falls increased in Yakima County with 968 falls reported in 2010. Virginia Mason Memorial noticed rates of falls were also increasing in the hospital and responded by implementing an organization-wide inpatient and outpatient falls policy. We began documenting and discussing every fall that occurred both in facility or that was witnessed in home by a home health worker, with the goal of putting procedures in place and mitigating every factor to reduce fall risk within our control. Every employee at Virginia Mason Memorial is given fall prevention training. Fall risk assessments are completed during every nurse shift in the hospital and fall data is discussed during a monthly fall committee meeting. Immediately following any new fall, employees and supervisors meet to look at the reasons for the fall and make immediate changes to prevent future falls. Due to this initiative

there has been a decrease in patient falls both at the hospital and in home care.

### **Maternal Child Health Gap Analysis Priorities**

The 2013 Community Health Needs Assessment showed high and increasing rates of infant mortality in the Native American Population in Yakima County. Virginia Mason Memorial is a partner in 'TTÁWAXT' a multi-agency collaborative effort led by Indian Health Services on the Yakima Reservation to investigate and reduce infant mortality and promote healthy families within tribal communities. Furthermore, we participate in the 'Obstetrics Clinical Outcomes Assessment Program (OB COAP),' a Foundation for Health Care Quality (FHCQ) program which focuses on health professional's decisions made during labor and delivery. As an OB COAP participant we provide specific chart-abstracted data about the care given to women during labor, delivery and postpartum periods which FHCQ then utilizes for analysis and discussion to evaluate labor management practices and interventions commonly used in labor and delivery, as well as care implications of decisions. This allows for opportunities to explore methods for actionable and sustainable improvements in hospitals across the state of Washington.

Data has shown this program reduces up to 3,000 neonatal intensive care cases per year across Washington state..

Due to resources and partner agencies being better suited to address certain needs, we did not directly address Food Insecurity or Mental Health. Firstly, in regards to Food Insecurity, we are working with our regional Accountable Community of Health and Partnering with others in Yakima County to find a way of addressing this issue at a systems level. Secondly, for Mental Health, Virginia Mason Memorial does not currently have the resources or capacity to provide outpatient services, we have an inpatient psychiatric department which is licensed to specifically treat patients who also require medical attention in addition to psychiatric services and we are currently the only facility in the county licensed to do this. We refer outpatient behavioral health services to our community partner Comprehensive Healthcare. Comprehensive Healthcare is a full service inpatient and outpatient behavioral health service which works across nine counties in the state of Washington. Comprehensive Healthcare works with all age groups, offers a drop in center for at risk youth, operates a crisis line and does a wide range of community education activities throughout Yakima County.

Virginia Mason Memorial's progress in addressing these priority areas will be described throughout this 2016 Community Health Needs Assessment in the associated sections. Programs and initiatives which seek to address a specific 2013 priority area will be specified by PA (Priority Area) and the number of the priority above. For example, if PA1 is included with the description of a specific program that shows the program addressed priority area number one: access to care.

# YAKIMA COUNTY

Yakima County is composed of primarily rural communities (14 cities and towns) in Central Washington, spanning 4,296 square miles, with a 65% Medicare/Medicaid payer mix. Total current population for Yakima County as of July 1, 2015 is 248,830. The increase in population has slowed over the last 5 years; between 2000 and 2010 the population in Yakima County grew by 20,658 persons (9.3%), but only increased an additional 2.3% between 2010 and 2014.<sup>1</sup> The population density for this area, estimated at 57.36 persons per square mile, is less than the national average population density of 88.93 persons per square mile. The Primary Service Area (PSA) of Virginia Mason Memorial is comprised of Yakima County. Secondary Service Areas (SSA) for highly specialized programs and services (e.g. Children's Village) stretches into neighboring counties including Kittitas and Klickitat. Yakima County is home to nearly 10,000 migrant and seasonal farmworkers and their dependents.<sup>2</sup> The percentage of the population living in urban areas is 76.5% compared with 24% living in rural areas, which is a higher proportion of rural population than both the National and Washington State averages—81% vs. 19% and 84% vs. 16%, respectively.<sup>3</sup> Located within Yakima County is the Yakama Nation Reservation which is over 1.3 million acres and reaches across the cascades.





## Demographics

### Race/Ethnicity

The majority of the population in Yakima County is Hispanic/Latino and Caucasian, both groups comprising nearly 93% of the total population. The American Indian/Alaska Native population is more than three times the state average and the Yakama Nation Reservation is located within Yakima County.

### Age

The highest proportion of Yakima County residents (25.1%) is between 25-44, followed by age 45-64 (22.6%), but both groups are a lower proportion of the total population than for Washington state and the United States overall. Compared to Washington, Yakima County has a younger resident population with a median age of 32.4 years compared to 37.4 years in WA. More specifically, Yakima County has higher proportions of children under 18 years of age, and fewer adults age 25 to 64, compared to WA.

The demographics of Yakima County related to age and ethnicity are changing as the county experiences a large growth in younger Hispanics. This is reflected in the population pyramid for Yakima County which shows a large Hispanic population under forty years of age.

### Percentage of population by Race/Ethnicity¹

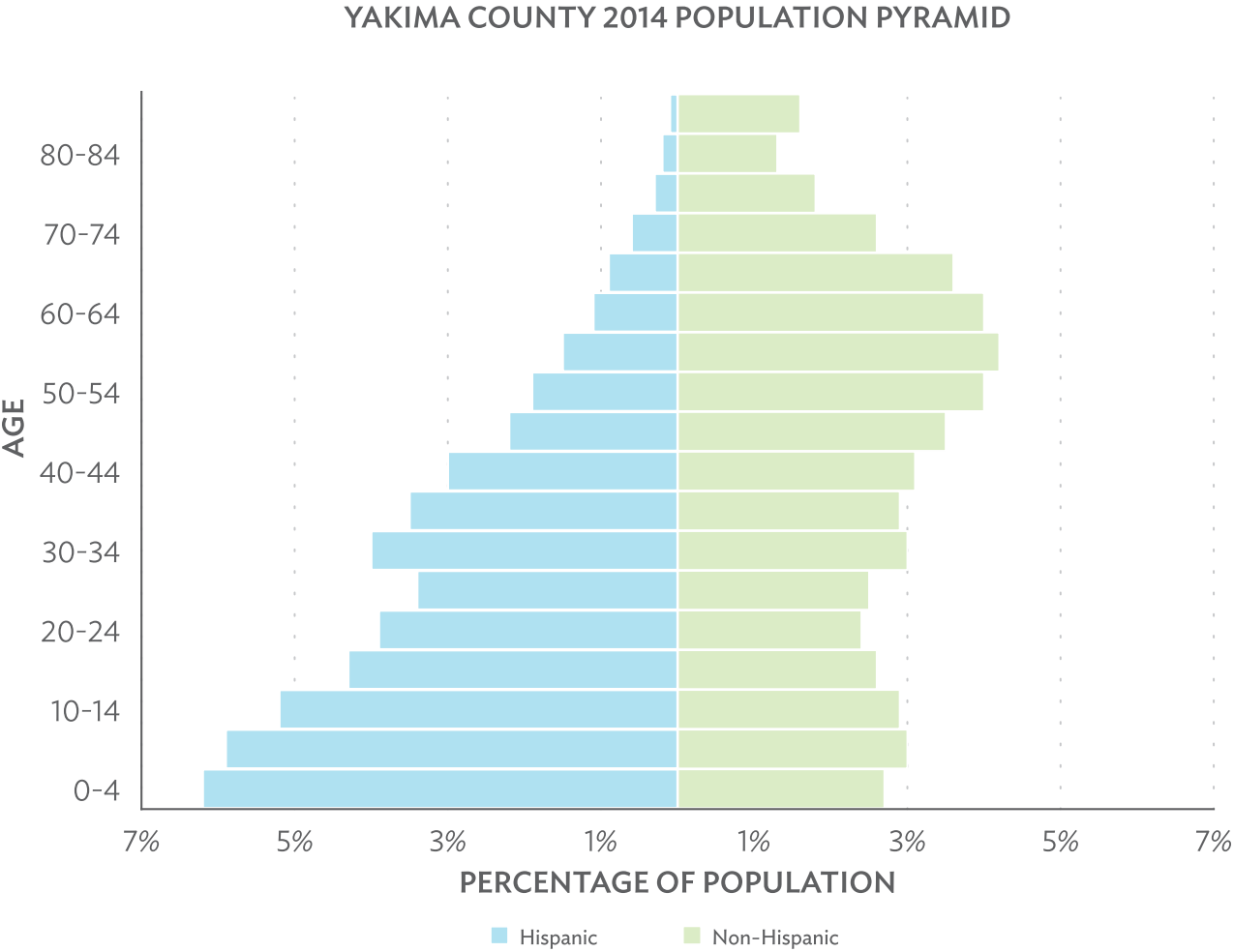
	Yakima County	Washington State	United States
Hispanic or Latino	46.5%	11.7%	16.9%
White	46.2%	71.3%	62.8%
American Indian & Alaskan Native	3.6%	1.2%	0.7%
Asian	0.9%	7.4%	4.9%
Black or African American	0.6%	3.5%	12.2%
Native Hawaiian and Other Pacific Islander	0%	0.6%	0.2%
Some Other Race	0.1%	0.1%	0.2%
2 or More Races	2.0%	4.1%	2.1%

Race and Ethnicity are combined, therefore all Race groups are Non-Hispanic/Latino.

### Percentage of Population by Age Group¹

	Age 0-4	Age 5-17	Age 18-24	Age 25-34	Age 35-44	Age 45-54	Age 55-64	Age 65+
Yakima County	8.65%	21.46%	10.13%	13.07%	11.98%	11.95%	10.66%	12.11%
Washington	6.43%	16.62%	9.61%	14.18%	13.23%	13.98%	12.78%	13.17%
United States	6.36%	17.13%	9.96%	13.47%	12.96%	14.09%	12.29%	13.75%





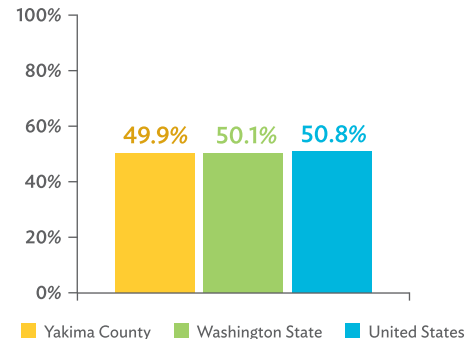
### Gender

Females represented 49.93% of the total population in the area, which was less than the national average of 50.81%.<sup>1</sup>

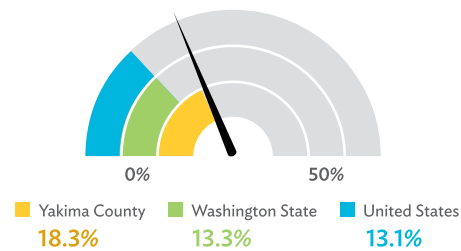
### Foreign Born Population

This indicator reports the percentage of the population that is foreign-born. The foreign-born population includes anyone who was not a U.S. citizen or a U.S. national at birth. This includes any non-citizens, as well as persons born outside of the U.S. who have become naturalized citizens. The native U.S. population includes any person born in the United States, Puerto Rico, a U.S. Island Area (such as Guam), or abroad of American (U.S. citizen) parent or parents. The latest figures from the U.S. Census Bureau show that 44,983 persons in Yakima County are of foreign birth, which represents 18.3% of Yakima County population. This percentage is greater than the national rate of 13.1%.<sup>1</sup>

Total Female Population<sup>1</sup>

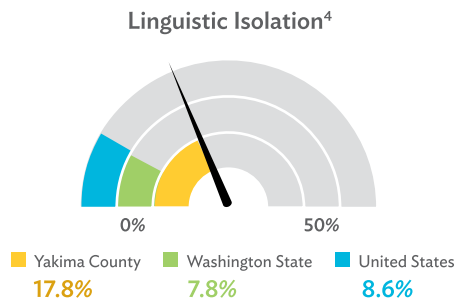


Foreign-Born Population<sup>1</sup>



### Primary Language/Linguistic Isolation

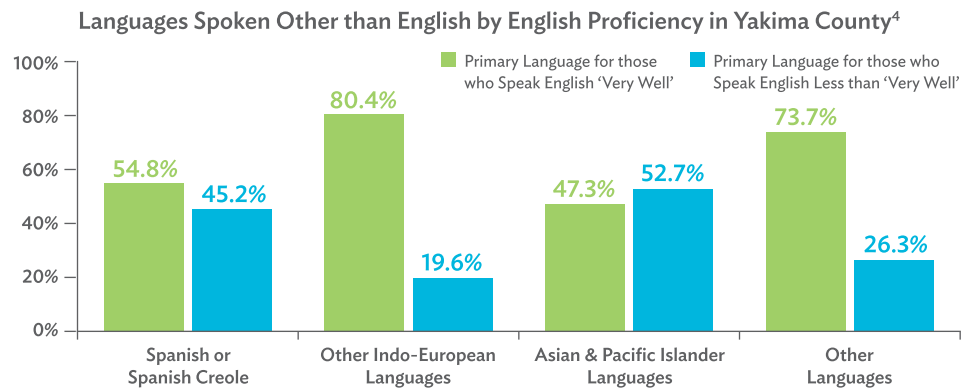
This indicator is significant as it identifies households and populations that may need English-language assistance; furthermore the inability to speak English well creates barriers to healthcare access, provider communications, and health literacy/education.



A linguistically isolated household is one in which no member 14 years old and over speaks only English or speaks a non-English language and speaks English “very well.”

### Primary Language Spoken at Home <sup>4</sup>

	Yakima County	Washington State	United States
English	60.2%	81.2%	79.1%
Spanish or Spanish Creole	38.2%	8.3%	13.0%
Asian & Pacific Islander Languages	0.6%	3.9%	3.7%
Other Indo-European Languages	0.7%	5.6%	3.3%
Other Languages	0.3%	1.0%	0.9%



## Cultural Competency Action Plan (PA2)

The Cultural Competency Action Plan consists of Collection of Race, Ethnicity, and Language (REL) data across Virginia Mason Memorial and primary care clinics. So far, Hospital and Clinic baseline data has been collected. In addition, we have done the following to train staff and improve collection process:

- Began process of collecting Race, Ethnicity, Age and Language ('REAL') data from all patients.

- Developed communications for staff and patients describing why we have begun collecting REAL data and the importance.
- Since 2015 Memorial has implemented a Cultural Competence Training Program across the Family of Services.
- Implemented ALTA language testing for all new hires that will be interpreting for patients.'

## Marital Status

This indicator is significant as research has shown a direct connection between marriage and health and mortality; with married persons living longer and being healthier than unmarried persons, and this is especially true for men.<sup>5</sup>

Percentage of Population by Marital Status<sup>1</sup>

	Yakima County	Washington State	United States
Never Married	32.6%	30.5%	32.5%
Married	48.6%	50.8%	48.4%
Married but Separated	2.6%	1.7%	2.2%
Divorced	10.7%	12.1%	10.9%
Widowed	5.4%	5.0%	5.9%

# SOCIAL & ECONOMIC DETERMINANTS OF HEALTH

## Healthy People 2020<sup>6</sup>

Health starts in our homes, schools, workplaces, neighborhoods, and communities. We know that taking care of ourselves by eating well and staying active, not smoking, getting the recommended immunizations and screening tests, and seeing a doctor when we are sick all influence our health. Our health is also determined in part by access to social and economic opportunities; the resources and supports available in our homes, neighborhoods, and communities; the quality of our schooling; the safety of our workplaces; the cleanliness of our water, food, and air; and the nature of our social interactions and relationships. The conditions in which we live explain in part why some Americans are healthier than others and why Americans more generally are not as healthy as they could be.

Social determinants of health are conditions in the environments in which people are born, live, learn, work, play, worship, and age that affect a wide range of health, functioning, and quality-of-life outcomes and risks. Conditions (e.g., social, economic, and physical) in these various environments and settings (e.g., school, church, workplace, and neighborhood) have been referred to as “place.” In addition to the more material attributes of “place,” the patterns of social engagement and sense of security and well-being are also affected by where people live. Resources that enhance quality of life can have



✧ / A “place-based” organizing framework, reflecting five key areas of social determinants of health (SDOH), developed by Healthy People 2020.<sup>6</sup>

a significant influence on population health outcomes. Examples of these resources include safe and affordable housing, access to education, public safety, availability of healthy foods, local emergency/health services, and environments free of life-threatening toxins.

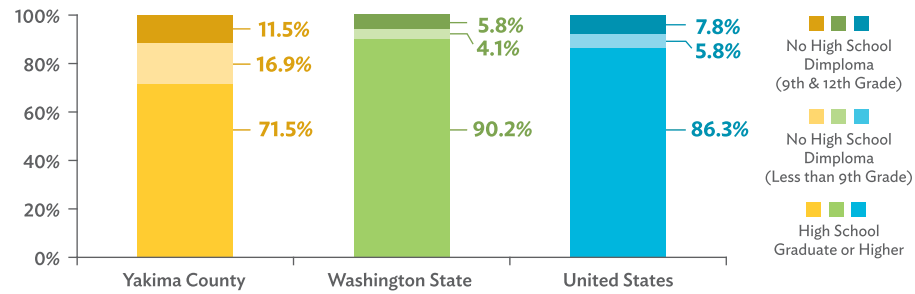
Understanding the relationship between how population groups experience “place” and the impact of “place” on health is fundamental to the social determinants of health—including both social and physical determinants.

## Education

Education is a key societal factor in supporting child and youth development, skill-building for future jobs and/or secondary education, and for supporting adults in job training or career development. Poverty in early life can negatively impact educational outcomes. Higher educational attainment is linked to higher future income, furthermore research suggests education is one the strongest predictors of health.

Not only does one's education level affect his or her health, but education can have multigenerational implications that also make it an important measure for the health of future generations. Parents' level of education affects their children's health directly through their ability to access resources available to the children, and also indirectly through the quality of schools that the children attend.<sup>10</sup>

High School Graduation Rate (Age 25+)<sup>1</sup>



Attainment Level for High School Graduates (Age 25+)<sup>1</sup>

	Yakima County	Washington State	United States
High School Diploma	26.8%	23.3%	28.0%
Some College, No Degree	21.4%	24.9%	21.2%
AA Degree	7.5%	9.7%	7.9%
Bachelor's Degree or Higher	15.9%	32.3%	29.3%

## Health Literacy

### U.S. Department of Health and Human Services<sup>12</sup>

Health literacy is the degree to which individuals have the capacity to obtain, process, and understand basic health information and services needed to make appropriate health decisions.<sup>13</sup>

Health literacy is dependent on individual and systemic factors:

- Communication skills of lay persons and professionals
- Lay and professional knowledge of health topics
- Culture
- Demands of the healthcare and public health systems
- Demands of the situation/context

Health literacy affects a person's ability to:

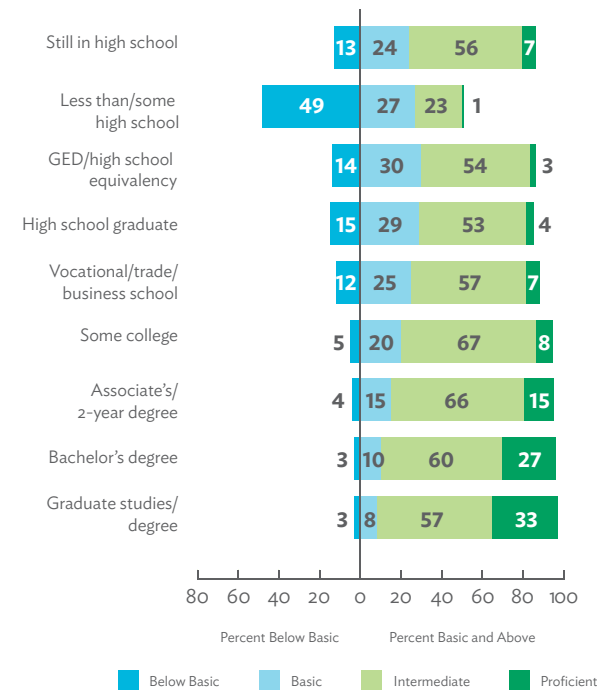
- Navigate the healthcare system, including filling out complex forms and locating providers and services
- Share personal information, such as health history, with providers
- Engage in self-care and chronic-disease management
- Understand mathematical concepts such as probability and risk

The primary responsibility for improving health literacy lies with public health professionals and the healthcare and public health systems. We must work together to ensure that health information and services can be understood and used by all Americans.

Currently there exists no state or county level data for health literacy. However, national data shows that of individuals who have not graduated from high school: 49% have a below basic understanding of health literacy; 27% have a basic understanding; 23% have an intermediate understanding; 1% have a proficient understanding. Therefore we can extrapolate if 28.5% of Yakima's adult population did not graduate from high school than 75% of that population have a basic to below basic understanding of health literacy: **21.7% of Yakima's total adult population.**

Differences in language spoken may also have an effect on health literacy, especially if materials are only available in English or not translated appropriately.

## EDUCATIONAL ATTAINMENT



From [https://nces.ed.gov/naal/health\\_results.asp](https://nces.ed.gov/naal/health_results.asp)

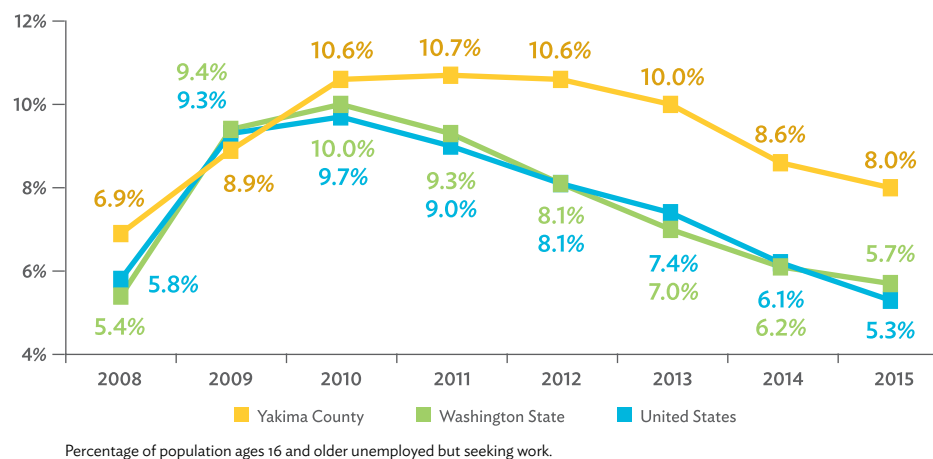


## Unemployment

A steady job in safe working conditions means more than simply a paycheck—employment can also provide numerous benefits critical to maintaining proper health. On the flip side, job loss and unemployment are associated with a variety of negative health effects. Unemployment has been linked to poor health and stress related conditions such as stroke, heart attack, heart disease or arthritis. Unemployed individuals are more likely than employed to be diagnosed with depression and report feelings of sadness and worry; as well as unhealthy coping behaviors such as smoking, alcohol and drugs.<sup>15</sup>

This indicator is relevant because unemployment creates financial instability and barriers to access including insurance coverage, health services, healthy food, and other necessities that contribute to poor health status.

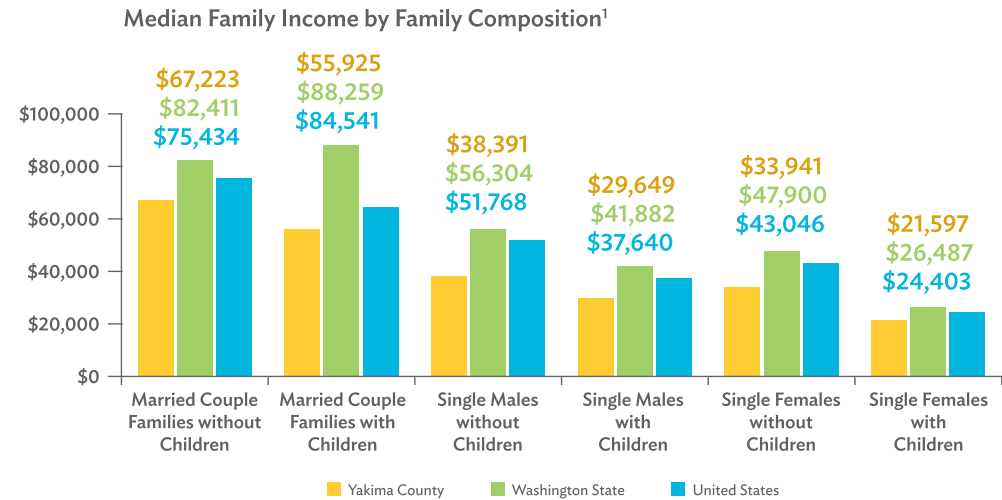
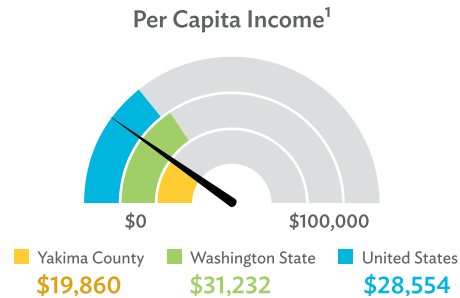
Average Annual Unemployment, 2008-2015<sup>16</sup>

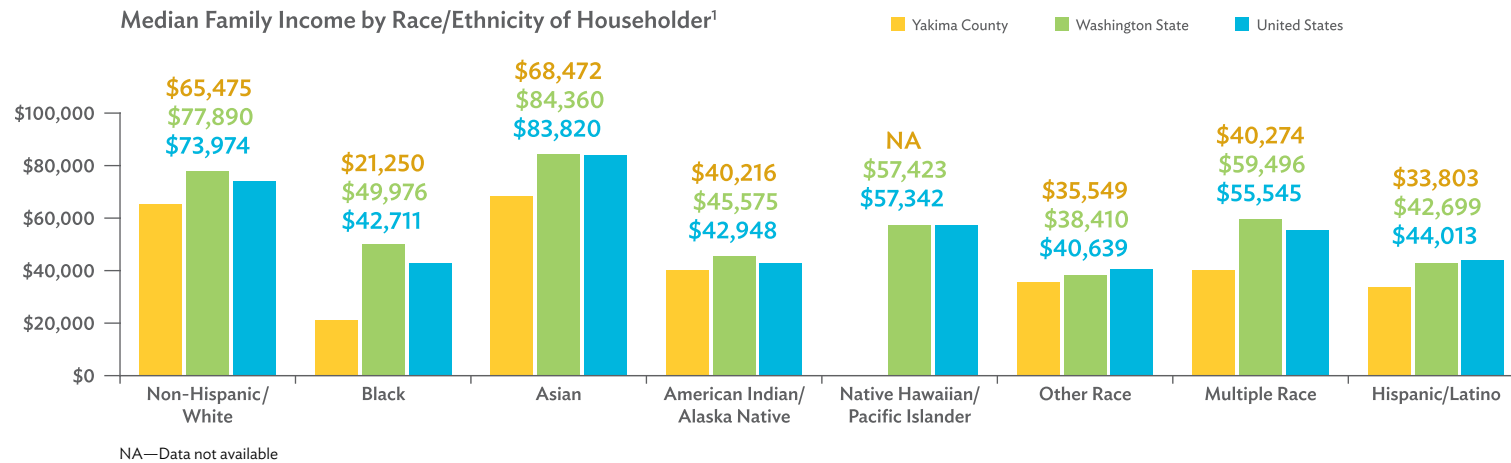


## Income

Economic insecurity is often associated with poor health. Higher income and social status are linked to better health, the greater the gap between the richest and poorest people, the greater the differences in health. Income inequality within U.S. communities can have broad health impacts, including increased risk of mortality, poor health<sup>17</sup>, and increased cardiovascular disease risks. Communities with greater income inequality can experience loss of social connections and decreases in trust or social support and sense of community for all residents.<sup>11</sup>

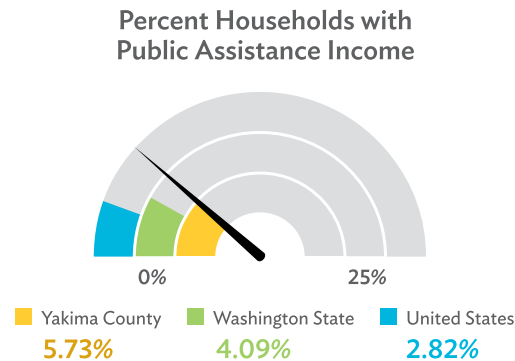
The per capita income for Yakima County is \$19,860. This includes all reported income from wages and salaries as well as income from self-employment, interest or dividends, public assistance, retirement, and other sources. The per capita income in this report area is the average (mean) income computed for every man, woman, and child in the specified area.<sup>1</sup>





### Public Assistance Income<sup>1</sup>

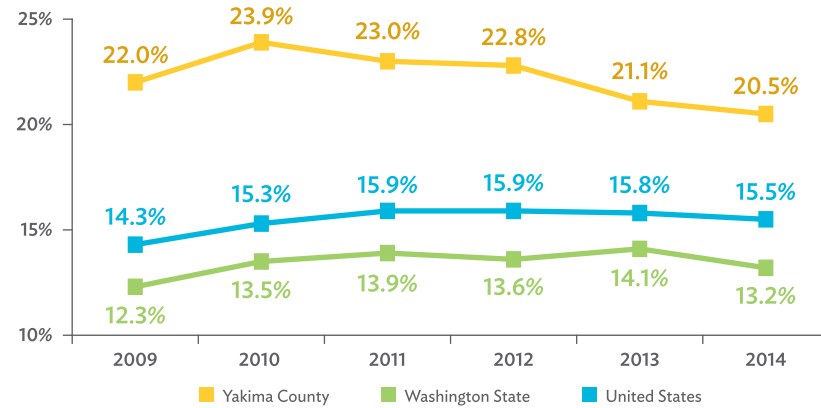
This indicator reports the percentage households receiving public assistance income. Public assistance income includes general assistance and Temporary Assistance to Needy Families (TANF). Separate payments received for hospital or other medical care (vendor payments) are excluded. This does not include Supplemental Security Income (SSI) or noncash benefits such as Food Stamps.



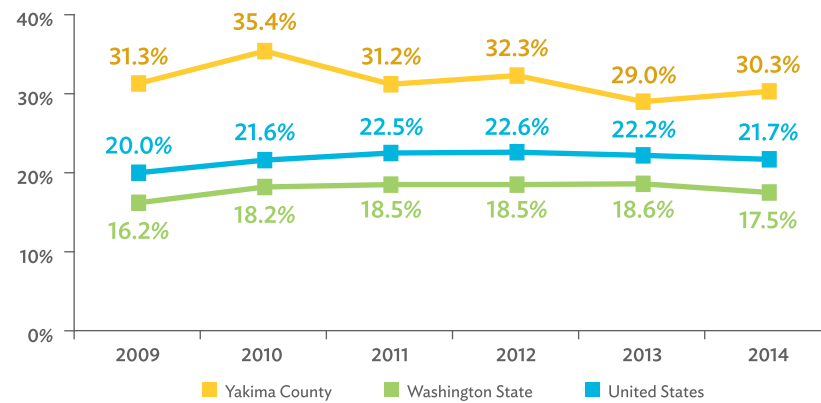
## Poverty

Poverty can result in an increased risk of mortality, prevalence of medical conditions and disease incidence, depression, intimate partner violence, and poor health behaviors. A 1990 study found that if poverty were considered a cause of death in the U.S., it would rank among the top 10 causes.<sup>18</sup> While negative health effects resulting from poverty are present at all ages, children in poverty experience greater morbidity and mortality than adults due to increased risk of accidental injury and lack of health care access.<sup>19,20</sup> Children's risk of poor health and premature mortality may also be increased due to the poor educational achievement associated with poverty. The children in poverty measure is highly correlated with overall poverty rates.<sup>11</sup>

Number of Persons Living Below the Federal Poverty Line<sup>21</sup>



Children Under the Age of 18 Living in Poverty<sup>22</sup>



## Children Eligible for Free Lunch

Children Eligible for Free Lunch is the percentage of children enrolled in public schools eligible for free lunch. Eligibility for free lunch is a way of measuring the effect of poverty on children and it also helps to identify vulnerable populations which are more likely to have multiple health access, health status, and social support needs.

Data collected in 2014 shows that in Yakima County the percentage of children eligible for free school lunch was 67.8% compared with only 38.2% for all of Washington State. Furthermore, that there has been an increase in the percentage of children eligible for free school lunch in Yakima County from 59.8% in 2008, while the State levels remain the same.<sup>23</sup>

## Food Insecurity

Food insecure households are not necessarily food insecure all the time. Food insecurity may reflect a household's need to make trade-offs between important basic needs, such as housing or medical bills, and purchasing nutritionally adequate foods.

Studies have shown that childhood hunger leads to poor academic performance in school and

more recently a study has shown a correlation to low self-control, and interpersonal violence later in life.

The findings show that 37% of the participants who had experienced frequent hunger during childhood reported that they had been involved in interpersonal violence. Of those who experienced little to no childhood hunger, 15% said they were involved in interpersonal violence. The findings were strongest among whites, Hispanics, and males.

The findings highlight the need to find solutions for people living in “food deserts”—neighborhoods that have little access to grocery stores with healthy food choices, as opposed to convenient stores which have mostly processed, prepackaged food.<sup>25</sup>

There are an estimated 28, 450 food insecure people living in Yakima County. The average cost of a meal is \$2.84. The additional money required to meet all food needs in Yakima County estimated for 2014 is \$14,264,000.

Percent of the Population Experiencing Food Insecurity<sup>24</sup>

	2012	2013	2014
Yakima County	14.7%	12.0%	11.5%
Washington	15.0%	14.6%	13.7%
United States	15.9%	15.8%	15.4%

Food insecurity refers to United States Department of Agriculture's measure of lack of access, at times, to enough food for an active, healthy life for all household members and limited or uncertain availability of nutritionally adequate foods.

## Housing & Transportation Affordability

Affordable housing is critically important to the well-being and health of children and families. Without decent and affordable housing, families have trouble managing their daily lives and their children's safety; health and development suffer. Families who pay more than they can afford for housing have too little left over for other necessities such as food, clothing and healthcare. They may not be able to pay for transportation and childcare, making it harder to go to work and school each day.<sup>26</sup>

### **United States Department of Transportation<sup>27</sup>**

*Housing costs are the single largest expense for most households. When combined with transportation costs, they account for approximately half of the average U.S. household budget. Combined housing and transportation costs strongly reflect aspects of the built environment. Those include density, land use mix, and overall accessibility, which influence public health through physical activity and access to basic amenities.*

*Although housing costs are regularly accounted for in location decisions, transportation costs often are not adequately considered when making decisions about where to live and work.*

*Affordable housing is typically defined as housing that requires no more than 30% of a household's income,<sup>28</sup> but this measure does not take into account the transportation costs*

*associated with home locations. True affordability is related to the cost of housing and the cost of transportation from that location.<sup>29</sup>*

*Neighborhood and community characteristics, including relative housing and transportation costs, contribute to health disparities by racial/ethnic group, income level, and education level.<sup>30</sup> Communities that are walkable and public transportation-friendly allow residents to access employment and amenities easily and effectively with less dependence on an automobile. This could result in not only saved time and money, but also in increased physical activity and reduced greenhouse gas emissions. However, these communities also tend to have higher housing costs, thus potentially pushing lower-income residents to live where they are not able to reap the many benefits of accessible housing and transportation.*

Percentage of Population Paying More Than 30% of Income Towards Housing<sup>1</sup>

	Yakima County	Washington State	United States
Home Owners	26.5%	29.8%	27.6%
Renters	54.2%	50.6%	52.3%

Percentage of Income Spent on Housing and Transportation<sup>27</sup>

	Yakima County
Percentage of Income	55.3%
Percentile (compared to other counties in the US)	31st

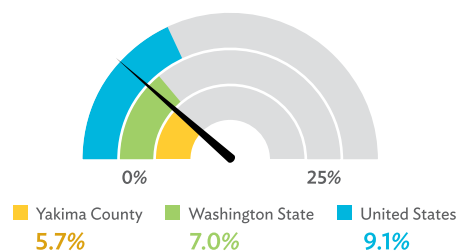
## Households without a car

Transportation barriers are often cited as barriers to healthcare access. A number of studies have found that lack or inaccessibility of transportation may be associated with less health care utilization, lack of regular medical care, and missed medical appointments, particularly for those from lower economic backgrounds. These consequences may lead to poorer management of chronic illness and thus poorer health outcomes.<sup>31</sup>

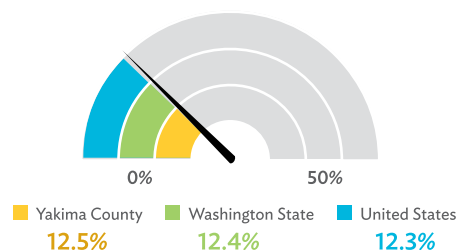
## Disability Status

Disability is defined as a long-lasting physical, mental, or emotional condition. This condition can make it difficult for a person to perform basic activities such as walking, climbing stairs, self-care, learning or remembering. Individuals with disabilities may be less visible, under-counted, or underserved and therefore experience disadvantages in health and well-being compared with the general population. The potential for a lack of access to healthcare services and medical care may increase a person's risk for various health and mental health conditions.<sup>26</sup> This is relevant because disabled individuals comprise a vulnerable population that requires targeted services and outreach by providers.<sup>7</sup>

Household with No Vehicle Available<sup>1</sup>



Population with a Disability<sup>1</sup>



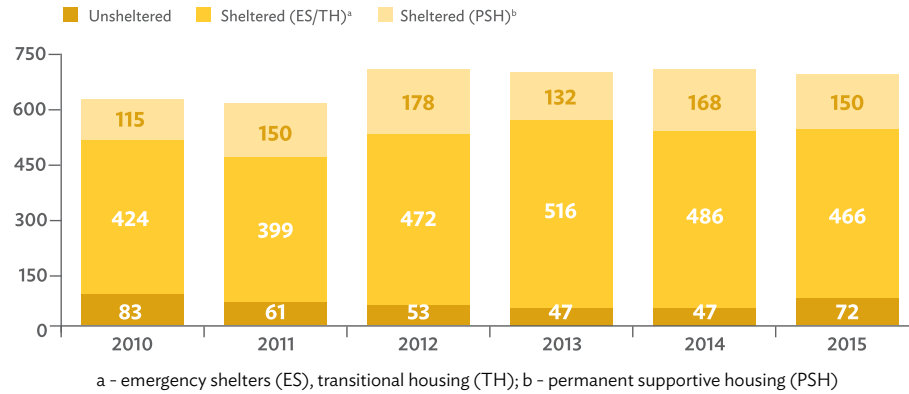


## Homelessness

The health of a community can be measured simply by the well-being of the least stable. Long-term homelessness cuts an average of 20 years off the lifespan of a person. It also reduces their productivity and increases the burden their presence places on the community. In short, homelessness exacts cost on everyone—those with shelter and those without.<sup>32</sup>

Additional information on the state of homelessness in Yakima County can be found in the Yakima Valley Conference of Governments Homeless Program's yearly *Point in Time Stakeholder Report*.<sup>33</sup>

### Homeless Individuals in Yakima County<sup>33</sup>



### Ethnicity of Sheltered Count Individuals in Yakima County<sup>33</sup>

	2013	2014	2015
Hispanic	245	255	234
Not Hispanic	393	385	379
Refused	10	14	3
Total	648	654	616

## Safety, Crime and Violence

Violence impacts both individuals and communities. Violent crime is linked to disability, mental health issues and increased medical costs, and may result in premature death or injury.

Domestic or family violence includes parent/guardian abuse of children and intimate partner violence (IPV). Intimate partner violence includes acts of physical or sexual violence or abuse that occur between partners or spouses and can affect any age and any gender. Children exposed to violence are more likely to act out in school and have a greater potential for perpetrating violence in the future. While gang and gun-related violence remain a key area of concern in the U.S., other forms of violence, especially bullying and cyber-bullying, have been the focus of increasing research and public attention.<sup>26</sup>

### Crime Map<sup>34</sup>

Yakima County now utilizes the CrimeReports Crime Map which helps law enforcement agencies promote two-way dialogue with their community, and improve public and media perception by proactively sharing local crime information and visibility to agency operations. Citizens can sign up to receive alerts from local agencies, as well as customized daily, weekly, or monthly updates on any number of crime types.

The map can be accessed through the Yakima County website:

<http://www.yakimacounty.us/428/crime-map>

## Homicide Deaths

Homicide Mortality Rate 2012–2014 (by Sex)<sup>35</sup>

	Yakima County	Washington State	United States
Male	12.7	4.5	8.2
Female	N.A.	1.6	2.2

Homicides are the number of deaths from assaults, per 100,000 population; N.A.—data not available.

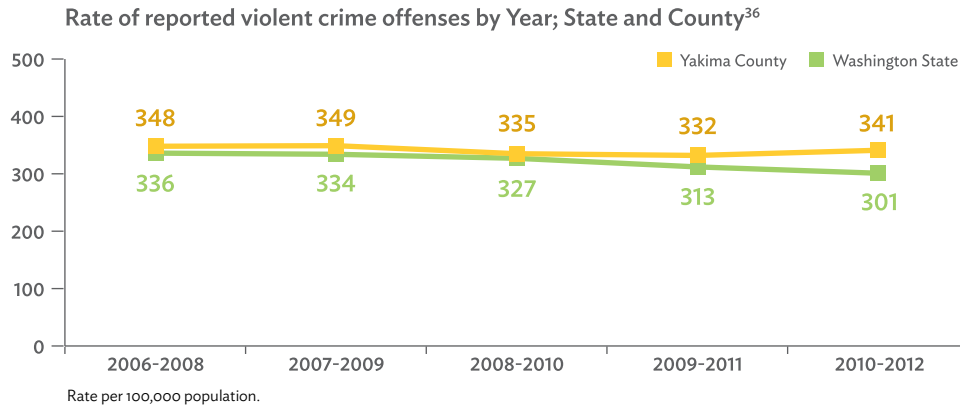
Homicide Mortality Rate 2012–2014 (by Race/Ethnicity)<sup>35</sup>

	Yakima County	Washington State	United States
White	7.7	2.7	3.1
Black/African American	N.A.	10.4	17.8
American Indian or Alaskan Native	N.A.	5.7	5.6
Asian or Pacific Islander	N.A.	1.2	1.6
Hispanic or Latino	9.0	4.1	4.6

Homicides are the number of deaths from assaults, per 100,000 population; N.A.—data not available.

### Violent Crime

Violent crime includes homicide, rape, robbery, and aggravated assault. This indicator is relevant because it assesses community safety.<sup>36</sup>



### Domestic Violence

Domestic violence is defined as a pattern of abusive behavior in any relationship that is used by one partner to gain or maintain power and control over another intimate partner. Domestic violence can be physical, sexual, emotional, economic, or psychological actions or threats of actions that influence another person. This includes any behaviors that intimidate, manipulate, humiliate, isolate, frighten, terrorize, coerce, threaten, blame, hurt, injure, or wound someone. Domestic violence can happen to anyone regardless of race, age, sexual orientation, religion, gender, socioeconomic status or education level. Domestic violence not only affects those who are abused, but also has a substantial effect on family members, friends, co-workers, other witnesses, and the community at large.

### Incidence of Reported Domestic Violence<sup>37</sup>

	2013	2014
Yakima County	1796	1674

### Domestic Violence Fatalities (includes totals for Homicide, Suicide, and Police Intervention)<sup>38</sup>

	2009	2010	2011	2012	2013	2014
Yakima County	67	63	67	55	38	50

### Adolescents Safety and Violent Behavior

#### National Institute of Child Health and Human Development (NICHD)<sup>39</sup>

Bullying can lead to physical injury, social problems, emotional problems, and even death.<sup>40</sup> Children and adolescents who are bullied are at increased risk for mental health problems, including depression, anxiety, headaches, and problems adjusting to school. Bullying also can cause long-term damage to self-esteem.<sup>42</sup> Children and adolescents who are bullies are at increased risk for substance use, academic problems, and violence to others later in life.<sup>41</sup> Children or adolescents who are both bullies and victims suffer the most serious effects of bullying and are at greater risk for mental and behavioral problems than those who are only bullied or who are only bullies.<sup>41</sup> NICHD research studies show that anyone involved with bullying—those who bully others, those who are bullied, and those who bully and are bullied—are at increased risk for depression.<sup>43</sup> NICHD-funded research studies also found that unlike traditional forms of bullying, youth who are bullied electronically—such as by computer or cell phone—are at higher risk for depression than the youth who bully them.<sup>44</sup> Even more surprising, the same studies found that cyber victims were at higher risk for depression than were cyberbullies or bully-victims (i.e., those who both bully others and are bullied themselves), which was not found in any other form of bullying.

#### Students report being bullied at school <sup>45</sup>

		2004	2006	2008	2010	2012	2014
8th Grade	Yakima County	28%	26%	28%	30%	29%	30%
	Washington	29%	27%	29%	30%	31%	28%
10th Grade	Yakima County	22%	23%	22%	22%	23%	23%
	Washington	22%	23%	23%	24%	25%	23%
12th Grade	Yakima County	15%	16%	14%	17%	19%	18%
	Washington	16%	16%	16%	17%	18%	16%

Feeling safe is a basic and fundamentally important need. It is well known that when students—or adults—do not feel safe, it undermines learning, teaching and healthy development. Historically, schools have paid attention to physical safety and less attention to social and emotional safety.<sup>46</sup>

#### Students report not feeling safe at school <sup>45</sup>

		2004	2006	2008	2010	2012	2014
8th Grade	Yakima County	24%	25%	23%	22%	21%	22%
	Washington	19%	18%	19%	17%	16%	14%
10th Grade	Yakima County	23%	25%	24%	21%	21%	21%
	Washington	20%	23%	18%	15%	15%	15%
12th Grade	Yakima County	19%	20%	22%	19%	18%	18%
	Washington	15%	19%	15%	12%	13%	13%

*Weapon-carrying among adolescents is associated with an increased risk, within a 12-month period, of injuries requiring medical treatment, repeat/multiple injuries, and injuries requiring hospitalization.* <sup>47 48</sup>

Students report carrying a weapon at school <sup>45</sup>

		2004	2006	2008	2010	2012	2014
8th Grade	Yakima County	6%	6%	6%	7%	5%	5%
	Washington	5%	6%	6%	5%	4%	4%
10th Grade	Yakima County	7%	9%	9%	8%	7%	7%
	Washington	7%	9%	8%	7%	6%	6%
12th Grade	Yakima County	8%	10%	9%	9%	7%	9%
	Washington	8%	9%	8%	7%	7%	6%

# CLINICAL CARE

## Access to Health Services

Access to healthcare is critical to maintaining overall physical, social and mental health and aids in the prevention and treatment of disease and disability. Physical accessibility includes being accessible to people with limited mobility. Cultural and linguistic respect and inclusiveness ease the way for people who are less able or less likely to use existing health services. Additionally, access to healthcare also includes availability of emergency services. However, the basic tenet of the access to healthcare concept is a focus on decreasing the need for emergency room visits through preventive medical, dental, nutrition and mental health care. Access to regular medical and dental checkups and the financial support to sustain relationships with primary care providers and pay for prescriptions are critical steps to accessing preventive care throughout life for all residents.

### Healthy People 2020<sup>6</sup>

*Access to comprehensive, quality health care services is important for the achievement of health equity and for increasing the quality of a healthy life for everyone. This topic area focuses on four components of access to care: coverage, services, timeliness, and workforce.*

*Access to health care impacts:*

- Overall physical, social, and mental health status
- Prevention of disease and disability
- Detection and treatment of health conditions
- Quality of life
- Preventable death
- Life expectancy

*Disparities in access to health services affect individuals and society. Limited access to health care impacts people's ability to reach their full potential, negatively affecting their quality of life. Barriers to services include:*

- Lack of availability
- High cost
- Lack of insurance coverage

*These barriers to accessing health services lead to:*

- Unmet health needs
- Delays in receiving appropriate care
- Inability to get preventive services
- Hospitalizations that could have been prevented<sup>49</sup>

### Coverage

*Health insurance coverage helps patients get into the health care system. Uninsured people are:*

- Less likely to receive medical care
- More likely to die early
- More likely to have poor health status<sup>50 51 52</sup>

*Lack of adequate coverage makes it difficult for people to get the health care they need and, when they do get care, burdens them with large medical bills. Current policy efforts focus on the provision of insurance coverage as the principal means of ensuring access to health care among the general population. Other factors, described below, may be equally important to removing barriers to access and utilization of services.*

### Services

*Improving health care services depends in part on ensuring that people have a usual and ongoing source of care. People with a usual source of care have better health outcomes and fewer disparities and costs.<sup>53 54 55</sup> Having a primary care provider (PCP) as the usual source of care is especially important. PCPs can develop meaningful and sustained relationships with patients and provide integrated services while practicing in the context of family and community.<sup>56</sup> Having a usual PCP is associated with:*

- Greater patient trust in the provider
- Good patient-provider communication
- Increased likelihood that patients will receive appropriate care<sup>57 58</sup>

### Timeliness

*Timeliness is the health care system's ability to provide health care quickly after a need is recognized. Measures of timeliness include:*

- Time spent waiting in doctors' offices and emergency departments (EDs)

- Time between identifying a need for specific tests and treatments and actually receiving those services

Actual and perceived difficulties or delays in getting care when patients are ill or injured likely reflect significant barriers to care.<sup>59</sup> Prolonged ED wait time:

- Decreases patient satisfaction.
- Increases the number of patients who leave before being seen.
- Is associated with clinically significant delays in care.
- Causes for increased ED wait times include an increase in the number of patients going to EDs, with much of the increase due to visits by less acutely ill patients. At the same time, there is a decrease in the total number of EDs in the United States.<sup>60</sup>

### **Workforce**

PCPs play an important role in the general health of the communities they serve. However, there has been a decrease in the number of medical students interested in working in primary care.<sup>61</sup> To improve the Nation's health, it is important to increase and track the number of practicing PCPs.

### **Emerging Issues in Access to Health Services**

Access to health care services in the United States is regarded as unreliable; many people do not receive the appropriate and timely care they need. All of these issues, and others, make the

measurement and development of new strategies and models essential. Specific issues that should be monitored over the next decade include:

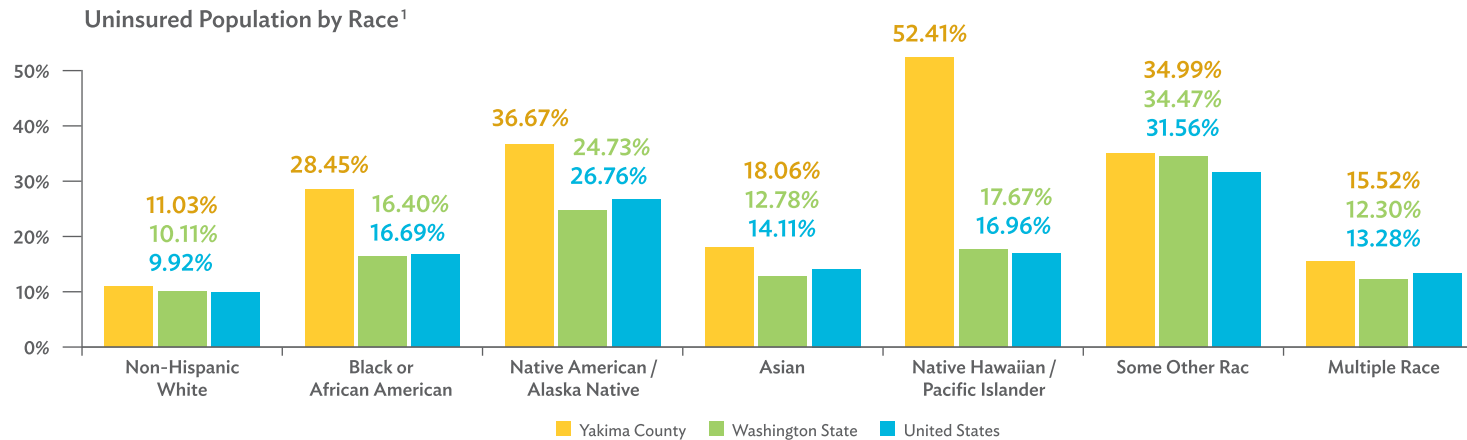
- Increasing and measuring access to appropriate, safe, and effective care, including clinical preventive services.
- Decreasing disparities and measuring access to care for diverse populations, including racial and ethnic minorities and older adults.
- Increasing and measuring access to safe long-term and palliative care services and access to quality emergency care.



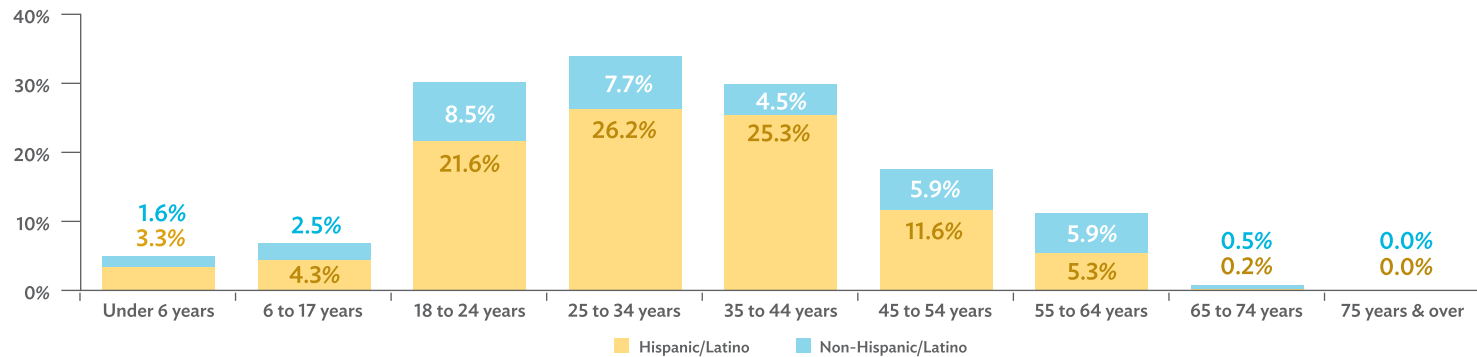
### Total Uninsured Population

The lack of health insurance is considered a key driver of health status. This indicator reports the percentage of the total civilian non-institutionalized population without health insurance coverage. This indicator is relevant because lack of insurance is a primary barrier to healthcare access including regular primary care, specialty care, and other health services that contributes to poor health status.<sup>1 7</sup>

	Total Population (For Whom Insurance Status is Determined)	Total Uninsured Population	Percent Uninsured Population
Yakima County	244,697	39,249	16.00%
Washington	6,792,627	878,242	12.93%
United States	309,082,272	43,878,140	14.20%



Yakima County Uninsured Population by Age and Ethnicity<sup>62</sup>



Uninsured Population Age 18-64, Percent by Year, 2009-2014<sup>63</sup>

	2009	2010	2011	2012	2013	2014
Yakima County	31.4%	35.0%	34.1%	34.5%	36.5%	24.7%
Washington State	18.0%	19.7%	19.6%	19.5%	19.5%	12.71%
United States	20.7%	21.5%	21.1%	20.8%	20.4%	16.37%

Uninsured Population Under Age 18, Percent by Year, 2009-2014<sup>63</sup>

	2009	2010	2011	2012	2013	2014
Yakima County	12.9%	11.9%	9.0%	8.1%	8.7%	6.0%
Washington State	7.3%	6.8%	6.5%	6.1%	6.3%	4.92%
United States	9.0%	8.5%	7.9%	7.5%	7.5%	6.28%

## PCP

Primary care physicians include non-federal, practicing physicians (M.D.'s and D.O.'s) under age 75 specializing in general practice medicine, family medicine, internal medicine, and pediatrics.<sup>11 64</sup>

Primary Care Physician Provider Rate by Year<sup>64</sup>

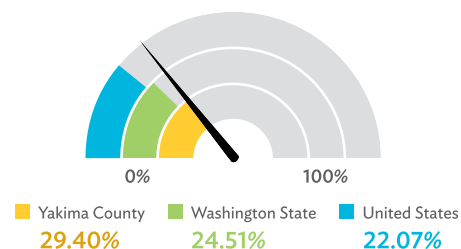
	2008	2009	2010	2011	2012	2013
Yakima County	70.34	75.3	80.17	80.52	81.79	80.96
Washington State	86.24	87.89	90.21	90.53	91.42	92.55
United States	80.16	82.22	84.57	85.83	86.66	87.76

Rate per 100,000 resident population

### Lack of Consistent Source of Primary Care

This indicator reports the percentage of adults aged 18 and older who self-report that they do not have at least one person who they think of as their personal doctor or health care provider. This indicator is relevant because access to regular primary care is important to preventing major health issues and emergency department visits.<sup>65</sup>

### Percent of Adults Without Any Regular Doctor<sup>65</sup>



### Dentists

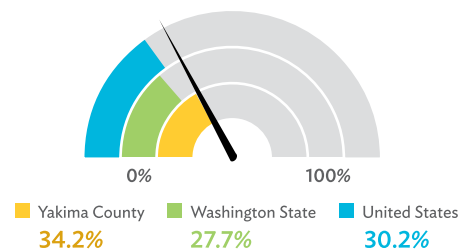
This indicator includes all dentists—qualified as having a doctorate in dental surgery (D.D.S.) or dental medicine (D.M.D.), who are licensed by the state to practice dentistry and who are practicing within the scope of that license.<sup>66</sup>

	Total Population, 2013	Dentists, 2013	Dentists (Rate per 100,000 Pop.)
Yakima County	247,044	149	60.3
Washington State	6,971,406	5,254	75.4
United States	316,128,839	199,743	63.2

### Dental Care Utilization

This indicator reports the percentage of adults aged 18 and older who self-report that they have not visited a dentist, dental hygienist or dental clinic within the past year. This indicator is relevant because engaging in preventive behaviors decreases the likelihood of developing future health problems. This indicator can also highlight a lack of access to preventive care, a lack of health knowledge, insufficient provider outreach, and/or social barriers preventing utilization of services.<sup>67</sup>

### Percent of Adults With No Dental Exam<sup>67</sup>



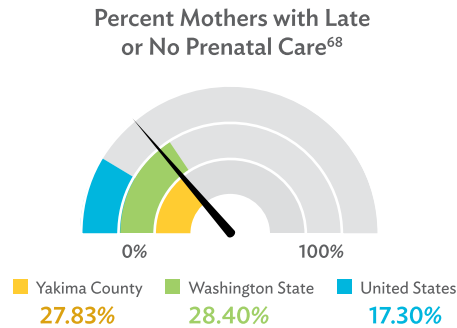
### Mental Health Provider

This indicator reports the rate of the county population to the number of mental health providers including psychiatrists, psychologists, clinical social workers, and counselors that specialize in mental health care.<sup>11</sup>

	Estimated Population	Number of Mental Health Providers	Ratio of Mental Health Providers to Population (1 Provider per x Persons)	Mental Health Care Provider Rate (Per 100,000 Population)
Yakima County	247,687	573	432.3	231.3
Washington State	7,061,561	18,796	375.7	266.1
United States	317,105,555	643,219	493	202.8

### Lack of Prenatal Care

This indicator reports the percentage of women who do not obtain prenatal care during their first trimester of pregnancy. This indicator is relevant because engaging in prenatal care decreases the likelihood of maternal and infant health risks. This indicator can also highlight a lack of access to preventive care, a lack of health knowledge, insufficient provider outreach, and/or social barriers preventing utilization of services.<sup>68</sup>



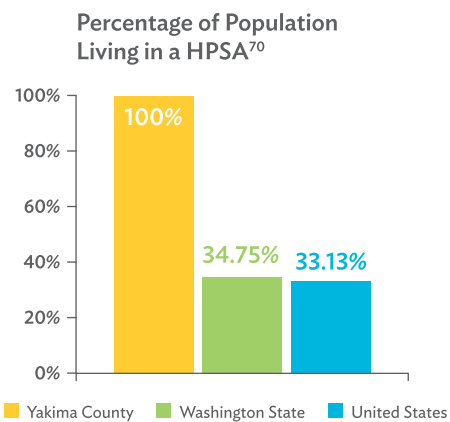
#### Gestational Age at 1st Prenatal Visit by Race/Ethnicity in Yakima<sup>69</sup>

	12<=weeks	>12 & <=28 weeks	>28 weeks
All Patients (n=2819; 100.00%)	79.32%	14.04%	4.12%
Hispanic or Latina (n=1393; 49.41%)	80.33%	13.20%	4.38%
American Indian/Alaskan Native (n=151; 5.36%)	58.94%	29.14%	7.28%
Asian (n=17; 0.60%)	76.47%	17.64%	5.88%
Black/African American (n= 27; 0.96%)	77.78%	11.11%	11.11%
Native Hawaiian/Other Pacific Islander (n=6; 0.21%)	83.34%	0.00%	16.67%
White/Caucasian (n=1869; 66.30%)	80.69%	12.90%	3.48%
Multiple Race/Ethnicity (n=12; 0.43%)	91.67%	0.00%	0.00%
Other (n=724; 25.68%)	79.69%	14.36%	4.83%

Patient Data From Virginia Mason Memorial Hospital and Memorial Physician Clinics

#### Health Professional Shortage Area

This indicator reports the percentage of the population that is living in a geographic area designated as a “Health Professional Shortage Area” (HPSA), defined as having a shortage of primary medical care, dental or mental health professionals. This indicator is relevant because a shortage of health professionals contributes to access and health status issues. Yakima County is considered a shortage area for mental health, dental, and the migrant/seasonal farmworkers population.<sup>70</sup>



## Access to Care (PA1 & PA2)

- ▶ Between 2013 and 2015, Memorial has:
  - Made reductions in wait time to be seen by a Primary Care Provider.
  - Completed a patient and staff Cultural Competency Survey to identify areas where we need to improve. We have committed to improving our Cultural Competency in four areas:
    - Ensuring we collect Race, Ethnicity, and Language data for all patients
    - Improving Language Services by providing certified interpreters in person, over the phone and by video.
    - Ensuring that all interpreters are proficient and certified
    - Training all staff on Cultural Competency.
- Access to Care Survey
  - In 2015 Memorial began work on an Access to Care Household Survey to help us identify barriers to care in lower income neighborhoods. The survey collected information on knowledge, attitude and practices around health literacy, utilization, and experience from households in an area of Yakima with an ED visit rate higher than the county average. Over the next year or more we will use the data to develop interventions to improve access and increase education in the neighborhood surveyed by means of: increasing health literacy, providing alternate avenues to access primary and urgent care, introducing the use of care coordination teams and culturally competent Promotores (community health workers) to connect household to services, provide cultural competency support, and build community capacity.
- Medicaid and Financial Assistance
  - Medicaid 2013-2015:
    - 13,579 eligible individuals placed.
    - \$74,793,018 spent to support unreimbursed cost for providing care to Medicaid patients
  - Financial Assistance 2013-2015:
    - \$20,271,431 spent to support care and services for those most vulnerable in our community.

## Health Professional Education (PA1)

- ▶ Between 2013 and 2015 Memorial invested \$4,039,450 in local colleges programs to support the next generation of healthcare professionals. Furthermore, we provided onsite education to 2,378 local college students across various healthcare related fields. The college programs are designed to provide well-trained health professionals and upon completion of coursework and associated exams allows them to practice in their respective field of study.
- Types of Health Professionals
  - Surgical Tech Students
  - Scrub Tech Students
  - Imaging Services Students – CT, MRI, Ultrasound, Nuclear Medicine, Radiology
  - `Ohana – Breast Imaging/Biopsy Exams
  - Pharmacy
  - Clinical Nutrition/Dietetics
  - Compass/Palliative Care
  - Physical Therapy
  - Lab Technicians
  - Paramedics
  - Speech Language
  - And many others...
- Partner Colleges
  - WSU
  - YVCC
  - CWU
  - Heritage
  - Perry Tech
  - YV Tech
  - Allied Health
  - And many others...

## Continuing Medical Education (PA1)

- ▶ Memorial is accredited to provide Category 1 AMA PRA Continuing Medical Education (CME) to physicians across Yakima County. CME is an invaluable educational opportunity for physicians, which allows for physicians to improve in competence, performance-in-practice and/or patient outcomes. By providing this educational opportunity to physicians, Memorial generates in both direct and indirect means the contribution to improved health and well-being for patients in the Yakima Valley. CME credit provided helps physicians meet the CME requirements for licensure renewal with the Washington State Licensing Board and MOC requirements with the ABMS.
- Between 2013 and 2015 a total of 3,979 community physicians completed the continuing medical education program.

## Medication Assistance (PA1 & PA2)

- ▶ Memorial pharmacy provides medication assistance for those who would otherwise be unable to afford their prescriptions.
- In partnership with Farmworkers clinic we served approximately 300 individuals in 2015 to assure they have access to medications. This has a strong impact on the health of our community and reduces the burden on clinics and hospitals through better preventive care.
- Furthermore, in 2015 we provided and refilled an additional 532 prescriptions to lower income patients who could not afford them.

## Accountable Communities of Health (PA1 & PA2)

- ▶ Memorial is a partner in one of the nine Accountable Communities of Health (ACHs) across Washington State: the Greater Columbia Accountable Community of Health (GCACH). Accountable Communities of Health bring together leaders from multiple sectors around the state with a common interest in improving health and health equity. As ACHs better align resources and activities they improve whole person health and wellness.

- GCACH Strategic Issue #1:** Foster cross-sector collaboration
  - **Goal:** Improve well-being by partnering with health care and other sectors to invest in health policies and programs.
  - **Strategies:**
    - Community-based behavioral health care programs
    - Community-based diabetes/obesity care programs
    - Community-based oral health care programs
    - Community-based care coordination programs
- GCACH Strategic Issue #2:** Build healthier, more equitable communities
  - **Goal:** Reduce health disparities by improving social, economic, and built environments that support well-being
  - **Strategies:**
    - Safe, community-based physical activity programs
- GCACH Strategic Issue #3:** Strengthen the integration of health services and systems
  - **Goal:** Improve quality and reduce costs of health care by improving access to care
  - **Strategies:**
    - Clinical-based behavioral health care program
    - Clinical-based diabetes/obesity care programs
    - Clinical-based oral health care programs
    - Clinical-based care coordination programs
- GCACH Strategic Issue #4:** Strengthen the integration of health services and systems
  - **Goal:** Improve quality and reduce costs of health care by integrating health care, public health, social service, and other systems
  - **Strategies:**
    - Integrated physical and behavioral health care programs
    - Integrated physical and oral health care programs
    - Care coordination network



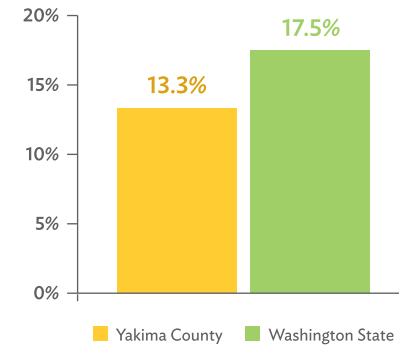
## Cost Barrier to Care

Access to comprehensive, quality health care services is important for the achievement of health equity and for increasing the quality of a healthy life for everyone. Access to health services means the timely use of personal health services to achieve the best health outcomes and encompasses four components: coverage, services, timeliness, and workforce. Barriers to services include: 1) Lack of availability, 2) High cost, and 3) Lack of insurance coverage. These barriers to accessing health services diminish quality of care and lead to delays in receiving appropriate care, the inability to get preventive services, and hospitalizations that could have been prevented.<sup>7</sup>

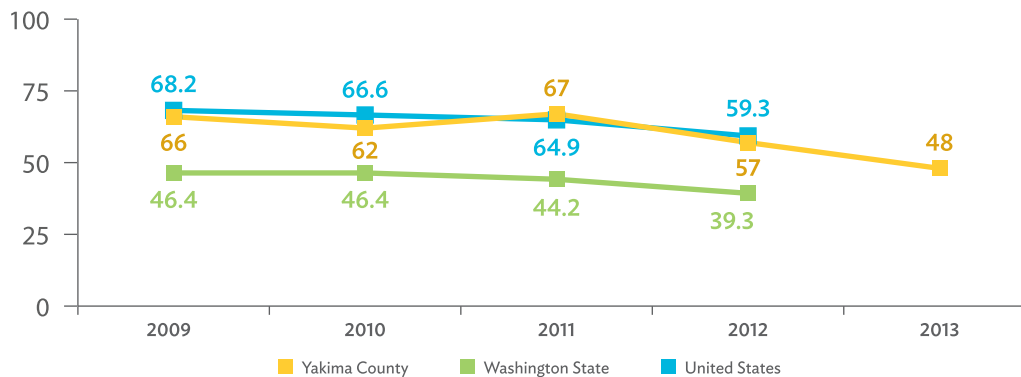
## Preventable Hospital Stays

Preventable Hospital Stays is the hospital discharge rate for ambulatory care-sensitive conditions per 1,000 fee-for-service Medicare enrollees. Ambulatory care-sensitive conditions include: convulsions, chronic obstructive pulmonary disease, bacterial pneumonia, asthma, congestive heart failure, hypertension, angina, cellulitis, diabetes, gastroenteritis, kidney/urinary infection, and dehydration. Hospitalization for diagnoses treatable in outpatient services suggests that the quality of care provided in the outpatient setting was less than ideal. The measure may also represent a tendency to overuse hospitals as a main source of care.<sup>11</sup>

Percentage of Adults 18+ Who Needed to See a Doctor but Could Not Because of Cost<sup>71</sup>



Preventable Hospital Stay (Rate per 1,000 Medicare Enrollees)<sup>36</sup>



## Diabetic Monitoring

More than 29 million people in the United States have diabetes, up from the previous estimate of 26 million in 2010, according to a report released recently by the Centers for Disease Control and Prevention (CDC). One in four people with diabetes doesn't know he or she has it. Another 86 million adults—more than one in three U.S. adults—have prediabetes, where their blood sugar levels are higher than normal but not high enough to be classified as type 2 diabetes. Without weight loss and moderate physical activity, 15-30% of people with prediabetes will develop type 2 diabetes within five years. Diabetes is a serious disease that can be managed through physical activity, diet, and appropriate use of insulin and oral medications to lower blood sugar levels. Another important part of diabetes management is reducing other cardiovascular disease risk factors, such as high blood pressure, high cholesterol and tobacco use. People with diabetes are at increased risk of serious health complications including vision loss, heart disease, stroke, kidney failure, amputation of toes, feet or legs, and premature death.<sup>73</sup>

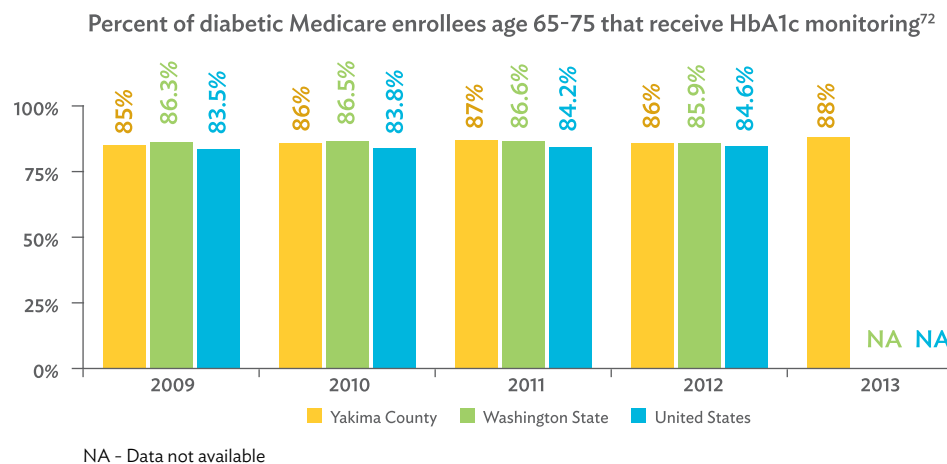
Disparities in diabetes risk:<sup>6</sup>

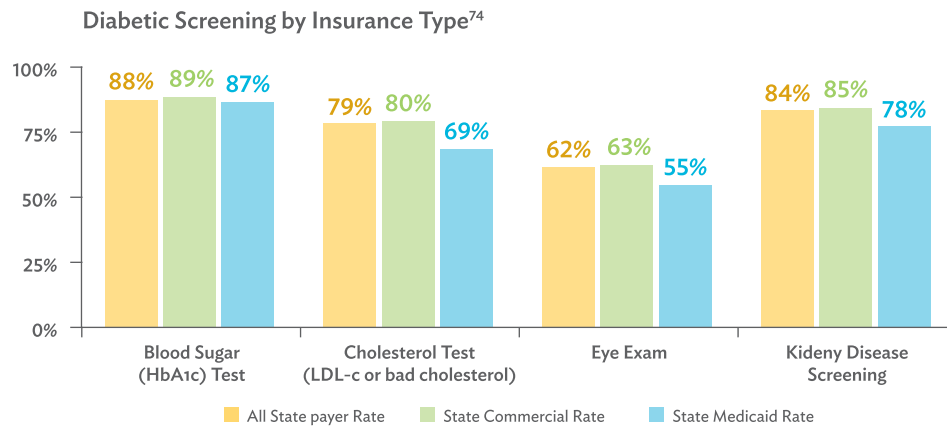
- People from minority populations are more frequently affected by type 2 diabetes. Minority groups constitute 25% of all adult patients with diabetes in the United States

and represent the majority of children and adolescents with type 2 diabetes.

- African Americans, Hispanic/Latino Americans, American Indians, and some Asian Americans and Native Hawaiians and other Pacific Islanders are at particularly high risk for the development of type 2 diabetes.
- Diabetes prevalence rates among American Indians are 2 to 5 times those of whites. On average, African American adults are 1.7 times as likely and Mexican Americans and Puerto Ricans are twice as likely to have the disease as non-Hispanic whites of similar age.

Diabetic Monitoring is the percentage of diabetic fee-for-service Medicare patients ages 65-75 whose blood sugar control was monitored in the past year using a test of their glycated hemoglobin (HbA1c) levels. Regular HbA1c monitoring among diabetic patients is considered the standard of care. It helps assess the management of diabetes over the long term by providing an estimate of how well a patient has managed his or her diabetes over the past two to three months. When hyperglycemia is addressed and controlled, complications from diabetes can be delayed or prevented.<sup>11</sup>

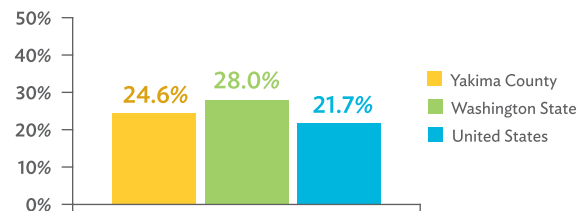




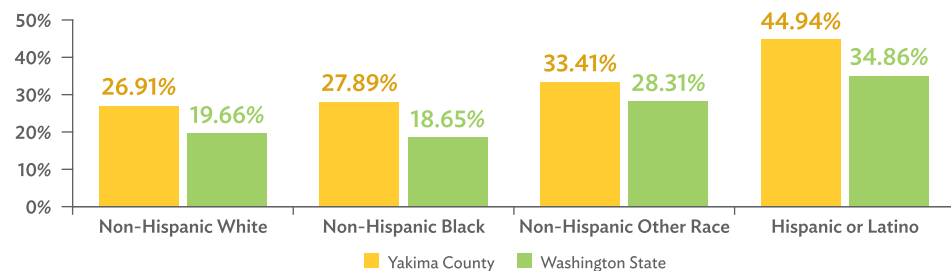
## High Blood Pressure Management

In Yakima County, 24.6% of adults, or 40,412, self-reported that they are not taking medication for their high blood pressure according to the CDC's Behavioral Risk Factor Surveillance System (2006-2010). This indicator is relevant because engaging in preventive behaviors decreases the likelihood of developing future health problems. When considered with other indicators of poor health, this indicator can also highlight a lack of access to preventive care, a lack of health knowledge, insufficient provider outreach, and/or social barriers preventing utilization of services.<sup>71</sup>

### Percent Adults Not Taking Blood Pressure Medication<sup>71</sup>



### State/National Percentages of Adults Not Taking Medicine for High Blood Pressure (by Race / Ethnicity)<sup>71</sup>



## Cancer Screenings

Engaging in preventive behaviors and screenings allows for early detection and treatment of cancer and many other health problems. The cancer screening indicators below can also highlight a lack of access to preventive care, a lack of health knowledge, insufficient provider outreach, and/or social barriers preventing utilization of services.<sup>7</sup>

### Mammogram

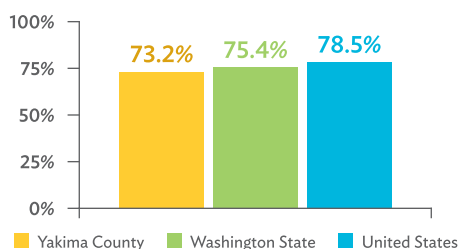
Annual mammograms can detect cancer early—when it is most treatable. In fact, mammograms show changes in the breast up to two years before a patient or physician can feel them. Mammograms can also prevent the need for extensive treatment for advanced cancers and improve chances of breast conservation. Current guidelines from the American College of Radiology, the American Cancer Society, and the Society for Breast Imaging recommend that women receive annual mammograms starting at age 40—even if they have no symptoms or family history of breast cancer.

For every 1,000 women who have a screening mammogram:

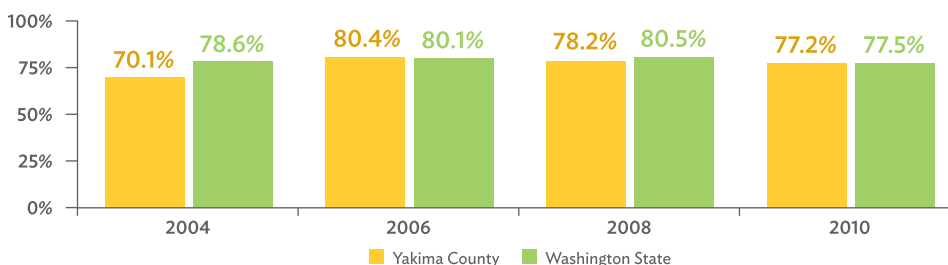
- 100 are recalled to get more mammography or ultrasound images
- 20 are recommended for a needle biopsy
- 5 are diagnosed with breast cancer<sup>75</sup>

This indicator can also highlight a lack of access to preventive care, a lack of health knowledge, insufficient provider outreach, and/or social barriers preventing utilization of services.<sup>7</sup>

Percentage of Female Medicare Enrollees, age 67-69 Who Received a Mammogram in Past 2 Years<sup>72</sup>



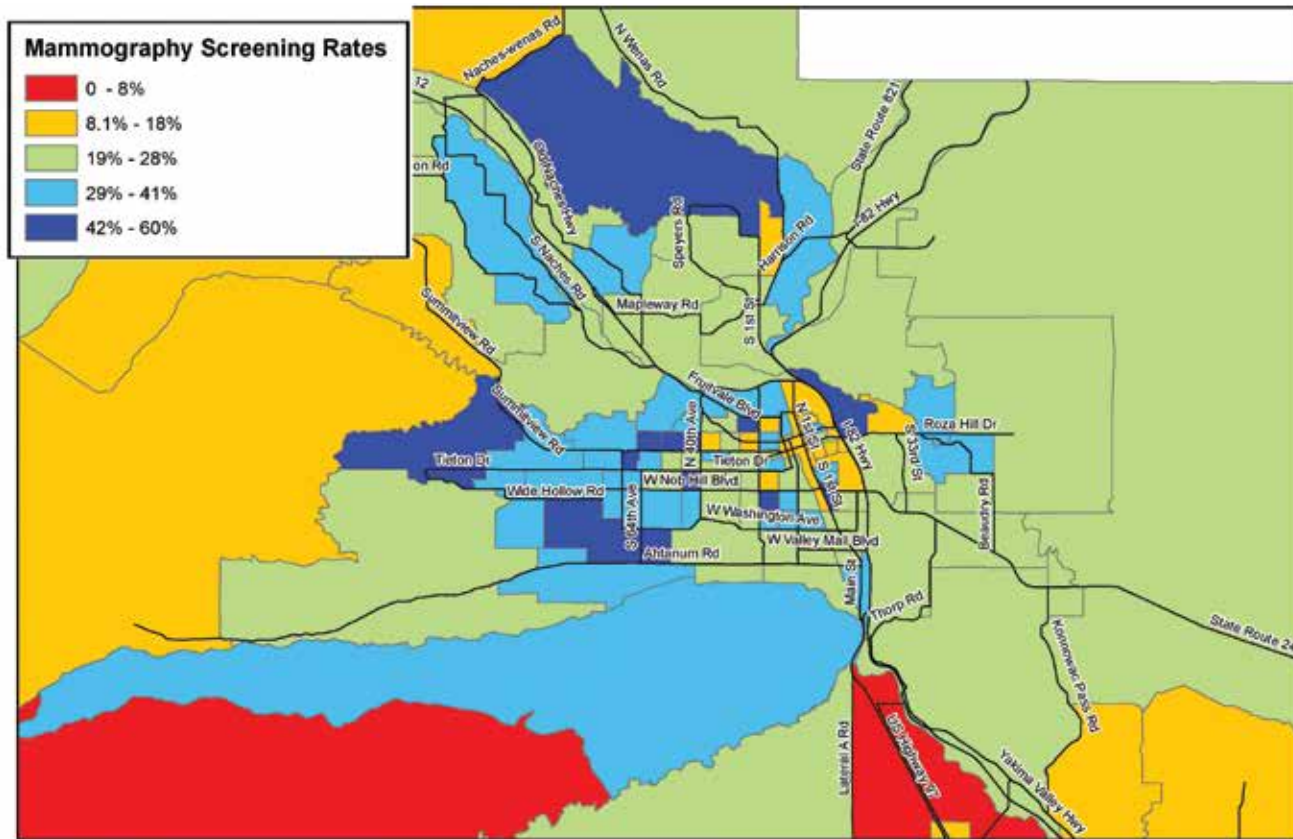
Women age 50+ who report having mammogram in past 2 years<sup>71</sup>



### Mammogram by Neighborhood

Examining the extent of services provided by 'Ohana by neighborhood shows differences in screening rates in their Yakima metropolitan service area. Some of this may be explained by the market area traditionally served by 'Ohana, although some may be in neighborhoods with low utilization of preventive services. The areas with low screening rates should be examined in further detail to understand why the screening rates are relatively low.

Memorial 'Ohana Mammography Screening Rates—Females Age 50-74 2015



Signal+Health

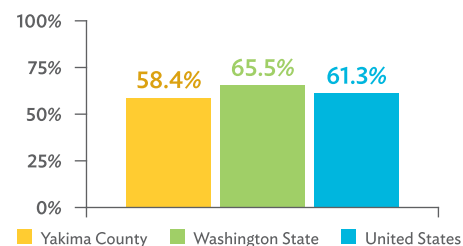
### Colonoscopy or Sigmoidoscopy

Colorectal cancer is cancer that begins in the colon or the rectum. It is the third most common cancer among both men and women in the United States, and it occurs most often in people over the age of 50. Many colorectal cancers can be prevented through regular screening. Screening can find precancerous polyps—abnormal growths in the colon or rectum—so that they can be removed before they turn into cancer. Screening is crucial because when found early, colorectal cancer is highly treatable. Early stages of colorectal

cancer usually present no symptoms, which tend to appear as the cancer progresses.<sup>76</sup>

This indicator reports the percentage of adults 50 and older who self-report that they have ever had a sigmoidoscopy or colonoscopy. This indicator is relevant because engaging in preventive behaviors allows for early detection and treatment of health problems. This indicator can also highlight a lack of access to preventive care, a lack of health knowledge, insufficient provider outreach, and/or social barriers preventing utilization of services.<sup>71</sup>

Percentage of Adults 50+ Who Report Having Sigmoidoscopy or Colonoscopy<sup>71</sup>



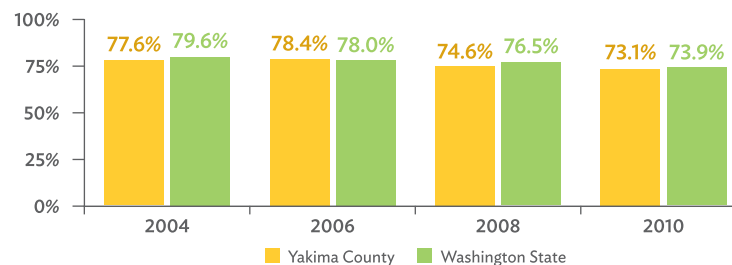
### PAP

Cervical cancer is highly preventable in most Western countries because screening tests and a vaccine to prevent human papillomavirus (HPV) infections are available. When cervical cancer is found early, it is highly treatable and associated with long survival and good quality of life. The Pap test is recommended for all women between the ages of 21 and 65 years old, and can be done in a doctor's office or clinic.

Two screening tests can help prevent cervical cancer or find it early:

- The Pap test (or Pap smear) looks for precancers, cell changes on the cervix that might become cervical cancer if they are not treated appropriately
- The HPV test looks for the virus (human papillomavirus) that can cause these cell changes<sup>77</sup>

Percentage of Women 18+ Who Reported Having a PAP Test in Past 3 Years<sup>71</sup>



## Cancer Data Registry (PA2)

► Cancer Registries help to identify areas where cancer programs can improve health for patients, at-risk populations, and communities by collecting incidence and treatment data on cancer patients that access their hospital system. Cancer Registry data can be used to support and direct screening programs, community outreach, and patient support initiatives within the hospital, research to further establish best practices in cancer care, and education of healthcare professionals.

- In 2015 we were required to reach 10% of eligible patients, we reached 12%
- Cancer Survivors received their care plan and were explained their future related to long term medical care and surveillance.

## Cord Blood Research with Pudget Sound Blood Center (PA2)

- All laboring mothers that fell into the appropriate criteria to participate in the cord blood donor program were asked if they

would like to participate and were given an informational packet. In FY15, Memorial collected and sent cord blood to PSBC from 143 donors.

- Stem cells banked from the cord blood are used to treat cancer patients and in clinical trials that are having much success in treating other diseases as well.

## Newborn Hepatitis B Vaccinations (PA7)

► Memorial provides pediatric Hepatitis B vaccines to all consented newborns free of charge.

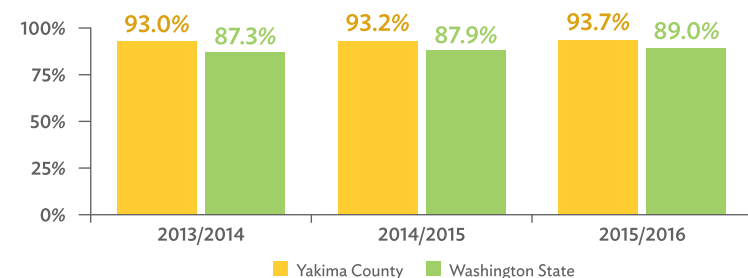
- In 2015 we vaccinated 84% of newborns with the Pediatric Hepatitis B vaccine. This protects the newborn and community against the disease.

## Vaccinations

### Center for Disease Control and Prevention<sup>78</sup>

*The diseases that vaccines prevent can be dangerous, or even deadly. Vaccines reduce the risk of infection by working with the body's natural defenses to help it safely develop immunity to disease. When germs, such as bacteria or viruses, invade the body, they attack and multiply. This invasion is called an infection, and the infection is what causes illness. The immune system then has to fight the infection. Once it fights off the infection, the body is left with a supply of cells that help recognize and fight that disease in the future. Vaccines help develop immunity by imitating an infection, but this "imitation" infection does not cause illness. It does, however, cause the immune system to develop the same response as it does to a real infection so the body can recognize and fight the vaccine-preventable disease in the future.*

Immunization Rates for All Students Kindergarten Through 12th Grade by School Year<sup>79</sup>



# HEALTH OUTCOMES

## Mortality

Mortality rate in Yakima County is higher than Washington State in every sub-category. The Hispanic Female population have the lowest mortality rate (470) within Yakima County, and Non-Hispanic Males have the highest (940).

Mortality Rate by Gender/Ethnicity<sup>80</sup>

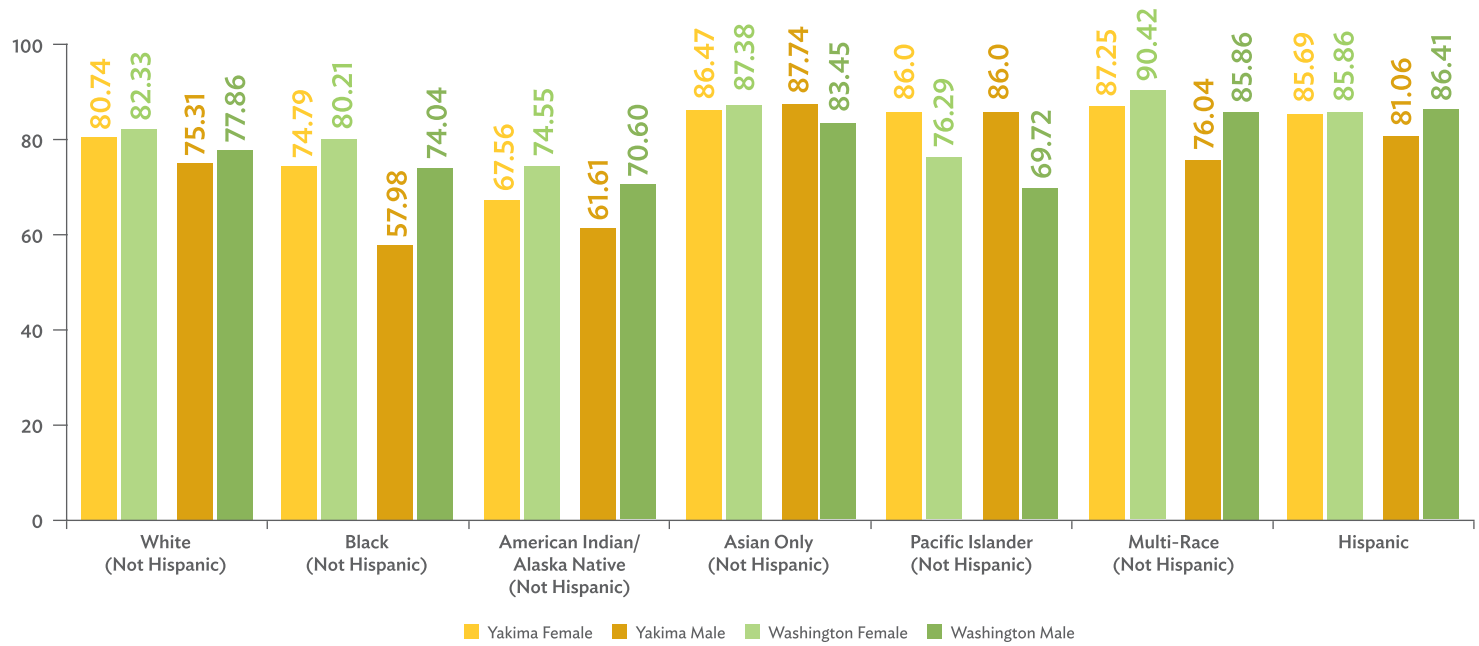
	Gender	Ethnicity	Age-Adjusted Rate	Age-Adjusted Lower CI	Age-Adjusted Upper CI
Yakima	Male	Hispanic	622.26	512.68	753.62
WA State	Male	Hispanic	494.41	455.16	536.61
Yakima	Male	Not Hispanic	939.95	872.93	1011.9
WA State	Male	Not Hispanic	813.42	803.27	823.67
Yakima	Female	Hispanic	470.15	376.19	582.86
WA State	Female	Hispanic	438.44	400.29	479.53
Yakima	Female	Not Hispanic	703.78	652.56	759.46
WA State	Female	Not Hispanic	586.58	579.07	594.18

Number of deaths among residents per 100,000 population (age-adjusted).



Life Expectancy

Life Expectancy at Birth by Gender/Race & Ethnicity in Yakima<sup>80</sup>



### Leading Causes of Death

#### Top 13 Leading Causes of Death <sup>80</sup>

Cause of Death	Yakima County		Washington State	
	2010	2014	2010	2014
Major cardiovascular diseases	256.33	233.68	202.42	144.52
Malignant neoplasms	168.79	163.38	169.98	103.76
Accidents	48.82	46.23	37.30	33.34
Alzheimer's disease	31.18	42.69	43.57	31.33
Chronic lower respiratory diseases	42.72	35.73	40.29	27.91
Diabetes mellitus	25.24	19.86	21.55	27.75
Chronic liver disease and cirrhosis	12.83	16.36	10.44	15.07
Intentional self-harm (suicide)	14.18	15.96	13.78	12.26
Influenza and pneumonia	10.33	10.48	8.31	11.82
In situ neoplasms benign neoplasms and neoplasms of uncertain or unknown behavior	NA	7.97	NA	4.47
Nephritis nephrotic syndrome and nephrosis	11.32	6.75	7.89	9.89
Parkinson's disease	NA	6.05	NA	8.64
Assault (homicide)	10.16	6.14	2.65	5.69

Rate per 100,000 resident population. NA = Data Not Available. Ranking ordered by highest leading cause of death in Yakima County in 2014.

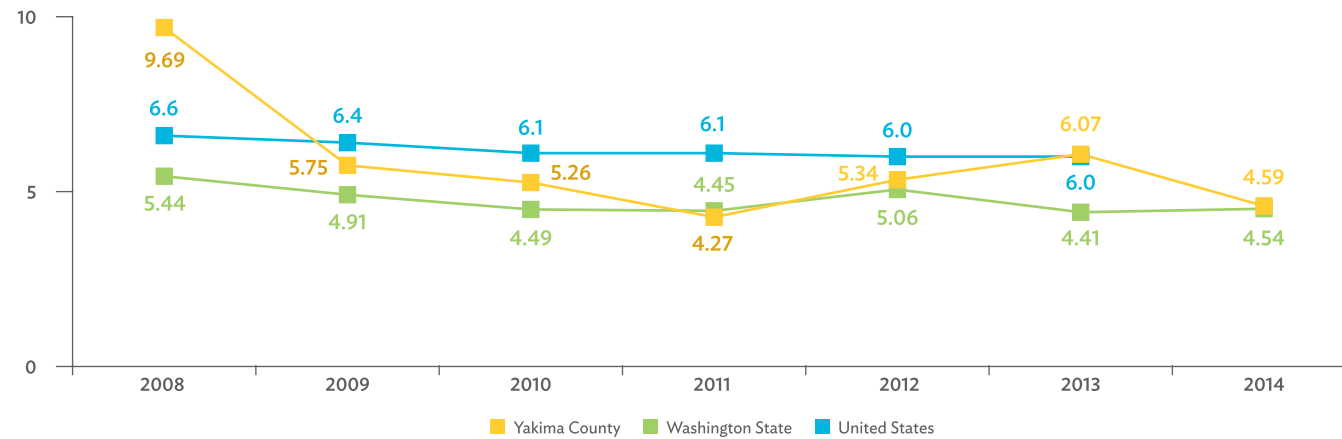
Top 13 Leading Causes of Death in 2014 by Race/Ethnicity<sup>80</sup>

Cause of Death	White	Black	American Indian/ Alaskan Native	Asian/Pacific Islander	Hispanic/ Latino
Major cardiovascular diseases	248.57	380.78	417.88	163.19	166.68
Malignant neoplasms	173.1	172.7	355.19	59.75	77.62
Accidents	51.21	63.6	124.26	0	37.51
Alzheimer's disease	43.95	45.51	58.74	64.41	30.32
Chronic lower respiratory diseases	43.38	0	20.71	0	6.43
Diabetes mellitus	17.27	35.92	47.34	0	36.41
Chronic liver disease and cirrhosis	10.39	35.92	127.21	0	19.65
Intentional self-harm (suicide)	22.56	0	91.66	0	10.42
Influenza and pneumonia	7.83	0	44.38	20.7	13.48
In situ neoplasms benign neoplasms and neoplasms of uncertain or unknown behavior	9.68	0	0	0	1.41
Nephritis nephrotic syndrome and nephrosis	3.75	0	66.54	0	12.72
Parkinson's disease	5.92	0	0	0	121.93
Assault (homicide)	3.84	75.4	11.45	0	6.33

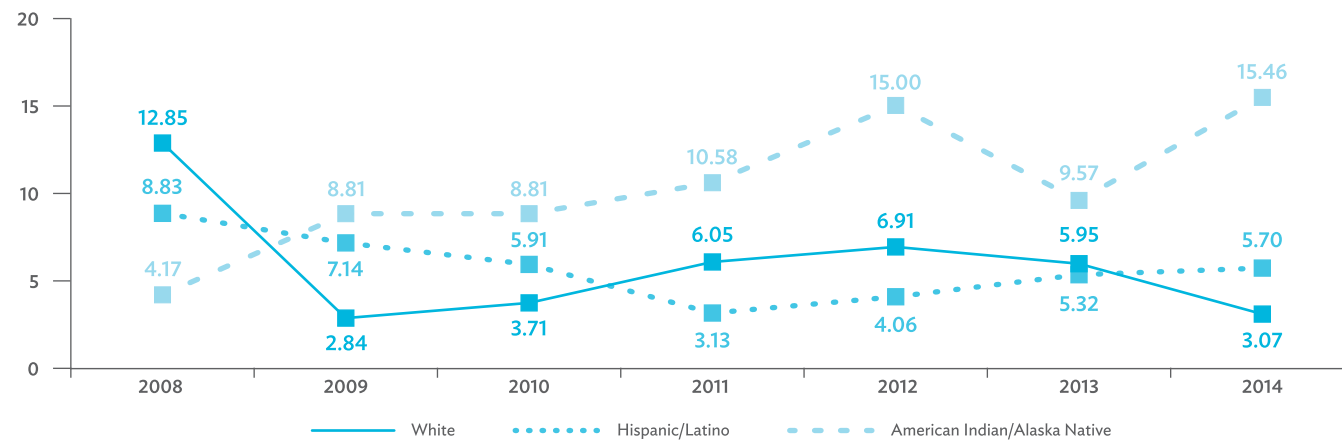
\*Rate per 100,000 resident population

### Infant Mortality Rate

Infant Mortality Rates (per 1,000 live births), by Year 2008-2014<sup>80 82</sup>



Yakima County Infant Mortality Rate (per 1,000 live births), by Race/Ethnicity and Year<sup>80</sup>



## Infant Mortality Rate in the Native American Population (PA2 & PA7):

► **Ttáwaxt:** Healthy Families Our Heritage and Our Future, is a multi-agency collaborative formed on the Yakama Nation Reservation concerned with the growing infant mortality rates and disparities among Native Americans, locally, statewide and nationally. The vision of the collaborative is to bridge culture, health care and families to strengthen all Native generations.

A foundational study was conducted with Native American women 18-35 years old, who had a child in the last 5 years and were part of the Yakama tribal community. The purpose of the study was to gain clarity about contributing risk and protective factors that influence the disproportionate Native American infant mortality rates in Yakima County. All results and findings are informing program planning, design and implementation.

One key finding, used in program design, revealed that women with maternal support from any elderly woman (a mother, grandmother, cousin, friend or neighbor) increased the likelihood of babies being healthy and living past one year of age.

Other findings include:

—Areas of Strength Identified:

- 75% of women participated in breastfeeding
- Women that had any elder women in their lives had no infant mortality
- Women believe that prenatal care is important and want care
- Women that had partners support positively impacted birth outcomes

—Areas for Improvement:

- 71% of women did not plan their pregnancy
- 18 was the average age of first pregnancy
- The lack of transportation and money for gas were the main barriers preventing regular prenatal care
- More than half of the women traveled more than 20 miles for care

—Recommendations:

- Women participants often voiced a request for support groups or prenatal care which is accessible without having to travel far

- Participants repeatedly called for support groups or other support systems to help fathers and partners remain involved and supportive during pregnancy.
- Women often reported having to rely on only themselves for support. Emotional health support and resiliency building programs can strengthen maternal and infant health overall.

—Current Activities Include:

- Professional development with service providers
- Elder integration into support programs
- Centering Pregnancy planning and training
- Doula planning and training
- Home Visiting Planning
- Show Your Love Campaign

—Funders Include:

- March of Dimes Washington State Chapter
- Yakima Valley Community Foundation
- Yakima Memorial Hospital
- Centers for Disease Control and Prevention

## Purple Cry (PA7)

► **Purple Cry** is a 10-minute video on the normal crying patterns of a newborn. It is evidence based and has reduced the incident of shaken baby syndrome.

—Impact: 4 cases of shaken baby syndrome in 2014 and 0 cases in 2015

## Resolve through Sharing Bereavement Services (PA7)

► **Resolve through sharing** is a program that financially helps families who experienced a pregnancy loss. It provides compassionate burial that incorporates funeral homes and cemeteries. We also have a communal burial twice a year for any miscarries under 20 weeks with no signs of life at delivery.

—Impact: The impact of the RTS program has touched 209 families in FY15. We have even had families who are experiencing a loss state that they want to contribute to the grant.

—Partners: We collaborate with local funeral homes and cemeteries.

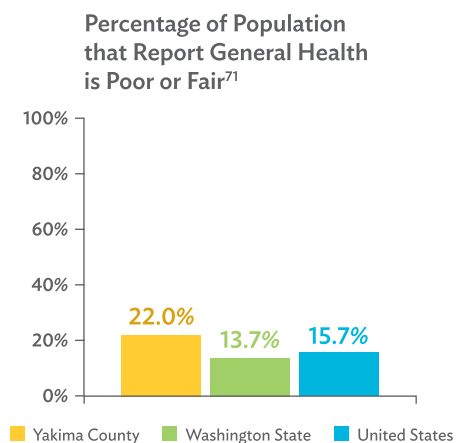
## Quality of Life

The significance of quality of life and well-being as a public health concern is not new. Since 1949, the World Health Organization (WHO) has noted that health is “a state of complete physical, mental, and social well-being and not merely an absence of disease and infirmity.”<sup>83</sup> Because people are living longer than ever before, researchers have changed the way they examine health, looking beyond causes of death and morbidity to examine the relationship of health to the quality of an individual life.<sup>84</sup>

Promoting well-being emphasizes a person’s physical, mental, and social resources and enhances protective factors and conditions that foster health.<sup>85</sup> Instead of the traditional view of prevention as only avoiding or minimizing illness and risk factors, well-being also focuses on disease resistance, resilience, and self-management.<sup>6</sup>

### Poor or Fair Health

Within Yakima County 22% of adults age 18 and older self-report having poor or fair health in response to the question “Would you say that in general your health is excellent, very good, good, fair, or poor?” This indicator is relevant because it is a measure of general poor health status.<sup>71</sup>



### Poor Physical Health Days

Average number of physically unhealthy days reported in past 30 days (age-adjusted)<sup>71</sup>

	Self-reported physically unhealthy days, 2014
Yakima County	4.5
Washington State	3.9

### Poor Mental Health Days

Average number of mentally unhealthy days reported in past 30 days (age-adjusted).<sup>71</sup>

	Self-reported mentally unhealthy days, 2014
Yakima County	3.9
Washington State	3.7

## Diabetes

### Healthy People 2020<sup>6</sup>

Diabetes Mellitus (DM) occurs when the body cannot produce or respond appropriately to insulin. Insulin is a hormone that the body needs to absorb and use glucose (sugar) as fuel for the body's cells. Without a properly functioning insulin signaling system, blood glucose levels become elevated and other metabolic abnormalities occur, leading to the development of serious, disabling complications.

Many forms of diabetes exist. The 3 common types of DM are:

- Type 2 diabetes, which results from a combination of resistance to the action of insulin and insufficient insulin production
- Type 1 diabetes, which results when the body loses its ability to produce insulin
- Gestational diabetes, a common complication of pregnancy. Gestational diabetes can lead to perinatal complications in mother and child and substantially increases the likelihood of cesarean section. Gestational diabetes is also a risk factor for subsequent development of type 2 diabetes after pregnancy.

Effective therapy can prevent or delay diabetic complications.<sup>86,87</sup> However, almost 25% of Americans with DM are undiagnosed, and another 57 million Americans have blood glucose levels that greatly increase their risk of develop-

ing DM in the next several years.<sup>88</sup> Few people receive effective preventive care, which makes DM an immense and complex public health challenge.

### Why Is Diabetes Important?

DM affects an estimated 23.6 million people in the United States and is the 7th leading cause of death.<sup>88</sup>

- Lowers life expectancy by up to 15 years.
- Increases the risk of heart disease by 2 to 4 times.
- Is the leading cause of kidney failure, lower limb amputations, and adult-onset blindness.<sup>88</sup>
- In addition to these human costs, the estimated total financial cost of DM in the United States in 2007 was \$174 billion, which includes the costs of medical care, disability, and premature death.<sup>88</sup>

The rate of DM continues to increase both in the United States<sup>90,91</sup> and throughout the world.<sup>92</sup> Due to the steady rise in the number of persons with DM, and possibly earlier onset of type 2 DM, there is growing concern about:

- The possibility of substantial increases in diabetes-related complications
- The possibility that the increase in the number of persons with DM and the complexity of their care might overwhelm existing health care systems
- The need to take advantage of recent discoveries on the individual and

societal benefits of improved diabetes management and prevention by bringing life-saving discoveries into wider practice

- The clear need to complement improved diabetes management strategies with efforts in primary prevention among those at risk for developing DM

### Understanding Diabetes

Four “transition points” in the natural history of diabetes health care provide opportunities to reduce the health and economic burden of DM:

- Primary prevention: movement from no diabetes to diabetes
- Testing and early diagnosis: movement from unrecognized to recognized diabetes
- Access to care for all persons with diabetes: movement from no diabetes care to access to appropriate diabetes care
- Improved quality of care: movement from inadequate to adequate care

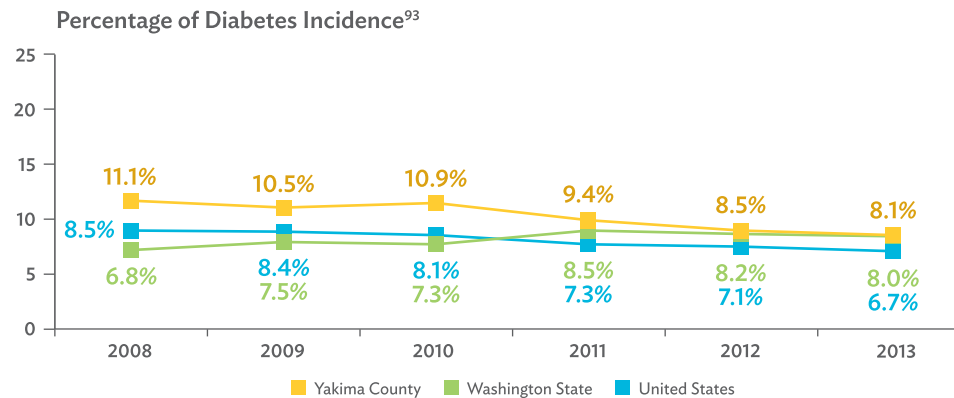
Lifestyle change has been proven effective in preventing or delaying the onset of type 2 diabetes in high-risk individuals. Based on this, new public health approaches are emerging that may deserve monitoring at the national level. For example, the Diabetes Prevention Program demonstrated that lifestyle intervention had its greatest impact in older adults and was effective in all racial and ethnic groups.

Another emerging issue is the effect on public health of new diagnostic criteria, such as introducing the use of HbA1c for diagnosis of diabetes and high risk for diabetes, and lower thresholds for gestational diabetes. These changes may impact the number of individuals with undiagnosed diabetes and facilitate the introduction of diabetes prevention at a public health level.

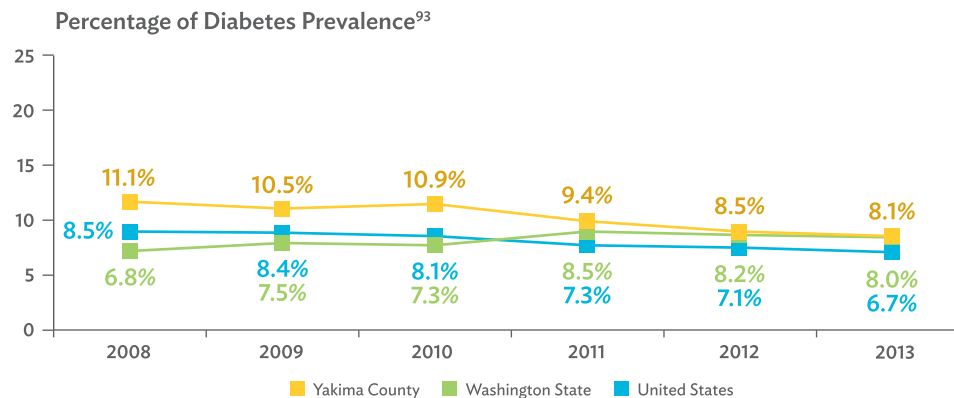
Several studies have suggested that process indicators such as foot exams, eye exams, and measurement of HbA1c may not be sensitive enough to capture all aspects of quality of care that ultimately result in reduced morbidity. New diabetes quality-of-care indicators are currently under development and may help determine whether appropriate, timely, evidence-based care is linked to risk factor reduction. In addition, the scientific evidence that type 2 diabetes can be prevented or delayed has stimulated new research into the best markers and approaches for identifying high-risk individuals and the most effective ways to implement prevention programs in community settings.

Finally, it may be possible to achieve additional reduction in the risk of diabetes or its complications by influencing various behavioral risk factors, such as specific dietary choices, which have not been tested in large randomized controlled trials.

This indicator reports the percentage of adults aged 20 and older who have ever been told by a doctor that they have diabetes.<sup>93</sup>



Incidence is the rate at which new events occur in a population. The numerator is the number of new events that occur in a defined period; the denominator is the population at risk of experiencing the event during this period.<sup>94</sup>



Prevalence is the total number of all individuals who have an attribute or disease at a particular time (or during a particular period) divided by the population at risk of having the attribute or disease at this point in time (or midway through the period).<sup>94</sup>



## Diabetes Prevention Program (PA2)

- ▶ Prediabetes is a condition where the blood sugar is higher than normal, but not high enough to be diagnosed as type 2 diabetes. Memorial's prevention program helps people lower their risk of type 2 diabetes. Participants meet in groups with a trained lifestyle coach for 16 weekly, one-hour sessions and seven monthly follow up sessions. Registration is required but this class is free and open to all members of the community.

—Total number of participants between 2013-2015: 592

- Total amount of weight loss: 5,921
- 65% had a 5-7% weight loss
- Average weight loss: 10 lbs
- Average amount of exercise minutes: 211 minutes per week.
- 85% of the participants reported that they felt confident they would continue into the future with the lifestyle changes they have made during the program.

## Diabetes Wellness Program (PA2)

- ▶ This Diabetes Wellness program is for patients who are newly diagnosed with diabetes, or those seeking to gain additional education to self-manage their diabetes. The class is delivered in 4 sessions over several months. Education materials and record keeping tools are presented in an engaging format that will guide patients in self-directed diabetes management. Structured to encourage, support and promote self-management and long-term maintenance, this class is delivered in multiple sessions. A referral from a doctor is required.

- Total number of participants between 2014-2015: 622
- There was a 65% increase in those who started counting carbs after completing the class.
- On average participants increased their physical activity by 10 minutes a day by the end of the program.
- Average A1C reduction - 1.14
- Average Mean Arterial Pressure (MAP) reduction—2.087

## My Health, My Life: A Guide to Well Being (PA2)

- ▶ Designed to help individuals who suffer from chronic illness learn simple techniques on how to live a healthy life by managing their symptoms. For patients living with arthritis, diabetes, asthma, depression, obesity, heart disease, pain, cancer-related illness or any other chronic illness. Caregivers and family support persons are encouraged to attend. Classes are 2-1/2 hours each, once a week for six weeks. Registration is required but this class is free and open to all members of the community.

—Participants of program are most often dealing with a wide range of chronic illnesses including: Diabetes, Depression/Anxiety, High Cholesterol, Hypertension, and Arthritis.

- Total number of participants between 2013-2015: 499

—On average, after completing the class:

- 73% of participants reported that their eating habits were improved.
- 76% increase with participants reporting their knowledge being 'very good' on managing their chronic illness
- 82% of our participants reported doing at least 30 minutes of physical activity per week.
- 83% reported eating 2 or more servings of fruit or vegetables a day.
- There was a 24% increase in participants reporting no sleep problems, and no stress; and a 26% increase in those reporting no pain.

## High Blood Pressure

### American Heart Association<sup>95</sup>

High blood pressure (HBP) is sometimes called “the silent killer” because HBP has no symptoms, so you may not be aware that it’s damaging your arteries, heart and other organs.

Possible health consequences that can happen over time when high blood pressure is left untreated include:

- Damage to the heart and coronary arteries, including heart attack, heart disease, congestive heart failure, aortic dissection and atherosclerosis (fatty buildups in the arteries that cause them to harden)
- Stroke
- Kidney damage
- Vision loss
- Erectile dysfunction
- Memory loss
- Fluid in the lungs
- Angina
- Peripheral artery disease

These are not symptoms, high blood pressure is a symptomless disease except in its most extreme cases known as hypertensive crisis.

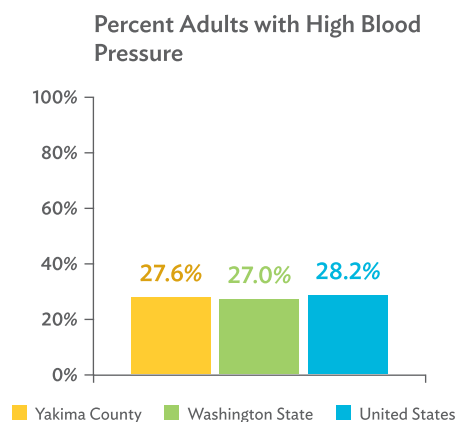
Your risk increases even more if you have high blood pressure along with other risk factors:

- Age
- Heredity (including race)

- Gender (male)
- Overweight or obesity
- Smoking
- High cholesterol
- Diabetes
- Physical inactivity

Individuals whose blood pressure is higher than 140/90 mm Hg (140 systolic or above OR 90 diastolic or above) often become patients treated for serious cardiovascular problems.

In Yakima County, 46,083, or 27.6% of adults aged 18 and older have been told by a doctor that they have high blood pressure or hypertension.<sup>71</sup>



## Obesity

### Centers for Disease Control and Prevention (CDC)<sup>96</sup>

Obesity is common, serious and costly

- More than one-third (34.9% or 78.6 million) of U.S. adults are obese.
- Obesity-related conditions include heart disease, stroke, type 2 diabetes and certain types of cancer, some of the leading causes of preventable death.

Obesity affects some groups more than others

- Non-Hispanic blacks have the highest age-adjusted rates of obesity (47.8%) followed by Hispanics (42.5%), non-Hispanic whites (32.6%), and non-Hispanic Asians (10.8%)
- Obesity is higher among middle age adults, 40-59 years old (39.5%) than among younger adults, age 20-39 (30.3%) or adults over 60 or above (35.4%) adults.

Obesity and socioeconomic status

- Among non-Hispanic black and Mexican-American men, those with higher incomes are more likely to have obesity than those with low income.
- Higher income women are less likely to have obesity than low-income women.
- There is no significant relationship between obesity and education among men. Among women, however, there is a trend—those with college degrees are less likely to have obesity compared with less educated women.

People who are obese, compared to those with a normal or healthy weight, are at increased risk for many serious diseases and health conditions, including the following:<sup>97 98 99</sup>

- All-causes of death (mortality)
- High blood pressure (Hypertension)
- High LDL cholesterol, low HDL cholesterol, or high levels of triglycerides (Dyslipidemia)
- Type 2 diabetes
- Coronary heart disease
- Stroke
- Gallbladder disease
- Osteoarthritis (a breakdown of cartilage and bone within a joint)
- Sleep apnea and breathing problems
- Some cancers (endometrial, breast, colon, kidney, gallbladder, and liver)
- Low quality of life
- Mental illness such as clinical depression, anxiety, and other mental disorders
- Body pain and difficulty with physical functioning

#### Economic and Societal Consequences

Obesity and its associated health problems have a significant economic impact on the U.S. health care system.<sup>100</sup> Medical costs associated with overweight and obesity may involve direct and indirect costs.<sup>101 102</sup> Direct medical costs may include preventive, diagnostic, and treatment services related to obesity. Indirect costs relate to morbidity and mortality costs including productivity.

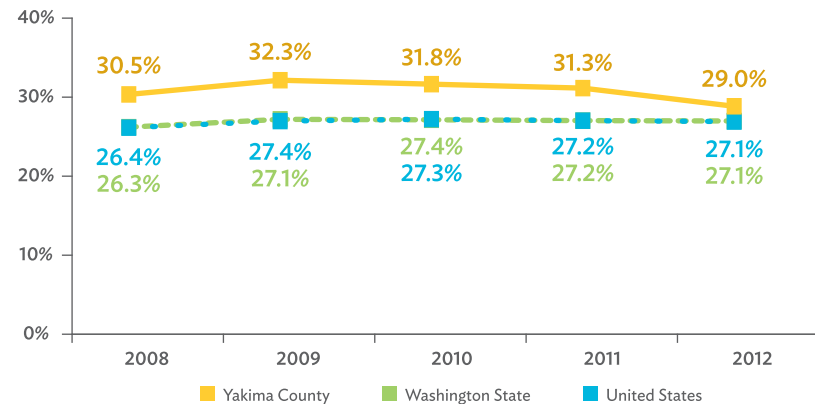
Productivity measures include ‘absenteeism’ (costs due to employees being absent from work for obesity-related health reasons) and ‘presenteeism’ (decreased productivity of employees while at work) as well as premature mortality and disability.<sup>103</sup>

The annual nationwide productive costs of obesity obesity-related absenteeism range between \$3.38 billion (\$79 per obese individual)

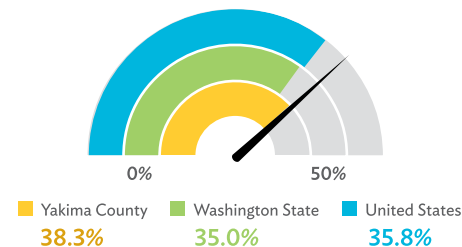
and \$6.38 billion (\$132 per obese individual).<sup>104</sup>

In Yakima County, a total of 38.3% of adults aged 18 and older self-report that they have a Body Mass Index (BMI) between 25.0 and 30.0 (overweight). Therefore, an estimated 67.3% of Yakima County’s adult population is either overweight or obese.

Percentage of Obese Adults by Year 2008-2012<sup>71</sup>



Percentage of Overweight Adults<sup>71</sup>



## Centers for Disease Control and Prevention (CDC)<sup>105</sup>

Childhood obesity is a serious problem in the United States. Despite recent declines in the prevalence among preschool-aged children, obesity among children is still too high. For children and adolescents aged 2-19 years, the prevalence of obesity has remained fairly stable at about 17% and affects about 12.7 million children and adolescents for the past decade.

- In 2011-2012, the prevalence among children and adolescents was higher among Hispanics (22.4%) and non-Hispanic blacks (20.2%) than among non-Hispanic whites (14.1%).
- The prevalence of obesity was lower in non-Hispanic Asian youth (8.6%) than in youth who were non-Hispanic white, non-Hispanic black or Hispanic.

## Health Risks Now

Obesity during childhood can have a harmful effect on the body in a variety of ways.

Children who are obese have a greater risk of:

- High blood pressure and high cholesterol, which are risk factors for cardiovascular disease (CVD). In one study, 70% of obese children had at least one CVD risk factor, and 39% had two or more.<sup>106</sup>
- Increased risk of impaired glucose tolerance, insulin resistance and type 2 diabetes<sup>107</sup>
- Breathing problems, such as sleep apnea, and asthma<sup>108, 109</sup>
- Joint problems and musculoskeletal discomfort<sup>108, 110</sup>
- Fatty liver disease, gallstones, and gastro-esophageal reflux (i.e., heartburn).<sup>107, 108</sup>

- Psychological stress such as depression, behavioral problems, and issues in school<sup>111, 112, 113</sup>
- Low self-esteem and low self-reported quality of life<sup>111 113</sup>
- Impaired social, physical, and emotional functioning<sup>111</sup>

## Health risks later

- Children who are obese are more likely to become obese adults.<sup>114 115</sup> Adult obesity is associated with a number of serious health conditions including heart disease, diabetes, metabolic syndrome, and cancer.<sup>115, 116</sup>
- If children are obese, obesity and disease risk factors in adulthood are likely to be more severe.<sup>114 115 117</sup>

Percentage of Overweight Adolescents by Grade<sup>45</sup>

		2004	2006	2008	2010	2012	2014
8th Grade	Yakima County	14%	13%	15%	14%	14%	15%
	Washington State	15%	15%	16%	16%	14%	14%
10th Grade	Yakima County	16%	14%	17%	18%	19%	18%
	Washington State	13%	14%	14%	15%	13%	14%
12th Grade	Yakima County	15%	15%	16%	16%	14%	18%
	Washington State	13%	14%	14%	14%	13%	13%

Percentage of Obese Adolescents by Grade<sup>45</sup>

		2004	2006	2008	2010	2012	2014
8th Grade	Yakima County	14%	13%	15%	14%	14%	15%
	Washington State	10%	10%	11%	11%	10%	9%
10th Grade	Yakima County	12%	13%	13%	14%	15%	15%
	Washington State	10%	11%	11%	10%	10%	11%
12th Grade	Yakima County	14%	14%	15%	15%	15%	16%
	Washington State	10%	11%	11%	11%	10%	11%



## **ACT! Get Up, Get Moving!**

### **Childhood Obesity Program (PA2)**

- ▶ ACT! is a healthy lifestyle program for overweight children/teens 8-14 years of age, and their parent/guardian. It is an evidence-based program that models nutrition and physical activity behaviors that families can put into action right away. To participate, a healthcare provider referral is required (may be a doctor, registered nurse, registered dietitian or any licensed healthcare provider) and child/teen must have a body mass index (BMI) greater than the 85th percentile.
- ▶ Total participants between 2013–2015: 394
- ▶ On average, Parents reported that after attending the program:
  - 88% of children increased their physical activity level
  - 85% of children increased their fruit and vegetable intake
  - 91% of children decreased their sugary beverage intake
  - 65% of children were better able to choose the appropriate portion size
  - 76% of children decreased their screen time (e.g. TV, computers, tablets, etc.)
  - 85% of families began regularly discussing healthy choices

# LEADING HEALTH INDICATORS

## Health Behaviors

### Physical Activity & Nutrition

Adequate physical activity and a healthy balanced diet can reduce the risk of many chronic health issues. There is a better chance of creating healthy habits when healthy choices are available and supported within the home and community. Exercise alone can decrease the chances of developing cardiovascular disease, type 2 Diabetes, metabolic syndrome, and certain types of cancers. It can also strengthen bones and muscles, improve mental health and mood, control weight, and increase chances of living longer.

The CDC (2012) states: Physical exercise is crucial for the well-being of children, adolescents, adults, and older adults. It is especially important for older adults considering the number of health problems which come with age.

A nutritious diet can decrease the risk of chronic diseases such as type 2 Diabetes, hypertension, and certain types of cancers. It can also reduce the risk of obesity and micronutrient deficiencies (i.e. the lack of essential vitamins which can lead to visual impairments and severe infections).<sup>118</sup>

### Physical Inactivity

#### Healthy People 2020<sup>6</sup>

*Regular physical activity can improve the health and quality of life of Americans of all ages, regardless of the presence of a chronic disease or disability.*<sup>110, 120</sup>

*Current physical activity guidelines recommend children and adolescents should do 60 minutes or more of physical activity per day and adults should do at least 150 minutes of moderate physical activity per week. The guidelines suggest a mix of aerobic, muscle and bone strengthening activities throughout the week for optimum health.<sup>121</sup> However, National data indicates that more than 80% of adults and adolescents do not do enough physical activity to meet the guidelines for aerobic activities.*

*Among adults and older adults, physical activity can lower the risk of:*

- Early death
- Coronary heart disease
- Stroke
- High blood pressure
- Type 2 diabetes
- Breast and colon cancer
- Falls
- Depression

*Among children and adolescents, physical activity can:*

- Improve bone health.
- Improve cardiorespiratory and muscular fitness.
- Decrease levels of body fat.
- Reduce symptoms of depression.
- For people who are inactive, even small increases in physical activity are associated with health benefits.

### Understanding Physical Activity

Personal, social, economic, and environmental factors all play a role in physical activity levels among youth, adults, and older adults. Understanding the barriers to and facilitators of physical activity is important to ensure the effectiveness of interventions and other actions to improve levels of physical activity.

*Factors positively associated with adult physical activity include:*

- Postsecondary education
- Higher income
- Enjoyment of exercise
- Expectation of benefits
- Belief in ability to exercise (self-efficacy)
- History of activity in adulthood
- Social support from peers, family, or spouse
- Access to and satisfaction with facilities
- Enjoyable scenery
- Safe neighborhoods<sup>122</sup>

*Among children and adolescents ages 4 to 18, the following factors have a positive association with physical activity:*

- Belief in ability to be active (self-efficacy)
- Parental support<sup>123</sup>
- Parental education
- Personal goals
- Physical education/school sports
- Belief in ability to be active (self-efficacy)
- Support of friends and family<sup>123</sup>

Environmental influences positively associated with physical activity among children and adolescents include:

- Presence of sidewalks
- Having a destination/walking to a particular place
- Access to public transportation
- Low traffic density
- Access to neighborhood or school play area and/or recreational equipment
- People with disabilities may be less likely to participate in physical activity due to physical, emotional, and psychological barriers. Barriers may include the inaccessibility of facilities and the lack of staff trained in working with people with disabilities.<sup>124</sup>

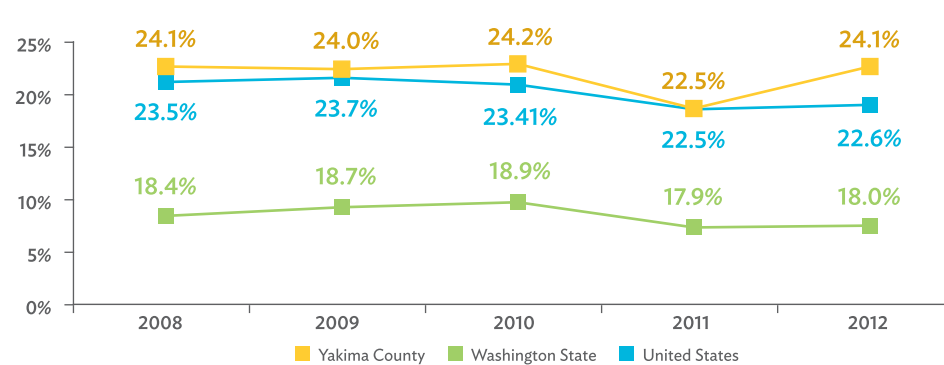
#### Nutrition

##### Healthy People 2020<sup>6</sup>

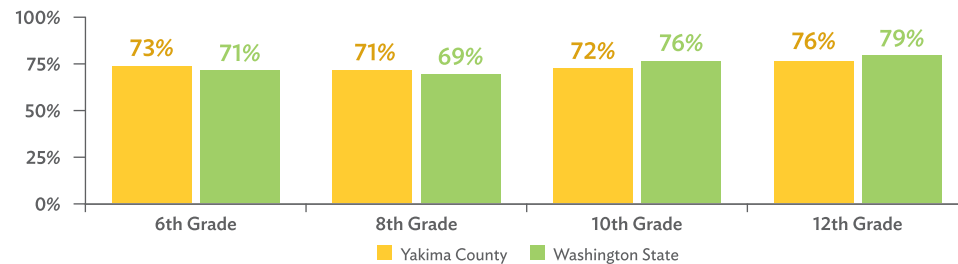
Good nutrition is important to the growth and development of children. A healthful diet also helps Americans reduce their risks for many health conditions,<sup>125</sup> including:

- Overweight and obesity
- Malnutrition
- Iron-deficiency anemia
- Heart disease
- High blood pressure
- Dyslipidemia (poor lipid profiles)
- Type 2 diabetes
- Osteoporosis
- Oral disease
- Constipation
- Diverticular disease
- Some cancers

Percentage of Physically Inactive/Sedentary Adults by Year<sup>71</sup>



Percentage of Adolescents not Meeting Recommended Daily Physical Activity Guidelines by Grade<sup>45</sup>



Social factors thought to influence diet include:

- Knowledge and attitudes
- Skills
- Social support
- Societal and cultural norms
- Food and agricultural policies
- Food assistance programs
- Economic price systems<sup>126</sup>

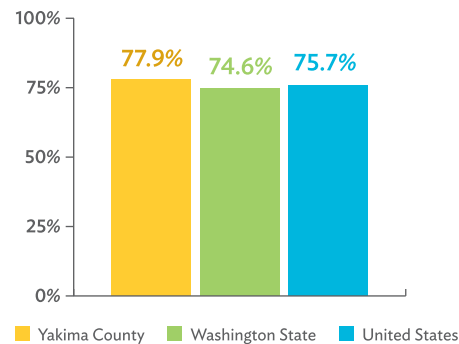
### Physical Determinants of Diet

Access to and availability of healthier foods can help people follow healthful diets. For example, better access to retail venues that sell healthier options may have a positive impact on a person's diet; these venues may be less available in low-income or rural neighborhoods.<sup>127</sup>

The places where people eat appear to influence their diet. For example, foods eaten away from home often have more calories and are of lower nutritional quality than foods prepared at home.<sup>128</sup> Marketing also influences people's—particularly children's—food choices.<sup>129</sup>

In Yakima County an estimated 124,808, or 77.9% of adults over the age of 18 are consuming less than 5 servings of fruits and vegetables each day. This indicator is relevant because current behaviors are determinants of future health, and because unhealthy eating habits may cause significant health issues, such as obesity and diabetes.<sup>71</sup>

Percent Adults with Inadequate Fruit/Vegetable Consumption<sup>71</sup>



Percentage of Adolescents who eat <5 fruits/vegetables daily by Grade<sup>45</sup>

		2004	2006	2008	2010	2012	2014
8th Grade	Yakima County	74%	70%	71%	NS	75%	74%
	Washington State	74%	70%	72%	NS	74%	76%
10th Grade	Yakima County	76%	75%	73%	NS	77%	77%
	Washington State	77%	75%	75%	NS	76%	78%
12th Grade	Yakima County	77%	78%	79%	NS	77%	78%
	Washington State	79%	78%	78%	NS	76%	78%



Percentage of Adolescents who Drink Sweetened Beverages Daily at School by Grade<sup>45</sup>

		2004	2006	2008	2010	2012	2014
8th Grade	Yakima County	22%	20%	21%	17%	6%	74%
	Washington State	16%	15%	15%	12%	5%	76%
10th Grade	Yakima County	26%	23%	21%	18%	5%	77%
	Washington State	22%	19%	15%	13%	4%	78%
12th Grade	Yakima County	24%	22%	21%	18%	6%	78%
	Washington State	22%	18%	16%	12%	4%	78%

## Community Health Education and Events (PA2)

Virginia Mason Memorial's Community Health department offers a variety of educational classes and resources designed to help community members manage a wide range of chronic disease and health conditions and promote overall wellness. All of Memorial's community education classes are offered in both English and Spanish.

—Examples include Fiesta de Salud, Spring Fling, etc.

- Total number of participants: 9453

### ► Hospital Lead community outreach and education events

► **Kohl's Healthy for Life: Some health issues are caused by manageable lifestyle choices including exercise and eating habits.** Because it takes time, money, and resources to ensure a healthy lifestyle, it creates a challenge to some members of our community. Our goal is to make it easy for community members to be healthy! Virginia Mason Memorial and Kohl's Cares has teamed up to create Healthy For Life, a program dedicated to bring FREE exercise and cooking classes! The exercise classes are available four days a week and are also offered in Spanish. Programs include: bilingual yoga, bilingual zumba, gentle yoga, boot camp, and cooking classes.

## Tobacco Use

### Healthy People 2020<sup>6</sup>

Scientific knowledge about the health effects of tobacco use has increased greatly since the first Surgeon General's report on tobacco was released in 1964.<sup>130, 131, 132, 133</sup> Since the publication of that report, more than 20 million Americans have died because of smoking.<sup>133</sup>

Tobacco use causes:<sup>133</sup>

- Cancer (oropharynx, larynx, esophagus, trachea, bronchus, lung, acute myeloid leukemia, stomach, liver, pancreas, kidney and ureter, cervix, bladder, and colorectal)
- Heart disease and stroke
- Lung diseases (emphysema, bronchitis, chronic airway obstruction, chronic obstructive pulmonary disease, and pneumonia)
- Reproductive effects (ectopic pregnancy, premature birth, low birth weight, stillbirth, reduced fertility in women, and erectile dysfunction; and birth defects, including cleft-lip and/or cleft palate)
- Other effects (Type 2 diabetes, age-related macular degeneration, rheumatoid arthritis, blindness, cataracts, hip fractures, impaired immune function, periodontitis, and overall diminished health)

The harmful effects of tobacco do not end with the user. There is no risk-free level of exposure to secondhand smoke. Since 1964, 2.5 million

deaths have occurred among nonsmokers who died from diseases caused by secondhand smoke exposure.<sup>133</sup> Secondhand smoke causes heart disease, lung cancer, and stroke in adults,<sup>133</sup> and can cause a number of health problems in infants and children, including:<sup>134</sup>

- More severe asthma attacks
- Respiratory infections
- Ear infections
- Sudden infant death syndrome (SIDS)

In addition, smokeless tobacco causes a number of serious oral health problems, including cancer of the mouth and gums, periodontitis, and tooth loss.<sup>130, 132</sup>

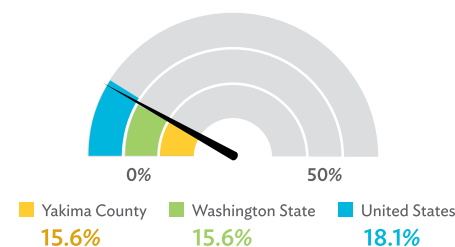
Tobacco use is the largest preventable cause of death and disease in the United States.<sup>133</sup> Each year, approximately 480,000 Americans die from tobacco-related illnesses. Further, more than 16 million Americans suffer from at least one disease caused by smoking.<sup>133</sup>

Smoking-related illness in the United States costs more than \$300 billion each year, including nearly \$170 billion for direct medical care for adults and more than \$156 billion in lost productivity.<sup>133</sup>

### Adolescent Tobacco Use

Tobacco contains nicotine, a highly addictive drug, causing many young people to progress from smoking occasionally to smoking every day. Nearly all tobacco use begins prior to age 18. Each day in the United States, over 3,800

Percentage of Adults who currently smoke<sup>71</sup>



young people under 18 years of age smoke their first cigarette, and over 1,000 youth under age 18 become daily cigarette smokers. The vast majority of Americans who begin daily smoking during adolescence are addicted to nicotine by young adulthood.<sup>135</sup> Young people start smoking for many reasons—social, physical and environmental influences. In 2011, cigarette companies spent \$8.37 billion on advertising and promotional expenses in the United States alone; up from \$8.05 billion in 2010. The five major U.S. smokeless tobacco manufacturers spent \$451.7 million on smokeless tobacco advertising and promotion in 2011 and increase from \$442.2 million spent in 2010.<sup>26, 137, 138</sup>

The National trend from the Center for Disease Control and Prevention's Youth Risk Behavior Surveillance survey shows during 1991–2015, a significant linear decrease occurred

overall in the prevalence of current cigarette use (27.5%–10.8%). Initially the prevalence of current cigarette use increased during 1991–1997 (27.5%–36.4%), but then decreased drastically during 1997–2015 (36.4%–10.8%).<sup>138</sup>

### Electronic Cigarettes

The emergence of electronic cigarettes, more commonly referred to as e-cigarettes, has gained national and local attention as a method of tobacco cessation to help people quit smoking. Additionally, it has garnered attention as a means to recruit new users to nicotine products, with a particular attention on young people, through the marketing of candy-flavored devices. The debate on the effectiveness and regulation of this product is currently ongoing with the Federal Drug Administration. Just what e-cigarettes are and what role they should play in helping people quit smoking depends very much on who you speak with about this topic.<sup>26</sup>

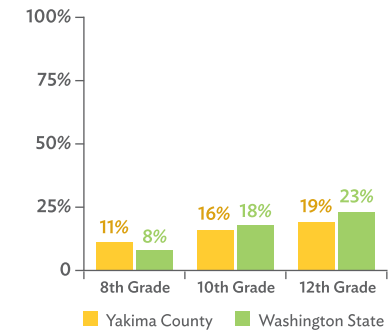
Although the trend for cigarettes has declined over the past 12 years, more recently the use of Electronic Cigarettes or ‘E-Cigs’ is on the rise and in 2014 the Healthy Youth Survey collected information on E-Cig use discovering that between 11–19% of adolescents in Yakima County use these products and between 8–23% at the State level (depending on age).

Percentage of students who report smoking cigarettes in the past 30 days<sup>45</sup>

		2004	2006	2008	2010	2012	2014
8th Grade	Yakima County	8%	6%	6%	6%	5%	4%
	Washington State	8%	6%	7%	7%	5%	4%
10th Grade	Yakima County	11%	12%	11%	10%	8%	8%
	Washington State	13%	15%	14%	13%	10%	8%
12th Grade	Yakima County	15%	16%	14%	14%	13%	11%
	Washington State	20%	20%	20%	20%	16%	13%

The CDC’s Division of Adolescent and School Health (DASH) has released the 2015 findings which show that nationally cigarette smoking among high school students dropped to the lowest levels (11%) since the Survey began in 1991, “but the use of electronic vapor products, including e-cigarettes, among students poses new challenges.” The survey found that across the United States 24% of high school students reported using e-cigarettes during the past 30 days.<sup>138</sup>

Percentage of students who report using an e-cigarette or vape pens in the last 30 days<sup>45</sup>



## Substance Abuse

### Healthy People 2020<sup>6</sup>

Substance abuse has a major impact on individuals, families, and communities. The effects of substance abuse are cumulative, significantly contributing to costly social, physical, mental, and public health problems. These problems include:

- Teenage pregnancy
- Human immunodeficiency virus/acquired immunodeficiency syndrome (HIV/AIDS)
- Other sexually transmitted infections (STIs)
- Domestic violence
- Child abuse
- Motor vehicle crashes
- Physical fights
- Crime
- Homicide
- Suicide<sup>139</sup>

The field has made progress in addressing substance abuse, particularly among youth. According to data from the National Institute of Drug Abuse (NIDA) Monitoring the Future (MTF) survey, which is an ongoing study of the behaviors and values of America's youth between 2004 and 2009:

- A drop in past-year use of methamphetamine was reported for all grades, and lifetime use dropped significantly among 8th graders, from 2.3 to 1.6%.
- Among 10th and 12th graders, 5-year declines were reported for past-year use of amphetamines and cocaine; among 12th graders, past-year use of cocaine decreased

significantly, from 4.4 to 3.4%.

- Decreases were observed in lifetime, past-year, past-month, and binge use of alcohol across the 3 grades surveyed.
- In addition, in 2009:
  - Past-year use of hallucinogens and LSD fell significantly, from 5.9 to 4.7%, and from 2.7 to 1.9%, respectively.
  - Past-year use of hallucinogens other than LSD decreased from 5.0 to 4.2% among 12th graders.
  - Marijuana use across the 3 grades showed a consistent decline starting in the mid-1990s; however, the trend in marijuana use has stalled, with prevalence rates remaining steady over the past 5 years.

Substance abuse refers to a set of related conditions associated with the consumption of mind- and behavior-altering substances that have negative behavioral and health outcomes. Social attitudes and political and legal responses to the consumption of alcohol and illicit drugs make substance abuse one of the most complex public health issues. In addition to the considerable health implications, substance abuse has been a flash-point in the criminal justice system and a major focal point in discussions about social values.

Advances in research have led to the development of evidence-based strategies to effectively address substance abuse.

Improvements in brain-imaging technologies and the development of medications that assist

in treatment have gradually shifted the research community's perspective on substance abuse.

There is now a deeper understanding of substance abuse as a disorder that develops in adolescence and, for some individuals, will develop into a chronic illness that will require lifelong monitoring and care.

Improved evaluation of community-level prevention has enhanced researchers' understanding of environmental and social factors that contribute to the initiation and abuse of alcohol and illicit drugs, leading to a more sophisticated understanding of how to implement evidence-based strategies in specific social and cultural settings.

A stronger emphasis on evaluation has expanded evidence-based practices for drug and alcohol treatment. Improvements have focused on the development of better clinical interventions through research and increasing the skills and qualifications of treatment providers.

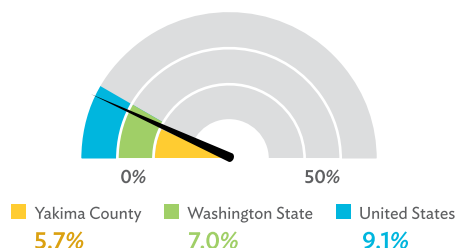
### Adult Alcohol Consumption

This indicator reports the percentage of adults aged 18 and older who self-report heavy alcohol consumption (defined as more than two drinks per day on average for men and one drink per day on average for women). This indicator is relevant because current behaviors are determinants of future health and this indicator may illustrate a cause of significant health issues, such as cirrhosis, cancers, and untreated mental and behavioral health needs.<sup>7</sup>

### Adult DUI/DWI Fatalities

Driving while under the influence or while intoxicated impairs the driver's ability to drive safely. It puts everyone in the vehicle and others on the road at risk. This indicator shows a direct link between transportation and negative health outcomes. This is a strong measure of the efficacy of policies and laws against alcohol-impaired driving. The annual cost of alcohol-impaired motor vehicle crashes in the U.S. totals more than \$59 billion.<sup>140</sup> In 2012, 10,322 people were killed in alcohol-impaired driving crashes, accounting for nearly one-third (31%) of all traffic-related deaths in the United States.<sup>141</sup> Strong policies, enforcement, and proven prevention strategies are key pieces in reducing the number of deaths from alcohol-related crashes. Drivers involved in fatal crashes with a BAC of 0.08% or higher are four times more likely to have a prior conviction than drivers involved in fatal crashes with no alcohol in their system.<sup>27 142</sup>

Excessive Drinking,  
Percent of Adults Age 18+ by County<sup>71</sup>

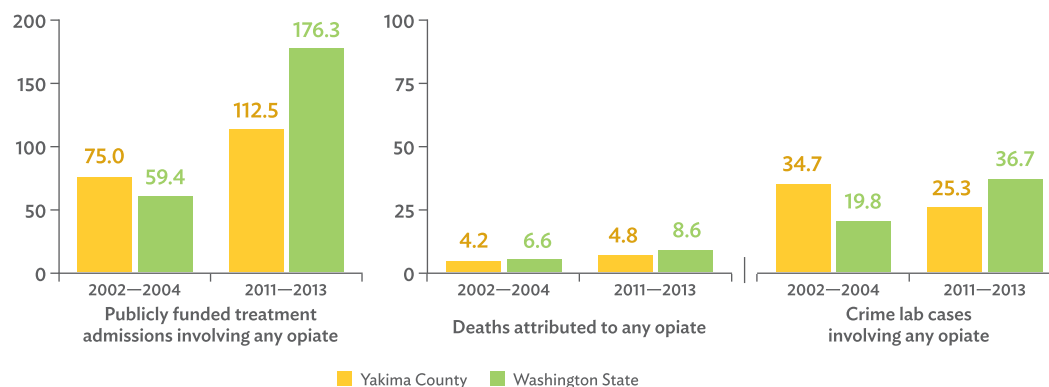


	DUI/DWI Fatalities per 100,000 Residents	Percentile Score+
Yakima (MSA)	5.3	18th
Washington State	2.1	87th

+ The score for a given state or area represents its percentile value. This is the percent of states or regions that score below it.

### Adult Illicit Drug Use

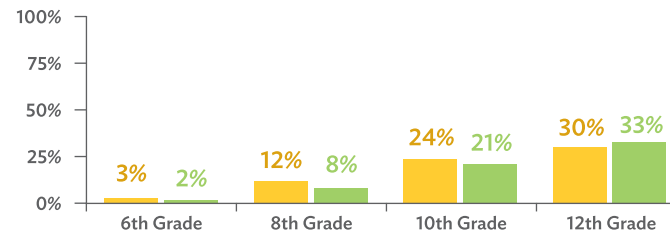
Annual rate for opiate cases (per 100,000 population)<sup>143</sup>



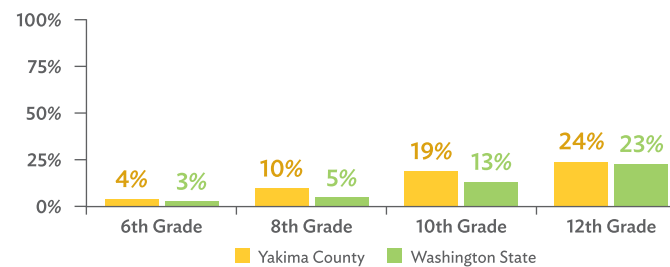
### Adolescent Alcohol and Drug Use

Alcohol use by persons under age 21 years is a major public health problem. Alcohol is the most commonly used and abused drug among youth in the United States, more than tobacco and illicit drugs. Research indicates youth who start drinking before age 15 years are five times more likely to develop alcohol dependence or abuse later in life than those who begin drinking at or after age 21 years. Adolescent substance use and addiction is a national public health problem impacting communities across the nation. Exposure to alcohol, marijuana and other substances may interfere with adolescent brain development leading to adverse lifetime consequences. Drug and alcohol use can increase other risk behaviors, leading to injury, violence, victimization, sexually transmitted diseases, teen pregnancy, suicide and poor educational performance and completion. Youth are bombarded with mixed messages from the media, peers, family dynamics, and other places. Prevention efforts targeting the environment as well as individuals are effective in changing behaviors and health outcomes. Addressing social norms and perceived harm of substance use are critical in the implementation of prevention programs. Research shows prevention efforts improve school attendance, graduation rates, and reduce violence and mental health disorders, among other positive outcomes. Prevention programs that use a skills-based approach have demonstrated improving youth and community health outcomes.<sup>144</sup>

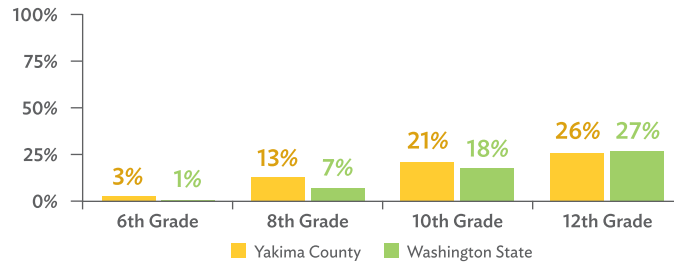
**Current Drinking—students who report drinking at least once in the past month<sup>45</sup>**



**Binge Drinking—students who report drinking 3 or more days in the past month and/or one or more binge drinking episodes<sup>45</sup>**

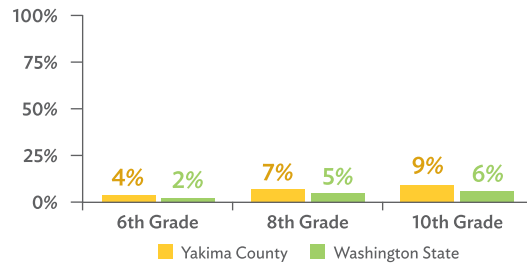


**Marijuana\*—students report using Marijuana at least once in past month<sup>45</sup>**



+ While Marijuana is legal in Yakima County, the legal use age is 21 and over.

**Prescription Drugs\*—students report using prescription drugs to get high at least once in past month<sup>45</sup>**



+ Prescription Drugs include Vicodin, OxyContin or Percocet

## Maternal, Infant And Child Health

### Healthy People 2020<sup>6</sup>

Improving the well-being of mothers, infants, and children is an important public health goal for the United States. Their well-being determines the health of the next generation and can help predict future public health challenges for families, communities, and the health care system.

Pregnancy can provide an opportunity to identify existing health risks in women and to prevent future health problems for women and their children. These health risks may include:

- Hypertension and heart disease
- Diabetes
- Depression
- Genetic conditions
- Sexually transmitted diseases (STDs)
- Tobacco use and alcohol abuse
- Inadequate nutrition
- Unhealthy weight

The risk of maternal and infant mortality and pregnancy-related complications can be reduced by increasing access to quality preconception (before pregnancy) and interconception (between pregnancies) care. Moreover, healthy birth outcomes and early identification and treatment of health conditions among infants can prevent death or disability and enable children to reach their full potential.<sup>145 146 147</sup>

Many factors can affect pregnancy and childbirth, including:

- Preconception health status
- Age
- Access to appropriate preconception and interconception health care
- Poverty

Infant and child health are similarly influenced by sociodemographic factors, such as family income, but are also linked to the physical and mental health of parents and caregivers.

There are racial and ethnic disparities in mortality and morbidity for mothers and children, particularly for African Americans.<sup>146, 148, 149</sup> These differences are likely the result of many factors.

### Social Determinants of Maternal Health

These include prepregnancy health behaviors and health status,<sup>150</sup> which are influenced by a variety of environmental and social factors such as access to health care and chronic stress.<sup>151</sup>

### Physical Determinants of Maternal Health

Common barriers to a healthy pregnancy and birth include lack of access to appropriate health care before and during pregnancy. In addition, environmental factors can shape a woman's overall health status before, during, and after pregnancy by:

- Affecting her health directly.
- Affecting her ability to engage in healthy behaviors.

### Social Determinants of Infant and Child Health

The social determinants that influence maternal health also affect pregnancy outcomes and infant health. Racial and ethnic disparities in infant mortality exist, particularly for African American infants. Child health status varies by both race and ethnicity, as well as by family income<sup>10</sup> and related factors, including educational attainment among household members and health insurance coverage.<sup>152</sup>

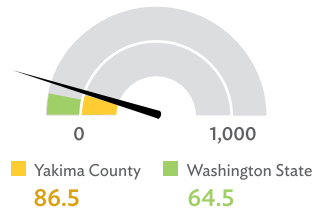
### Physical Determinants of Infant and Child Health

The cognitive and physical development of infants and children is influenced by the health, nutrition, and behaviors of their mothers during pregnancy and early childhood. Breast milk is widely acknowledged to be the most complete form of nutrition for most infants, with a range of benefits for their health, growth, immunity, and development.<sup>153, 154</sup> Furthermore, children reared in safe and nurturing families and neighborhoods, free from maltreatment and other social adversities, are more likely to have better outcomes as adults.<sup>155, 156</sup>



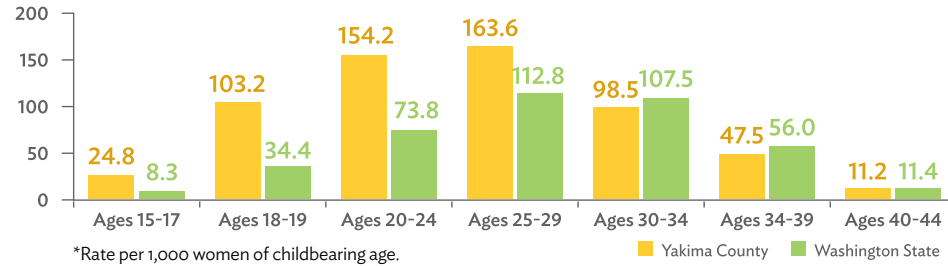
## Fertility

### Fertility Rate<sup>157</sup>



\*Rate per 1,000 women of childbearing age.

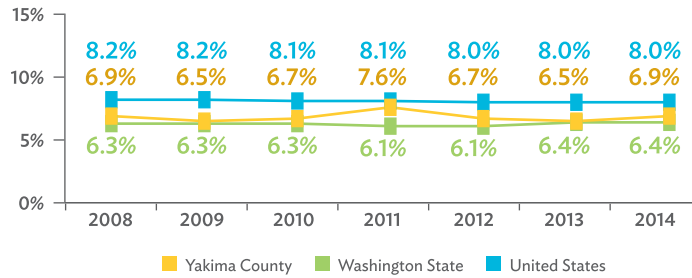
### Age Specific Fertility Rates in 2014<sup>157</sup>



\*Rate per 1,000 women of childbearing age.

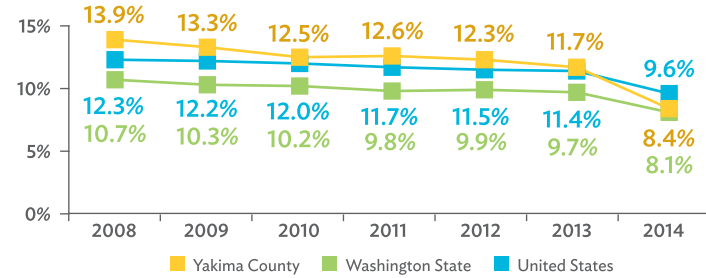
## Low Birth Weight


### Percent of live births with birth weight of less than 2,500 grams (5 lbs., 8oz)<sup>158</sup>



## Pre-term Births

### Percent infants born before 37 completed weeks of gestation<sup>158</sup>





### **Obstetrics Clinical Outcomes Assessment Program (OBCOAP) (PA7)**

- ▶ Virginia Mason Memorial is participating in the Obstetrics Clinical Outcomes Assessment Program (OB COAP). This program is designed to facilitate physician leaders and hospitals working together in a voluntary and collaborative way to review clinical outcomes data and seek improvements in labor and delivery care. Data collected in the last year indicates a reduction of 3,000 NICU cases statewide.

### **Breastfeeding (PA2 & PA7)**

- ▶ Virginia Mason Memorial received bronze level designation from Washington State Breastfeeding Friendly Hospitals initiative for practices put in place to increase number /percentage of women exclusively breastfeeding.

### **Perinatal Regional Network (PA7)**

- ▶ Memorial collaborates with Washington State Department of Health to lead all of Central Washington Hospitals' obstetric quality improvement work and to disseminate that information to all hospitals delivering babies in the Central Region.

### **Neonatal Transports (PA1 & PA7)**

- ▶ Virginia Mason Memorial provides transportation from outlying community hospitals to bring ill/premature newborns to Virginia Mason Memorial to provide higher level of care. Providing care/treatment for infants who have been born in or brought after delivery to facilities that do not have the resources/ability to care for a higher acuity newborn population.
- ▶ **Partners:** ALS, AMR, Airlift Northwest. Neonatologists & Hospital staff (Registered Nurses, Respiratory Therapists, and Nurse Practitioners). As well as a relationship with outlying hospitals.

### Teen Births

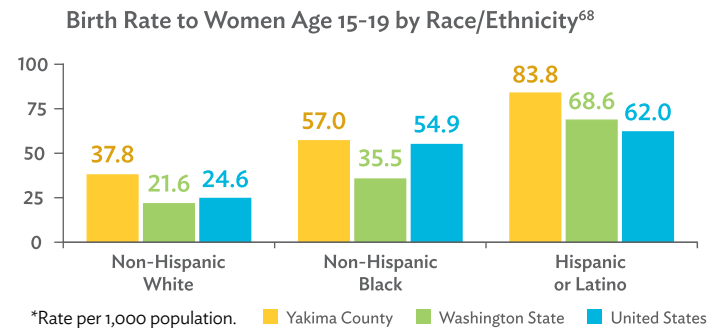
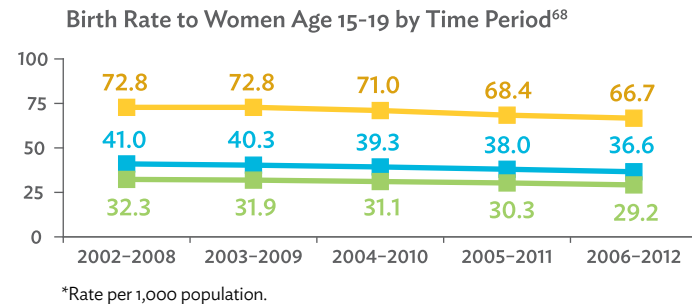
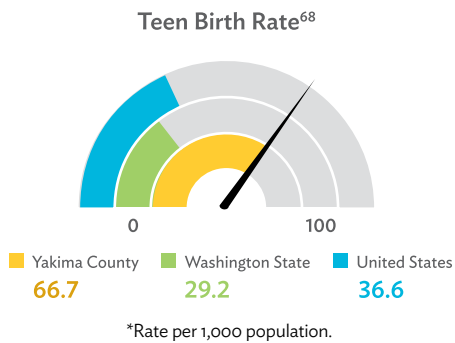
In the United States, half of all pregnancies are unplanned. Of those 3.4 million unplanned pregnancies, approximately 305,000<sup>159</sup> are to girls' ages 15–19 years old. U.S. teen pregnancy and birth rates have declined dramatically over the past twenty years and are now at historic lows; however the U.S. teen birth rates remain far higher than in other comparable countries and continue to cost the U.S. \$12.5 billion dollars a year.<sup>160</sup>


Public funding for family planning services helps to prevent unintended pregnancies; for every \$1 spent on family planning services, \$5.68 in pregnancy-related Medicaid expenditures is saved.<sup>161</sup> Furthermore, family planning funding supports access to contraception, cancer screening and prevention, HIV and STI testing and treatment, pregnancy planning, screening for intimate partner violence, and referrals for prenatal care, substance abuse treatment, and primary care.<sup>26 162</sup>

Sexual and reproductive health education is an important part of overall health education of teenagers. Sexual and reproductive health education includes knowledge of emotional and physiological body changes during puberty. This knowledge is becoming increasingly important as youth

today are entering puberty earlier in life and are often unaware of the changes happening to their bodies. Sexual and reproductive health education provides a framework for youth to learn about healthy vs. unhealthy relationships and community resources on this topic.

This indicator reports the rate of total births to women age of 15–19 per 1,000 female population age 15–19. This indicator is relevant because in many cases, teen parents have unique social, economic, and health support services. Additionally, high rates of teen pregnancy may indicate the prevalence of unsafe sex practices.<sup>68</sup>





## Childbirth Education (PA2 & PA7)

- ▶ Virginia Mason Memorial offers Perinatal Education in both Spanish and English for mothers and their support persons to decrease pre-term and low birth weight infants.

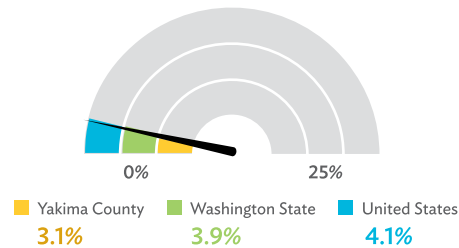
**Classes offered:**

- Childbirth Education
  - Young and Pregnant Class (Teen Birth)
  - Successful breastfeeding
  - Baby Basics
  - Boot camp for new Dads
  - Prenatal yoga
  - Infant CPR
  - Mom & Baby (birth to 12 months) support group
- ▶ **Target:** All pregnant moms' ages 14 years and older (English/Spanish) plus partners.
  - ▶ **Impact:** 1480 mothers attended classes. Short/immediate: Fear around labor/delivery was reduced in 75% of clients immediately post class. Infant care/readiness/prepared was shown post class at 99%. Those planning to breastfeed at 74% and those expressing desire to "Exclusively Breastfeed" post class was at 89%. Long/long term changes: Pre term births declining due to increased knowledge of benefits/risks/alternatives throughout perinatal period learned during CBE.
  - ▶ **Partners:** Nurse Family Partnership, Yakima Valley Farmworkers Clinic, Maternal Health Services, Coordinated Care, OB/GYNs.

### Children with Special Health Needs

As defined by the Maternal and Child Health Bureau and accepted by the American Academy of Pediatrics (AAP), “children with special health care needs are those who have or are at increased risk for a chronic physical, developmental, behavioral, or emotional condition and who also require health and related services of a type or amount beyond that required by children generally.”<sup>164</sup> It has become apparent that these more extensive health and related services require forethought in the development of their structure and coordination. Healthy People 2020 calls for all children with special health care needs to receive coordinated, ongoing, comprehensive care within a medical home.<sup>165</sup> Care coordination plays an essential role in ongoing efforts to integrate health and related systems of care for children and youth with special health care needs.<sup>166</sup> Although efforts to better define the population continue,<sup>167</sup> data support the fact that children with special health care needs account for a substantial amount of health services utilization. Children with special health care needs are estimated to account for 13% of all children, yet they represent 70% of health care expenditures.<sup>168 169 170</sup> Individuals with chronic illness need coordinated services to provide chronic care management. Recent research supports the benefits of professional care coordination in clinical and process improvements and in reducing health care costs and improving family satisfaction.<sup>171 172 173 174 175</sup>

### Children under the Age of 18 with a Disability<sup>1</sup>



### Leading Four Diagnostic Categories among Children Served by the Children with Special Health Care Needs Program<sup>176</sup>

	Congenital Anomalies	Developmental Delay and Mental Retardation	Ill-Defined Conditions	Perinatal Conditions
Yakima County	372	836	927	511
Washington State	2,294	4,051	2,820	2,713

### Number of Children Served by Children with Special Health Care Needs Program by Age Group and Year<sup>176</sup>

	2009			2010			2011		
	0-3 Years	4-9 Years	10+ Years	0-3 Years	4-9 Years	10+ Years	0-3 Years	4-9 Years	10+ Years
Yakima County	1,162	751	643	1,172	841	627	1,194	957	648
Washington State	8,030	2,619	1,806	7,845	2,371	1,477	7,894	2,325	1,409

### Number of Children Served by Children with Special Health Care Needs Program by Gender and Year<sup>176</sup>

	2009		2010		2011	
	Male	Female	Male	Female	Male	Female
Yakima County	1,542	1,014	1,634	1,006	1,734	1,065
Washington State	7,379	5,075	6,978	4,715	6,996	4,631

**Number of Children in Special Education Services under the Individuals with Disabilities Education Act (IDEA) Part B, as of December 1, 2010<sup>77</sup>**

<b>Diagnostic Category</b>	<b>Yakima County</b>	<b>Washington State</b>
Specific Learning Disability	2,253	44,774
Communication Disorder	1,176	20,841
Developmental Delay – Preschool	1,000	16,285
Health Impairment	682	22,802
Intellectual Disabilities	356	4,614
Autism	198	8,598
Multiple Disabilities	122	2,697
Emotional/Behavioral Disability	113	4,704
Hearing Impairment	48	916
Orthopedic Impairment	37	572
Visual Impairments	29	402
Deafness	26	393
Traumatic Brain Injury	21	340
Deaf – Blindness	<5	29
<b>TOTAL</b>	<b>6,061</b>	<b>127,967</b>



## Children's Village (PA2 & PA7)

- ▶ **Serving children with special health care or developmental needs and their families, this comprehensive family-centered organization aims to meet each child's need for individualized care.**

More than a decade ago, families, businesses, community leaders and health care providers in the Yakima Valley came together to share their dream for a medical, educational and therapy center that would serve children and families with special health care needs. Many service providers had repeatedly heard concerns from families about the lack of coordinated and locally available services for these children.

In 1993 the local agencies began working together to identify ways to improve and streamline services for children and families. Using information provided by families, service providers throughout the region formulated the concept of Children's Village, a regional integrated center for children with special needs and their families, with multiple service providers all under one roof.

Today, that vision has come to life in a colorful, magical, fun and truly exciting state-of-the-art medical facility. At Children's Village, children with chronic health conditions get their needs met in one special place. In real terms, this means an end to driving all over town and out of town to find treatment specialists; dependable child care readily available for siblings; and a decrease in parents missing work while trying to juggle appointments and paperwork. To the families it serves, Children's Village is a blessing and provides healthier, happier living for the entire family.

Among the many facility highlights are the fun and glittery mine shaft elevator, the beautiful and super-cool warm water therapy pond and Miracle Street, a miniature town with a tree-lined street (hallway), and colorful flags that bring to life the donors and organizations who have committed their resources to the facility.

At its core mission, the center integrates health services, behavior services, mental health services and educational services to optimize daily life for the child and family. Situated in an inviting, child-friendly environment, core services at Children's Village include:

- Pediatric medical evaluations
- Occupational and physical therapy
- Speech and language services
- Educational services
- Pediatric medical specialty clinics
- Drop-in child care for siblings
- Therapy services
- Pediatric dental care
- Family support services
- Behavioral health services
- Fetal alcohol syndrome clinics
- Autism spectrum disorder evaluations
- Cleft palate clinics and coordination.

- ▶ **Between 2013 and 2015 Children's Village served 14,542 children and families in Yakima and Kittitas Counties.**

### Adverse Childhood Experiences (ACEs)

#### Centers for Disease Control and Prevention (CDC)<sup>178</sup>

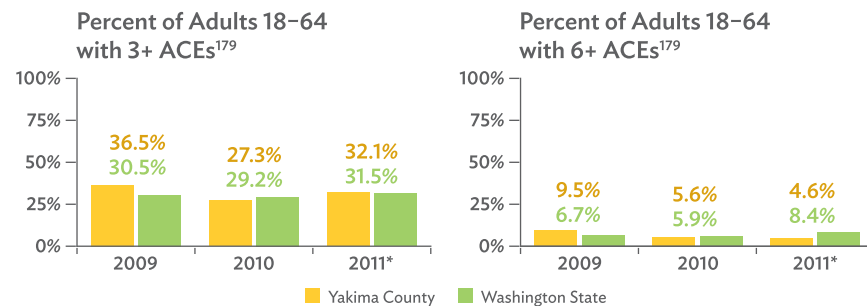
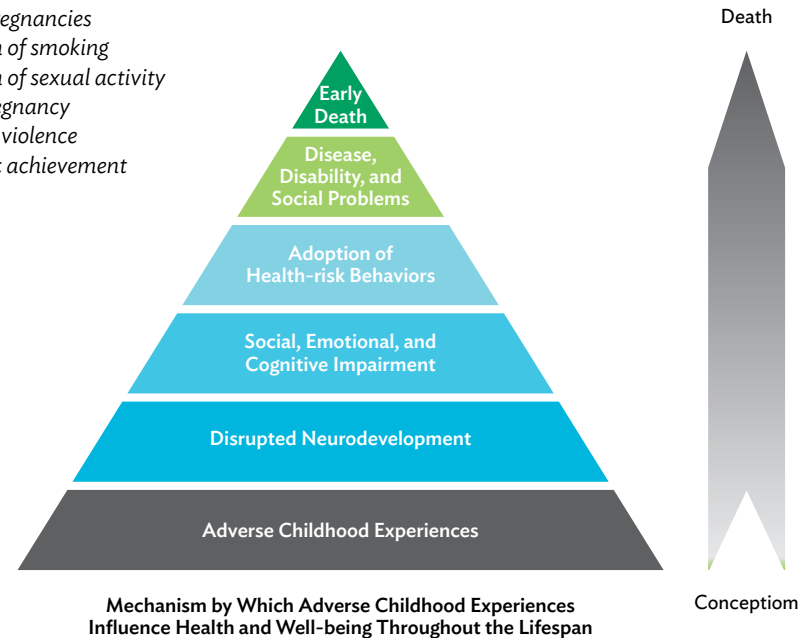
Adverse Childhood Experiences (ACEs) are common. Almost two-thirds of study participants reported at least one ACE, and more than one in five reported three or more ACEs.

The ACE score, a total sum of the different categories of ACEs reported by participants, is used to assess cumulative childhood stress. Study findings repeatedly reveal a graded dose-response relationship between ACEs and negative health and well-being outcomes across the life course.

As the number of ACEs increases so does the risk for the following:

- Alcoholism and alcohol abuse
- Chronic obstructive pulmonary disease
- Depression
- Fetal death
- Health-related quality of life
- Illicit drug use
- Ischemic heart disease
- Liver disease
- Poor work performance
- Financial stress
- Risk for intimate partner violence
- Multiple sexual partners
- Sexually transmitted diseases
- Smoking
- Suicide attempts

- Unintended pregnancies
- Early initiation of smoking
- Early initiation of sexual activity
- Adolescent pregnancy
- Risk for sexual violence
- Poor academic achievement





### **Nurse-Family Partnership Program (PA3)**

- ▶ The Nurse-Family Partnership (NFP) is an evidence-based nurse home visitation program that has been implemented in Yakima County since November 2003. The program enrolls first-time low-income mothers early in their pregnancy and follows them through their child's second birthday. The goal of NFP is to improve child health and development by helping parents provide responsible and competent care for their children; and families' economic self-sufficiency is improved by helping parents develop a vision for their own future, plan future pregnancies, continue their education and find work.

- ▶ Between 2013 and 2015, 225 first-time mothers participated in the program. From the start, 645 young women and their families have participated in Nurse Family Partnership.

—Yakima County NFP Client characteristics:

- Median Age: 18 years old
- Race/Ethnicity: 70% Hispanic, 17 % non-Hispanic white, 12 % Native American, 2% African American/Black

—Yakima County NFP Outcomes:

- 80% reduction in experience of domestic violence from enrollment to 36 weeks
- 92% of clients initiated breastfeeding and 34% are still breastfeeding at 6 months
- 27% subsequent pregnancy at 24 months
- 63% were employed at program end compared to 44.5% at enrollment
- Education: At enrollment 67% do not have a high school diploma or GED. At program end: 33% still in high school, 23% completed high school

### **Healthy Pregnancy Program (PA3)**

- ▶ Healthy Pregnancy provides Maternity Support Services (MSS) and Infant Case management (ICM). MSS delivers enhanced preventive health and education services and brief interventions to eligible pregnant clients. Services are provided anytime in pregnancy based on the client's individual risks and needs. ICM provides services to improve the welfare of infants by providing their parents with information and assistance for necessary medical, social, educational, and other services through the infant's first year. Maternal Infant & Child Health: 1. Improve and promote Healthy birth outcomes 2. Help eligible pregnant and post-pregnant women and their infant to access prenatal care and health care.

—Between 2013 and 2015 272 mothers were enrolled in the program.

### **Investing in Children Coalition (PA3)**

- ▶ Memorial participates in the Investing in Children Coalition (ICC), the South Central Washington regional early learning coalition, one of 10 early learning regional coalitions (ELCRs) in the state of Washington.

—Objectives:

1. Have impact on the children and families we serve.
2. Increase understanding, strengthen, and provide proof of collective impact.
3. Stabilize and extend the reach of local and regional resources.
4. Strengthen community relationships.

## Reproductive/Sexual Health

### Sexually Transmitted Infections (STIs)

#### Healthy People 2020<sup>6</sup>

Sexually Transmitted Infections (STIs) refer to more than 25 infectious organisms that are transmitted primarily through sexual activity. STI prevention is an essential primary care strategy for improving reproductive health.<sup>180</sup>

The CDC estimates that there are approximately 20 million new STI infections each year—almost half of them among young people ages 15 to 24.<sup>3</sup> The cost of STIs to the U.S. health care system is estimated to be as much as \$16 billion annually.<sup>181</sup> Because many cases of STIs go undiagnosed—and some common viral infections, such as human papillomavirus (HPV) and genital herpes, are not reported to CDC at all—the reported cases of chlamydia, gonorrhea, and syphilis represent only a fraction of the true burden of STIs in the United States.

Untreated STIs can lead to serious long-term health consequences, especially for adolescent girls and young women. CDC estimates that undiagnosed and untreated STIs cause at least 24,000 women in the United States each year to become infertile.<sup>182</sup>

Despite their burdens, costs, and complications, and the fact that they are largely preventable, STIs remain a significant public health problem in the United States. This problem is largely unrecognized by the public, policymakers, and health care professionals.

Biological factors that affect the spread and complications of STIs include:

- **Asymptomatic nature of STIs.** The majority of STIs either do not produce any symptoms or signs, or they produce symptoms so mild that they are unnoticed; consequently, many infected persons do not know that they need medical care.
- **Gender disparities.** Women suffer more frequent and more serious STI complications than men do. Among the most serious STI complications are pelvic inflammatory disease, ectopic pregnancy (pregnancy outside of the uterus), infertility, and chronic pelvic pain.<sup>183</sup>
- **Age disparities.** Young people ages 15 to 24 account for half of all new STIs, although they represent just 25% of the sexually experienced population. Adolescent females may have increased susceptibility to infection because of increased cervical ectopy.<sup>184</sup>

Social, economic, and behavioral factors that affect the spread of STIs include:

- **Racial and ethnic disparities.** Certain racial and ethnic groups (mainly African American, Hispanic, and American Indian/Alaska Native populations) have high rates of STIs, compared with rates for whites. Race and ethnicity in the United States are correlated with other determinants of health status, such as poverty, limited access to health care, fewer attempts to get medical treatment, and living in communities with high rates of STIs.<sup>185</sup>

- **Poverty and marginalization.** STIs disproportionately affect disadvantaged people and people in social networks where high-risk sexual behavior is common, and either access to care or health-seeking behavior is compromised.
- **Access to health care.** Access to high-quality health care is essential for early detection, treatment, and behavior-change counseling for STIs. Groups with the highest rates of STIs are often the same groups for whom access to or use of health services is most limited.<sup>186, 187</sup>
- **Substance abuse.** Many studies document the association of substance abuse with STIs. The introduction of new illicit substances into communities often can alter sexual behavior drastically in high-risk sexual networks, leading to the epidemic spread of STIs.<sup>189</sup>
- **Sexuality and secrecy.** Perhaps the most important social factors contributing to the spread of STIs in the United States are the stigma associated with STIs and the general discomfort of discussing intimate aspects of life, especially those related to sex.<sup>190</sup> These social factors separate the United States from industrialized countries with low rates of STIs.
- **Sexual networks.** Sexual networks refer to groups of people who can be considered “linked” by sequential or concurrent sexual partners. A person may have only one sex partner, but if that partner is a member of a risky sexual network, then the person is at higher risk for STIs than a similar individual from a lower-risk network.

### Incidence Rates of Sexually Transmitted Infections<sup>191</sup>

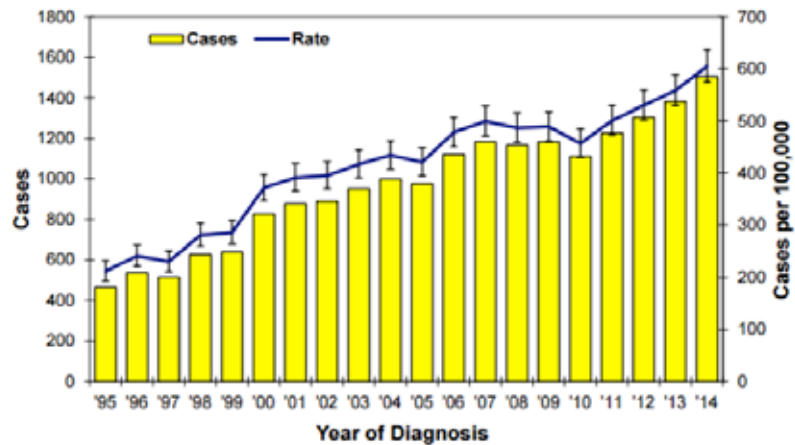
Disease	Yakima County	Washington State
Chlamydia	604.5	376.7
Gonorrhea	163.2	88.1
P&S Syphilis	60.3	4.8
Genital Herpes	24.1	29.9

\*Incidence rate per 100,000 population

### Sexually Transmitted Infection Incidence Rates by Year<sup>191</sup>

#### Chlamydia

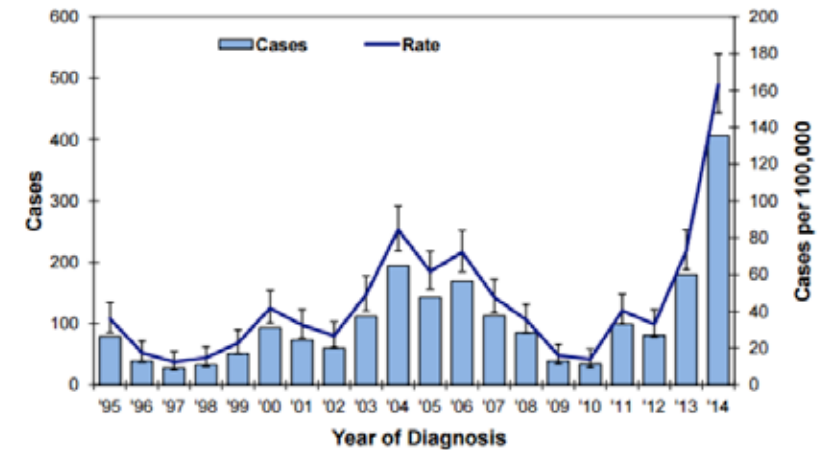
Figure 1. Chlamydia Cases and Incidence Rates\* per 100,000 population, Yakima County, 1995-2014



\* Crude incidence rate with 95% confidence intervals.

#### Gonorrhea

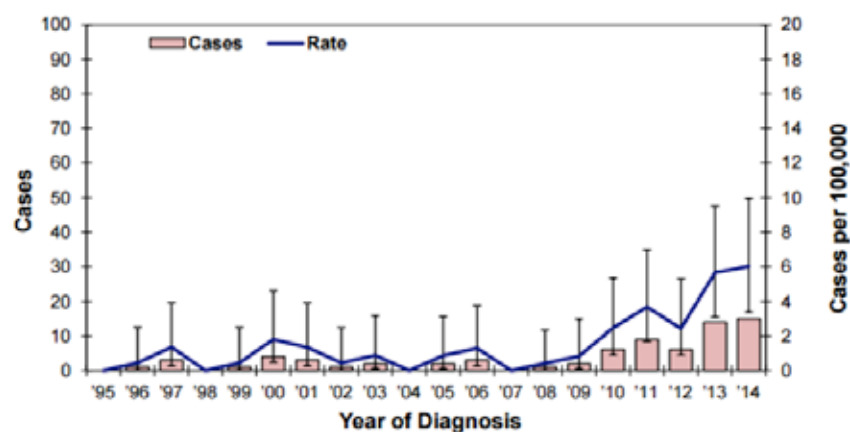
Figure 4. Gonorrhea Cases and Incidence Rates\* per 100,000 population, Yakima County, 1995-2014



\* Crude incidence rate with 95% confidence intervals.

## Primary and Secondary Syphilis

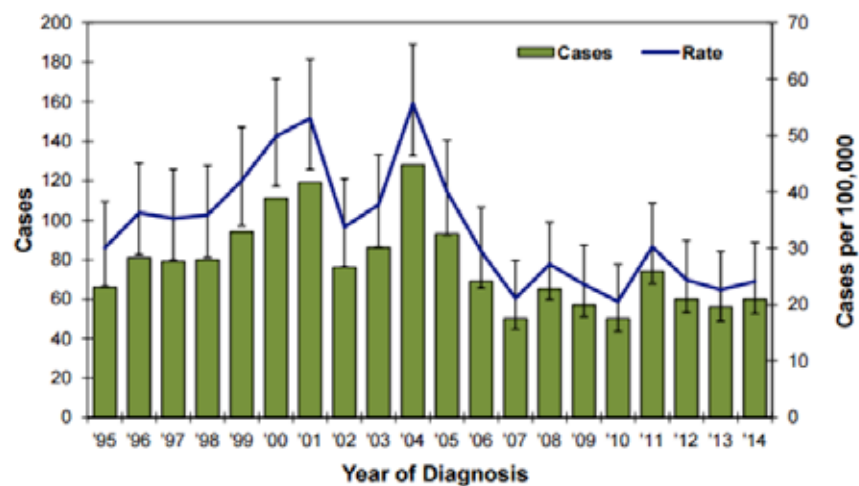
Figure 7. Primary and Secondary Syphilis Cases and Incidence Rates\* per 100,000 population, Yakima County, 1995-2014



\* Crude incidence rate with 95% confidence intervals.

## Genital Herpes

Figure 10. Genital Herpes Cases and Incidence Rates\* per 100,000 population, Yakima County, 1995-2014



\* Crude incidence rate with 95% confidence intervals.

### HIV Prevalence

HIV stands for human immunodeficiency virus. If left untreated, HIV can lead to the disease AIDS (acquired immunodeficiency syndrome). Unlike some other viruses, the human body can't get rid of HIV completely. So once you have HIV, you have it for life. HIV attacks the body's immune system, specifically the CD4 cells (T cells), which help the immune system fight off infections. If left untreated, HIV reduces the number of CD4 cells (T cells) in the body, making the person more likely to get infections or infection-related cancers. Over time, HIV can destroy so many of these cells that the body can't fight off infections and disease. These opportunistic infections or cancers take advantage of a very weak immune system and signal that the person has AIDS, the last state of HIV infection. No effective cure for HIV currently exists, but with proper treatment and medical care, HIV can be controlled.<sup>192</sup>

- More than 1.2 million people in the United States are living with HIV infection, and almost 1 in 8 (12.8%) are unaware of their infection.
- Gay, bisexual, and other men who have sex with men (MSMa), particularly young black/African American MSM, are most seriously affected by HIV.
- By race, blacks/African Americans face the most severe burden of HIV.<sup>192</sup>

This indicator is relevant because HIV is a life-threatening communicable disease that disproportionately affects minority populations and may also indicate the prevalence of unsafe sex practices.<sup>193</sup> Although, Yakima County has a significantly lower rate of population with HIV/AIDS than both state and national rates, there are significant Race/Ethnicity disparities, with Hispanic/Latino and especially Non-Hispanic Black populations having higher rates of HIV than the Non-Hispanic White population.

### Rate of Population with HIV/AIDS<sup>193</sup>

	Population Age 13+	Population with HIV / AIDS	Population with HIV / AIDS, Rate (Per 100,000 Pop.)
Yakima County	192,891	186	96.43
Washington State	5,823,195	11,441	196.47
United States	263,765,822	931,526	353.16

### HIV Prevalence Rate by Race / Ethnicity<sup>193</sup>

	Non-Hispanic White	Non-Hispanic Black	Hispanic or Latino
Yakima County	79.51	318.27	113.33
Washington State	173	794.6	250.9
United States	174	1,243.80	462

## Adolescent Sexual Behavior

### Centers for Disease Control and Prevention (CDC)<sup>194</sup>

Many young people engage in sexual risk behaviors that can result in unintended health outcomes. For example, among U.S. high school students surveyed in 2013:<sup>195</sup>

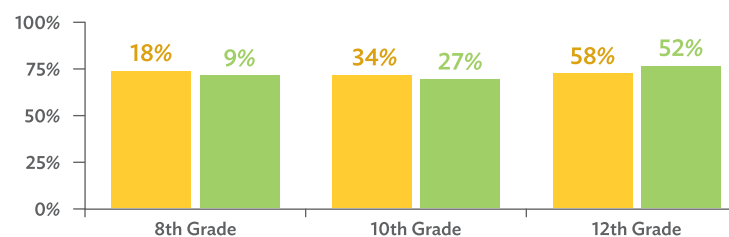
- 47% ever had sexual intercourse.
- 34% had had sexual intercourse during the previous 3 months, and, of these
- 41% did not use a condom the last time they had sex.
- 15% had had sex with four or more people
- Only 22% of sexually experienced students have ever been tested for HIV

Sexual risk behaviors place adolescents at risk for HIV infection, other sexually transmitted diseases (STDs), and unintended pregnancy:

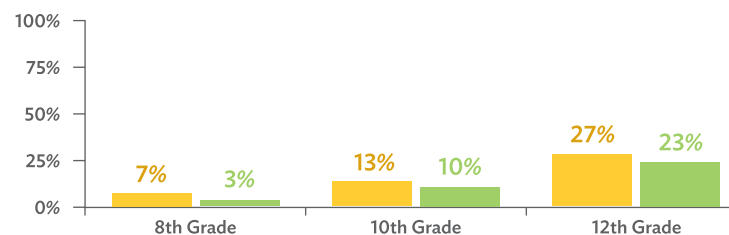
- Nearly 10,000 young people (aged 13–24) were diagnosed with HIV infection in the United States in 2013<sup>196</sup>
- Young gay and bisexual men (aged 13–24) accounted for an estimated 19% (8,800) of all new HIV infections in the United States, and 72% of new HIV infections among youth in 2010<sup>197</sup>
- Nearly half of the 20 million new STDs each year were among young people, between the ages of 15 to 24<sup>198</sup>
- Approximately 273,000 babies were born to teen girls aged 15–19 years in 2013

To reduce sexual risk behaviors and related health problems among youth, schools and other youth-serving organizations can help young people adopt lifelong attitudes and behaviors that support their health and well-being—including behaviors that reduce their risk for HIV, other STDs, and unintended pregnancy. HIV awareness and education should be universally integrated into all educational environments. CDC recommends all adolescents and adults 13–64 get tested for HIV at least once as part of routine medical care.

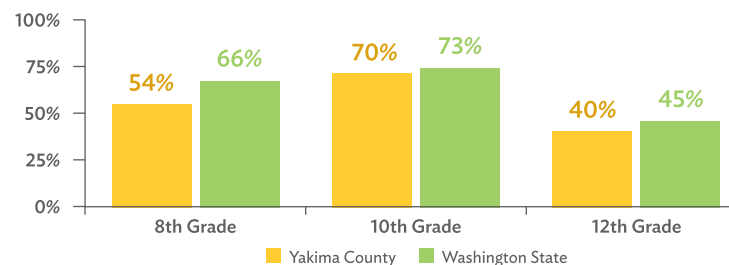
Percentage of Adolescents Who Report Ever Having Sexual Intercourse<sup>45</sup>



Percentage of Adolescents Who Report They Did Not Use Condom During Last Sexual Intercourse<sup>45</sup>



Percentage of Adolescents Who Were Taught Ways to Prevent STDs and Pregnancy<sup>45</sup>



## Mental Health

### Adults

#### Healthy People 2020<sup>6</sup>

*Mental health is a state of successful performance of mental function, resulting in productive activities, fulfilling relationships with other people, and the ability to adapt to change and to cope with challenges. Mental health is essential to personal well-being, family and interpersonal relationships, and the ability to contribute to community or society.*

*Mental disorders are health conditions that are characterized by alterations in thinking, mood, and/or behavior that are associated with distress and/or impaired functioning. Mental disorders contribute to a host of problems that may include disability, pain, or death. Mental illness is the term that refers collectively to all diagnosable mental disorders.*

*Mental disorders are among the most common causes of disability. The resulting disease burden of mental illness is among the highest of all diseases. According to the National Institute of Mental Health (NIMH), in any given year, an estimated 13 million American adults (approximately 1 in 17) have a seriously debilitating mental illness.<sup>199, 200</sup> Mental health disorders are the leading cause of disability in the United States and Canada, accounting for 25% of all years of life lost to disability and premature mortality.<sup>201</sup> Moreover, suicide is the 11th leading*

*cause of death in the United States, accounting for the deaths of approximately 30,000 Americans each year.<sup>202, 203</sup>*

*Mental health and physical health are closely connected. Mental health plays a major role in people's ability to maintain good physical health. Mental illnesses, such as depression and anxiety, affect people's ability to participate in health-promoting behaviors. In turn, problems with physical health, such as chronic diseases, can have a serious impact on mental health and decrease a person's ability to participate in treatment and recovery.<sup>204</sup>*

#### Understanding Mental Health and Mental Disorders

*The existing model for understanding mental health and mental disorders emphasizes the interaction of social, environmental, and genetic factors throughout the lifespan. In behavioral health, researchers identify:*

- Risk factors, which predispose individuals to mental illness
- Protective factors, which protect them from developing mental disorders

*Over the past 20 years, research on the prevention of mental disorders has progressed. The understanding of how the brain functions under normal conditions and in response to stressors, combined with knowledge of how the brain develops over time, has been essential to that progress. The major areas of progress include evidence that:*

- Mental, emotional and behavioral disorders are common and begin early in life.
- The greatest opportunity for prevention is among young people.
- There are multiyear effects of multiple preventive interventions on reducing substance abuse, conduct disorder, antisocial behavior, aggression, and child maltreatment.
- The incidence of depression among pregnant women and adolescents can be reduced.
- School-based violence prevention can reduce the base rate of aggressive problems in an average school by 25 to 33%.
- There are potential indicated preventive interventions for schizophrenia.
- Improving family functioning and positive parenting can have positive outcomes on mental health and can reduce poverty-related risk.
- School-based preventive interventions aimed at improving social and emotional outcomes can also improve academic outcomes.
- Interventions targeting families dealing with adversities, such as parental depression or divorce, can be effective in reducing risk for depression among children and increasing effective parenting.
- Some preventive interventions have benefits that exceed costs, with the available evidence strongest for early childhood interventions.
- Implementation is complex, and it is important that interventions be relevant to the target audiences.

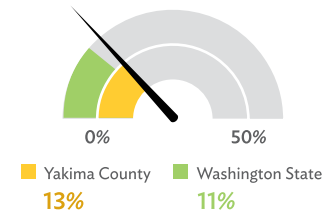


*The progress identified above has led to a stronger understanding of the importance of protective factors. Multidisciplinary prevention strategies at the community level that support the development of children in healthy social environments have been the most successful. In addition to advancements in the prevention of mental disorders, there continues to be steady progress in treating mental disorders as new drugs and stronger evidence-based outcomes become available.*

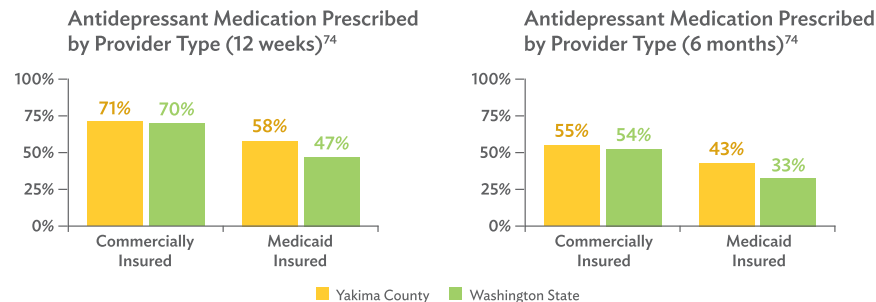
### Frequent Mental Distress

Frequent Mental Distress is the percentage of adults who reported >14 days in response to the question, “Now, thinking about your mental health, which includes stress, depression, and problems with emotions, for how many days during the past 30 days was your mental health not good?” Frequent mental distress is a corollary measure to poor mental health days. It provides a slightly different picture that emphasizes those who are experiencing more chronic and likely severe mental health issues.<sup>71</sup>

Percentage of population reporting frequent mental distress<sup>71</sup>



### Depression



Percentage of patients 18 years+ who were newly diagnosed with depression and were prescribed an antidepressant medication and remained on medication for the period of time specified.



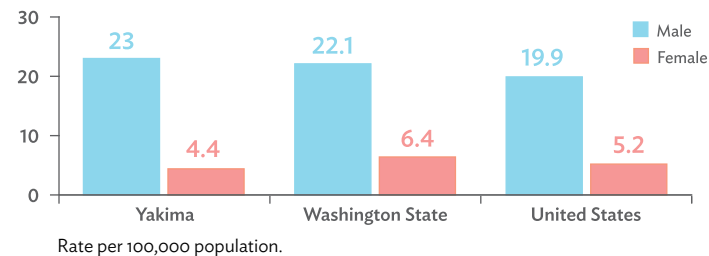
### Suicide/Intentional Self-Harm

This indicator reports the rate of death due to intentional self-harm (suicide) per 100,000 population. Figures are reported as crude rates, and as rates age-adjusted to year 2000 standard. Rates are resummarized for report areas from county level data, only where data is available. This indicator is relevant because suicide is an indicator of poor mental health.<sup>68</sup>

Suicide Mortality Rate<sup>68</sup>

	Total Population	Average Annual Deaths, 2007-2011	Age-Adjusted Death Rate (Per 100,000 Pop.)
Yakima County	244,799	32	13.5
Washington State	6,818,084	993	14
United States	311,430,373	39,308	12.3

Suicide Mortality Rate by Gender<sup>68</sup>

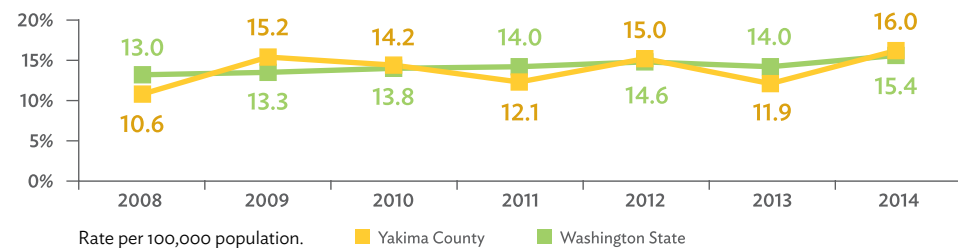


Suicide Mortality Rate by Race/Ethnicity<sup>68</sup>

	Non-Hispanic White	Non-Hispanic Black	Asian or Pacific Islander	American Indian / Alaskan Native	Hispanic or Latino
Yakima County	17.2	NA	NA	24.7	NA
Washington State	15.8	8.9	7	16.8	6.2
United States	15.3	5.5	6	10.8	5.8

NA = Data not available. Rate per 100,000 population

Suicide Mortality Rate by Year<sup>68</sup>



### Adolescents

Emotional health is a vital part of overall health and well-being. A person's emotional health, including thoughts and feelings, influence his or her ability to lead a satisfying and productive life. The mental health of a community depends on the opportunities its members have to experience safe, caring and secure environments in families, schools, work settings and community life.

For adolescents, this period of time can be a challenging developmental stage with episodes of confusion, wonder and discovery. Self-esteem and peer relations are critical aspects for youth development. Understanding and supporting the needs of all youth are critical to launching self-assured and positive members of society who are healthy in mind, spirit and body.<sup>26</sup>

### Depression

Students who report feeling sad or hopeless for at least two weeks in the past year<sup>45</sup>

Depressed Feelings		2004	2006	2008	2010	2012	2014
8th Grade	Yakima County	31%	29%	30%	29%	32%	34%
	Washington State	29%	25%	24%	25%	26%	27%
10th Grade	Yakima County	34%	34%	33%	34%	36%	38%
	Washington State	33%	30%	30%	30%	31%	35%
12th Grade	Yakima County	35%	32%	31%	35%	34%	38%
	Washington State	32%	29%	29%	28%	30%	34%

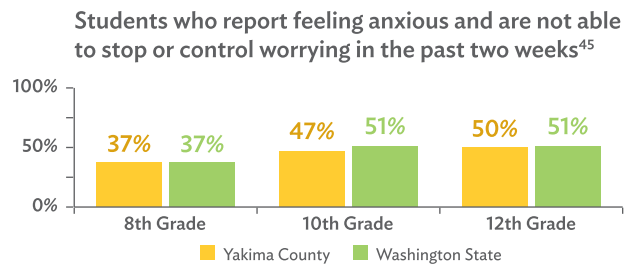
### Suicide

Students who report reported considering suicide in the past year<sup>45</sup>

Depressed Feelings		2004	2006	2008	2010	2012	2014
8th Grade	Yakima County	15%	12%	16%	18%	17%	19%
	Washington State	14%	11%	14%	15%	17%	16%
10th Grade	Yakima County	14%	16%	18%	19%	19%	21%
	Washington State	18%	15%	17%	18%	19%	20%
12th Grade	Yakima County	15%	13%	14%	17%	17%	19%
	Washington State	14%	12%	15%	14%	17%	18%

## Anxiety

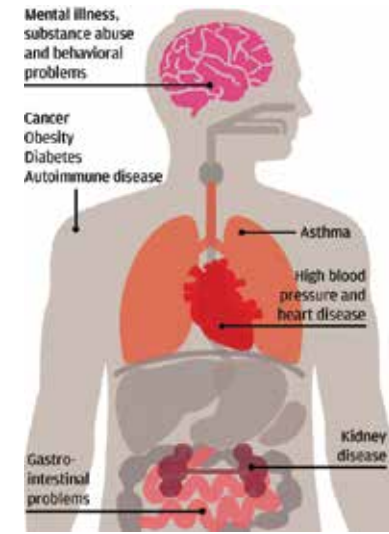
Stress is the physiological demand placed on the body when one must adapt, cope or adjust.<sup>207</sup> It can be healthful and essential in keeping an individual alert; however, intense or prolonged stress can be overwhelming on the body. Long-term activation of the stress-response system can disrupt almost all of the body's processes and increase the risk for numerous health problems.<sup>208 209</sup> Allostatic load is the cumulative biological burden exacted on the body through daily adaptation to physical and emotional stress. It is considered to be a risk factor for several diseases—coronary vascular disease, obesity, diabetes, depression, cognitive impairment and both inflammatory and autoimmune disorders.<sup>210</sup> Stress may prematurely age the immune system and could enhance the risk of illness as well as age-related diseases.<sup>211 212</sup>



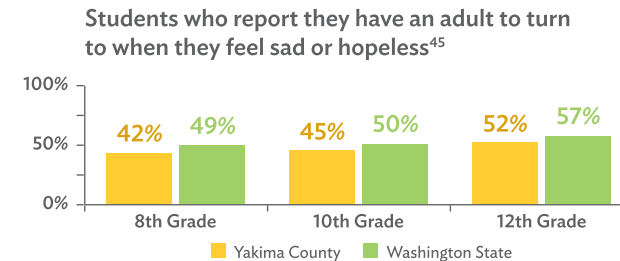
In 2014, nearly half of all 10th and 12th graders reported feeling stressed, anxious and unable to stop worrying.

Adolescence is time of dramatic changes in Hypothalamic-Pituitary-Adrenal (HPA) function and stress responsiveness. Adolescence is also a significant period of continued neural maturation, specifically within stress-sensitive limbic and cortical regions. Thus it is possible that prolonged or repeated exposure to stress may result in a heightened sensitivity to these stressors, ultimately leading to maladaptive

neurobehavioral development. Though the physiological and psychological implications of stress on the adolescent brain are far from clear, the increases in stress-related dysfunctions during adolescence, such as anxiety, depression, schizophrenia, and drug abuse highlight the importance of a better understanding of the interaction between changes in stress reactivity and adolescent brain development.<sup>213, 214</sup>



## Support



In 2014, less than half of 8th and 10th graders in Yakima County felt they had an adult to provide them support if they were having sad feelings, and only about half of 12th graders.

## Injury and Hospitalization

### Healthy People 2020<sup>6</sup>

Injuries are the leading cause of death for Americans ages 1 to 44, and a leading cause of disability for all ages, regardless of sex, race/ethnicity, or socioeconomic status. More than 180,000 people die from injuries each year, and approximately 1 in 10 sustains a nonfatal injury serious enough to be treated in a hospital emergency department.<sup>215</sup>

Beyond their immediate health consequences, injuries and violence have a significant impact on the well-being of Americans by contributing to:

- Premature death
- Years of potential life lost
- Disability and disability-adjusted-life-years lost
- Poor mental health
- High medical costs
- Lost productivity<sup>216, 217</sup>

The effects of injuries extend beyond the injured person to family members, friends, coworkers, employers, and communities.

### Understanding Injury and Violence Prevention

Numerous determinants (factors) can affect the risk of unintentional injury and violence.

### Individual Behaviors

The choices people make about individual behaviors, such as alcohol and drug use, or risk-taking, are often connected with factors in the social and physical environment and can increase injuries.<sup>218, 219</sup>

### Physical Environment

The physical environment, both in the home and community, can affect the rate of injuries related to falls, fires and burns, road traffic injuries, drowning, and violence.<sup>220, 221, 222</sup>

### Access to Services

Access to health services, such as systems created for injury-related care, ranging from prehospital and acute care to rehabilitation, can reduce the consequences of injuries, including death and long-term disability.

### Social Environment

The social environment has a notable influence on the risk for injury and violence through:

- Individual social experiences (for example, social norms, education, victimization history)
- Social relationships (for example, parental monitoring and supervision of youth, peer group associations, family interactions)
- Community environment (for example, cohesion in schools, neighborhoods, and communities)
- Societal-level factors (for example, cultural beliefs, attitudes, incentives and disincentives, laws and regulations)<sup>223</sup>

Interventions that address these social and physical factors have the potential to prevent unintentional injuries and violence. Efforts to prevent unintentional injury may focus on:

- Modifications of the environment
- Improvements in product safety
- Legislation and enforcement
- Education and behavior change
- Technology and engineering<sup>224</sup>

## Fatalities

### Top 12 Leading Causes of Fatality<sup>80</sup>

	Yakima County		Washington State	
	2010	2014	2010	2014
Motor Vehicle Accident (Unintentional)	15.0	17.58	7.37	7.57
Poisoning (Unintentional)	12.03	10.74	10.82	11.86
Fall (Unintentional)	9.26	10.22	11.22	12.79
Firearm (Self-Inflicted)	7.77	8.75	6.69	7.49
Suffocation (Self-Inflicted)	3.84	5.51	2.66	3.71
Firearm (Assault)	7.39	3.91	1.71	1.77
Unspecified Assault	0.32	1.28	0.34	0.51
Fire/Burn (Unintentional)	2.11	1.23	0.85	0.49
Suffocation (Unintentional)	2.12	1.11	1.67	1.89
Struck By/Against (Unintentional)	0	0.89	0.28	0.28
Natural Environment (Unintentional)	0	0.81	0.60	0.98
Drowning (Unintentional)	3.92	0.74	1.56	1.36

Rate per 100,000 resident population. Ranking ordered by highest leading cause of Fatality in Yakima County in 2014.

### Non-Fatal Injuries and Hospitalizations

#### Top 10 Leading Causes of Injury<sup>225</sup>

	Yakima County		Washington State	
	2010	2014	2010	2014
Falls (Unintentional)	410.05	290.37	300.72	285.12
Motor Vehicle Accident (Unintentional)	82.02	53.22	49.25	42.71
Poisoning (Unintentional)	73.14	36.05	43.15	37.96
Poisoning (Self-Inflicted)	55.21	35.04	45.96	39.12
Firearm (Assault)	12.26	4.77	2.21	1.78
Suffocation (Unintentional)	6.92	3.55	4.12	4.39
Firearm (Unintentional)	2.46	2.3	1.5	1.31
Firearm (Self-Inflicted)	0	1.16	0.36	0.41
Suffocation (Self-Inflicted)	1.07	0.95	0.84	0.72
Drowning (Unintentional)	1.33	0.77	0.75	0.51

Rate per 100,000 resident population. Ranking ordered by highest leading cause of Injury in Yakima County in 2014.

#### Top 15 Non-Fatal Hospital Diagnoses<sup>225</sup>

	Yakima County		Washington State	
	2010	2014	2010	2014
Diseases of the circulatory system	1736.39	1166.0	1143.52	962.37
Diseases of the digestive system	1160.28	941.52	846.18	713.63
Diseases of the respiratory system	977.66	694.29	668.92	527.98
Injury and poisoning	999.85	690.21	739.46	633.02
Diseases of the musculoskeletal system and connective tissue	644.98	650.71	613.7	573.49
Infectious and parasitic diseases	277.49	430.14	251.06	440.39
Diseases of the genitourinary system	676.42	382.84	429.47	298.43
Neoplasms	468.22	331.03	402.93	318.6
Endocrine; nutritional; and metabolic diseases and immunity disorders	345.47	303.04	259.67	240.57
Mental Illness	361.68	193.12	435.43	430.73
Diseases of the skin and subcutaneous tissue	297.46	179.61	160.82	139.01
Diseases of the nervous system and sense organs	237.34	161.9	186.6	170.17
Symptoms; signs; and ill-defined conditions and factors influencing health status	314.12	160.13	225.15	170.39
Diseases of the blood and blood-forming organs	113.84	97.08	81.77	66.32
Congenital anomalies	59.43	43.24	42.4	37.82

Rate per 100,000 resident population. Ranking ordered by highest Non-Fatal Hospital Diagnoses in Yakima County in 2014.



## Fall Prevention Program (PA5)

- ▶ The 2013 Community Health Needs Assessment showed that unintentional falls increased significantly in Yakima County from a rate of 283 in 2006 to 404.9 in 2008. We noticed rates of falls were also increasing in the hospital and responded by implementing an organization wide inpatient and outpatient falls policy. The purpose of the inpatient and outpatient fall policies are to promote patient safety by identified patients at risk for falls and implementing an individualized fall prevention plan for patients identified at risk for falls. Fall risk assessments are completed during every nurse shift in the hospital and fall data is discussed during monthly fall committee meetings. Immediately following any new fall employees and supervisors meet to look at the reasons for the fall and make immediate changes to prevent future falls. Finally, every employee at Virginia Mason Memorial is given a fall prevention training.

- **Interventions:**

- Interventions are tools that might decrease the patients risk for injury and help all staff identify the high risk patient. Interventions are implemented by nursing staff once patients are identified by the RN a high risk to fall. Each patient will require a different level of interventions based on their individualized plan of care. The RN will use their clinical judgment to determine which interventions are appropriate for the patient and will ensure that the interventions are implemented.

# PHYSICAL ENVIRONMENT

## Healthy People 2020<sup>6</sup>

Humans interact with the environment constantly. These interactions affect quality of life, years of healthy life lived, and health disparities. The World Health Organization (WHO) defines environment, as it relates to health, as “all the physical, chemical, and biological factors external to a person, and all the related behaviors.”<sup>226</sup>

Environmental health consists of preventing or controlling disease, injury, and disability related to the interactions between people and their environment.

Maintaining a healthy environment is central to increasing quality of life and years of healthy life. Globally, nearly 25% of all deaths and the total disease burden can be attributed to environmental factors.<sup>226</sup> Environmental factors are diverse and far reaching. They include:

- Exposure to hazardous substances in the air, water, soil, and food
- Natural and technological disasters
- Physical hazards
- Nutritional deficiencies
- The built environment

Poor environmental quality has its greatest impact on people whose health status is already at risk. Therefore, environmental health must address the societal and environmental factors that increase the likelihood of exposure and disease.

## Outdoor Air Quality

Poor air quality is linked to premature death,

cancer, and long-term damage to respiratory and cardiovascular systems. Progress has been made to reduce unhealthy air emissions, but, in 2008, approximately 127 million people lived in U.S. counties that exceeded national air quality standards.<sup>227</sup> Decreasing air pollution is an important step in creating a healthy environment.

## Surface and Ground Water

Surface and ground water quality applies to both drinking water and recreational waters. Contamination by infectious agents or chemicals can cause mild to severe illness. Protecting water sources and minimizing exposure to contaminated water sources are important parts of environmental health.

## Toxic Substances and Hazardous Wastes

The health effects of toxic substances and hazardous wastes are not yet fully understood. Research to better understand how these exposures may impact health is ongoing. Meanwhile, efforts to reduce exposures continue. Reducing exposure to toxic substances and hazardous wastes is fundamental to environmental health.

## Homes and Communities

People spend most of their time at home, work, or school. Some of these environments may expose people to:

- Indoor air pollution
- Inadequate heating and sanitation
- Structural problems

- Electrical and fire hazards
- Lead-based paint hazards

These hazards can impact health and safety. Maintaining healthy homes and communities is essential to environmental health.

## Emerging Issues in Environmental Health

Environmental health is a dynamic and evolving field. While not all complex environmental issues can be predicted, some known emerging issues in the field include:

### Climate Change

Climate change is projected to impact sea level, patterns of infectious disease, air quality, and the severity of natural disasters such as floods, droughts, and storms.<sup>228, 229</sup>

### Disaster Preparedness

Preparedness for the environmental impact of natural disasters as well as disasters of human origin includes planning for human health needs and the impact on public infrastructure, such as water and roadways.<sup>230</sup>

### The Built Environment

Features of the built environment appear to impact human health-influencing behaviors, physical activity patterns, social networks, and access to resources.<sup>231</sup>

## Air Pollution

### American Lung Association<sup>232</sup>

Particle pollution can be very dangerous to breathe. Breathing particle pollution may trigger illness, hospitalization and premature death, risks that are showing up in new studies that validate earlier research. Thanks to steps taken to reduce particle pollution, good news is growing from researchers who study the drop in year-round levels of particle pollution. Looking at air quality in 545 counties in the U.S. between 2000 and 2007, researchers found that people had approximately four months added to their life expectancy on average due to cleaner air. Another long-term study of six U.S. cities tracked from 1974 to 2009 added more evidence of the benefits. Their findings suggest that cleaning up particle pollution had almost immediate health benefits. They estimated that the U.S. could prevent approximately 34,000 premature deaths a year if the nation could lower annual levels of particle pollution by  $1\mu\text{g}/\text{m}^3$ .<sup>233</sup> Other researchers estimated that reductions in air pollution can be expected to produce rapid improvements in public health, with fewer deaths occurring within the first two years after reductions.<sup>234</sup> These studies add to the growing research that cleaning up air pollution improves life and health.

### Short-Term Exposure Can Be Deadly

First and foremost, short-term exposure to particle pollution can kill. Peaks or spikes in particle pollution can last for hours to days.

Deaths can occur on the very day that particle levels are high, or within one to two months afterward. Particle pollution does not just make people die a few days earlier than they might otherwise—these are deaths that would not have occurred if the air were cleaner.<sup>235</sup>

Even low levels of particles can be deadly. A 2016 study found that people age 65 and older in New England faced a higher risk of premature death from particle pollution, even in places that met current standards for short-term particle pollution.<sup>236</sup>

Particle pollution also diminishes lung function, causes greater use of asthma medications and increased rates of school absenteeism, emergency room visits and hospital admissions. Other adverse effects include coughing, wheezing, cardiac arrhythmias and heart attacks. According to extensive research, short-term increases in particle pollution have been linked to:

- death from respiratory and cardiovascular causes, including strokes;<sup>237 238 239 240</sup>
- increased mortality in infants and young children;<sup>241</sup>
- increased numbers of heart attacks, especially among the elderly and in people with heart conditions;<sup>242</sup>
- inflammation of lung tissue in young, healthy adults;<sup>243</sup>
- increased hospitalization for cardiovascular disease, including strokes and congestive heart failure;<sup>244 245 246</sup>

- increased emergency room visits for patients suffering from acute respiratory ailments;<sup>247</sup>
- increased hospitalization for asthma among children;<sup>248 249 250</sup>
- increased severity of asthma attacks in children.

Again, the impact of even short-term exposure to particle pollution on healthy adults was demonstrated in the Galveston lifeguard study. In addition to the harmful effects of ozone pollution, lifeguards had reduced lung volume at the end of the day when fine particle levels were high.<sup>251</sup>

### Year-Round Exposure

Breathing high levels of particle pollution day in and day out also can be deadly, as landmark studies in the 1990s conclusively showed<sup>252</sup> and as other studies confirmed.<sup>253</sup> Chronic exposure to particle pollution can shorten life by one to three years.<sup>254</sup> Recent research has confirmed that long-term exposure to particle pollution still kills, even with the declining levels in the U.S. since 2000<sup>255</sup> and even in areas, such as New England, that currently meet the official limit, or standard, for year-round particle pollution.<sup>256</sup>

In late 2013, the International Agency for Research on Cancer, part of the World Health Organization, concluded that particle pollution could cause lung cancer. The IARC reviewed the most recent research and reported that the risk of lung cancer increases as the particle levels rise.<sup>257</sup>



Year-round exposure to particle pollution has also been linked to:

- increased hospitalization for asthma attacks for children living near roads with heavy truck or trailer traffic;<sup>258 259</sup>
- slowed lung function growth in children and teenagers;<sup>260 261</sup>
- development of asthma in children up to age 14;<sup>262</sup>
- significant damage to the small airways of the lungs;<sup>263</sup>
- increased risk of death from cardiovascular disease; and<sup>264</sup>
- increased risk of lower birth weight and infant mortality.<sup>265</sup>

The EPA had engaged a panel of expert scientists, the Clean Air Scientific Advisory Committee, to help them assess the evidence. The EPA concluded that particle pollution caused multiple, serious threats to health. Their findings are highlighted in the following chart.

Yakima had a total of 8.9 µg/m<sup>3</sup> annual air particle pollution, which the Environmental Protection Agency awarded a passing score. Yakima's annual air particle pollution has fallen 1.4 µg/m<sup>3</sup> since 2001. However, according to American Lung Association Yakima received the lowest grade in regards to particle pollution over a 24 hour period. Yakima had a recorded 16 'unhealthy for sensitive populations' air quality days and two 'unhealthy for all populations' air quality days.<sup>267</sup> These unhealthy days are particularly dangerous for sensitive populations including: children and adults with asthma, COPD, cardiovascular disease, and diabetes. As well as the young and older populations (e.g. ages 18 and under, as well as 65 and older). Finally, unhealthy air quality days have a profound effect on those vulnerable populations living in poverty.

Percentage of Days Exceeding Air Quality Standards<sup>266</sup>

	Total Population	Average Daily Ambient Particulate Matter 2.5	Number of Days Exceeding Emissions Standards	Percentage of Days Exceeding Standards*, Pop. Adjusted Average
Yakima County	243,231	6.58	0.6	0.16%
Washington State	6,724,540	7.32	0.19	0.05%
United States	312,471,327	9.1	0.35	0.10%

## Food Environment Index

There are many facets to a healthy food environment. This measure considers both the community and consumer nutrition environments. It includes access in terms of distance in considering the distance an individual lives from a grocery store or supermarket. There is strong evidence that residing in a food desert is correlated with a high prevalence of overweight, obesity, and premature death.<sup>268 269</sup> <sup>270</sup> Supermarkets traditionally provide healthier options than convenience stores or smaller grocery stores. <sup>271</sup> The additional access measure, limited access to healthy foods, included in the index is a proxy for capturing the community nutrition environment and food desert measurements.

Additionally, access in regards to a constant source of healthy food due to low income can be another barrier to healthy food access. Food insecurity, the other food environment measure included in the index attempts to capture the access issue by understanding the barrier of cost. Lacking constant access to food is related to negative health outcomes such as weight-gain and premature mortality.<sup>272 273</sup> In addition to asking about having a constant food supply in the past year, the module also addresses the ability of individuals and families to provide balanced meals further addressing barriers to healthy eating. The consumption of fruits and vegetables is important but it may be equally important to have adequate access to a constant food supply.<sup>11</sup>

Food Environment Index <sup>274</sup>

	2010	2012	2013
Yakima County	7.5	7.5	8.0
Washington State	7.7	7.5	7.5

The Food Environment Index ranges from 0 (worst) to 10 (best) and equally weights two indicators of the food environment: (1) Limited access to healthy foods & (2) Food insecurity.

## Access to locations for Physical Activity

### National Recreation and Parks Association<sup>275</sup>

*Public parks and recreation are leaders in improving the overall health and wellness of the nation. They are essential partners in combating some of the most complicated challenges our country faces—poor nutrition, hunger, obesity, and physical inactivity. Park and recreation agencies effectively improve health outcomes and thus should be supported through national and community level funding and policies that enable them to continue to expand their efforts in making a positive change in the health and wellness of our nation.*

*Public park and recreation agencies create healthy communities and play a fundamental role in enhancing the physical environments in which we live. Through facilities, outdoor settings, and services provided, they support good health for people of all abilities, ages, socio-economic backgrounds, and ethnicities. They foster change through collaborative*

programs and policies that reach a vast population to:

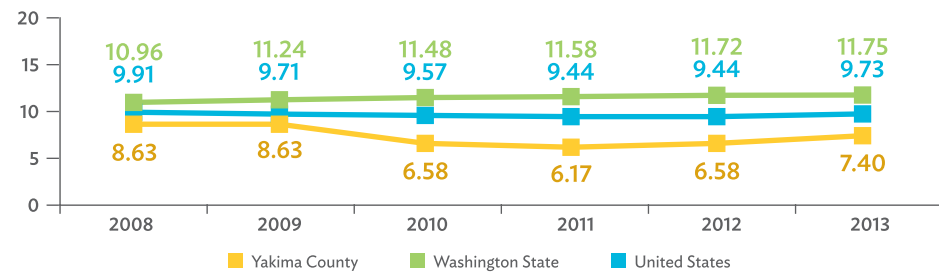
- *Help reduce obesity and incidence of chronic disease by providing opportunities to increase rigorous physical activity in a variety of forms;*
  - *Living close to parks and other recreation facilities is consistently related to higher physical activity levels for both adults and youth.*
  - *Increasing access to recreation facilities is an essential strategy for preventing childhood obesity.*
  - *Adolescents with easy access to multiple recreation facilities were more physically active and less likely to be overweight or obese than adolescents without access to such facilities.*
  - *Park renovations can increase vigorous physical activity among children and can also increase use of certain types of facilities, including playgrounds and skate parks.*
  - *A 2011 study conducted on Seattle's park and recreation system revealed that Seattle's residents were able to save \$64million in medical costs as a result of getting physical activity in the parks.*
- *Provide a connection to nature which studies demonstrate relieves stress levels, tightens interpersonal relationships, and improves mental health;*
  - *In distressed neighborhoods of Philadelphia, Pennsylvania, where vacant lots were converted into small parks*

and community green spaces, residents in those neighborhoods reported significantly less stress and more exercise, according to a study published in the *American Journal of Epidemiology*.

- Foster overall wellness and healthful habits, engaging in enrichment opportunities that add balance to life.
  - Park and recreation agencies are the second largest public feeder of children, next to schools.
  - Park and recreation agencies annually serve approximately 560 million meals to children through summer and after-school programs.
  - Park and recreation agencies in 30 communities across the country distributed 2.5million healthy meals to children of low-income families, helping to increase their nutrition levels.

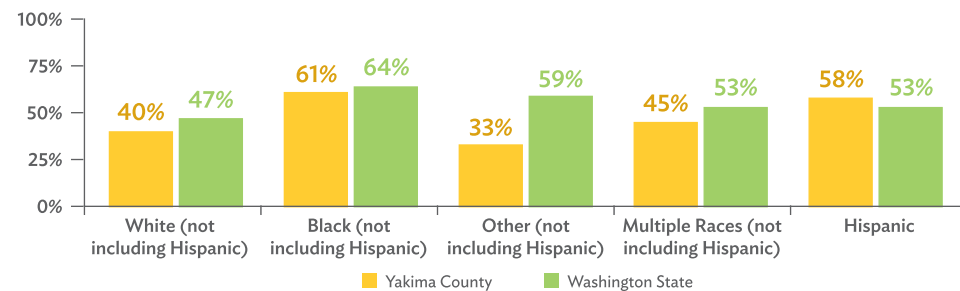
Public parks and recreation are the gateways to a healthier America, and they ensure that communities are truly livable.

**Recreation and Fitness Facility Access** <sup>276</sup>



\* Number per 100,000 population of recreation and fitness facilities as defined by North American Industry Classification System (NAICS) Code 713940.

**Percentage of population living within half a mile of a park by race/ethnicity** <sup>277</sup>



## Transportation

### US Department of Transportation<sup>27</sup>

Roadways traditionally have been designed primarily for motor vehicles. A personal vehicle-centric design approach potentially could pose barriers to use by pedestrians, bicyclists and public transportation users, thus limiting active transportation opportunities and potential resulting health benefits. Complete Streets policies can support planners and engineers in developing roadway designs that improve the safety of all users and provide additional opportunities for physical activity from transportation. The connections between physical activity and public health have been widely documented. Research suggests that physically active adults “have lower rates of all-cause mortality, coronary heart disease, high blood pressure, stroke, type 2 diabetes, metabolic syndrome, colon cancer, breast cancer, and depression” than their physically inactive peers. Active transportation, or trips made by walking or bicycling, was identified by Healthy People 2020 as a target for measuring progress for healthier people.<sup>6</sup> Additionally, Healthy People 2020 listed “increased legislative policies for the built environment that enhance access to and availability of physical activity opportunities” as a specific travel and transportation policy.

Active transportation and physical activity is more likely to occur in places with a variety of land uses, a comprehensive network of pedestrian, bicycle, and public transportation facilities,

inviting street design for all users, and safety measures; and Complete Streets policies address all four of those factors.<sup>279</sup> Complete Streets also promote increased roadway connectivity, which has been shown to reduce Vehicle Miles Travelled (VMT) per capita, and they have been found to improve safety and mobility for pedestrians and bicyclists.<sup>6 281</sup>

A healthy community includes reliable and safe access to all modes of transportation for everyone—pedestrians, bicyclists, motorists and transit riders of all ages and abilities—and encourages active and healthy transportation modes such as walking and bicycling.<sup>26</sup>

### Vehicle Miles Travelled

Decreasing annual Vehicle Miles Travelled (VMT) per capita can directly improve air quality and the overall health of a population. How much depends on the types of vehicles on the road.<sup>282</sup> Higher VMT also equates to increased sedentary time. A study in Atlanta, Georgia found that each additional hour per day spent in a car was associated with a 6% increase in a person’s risk for obesity.<sup>283</sup> Since 2004, total VMT in the U.S. has declined slowly. In 2012, total VMT reached the lowest level

### Vehicle Miles Travelled per Capita<sup>285</sup>

	1990	1995	2000	2005	2010	2015
Yakima County	604,838	674,537	753,982	786,163	817,545	876,746
Washington State	23,123,793	27,084,428	30,434,604	31,628,672	31,764,100	33,335,282

since 1996.<sup>284</sup> This decline might reflect a large variety of factors. These include the interaction of newly implemented land use policies, active transportation infrastructure and encouragement, economic factors, and other strategies to reduce car-dependence.<sup>27</sup>

In the last 25 years, the number of miles travelled in Yakima County annually has increased by over 270,000 miles and the number of miles travelled state-wide annually increased by over 10 million.

In 2015, the Washington State Department of Transportation reported that 876,746 miles were travelled by motor vehicle in Yakima County; ranking 11th highest miles travelled out of all counties in the state of Washington and accounting for 2.6% of all the miles travelled in the state.<sup>285</sup>

Based on 2011 Federal Highway Administration data the USDOT Transportation and Health Tool calculated the Vehicle Miles travelled per capita (total daily miles of vehicle travel in an urbanized area divided by the total population) in Yakima at 18 miles, which resulted in being ranked in the 71st percentile across the county.<sup>27</sup>

### Commute Mode

#### US Department of Transportation<sup>27</sup>

*Commute mode share reflects how well infrastructure, policies, investments, and land-use patterns support different types of travel to work. Commute patterns are directly tied to the economy (where jobs are located within a region relative to housing). Commute mode share is linked to environmental conditions and contributing factors that affect health outcomes, such as air pollutant emissions, which vary by transportation mode. Motor vehicle emissions contribute nearly a quarter of world energy-related greenhouse gases. Reducing motor vehicle use and increasing active transportation are ways to mitigate harmful environmental impacts caused by a large amount of vehicle use.*<sup>286</sup>

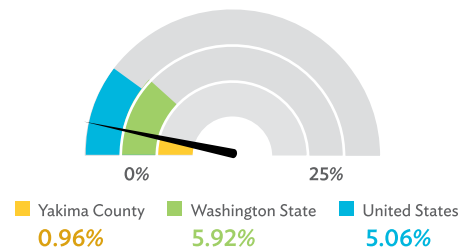
*Traveler safety is also an issue related to commuting, and long commutes in motor vehicles (i.e., cars and trucks) are linked to physical inactivity and associated health problems.<sup>287</sup> Conversely, active commute modes are a potential source of health-enhancing physical activity. Additionally, pedestrian and motor vehicle traffic fatalities decrease in more compact communities, suggesting that shorter commutes are safer for commuters in all modes.*

*It is important to also consider other influences when connecting various health outcomes to modes of travel. These factors include food choices, sedentary hobbies, stress, unemployment rates, and regional culture, and may have impacts on obesity and diabetes.<sup>288</sup>*

### Use of Public Transportation<sup>1</sup>

This indicator reports the percentage of population using public transportation as their primary means of commute to work. Public transportation includes buses or trolley buses, streetcars or trolley cars, subway or elevated rails, and ferryboats.

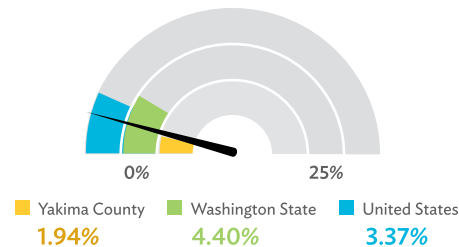
Percent Population Using Public Transit for Commute to Work



### Walking or Biking to Work<sup>1</sup>

This indicator reports the percentage of the population that commutes to work by either walking or riding a bicycle.

Percentage Walking or Biking to Work



## Road Traffic Fatalities

### US Department of Transportation<sup>27</sup>

Road traffic fatalities by mode reflect a direct relationship between transportation and public health. This measure allows communities to identify mode-specific issues related to safety and transportation. That, in turn, helps them implement evidence-based interventions and implement and evaluate promising practices tailored by mode.

In the United States, 32,719 people died in motor vehicle traffic crashes in 2013.<sup>289</sup> Motor vehicle crashes and traffic fatalities are public health and economic concerns. At an estimated \$871 billion in economic loss and societal harm, the price tag for crashes is a heavy burden for U.S. residents.<sup>291</sup> This includes \$277 billion in economic costs and \$594 billion in harm from the loss of life, or pain and decreased quality of life resulting from injuries.

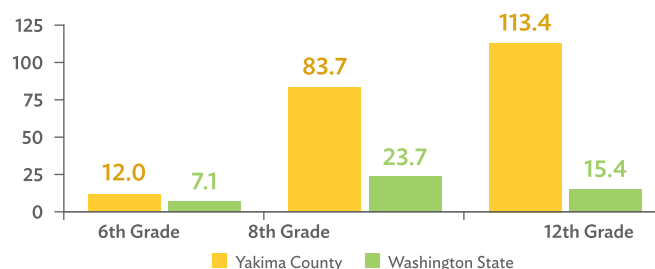
Road traffic fatalities are not only affected by the safety of driving, but also by the rate of vehicle miles traveled. In 2012, the rate of injuries and deaths by motor vehicles increased, but so did the number of miles driven. Additionally, during this same time period, the numbers of traffic-related pedestrian and bicyclist deaths increased but this may be related to more people walking and cycling, especially in urban areas. Therefore, this indicator should be carefully considered along with other indicators and contextual conditions to properly identify trends in safety over time.<sup>291</sup>

### Road Traffic Fatalities by mode<sup>27</sup>

	AUTO	PEDESTRIAN	BICYCLE
Yakima County	11.0	1.8	0.2
Washington State	5.9	1.0	0.1

This indicator measures the rate of fatalities per 100,000 residents from traffic collisions involving a vehicle, pedestrian and bicyclist, respectively.

### Road Traffic Fatalities Exposure Rate<sup>27</sup>



This indicator measures the rate of relative risk per 100,000 residents, that a vehicle driver or passenger, pedestrian and cyclist, might die in a traffic collision.

Road traffic fatalities reflect a direct relationship between transportation and public health. However, road traffic fatalities by mode alone do not provide a full picture of the health risks associated with each mode of travel. Road Traffic Fatalities Exposure Rate takes into account the exposure to the risk for death by mode of transportation.

Motorcyclists and pedestrians experience a disproportionately higher risk associated with fatal injuries.<sup>294</sup> Males, adolescents, and older

adults are also at increased risk for injury, even though effective interventions (e.g., marked crosswalks, seat belt use) are available.<sup>295</sup> Young people and minorities have a higher risk for pedestrian fatalities,<sup>296</sup> but older adults are at most risk of dying if they are hit.<sup>297</sup> This is mainly the result of older adults' increased susceptibility to injury and medical complications, not an increased tendency to get into roadway crashes.<sup>292</sup> In addition, the perception and reality of disproportionate risk of injury is a barrier to walking and bicycling.<sup>298</sup>

## Drinking Water

Recent studies estimate that contaminants in drinking water sicken 1.1 million people each year. Ensuring the safety of drinking water is important to prevent illness, birth defects, and death for those with compromised immune systems. A number of other health problems have been associated with contaminated water, including nausea, lung and skin irritation, cancer, kidney, liver, and nervous system damage.<sup>11</sup>

Drinking water violations are measured by the annual average percentage of the population served by community water systems who receive drinking water that does not meet all applicable health-based drinking water standards. Health-based violations include Maximum Contaminant Level, Maximum Residual Disinfectant Level and Treatment Technique violations. Data collected by the Environmental Protection Agency in 2012, 2013 and 2014 shows Yakima County has had no drinking water violations across all years. Nearly half of the counties in the state of Washington had reported drinking water violations in 2014.<sup>299</sup>

## Severe Housing Problems

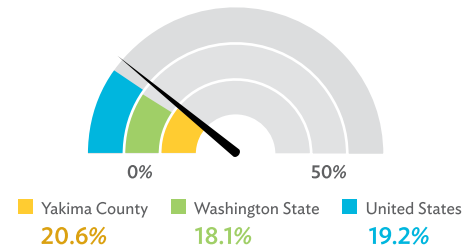
Good health depends on having homes that are safe and free from physical hazards. When adequate housing protects individuals and families from harmful exposures and provides them with a sense of privacy, security, stability and control, it can make important contributions to health. In contrast, poor quality and inadequate housing contributes to health problems such as infectious and chronic diseases, injuries and poor childhood development.

Severe Housing Problems is the percentage of households with at least one or more of the following housing problems:

1. Housing unit lacks complete kitchen facilities
2. Housing unit lacks complete plumbing facilities
3. Household is severely overcrowded
4. Household is severely cost burdened

Severe overcrowding is defined as more than 1.5 persons per room. Severe cost burden is defined as monthly housing costs (including utilities) that exceed 50% of monthly income.<sup>300</sup>

Percent Occupied Housing Units with One or More Substandard Conditions



## Toxic Chemicals

The Toxic Release Inventory (TRI) compiles the data on toxic chemical releases and waste management activities reported annually by certain industries as well as federal facilities. The goal of TRI is to provide communities with information about toxic chemical releases and waste management activities and to support informed decision making at all levels by industry, government, non-governmental organizations, and the public. TRI contains information on releases of nearly 650 chemicals and chemical categories from industries including manufacturing, metal and coal mining, electric utilities, and commercial hazardous waste treatment, among others. Looking at production-related waste managed over time helps track progress in reducing waste generated and moving toward safer waste management methods. The Environmental Protection Agency encourages facilities to first eliminate waste at its source (source reduction). For waste that is generated, the preferred management method is recycling, followed by energy recovery, treatment, and as a last resort, disposing of or otherwise releasing the waste.<sup>6</sup>

Quantity of Toxic Release Inventory (TRI) Chemicals<sup>301</sup>

	2010	2011	2012	2013
<b>Yakima County</b>	533,176	630,566	495,637	562,871
<b>Washington State</b>	20,746,775	19,074,964	19,277,392	19,959,351
<b>United States</b>	3,784,100,559	4,082,694,962	3,607,833,897	4,144,940,423

Chemical quantity is measured in pounds.



## 2016-2019 PRIORITY AREAS

**Virginia Mason Memorial has identified the following priorities:**

▶ ***Primary Priority Areas***

- Access to Care
- Health Equity—Disparities in Health Care, Prevention and Outcomes

▶ ***Secondary Priority Areas***

- Chronic Disease Prevention & Screenings

▶ ***Tertiary Priority Areas***

- Adverse Childhood Experiences (ACEs)
- Infant Mortality

## Methodology

Virginia Mason Memorial pulled data from a number of valid and reliable National, State and County sources (a full list can be found in the reference section) in order to create the best assessment possible of the state of health and wellbeing of Yakima County. Furthermore, we solicited community feedback on the 2016 Community Health Needs Assessment through an online survey tool. The internal Family of Services Advisory Committee selected the top nine areas of greatest need and through the survey community organizations provided input on the CHNA. The nine areas of greatest need were: Access to Care; Health Equity—Disparities in Health Care, Prevention and Outcomes; Chronic Disease Prevention & Screenings; Mental Health; Health Behaviors—Physical Inactivity & Nutrition; Adverse Childhood Experiences (ACEs); Homelessness; Infant Mortality; and Sexually Transmitted Infections (STIs). The survey asked respondents to compare each of the nine priority area to each other by placing them in order of importance to both them as community member, as well as to the organization they represent; the average ranking was calculated for each answer choice to select the top three priority areas that were of greatest importance

to the community we serve. These top three areas were: (1) Access to Care, final ranked score of 7.46; (2) Health Equity, final ranked score of 6.03; and (3) Chronic Disease Prevention and Screenings, final ranked score of 5.96. We did not limit responses but sent out the request to take the survey to as many partners in the community as possible and also asked that they forward on to any other partners they felt should be involved. We allowed three weeks for responses. Feedback was received from over 60 organizations spanning many different sectors including: state, local and tribal health departments; health care providers, including specialty services such as mental health; community-based organizations, coalitions and groups representing members of the underserved, low-income, and minority populations in the community; churches and faith-based organizations; businesses; the school district; community colleges and universities; local government; and individual health experts within the community. Virginia Mason Memorial Senior Leadership formally adopted the 2016 priority areas, on September 8, 2016. The top three priority areas chosen by the community were assigned as Primary and Secondary priority areas based on hospital resources and ability

to address the area of need. Additional areas of need out of the top nine that did not make the top three were also selected as Tertiary priority areas, with the FOS committing to focus on these areas by partnering with others in the community working on these issues where possible and provide funding to support these needs when available.

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Bellevue College	Northwest Community Action Center	Vision for Independence Center
Catholic Charities Housing Services	Nourish Wellness	Washington State Department of Social and Health Services
Catholic Family and Child Services	Nurse Family Partnership	Washington State University Extension
Central Washington Family Medicine	Opportunities Industrialization Center of Washington	Washington State University, College of Nursing
Central Washington University	Pacific Northwest University	Whatcom Community College
Charter College	Perry Technical Institute	Yakama Nation: Women, Infants and Children (WIC)
City of Yakima	Pima Medical	Yakama Wellness Coalition
Community Health of Central Washington	Planned Parenthood	Yakima County Youth Suicide Prevention
Community Health Workers Coalition for Migrant and Refugees	Retired Senior Volunteer Program of Yakima	Yakima Family YMCA
Comprehensive Healthcare	Sage Fruit	Yakima Greenway Foundation
Consulado de Mexico en Seattle	Saint Joseph Parish	Yakima Health District
Deborah Gauck Consulting	Signal Health	Yakima Neighborhood Health Services
Eastern Washington University	Sunnyside Schools	Yakima School District
Greater Yakima Chamber of Commerce	Sunnyside United-Unidos	Yakima Valley Community College
Heritage University	The Memorial Foundation	Yakima Valley Conference of Governments
Independence University	Triumph Treatment Services	Yakima Valley Farm Workers Clinic
Indian Health Services	Ttawaxt Collaborative	Yakima Valley Partners Habitat for Humanity
La Casa Hogar	University of Puget Sound	Yakima Valley Technical Skills Center
Memorial Physicians	University of Washington	Zero to Three
Merit Resource Services	Veteran Affairs	
Midwestern University	Virginia Mason	

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