2015

CENTRAL OREGON REGIONAL HEALTH ASSESSMENT

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Alfredo Sandoval	PRAMS Coordinator	Oregon Health Authority
Angela Kimball	Innovator Agent	Oregon Health Authority
Anna Higgins	Coordinator of Student Success	High Desert Education Service District
Channa Lindsay	Quality Improvement Specialist	Deschutes County Health Services
Chris Ogren	Intern	Central Oregon Health Council
Christy McLeod	Chief Operating Officer	Bend Memorial Clinic
Chuck Frazier	Community member, Retired Pharmacist	
Devin O'Donnell	Intern	Central Oregon Health Council
Heather Kaisner	Communicable Disease Program Supervisor	Deschutes County Health Services
Jane Smilie	Director	Deschutes County Health Services
Jason Parks	Improvement Data Analyst	St. Charles Health System
Jeff Davis	Executive Director	Wellness and Education Board of Central Oregon
Jeff White	Member	Community Advisory Council
Jessica Jacks	Prevention Coordinator	Deschutes County Health Services
Jill Johnson	Immunization Program Coordinator	Deschutes County Health Services
Karen Steinbock	Health Quality Program Director	Central Oregon Independent Practice Association
Kate Wells	Director, Community Health Development	PacificSource Community Solutions
Ken House	Director of Data and Analytics	Mosaic Medical
Kenny LaPoint	Housing Integrator	Oregon Housing and Community Services
Kris Williams	Tobacco Prevention and Education Coordinator	Crook County Health Department
Leslie Neugebauer	Central Oregon CCO Director	PacificSource Community Solutions
Lindsey Hopper	Executive Director	Central Oregon Health Council
Lori Wilson	Virtual Assistant	Central Oregon Health Council
Maggie O'Connor	Community Benefit and Wellness Manager	St. Charles Health System
Michelle Kajikawa	Community Health Worker	Central Oregon Independent Practice Association
Muriel DeLaVergne-Brown	Public Health Director	Crook County Health Department
Nancy Tyler	Adult Treatment Program Manager	Deschutes County Health Services
Nikole Zogg	Central Oregon Regional Manager	Advantage Dental
Pamela Ferguson	Nurse Program Manager	Deschutes County Health Services
Paul Andrews	Deputy Superintendent	High Desert Education Service District
Penny Pritchard	Tobacco Prevention Coordinator	Deschutes County Health Services
Rebeckah Berry	Operations and Project Manager	Central Oregon Health Council
Renee Boyd	BRFSS and OHT Survey Coordinator	Oregon Health Authority
Rick Treleaven	Executive Director	BestCare Treatment Services
Sarah Kingston	Senior Data Analytics Specialist	PacificSource Community Solutions
Sarah Worthington	Chronic Disease Program Manager	Deschutes County Health Services
Scott Montegna	Health Systems Coordinator	Oregon Health Authority
Scott Willard	Executive Director	Lutheran Social Services
Steve Strang	Director of Operations	Bridges Health by Mosaic Medical
Steven Helgerson	Contractor	Deschutes County Health Services
Thomas Kuhn	Community Health Program Manager	Deschutes County Health Services
Tom Machala	Director	Jefferson County Health Department
Tom Schumacher	Director, St Charles Cancer Center	St. Charles Health System

Summary

Access to healthcare and services

- The population is growing in certain areas of Central Oregon, yet housing and transportation services are lacking.
- Healthcare coverage dramatically increased between 2013 and 2014 as measured by enrollment into the Oregon Health Plan (OHP). Customers reported high quality in the care they are receiving.
- Gaps exist in the specialized care that is available, including certain providers, like dentists, mental health specialists, and others.
- Central Oregon has a larger proportion of persons aged 65 years and older than Oregon overall. The prevalence of chronic diseases and disability increases with age. Also, this population is at increased risk for influenza, pneumonia, and other communicable diseases.

Mortality

- All-cause mortality rates are not equal between sexes and among racial categories. American Indian/Alaska Natives have significantly lower life expectancies than other racial groups in Central Oregon.
- In Oregon, people with co-occurring serious mental illnesses and substance use disorders have a particularly young average age at death.

Chronic Disease

- Mortality due to some chronic diseases has significantly decreased since 2000. However, thousands of people in Central Oregon smoke tobacco, a leading cause of death. Adults enrolled in OHP smoke tobacco at even higher rates than those not enrolled in OHP. Resources like the Tobacco Quit Line are available, yet underutilized.
- Chronic diseases or their risk factors are associated with mental health and substance use problems. Approaches for preventing or treating chronic diseases need to address the whole person and their environment, particularly targeting screenings and support for mental health and substance use issues.
- Screening for chronic diseases can detect a condition early and allow for early intervention. More can be done to address screening for diseases like colorectal cancer and cardiovascular disease, especially among the OHP population.
- Four modifiable risk factors cause much of the early death related to chronic diseases. They are tobacco use, physical inactivity, high blood pressure, and alcohol consumption.

Communicable Disease

- While the rate of some vaccine preventable diseases is lower in Central Oregon than in the state overall, too many children in Central Oregon are not up-to-date on age appropriate immunizations, which places them and others at risk.
- Sexually transmitted diseases are preventable. Yet, the incidence rate of chlamydia has increased since 2004.
- Water-borne diseases are common in some Central Oregon counties and were reported at rates higher than the state overall.

Maternal and Infant Health

- Between 2000 and 2013, the percent of mothers who smoked during pregnancy was trending downward, though 1 in 10 pregnant women still reported smoking during their pregnancy. An even higher percent of women enrolled in OHP reported they smoked during their pregnancy.
- Nearly 42% of pregnancies in Central Oregon were considered unintended. Unintended pregnancy and teen pregnancy are associated with high number of adverse childhood events (ACEs).

Summary

Child and Adolescent Health

- The percent of adolescents reporting having participated in a risky behavior like smoking, drinking alcohol, or using drugs increases by as much as two to three times between 8th and 11th grades. Intervening early is important.
- Healthy habits and behaviors are established in childhood. Unhealthy behaviors like tobacco use are primarily initiated during adolescence.

Unintentional Injuries

- Unintentional injuries refer to those injuries where there was no intent to do harm. Unintentional injuries are no longer considered "accidents" because they are preventable. The majority of injury-related deaths in Central Oregon were unintentional.
- The mortality rate due to motor vehicle crashes is decreasing in Central Oregon, but the rate for unintentional poisoning and falls is increasing. The mortality rate due to a fall exponentially increases after the age of 65 years.
- Alcohol-impaired-driving-fatalities accounted for a third of all motor vehicle crash fatalities Oregon.

Mental Health

- About one in five adults in Central Oregon reported they had depression. Poor mental health is associated with other significant health outcomes like tobacco and other substance abuse/misuse, chronic diseases, and injuries, as well as socioeconomic factors like lack of housing, education, and employment.
- The age-adjusted race-specific suicide mortality rate was similar between Central Oregon and Oregon overall, except for American Indians. The suicide mortality rate among American Indians in Central Oregon was about double the rate among American Indians in Oregon overall and about 1.5 times the rate of non-Hispanic whites.
- Experiencing multiple ACEs during childhood has been associated with several poor health outcomes. About one in three adults enrolled in OHP reported a high number of ACEs, while about one in five adults in the general population reported a high number of ACEs.

Substance Abuse

- Screening, Brief Intervention, and Referral to Treatment (SBIRT) is an underused intervention for addressing unhealthy drinking. About 1 in 5 adults in Crook and Deschutes Counties and 1 in 7 adults in Jefferson County reported binge drinking in the last month.
- People with substance use disorders have a very high incidence of using tobacco, which is often one of the leading causes of early death and disability for this population.
- Substance abuse can place a person who injects drugs at risk for blood borne pathogens like hepatitis C and HIV. Expanding harm reduction approaches can help protect this population.

Oral Health

- Poor oral health can be a costly and painful. At least one in four children and one in three adults in Central Oregon reported they did not see a dental hygienist or other dental practitioner in the last year.
- The Central Oregon region is considered a dental professional shortage area due to its geography, low-income populations, and homeless populations. Among adults in the region, income was directly related to having seen a dentist or hygienist in the last 12 months.
- • Income is related to dental health among adults in Oregon. This is especially notable among adults aged 65 years and older. Many are on fixed incomes and may not receive routine dental care because Medicare, the leading insurer for adults 65 years and older, provides little to no coverage.

Introduction

What is a Health Assessment?

A health assessment is a snapshot of the health of a community at a point in time. It describes a variety of health topics, as well as social and economic factors that influence health. These comprehensive reports are intended to guide communities and organizations to strategically address health-related issues with partners working together to maximize the use of resources and target populations most at risk. Assessing the health of a community or region is an ongoing process that involves not only monitoring population health, but measuring progress toward improving it.

Community Input

Central Oregon residents and health organizations care a great deal about working together to improve the health of our communities. From January through August 2015, Central Oregon health system partners created the Central Oregon Regional Health Assessment (RHA), with leadership from the Central Oregon Health Council.

The Operations Council of the Central Oregon Health Council used a planning process called Mobilizing for Action through Planning and Partnership (MAPP) to guide creation of the RHA. The RHA was developed with data, input and information from a wide variety of health and community-based organizations, stakeholders and community members. Input was solicited from the Central Oregon Health Council's Community Advisory Council, a number of health-related advisory boards and groups, and during community meetings in Crook, Deschutes, and Jefferson Counties. Information from these community meetings not only informed development of this document, but was used to develop priority health issues that will be addressed in the Central Oregon Health Improvement Plan.

How to Use the RHA

Stakeholders gather regularly and deliberate about how to best address issues that have been described in the RHA. The RHA is a resource to ground deliberations in data and information, and to focus resources on important health issues for which there are effective services, programs and interventions that can be brought to bear. The RHA is not an exhaustive compendium of health indicators or analyses. Thus, readers are encouraged to dig deeper and use additional information as Central Oregon health partners continue to construct a more in-depth understanding of the health of the population.

Methods and Limitations

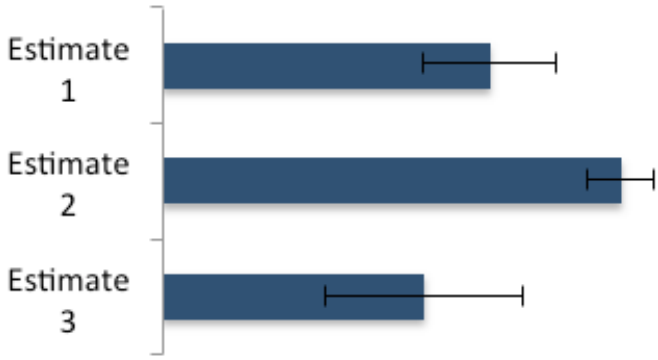
This RHA focuses on the three Central Oregon counties: Crook, Deschutes, and Jefferson. When possible, comparisons were made to the state, the nation, and Healthy People (HP) 2020 goals as well as between relevant demographic and socioeconomic groups.

Data about specific populations or topics were combined to describe the overall health and well-being of the community. These data come from a variety of sources including population level surveys, medical claims, disease registries, birth certificates, death certificates, and program records. Please see the Glossary and Acronym section (page 84) to find more information for most data sources and definitions of major statistical or epidemiological terms used throughout this report.

The Oregon Health Authority (OHA) uses Coordinated Care Organization (CCO) quality health measures to improve care, reduce disparities, and reduce cost of care. In this report, quality health measures are listed in each relevant section. A table of all quality health measures can be found in Appendix A (page 87).

Some charts include 95% Confidence Intervals (CI). A CI is a range of numbers in which the true estimate would be found 95% of the time if the sample were taken an infinite number of times. When two CIs overlap, the estimates are not significantly different from each other. In the example below, estimate 2 is the only significantly different number in the figure. Even though estimate 1 is higher than estimate 3, the CIs overlap. Those estimates would be considered similar.

This RHA is not a complete look at all health indicators, but rather is meant to be an overview of topics addressed by the region's health system. A variety of agencies and organizations maintain detailed data on indicators not shown here. Please see the Resources section at the end of this report (page 86) to learn where to find more information about a specific topic or data source.



Some data are not collected at the county level or may not be appropriate to report at the county level. Data reported in this RHA follow data use guidelines specific to each data set. When appropriate, each data source is marked with limitations. Also, some indicators may have been derived from a sample population that was small and therefore resulted in an unstable statistic. These instances are also marked.

Demographics

Demographic factors like population density, education level, household income, age of the population, and poverty, among others, influence the health of the population.

Population

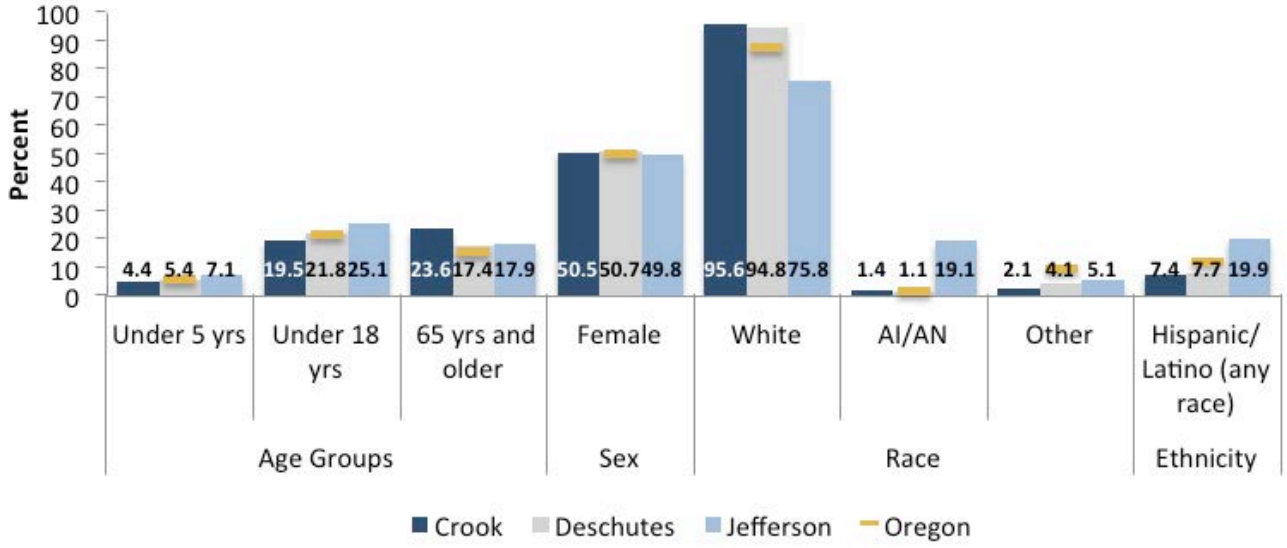
- In 2013, the estimated total population of the Central Oregon Region was 207,914. Since the 2010 Census, Deschutes County has grown 5.2%, while Crook and Jefferson Counties have decreased in population (Table 1).

Table 1. Population of Central Oregon Counties, ACS, 2013

	Oregon	Crook	Deschutes	Jefferson
2013 population	3,930,965	20,815	165,954	21,145
Population change since 4/1/2010	2.6%	-0.8%	5.2%	-2.6%
Population density, persons per square mile	39.9	7.0	52.3	12.2

- Crook County had a higher proportion of residents aged 65 years and older than the other Central Oregon counties (Figure 1).
- There was approximately the same proportion of females and males among the Central Oregon counties (Figure 1).
- A larger proportion of Jefferson County residents identified as American Indian or of Hispanic/Latino ethnicity (any race) than among the other Central Oregon counties (Figure 1).

Figure 1. Demographics of Central Oregon Counties, ACS, Oregon, 2013



Demographics

Socioeconomic Status

Socioeconomic status is a measure of a person's or family's economic and social position compared to others based on their income, education, and occupation. This section presents a few key factors related to socioeconomic status in Oregon and the Central Oregon counties. Other measures are found throughout the report.

- One in five people in Crook and Jefferson counties live in poverty (Table 2).

Table 2. Socioeconomic status of Central Oregon Counties, ACS, Oregon, 2009-2013

	Oregon	Crook	Deschutes	Jefferson
Household Income				
Median household income	$50,229	$38,795	$50,209	$43,373
Percent owning their home	62.0	70.5	65.5	65.4
Poverty‡				
Percent of persons below poverty level	16.2	19.5	14.5	19.8
Education				
Percent Bachelor's degree or higher (Among people 25+ years)	29.7	14.5	31.0	17.3
Percent high school graduate or higher (Among people 25+ years)	89.4	84.9	93.1	84.7
Employment§				
Unemployment rate	5.2	8.3	5.6	6.7
WIC enrollment‡‡				
Number of families served	N/A	479	2,593	499
Percent working families	N/A	63	71	72

‡ As defined by the Census Bureau: household income compared to appropriate threshold
§ State of Oregon Employment Department, April 2015-seasonally adjusted
‡‡WIC enrollment
N/A =data not available

- Approximately 60,000 Central Oregon residents were employed in the private sector in 2012 (Table 3). The region's wages in the private sector were nearly 20% lower than the state's private sector wages.

Table 3. Distribution of private sector employment and income, Oregon Quarterly Census on Employment and Wages, 2012

	Oregon	Crook	Deschutes	Jefferson	Region
Employment	1,373,607	4,377	51,943	3,489	59,809
Total payroll (in millions)	59,948.70	172.6	1,845.20	101.9	2,119.60
Average wage ($)	43,643	39,429	35,523	29,205	35,440
% of region employment	--	7.3	86.8	5.8	100
% of statewide average wage	100	90.3	81.4	66.9	81.2

Demographics

Disability

Disability refers to anyone with a visual, hearing, cognitive, ambulatory, self-care, or independent living difficulty. Having different abilities may limit a person's capacity to work and provide for themselves.

- There was a higher proportion of people living with a disability in Crook County than the other Central Oregon counties or Oregon overall (Table 4).

Table 4. Percent of the population living with a disability, ACS, Oregon, 2009-2013

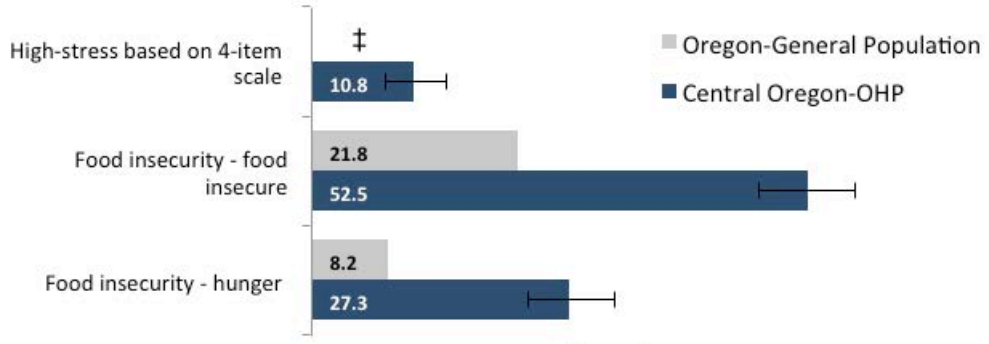
	Oregon	Crook	Deschutes	Jefferson
Total, non-institutionalized population	14.1	20.9	11.9	16.6
Male	14.2	22.5	13.2	17.4
Female	14.0	19.3	10.7	15.9
White, Non-Hispanic	15.3	21.7	12.6	19.6
Hispanic	8.0	14.1	5.7	9.0

Food Insecurity

Access to healthy food promotes a healthy diet. However, healthy food must be available and affordable to the population. Food insecurity refers to having limited or uncertain access to adequate food while hunger is the physiologic conditions that may result from food insecurity.

- Nearly 32,000 people in Central Oregon had limited access to a grocery store (i.e. live more than 1 mile from a supermarket or large grocery store if in an urban area, or more than 10 miles from a supermarket or large grocery store if in a rural area). About 10,300 were both low income and have limited access to grocery stores (USDA Food Environment Atlas).
- Adults enrolled in OHP had a much higher frequency of food insecurity and hunger than did the total adult population of Oregon (Figure 2). Data to compare the prevalence of food insecurity in the general Central Oregon population were not available.

Figure 2. Prevalence of stress and food security among adults enrolled and not enrolled in OHP, MBRFSS, Oregon, 2014



‡ Estimate not available for general population
H =95% Confidence Interval
Note: General population percents may not be directly comparable to OHP percents due to survey differences. They are provided for a reference.

Demographics

Safety and Violence

Various types of violence can occur in a community or home as well as at different times during a person's life. Examples of violence include child maltreatment and neglect, intimate partner violence, and elder abuse. Violence can lead to physical, mental, and emotional health problems as well as death. In a community, violence can reduce property value, decrease productivity, and weakening social services (CDC, Violence Prevention).

- One in five (21%, 95% CI 17.1%-25.5%) adults enrolled in OHP in Central Oregon reported that their neighborhood was "not at all" or "slightly" safe (MBRFSS, 2014). Data for comparison to other populations were not available
- One estimate of the crime index in Bend in 2011 was 224/100,000 population. For comparison, the rate in Redmond was 452/100,000 population, Prineville was 204/100,000 population, and Madras was 350/100,000 population. The US average was 309. (City-Data). The City-data.com crime index counts serious crimes and violent crime more heavily and it adjusts for the number of visitors and daily workers commuting into cities.
- The Oregon Sexual and Domestic Violence Programs offer several services to those experiencing intimate partner violence. In 2014, there were 2,367 calls to the helpline and 131 people sheltered in Central Oregon (Table 5).

Table 5. Services provided by Sexual and Domestic Violence Programs, Central Oregon, 2014

Number of calls to emergency hotline, by primary reason for call	**Domestic violence**	**Stalking**	**Sexual assault**	**Other calls**	
	1,969	33	157	208	
Number of people sheltered, by age	**Adults**	**Children under 6**	**Children 6-12**	**Teens**	
	74	21	24	12	
Number of shelter nights, by age	**Adults**	**Children**			
	1,790	1,657			
Length of shelter stays (percent of total)	**Under 4 nights**	**4-7 nights**	**8-15 nights**	**16-31 nights**	**Over 31 nights**
	51.4	12.2	2.7	8.1	25.7

Demographics

Housing

Stable, healthy housing is a basic need for people and offers a place of security and an area to rest. However, limited housing stock or low rental vacancy rates can lead to an increase in housing prices. High rent may force a person or family into substandard housing or into a situation where they are rent burdened, meaning more than 30% of their income is spent on housing. Unstable housing is a significant contributor to poor outcomes for people with chronic medical or behavioral health conditions.

- The 2014 one-night homeless count in the Central Oregon region was 2,410 people (Homeless Leadership Coalition, 2014).
- The most common answers for being homeless were that the respondent could not afford rent or that they were unemployed. However, many reasons were given, including being kicked out of the house by family or friends, being evicted, domestic violence, and poor credit. About 200 people reported they were homeless by choice (Homeless Leadership Coalition, 2014)
- The Oregon Department of Education tracks the number of students who are homeless or in an unstable housing situation. Nearly 1 in 5 students in the Culver School District in Jefferson County were homeless or in unstable housing situations at the time of survey (Table 6).

Table 6. Number and percent of students grades K-12 who were homeless or in an unstable housing situation, by school district, ODOE, 2013-2014

School District	Number	Percent of district enrollment
Crook County		
Crook	52	1.6
Deschutes County		
Bend-La Pine	650	3.9
Redmond	545	7.7
Sisters	30	2.6
Jefferson County		
Ashwood	0	0.0
Black Butte	0	0.0
Culver	126	18.6
Jefferson Co	114	3.9

- Focus groups conducted in the region demonstrated limited rental housing availability, including low-income housing, in several of the Central Oregon cities and that there is a need for education regarding the link between health and housing (Community Advisory Council (CAC) Panel Report, 2014).
- The housing authority in Central Oregon manages about 1,200 housing vouchers a year. However, the demand for vouchers exceeds the number available and they also manage a wait list of thousands of people (Housing Works).
- Central Oregon is demonstrating best practices by integrating housing and healthcare. In 2014, Housing Works, Mosaic Medical, and EPIC Property Management came together to make improvements to existing affordable housing units, including the inclusion of a medical clinic to serve the residents and the surrounding community (Oregon Housing and Healthcare Best Practices).

Causes of Death

Some diseases and health events are more likely to lead to death than others and are influenced by social determinants of health like those discussed in the previous section. The public health and healthcare systems work to address the health disparities that lead to reduced quality of life and life span.

- The five leading causes of death in Oregon were malignant neoplasms (cancer), heart disease, chronic lower respiratory disease, cerebrovascular events, and unintentional injury (Table 7). The leading causes of death in Central Oregon are the same as in Oregon.
- Specific discussion about leading causes of death in children can be found in the Infant, Early Childhood and Adolescent Health section of this report (page 50).
- Unintentional injury (injuries where there was no intent to do harm) was the leading cause of death for people aged 1-44 years while malignant neoplasms (cancer) were the leading cause of death for people aged 45 years and older (Table 7).

Table 7. Leading Causes of Death in Oregon, CDC WISQARS, Oregon, 2013

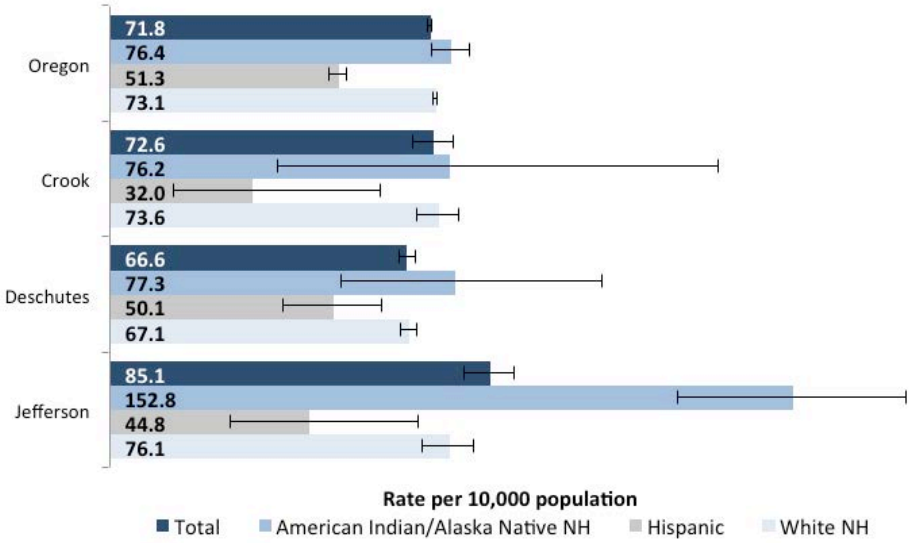
	Age Groups										
Rank	<1	1-4	5-9	10-14	15-24	25-34	35-44	45-54	55-64	65+	All Ages
1	Congenital Anomalies	Unintentional Injury	Unintentional Injury*	Unintentional Injury*	Unintentional Injury	Unintentional Injury	Unintentional Injury	Malignant Neoplasms	Malignant Neoplasms	Malignant Neoplasms	Malignant Neoplasms
2	Short Gestation	Malignant Neoplasms*	Malignant Neoplasms*	Suicide*	Suicide	Suicide	Malignant Neoplasms	Heart Disease	Heart Disease	Heart Disease	Heart Disease
3	SIDS	Congenital Anomalies*	Homicide*	Malignant Neoplasms*	Malignant Neoplasms	Malignant Neoplasms	Suicide	Unintentional Injury	Chronic Lower Respiratory Disease	Chronic Lower Respiratory Disease	Chronic Lower Respiratory Disease
4	Maternal Pregnancy Complications	Benign Neoplasms*	Benign Neoplasms*	Congenital Anomalies*	Homicide	Heart Disease	Heart Disease	Liver Disease	Unintentional Injury	Cerebrovascular	Cerebrovascular
5	Placenta Cord Membranes	Homicide*	Congenital Anomalies*	Heart Disease*	Heart Disease*	Homicide	Liver Disease	Suicide	Liver Disease	Alzheimer's Disease	Unintentional Injury
6	Unintentional Injury*	Chronic Lower Respiratory Disease*	Influenza & Pneumonia*	Benign Neoplasms*	Congenital Anomalies*	Diabetes Mellitus	Diabetes Mellitus	Diabetes Mellitus	Diabetes Mellitus	Unintentional Injury	Alzheimer's Disease
7	Necrotizing Enterocolitis*	Heart Disease*	Septicemia*	Septicemia*	Chronic Lower Respiratory Disease*	Congenital Anomalies	Homicide	Cerebrovascular	Viral Hepatitis	Diabetes Mellitus	Diabetes Mellitus
8	Neonatal Hemorrhage*	Influenza & Pneumonia*		Diabetes Mellitus*	Complicated Pregnancy*	Liver Disease	HIV	Chronic Lower Respiratory Disease	Suicide	Hypertension	Suicide
9	Bacterial Sepsis*	Meningococcal Infection*			Diabetes Mellitus*	Cerebrovascular*	Cerebrovascular	Viral Hepatitis	Cerebrovascular	Influenza & Pneumonia	Liver Disease
10	Two tied*				Five tied*	Complicated Pregnancy*	Congenital Anomalies	Hypertension	Hypertension	Parkinson's Disease	Hypertension

* Rank based on less than 10 deaths

Causes of Death

- The all-cause mortality rate varies by race and Hispanic ethnicity between Oregon and the Central Oregon counties (Figure 3).

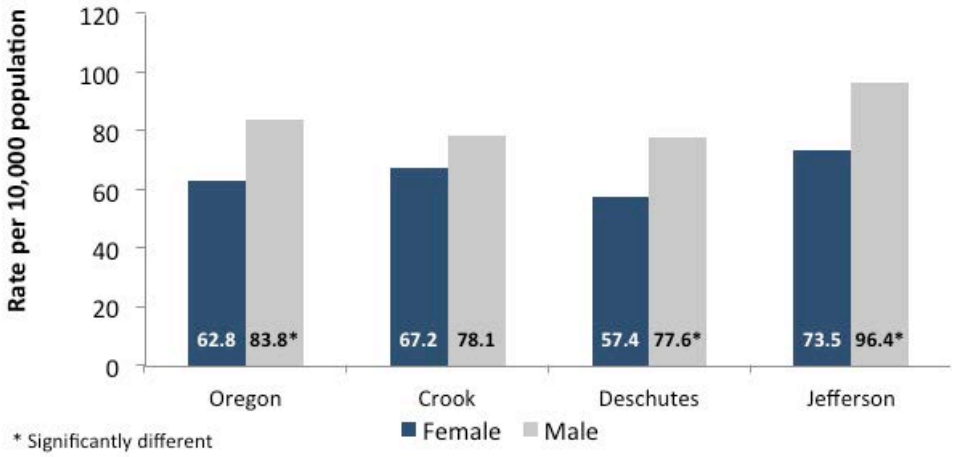
Figure 3. Age-adjusted all-cause mortality rate per 10,000 population by race, Oregon, OPHAT, 2009-2013



H =95% confidence interval
NH-Non-Hispanic
Note: the ability to report other race-specific rates in Central Oregon is limited by the small populations of these races

- The all-cause mortality rate varies by race and Hispanic ethnicity between Oregon and the Central Oregon counties (Figure 3).

Figure 4. Age-adjusted all cause mortality rate per 10,000 population by sex, Oregon, OPHAT, 2009-2013



* Significantly different

Causes of Death

- American Indians/Alaska Natives in Jefferson County and Oregon overall had a lower life expectancy when compared to the total life expectancy in the area (Table 8).

Table 8. Life expectancy (in years) at birth by race, Oregon, OPHAT, 2013

	Oregon	Crook	Deschutes	Jefferson	Central Oregon
American Indian/Alaska Native NH	78.3	80.7†	79.0	66.2	73.6
Hispanic	79.8	86.2†	83.4	82.0	83.3
White NH	79.6	78.2	80.7	76.8	80.3
Total	79.7	78.9	81.0	79.0	80.3

†Unstable estimate

Note: the ability to report other race-specific life expectancies in Central Oregon is limited by the small populations of these races

NH: Non-Hispanic

Significantly lower than the total life expectancy

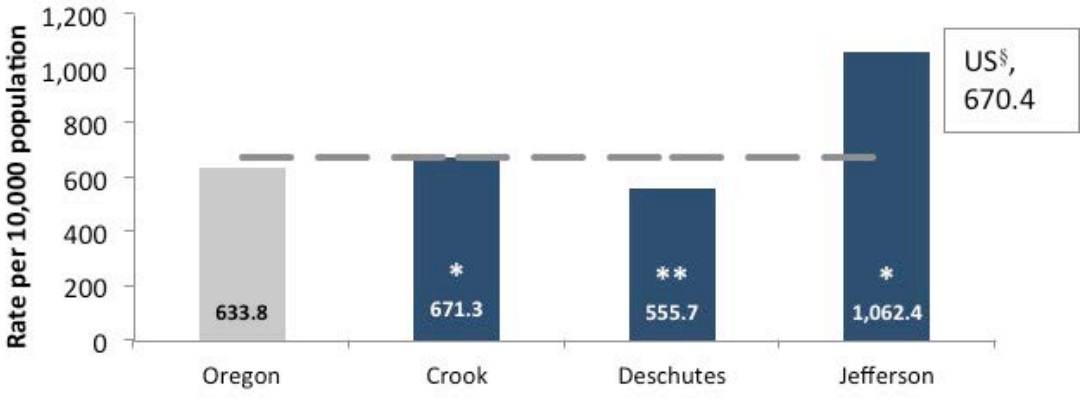
- According to a 2008 study by the Oregon Division of Addiction and Mental Health, people with co-occurring mental health and substance use disorders have an average age at death of 45 years (OHA, 2008).

Years of Potential Life Lost

YPLL measures the number of years of life lost due to a premature death. While it is a good indicator of the burden due to death at an early age, it may not capture the full burden of chronic diseases experienced later in life.

- In Oregon, 633.8 years of life were lost before age 75 for every 10,000 people under the age of 75 years (Figure 5).
- Deschutes County had a lower YPLL rate than Oregon, while Jefferson and Crook Counties had a higher rate.

Figure 5. Years of potential life lost before the age 75 per 10,000 population, Oregon, OPHAT, 2009-2013



* Significantly higher than the state overall

**Significantly lower than the state overall

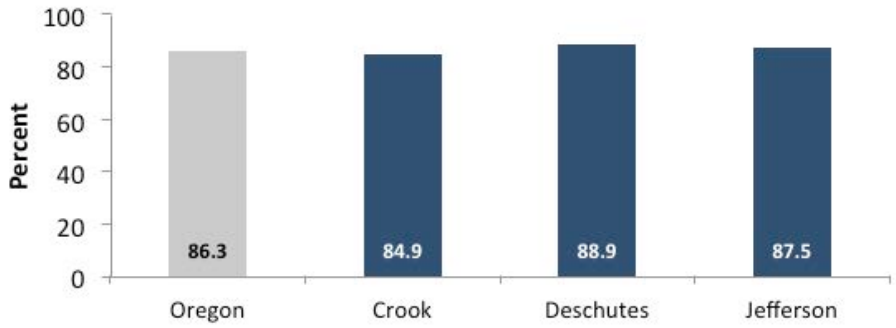
§ Data from 2009-2011, healthindicators.gov

Quality of Life

Health-related quality of life includes the physical, mental, and emotional well-being of an individual. This can include socioeconomic status, health risks and diseases, and social support. In a community this refers to the policies, resources, and conditions that influence a person's health. Health-related quality of life is considered an important outcome of a program or service needs of a population. Health-related quality of life is associated with chronic disease prevalence and risk factors. The following sections of this document address specific topics pertaining to health-related quality of life.

- 85%-89% of adults in Central Oregon reported their general health was excellent, very good, or good (Figure 6). Only about 3 of 4 adults enrolled in OHP in Central Oregon reported good or better general health (72.2%, 95% CI 62.7%-76.4%) (MBRFSS, 2014).

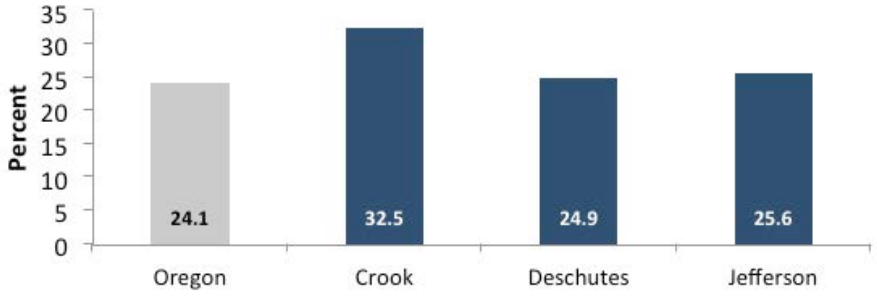
Figure 6. Age-adjusted prevalence of self-reporting excellent, very good, or good general health, Oregon, BRFSS, 2008-2011



Note: Due to a BRFSS method change in 2011, data from prior years are not comparable to current years.

- One quarter to one third of adults reported limitations due to physical, mental, or emotional problems (Figure 7). However, there were no statistical differences between the counties and Oregon overall.

Figure 7. Age-adjusted prevalence of having any limitations due to physical, mental, or emotional problems, Oregon, BRFSS, 2008-2011



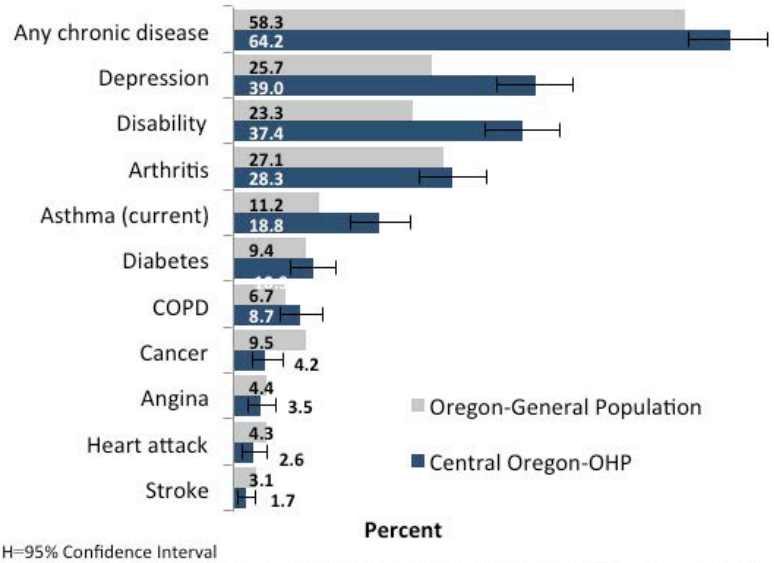
Note: Due to a BRFSS method change in 2011, data from prior years are not comparable to current years.

Chronic Diseases

Chronic diseases are those conditions that a person may live with for many years or a lifetime. In 2012, about one in four adults in the US had two or more chronic diseases (CDC, 2014). Chronic diseases can lead to early death, decreased quality of life, and added personal expense in healthcare spending. Chronic diseases account for a large proportion of healthcare expenditures in the US.

- Adults enrolled in OHP in Central Oregon had similar prevalence of chronic diseases as adults enrolled in OHP in Oregon, except for stroke, for which the self-reported prevalence was lower (data not shown).
- Though not directly comparable due to some measurement differences, the OHP population appears to have a higher prevalence of some diseases than does the general population (Figure 8). Data to compare the prevalence of chronic diseases in the general Central Oregon population are available throughout this section.

Figure 8. Prevalence of chronic diseases among adults enrolled and not enrolled in OHP, Oregon, MBRFSS, 2014



H=95% Confidence Interval
Note: General population percents may not be directly comparable to the OHP percents due to survey differences. They are meant to serve as a reference.

Asthma

Asthma is a chronic condition of the respiratory system characterized by inflammation and narrowing of the airways. While asthma affects people of all ages, asthma is one of the most common chronic diseases among children. Approximately 320,000 people in Oregon in 2011 reported that they currently had asthma (Asthma Burden Report, 2013). When monitored and treated with proper medication, asthma should not limit a person's activities or affect their quality of life. Yet thousands of adults and children miss work and school and limit their activities due to their asthma each year.

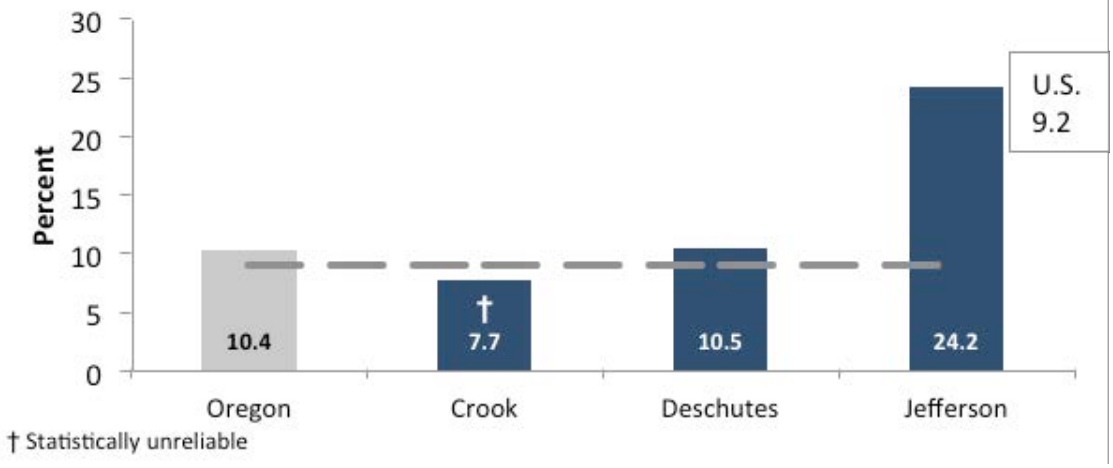
- Nationally and in Oregon, the prevalence of asthma is higher in female adults than in male adults (data not shown).

Chronic Diseases

Asthma Continued

- Nationally and in Oregon, the prevalence of asthma is higher in female adults than in male adults (data not shown).
- The prevalence of asthma in Oregon and Central Oregon is similar, except in Jefferson County where the prevalence of current asthma is about 24% (Figure 9).

Figure 9. Percent of adults with current asthma, Oregon, BRFSS, 2010-2013

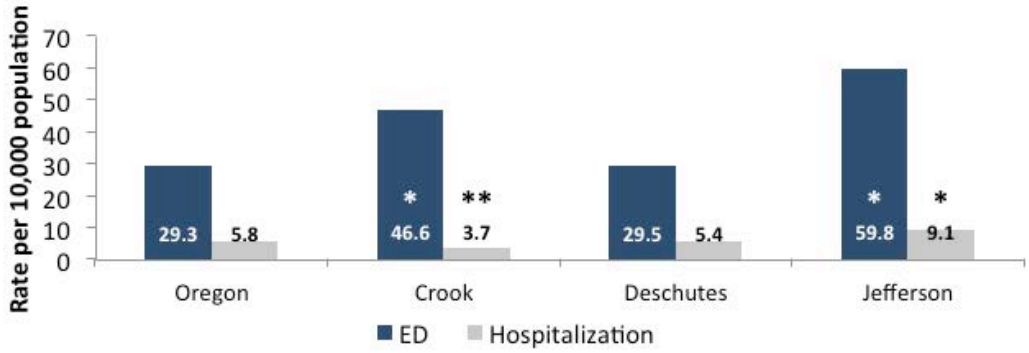


† Statistically unreliable

It is important for people with asthma to have the disease well-controlled. This includes rarely using rescue medications (other than before exercising), waking up due to asthma, experiencing daytime symptoms, and limiting activities due to asthma. Emergency department (ED) visits and hospitalizations are a sign that a person's asthma is not in control.

- Crook and Jefferson Counties had asthma-related ED discharge rates significantly higher than did the state overall (Figure 10). Jefferson County had an asthma hospitalization rate significantly higher than the state.
- The US asthma ED rate was 69.7/10,000 population and the hospitalization rate was 14.1/10,000 population in 2009 and 2010, respectively.
- The median cost for an asthma-related ED visit among OHP members in Central Oregon facilities was $301 and for an asthma-related hospital stay the cost was $3,690 (Central Oregon CCO, 2012-2014).

Figure 10. Age-adjusted rate per 10,000 population of one or more asthma-related ED visits and hospitalizations by county, Oregon, Oregon Hospital Discharge Data, 2011



* Significantly higher than the state overall
**Significantly lower than the state overall

Asthma Continued

- Oregon has met all of the age-specific HP 2020 goals related to asthma hospital discharge rates (Table 9). ED discharge rates were not available for Central Oregon.

Table 9. Asthma hospital discharge rates per 10,000 population by HP 2020 age groups, Oregon, HCUP, 2013

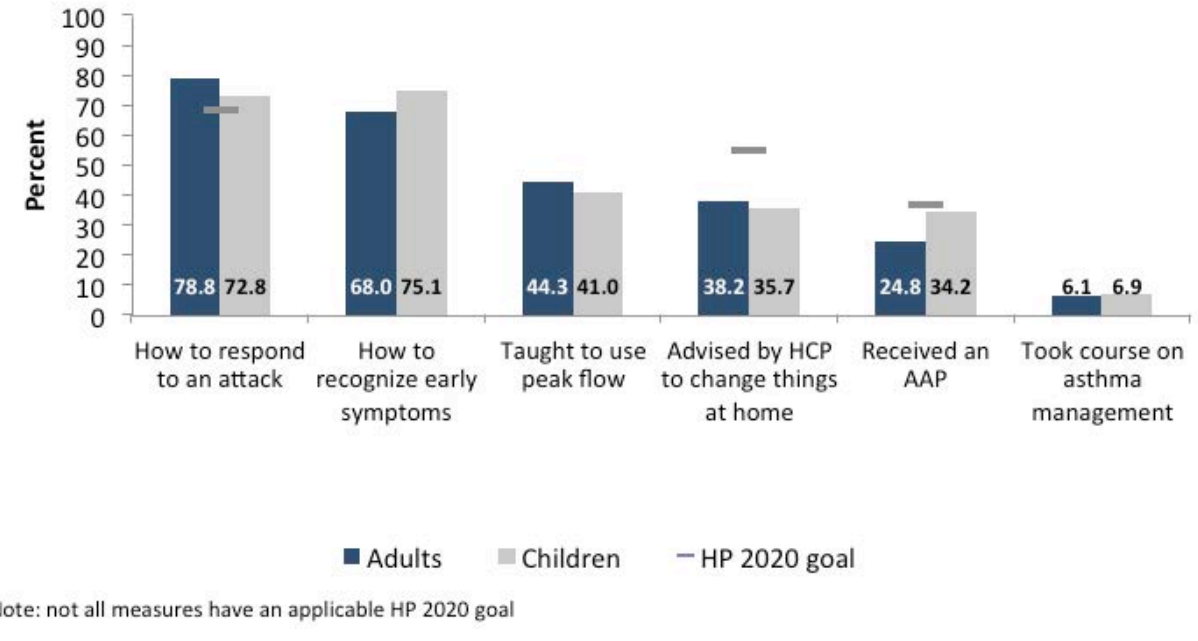
Age Group	Central Oregon	Oregon	HP 2020
0 –4	10.5	10.7	18.2
5-64	4.1	4.0	8.7
65+	4.5	8.6	20.1

- A larger percent of OHP members aged 5-64 years from Jefferson County (33.7%) with asthma went to the ED for asthma than in the other Central Oregon counties (Crook=16.9%, Deschutes=18.3%) and the state overall (17.1%) (OHP, 2011).

Asthma self-management education is integral for achieving asthma control. Self-management education includes being taught how to respond to an attack, knowing the signs, symptoms, and triggers of an asthma attack, using medication and devices properly, using a peak flow meter to track lung function, having an asthma action plan (AAP), and having taken a class on asthma management.

- Adults and children in Oregon have met the HP 2020 goal for learning how to respond to an asthma attack. However, more can be done to address a wide range of asthma control issues in the state (Figure 11).

Figure 11. Percent of adults and children with asthma who reported having received key asthma self-management education, Oregon, BRFSS-ACBS, 2011



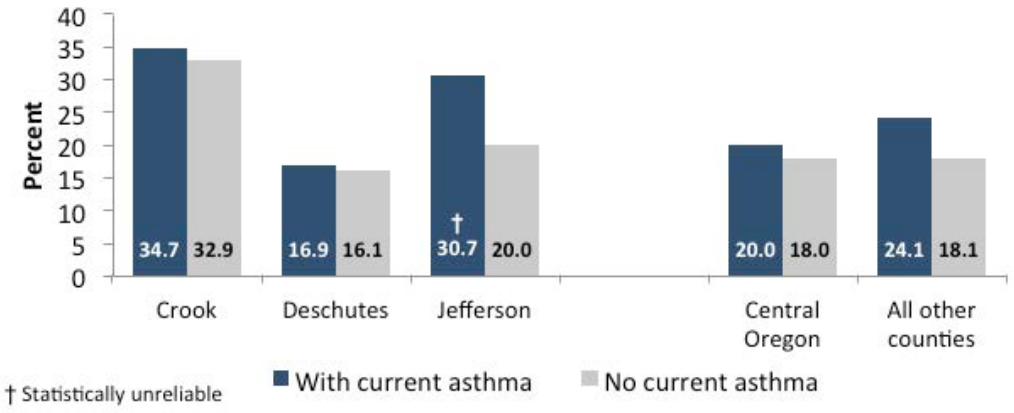
Note: not all measures have an applicable HP 2020 goal

Chronic Diseases

Asthma Continued

- Tobacco is a significant asthma trigger. Adults with current asthma reported smoking at a rate similar to those without asthma (Figure 12).

Figure 12. Prevalence of smoking among adults with and without current asthma, Oregon, BRFSS, 2010-2013



Cancer

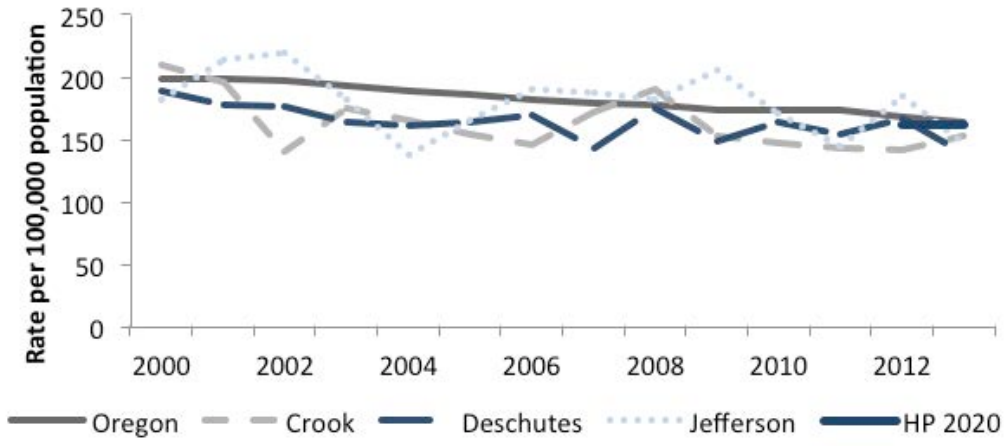
Cancer refers to a group of cells that grow out of control and no longer function as intended and may spread to other areas in the body. Cancer is the leading cause of death for adults aged 45 years and older in Oregon. Significant advances have been made recently to extend the life of persons with cancer or even eliminate the cancer completely. Early detection can help increase the chances of surviving cancer.

Overall Cancer Mortality

Cancer can occur at most sites in the body. Some cancers are far more common than others. The overall cancer mortality rate refers to deaths related to all types of cancer in the state.

- The cancer mortality rate has been decreasing in Oregon since 2000 (Figure 13).
- All of the Central Oregon Counties are nearing or have passed the HP 2020 goal (161.4/100,000) for cancer mortality (Figure 13).

Figure 13. Age-adjusted cancer mortality rate per 100,000 population, Oregon, OPHAT, 2000-2013

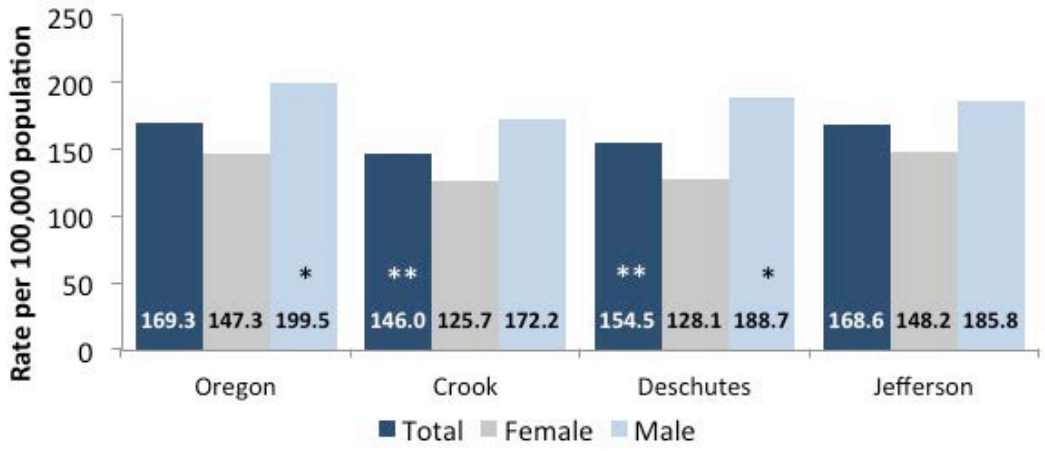


Chronic Diseases

Cancer Continued

- Deschutes and Crook Counties had significantly lower cancer mortality rates than Oregon overall (Figure 14). The US cancer mortality rate was 173.1/100,000 population.
- Males in Oregon and Deschutes County had significantly higher cancer mortality rates than females in those areas (Figure 14).

Figure 14. Age-adjusted cancer mortality rate per 100,00 population by sex, Oregon, OPHAT, 2009-2013



* Significantly higher than females
** Significantly lower than the state overall

- Central Oregon counties have met the HP 2020 goal for breast and prostate cancer mortality, but these rates could be lower still and more could be done to address mortality rates from other cancers (Table 10).

Table 10. Age-adjusted cancer mortality rates per 100,000 population, Oregon, OPHAT, 2009-2013

Cancer site	US§	Oregon	Crook	Deschutes	Jefferson	HP 2020
Breast	22.2	20.4	6.8	15.1	12.6	20.7
Colorectal	15.7	14.8	11.8	13.1	17.2	14.5
Lung	48.5	45.4	42.7	37.6	43.6	45.5
Melanoma	2.8	3.3	7.0	4.1	3.9	2.4
Prostate	22.0	22.0	20.2	21.0	20.3	21.8

§ Data from 2009

Significantly lower than the state overall

Overall Cancer Incidence

Incidence refers to newly diagnosed cases. The overall cancer incidence rate measures the number of new cancer cases in a certain population within a specific time frame.

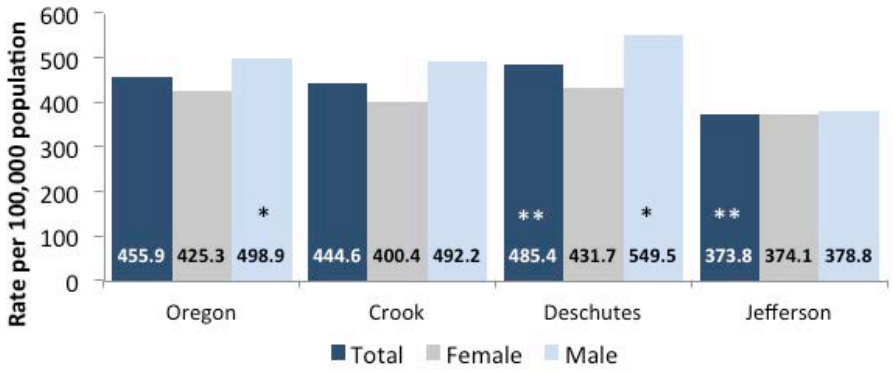
- The cancer incidence rate in the US was 459.8/100,000 population (statecancerprofiles.cancer.gov, 2007-2011).

Chronic Diseases

Cancer Continued

- Jefferson County had a lower cancer incidence rate than did Oregon or the US (Figure 15). Deschutes County had a higher cancer incidence rate than did the US and Oregon overall. The incidence rate in the US was 459.8/100,000 population.
- Males in Deschutes County and Oregon overall had a higher incidence of cancer than did females in those regions (Figure 15).

Figure 15. Age-adjusted cancer incidence rates per 100,000 population by sex, Oregon, State Cancer Profiles, 2007-2011



* Significantly higher than females
**Significantly different than the state overall

Specific Cancer Sites

Lung cancer is the most commonly diagnosed reportable cancer. Most risk factors for lung cancer are avoidable. Tobacco use or exposure to secondhand tobacco smoke is the leading cause of lung cancer. However, even people who have never smoked are diagnosed with lung cancer. Environmental factors like exposure to asbestos or radon also can cause lung cancer.

Breast cancer most commonly occurs in women, but can occur in men. It is one of the leading cancer sites. The risk for breast cancer is associated with older age and white race, obesity, physical inactivity, genetic predisposition, and reproductive history.

Colorectal cancer occurs in the colon or rectum. Factors related to colorectal cancer are older age, being male, black/African American race, poor diet, smoking, a history of polyps, and genetics.

Melanoma, a type of skin cancer, is one of the most common cancers in the US and is the most deadly of the skin cancers. Risk for melanoma can be reduced by limiting exposure to the sun, avoiding sunburns, especially early in life, and not using indoor tanning beds. Other risk factors for melanoma are having lighter skin or skin that burns, reddens, or freckles easily.

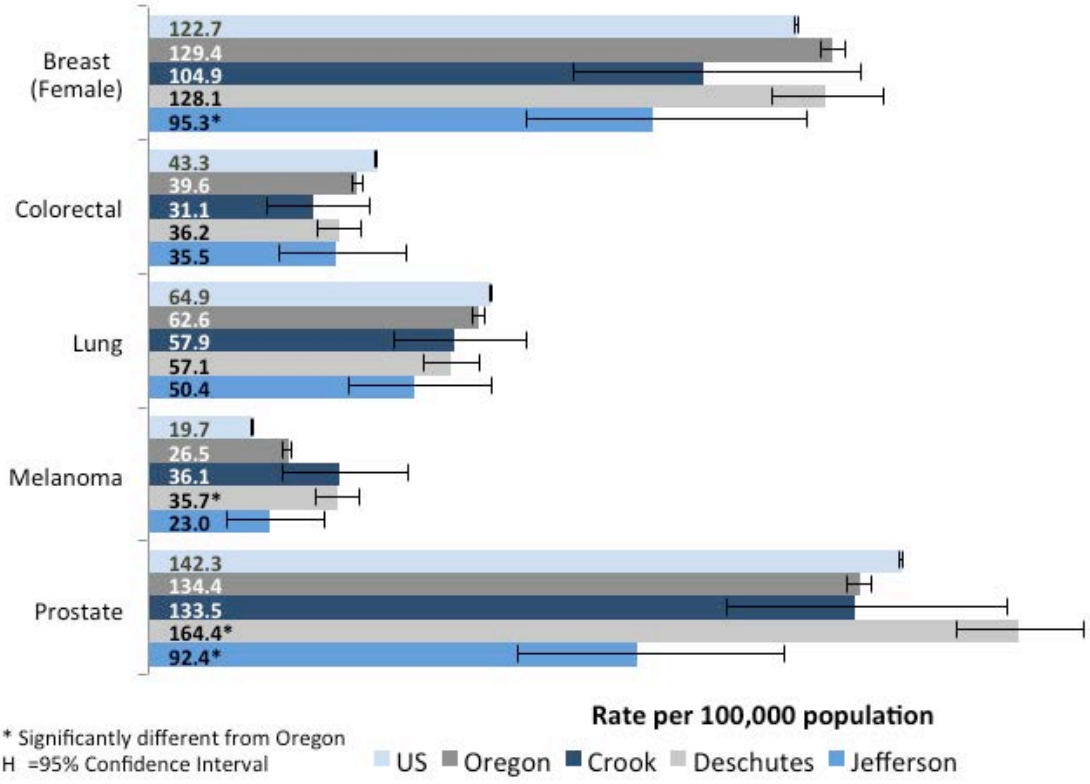
The prostate is a gland found only in males. Prostate cancer is one of the most common cancers among men and when detected early can usually be treated successfully. Risk factors for prostate cancer include older age (65 years and older), African-American race, and family history or genetic changes.

Chronic Diseases

Cancer Continued

- Incidence rates of specific cancers are shown in Figure 16.
- The lung cancer incidence rate did not differ between the Central Oregon counties and Oregon overall.
- The breast cancer incidence rate was significantly lower in Jefferson County than in Oregon, but no different than the US rate.
- The colorectal cancer incidence rate did not differ between the Central Oregon counties and Oregon.
- Deschutes County had a melanoma incidence rate that was significantly higher than the Oregon rate.
- Deschutes County had a significantly higher prostate cancer incidence rate than did Oregon.

Figure 16. Age-adjusted cancer incidence rate per 100,000 population by cancer site, Oregon, State Cancer Profiles, 2007-2011



* Significantly different from Oregon
H =95% Confidence Interval

Chronic Diseases

Cardiovascular Disease

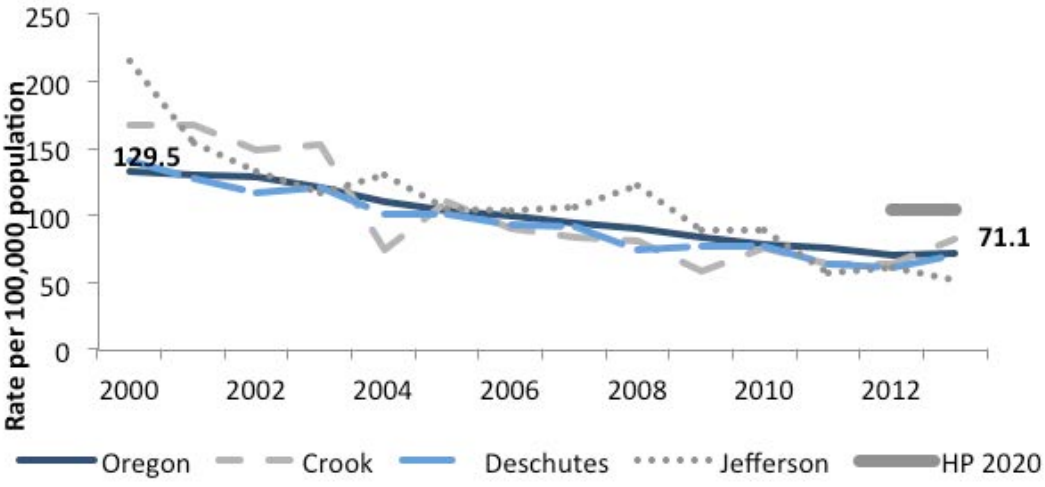
Cardiovascular disease is a classification of diseases of the heart and blood vessels. It is one of the leading causes of death in Oregon and the US. Cardiovascular disease is preventable with good nutrition, exercise, and by not smoking.

- Among males and females admitted to St. Charles facilities in Central Oregon, 21% and 14% respectively, were for cardiovascular disease events (St. Charles Health System, 2014).

Heart Disease and Heart Attack

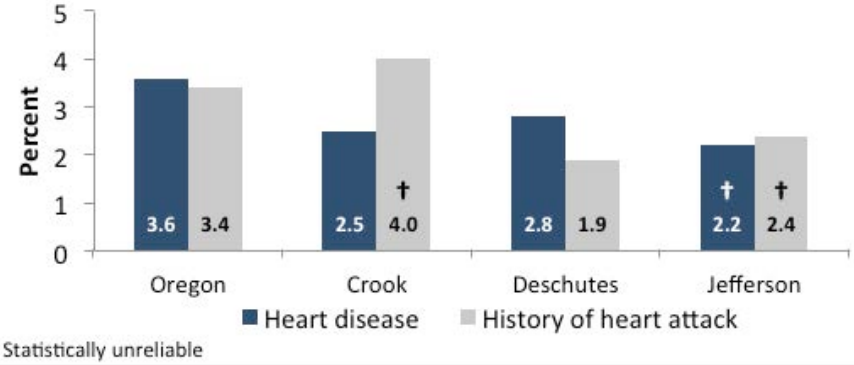
- Heart disease includes several conditions, including angina (chest pain), myocardial infarction (heart attack), and other conditions that affect the heart muscle, rhythm, or valves.
- The mortality rate due to ischemic heart disease (disease of the heart's major blood vessels) has decreased significantly in Oregon and Deschutes County since 2000 (Figure 17). The rate has also been decreasing in the US and was 116.1/100,000 population in 2009 (CDC MMWR).

Figure 17. Age-adjusted ischemic heart disease mortality rate per 100,000 popualtion, Oregon, OPHAT, 2000-2013



- The prevalence of heart disease or having had a heart attack (and survived) is similar in the three Central Oregon counties (Figure 18). In 2013, the prevalence in the U.S. was 4.1% for heart disease and 4.3% for heart attack (BRFSS, 2013).

Figure 18. Age-adjusted prevalence of heart disease or a history of heart attack, Oregon, BRFSS, 2010-2013



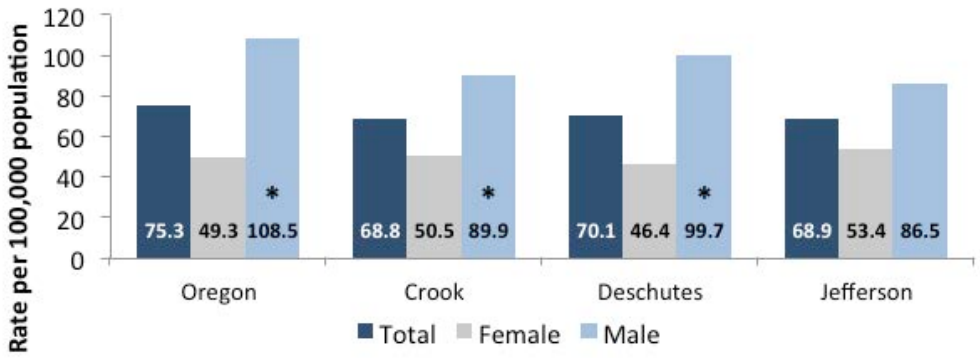
† Statistically unreliable

Chronic Diseases

Cardiovascular Disease Continued

- There were no differences in the mortality rate due to ischemic heart disease among the Central Oregon counties when compared to each other or the state (Figure 19).
- Males in Crook County, Deschutes County, and Oregon had a higher ischemic heart disease mortality rate than females (Figure 19).

Figure 19. Age-adjusted mortality rate per 100,000 population of ischemic heart disease by sex, Oregon, OPHAT, 2009-2013



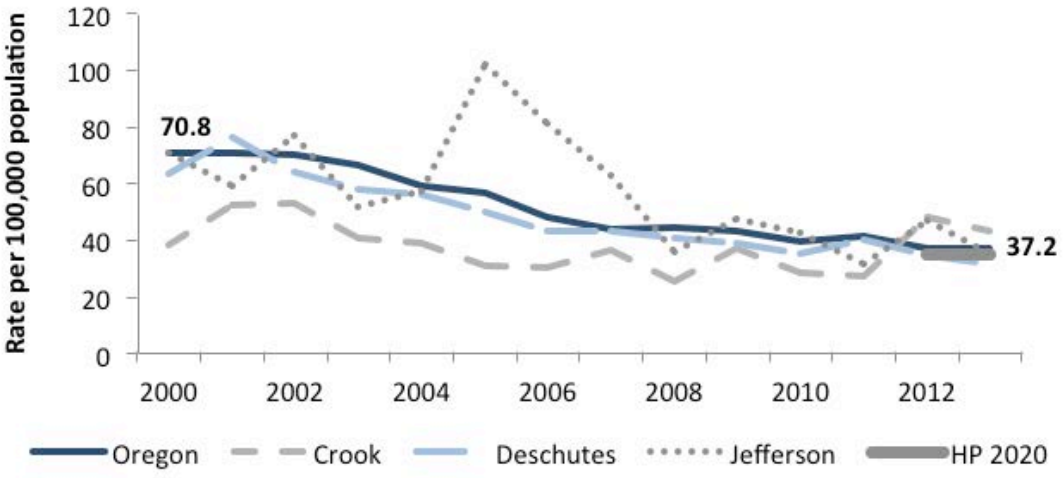
* Significantly higher than females

Cerebrovascular Disease and Stroke

Cerebrovascular disease is a group of diseases dealing with blood flow in the brain. Stroke is one of the cerebrovascular diseases and is a leading cause of death and disability. A stroke is caused by a blood vessel breaking or an artery becoming clogged in the brain that leads to reduced blood flow and brain damage. Knowing the signs and symptoms of stroke can save lives. A healthy lifestyle and medication can help reduce the risk of a stroke.

- The mortality rate due to cerebrovascular disease has significantly decreased in Oregon and Deschutes County since 2000 (Figure 20).

Figure 20. Age-adjusted cerebrovascular disease mortality rate per 100,000 population, Oregon, OPHAT, 2000-2013

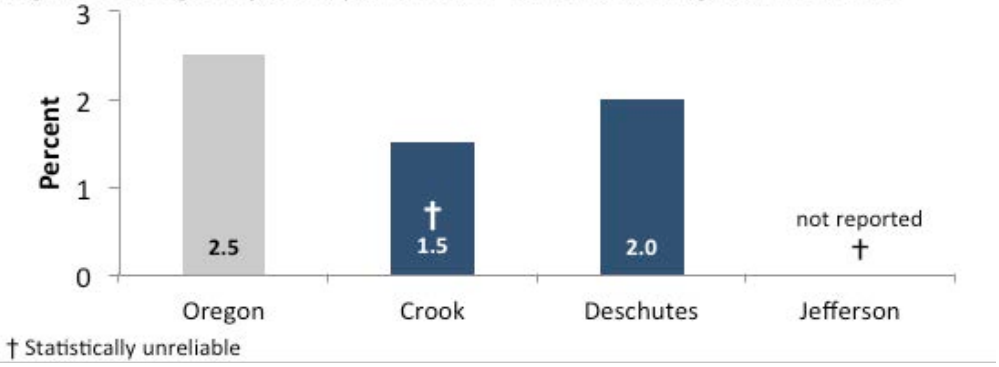


Chronic Diseases

Cardiovascular Disease Continued

- The age-adjusted prevalence of stroke (and survived) was similar in Central Oregon (Figure 21). The prevalence in the U.S was 2.8% in 2013 (BRFSS, 2013).

Figure 21. Age-adjusted prevalence of stroke, Oregon, 2010-2013

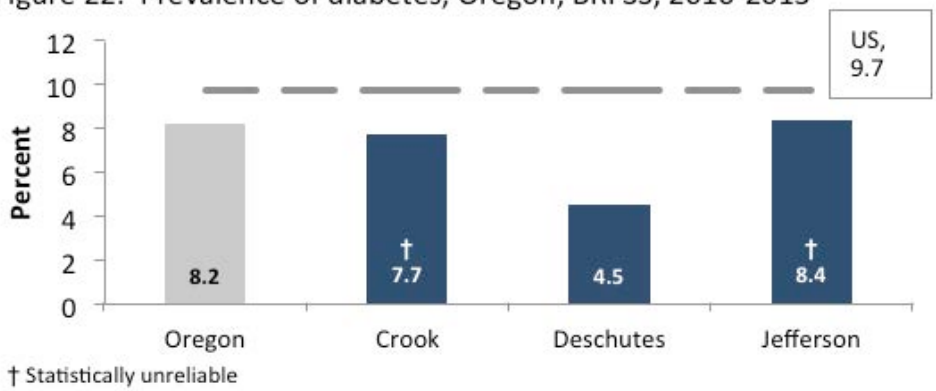


Diabetes

Diabetes is characterized by having high blood glucose levels and can lead to serious adverse outcomes if left untreated. There are several types of diabetes, including type 1, type 2, and gestational diabetes. Type 1 diabetes is an autoimmune disorder usually diagnosed at an early age. Type 2 diabetes is often diagnosed in adulthood. Many people are at risk for developing type 2 diabetes, a condition known as pre-diabetes. Pre-diabetes is characterized by high blood glucose levels, but not high enough to be considered diabetes. Pre-diabetes places a person not only at risk for developing diabetes, but also heart disease and stroke, however this risk can be lowered by losing weight and exercising. Gestational diabetes is a condition only pregnant women acquire during pregnancy and often resolves once the baby is born. If left untreated, gestational diabetes may cause problems for the mother and baby. In addition, gestational diabetes puts women at increased risk for later developing type 2 diabetes.

- Diabetes prevalence has been increasing in the US and Oregon. In 2013, diabetes affected an estimated 287,000 adults in Oregon (Oregon Diabetes Report, 2015).
- CDC estimates that about 37% of adults with pre-diabetes are not aware they have it. That translates to about 1.1 million adults in Oregon living with pre-diabetes (Oregon Diabetes Report, 2015).
- There were no statistical differences in diabetes prevalence among adults in the three Central Oregon Counties (Figure 22).

Figure 22. Prevalence of diabetes, Oregon, BRFSS, 2010-2013



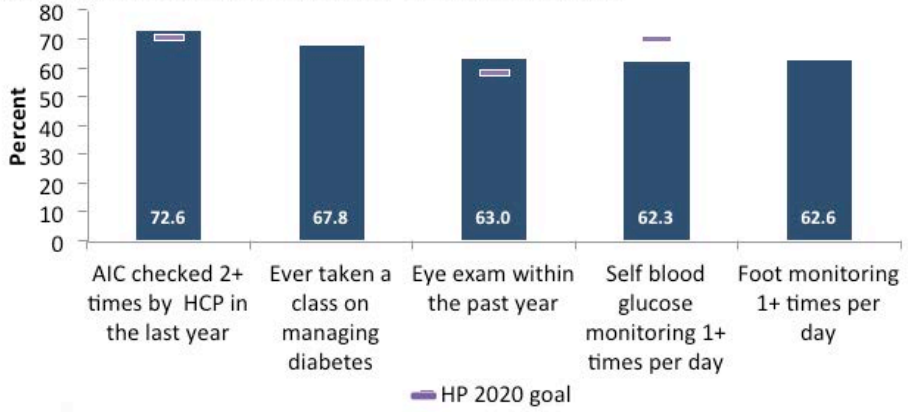
Chronic Diseases

Diabetes Continued

A key part of diabetes control is self-management education. Diabetes self-management education includes taking classes to learn how to self-monitor blood glucose and maintain a healthy lifestyle, as well as monitoring key clinical outcomes like blood A1C levels, as well as eye and foot health.

- Two of the three HP 2020 goals for diabetes self-management education have been met in Oregon (Figure 23).

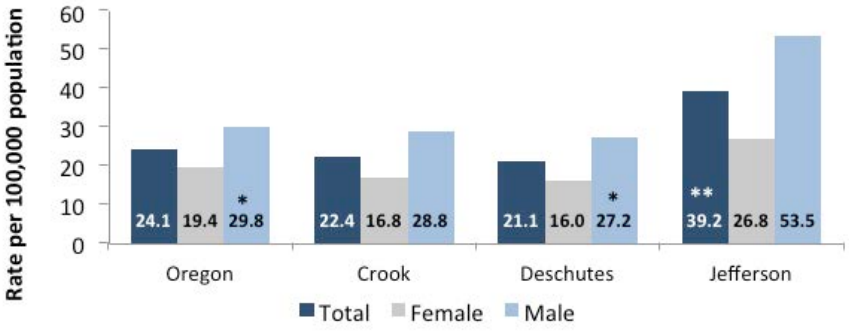
Figure 23. Percent of adults with diabetes who reported having received key diabetes self-management education, Oregon, BRFSS, 2011



Note: not all measures match HP goals

- The age-adjusted mortality rate for diabetes in the US was 21.2/100,000 population (CDC, 2013).
- Jefferson County had a higher diabetes mortality rate than did Oregon or the US (Figure 24).
- Males in Oregon and Deschutes County had higher mortality rates due to diabetes than females in those regions (Figure 24).

Figure 24. Age-adjusted diabetes mortality rate per 100,000 population by sex, Oregon, OPHAT, 2009-2013



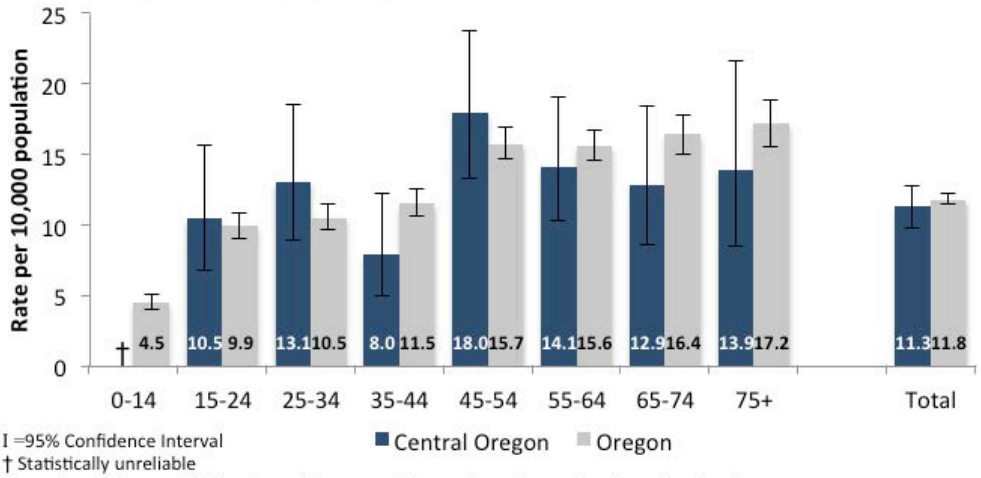
* Significantly higher than females
** Significantly higher than the state overall

Chronic Diseases

Diabetes Continued

- In 2014, 200 diabetes-related inpatient and 290 ED visits (primary diagnosis) occurred in St. Charles Health System facilities (St. Charles Health System, 2014).
- The rate of hospitalizations where diabetes was the primary reason for admission did not differ from the rate in Oregon (11.3 vs. 11.9/10,000 population, respectively) (Figure 25).
- There were no statistical differences in age-specific diabetes hospitalization rates between Central Oregon and Oregon overall (Figure 25).

Figure 25. Hospitalization rate per 10,000 population due to diabetes by age group, Central Oregon and Oregon, HCUP, 2013



I =95% Confidence Interval
† Statistically unreliable
Note: due to data availability, Central Oregon region was based on patient zip code of residence.

- The rate of non-traumatic lower-extremity amputation among people with diabetes was similar in Central Oregon (2.1/10,000 population 95% CI 1.5-2.8) as Oregon (2.8/10,000 population 95% CI 2.5-2.9) (Oregon HDD, 2013). There were 43 non-traumatic lower-extremity amputations among people with diabetes in Central Oregon in 2013.
- About one-third of end-stage renal disease (ESRD) was attributed to diabetes in Oregon and the US. In Jefferson County, nearly two-thirds of ESRD was attributed to diabetes (Table 11).

Table 11. Prevalence of end stage renal disease as of 12/31/2011, Oregon and US, US Renal Data System, 2012

		US	Oregon	Crook	Deschutes	Jefferson
Total number		605,055	5,527	27	176	39
Number due to diabetes		228,896	1,885	†	53	25
Percent due to diabetes		37.8	34.1	‡	30.1	64.1
Percent ESRD due to diabetes by reported race	**White**	60.7	84.2	‡	96.2	64
	Other	39.3	15.8	‡	3.8	36

†Too few cases to report
‡Unable to calculate
Data source: U.S. Renal Data System, USRDS 2012 Annual Data Report: Atlas of End-Stage Renal Disease in the United States, National Institutes of Health, National Institute of Diabetes and Digestive and Kidney Diseases, Bethesda, MD, 2012.

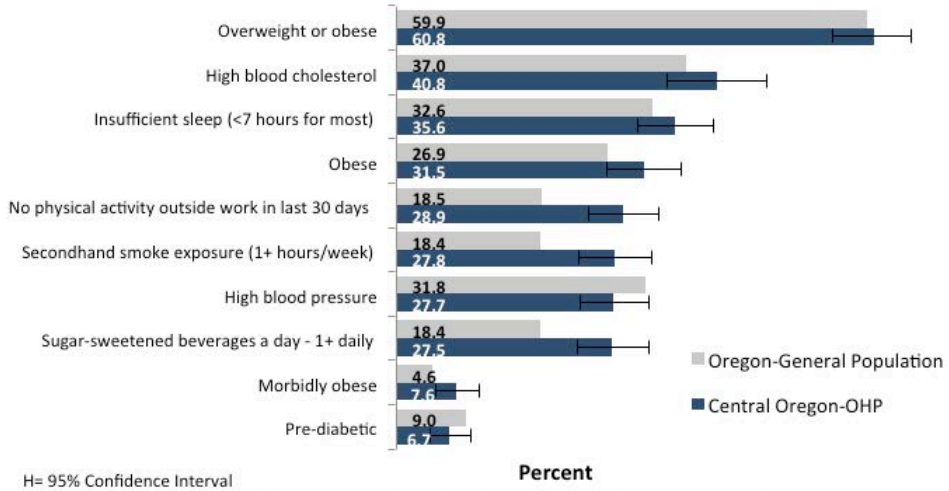
Chronic Diseases

Risk Factors and Complications of Disease

Several factors increase a person's risk of developing a chronic disease. While some people are genetically predisposed to developing a chronic disease, many other factors are modifiable. These include tobacco use, high body mass index (BMI), physical inactivity, multiple adverse childhood experiences (ACEs), and not receiving specific disease screenings. People with significant and chronic mental health and substance use problems are particularly prone to develop one or more chronic diseases.

- There were no statistical differences between adults enrolled in OHP in Central Oregon versus those throughout the state regarding risks for chronic disease (data not shown). Though not directly comparable due to survey differences, adults enrolled in OHP in Central Oregon experienced some risk factors for chronic diseases at higher frequencies than the general population in Oregon (Figure 26). Data to compare the prevalence of chronic disease risk factors in the general Central Oregon population are available throughout this section

Figure 26. Percent of adults enrolled and not enrolled in OHP who reported chronic disease risk factors, Oregon, MBRFSS, 2014



H= 95% Confidence Interval
Note: General population percents many not be directly comparable to OHP percents due to survey differences. They are provided as a reference.

Tobacco

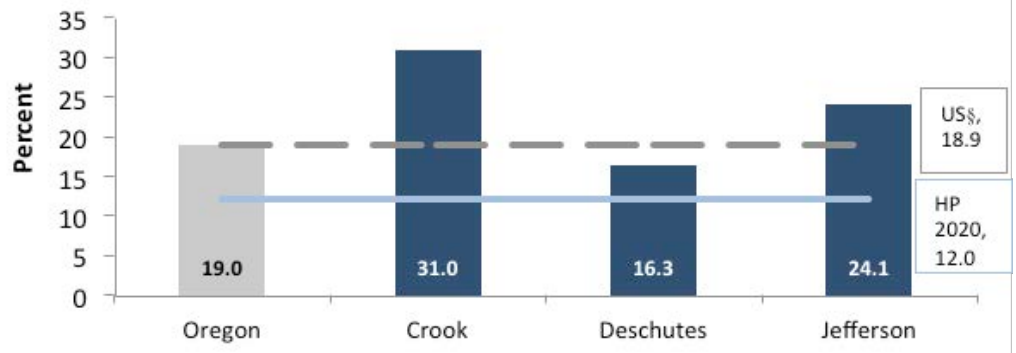
Cigarette smoke is associated with many chronic diseases and is a leading cause of preventable death in the US. Smoking tobacco is linked to about 20% of deaths (CDC OSH, 2014). Cigarette smoking and even exposure to cigarette smoke can lead to a higher risk for heart disease, many cancers, stroke, asthma, and other diseases. See the Alcohol, Tobacco, and Other Drug Use section (page 59) for more information about tobacco.

- The prevalence of smoking tobacco among adults had been declining in the US, but one in five adults (21%) in the US still smoke tobacco (CDC Vital Signs, 2010).
- About 1 in 3 adults (36%) with a mental illness in the US smoked cigarettes (CDC Vital Signs, 2013).

Chronic Diseases

- Nearly one in three adults in Crook County report smoking tobacco (Figure 27). See the Child and Adolescent Health section (page 54) of this report for more information on youth tobacco use.

Figure 27. Age-adjusted prevalence of adult current smokers, Oregon, BRFSS 2010-2013



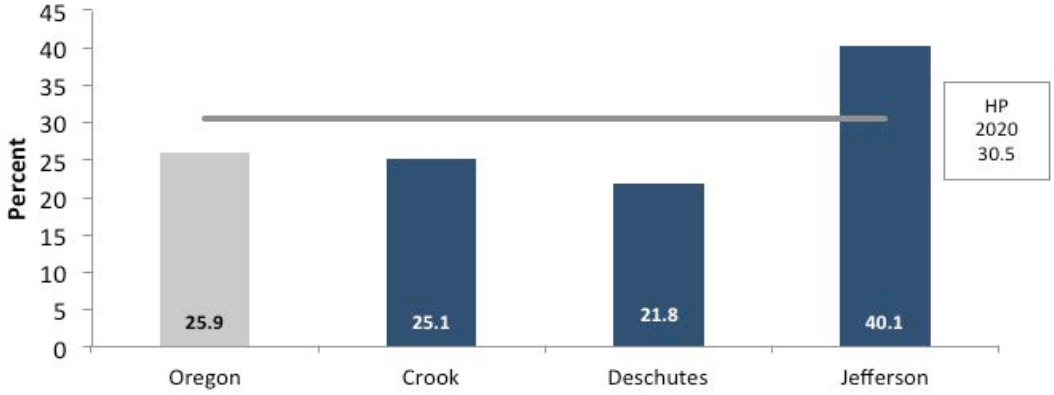
§National Health Inteview Survey, 2011

Body Mass Index (BMI)

Many chronic diseases are associated with being overweight (BMI between 25 and 29) or obese (BMI 30 or greater), including heart disease, cancer, diabetes, and stroke. BMI can particularly be high for people with a serious mental illness as a mental illness may lead to sedentary lifestyle and physical inactivity. The medications used to manage mental health illnesses may also lead to a rapid weight gain (US DHHS, 2010).

- 40% of adults were obese in Jefferson County (Figure 28).

Figure 28. Age-adjusted prevalence obesity among adults, Oregon, BRFSS, 2010-2013



Chronic Diseases

Mental Illness and Substance Use Disorders

Mental illness is associated with many chronic diseases, including cardiovascular disease, diabetes, asthma, and arthritis, among others. Furthermore, several risky behaviors are common to mental illnesses and chronic disease including tobacco and alcohol use, physical inactivity, and poor nutrition (CDC, 2012).

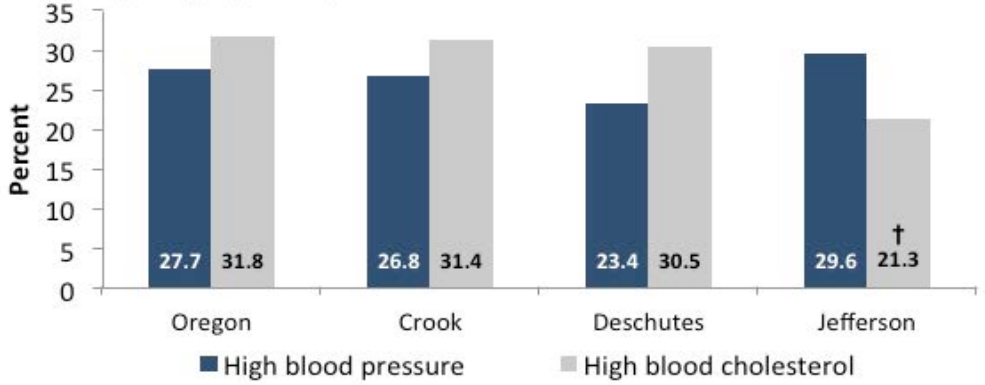
- Data from several studies show an association between asthma and other respiratory symptoms and anxiety disorders among youth. Clinical data has also shown that anxiety is associated with increased severity of asthma symptoms, healthcare use, functional impairment and poorer asthma control, compared to youth without anxiety (Goodwin et al, 2012).
- The American Heart Association recommends that all cardiac patients be screened for depression (AHA, 2008).
- People with mental illness, substance use disorders, or both are at increased risk for developing diabetes. Untreated behavioral health disorders can exacerbate diabetes symptoms and complications (SAMHSA Advisory, 2013). An estimated 28.5% of people with diabetes meet criteria for clinical depression (Mauer & Jarvis, 2010).
- In the US, co-occurring mental illness and drug and alcohol disorders for Medicaid enrollees with common chronic diseases like asthma, cardiovascular disease, and diabetes led to a two to three fold increase in healthcare costs (Boyd, et al., 2010).

Disease Monitoring and Health Screenings

Several chronic diseases can be monitored regularly to ensure that they are under control. Other diseases have methods for regular screening. Screening may help detect disease earlier and allow for early intervention or may help avoid the disease all together. Examples are monitoring blood cholesterol or blood pressure to help decrease risk of heart disease and stroke, and screening using the PAP test for cervical cancer, mammogram for breast cancer, fecal occult blood test or colonoscopy for colorectal cancer, and total body skin check for melanoma, among others. Screening can also be done for chronic disease risk factors like mental health status, alcohol use, and other substance use.

- There were no differences in the prevalence of high blood pressure among adults in the Central Oregon Counties (Figure 29).

Figure 29. Age-adjusted prevalence of high blood pressure or high blood cholesterol, Oregon, BRFSS, 2010-2013

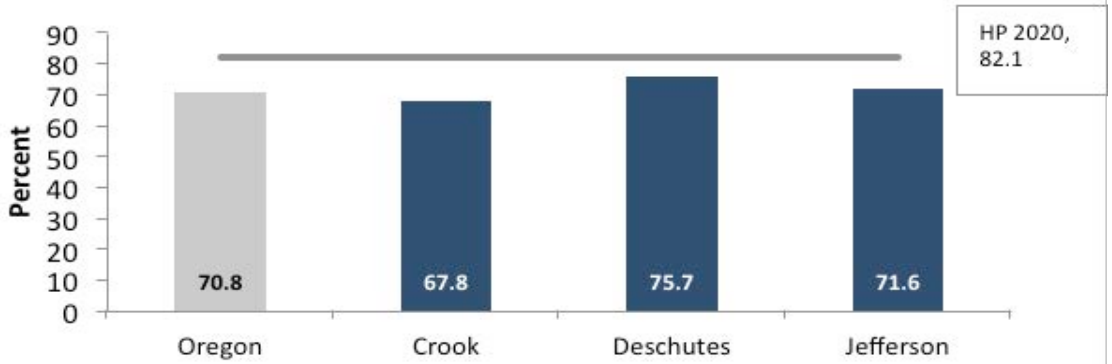


† Statistically unreliable

Chronic Diseases

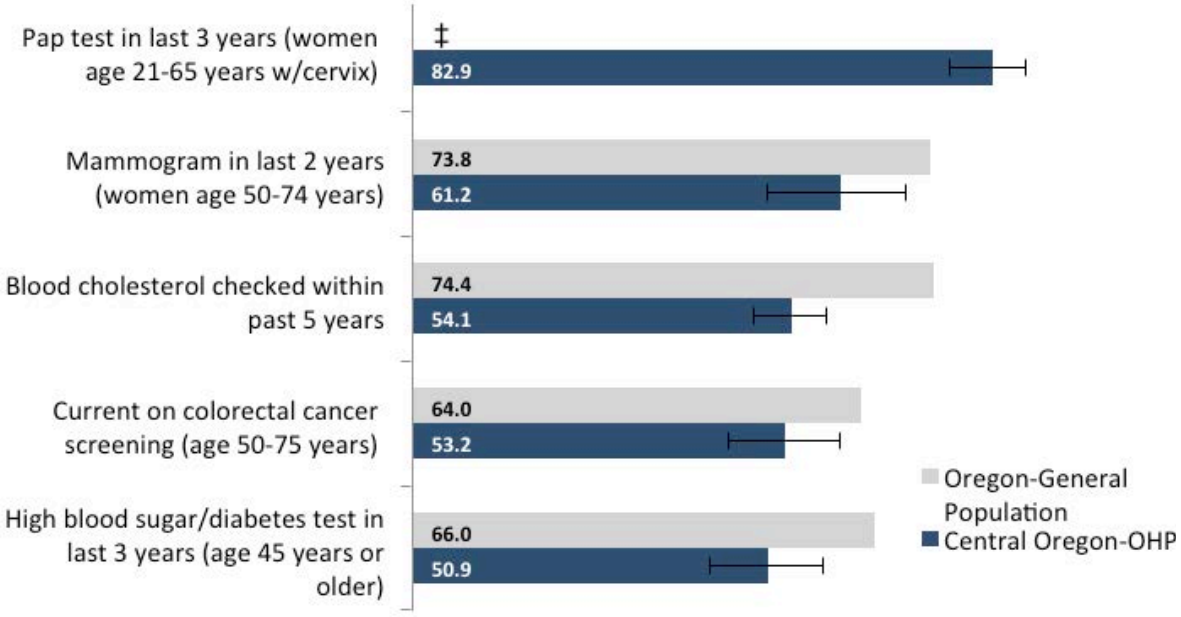
- The percent of adults who are current with a cholesterol check is nearing the HP 2020 goal of 82.1% (Figure 30).

Figure 30. Age-adjusted prevalence of having had a cholesterol check in the last 5 years, Oregon, BRFSS, 2010-2013



- Though the estimates are not directly comparable, adults enrolled in OHP tended to have a lower frequency of having received key screenings for chronic diseases than the general population (Figure 31).

Figure 31. Percent of adults enrolled and not enrolled in OHP who have received key chronic disease screenings, Oregon, MBRFSS, 2014

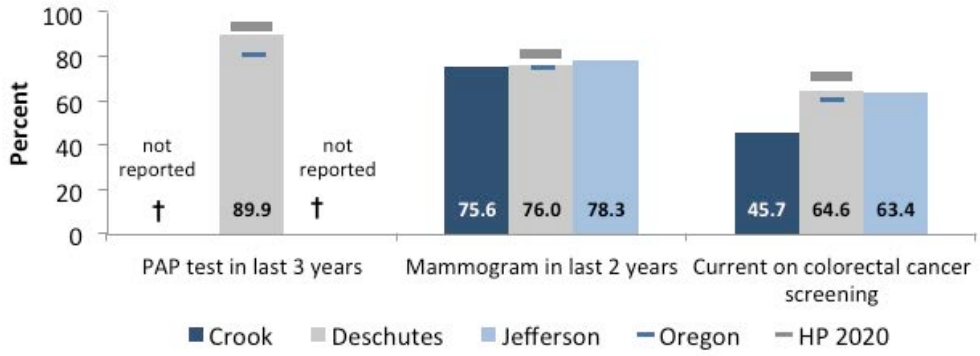


H=95% Confidence Interval
‡ No estimate available
Note: General population percents may not be directly comparable to OHP percents due to survey differences. They are provided for a reference.

Chronic Diseases

- Only one third of adults in Crook County reported being current for colorectal cancer screening (Figure 32).
- Deschutes County was nearing the HP 2020 goals for cancer screening (Figure 32).

Figure 32. Age-adjusted prevalence of having received cancer screening, Oregon, BRFSS, 2010-2013



† Statistically unreliable

CCO Measures

Several chronic diseases can be monitored regularly to ensure that they are under control. Other diseases have methods for regular screening. Screening may help detect disease earlier and allow for early intervention or may help avoid the disease all together. Examples are monitoring blood cholesterol or blood pressure to help decrease risk of heart disease and stroke, and screening using the PAP test for cervical cancer, mammogram for breast cancer, fecal occult blood test or colonoscopy for colorectal cancer, and total body skin check for melanoma, among others. Screening can also be done for chronic disease risk factors like mental health status, alcohol use, and other substance use.

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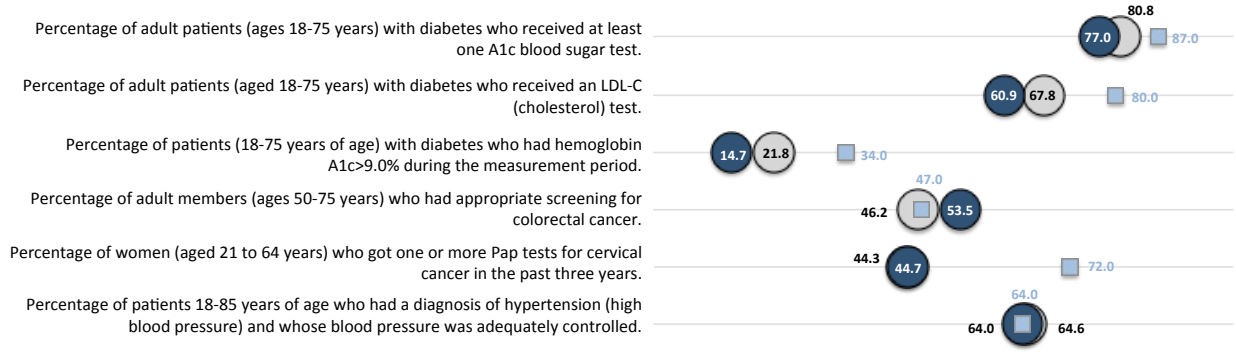
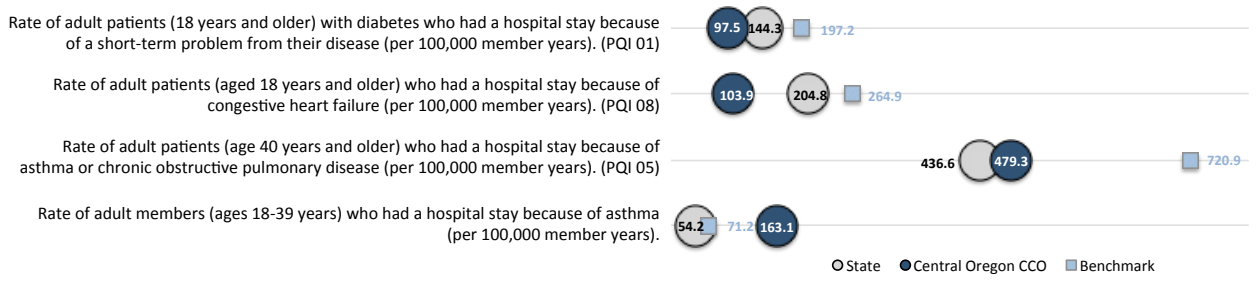




Communicable Diseases

Communicable disease refers to infectious diseases that can be transmitted among people either directly or indirectly. Public health officials track infections that are of most importance to the health of the population in order to help stop their spread. Public health surveillance is conducted to monitor outbreaks and disease burden, describe burden of new or emerging disease, and locate and inform people exposed to a communicable disease.

Immunizations

Immunizations are a key public health measure for preventing the spread of disease (CDC). Immunizations have successfully reduced the number of some diseases to historic lows. However, some people are unable to receive immunizations due to a medical condition or they decline immunizations for other reasons.

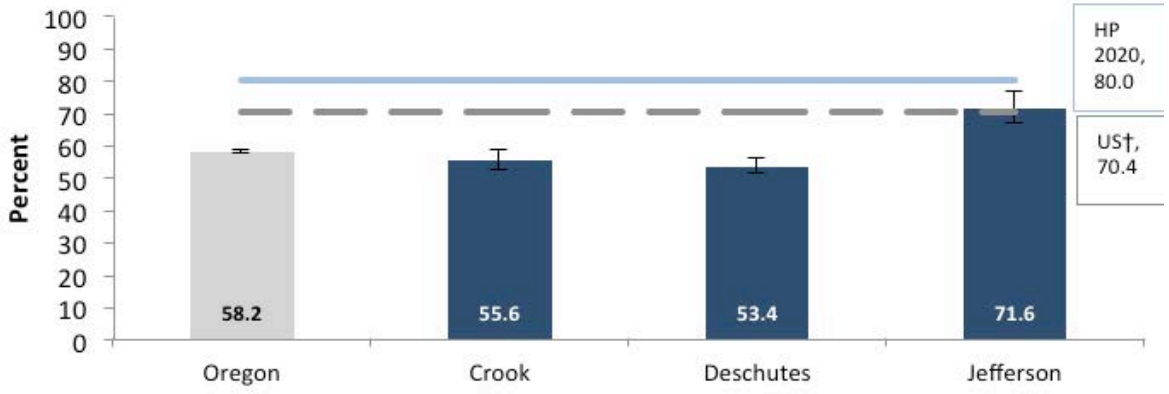
- Non-medical exemptions for kindergarteners were more common in Deschutes County (8.3%) than Jefferson County (1.0%) and Crook County (2.7%). The non-medical exemption rate for kindergartners in Oregon was 5.8% (OHA, 2014-2015). There were 159 non-medical exemptions in Deschutes County during the 2014-2015 school year.
- All three counties and the state overall reported a drop in non-medical exemption rate for the 2014-2015 school year. A new law went into effect on March 1, 2014 requiring parents seeking non-medical exemption to receive education about the risks and benefits of vaccines.

Childhood

A series of immunizations are delivered to children to ensure their immunity to many diseases. Some immunizations require several doses to establish immunity. To be up-to-date, children should receive 4 doses of Diptheria, Tetanus, and acellular Pertussis (DTaP), 3 doses of Polio vaccine, 1 dose of Measles, Mumps and Rubella (MMR), 3 doses of Haemophilus Influenzae Type b (HiB), 3 doses of Hepatitis B, 1 dose of Varicella, and 4 doses of pneumococcal conjugate vaccine (PCV) by their second birthday.

- Two-year-olds in Jefferson County were more frequently up to date with immunizations than were two-year-olds in the other Central Oregon Counties and the state overall (Figure 34).

Figure 34. Two-year old up-to-date* immunization rates, ALERT, Oregon, 2013



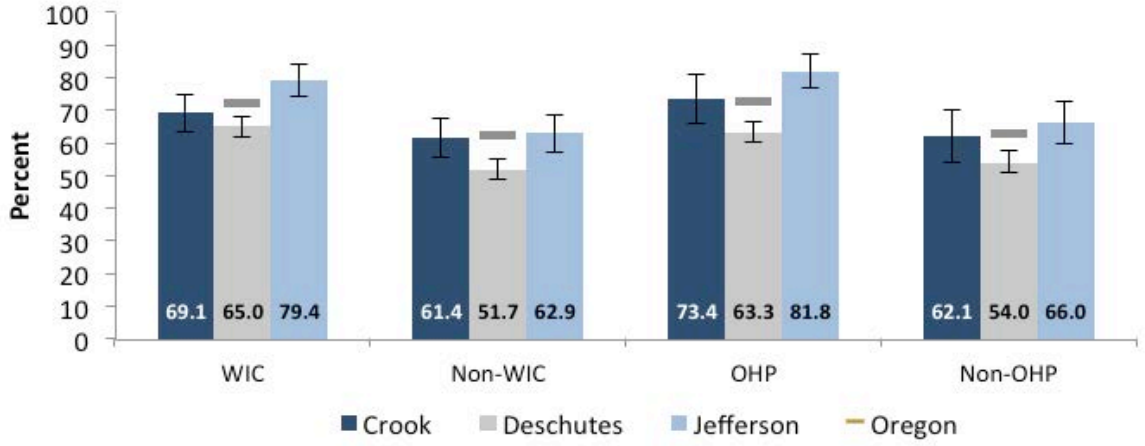
* 4 doses DTaP, 3 doses IPV, 1 dose MMR, 3 doses Hib, 3 doses HepB, 1 dose Varicella, 4 doses PCV
I=95% confidence interval
† National Immunization Survey, 2013

Communicable Diseases

Immunizations Continued

- Jefferson County two-year-olds enrolled in the Women, Infants, and Children (WIC) Program and OHP were more frequently up-to-date with immunizations than were those enrolled in those programs in Oregon (Figure 35).
- Deschutes County two-year-olds not enrolled in WIC and OHP were less frequently up-to-date with immunizations than were those enrolled in those programs in Oregon (Figure 35).

Figure 35. Two-year old up-to-date‡ immunization rates by program, ALERT, Oregon, 2013



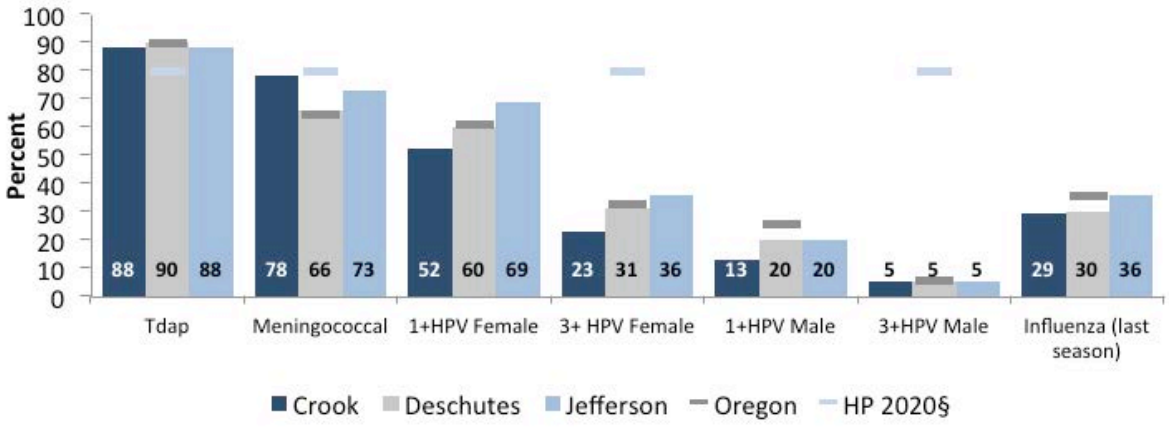
‡ 4 doses DTaP, 3 doses IPV, 1 dose MMR, 3 doses Hib, 3 doses HepB, 1 dose Varicella
I=95% confidence interval

Adolescents

Other vaccines are available to reduce the risk of some diseases among adolescents. Adolescents are eligible for vaccine coverage from human papilloma virus (HPV) and meningococcal disease. It is also important to maintain immunity for diseases covered in the Tetanus, Diptheria, and acellular Pertussis vaccine (TDaP) and influenza vaccine.

- Adolescent immunization rates are shown in Figure 36.

Figure 36. Adolescent (aged 13-17 years) immunization rates by type of vaccine, ALERT, Oregon, 2013



§Healthy People 2020 goal is for adolescents 13-15 years

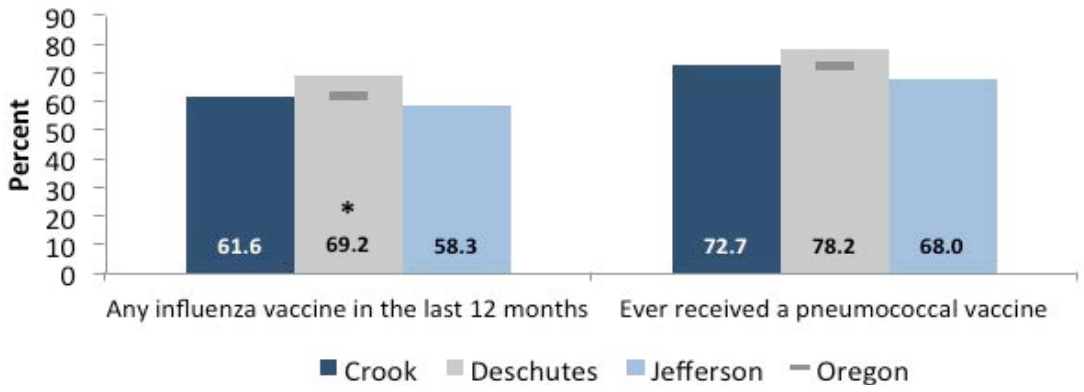
Communicable Diseases

Adults

As people age, there is still a need to receive new immunizations or update past immunizations. Some factors such as age, lifestyle, travel, history of having received a vaccine, and existing health conditions may also determine the need for adult immunizations. Some vaccines may be new and were not available during childhood, like the herpes zoster vaccine for shingles.

- Deschutes County adults aged 65 years and older had a significantly higher frequency of receiving an annual influenza vaccine than did those in Oregon overall. There were no differences in having ever received a pneumococcal vaccine (Figure 37).

Figure 37. Age-adjusted percent of adults aged 65 years and older who recieved key immunizations, Oregon, BRFSS, 2008-2011



Vaccine Preventable Diseases

Despite having a vaccine available for prevention, the diseases below still occur in Oregon and the Central Oregon Counties.

- Influenza (flu) is a vaccine preventable disease that causes mild to severe respiratory illness. In the US, thousands of influenza-associated deaths occur each year. The severity of influenza varies year-to-year depending on what versions of the virus are spreading, timing of flu season, and how well the vaccine matches the viruses that are causing illness. Another key factor is how many people get vaccinated. During the 2013-2014 influenza season, an estimated 7.2 million influenza-associated illnesses were prevented by influenza vaccination in the US (CDC, 2015).
- Between 2004 and 2013, the incidence rates of Haemophilus influenzae (a bacterial infection) and meningococcal disease in Central Oregon were similar to the Oregon rate (Table 12).
- Between 2004 and 2013, the incidence rate of pertussis was lower in Central Oregon than in Oregon overall (Table 12). However, in 2014, 60 cases of pertussis were identified in Deschutes County, more than identified in the previous 10 years. Pertussis is now considered widespread in Deschutes County.
- Other vaccine preventable diseases are not shown here because they occur infrequently.

Table 12. Age-adjusted rate per 100,000 population of vaccine preventable diseases, Oregon, OPHAT, 2004-2013

	Oregon	Central Oregon
Haemophilus influenzae	1.5 (630)	1.8 (39)
Meningococcal disease	1.0 (371)	1.6 (29)
Pertussis (whooping cough)	11.4 (3,892)	3.0 (55)

(#) Number of cases

Significantly lower than the state overall

Communicable Diseases

Hepatitis

There are several hepatitis viruses present in the world. The most common in the US are hepatitis A, B, and C. Some hepatitis viruses are spread through sexual activity, others via contact with blood or items contaminated with blood, and some are spread through contaminated food and water. While hepatitis A, B, and C can be acute infections, hepatitis B and C can progress into a serious lifelong, chronic disease. Hepatitis A and B are preventable with a vaccine. Currently, there is no vaccine for hepatitis C. However, treatment options are available for hepatitis C and it may be cured.

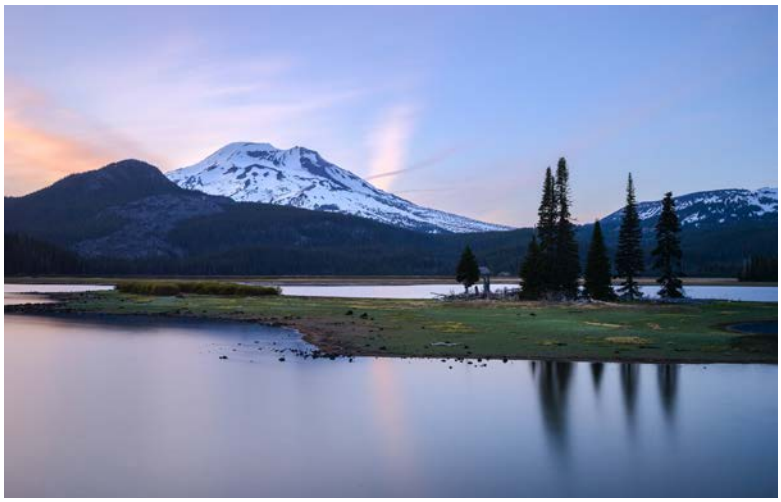
- Chronic hepatitis B occurred less frequently in the Central Oregon Counties than in the state overall (Table 13).
- The age-adjusted rate of past or present hepatitis C in Central Oregon was similar to the Oregon rate (Table 13). However, the age-adjusted rate in Jefferson County for past or present hepatitis C was higher than in the state overall (272.9/100,000).
- Nationally, there was a 151.5% increase in acute hepatitis C cases from 2010 to 2013. This increase is thought to be due to both true increases in incidence and improved case reporting and detection (CDC, 2013).

Table 13. Age-adjusted rate per 100,000 population of hepatitis, Oregon, OPHAT, 2004-2013

	Oregon	Central Oregon
Hepatitis A	0.4 (86)	0.5 (5)
Hepatitis B (acute)	1.0 (189)	0.9 (9)
Hepatitis B (chronic)	11.0 (2,137)	3.8 (39)
Hepatitis C (acute)	0.7 (122)	0.7 (6)
Hepatitis C (past or present)	122.0 (25,448)	114.3 (1,276)

(#) Number of cases

Significantly lower than the state overall



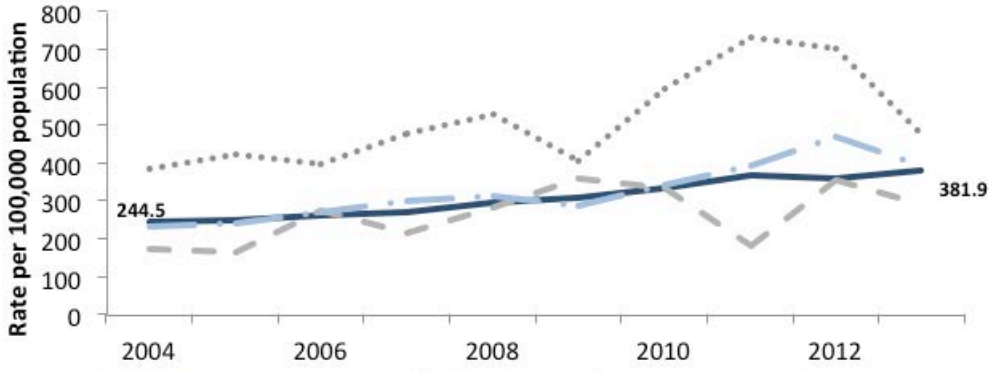
Communicable Diseases

Sexually Transmitted Infections

Sexually transmitted infections (STIs) are preventable with proper precautions, testing, and treatment. Clinicians and public health staff work diligently to stop the spread of STIs by breaking transmission via screening and helping patients with partner notification. In Oregon, the use of expedited partner therapy allows a patient to provide medication to their sexual partners without a healthcare provider first examining the partner.

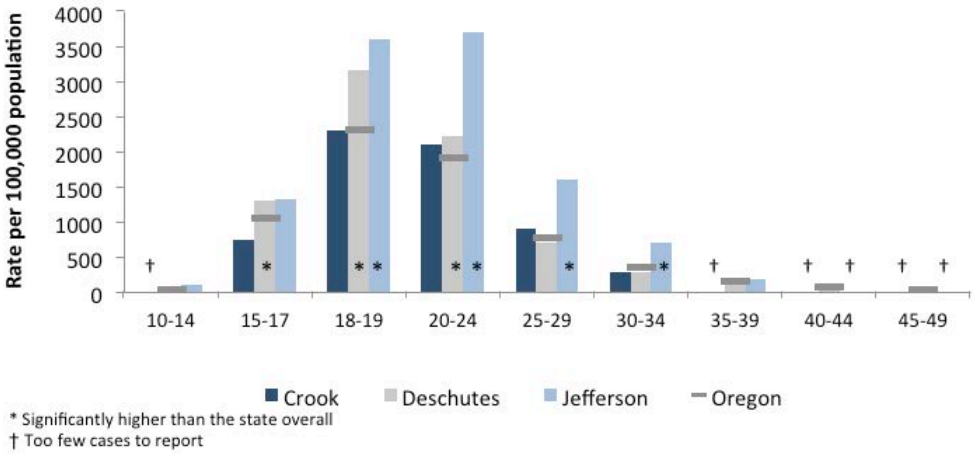
- Chlamydia is the most commonly reported STI in the US and in Central Oregon. If left untreated, chlamydia can lead to infertility and tubal pregnancy. Gonorrhea is another common STI that is readily treatable, yet has serious long-term effects if left untreated. Gonorrhea is less common than is chlamydia. Chlamydia and gonorrhea can be present without symptoms, so women and men with specific risks should be tested annually. Syphilis is a rarer STI, but can have serious implications if left untreated.
- There were 13 cases of early syphilis in Central Oregon between 2009 and 2013 (OPHAT, 2009-2013), an average of 2-3 cases a year. There were 4 cases reported in 2014 (Provisional data, OHA).
- Chlamydia rates have been increasing in Oregon since 2004 (Figure 38). There were 721 cases of chlamydia reported in Central Oregon in 2014 (Provisional data, OHA)
- The chlamydia rate is higher in Jefferson County, though the difference has not reached statistical significance (Figure 38).

Figure 38. Age-adjusted chlamydia incidence rate per 100,000 population, Oregon, OPHAT, 2004-2013



- Ages 18-24 years had the highest rates of chlamydia (Figure 39).
- Deschutes and Jefferson Counties had higher rates than did Oregon overall for several age groups (Figure 39). Other age groups are not presented due to very low case numbers.

Figure 39. Chlamydia incidence rate per 100,000 population by age group, Oregon, OPHAT, 2009-2013



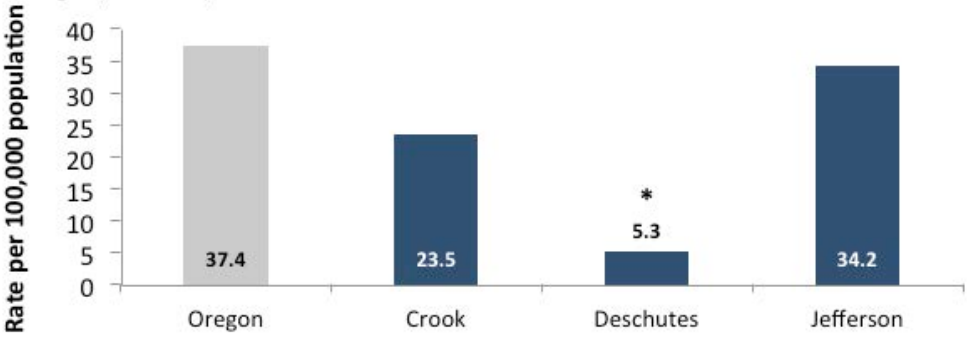
* Significantly higher than the state overall
† Too few cases to report

Communicable Diseases

Sexually Transmitted Infections Continued

- The incidence rate of gonorrhea was lower in Deschutes County than in Oregon overall (Figure 40).
- Between 2009 and 2013, there were 79 cases of gonorrhea reported in Central Oregon (data not shown), an average of about 16 cases a year. In 2014 alone, there were 49 cases of gonorrhea reported in Central Oregon (Provisional data, OHA).

Figure 40. Age-adjusted gonorrhea incidence rate per 100,000 population, Oregon, OPHAT, 2009-2013



* Significantly lower than the state overall

- Human Immunodeficiency Virus (HIV) is transmitted via infected bodily fluids, such as blood, semen, vaginal secretions, and breast milk. HIV leads to the development of Acquired Immune Deficiency Syndrome (AIDS) and is a serious, chronic disease that makes a person susceptible to many other infections and diseases. There is no vaccine or cure for HIV.
- Between 2003 and 2012, an average of 5-6 people were diagnosed with HIV each year in Central Oregon (HIV/AIDS Epidemiologic Profile, 2012)

Communicable Diseases

Vector Born Diseases

- Vector borne diseases are rare in Central Oregon (Table 14).
- Malaria and dengue fever cannot be contracted in Central Oregon, as the vector that transmits the disease is not present. The cases presented in this report represent residents of Central Oregon who traveled to malaria or dengue fever endemic areas and contracted the disease. These data suggest more could be done to inform travelers about their risks when leaving the area.

Table 14. Number of vector borne diseases reported in Oregon and Central Oregon[§], OPHAT, 2004-2013

	Oregon	Central Oregon
Colorado tick fever	7	<5
Dengue fever[†]	43	<5
Hantavirus	14	6
Lyme disease[‡]	380	10
Malaria[†]	145	7
Rocky mountain spotted fever	16	<5
West Nile virus	172	<5

§ May not be region of acquisition
‡ While the vector for Lyme disease exists in Oregon, it has not been found in Central Oregon
† Acquired elsewhere

Diarrheal Diseases

Diarrheal diseases are often associated with contaminated water or food. Many efforts are made by public health officials to ensure clean drinking water and food safety guidelines are followed. See the Environmental Health (page 63) and Water Quality (page 76) sections for more information.

- Water-borne diseases are common in the Central Oregon counties and were reported at higher rates than in Oregon overall (Table 15). However, note that many water-borne diseases go unreported. Higher rates may be related to capacity to detect disease.
- There were too few cases of legionellosis and listeriosis in Central Oregon to report (Table 15).

Table 15. Age-adjusted incidence rate per 100,000 population of water-borne diseases, Oregon, OPHAT, 2004-2013

	Oregon	Crook	Deschutes	Jefferson	Central Oregon
Campylobacteriosis	20.4 (7,727)	26.8 (52)	29.0 (451)	26.4 (56)	28.4 (559)
Cryptosporidiosis	4.2 (1,568)	† (9)	1.1 (16)	† (<5)	1.4 (26)
E. coli (STEC)	3.3 (1,207)	5.7 (12)	6.8 (105)	† (8)	6.4 (125)
Giardiasis	11.7 (4,296)	5.7 (12)	18.4 (274)	10.2 (22)	16.4 (308)
Legionellosis	0.5 (197)	† (<5)	† (<5)	† (<5)	† (<5)
Listeriosis	0.3 (113)	† (<5)	† (<5)	† (<5)	† (<5)
Salmonellosis (non-typhoidal)	11.1 (4,098)	13.0 (26)	9.9 (149)	9.3 (19)	10.2 (194)
Shigellosis	2.3 (823)	† (<5)	1.0 (15)	9.5 (20)	1.9 (35)
Vibriosis (non cholera)	0.4 (158)	† (<5)	0.8 (13)	† (<5)	0.7 (15)
Yersinosis	0.5 (191)	† (<5)	** (5)	† (<5)	† (7)

†	Too few cases to calculate a rate
(#)	Number of cases
	Significantly higher than the state overall
	Significantly lower than the state overall

Communicable Diseases

Healthcare Associated Infections

Significant effort has focused recently on the prevention of HAIs. These include central line associated blood-stream infections (CLABSI), infections related to coronary artery bypass grafts (CABG), and Clostridium difficile infections. Hospitals and healthcare providers have instituted processes and protocols to help reduce the incidence of HAIs in their facilities.

- The Standardized Infection Ratio (SIR) is a measure used to track HAI prevention progress. According to CDC, the SIR compares the number of infections in a facility or state to the number of infections that were "predicted", or would be expected, to have occurred based on previous years of reported data (national baseline). Lower SIRs are better. The SIR is low for most HAIs in Central Oregon facilities. (Table 16)
- The SIR is higher than the national baseline for C. difficile in the St. Charles Health System in Redmond and Bend (Table 16).

Table 16. Standard Infection Ratios of selected HAI among Central Oregon healthcare facilities, Oregon Health Authority, 2013

	Bend	Madras	Redmond	Prineville
CLABSI-adult	1.44	0	0	0
CLABSI-neonatal	0	--	--	--
CABG	0.79	--	--	--
Knee replacement	0.92	0	0	--
Colon surgery	0.48	0	0.63	0
Hysterectomy	0	0	0	0
Hip replacement	0.47	--	0	0
Laminectomy	--	--	--	--
C. difficile	1.41	0.69	2.54	0

--	Not measured at this facility
	SIR<1 and is not different than national baseline or facility had 0 HAI
	SIR>1 and is not different than national baseline
	SIR >1 and is greater than the national baseline

Data from: Oregon Health Authority

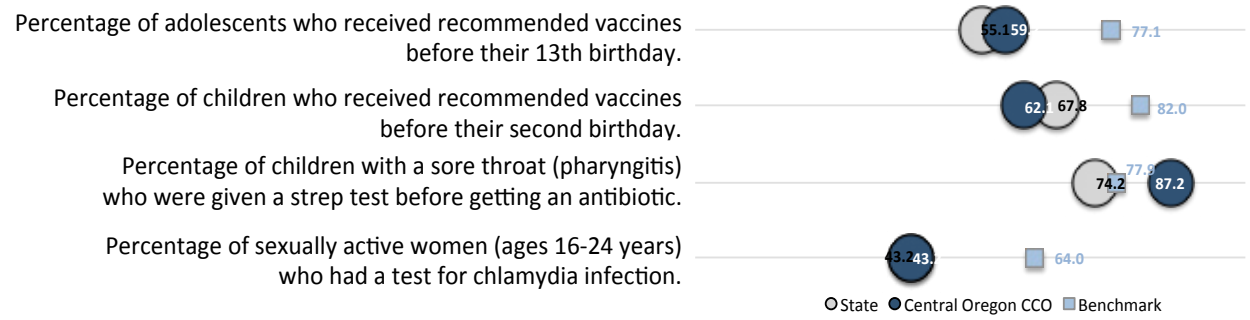
Vaccination of healthcare staff from influenza is an effective way to reduce spread to vulnerable patients and to reduce staff illness.

- St. Charles-Madras staff had a higher healthcare worker influenza vaccination rate than other Central Oregon healthcare facilities (OHA, 2013-2014). The HP 2020 goal is a 90% vaccination rate.
  -Bend: 73%, Madras: 78%, Redmond: 75%, Prineville: 77%

CCO Measures

- Central Oregon CCO has met the quality measure goal for testing children with a sore throat for strep before getting an antibiotic (Figure 41).

Figure 41. Central Oregon CCO quality measures related to communicable disease, June 2014



Maternal Health and Pregnancy

Introduction

The health of a child begins with a healthy mother and a healthy pregnancy. Factors like not using tobacco, alcohol, or other drugs, maintaining a healthy weight, receiving prenatal care, maintaining good oral health, breastfeeding, and preventing injuries and adverse childhood experiences (ACEs) are key for starting an infant's life in a healthy manner. See the Adverse Childhood Experiences section (pages 54-55)for more information on this topic.

Several programs exist to support mothers and infants. One program is the Women, Infants, and Children (WIC) Program, a special supplemental nutrition program that "provides supplemental foods, healthcare referrals, and nutrition education for low-income pregnant, breastfeeding, and non-breastfeeding postpartum women, and to infants and children up to five years of age who are found to be at nutritional risk" (USDA). Another program is the Maternal, Infant, and Early Childhood Home Visiting (MIECHV) Program. Home visiting is a proven strategy for strengthening families and improving the health status of women and children. There are a variety of home visiting programs available in Central Oregon, including: Maternity Case Management, Nurse Family Partnership, Babies First!, CaCoon, and Healthy Families Oregon.

- In 2013, there were 770,514 women of childbearing age (15-44 years) in Oregon and 36,801 in Central Oregon representing 19.6% and 17.7% of the total population, respectively.
  - -3,177 in Crook County
  - -30,069 in Deschutes County
  - -3,555 in Jefferson County

Prenatal Care

Prenatal care is the healthcare a woman receives during pregnancy. Beginning early in pregnancy, visits to a healthcare provider are recommended based on a specific schedule. A dental visit is also recommended after the first trimester. Prenatal care helps healthcare providers detect problems early to improve the health of the mother and baby and may even prevent or cure some conditions.

- One method to measure adequate prenatal care is the Kotelchuck index. Adequate prenatal care is defined as having received at least 80% of expected prenatal visits. Jefferson County had a lower frequency of mothers receiving adequate prenatal care than Oregon overall (Table 17).

Table 17. Timeliness of prenatal care, Oregon, OPHAT, 2013

	Percent of births						
	Oregon	Crook	Deschutes	Jefferson	Central Oregon	HP 2020	Paid by OHP§
Adequate Prenatal Care-Kotelchuck Index	72.2	70.3	69.9	55.5	68.0	No measure	66.6
Prenatal care started in 1st trimester	77.8	68.6	81.0	66.3	77.9	77.9	72.7
Prenatal care started in 2nd trimester	17.9	27.6	15.9	29.3	18.8	No measure	22.9
Prenatal care started in 3rd trimester	3.6	3.8	2.8	4.0	3.1	No measure	4.1
No prenatal care	0.7	†	†	†	0.3	No measure	†

	Significantly different than the state overall
†	Too few births to report
§	Percent of births in Central Oregon paid by the Oregon Health Plan

Maternal Health and Pregnancy

Prenatal Care Continued

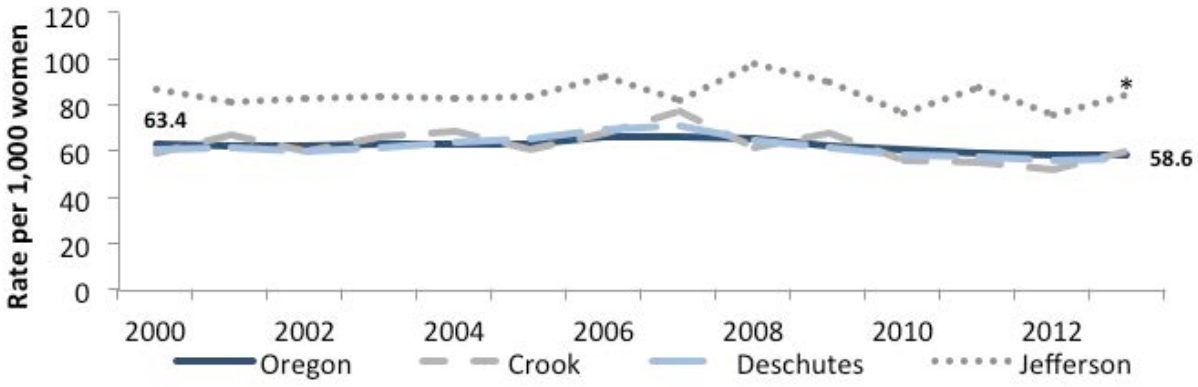
- About 3 of 4 (77%, 95% CI 68.2%-85.2%) of Central Oregon mothers said that they received an HIV test sometime during their most recent pregnancy or delivery. The proportion for the rest of the state was 68.8% (95% CI 66.6%-71.0%) (PRAMS, 2009-2011).
- 60.9% (95% CI 51.4%-70.4%) of mothers in Central Oregon reported they were offered an influenza vaccine or were told to get one during their last pregnancy. This was significantly lower than in the rest of the state (77.8% 95% CI 76.0%-79.6%).

Births

Healthcare is important during and immediately after birth. At this point, breastfeeding can be implemented and safety topics can be addressed. Reviewing the birth rates in an area can help identify a specific population's fertility patterns and identify the need for reproductive health services.

- The fertility rate (the number of pregnancies per 1,000 women of childbearing age) has not significantly changed since 2000 among the three Central Oregon Counties. However, there has been a significant decrease in the fertility rate in Oregon overall (Figure 42).
- In 2013, Jefferson County had the highest fertility rate among women aged 15-44 years among the Central Oregon Counties and as compared to Oregon overall (Figure 42).

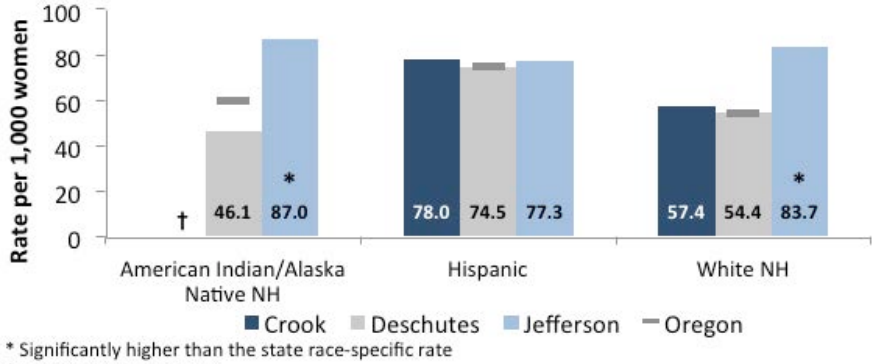
Figure 42. Fertility rate per 1,000 women aged 15-44 years, Oregon, OPHAT, 2000-2013



* 2013 rate significantly higher than other counties and state overall

- American Indians and whites in Jefferson County had a higher fertility rate than the state overall (Figure 43).

Figure 43. Fertility rate per 1,000 women aged 15-44 years by race and ethnicity, Oregon, OPHAT, 2013



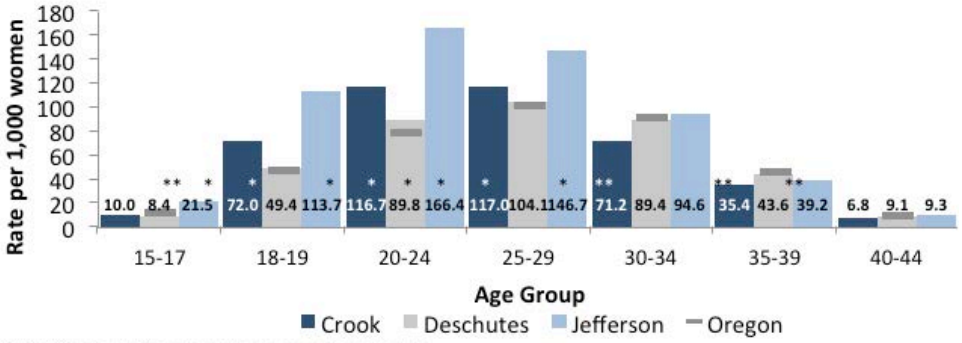
* Significantly higher than the state race-specific rate
† Too few births to report

Maternal Health and Pregnancy

Births Continued

- Teen parents and their children experience several long-term impacts that lead to significant socioeconomic costs (CDC, Teen Pregnancy). The fertility rate among teens was higher in Jefferson County than in Oregon overall (Figure 44). However, the total number of births to teens aged 15-19 years in Central Oregon has decreased from 215 in 2004 to 128 in 2013 (data not shown).
- The fertility rate among women aged 20-24 years old was higher among all the Central Oregon counties than those aged 20-24 years in Oregon (Figure 44).

Figure 44. Fertility rate per 1,000 women aged 15-44 years by age group, Oregon, OPHAT, 2009-2013



* Significantly higher than the age-specific state rate
**Significantly lower than the age-specific state rate

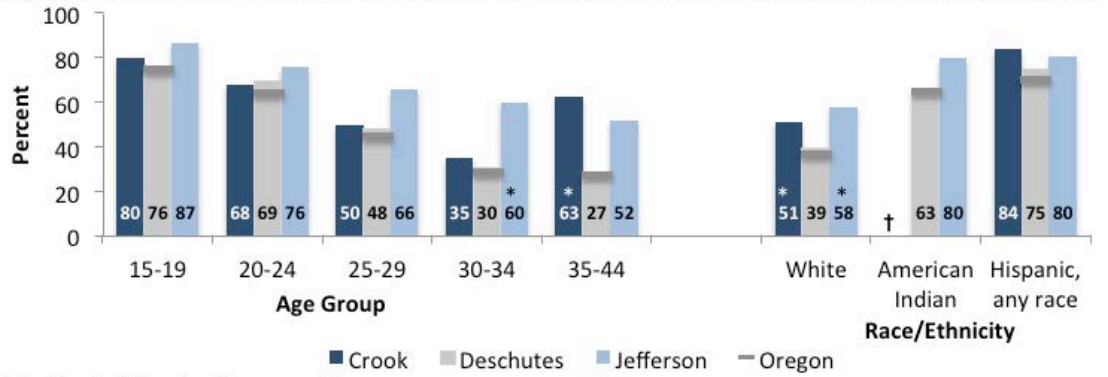
- There are approximately 45,000 births each year in Oregon and 2,200 in Central Oregon (Table 18).

Table 18. Total number of births by county and payer, Oregon, OHA Birth Certificate Data, 2013

	Oregon	Central Oregon	Crook	Deschutes	Jefferson
Number of births	45,136	2,216	192	1,723	301
Percent of births paid by OHP	43.6	49.1	55.5	44.9	68.9

- The percent of births paid for by OHP varies by age group and race (Figure 45).

Figure 45. Percent of births paid for by OHP by age group and race/ethnicity, Oregon, OPHAT, 2013



* Significantly higher than Oregon overall
† Too few births to report

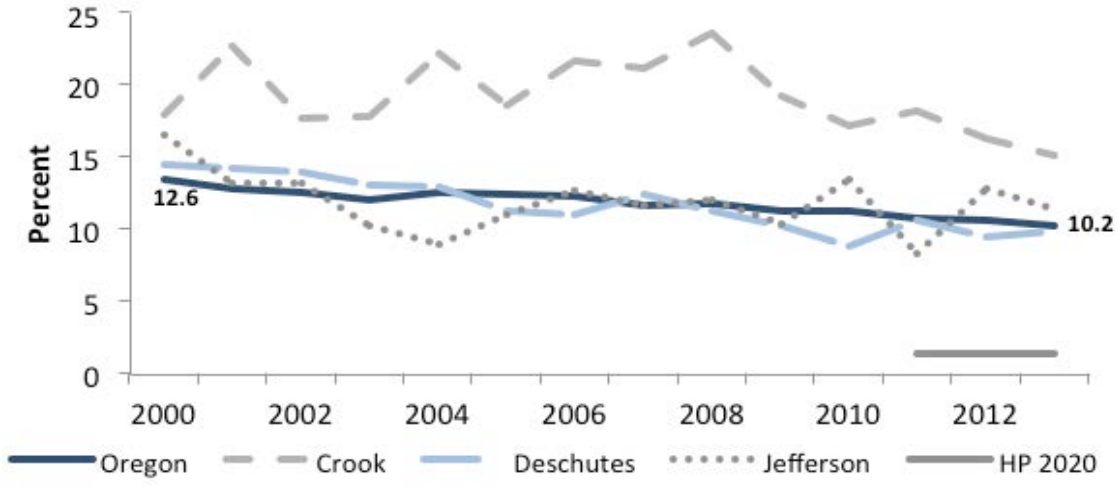
Maternal Health and Pregnancy

Pregnancy Risk Factors

There are several risk factors related to poor pregnancy outcomes, such as use of tobacco, alcohol, certain medications, controlled substances, and poor nutrition during pregnancy. Other factors like maternal age and existing health conditions may also complicate a pregnancy.

- 4.7% of Central Oregon mothers reported that they drank alcohol in the last 3 months of their pregnancy (95% CI 0.9%-8.6%). The prevalence was 8.2% for the rest of the state (95% CI 7.0%-9.5%) (PRAMS, 2009-2011).
- 60.3% (95% CI 51.3%-69.3%) of Central Oregon mothers reported that they drank alcohol in the 3 months before their pregnancy. The prevalence for the rest of the state was 55.8% (95% CI 53.8%- 57.8%).
- The National Institute on Drug Abuse states that, "THC exposure very early in life may negatively affect brain development…. However, more research is needed to separate marijuana's specific effects from other environmental factors, including maternal nutrition, exposure to nurturing/neglect, and use of other substances by mothers…. Breastfeeding mothers are cautioned that some research suggests that THC is excreted into breast milk in moderate amounts. Researchers do not yet know what this means for the baby's developing brain."
- Though not statistically significant, Crook County had a higher rate of smoking during pregnancy than the other Central Oregon Counties (Figure 46). The percent of mothers who smoked during pregnancy in Crook County peaked in 2008 and has been declining since. However, the rate is still much higher than the HP 2020 goal of 1.4%.

Figure 46. Percent of mothers who smoked during pregnancy, Oregon, OPHAT, 2000-2013

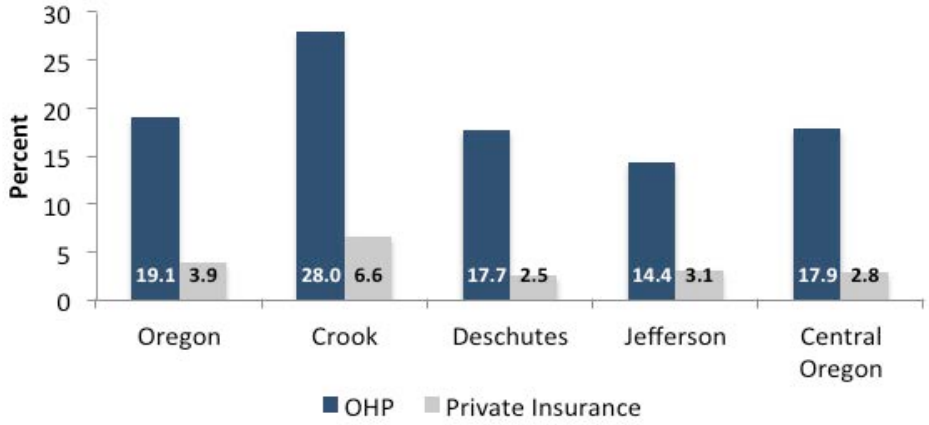


Maternal Health and Pregnancy

Pregnancy Risk Factors Continued

- The frequency of smoking during pregnancy was six times higher among women enrolled in OHP in Central Oregon than those with private insurance (Figure 47).

Figure 47. Prevalence of smoking during pregnacy by type of insurance, Central Oregon, OHA, 2010-2012



- Pregnancy risk factors occurred at similar frequencies among mothers enrolled in OHP and the general population (Table 19).

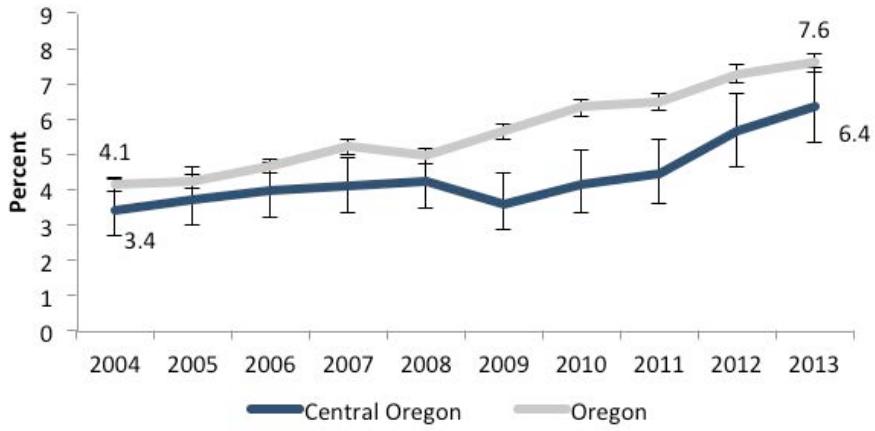
Table 19. Percent of births with specific pregnancy risk factor, Oregon, OPHAT, 2013

	Oregon	Oregon-OHP	Central Oregon	Central Oregon-OHP
Gestational diabetes	7.6	8.0	6.4	7.2
Pre-pregnancy diabetes	0.9	1.2	0.9	0.9
Eclampsia	0.8	0.9	0.7	0.9
Gestational hypertension	6.1	5.8	6.4	5.9
Pre-pregnancy hypertension	1.6	1.6	1.2	1.2

Significantly higher than Oregon total

- The prevalence of gestational diabetes nearly doubled between 2004 and 2013 (Figure 48).

Figure 48. Prevalence of gestational diabetes, Oregon, OPHAT, 2004-2013



Maternal Health and Pregnancy

Pregnancy Risk Factors Continued

- The prevalence of preterm birth is higher among women enrolled in OHP in Central Oregon than the state overall (Table 20).

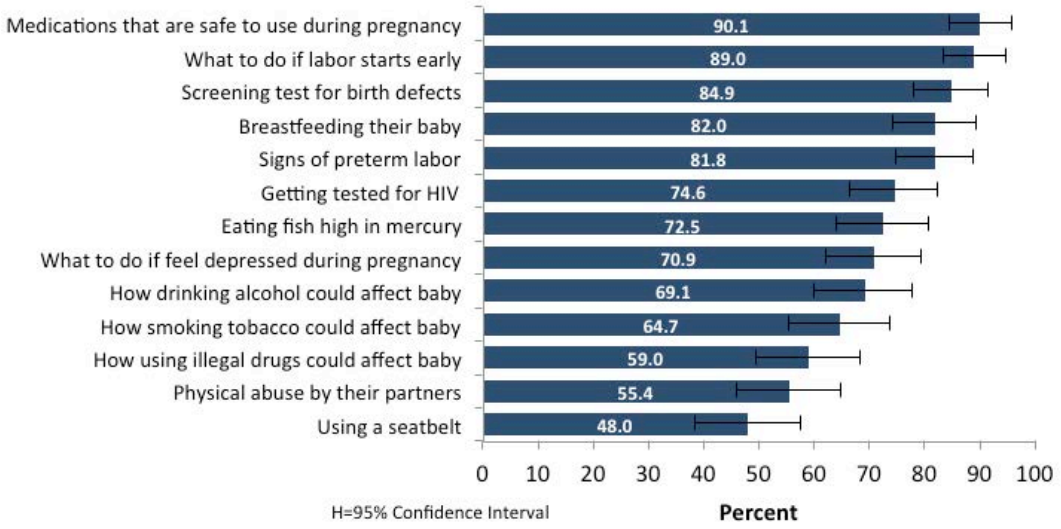
Table 20. Percent of births by gestational age at birth and birth weight, Oregon, OPHAT, 2013

		Oregon	Oregon-OHP	Central Oregon	Central Oregon-OHP	HP 2020
Preterm birth	<36 weeks	7.8	8.0	7.6	10.1	11.4
	32-36 weeks	6.4	6.7	7.1	9.2	
	<32 weeks	1.2	1.3	0.7	0.9	1.2
Birth Weight	< 2500 grams (low birth weight)	6.3	6.9	6.4	8.1	7.8
	>=4000 grams (high birth weight)	10.6	9.1	8.0	6.2	

Significantly higher than the Oregon total

- Healthcare providers discuss several topics during prenatal visits to ensure a mother and her baby are kept safe (Figure 49). The percent of mothers reporting their healthcare provider discussed these topics with them was not significantly different in Central Oregon than in the remainder of the state (data not shown).

Figure 49. Percent of mothers who state their health care professional discussed topics with them about most recent pregnancy, Central Oregon, PRAMS, 2009-2011



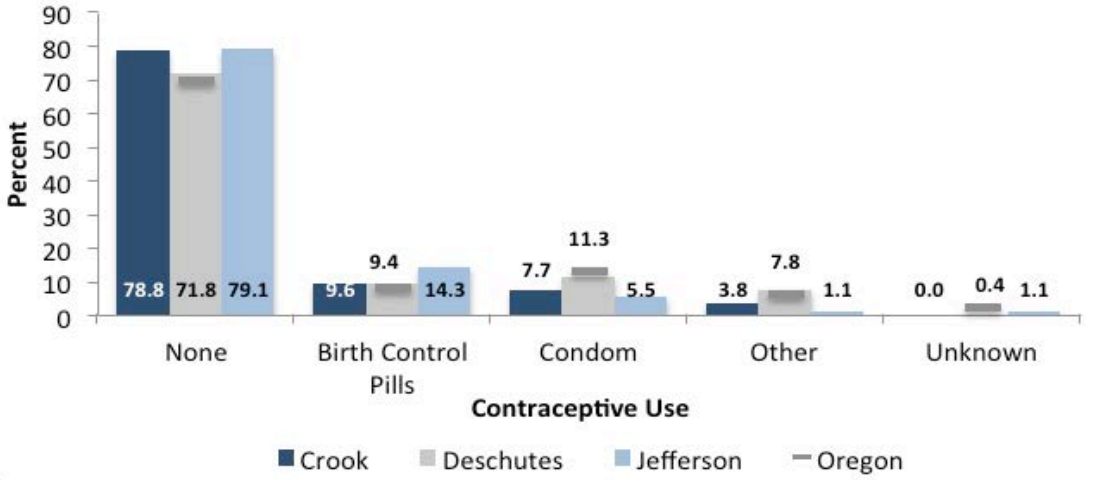
Maternal Health and Pregnancy

Unintended Pregnancy

Unintended pregnancy refers to pregnancies that are mistimed, unplanned, or unwanted. About 51% of pregnancies in the US are unintended (Guttmacher Institute, 2015). Measuring rates of unintended pregnancy helps gauge a population's needs of contraception and family planning. Unintended pregnancy is associated with increased risk of health problems for the baby as the mother may not be in good health or delay prenatal care upon learning of the pregnancy.

- 41.7% (95% CI 32.4%-51.0%) of pregnancies in Central Oregon were considered unintended. The proportion for the rest of the state was 37.9% (95% CI 35.9%-40.0%) (PRAMS, 2009-2011).
- The abortion rate (induced abortions) decreased to 10.6 per 1,000 women aged 15-44 years in 2013. During the past 20 years, Oregon's abortion rate for women aged 15 to 44 years has generally declined from a high of 21.4 in 1991 to a low in 2013 of 10.6. (Oregon Vital Statistics Annual Report, 2013).
- Contraceptive failure is not the reason for the majority of abortions in Central Oregon. For about 3 of 4 abortions, no contraceptive was used (Figure 50).

Figure 50. Percent of abortions with contraceptive use, Oregon‡, Vital Statistics, 2011-2013

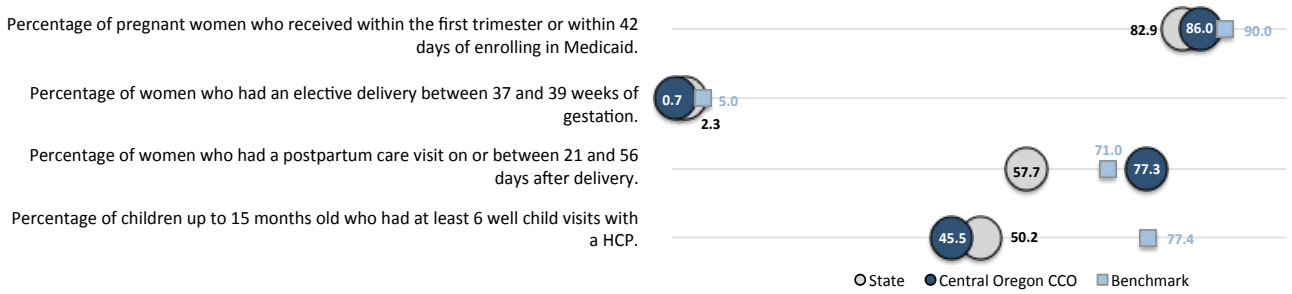


‡ Includes Oregon and non-Oregon residents, excludes abortions among Oregon residents that occured in other states

CCO Measures

- Figure 51 contains the maternal and infant-related CCO measures. The Central Oregon CCO has met the goal of providing postpartum care visits to women within a specific time frame.

Figure 51. Central Oregon CCO quality measures related to maternal and infant health, June 2014



Child and Adolescent Health

Infant, Early Childhood and Adolescent Health

Children are exposed to and react to environmental and physical exposures differently than adults. Adolescents are entering a time in their life when they are exploring and establishing health patterns and behaviors. Ensuring their safety and knowledge of health behaviors is vital to their overall health. For information on childhood immunization see the Immunizations Section (page 35-36).

- From 2004 to 2013, the average number of infant deaths each year in Central Oregon was 11. The leading causes of death for infants were conditions originating in the perinatal period, congenital malformations, and unintentional injuries (OPHAT, 2004-2013).
- Between 2004 and 2013, there was an average of 10 deaths per year among children and adolescents (1-17 years) in Central Oregon. The three leading causes of death for children and adolescents were unintentional injuries, suicide, and malignant neoplasms (cancer) (OPHAT, 2004-2013).
- The leading causes of unintentional injury-related death for children and adolescents (1-17 years) were motor vehicle crash and drowning in Central Oregon and Oregon overall (OPHAT, 2004-2013).
- The most common childhood cancers in the United States are leukemia and brain or central nervous system tumors (American Cancer Society).

Breastfeeding

Breastfeeding is an important source of nutrition for a baby with several health benefits for the mother and the baby. A mother's milk can deliver important antibodies to an infant to help fight infections and has been shown to decrease incidence of allergies and asthma. Breastfeeding is also a low cost method for feeding infants that promotes bonding between a mother and baby. Breastfeeding for longer periods and exclusively can increase the health benefits for both the mother and the baby. Recommendations suggest exclusively breastfeeding a baby for at least six months and then supplementing solid food with breast milk. Many mothers initiate breastfeeding, but several barriers lead to discontinuation or decreased breastfeeding as the infant grows.

- The Maternity Practices and Infant Nutrition and Care (mPINC) survey ranked Oregon 5th among state and territory respondents (2013). This survey focuses closely on breastfeeding practices.
- Breastfeeding as reported on the birth certificate was similar in Crook and Deschutes Counties (90.5%, 90.3%, respectively) as it was in Oregon (89.2%). Jefferson County's breastfeeding rate at birth was slightly lower (85.0%) (Birth Certificates, 2011-2013). The HP 2020 goal is 81.9%.
- The WIC Program supports families with supplemental nutrition and promotes healthy behaviors, like breastfeeding. In 2014, WIC served over 8,500 individuals in Central Oregon in 2014 (Table 21).

Table 21. Percent of mothers enrolled in WIC who breastfeed and number of WIC clients served in Central Oregon, WIC County Data Reports, 2014

	Oregon	Crook	Deschutes	Jefferson
Number of individuals served	161,335	1,072	6,303	1,159
Percent initiated breastfeeding	93§	89	95	89
Percent still breastfeeding at six months	N/A	40	40	27

N/A=data not available

§ Data from 2013 Annual Report

Child and Adolescent Health

Child and Family Support

Some children and families need extra support in order to ensure they receive the healthiest start in life. The child welfare system includes various services to support children, promote safety, and strengthen families in an effort to prevent abuse and neglect. The Supplemental Nutrition Assistance Program (SNAP) and Temporary Assistance for Needy Families (TANF) programs work to provide support for low-income families and individuals and help them become self-sufficient. Other state services also are available to help families provide best for themselves including free or reduced lunch and foster care.

- Free and reduced cost lunch programs ensure that access to healthy food at school is available to all students, regardless of family income. Between 26% and 31% of children live in food insecure houses in Central Oregon (Table 22).
- The foster care system links children with temporary living arrangements during times when their biological parents cannot care for them. Children are often in foster care due to abuse and neglect. About 1% of children in Central Oregon were in foster care for at least 1 day in 2012 (Table 22). That equates to about 350 children.

Table 22. Information related to child and family support, Oregon

	Oregon	Crook	Deschutes	Jefferson
Number in SNAP‡ (Food stamps)	297,162	1,797	12,148	3,071
Number in TANF‡ (Cash assistance)	63,016	388	2,222	838
Average monthly number of children in employment related day care program	16,289	37	570	119
Percent of children in food insecure house††	27.3	30.4	26.1	31.2
Percent of students eligible for free or reduced lunch§	52.0	56.5	46.8	81.0
Rate of available childcare providers per 100 children under 13 years†	17	10	20	19
Rate of child victims of abuse or neglect per 1,000 children under age 18†††	11.6	19.9	9.2	9.7
Rate of children in foster care per 1,000 children (point in time) ††	1.5	1.2	0.7	0.8
Rate of referrals to juvenile justice per 1,000 children aged 0-17 years†††	17.5	41.2	24.4	31.8

‡ Data from 2013

†† Data from 2012

§ Data from 2013-2014

† Data from 2010

††† Data from Oregon DHS: Children, Adults, and Families Division
http://datacenter.kidscount.org

Child and Adolescent Health

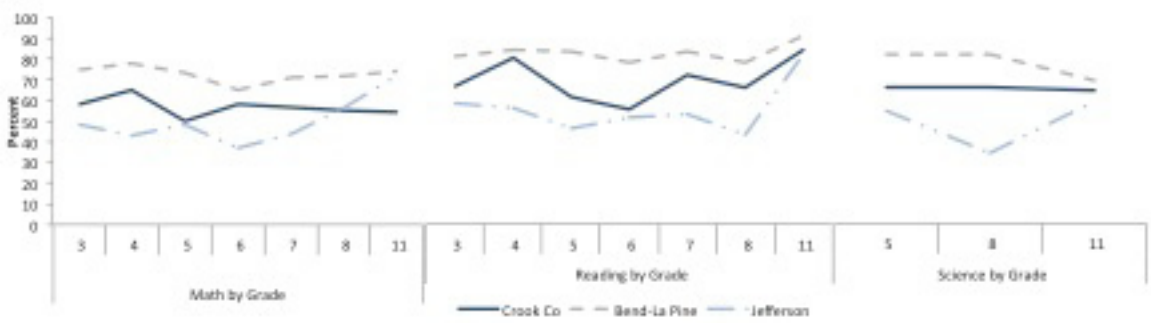
Childhood Health and Education

Good nutrition, access to physical activity, abstinence from alcohol and other drugs of abuse, and emotional support have been linked to better academic performance. Academic performance is measured regularly throughout a child's primary and secondary school years and ends in an on-time graduation from high school.

Early care and education centers play an important role in a young child's dietary and physical activity behaviors. In 2012, an estimated 37.3%, 39.4%, 25.7% of 3 and 4-year-olds were enrolled in early education in Crook, Deschutes, and Jefferson Counties, respectively. The frequency was 42.0% in Oregon (Children First For Oregon 2014 Report).

- In an assessment of Kindergarteners, children from underserved races and ethnicities in Central Oregon scored lower than those of other races and ethnicities with regards to number recognition, letter names, and letter sounds (ODE, 2014).
- The percent of students meeting or exceeding standards for writing skills were 39%, 64%, and 41% among Crook, Bend-La Pine, and Jefferson students, respectively (ODE, 2014).
- 68% of 8th graders in Central Oregon are math proficient (ODE, 2013-2014).
- Bend-La Pine schools has consistently had a higher percent of students meeting or exceeding standards than the other Central Oregon school districts (Figure 52).
- Despite the percent of students meeting or exceeding standards being lower in early grades, by the time students reached 11th grade, the percent meeting or exceeding standards for reading and science were approximately the same among all schools (Figure 52). Crook County schools had lower percent of students meeting or exceeding math standards in 11th grade than did Bend-La Pine and Jefferson students.

Figure 52. Percent of students that meet or exceed standards for math, reading, science by grade, Central Oregon, ODE, 2014



- Students who are economically disadvantaged or are of an underserved race or ethnicity have a lower four-year graduation rate than the rate for the region (economically disadvantaged=59.2%, underserved race/ethnicity=55.3%, respectively) (Better Together Baseline Report, 2015).

Child and Adolescent Health

- The four-year graduation rate (excluding GED) in Crook County was 30.5%, 75.6% in Deschutes County, and 62.5% in Jefferson County (Oregon Department of Education, 2015) (Table 23).

Table 23. Percent of students who graduate high school in four and five years, by Central Oregon school district, ODOE, 2013-2014

School District	4 year percent	5 year percent
Oregon	72.0	75.9
Central Oregon	67.6	76.9
Crook County		
Crook	30.5§	53.7
Deschutes County		
Bend-La Pine	77.2	82.0
Redmond	70.5	75.2
Sisters	82.8	90.9
Jefferson County		
Ashwood	100.0	--
Culver	76.6	88.9
Jefferson Co	57.5	75.9

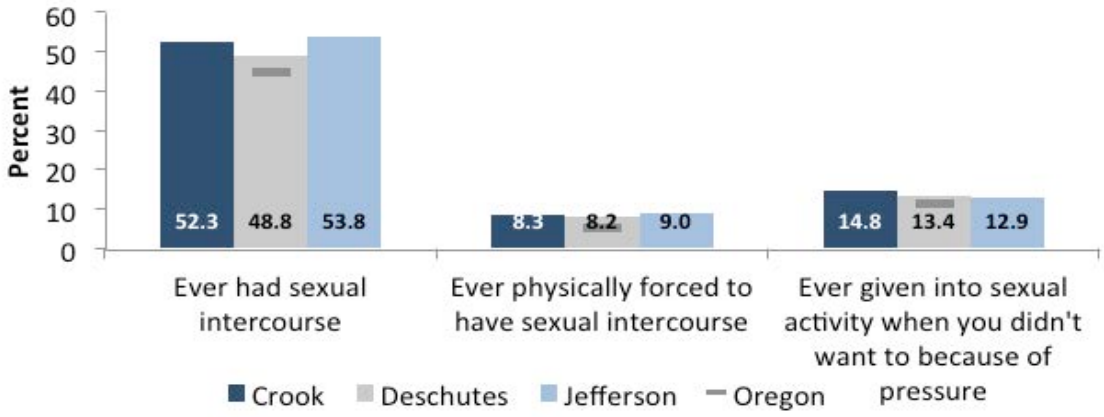
§ May be artificially low due to an error when the data were reported

Child and Adolescent Health Risk Factors

Many of the risk factors for child and adolescent health are the same as adults. However, addressing the specific risks may require different approaches. Avoiding these risks early in life is important for leading a long and healthy life.

- Risky sexual activity places an adolescent at risk for STIs and unplanned pregnancy. About half of Central Oregon 11th graders reported having ever had sexual intercourse (Figure 53). This was a large increase from the percentages reported among 8th graders. Among 8th grade student the prevalence of having ever had sexual intercourse was 12.5%, 11.5% and 10.3% in Crook, Deschutes, and Jefferson Counties, respectively (OHTS, 2013).

Figure 53. Percent of 11th graders who reported sexual activity, Oregon, OHTS, 2013



Child and Adolescent Health

Child and Adolescent Health Risk Factors Continued

- 11th graders in Deschutes County reported using marijuana and drinking alcohol at least once in the last 30 days more frequently than the other Central Oregon counties and Oregon overall (Table 24).
- One in five 11th graders in Crook County reported smoking cigarettes in the last month (Table 24).While use of other substances like tobacco, marijuana, and alcohol increases with age, use of inhalants to get high decreases with age in Central Oregon (Table 24).

Table 24. Percent of personal health risks among 6th, 8th, and 11th graders, Oregon, OSWS, 2014

	6th				8th				11th			
	Oregon	Crook	Deschutes	Jefferson	Oregon	Crook	Deschutes	Jefferson	Oregon	Crook	Deschutes	Jefferson
In the last 30 days, rode in a vehicle driven by a teenager who had been drinking alcohol	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	7.2	7.0	9.3	11.8
Drove a vehicle at least 1 time while drinking alcohol in the last 30 days	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	4.6	4.2	6.5	6.2
Drank alcohol on at least 1 day in last 30 days	4.5	6.7	6.2	3.0	16.9	24.6	20.9	15.2	33.5	35.2	43.9	35.4
Use inhalent to get high in the last 30 days	4.6	7.6	4.4	4.9	4.9	7.7	5.3	6.0	1.6	2.8	0.8	0.0
Used illicit drug (other than marijuana) in the last 30 days	0.5	1.2	0.8	1.7	1.5	0.0	2.5	1.0	2.3	3.4	3.0	2.8
Used prescription drugs at least 1 time in last 30 days	1.0	2.1	1.5	0.0	3.3	0.6	4.3	1.0	7.1	7.7	8.7	6.9
Used marijuana at least 1 time in last 30 days	1.4	1.4	1.5	4.0	9.4	6.5	10.7	10.1	21.2	18.7	27.1	17.7
Used other tobacco products during the last 30 days	0.5	0.7	0.5	1.0	3.0	3.0	3.1	5.2	7.3	7.8	13.7	14.8
Smoked at least 1 day in the last 30 days	0.8	0.7	1.2	0.0	4.5	6.7	5.0	4.1	10.0	23.1	11.2	9.6

Minimum vertical axis value is zero and maximumvertical axis value is 50 for each chart. Bars are in order of table columns (Oregon, Crook, Deschutes, Jefferson).

- Cigarette use among high school students in Oregon declined from 11.5% to 9.4% from 2011 to 2013 (OHTS). However, electronic cigarette (e-cigarette) use among 11th grade students in Oregon rose from 1.8% to 5.2% from 2011 to 2013 (OHTS 2011, 2013). E-cigarette use among high school students tripled from 4.5% in 2013 to 13.4% across the US (CDC, 2015). A similar increase was seen among middle school students, though the prevalence was not as high (1.1% in 2013 to 3.9% in 2014).
- Hookah smoking roughly doubled among middle and high school students across the U.S. Hookah use rose from 5.2% in 2013 to 9.4% in 2014 among high school students and from 1.1% to 2.5% among middle school students (CDC, 2015). In 2013, hookah use among 11th graders in Crook, Deschutes, and Jefferson Counties was 6.8%, 12.7%, and 5.6%, respectively. The state average was 8.9% (OHTS, 2013).

Adverse Childhood Experiences

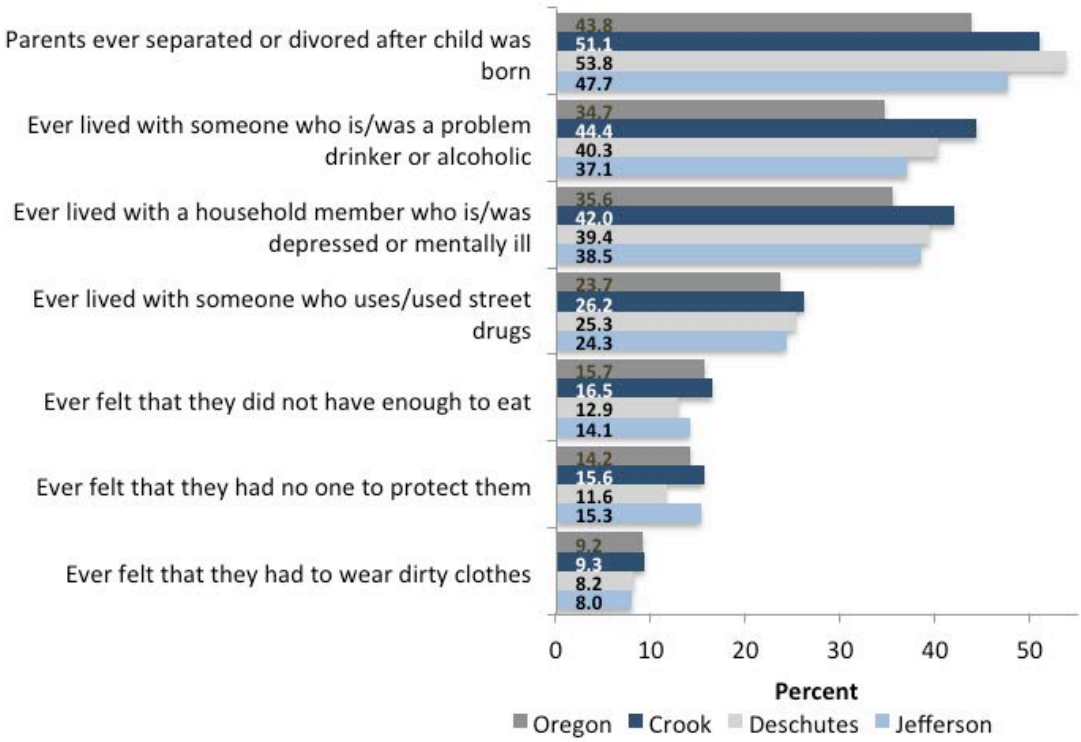
ACEs refer to physical, emotional, and sexual abuse, parental substance abuse, adult mental illness, a missing parent at home due to separation, divorce or incarceration, and intimate partner violence experienced before the age of 18 years. Research has shown that experiencing several ACEs, especially early in life, is associated with increased risk for chronic disease, substance abuse, poor mental health, and other risky health behaviors. Children in non-parental care, such as living with grandparents or in foster care, are particularly likely to have experienced a high number of ACEs compared to children living with two biological parents. These experiences may have contributed to their current living situation (CDC Data Brief, 2014). In order to prevent ACEs, families should be encouraged and supported in order to provide nurturing and supportive environments for children.

Child and Adolescent Health

Adverse Childhood Experiences Continued

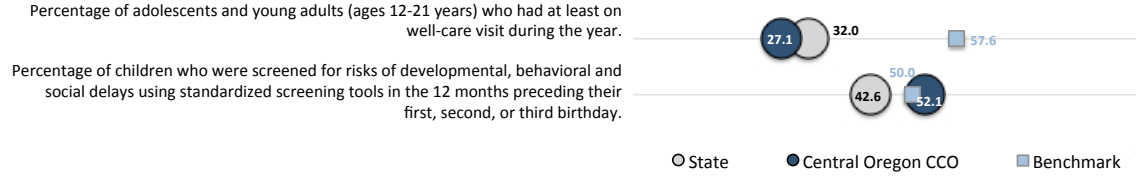
- Similar to the original ACEs study published in 1998, the most common ACEs during childhood in Oregon were (Oregon ACEs Report, 2012):
  - o Living with someone who was a problem drinker or alcoholic, or using illegal drugs or abusing prescription medications
  - o Having a parent or adult swear at, insult, or put them down more than once
  - o Experiencing physical abuse
  - o Living with a family member who has a mental illness
- 16% of Oregon adults reported 4 or more ACEs. In the original study, 12.5% of adults in the US reported 4 or more ACEs.
- Over a third (35.6% 95% CI 30.7%-40.9%) of adults enrolled in OHP in Central Oregon reported a high ACEs score (based on 11 point scale). For reference, one fifth of the total Oregon population reported a high ACEs score (MBRFSS, 2014).
- About half of 11th graders in Central Oregon reported that their parents were divorced or separated sometime since they were born (Figure 54). About a quarter have ever lived with someone who uses or used illegal drugs.

Figure 54. Percent of 11th graders who reported adverse childhood experiences, Oregon, OSWS, 2014



COO Measures

- The Central Oregon CCO has met the goal for screening children for developmental, behavioral and social delays. (Figure 55).



Mental Health

Introduction

Mental health is defined as "our emotional, psychological, and social well-being. It affects how we think, feel, and act. It also helps determine how we handle stress, relate to others, and make choices. Mental health is important at every stage of life, from childhood and adolescence through adulthood" (mentalhealth.gov). Mental illness refers to diagnosable mental disorders. Mental disorders are one of the top five most costly conditions according to most current data (AHRQ, 2014), with depression being the most common (Mental Health Basics, CDC). While good mental health is associated with positive health outcomes, mental illness is associated with poor health outcomes like chronic diseases, injury, and a history of ACEs. As with good physical health, the social determinants of health need to be present to support good mental health. These include appropriate housing, safe neighborhoods, equitable employment, education opportunities, and equity in access to quality healthcare.

- Central Oregon Counties have a residential capacity of about 280 people in their approximately 100 addiction or mental health programs (Behavioral Health MAP data, 2014).

Youth

Good mental health in children allows them to grow, learn, and interact socially at home, in the community, and at school. Several mental illnesses affect children and need to be addressed promptly to ensure proper development. Parents can be informed in order to monitor any mental health changes in their children, healthcare providers can diagnose issues early and, if necessary, provide treatment, and other professionals like teachers can communicate concerns to parents.

- A large proportion of 6th and 8th graders in Central Oregon report being harassed at school (Table 25).
- One in four 8th graders in Crook County reported they had seriously considered attempting suicide in the last year (Table 25).
- The frequency of reporting fair or poor emotional and mental health increased with age (Table 25).

Table 25. Percent of mental health risks among 6th, 8th, and 11th graders, Oregon, OSWS, 2014

	6th				8th				11th			
	Oregon	Crook	Deschutes	Jefferson	Oregon	Crook	Deschutes	Jefferson	Oregon	Crook	Deschutes	Jefferson
Fair or poor general health	6.5	5.2	6.4	6.6	8.9	7.4	8.8	10.1	13.3	11.0	11.1	13.3
Fair or poor emotional and mental health	7.1	7.1	6.5	7.4	14.2	15.5	12.7	9.9	18.5	18.0	14.7	13.9
felt sad or hopeless almost every day for two weeks or more in a row that you stopped doing some usual activities	18.2	27.3	16.3	19.8	24.7	27.9	23.5	29.0	29.2	27.4	27.6	22.9
In last 12 months, seriously considered attempting suicide	8.5	13.1	7.4	8.6	17.4	25.6	15.0	15.2	17.7	13.7	19.3	12.3
Harassed at school for any reason in the last 30 days	46.1	62.0	43.5	54.3	49.1	61.5	53.7	56.4	39.5	39.7	45.5	35.0

Minimum vertical axis value is zero and maximumvertical axis value is 65 for each chart. Bars are in order of table columns (Oregon, Crook, Deschutes, Jefferson).

- See the Child and Adolescent Health section (page 54) for more information on substance abuse and misuse among children and adolescents and see the Access to Healthcare section (page 77) for more information about available services related to mental health.

Mental Health

Adults

Nearly one in five adults in the United States had a mental illness (SAMHSA, 2012). Serious mental illness (SMI) among people ages 18 years and older is defined as "having, at any time during the past year, a diagnosable mental, behavior, or emotional disorder that causes serious functional impairment, that substantially interferes with or limits one or more major life activities." Intervening early, soon after the first SMI, has been shown to be effective. People with mental health issues can identify a support group, join recovery groups, and work collaboratively with a healthcare provider on a treatment and recovery plans (Mental and Substance Use Disorders, SAMHSA).

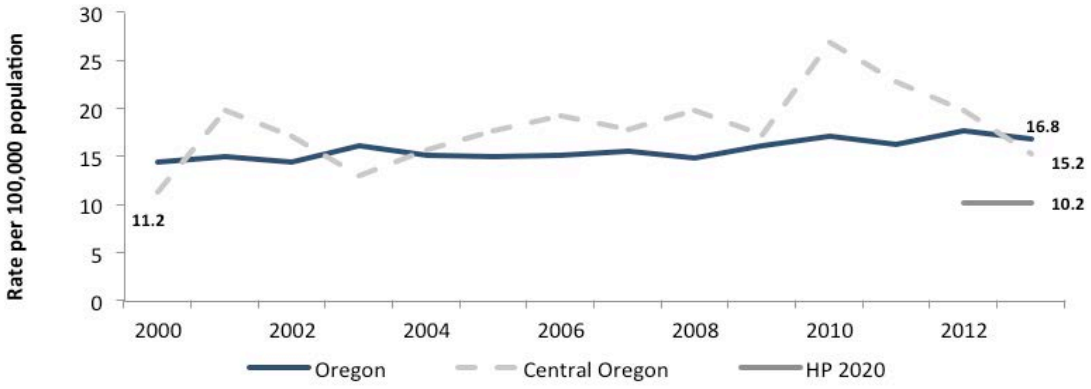
- In Oregon, people with co-occurring mental health and substance use disorders had an average age at death of 45 years (OHA, 2008).
- Depression among adults in Central Oregon is common. When surveyed, about 25%, 21%, and 24% of adults in Crook, Deschutes, and Jefferson Counties, respectively, reported that they had depression (BRFSS, 2010-2013). About 4.8% of adults in Oregon reported SMI. That translates to about 7,800 adults in Central Oregon (SAMHSA Behavioral Health Barometer, 2014).
- Mental health disorders like depression and anxiety are common among pregnant women. One in four women in Oregon reported prenatal or postpartum depression after pregnancy (OHA, 2010).
- In Oregon, postpartum depression was more common among women who lived below the federal poverty line, who smoked, were of racial/ethnic minority, or were teen mothers (OHA, 2010).

Suicide

Suicide is directed violence towards oneself with the intent to end their life. Suicide is a complex public health issue involving several risk factors like history of depression or other mental illness, alcohol or drug abuse, family history of suicide or violence, physical illness, feeling alone, or previous suicide attempt(s). Many more people survive suicide than die and may live with serious physical injuries (CDC Factsheet).

- Since 2000, the highest suicide mortality rate occurred in 2010 in Central Oregon at a high of 26.8 per 100,000 population (Figure 56). The Central Oregon suicide mortality rate in 2013 was not significantly different from what it was in 2000.
- Between 2004 and 2013, there was an average of 38 suicides per year in Central Oregon and 78% occurred among Deschutes County residents (OPHAT, 2004-2013).

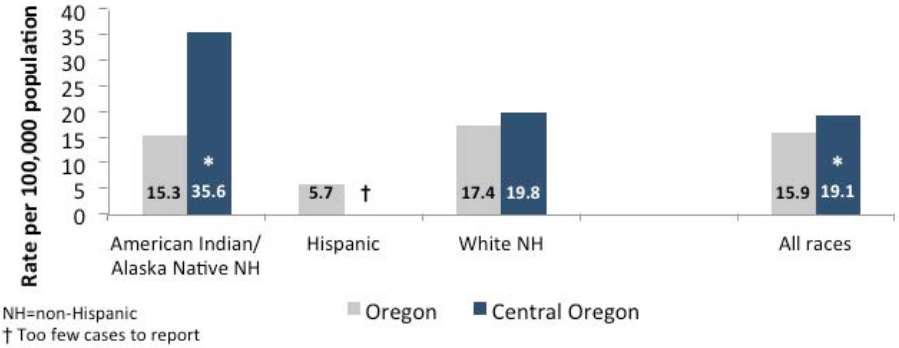
Figure 56. Age-adjusted suicide mortality rate per 100,000 population, Oregon, OPHAT, 2000-2013



The age-adjusted race-specific suicide mortality rate was similar between Central Oregon and Oregon overall, except for American Indians (Figure 57). On average, there were about two suicides deaths a year among American Indians in Central Oregon between 2004 and 2013. While this translates to a relatively small number, Central Oregon American Indians accounted for about 22% of all suicides among American Indians in the state in the last decade, but accounted for only 10% of the state's American Indian population. The overall age-adjusted suicide mortality rate was also significantly higher than the Oregon rate.

Mental Health

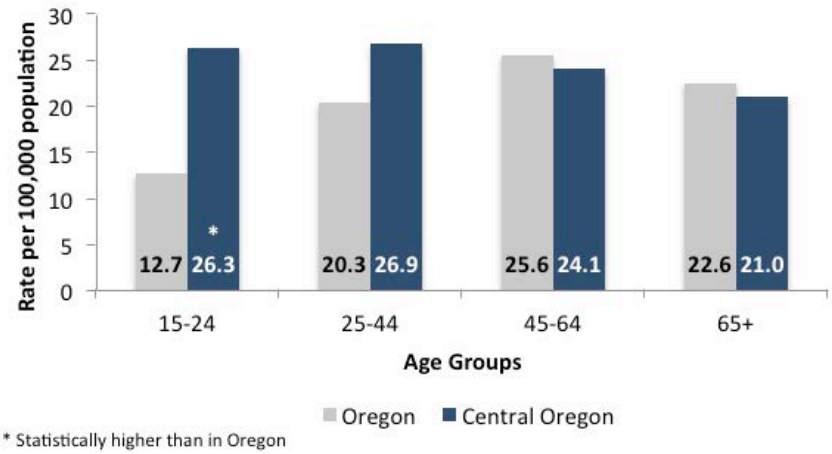
Figure 57. Age-adjusted suicide mortality rate per 100,000 by race, OPHAT, Oregon, 2004-2013



NH=non-Hispanic
† Too few cases to report
*Significantly higher than the state race-specific rate

- The majority (58%) of suicides in Central Oregon occur among people aged 30-59 years. One in five (21%) occur among people aged 60 years and older (OPHAT, 2009-2014).
- When compared to the same age group in Oregon, people aged 15-24 years in Central Oregon had a higher suicide rate (Figure 58).

Figure 58. Age-specific suicide mortality rate, OPHAT, Oregon, 2009-2014



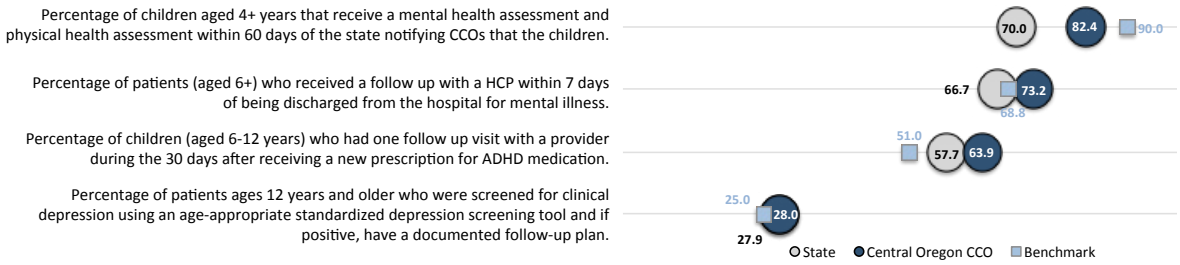
* Statistically higher than in Oregon

- In the Central Oregon counties, the three leading mechanisms related to suicide were firearm (55%), suffocation (22%), and poisoning (15%) (OPHAT, 2009-2013). These were also the leading mechanisms for suicide in Oregon.

CCO Measures

- The Central Oregon CCO has met the benchmark for three of four mental health-related CCO measures (Figure 59).

Figure 59. Central Oregon CCO quality measures related to mental health, June 2014



Alcohol Tobacco and Drug Use

Introduction

Substance abuse is the ongoing use of drugs or alcohol that leads to impairments in health, work and family life. Poor mental health and substance abuse often occur together. About 9% of adults in the US have a substance abuse use disorder and more than one in four adults with mental health issues also has a substance abuse problem (mentalhealth.gov) (SAMHSA, 2012).

Although taking drugs at any age can lead to addiction, research shows that the earlier a person begins to use drugs, the more likely he or she is to develop serious problems. Addiction may stem from the harmful effects that drugs can have on the brain and may also result from a mix of factors like unstable family relationships, exposure to physical or sexual abuse, genetics, or mental illness (NIDA, Science of Addiction).

Heavy drinking, tobacco use, and drug use are associated with higher rates of all-cause mortality, chronic disease, violence and abuse. Excessive alcohol and drug use is also a risk factor for motor vehicle fatalities, fetal alcohol syndrome, interpersonal violence, overdose and STIs. This has impact on families, schools, workplaces and the community. Treatment programs for substance abuse have been shown to have a positive return on investment and can improve the quality of life for people with substance use disorders (Robert Wood Johnson Foundation, 2007).

Alcohol

The majority of people who use alcohol at levels that impact their health and mental health do not meet dependency criteria and are inappropriate for specialty treatment programs. Screening, Brief Intervention and Referral to Treatment (SBIRT) is an evidence-based practice that targets patients in primary care with nondependent substance use. It is a strategy for intervention prior to the need for more extensive or specialized treatment. For more information on alcohol use see the Child and Adolescent Health Risk Factor Section (page 53 and 54) and Unintentional Injuries Section (page 63).

- In Oregon, an estimated 1,302 deaths and 33,933 years of potential life lost are attributed to excessive alcohol use each year (Prevention Status Report, CDC, 2013).
- About 1 in 5 adults in Crook and Deschutes Counties and 1 in 7 adults in Jefferson County reported binge drinking in the last month (BRFSS, 2010-2013).
- Eleventh graders frequently said that drinking more than five drinks in one sitting once or twice a week (65.3%, 74.6%, 72.0%, respectively) and smoking at least a pack of cigarettes every day (77.8%, 89.2%, 82.9%, respectively) was a moderate or great risk to one's health (OSWS, 2014). Only about 40% of 11th graders in Crook, Deschutes, and Jefferson Counties said that smoking marijuana once or twice a week places someone at moderate to great risk for harming their health (43.7%, 42.6%, 41.0%, respectively) (OSWS, 2014).

Tobacco

Smoking cigarettes and smokeless tobacco use are initiated and established primarily during adolescence. Nearly nine of 10 cigarette smokers first tried smoking before the age of 18 (CDC OSH, 2015). Tobacco use causes multiple diseases such as cancer, respiratory disease and other adverse health outcomes.

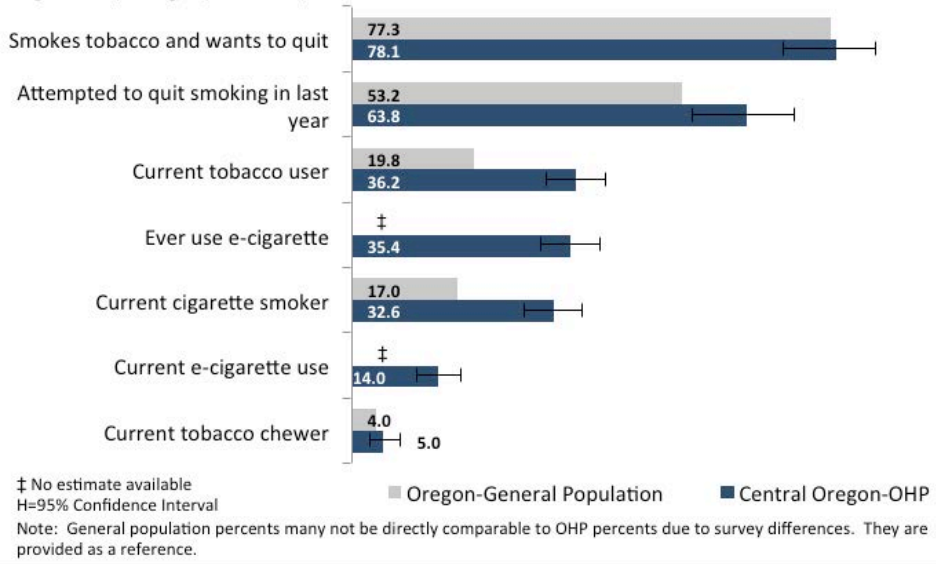
- During 2009-2011, the prevalence of cigarette smoking was higher among adults with any mental illness than those without mental illness (36.1% vs. 21.4%) and was highest among males, those aged less than 45 years, and those living below the poverty level. Adults with mental illness smoked 30.9% of all cigarettes smoked by adults during this time frame (CDC, 2013).

Alcohol Tobacco and Drug Use

Tobacco Continued

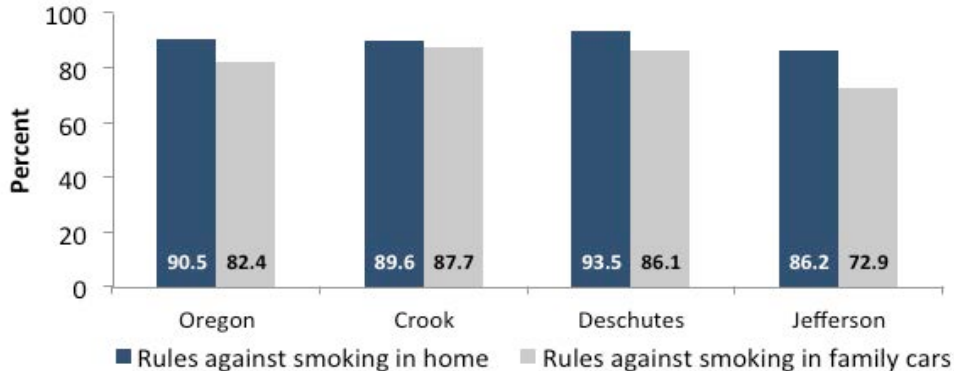
- Over a third of OHP members in Central Oregon smoke tobacco (Figure 60). This is comparable to the overall OHP adult population's smoking rate (34%) (CAHPS, 2014).
- Three out of four adults enrolled in OHP want to quit smoking tobacco (Figure 60).
- Males (48%) and adults aged 45-54 years (49%) had the highest rates of using tobacco compared to females (26%) and other age groups (17%-36%) among OHP members (CAHPS, 2014.

Figure 60. Percent of adults enrolled and not enrolled in OHP who use tobacco and e-cigarettes, Oregon, MBRFSS, 2014



- Indoor air quality is greatly affected by second-hand smoke. Most adults in Oregon and the Central Oregon counties reported having rules to limit exposure to second-hand tobacco smoke in their homes and cars (Figure 61).

Figure 61. Percent of adults who reported having rules against tobacco use in the home and car, Oregon, BRFSS, 2011



- An estimated 26,200 people in Central Oregon smoke tobacco leading to serious illness, death, and significant healthcare costs (Table 26). The Tobacco Quit Line (1-800-QUIT-NOW) serves the Central Oregon counties to support tobacco cessation for its residents. However, during 2014 only 325 tobacco users in the region used this service (Health Promotion and Chronic Disease Prevention, OHA).

Tobacco Continued

Table 26. Tobacco Use in Central Oregon Counties, County Tobacco Fact Sheets, 2014			
	Crook	Deschutes	Jefferson
In one year:			
Number that regularly smoke cigarettes	4,200	18,500	3,500
Number that suffer from a serious illness caused by tobacco	1,334	4,930	899
Number that died from tobacco	68	252	46
Amount spent on medical care	$13.6 million	$50.3 million	$9.2 million
Productivity lost due to tobacco-related deaths	$10.9 million	$40.3 million	$7.4 million

- In 2012, four focus groups held in La Pine, Bend, Redmond, and Sisters assessed 39 residents' feelings about tobacco smoke in their respective downtown areas. Perceived need for a smoke free downtown area policy varied depending on location of the focus group. Regardless of support for the policy, a common concern was whether a smoke free downtown policy could be enforced. However, several other suggestions were made to address tobacco in the downtown areas including enforcing a smoke free area in front of libraries, in multi-unit housing, and at events. Of note was that no focus group participants were current tobacco smokers (Deschutes County Smoke Free Report, 2012).
- In 2014, the Oregon Health Authority Tobacco Prevention Education Program conducted a Community Readiness Assessment (CRA) in all counties across Oregon. The purpose of the assessment was to determine the willingness and preparedness of each county in Oregon to take action related to local tobacco prevention and education. Key local government, business and school district sector stakeholders were interviewed. The CRA results from each county are not intended to represent the opinions of the whole community, but rather what community stakeholders think about the opinions of the community. The key respondents are not only proxies for representing the community in general, but they are also key decision makers who have an impact on and deeper understanding of the community. The findings from the CRA in Deschutes, Crook, and Jefferson County suggest that stakeholders perceive tobacco use is of concern to community members, however general knowledge of the tobacco burden and its causes are not understood in depth and stereotyped. Therefore, the political will to support tobacco prevention policies seem low.

Oregon is one of few states that does not have a tobacco retail-licensing program. Licensing tobacco retailers is considered an effective tool to enforce point of sale and tax laws (Public Health Law Center). However, implementing a tobacco retail licensing alone will not reduce the prevalence of tobacco use among youth. A comprehensive approach that eliminates price discounts, coupon redemption, and candy, fruit, and dessert flavored tobacco products should also be considered.

- Oregon has had the highest number of retailers who sell tobacco products illegally to minors for the last 5 years (Synar, 2009-2013). In 2013-2014, Deschutes County had a higher (26.7%) non-compliance rate among tobacco retailers compared to the state average (21.3%) (Synar Report, 2013-2014).
- In 2013, nearly one in five tobacco retailers in Deschutes County were within 1,000 feet of school property. In Crook County, half of retailers were within 1,000 feet of a school. Research shows that areas with a higher concentration of tobacco retailers near schools have a higher youth smoking prevalence (Deschutes County Retail Assessment, 2013; Crook County Retail Assessment, 2013).

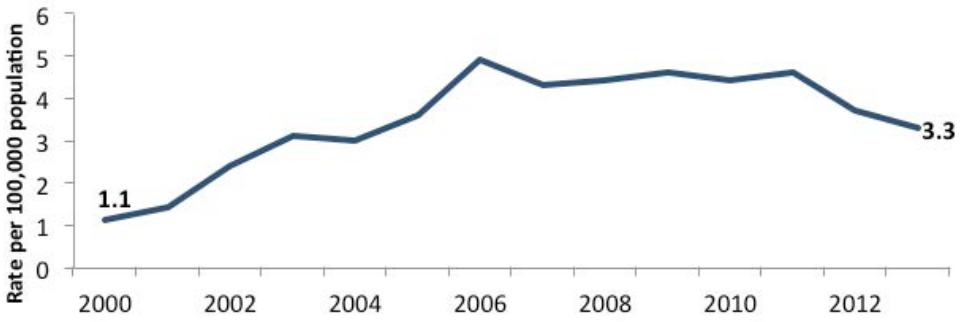
Alcohol Tobacco and Drug Use

Prescription Opiods

Recent concern related to substance abuse has been related to the misuse of prescription drugs. The mortality rate due to prescription drugs has dramatically risen in the US since 1999. This rise has been linked with the increased availability of opioid pain medications (Paulozzi, 2006). The misuse of prescription opioids has been associated with injection drug use, which places a person at risk for diseases like hepatitis C and HIV and at risk for other drug use like heroin (CDC, 2015). There are several recommendations for preventing the misuse of prescription medications, including medication "Take Back" days, providing provider education on pain management and prescribing guidelines, and using tools like prescription drug monitoring programs and clinical decision support tools to manage prescriptions (US DHHS).

- The opioid-related unintentional prescription drug mortality rate has tripled in Oregon since 2000 (Figure 62).
- The 5-year average age-adjusted opioid-related unintentional prescription drug mortality in Central Oregon was 3.6/100,000 population (95% CI 2.5-5.1) (CDC Wonder, 2009-2013). The 5-year average rate in Oregon during this time period was 4.1/100,000 population (95% CI 3.8-4.4).
- The opioid prescription drug hydrocodone, was the leading drug prescribed among Central Oregon OHP members. Over 24,200 prescriptions were written for hydrocodone between November 2012 and October 2014 (CCO Annual Report, December, 2014).

Figure 62. Age-adjusted opioid-related§ unintentional poisoning mortality rate per 100,000 population, Oregon, CDC WONDER, 2000-2013

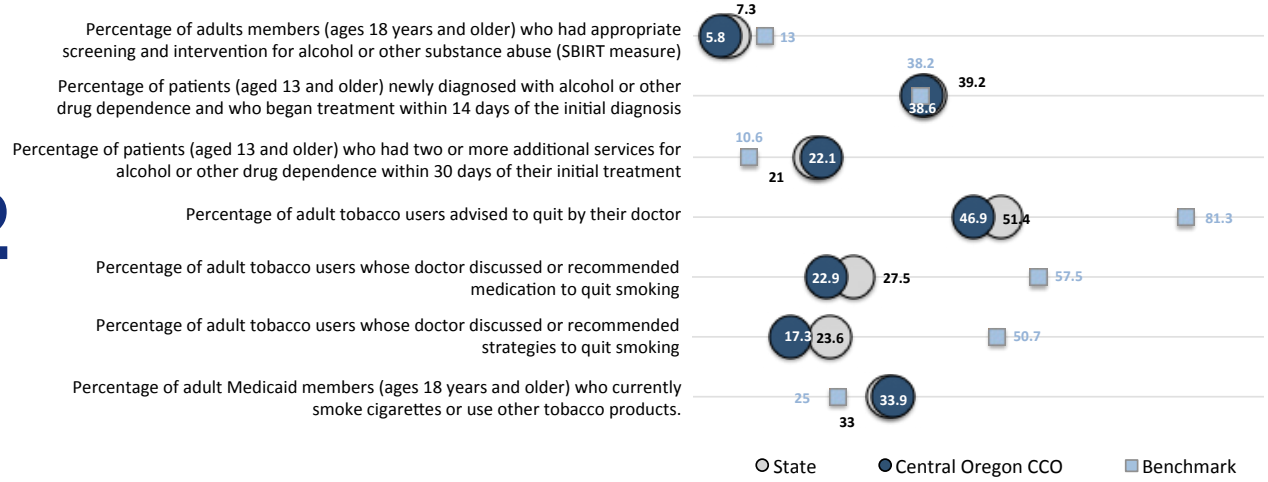


§ Cause of death was unintentional poisoning due to prescription drug (ICD 10 X40-X44) with an underlying cause of death mentioning an opioid (ICD 10 T40.2-T40.4)

CCO Measures

- The Central Oregon CCO has not met goals related to tobacco (Figure 63). The measure related to screening and intervention for alcohol or other substance abuse among adults remains low.

Figure 63. Central Oregon CCO quality measures related to alcohol, tobacco, and other drugs, June 2014



Unintentional Injuries

Introduction

Injuries are classified by intent and mechanism. Some injuries are considered unintentional, meaning there was no intent to do harm, while others are intentional (suicide and homicide). Unintentional injuries are preventable events and are no longer considered "accidents." In the case of some injuries, the intent is unknown. Many measures have been put in place in the last several decades to reduce the number of unintentional injuries including increased seatbelt use in cars, increased helmet use during many activities, promotion of life jackets while in or near water, and safe sleeping habits for babies, among many others. Injuries are caused by a variety of mechanisms and these mechanisms vary with age.

- The leading causes of unintentional injury-related death in Oregon were falls, poisoning, and motor vehicle crashes (MVC) (Table 27). The leading causes of unintentional injury-related death were the same in Central Oregon.
- Drowning and MVC were a leading cause of injury-related death for children.

Table 27 Leading causes of unintentional injury in Oregon, CDC WISQARS, 2013

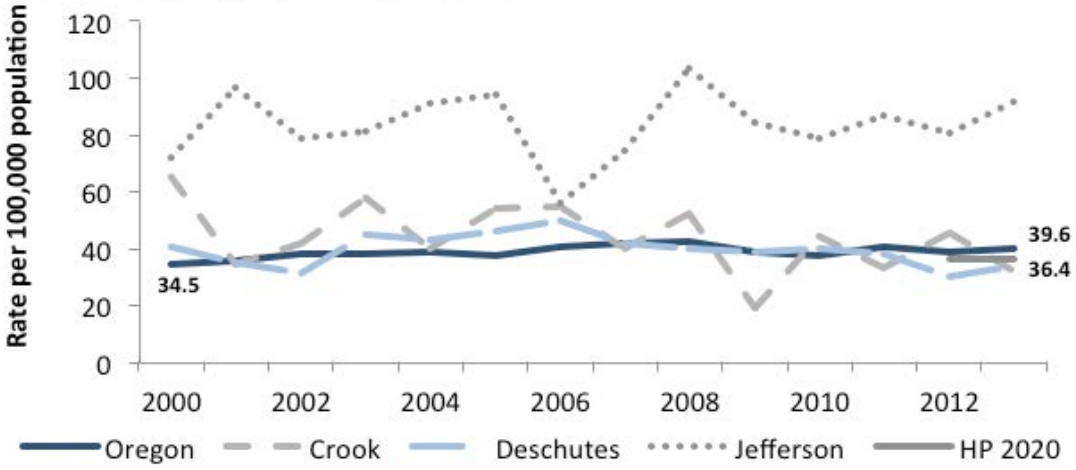
	Age Groups										
Rank	<1	1-4	5-9	10-14	15-24	25-34	35-44	45-54	55-64	65+	All Ages
1	Suffocation*	Drowning*	MV-traffic*	MV-traffic*	MV-traffic	Poisoning	Poisoning	Poisoning	Poisoning	Fall	Fall
2	Drowning*	Fire/Burn*	Drowning*	Pedestrian, other*	Poisoning	MV-traffic	MV-traffic	MV-traffic	MV-traffic	MV-traffic	Poisoning
3	Fall*	Suffocation*	Fire/Burn*	Drowning*	Drowning*	Fall*	Suffocation*	Fall	Fall	Suffocation	MV-traffic
4	Fire/Burn*	Fall*	Natural/ Environment*	Fire/Burn*	Pedestrian, other*	Drowning*	Drowning*	Drowning	Suffocation	Poisoning	Suffocation
5		Firearm*	Pedestrian, other*	Other land transport*	Firearm*	Other land transport*	Other, specified*	Fire/Burn*	Drowning	Unspecified	Drowning
6		MV-traffic*		Other, not classifiable*	Eight tied*	Suffocation*	Fall*	Suffocation*	Fire/Burn*	Other, not classifiable	Unspecified
7					Eight tied*	Five tied*	Other land transport*	Other transport*	Other, not classifiable*	Fire/Burn	Fire/Burn
8					Eight tied*	Five tied*	Four tied*	Other land transport*	Struck by/against*	Natural/ Environment	Other, not classifiable
9					Eight tied*	Five tied*	Four tied*	Other, specified*	Other, specified*	Other, specified	Other, specified
10					Eight tied*	Five tied*	Four tied*	Other, unspecified*	Two tied*	Drowning*	Natural/ Environment

- Most injuries are unintentional. Two-thirds of all injuries in Oregon and Deschutes County were unintentional. In Crook County 57% of injuries were unintentional and in Jefferson County the proportion is 83% (OPHAT, 2013).

Unintentional Injuries

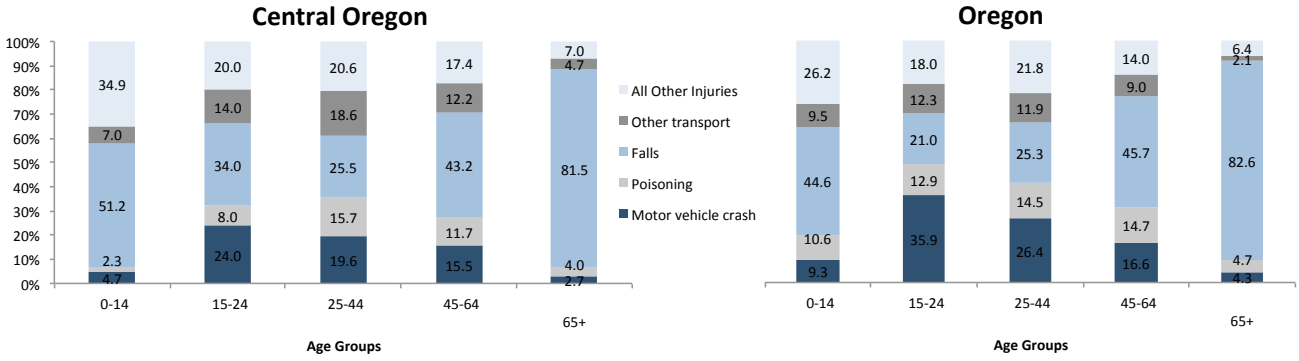
- The unintentional injury mortality rate has not changed significantly in Oregon since 2000 (Figure 64) and the 2013 rate was similar to the US age-adjusted rate (38.8/100,000) (CDC WONDER, 2013)
- The unintentional injury mortality rate in Jefferson County was significantly higher than the state overall in 2013 (Figure 64).

Figure 64. Age-adjusted unintentional injury mortality rate per 100,000 population, Oregon, OPHAT, 2000-2013



- The primary mechanism involved in unintentional injuries varies with age (Figure 65). Falls are more common in younger and older ages while MVC are more common between the ages of 15-64 years.

Figure 65. Percent of unintentional injury hospitalizations by age group and mechanism, Central Oregon and Oregon, HCUP, 2013



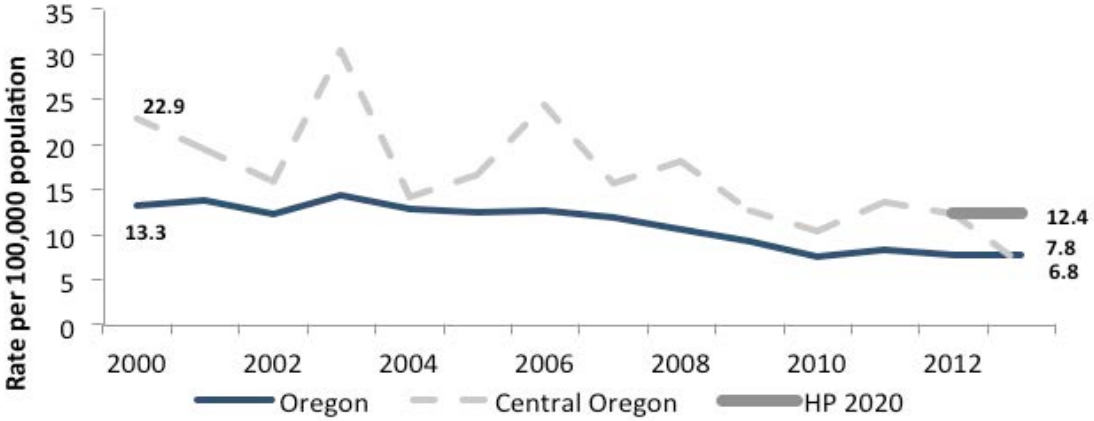
Unintentional Injuries

Motor Vehicle Crashes

MVC refer to any injury occurring in traffic. The person injured may be a driver or occupant of a vehicle, a pedestrian or cyclist struck by a vehicle, or a motorcyclist.

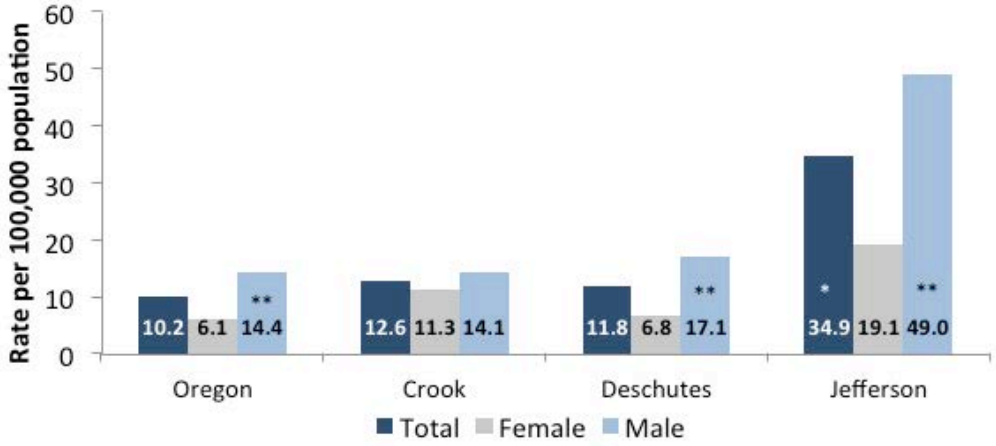
- The mortality rate due to MVC has significantly decreased since 2000 in Oregon and Central Oregon (Figure 66).

Figure 66. Age-adjusted unintentional motor vehicle crash (traffic) mortality rate per 100,000 population, Oregon, OPHAT, 2000-2013



- Residents of Jefferson County had a significantly higher mortality rate due to MVC than Oregon overall (Figure 67).
- Males had a significantly higher mortality rate due to MVC than did females in Oregon, Deschutes County, and Jefferson County (Figure 67).
- Between 2004 and 2013, there were 280 motor vehicle fatalities in Central Oregon. Seventy of those fatalities were in Jefferson County (OPHAT, 2004-2013).

Figure 67. Age-adjusted mortality rate per 100,000 population for unintentional motor vehicle crash (traffic), Oregon, OPHAT, 2004-2013



* Significantly higher than the state overall
**Significantly higher than females overall

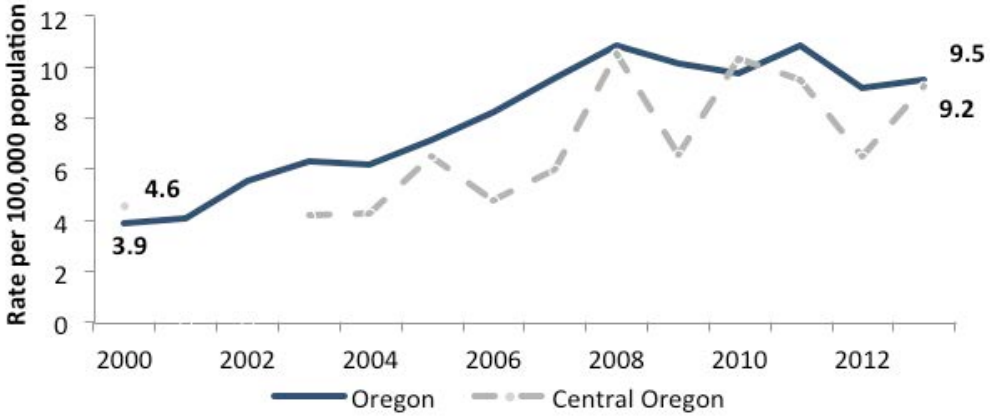
Unintentional Injuries

Poisoning

Poisoning is the ingestion or inhalation of a toxic substance or a substance that if consumed in high enough quantities becomes toxic. Recently, focus has been placed on unintentional poisoning due to the increased number of toxic exposure deaths related to prescription medications.

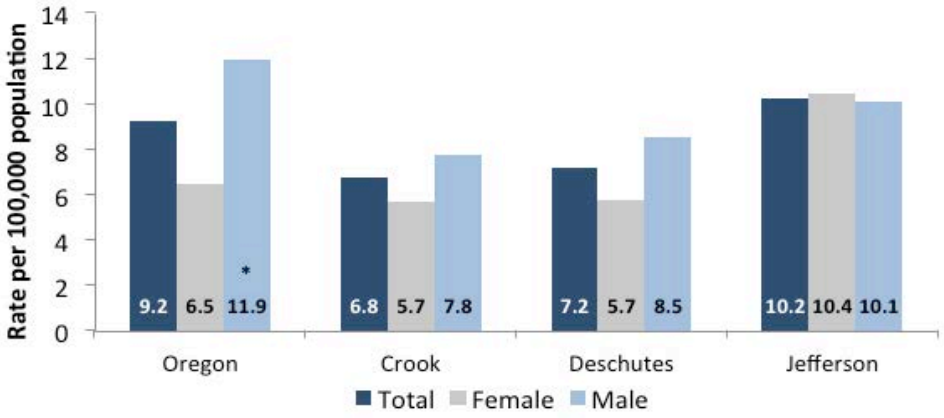
- In Oregon, the unintentional poisoning mortality rate has more than doubled since 2000 (Figure 68).
- Though not statistically different, the rate in Central Oregon has also increased (Figure 68).
- On average, there were 14 unintentional poisoning deaths in Central Oregon each year between 2004 and 2013 (OPHAT, 2004-2013).

Figure 68. Age-adjusted mortality rate per 100,000 population for unintentional poisoning , Oregon, OPHAT, 2000-2013



- Men in Oregon had a higher unintentional poisoning mortality rate than did females (Figure 69).

Figure 69. Age-adjusted mortality rate per 100,000 population for unintentional poisoning by sex, Oregon, OPHAT, 2004-2013



*Significantly higher than females overall

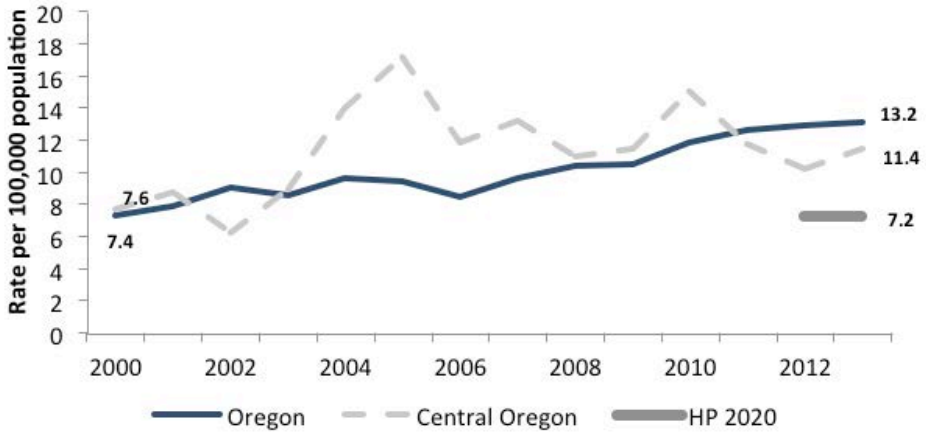
Unintentional Injuries

Falls

Falls can occur at any age, but are a serious risk for young children and older adults. The highest risk for death due to a fall, however, is among older adults. The mortality rate due to a fall exponentially increases after the age of 65 years (OPHAT, 2009-2013). Maintaining a hazard free home, performing strength and balance exercises, and reviewing medications regularly can help older adults avoid falls.

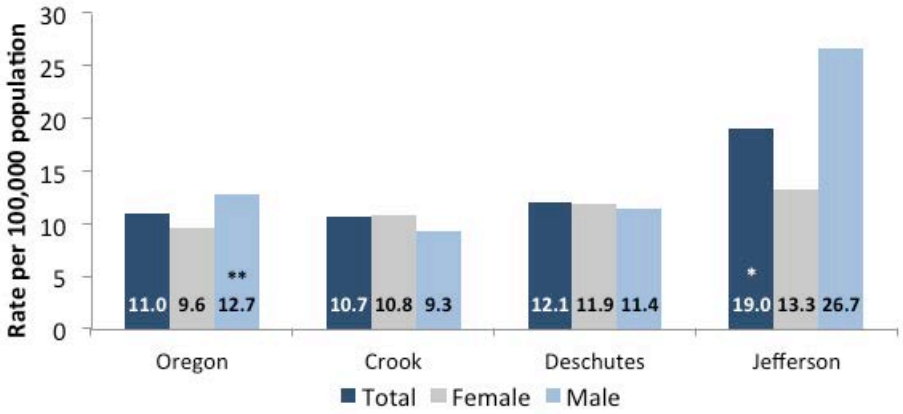
- In Oregon, the unintentional fall mortality rate has significantly increased since 2000 in Oregon. Though not statistically significant, the unintentional fall mortality rate has increased in Central Oregon (Figure 70).

Figure 70. Age-adjusted unintentional fall mortality rate per 100,000 population, Oregon, OPHAT, 2000-2013



- The age-adjusted fall mortality rate was higher in Jefferson County than in the state overall (Figure 71).

Figure 71. Age-adjusted mortality rate per 100,000 population for unintentional fall by sex, Oregon, OPHAT, 2004-2013



*Significantly higher than the state overall
**Significantly higher than females overall

- The fall mortality rate among adults aged 65 years and older was significantly lower in Deschutes County than in Oregon overall (69.2/100,000 vs. 90.3/100,000). The rate in Jefferson County was 121.1/100,000 and in Crook County it was 62.9 (OPHAT, 2009-2013). None of these rates met the HP 2020 goal of 47.0 deaths/100,000 population or less.

Unintentional Injuries

Risk Factors for Injury

Risk factors for injury vary dramatically by age. However, reducing drug and alcohol use and increasing appropriate use of safety equipment are important behaviors to prevent injuries at any age.

- 11th graders in Deschutes County reported using marijuana and drinking alcohol at least once in the last 30 days more frequently than 11th graders in the other Central Oregon Counties and Oregon overall (see the Child and Adolescent Health Risk Factors section).
- In 2013, alcohol was listed as a contributing factor for a MVC at about the same rate among all of the Central Oregon Counties (Crook 5.1%, Deschutes 6.1%, Jefferson 6.5%) (ODOT Crash Data, 2013).
- One in three MVC fatalities was considered alcohol-impaired (blood alcohol concentration over 0.08) in Oregon in 2013 (NHTSA, 2013).
- The top three causes for a MVC in the Central Oregon Counties were driving too fast, failing to yield, and following too close (ODOT Crash Data, 2013).
- Oregon adult females more frequently reported that they always or nearly always wear a seatbelt than did adult males (99.3% vs. 96.7%) (BRFSS, 2013).

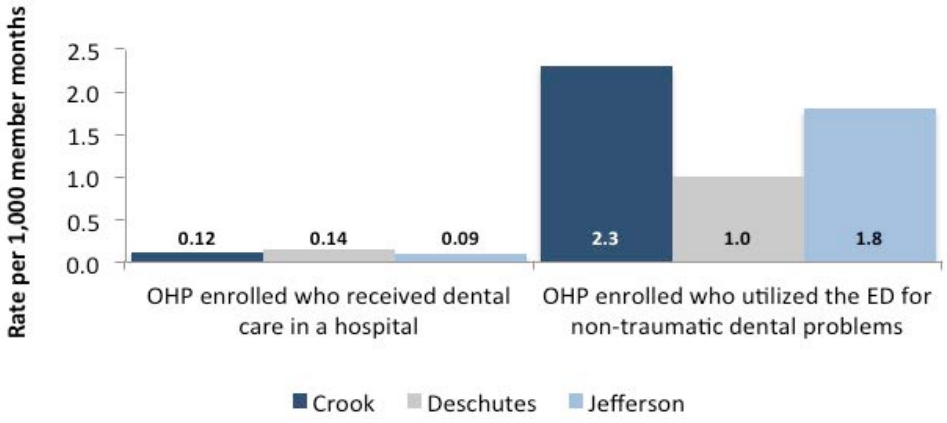
Oral Health

Dental caries (cavities) are largely preventable. However, tooth decay is one of the most common chronic diseases among children. Untreated tooth decay causes problems with eating and speaking, and causes pain, which can disrupt learning and personal growth. Some community water systems treat their water with fluoride, which has been shown to strengthen teeth and reduce tooth decay (CDC Oral Health Program). However, Central Oregon does not fluoridate the public water systems. Reducing dental caries rates is possible without water fluoridation and with limited resources through effective use of the existing healthcare workforce. The focus should be on identifying high-risk children and pregnant women to receive proven community-based preventive care. Several oral health services in Central Oregon exist to provide the best care possible

-Advantage Dental: Community Outreach: Partners with community organizations in the tri-county region to deliver preventive oral health services using expanded practice permit dental hygienists. This service also promotes coordinated and seamless care between providers.
-Kemple Memorial Children's Dental Clinic: Provides critical preventative, educational and dental treatment services for children whose families cannot access basic dental care.
-Central Oregon Community College Dental Assistant School: Partners with Deschutes County Health Services to provide dental care to low-income individuals.
-Volunteers in Medicine: Identifies uninsured/underinsured patients with unmet oral health needs and refers them into their dental hygienist or refers them to local services.
-Mosaic Medical: Offers primary care clinics and dental care services.
-La Pine Community Health Center: Partners with Advantage Dental to provide low cost dental services to uninsured individuals.
-Sisters School-based Health Center: Operates under an integrated care model with primary care, mental health, and dental services available for students aged 0-21 years regardless of ability to pay.
-Deschutes Family Drug Court: Partners with Advantage Dental to coordinate dental care for families enrolled in the Deschutes Family Drug Court.

- Using the hospital and ED for dental care is an indication of poorly managed oral health. People enrolled in OHP accessed dental care in hospitals and EDs at similar rates in the Central Oregon Counties (Figure 72).

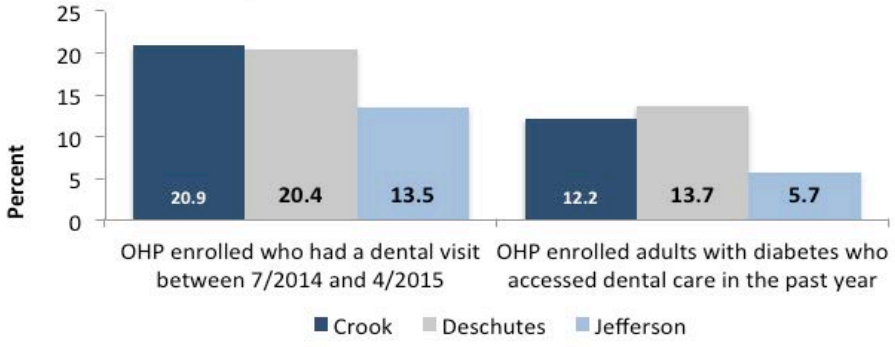
Figure 72. Rate of dental care received in a hospital or ED among those enrolled in OHP, Central Oregon, PacificSource, 2015



Oral Health

- Jefferson County residents enrolled in OHP accessed dental care less frequently than residents of Crook and Deschutes Counties (Figure 73).

Figure 73. Percent of those enrolled in OHP who accessed dental care, Central Oregon, PacificSource, 2015



Note: there are many ways that members can be identified as having diabetes. The method for identification used is based on claims and may underrepresent the true number of members living with diabetes in the population

Children

Good oral health starts in childhood. This includes regular visits to a dentist, regular brushing, and a healthy diet.

- The Kemple Memorial Children's Dental Clinic assesses the oral health of thousands of children in the region. During the 2013-2014 school year:
  - -Over a quarter (26.3%) of screened students were determined to need improved home oral health hygiene.
  - -About half (49.9%) of screened children needed sealants, which are thin, plastic coatings painted on the chewing surfaces of the back teeth that help prevent tooth decay.
  - -4.5% of those screened had serious immediate oral health needs.
- Only 59% of Jefferson County 8th graders reported having gone to a dentist or dental hygienist in the last 12 months (Table 28).
- About three of four 8th and 11th graders reported having ever had a cavity (Table 28).

	8th				11th			
	Oregon	Crook	Deschutes	Jefferson	Oregon	Crook	Deschutes	Jefferson
Went to a dentist or dental hygienist for a check-up, exam, teeth	72.8	75.3	74.2	59.0	74.5	62.8	72.6	72.9
Ever had a cavity	70.1	76.3	71.7	73.7	74.0	70.5	72.1	78.8
Brushed your teeth in the past 24 hours	95.5	91.4	95.1	90.9	96.0	98.2	94.3	94.1

Minimum vertical axis value is zero and maximumvertical axis value is 100 for each chart. Bars are in order of table columns (Oregon, Crook,

Oral Health

Children Continued

Good oral health starts in childhood. This includes regular visits to a dentist, regular brushing, and a healthy diet.

- 8th and 11th graders in Jefferson County more frequently reported missing school due to a toothache or painful tooth than in Oregon (Table 29).

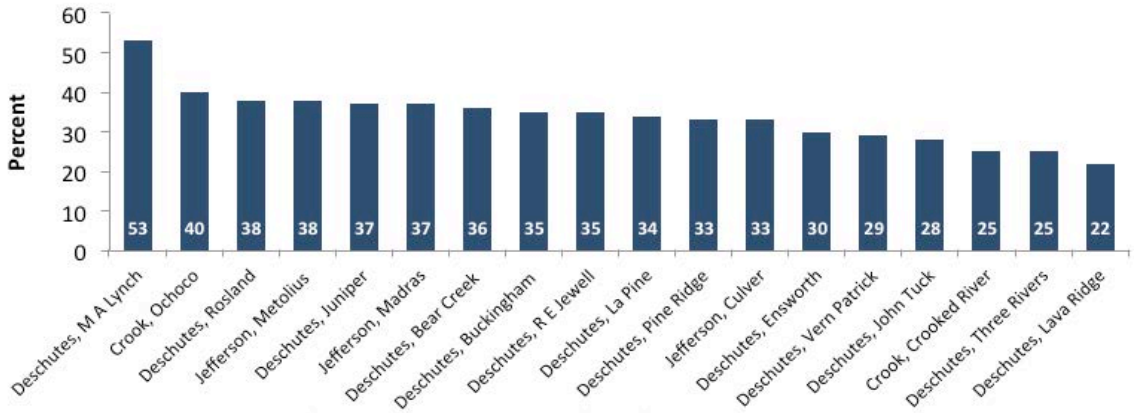
Table 29. Percent of 8th and 11th graders who reported specific oral health indicators, Oregon, OHTS, 2013

	8th				11th			
	Oregon	Crook	Deschutes	Jefferson	Oregon	Crook	Deschutes	Jefferson
Missed one or more hours of school due to toothache or painful tooth	2.6	1.8	2.8	8.2	2.7	3.6	4.7	5.5
Missed one or more hours of school due to mouth hurting	2.2	1.8	3.0	3.2	1.8	2.7	4.0	5.3
Missed one or more hours of school due to going to the hospital emergency room because of tooth or mouth pain	0.5	2.3	0.2	0.0	0.5	0.0	0.5	0.8
Missed one or more hours of school due to a mouth injury from playing a sport	1.4	2.9	1.7	1.6	0.8	0.9	0.7	2.1
Missed one or more hours of school due to going to the dentist because of tooth or mouth pain	4.2	6.4	4.8	4.9	4.2	5.4	6.5	5.4
Injured in mouth area while playing a recreational sport	8.7	9.0	10.2	12.1	6.5	8.0	8.5	7.1
Do you wear piercing or jewelry in or around the mouth area?	3.9	5.2	4.6	10.3	4.6	7.1	5.2	9.0
Injured in mouth area while playing an organized sport	13.7	15.7	12.0	12.7	10.0	12.5	8.3	11.3

Minimum vertical axis value is zero and maximumvertical axis value is 20 for each chart. Bars are in order of table columns (Oregon, Crook, Deschutes, Jefferson).

One quarter to one half of first and second graders that were screened in selected Central Oregon schools had untreated tooth decay (Figure 74).

Figure 74. Percent of screened first and second graders§ with untreated dental decay, Central Oregon, School Dental Sealant Program, 2013-2014



§ Schools are invited to participate if >50% of the students are eligible for the free or reduced lunch program. Only students with parental permission are screened.

Oral Health

Adults

Good oral health as an adult helps maintain adult teeth. Poor oral health can be a costly and painful condition. Some health conditions and behaviors like diabetes, HIV, cancer, and tobacco use increase the chance of having oral health problems (CDC, 2006).

- About half of adult OHP members in Central Oregon (52.3%, 95% CI 47.3%-57.2%) reported having had a dental visit in the last year. For reference, nearly two-thirds of the general adult population in Oregon (66.9%) said they had had a dental visit in the last year (MBRFSS, 2014).
- Half (52.4%) of adults in Jefferson County have lost one or more permanent teeth (Table 30). This was significantly higher than the rest of the state's population.

Table 30. Age-adjusted tooth loss and edentulous rates in Central Oregon, Oregon, BRFSS, 2010-2013

	Crook		Deschutes		Jefferson		All other counties	
	Percent	95% CI	Percent	95% CI	Percent	95% CI	Percent	95% CI
Adults aged ≥18 years with one or more tooth loss	42.3	32.2-53.1	35.5	31.4-39.7	52.4	39.9-64.6	38.5	37.6-39.3
Adults aged ≥18 years who are edentulous (have no teeth)	6.3	3.1-12.2	2.4	1.7-3.4	4.0	2.0-7.7	4.2	3.9-4.6

- Income is related to dental health among adults in Oregon (Table 31). This is especially notable among adults aged 65 years and older. Many are on fixed incomes and may not receive routine dental care because Medicare, the leading insurer for adults 65 years and older, provides little to no coverage. Older adults with dental insurance are 2.5 times more likely to visit the dentist routinely (Oral Health America).

Table 31. Prevalence of dental health factors by income, Oregon, BRFSS, 2012

	Had permanent teeth extracted		Aged 65+ years and had all teeth extracted		Visited dentist or dental clinic for any reason in last year	
	Percent	95% CI	Percent	95% CI	Percent	95% CI
Total	41.1	39.3-42.9	14.0	12.9-17.1	65.3	63.5-67.0
Less than $15,000	58.0	52.0-64.0	31.5	21.5-41.5	47.0	41.2-52.9
$15,000-24,999	48.1	43.2-53.1	28.1	21.9-34.3	43.5	38.6-48.4
$25,000-34,999	49.3	43.3-55.2	12.9	7.4-18.5	59.3	53.5-65
$35,000-49,999	46.4	41.6-51.2	10.6	5.9-15.3	68.9	64.3-73.5
$50,000+	27.4	24.9-29.8	5.4	3.1-7.8	80.4	78-82.9

Environmental Health

Introduction

Where people work, live and play can dramatically affect their health. Environmental health "addresses the physical, chemical, and biological factors external to a person, and all the related factors impacting behaviors" (WHO). These topics include air and water quality, the built environment, and consumer product exposures. Environmental Health Specialists in Central Oregon inspect and license several types of public facilities to ensure the public remains safe and healthy. This includes issuing over a thousand licenses in 2014 alone for restaurants, mobile food units, temporary restaurants, commissaries, food warehouses, and bed and breakfasts. In 2014, over 300 licenses were also issued for pools, spas, hotels, motels, and recreational vehicle parks. Inspections are also conducted regularly for all of these facilities as well as school lunch programs, childcare centers, residential institutions.

In Central Oregon, a recreation needs assessment that included a community interest and opinion survey and focus groups was summarized in the 2012 Parks, Recreation, and Green Spaces Comprehensive Plan. This needs assessment found that:

- Respondents felt the most needed facilities were small neighborhood and large community parks, swimming pools, natural areas, and trails.
- Respondents were most supportive of the region improving multi-purpose trails, connecting existing trails, preserving open space and repairing older parks. Respondents were willing to spend tax dollars on these initiatives.
- Drinking fountains, trash and recycling containers, and permanent restrooms were listed as needed features.
- Reasons for not using facilities or programs were "no interest," hours were not conducive to use, and fees were too high.
- From the 2012 report, a strategic plan has been written and will be implemented through 2017.

Transportation

Transportation is a vital part of a community by increasing access to services, moving goods in and out of the area, and engaging the community socially. Recently, more focus has been placed on active transportation to help reduced chronic disease and obesity by encouraging walking, biking, or other physical activities to move about the community. Policy has focused on ensuring low-income, the aged, and rural populations have transportation options available to access goods and services that will help them maintain or improve their health.

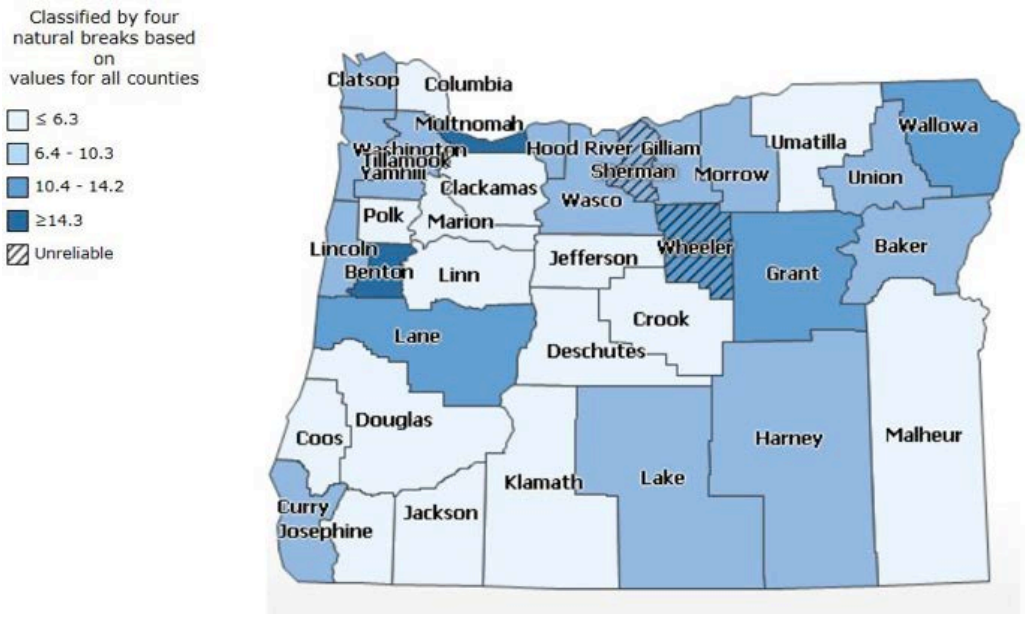
- Surveys were implemented at eight community events in Central Oregon in 2011 to gauge resident interest in public transportation. Summary results indicated that 65% of Central Oregon residents spend $100 dollars or more a month on gas and 64% would ride the bus if it were more convenient (Health Impacts of Transportation in Central Oregon, 2012).
- About two of three people in the Central Oregon counties commuted less than 20 minutes to work (ACS 3-year Estimates, 2011-2013). About half (50.3%) of commuters in Oregon had a commute that was less than 20 minutes to work.
- The 2012 Health Impacts of Transportation in Central Oregon report summarized data from community surveys, local experts, and an advisory council to identify four key recommendations:
  - -Invest in strategies that increase use of active and public transportation.
  - -Increase access to healthcare services for rural and transportation disadvantaged populations.
  - -Increase access to employment opportunities for rural and transportation disadvantaged populations.
  - -Consider the safety and needs of all road users (including vulnerable populations) in planning and design standards.

Environmental Health

Transportation Continued

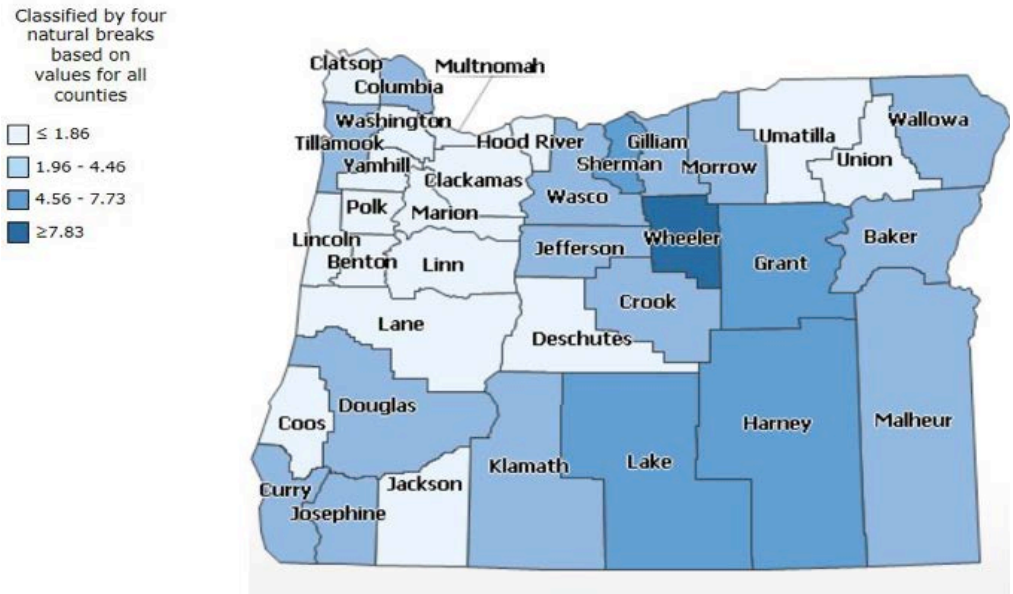
- Less than 6.3% of the population in all of the Central Oregon counties uses active transportation (walk, bike, etc.) to work (Figure 75).

Figure 75. Percent of working population that uses active transportation, Oregon, EPHT, 2011



- As previously referenced in the Socioeconomic Status section (page 10), food insecurity and access to healthy food is an issue in Central Oregon. Of the Central Oregon Counties, the shortest walking distance to food retailers and restaurants is in Deschutes County (Figure 76).

Figure 76. Average walk distance in miles to food retailers and restaurants, Oregon, EPHT, 2012



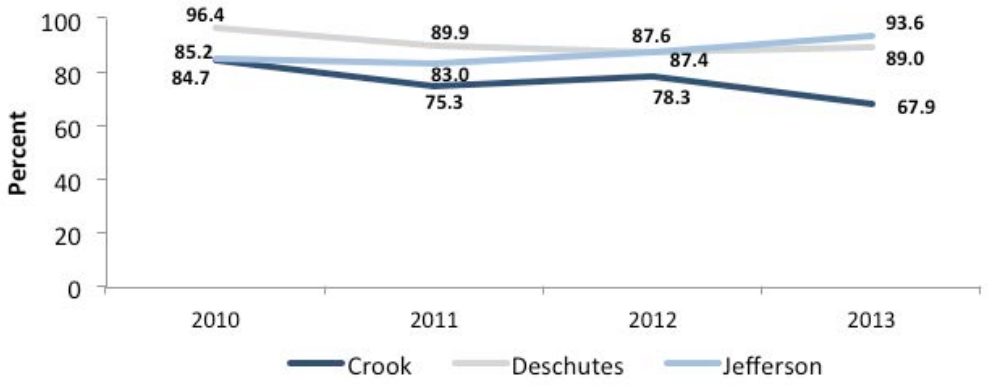
Environmental Health

Air Quality

Air quality refers to the amount of pollutants in the air and can refer to air indoors or outdoors. Research has identified six pollutants most linked with harmful effects to health. They are ozone, particulate matter, nitrogen oxides, sulfur oxides, carbon monoxide, and lead. The amount of these pollutants (except lead) in the air can be classified using the Air Quality Index. The higher the index score is, the worse the air quality. Poor air quality has been linked to respiratory disease, including asthma and lung cancer, as well as heart disease, stroke, and other health conditions (World Health Organization).

- Since 2010, Crook County has experienced a lower frequency of good air quality days than the other Central Oregon Counties (Figure 77).

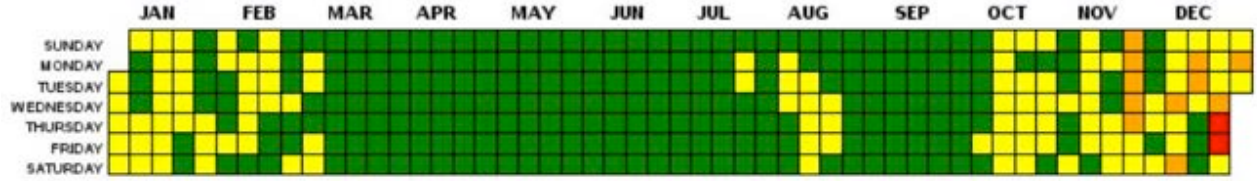
Figure 77. Percent of days that had good air quality (when air quality was recorded), Central Oregon, airnow.gov, 2010-2013



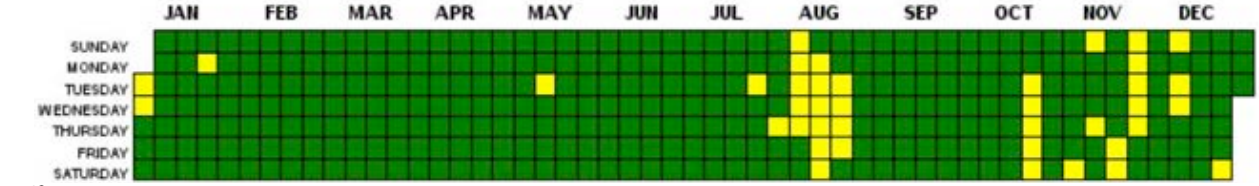
- In 2013, poor air quality days occurred during certain parts of the year in Central Oregon (Figure 78). Air quality varies year to year as factors influencing it change depending on a variety of factors, like weather.
-

Figure 78. Air Quality Index values by day and month, Central Oregon, airnow.gov, 2013

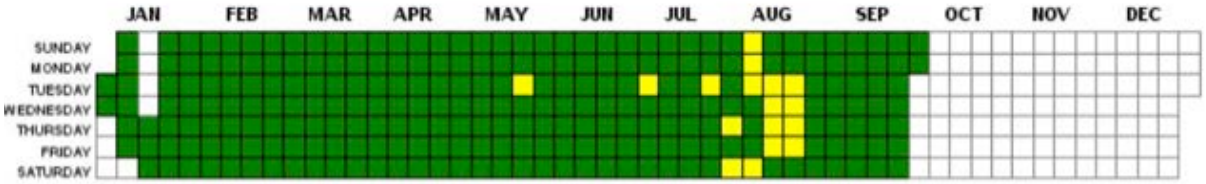
Crook County



Deschutes County



Jefferson County



Good (<=50 AQI)
Moderate (51-100 AQI)
Unhealthy for Sensitive Groups (101-150 AQI)
Unhealthy (151-200 AQI)
Very Unhealthy (>=201 AQI)

Data source: airnow.gov

Environmental Health

Water Quality

Water contains varying levels of inorganic and organic compounds, like minerals, microorganisms, lead, nitrates, sulfates, radon, and other chemicals. Water quality refers to the levels of these compounds in the water. Water quality can be classified into several categories based on its use. For example, there are water quality standards for human consumption, use for agriculture and irrigation, domestic use, and environmental water quality (lakes and rivers). For more information about water-borne diseases see the Diarrheal Disease section (page 41) of this document.

- Water quality (Oregon Drinking Water Quality Database, 2014)
  - -Crook: 8 systems with alerts in 2014
  - -Deschutes: 20 systems with alerts in 2014
  - -Jefferson: 0 systems with alerts in 2014

Lead

Lead poisoning is an environmental exposure that can cause irreversible health effects. No level of lead in the blood is safe and lead poisoning can occur among people of any age. Over the last few decades the prevalence of lead poisoning has significantly decreased. However, it is still a risk, especially for children. Lead can be found in old paint (before 1978), dust (some related to occupations like working in a gun range), and toys or fake jewelry, among other items. Prevention steps can include renovating your home safely by a certified renovator, staying current on recalled toys and items with lead, and considering lead testing for your home if it was built before 1978.

- Among those people tested in Oregon, there were no differences in detectable blood lead levels by race (Table 32).

Table 32. Average blood lead level (µg/dL) among screened children by race, Oregon, Northwest Tribal Epidemiology Center, 2012 , 2005-2010

Race/Ethnicity	N	Mean	Std Dev	Min	Max
American Indian/Alaska Native	1718	1.07	1.73	0	20
White	19702	1.43	2.05	0	72
Black	3159	2.02	2.12	0	24
Asian/Pacific Islander	1718	2.11	3.14	0	46
Hispanic	19	2.74	3.03	0	10
Mixed Race	14	1.79	2.15	0	8
Other	37	1.73	2.43	0	12
Unknown/Missing	52362	1.23	2.05	0	65
Total	78729	1.33	2.09	0	72

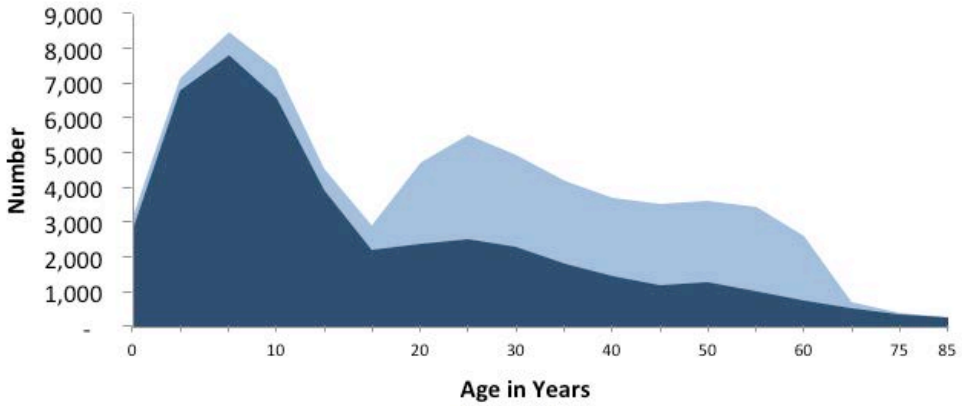
Data from: Northwest Tribal Epidemiology Center, 2012

Access to Care

Ensuring equal access to healthcare is important. The topics previously discussed in this document highlight the factors that can lead to varying access to healthcare, like socioeconomic status, language or cultural barriers, or environmental factors like availability of services and transportation.

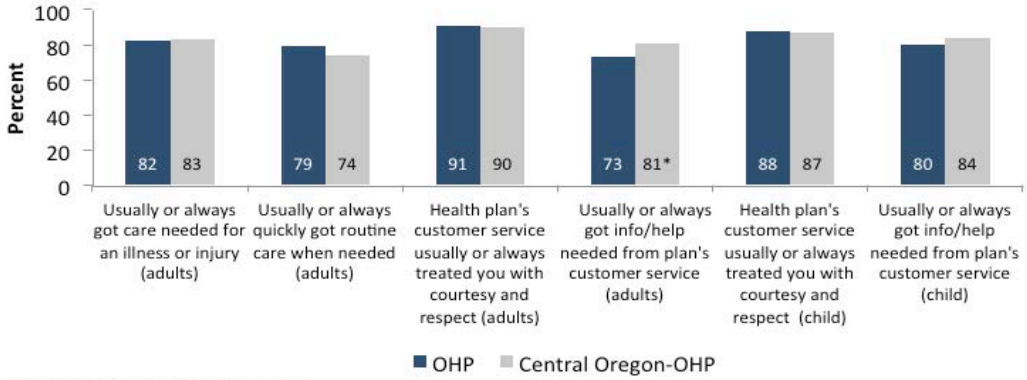
- OHP provides healthcare access to lower income populations in the state. Recently, Oregon expanded OHP to allow for the inclusion of more people. Younger age groups make up a large portion of the Central Oregon OHP membership. However in 2014 the expansion of OHP allowed membership to increase dramatically for those aged 20-64 years (Figure 79).

Figure 79. Central Oregon CCO total OHP membership by age group and year, PacificSource, 2013-2014



- The 2012 Small Area Health Insurance Estimates are based on modeled estimates from the American Community Survey (ACS). These estimates calculated the percent of the population that was uninsured in Central Oregon (Crook: <1, Deschutes: 2.6, Jefferson 4.6, Oregon 5.6) (Health Insurance Coverage in Oregon Report, 2015).
- According to the CAHPS Survey in 2013, OHP members in Central Oregon reported they usually got care in a timely fashion. They also reported receiving support when needed from customer service (Figure 80). Most of these rates were no different than the state overall.
- There were no significant differences by Hispanic ethnicity (data not shown).

Figure 80. Quality Measures for Oregon and Central Oregon OHP members, CAHPS Survey, 2013

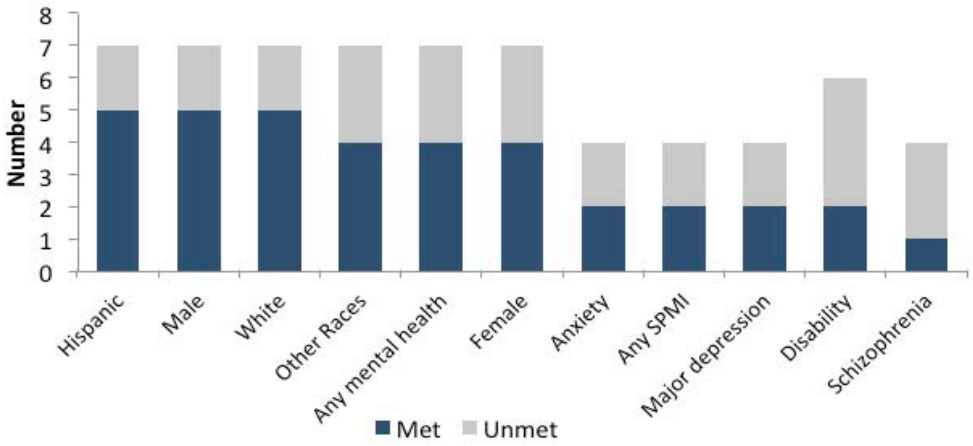


* Significantly higher than Oregon OHP

Access to Care

- The Central Oregon CCO strives to meet specific quality measures. Not all measures apply to all populations. Figure 81 demonstrates progress towards meeting incentive measures for specific population groups. Five out of seven incentive measures for Hispanics, males, and whites were being met at the end of 2014.

Figure 81. Number of incentive measures meeting or exceeding benchmark or target by specific population, Central Oregon CCO, OHA CCO Dashboard, 2014



Common Reasons to Access Healthcare

The population's health can also be described by quantifying the leading reasons for accessing healthcare or the most common pharmaceuticals prescribed. The All Payers All Claims (APAC) is comprised of medical and pharmacy claims, and information about a member's eligibility and provider files, as collected from health insurance payers for residents of Oregon. The data include fully-insured and self-insured persons. The APAC database allows for a detailed understanding of the Oregon healthcare delivery system by providing access to timely and accurate data about healthcare utilization.

- Opioid analgesics are the most numerous prescriptions (RX) among those with commercial insurance and Medicaid in Central Oregon. They are the third most common prescription among those enrolled in Medicare (Table 33).
- In terms of total cost (number of prescriptions multiplied by cost), anti-inflammatory analgesics are the most expensive prescriptions for those enrolled in commercial insurance, while antipsychotics are the most expensive for those enrolled in Medicaid. Antineoplastics (anticancer drugs) are the most expensive for those enrolled in Medicare (Table 33).

Table 33. Pharmacy claims from all payors in Central Oregon and Oregon by total number and total amount paid, APAC Database, 2013

		Commercial			Medicare			Medicaid		
		1	2	3	1	2	3	1	2	3
Central Oregon	RX, number	Analgesics - Opioid	Thyroid Agents	Antihypertensives	Thyroid Agents	Antihypertensives	Analgesics - Opioid	Analgesics - Opioid	Antiasthmatic And Bronchodilator Agents	Ulcer Drugs
	RX, paid	Analgesics - Anti-Inflammatory	Psychotherapeutic And Neurological Agents - Misc.	Antidepressants	Antineoplastics	Psychotherapeutic And Neurological Agents - Misc.	Passive Immunizing Agents	Antipsychotics/Antimanic Agents	Antidepressants	Adhd/Anti-Narcolepsy/Anti-Obesity/Anorexiants
Oregon	RX, number	Analgesics - Opioid	Thyroid Agents	Antihypertensives	Antihypertensives	Thyroid Agents	Analgesics - Opioid	Analgesics - Opioid	Antiasthmatic And Bronchodilator Agents	Ulcer Drugs
	RX, paid	Analgesics - Anti-Inflammatory	Analgesics - Anti-Inflammatory	Psychotherapeutic And Neurological Agents - Misc.	Antidiabetics	Antiasthmatic And Bronchodilator Agents	Antipsychotics/Antimanic Agents	Antipsychotics/Antimanic Agents	Antidepressants	Antidiabetics

Access to Care

- The most common claim for people enrolled in commercial insurance in Central Oregon is for routine gynecological exams, while the number one claim for those enrolled in Medicare is for diabetes (Table 34). The most common claim for those enrolled in Medicaid was for a reason that could not be specified with available codes.
- By total amount paid (number claims multiplied by cost), rehabilitation for a specific procedure was the most expensive among members of Medicare and Medicaid. Osteoarthritis in the lower leg was the most expensive claim for members of commercial insurance (Table 34).

Table 34. Medical claims from all payors in Central Oregon and Oregon by total number and total amount paid, APAC Database, 2013

		Commercial			Medicare			Medicaid		
		1	2	3	1	2	3	1	2	3
Central Oregon	Claims, number	Routine Gynecological Examination	Lumbago	Nonallopathic Lesions, Cervical Region	Diabetes Mellitus Without Mention Of Complication, Type Ii Or Unspecified Type, Not Stated As Uncontrolled	Unspecified Essential Hypertension	Atrial Fibrillation	Other Unknown And Unspecified Cause Of Morbidity And Mortality	Routine Infant Or Child Health Check	Unspecified Psychosocial Circumstance
	Claims, paid	Osteoarthrosis, Localized, Not Specified Whether Primary Or Secondary, Lower Leg	End Stage Renal Disease	Special Screening For Malignant Neoplasms Of Colon	Care Involving Other Specified Rehabilitation Procedure	End Stage Renal Disease	Exudative Senile Macular Degeneration	Care Involving Other Specified Rehabilitation Procedure	Single Liveborn, Born In Hospital, Delivered Without Mention Of Cesarean Section	Unspecified Schizophrenia, Unspecified
Oregon	Claims, number	End Stage Renal Disease	Encounter For Antineoplastic Chemotherapy	Routine Infant Or Child Health Check	End Stage Renal Disease	Care Involving Other Specified Rehabilitation Procedure	Atrial Fibrillation	Other Unknown And Unspecified Cause Of Morbidity And Mortality	Single Liveborn, Born In Hospital, Delivered Without Mention Of Cesarean Section	Unspecified Schizophrenia, Unspecified
	Claims, paid	Routine Gynecological Examination	Routine General Medical Examination At A Health Care Facility	Routine Infant Or Child Health Check	Diabetes Mellitus Without Mention Of Complication, Type Ii Or Unspecified Type, Not Stated As Uncontrolled	Atrial Fibrillation	Chronic Airway Obstruction, Not Elsewhere Classified	Other Unknown And Unspecified Cause Of Morbidity And Mortality	Routine Infant Or Child Health Check	Unspecified Psychosocial Circumstance

Specific Access Topics

Recent data collected focused on topics related to access to healthcare. Focus group participants reported a variety of barriers and concerns related to their care or the care of others. Other services have focused on addressing gaps in healthcare like healthcare provider shortages or areas with higher need than others.

OHP Expansion

With changes to healthcare and insurance availability, the Central Oregon Health Council Community Advisory Council (CAC) gathered information on residents' thoughts about the expansion (CAC reports, 2014). Some themes included:

- Need for ongoing assistance about using health insurance and what primary care means.
- Need for more support for Hispanics, especially to address language barriers.
- Need to address misinformation and community perceptions about who is eligible and data security related to OHP enrollment.

Adolescents

Another area of concern related to access to care was for adolescents. Specific focus groups were centered on gathering information about this population (CAC reports, 2014). Findings suggested:

- Children receive sports physicals, but these visits are missed opportunities for well-child visits for adolescents.
- Benefits could come from more reminders or scheduling well-child visits ahead of time, emphasizing the importance of well-child visits for adolescents, and potentially expanding health screenings past 3rd grade.
- Adolescents fear they will find out something bad about their health during a healthcare visit.

Access to Care

Emergency Medical Services

Health emergencies need a timely response. Distance from a healthcare facility or preparedness to handle a serious trauma can delay care and affect long-term health outcomes.

- In Central Oregon there are 4 trauma-designated hospitals. There is one level II hospital in Bend, one level III hospital in Redmond and two level IV hospitals, one in Madras and one in Prineville (Trauma Registry Reports, 2010-2011).
- The average travel time to a hospital in Oregon is 24 minutes. Most of Central Oregon had a travel time less than the state average. The Sisters area, however, was 29 minutes (Areas of Unmet Healthcare Need in Rural Oregon Report, 2015).

Gaps in Care

A key factor in accessing care is that the services are available nearby in the community. Health professional shortages can limit access to specialized care and may delay care. Services need to be culturally considerate and provide convenient locations and hours. Areas with limited healthcare workforce are often classified into Healthcare Provider Shortage Areas (HPSA) and Medically Underserved Areas or Populations (MUA/P). Areas qualify as a HPSA because of a high population-to-provider ratio. This includes having specialized care that is either not available or is at or over capacity in the surrounding areas. Additionally, certain types of facilities and population groups within a geographic area are eligible for designation. HPSAs may be designated as having a shortage of primary medical care, dental or mental health providers.

MUA/Ps are identified by measuring population to provider ratios, infant mortality rates, poverty rates, and other key data points. There are federally defined rules that identify which data to use to define a HPSA and MUA/P (HRSA). Five distinct types of designations are available:

- Geographic: the entire population in the designated area is identified as underserved and resources are considered over-utilized.
- Population: an underserved population identified within a specific area. Eligible populations include:
  - -Low-income: there must be at least 30% of the population at or below 200% of the Federal Poverty Level.
  - -Migrant farmworkers: migrant farmworkers and their non-farm working family members.
  - -American Indians: American Indians or Alaska Natives that are not part of a group that is already automatically designated.
  - -Other populations that face access barriers due to language, cultural or disability barriers.
- Facility: a facility that may or may not be in a designated area, but that serves residents located from a shortage area.
- Federal and state correctional facilities that are considered either a maximum- or medium- security facility.
- Federally recognized tribes.

Healthcare Provider Workforce

Having an adequate number of healthcare providers and facilities in an area is important for accessing healthcare. Specific medical associations track the number of healthcare providers that hold a specific license. For example, the American Medical Association maintains a master file of physicians and surgeons and the American Dental Association, the dentists. These lists can be used to describe the number of healthcare providers practicing in a specific area.

Access to Care

Healthcare Provider Workforce Continued

- Some of the highest provider to population ratios in Central Oregon were for certified nurse anesthetists, psychologists, general surgeons, and licensed counselors and therapists (Table 35). There are no obstetrician/gynecologists in Crook County and no psychologists or general surgeons in Jefferson County.

Table 35. Licensed health professional ratios by profession, Oregon, Office of Oregon Health Policy and Research, 2013

	Crook	Deschutes	Jefferson	Oregon
Cert. Reg. Nurse Anesthetist	20,978	52,578	5,430	10,082
Obstetrician/Gynecologist	‡	2,850	10,469	4,047
Psychologists	20,978	3,356	‡	1,703
General surgeon	10,489	7,887	‡	12,085
Nurse Practitioner	6,993	1,813	2,413	1,763
Licensed counselors and therapists	6,993	1,678	21,720	1,976
Dentist	4,196	1,396	3,103	1,616
Social Workers	4,196	1,282	3,620	1,141
Physician Assistant	3,496	1,792	7,240	3,941
Dental hygienists	3,496	1,348	3,103	1,641
Primary Care Physician	2,622	998	1,671	1,010
Pharmacists	2,098	1,337	1,671	1,162
Physicians, total	1,498	329	987	365
Nurses	247	92	170	102

‡ No professional practicing in the county

Data from: Office of Oregon Health Policy Research

Healthcare Safety Net Clinics

The Oregon Primary Care Office defines the term "healthcare safety net" as "the array of clinical sites around the state that provide healthcare opportunities for those who otherwise would have barriers to accessing quality health services. These barriers include lack of coverage, geographic isolation, language and culture, mental illness and homelessness." There are several safety net clinics in Central Oregon including hospitals, clinics, and school based clinics (Oregon Primary Care Office). Central Oregon contains:

- 1 Urban hospital
- 2 Critical access hospitals
- 1 Rural hospital
- 1 Federally qualified health center-School based health center
- 3 Rural health clinics
- 4 Federally qualified health centers
- 5 School based health centers
- 1 Indian Health Service facility

Access to Care

Health Professional Shortage Areas in Central Oregon

- Jefferson County is considered a HPSA due to its geography. Crook County also falls in this category due to its population's low-income status. (Oregon Primary Care Office, 2015).

Dental

- All Central Oregon counties are classified as dental professional shortage areas. Jefferson County for its geography, Crook County for low income populations, and Deschutes County for low income populations, homeless populations, and migrant farmworker populations (Oregon Primary Care Office, 2015).

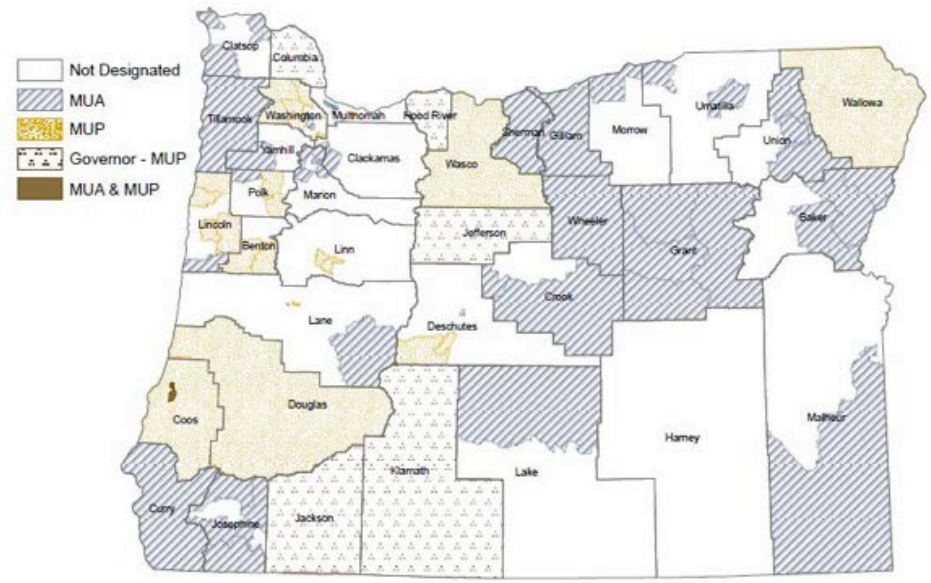
Mental Health

- Crook and Jefferson Counties are mental health HPSA due to geography and Deschutes County is a mental health HPSA due to low-income populations (Oregon Primary Care Office, 2014).
- There are shortages of more advanced mental health treatment options for children and adolescents beyond what is currently available (Central Oregon Behavioral Health Needs Assessment, 2015).
- There are shortages of specialized prescribers of psychiatric medications in Central Oregon. Also, there is limited access to psychiatric prescribers for OHP and Medicare members (Central Oregon Behavioral Health Needs Assessment, 2015).
- There are shortages of private mental health professionals in Central Oregon (Central Oregon Behavioral Health Needs Assessment, 2015).
- Individuals with depression average twice as many visits to their primary care doctor than do non-depressed patients and have nearly twice the annual healthcare costs. (Mauer & Jarvis, 2010).

Medically Underserved and Populations in Central Oregon

- There are several medically underserved areas and populations in Central Oregon (Figure 82).

Figure 82. Medically underserved areas or populations, Oregon, Oregon Primary Care Office, 2011



Data Source: Health Resources & Services Administration (HRSA), Bureau of Health Professions
Preparred By: Oregon Health Policy and Research 11/29/2011

Access to Care

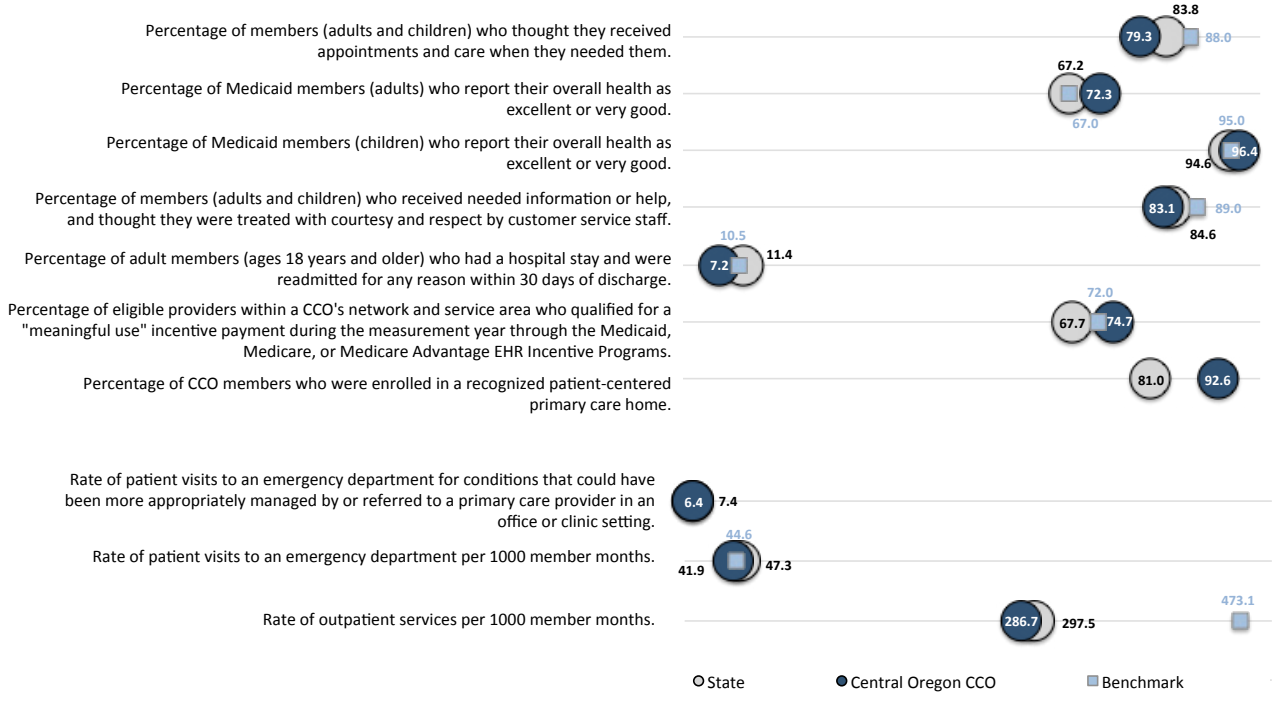
Public Health Workforce

Public health systems are often defined as "all public, private, and voluntary entities that contribute to the delivery of essential public health services within a jurisdiction." (CDC) Employees of public health organizations work to provide the 10 essential public health services. Having a well-staffed and funded public health workforce is key for providing these services.

- Directors of the three Central Oregon health departments were asked to quantify the number of staff by position and programmatic area in the spring of 2015. Estimates suggest:
- The most common positions in Crook, Deschutes, and Jefferson County Health Departments are administrative and fiscal, health educators, and public health nurses. The least common are epidemiologists, biostatisticians, and mental health specialists.
- The most commonly staffed areas were in reproductive health and maternal and child health, followed by communicable disease control and environmental health. The areas with some of the fewest staff were chronic disease control, substance abuse prevention, and performance management.
- Self-reported public health service needs of the Central Oregon region were in emergency preparedness, chronic disease prevention and control, and grant writing/management.
- Deschutes County and Crook County participated in a workforce needs assessment conducted by the University of Washington's Northwest Center for Public Health Practice to identify specific areas for staff development. Results for Jefferson County were not available. In Deschutes County, communications and cultural competency were high priority areas for training, while supervisors wanted extra training in performance management and conducting health impact assessments. In Crook County, leadership, communication, management and systems thinking were high priority areas for training. Training in emergency preparedness and health impact assessments was also mentioned as an interest.

CCO Measures

- The Central Oregon CCO performance on healthcare utilization metrics are similar to the state performance overall (Figure 87). There is no benchmark for the percent of CCO members enrolled in a patient-centered primary care home or avoidable ED utilization.



Glossary and Acronyms

Age-adjusted: A method for standardizing and comparing rates when the populations differ significantly by age. In this report, populations were weighted using the 2000 census.

American Community Survey (ACS): A survey conducted annually between census years by the US Census Bureau.

Asthma Call-back Survey (ACBS): A follow-up survey conducted after the Behavioral Risk Factor Surveillance System Survey with people who indicated they had or currently have asthma.

Behavioral Risk Factor Surveillance System (BRFSS): A phone survey conducted among randomly selected, non-institutionalized adults that asks about a variety of health risks and behaviors.

Body Mass Index (BMI): Use both weight and height to determine the size of an individual. BMI is divided into four categories: underweight (<18.5), normal (18.5-24.9), overweight (25.0-29.9), obese (30.0 or greater).

Centers for Disease Control and Prevention (CDC): The federal organization that protects the health of the nation's residents and helps local communities do the same.

Community Advisory Council (CAC): A group of individuals that guides the Central Oregon Health Council on the organization's direction and makes recommendations that support the community.

Central Line Associated Bloodstream Infection (CLABSI): Infection of the blood related to an intravascular catheter.

Chronically homeless: A person who is 18 years or older, has a disability, and has been homeless for the past 12 or more months or has had 4 episodes of homelessness in the past 3 years.

Confidence Interval (CI): A range of numbers in which the true estimate would be found 95% of the time if the sample were taken an infinite number of times.

Consumer Assessment of Healthcare Providers and Systems (CAHPS): A survey that asks consumers and patients to report on and evaluate their experiences with healthcare.

Coronary Artery Bypass Graft (CABG): Procedure used to treat coronary artery disease.

Crude rate: A method for reporting disease counts. They are calculated by dividing the number of people (cases) by the number of people at risk (or in the population). Rates are often standardized to per 100,000 people.

Emergency Department (ED): Part of a hospital that serves people in need of immediate care.

Environmental Public Health Tracking (EPHT): Public health surveillance, data analysis, and reporting on environmental exposures that can affect health. Twenty-six sites are funded from CDC to perform EPHT.

Fecal Occult Blood Test (FOBT): A screening test for colorectal cancer.

Health Resource and Services Administration (HRSA): An agency of the US Department of Health and Human Services that focuses on improving access to healthcare.

Healthcare Associated Infection (HAI): Infection associated with the use of a medical device like a catheter or ventilator or infections at a surgical site.

Healthcare Provider (HCP): A licensed individual that delivers health services.

Healthcare Providers Shortage Area (HPSA): Geographic areas with limited healthcare professional workforce.

Glossary and Acronyms

Healthy People 2020 (HP 2020): National goals to meet by the year 2020.

Healthcare Cost and Utilization Project (HCUP): A collection of longitudinal hospital care data for the United States.

Incidence: The number of new cases that occurred in a population. Often used for communicable disease reporting.

Long-acting Reversible Contraception (LARC): Birth control methods that provide effective, reversible contraception for extended periods of time without requiring user action.

Medicaid Behavioral Risk Factor Surveillance Survey (MBRFSS): The BRFSS conducted among adults enrolled in Medicaid (OHP).

Medically Underserved Area or Population (MUA/P): Geographic areas with high population to provider ratios, infant mortality rates, and poverty rates.

Oregon Health Plan (OHP): Healthcare coverage program for low-income Oregonians.

Oregon Healthy Teens Survey (OHT): School-based, anonymous and voluntary survey conducted among 8th and 11th graders that informs schools, communities, and the state about strengths or areas for improvement related to student health and health behaviors.

Oregon Public Health Analysis Tool (OPHAT): A data warehouse containing datasets with vital records and reportable condition counts. This is a tool for authorized personnel to use when performin**Oregon School Wellness Survey (OSWS):** A survey conducted in even numbered years to assess mental health and substance use of 6th, 8th, and 11th graders.

Pregnancy Risk and Monitoring Survey (PRAMS): A survey of mothers who recently gave birth that addresses prenatal care, health behaviors and risks, and post-partum topics.

Prevalence: The number of cases that exist in a population. Often used for chronic disease reporting.

Prevention Quality Indicator (PQI): Quality measures used to identify areas for performance improvement. Measures are focused on conditions where good outpatient care could prevent the need for a hospitalization.

Severe and Persistent Mental Illness (SPMI): Mental illnesses that lead to significant disability, including need for medications, rehabilitation, and other support.

Supplemental Nutritional Assistance Program (SNAP): Nutrition assistance program for low-income families.

Standard Infection Ratio (SIR): A summary measure that is adjusted for various risk factors and is used to track the prevention of healthcare acquired infections. A lower number is better.

Temporary Assistance for Needy Families (TANF): A program to help families reach self-sufficiency. The four goals of the program are 1) support families so that children can be cared for in their own homes, 2) promote job preparation, work and marriage, 3) promote planned pregnancies, and 4) encourage two-parent families.

Women, Infants, and Children (WIC): A Federal program for low income and nutritionally at risk women, infants and children. Participants receive education, screening, and support in purchasing nutritious foods.

Wide-ranging Online Data for Epidemiologic Research (CDC WONDER): Menu-driven web-based system that makes public health data available to the public.

Years of Potential Life Lost (YPLL): A measure of premature mortality. Calculated by subtracting the age at death from a predetermined life expectancy age, usually 75 years.

Resources

1. Adverse Childhood Experiences (ACEs) CDC: http://www.cdc.gov/violenceprevention/acestudy/
2. Better Together Baseline Report, Winter 2015: http://www.hdesd.org/files/2015/02/2015-Better-Together-Baseline-e-report.pdf
3. Centers for Disease Control and Prevention: www.cdc.gov
4. BRFSS (Behavioral Risk Factor Surveillance System), Data Analysis Tools: http://www.cdc.gov/brfss/data_tools.htm

    b. WONDER (Wide-ranging Online Data for Epidemiologic Research): http://wonder.cdc.gov

    c. WISQARS (Web-based Injury Statistics Query and Reporting System): http://www.cdc.gov/injury/wisqars/

5. Central Oregon Homeless Leadership Coalition: http://www.cohomeless.org
6. Central Oregon Housing Works: http://housing-works.org
7. Crook County Health Department: http://co.crook.or.us/Departments/HealthDepartment/HealthHome/tabid/2169/Default.aspx
8. Deschutes County Health Services: http://www.deschutes.org/services?category=47
9. Economic Research Service (ERS), U.S. Department of Agriculture (USDA). Food Environment Atlas. http://www.ers.usda.gov/data-products/food-environment-atlas.aspx.
10. Environmental Public Health Tracking (Oregon): http://epht.oregon.gov
11. Healthy People 2020: http://www.healthypeople.gov/2020/topicsobjectives2020/default
12. Jefferson County Health Department: http://www.co.jefferson.or.us/PublicMentalHealth/PublicHealthDepartment/tabid/3777/language/en-US/Default.aspx
13. Kids Count Data Center: http://datacenter.kidscount.org/
14. Oregon Department of Education: http://www.ode.state.or.us/home/
15. Oregon Health Authority Data: https://public.health.oregon.gov/DataStatistics/Pages/index.aspx
16. Substance Abuse and Mental Health Services Administration: samhsa.gov

    a. Behavioral Health Barometer: http://store.samhsa.gov/product/Behavioral-Health-Barometer-2014SMA15-4895

17. United States Census Bureau: http://www.census.gov
18. United Way: http://www.deschutesunitedway.org

Appendix A

CCO Quality Health Measures

Access to Healthcare	Percentage of members (adults and children) who thought they received appointments and care when they needed them.
	Percentage of Medicaid members (adults) who report their overall health as excellent or very good.
	Percentage of Medicaid members (children) who report their overall health as excellent or very good.
	Percentage of members (adults and children) who received needed information or help, and thought they were treated with courtesy and respect by customer service staff.
	Percentage of adult members (ages 18 years and older) who had a hospital stay and were readmitted for any reason within 30 days of discharge.
	Percentage of eligible providers within a CCO's network and service area who qualified for a "meaningful use" incentive payment during the measurement year through the Medicaid, Medicare, or Medicare Advantage EHR Incentive Programs.
	Percentage of CCO members who were enrolled in a recognized patient-centered primary care home.
	Rate of patient visits to an emergency department for conditions that could have been more appropriately managed by or referred to a primary care provider in an office or clinic setting.
	Rate of patient visits to an emergency department per 1000 member months.
	Rate of outpatient services per 1000 member months
Alcohol, Tobacco, and Other Drugs	Percentage of adults members (ages 18 years and older) who had appropriate screening and intervention for alcohol or other substance abuse (SBIRT measure)
	Percentage of patients (aged 13 and older) newly diagnosed with alcohol or other drug dependence and who began treatment within 14 days of the initial diagnosis
	Percentage of patients (aged 13 and older) who had two or more additional services for alcohol or other drug dependence within 30 days of their initial treatment
	Percentage of adult tobacco users advised to quit by their doctor
	Percentage of adult tobacco users whose doctor discussed or recommended medication to quit smoking
	Percentage of adult tobacco users whose doctor discussed or recommended strategies to quit smoking
	Percentage of adult Medicaid members (ages 18 years and older) who currently smoke cigarettes or use other tobacco products.
Child and Adolescent health	Percentage of adolescents and young adults (ages 12-21 years) who had at least on well-care visit during the year.
	Percentage of children who were screened for risks of developmental, behavioral and social delays using standardized screening tools in the 12 months preceding their first, second, or third birthday.
Chronic Disease	Percentage of adult patients (ages 18-75 years) with diabetes who received at least one A1c blood sugar test
	Percentage of adult patients (aged 18-75 years) with diabetes who received an LDL-C (cholesterol) test
	Percentage of patients (18-75 years of age) with diabetes who had hemoglobin A1c>9.0% during the measurement period.
	Percentage of adult members (ages 50-75 years) who had appropriate screening for colorectal cancer.
	Percentage of women (aged 21 to 64 years) who got one or more Pap tests for cervical cancer in the past three years.
	Percentage of patients 18-85 years of age who had a diagnosis of hypertension (high blood pressure) and whose blood pressure was adequately controlled. (<140/90mmHg) during the measurement period.
	Rate of adult patients (18 years and older) with diabetes who had a hospital stay because of a short-term problem from their disease (per 100,000 member years) (PQI 01)
	Rate of adult patients (aged 18 years and older) who had a hospital stay because of congestive heart failure (per 100,000 member years) (PQI 08)
	Rate of adult patients (age 40 and older) who had a hospital stay because of asthma or chronic obstructive pulmonary disease (per 100,000 member years) (PQI 05)
	Rate of adult members (ages 18-39 years) who had a hospital stay because of asthma (per 100,000 member years).
Communicable Disease	Percentage of adolescents who received recommended vaccines before their 13th birthday.
	Percentage of children who received recommended vaccines before their second birthday.
	Percentage of children with a sore throat (pharyngitis) who were given a strep test before getting an antibiotic.
	Percentage of sexually active women (ages 16-24 years) who had a test for chlamydia infection
Maternal and Infant Health	Percentage of pregnant women who received within the first trimester or within 42 days of enrolling in Medicaid.
	Percentage of women who had an elective delivery between 37 and 39 weeks of gestation.
	Percentage of women who had a postpartum care visit on or between 21 and 56 days after delivery.
	Percentage of children up to 15 months old who had at least 6 well child visits with a HCP.
Mental Health	Percentage of children aged 4+ years that receive a mental health assessment and physical health assessment within 60 days of the state notifying CCOs that the children were placed into custody with the DHS.
	Percentage of patients (aged 6+) who received a follow up with a HCP within 7 days of being discharged from the hospital for mental illness
	Percentage of children (aged 6-12 years) who had one follow up visit with a provider during the 30 days after receiving a new prescription for ADHD medication
	Percentage of patients ages 12 years and older who were screened for clinical depression using an age-appropriate standardized depression screening tool and if positive, have a documented follow-up plan.

Appendix B

Data Set/Program	Acronym	Year of data
Adverse Childhood Experiences Study	ACEs	1998
American Cancer Society		2015
American Community Survey	ACS	2011-2013
Asthma Call Back Survey	ACBS	2011
Behavioral Risk Factor Surveillance System	BRFSS	2008-2013
Birth Certificates		2000-2013
Centers for Disease Control and Prevention	CDC	2009, 2010, 2013
CDC Wide-ranging Online Data for Epidemiologic Research	CDC WONDER	2000-2013
Consumer Assessment of Healthcare Providers and Systems Survey	CAHPS	2013
Community Advisory Council	CAC	2014
Coordinated Care Organization Quality Measures	CCO	2014
Death Certificate		2000-2013
Deschutes County Smokefree Report		2012
Environmental Public Health Tracking	EPHT	2011-2012
Environmental Protection Agency Air Quality Data	EPA airnow	2010-2013
Guttmacher Institute		2015
Health Impacts of Transportation in Central Oregon		2012
Healthy People 2020	HP2020	Varies
Kids Count		2010-2014
Maternity Practices and Infant Nutrition and Care Survey	mPINC	2013
Medicaid Behavioral Risk Factor Surveillance Survey	MBRFSS	2014
National Health Interview Survey	NHIS	2011
National Immunization Survey	NIS	2013
National Institute of Drug Abuse	NIDA	2014
Northwest Tribal Epidemiology Center		2012
Office of Oregon Health Policy and Research		2013
Oregon ALERT Immunization Information System		2013
Oregon Census on Employment and Wages		2012
Oregon Dental Sealant Program		2013-2014
Oregon Department of Education	ODE	2013-2014
Oregon Department of Transportation Crash Data	ODOT	2013
Oregon Drinking Water Quality Database		2014
Oregon Health Authority	OHA	2014-2015
Oregon Healthy Teens Survey	OHTS	2013
Oregon Hospital Discharge Data	HDD	2011, 2013
Oregon Primary Care Office		2015
Oregon Public Health Analytic Tool	OPHAT	2000-2013
Oregon Student Wellness Survey	OSWS	2014
Oregon Tobacco Quit Line data		2014
PacificSource Community Solutions	PSCS	2014-2015
Parks, Recreation, and Green Spaces Comprehensive Plan		2012
Pregnancy Risk Assessment Monitoring System	PRAMS	2008-2011
State Cancer Profiles		2007-2011
Substance Abuse and Mental Health Services Association	SAMHSA	2012, 2014
Synar Report		2009-2013
State Trauma Registry	STR	2010-2011
US Renal Data System		2012
Web-based Injury Statistics Query and Reporting	WISQARS	2012
Women, Infant, Children Program	WIC	2015
World Health Organization	WHO	2015