

Air Quality

Air Quality, Monitoring, and Health

June 27, 2017

Smoke Management Review Committee
Meeting

Why is smoke a concern?

Air pollutants



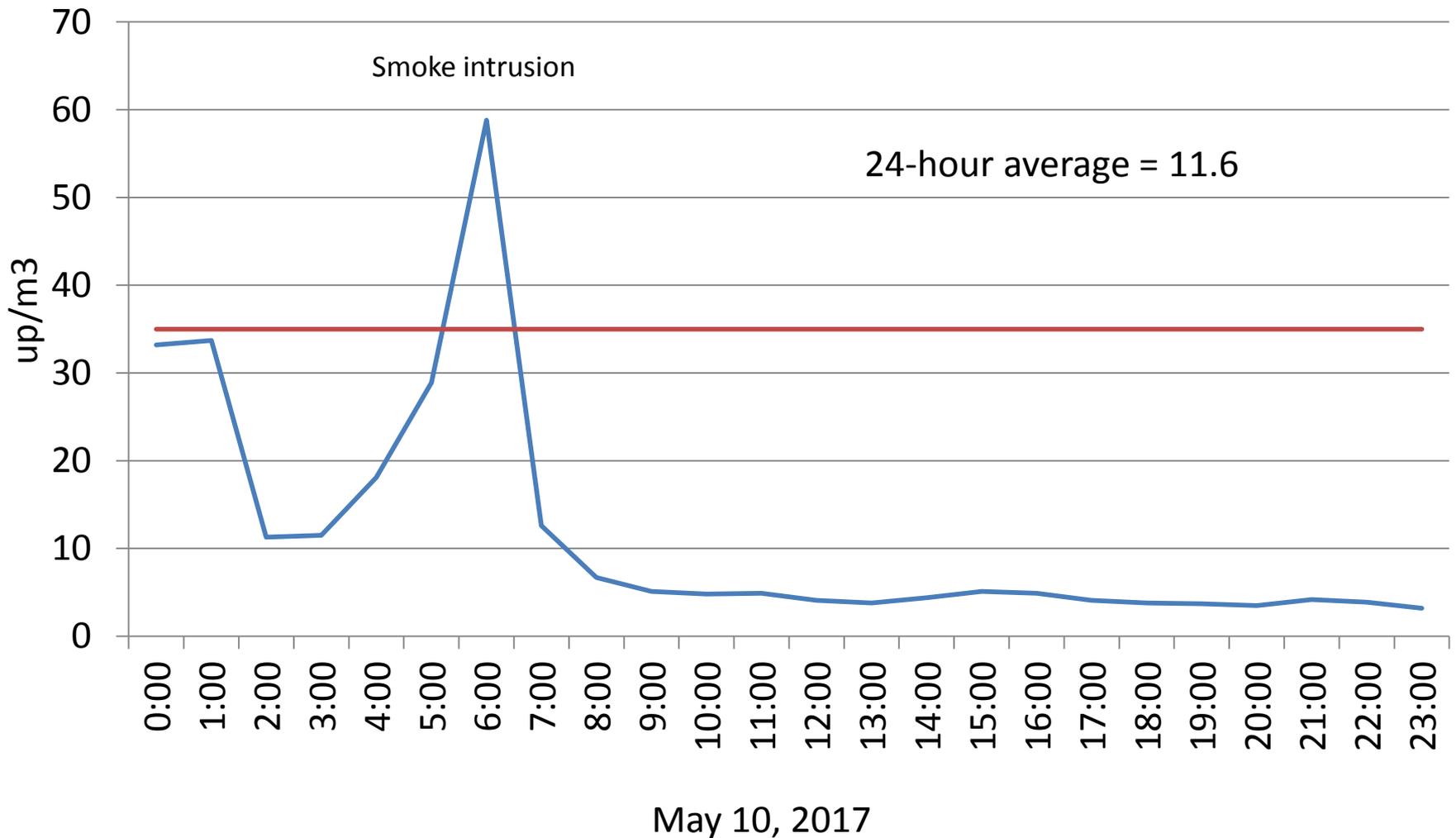
Key air quality components of smoke

PM_{2.5} National Ambient Air Quality Standard (NAAQS) overview

- 24-hour PM_{2.5} standard: 35 ug/m³
 - Annual PM_{2.5} standard: 12 ug/m³
- How compliance with standard is calculated
 - 24-hour standard is based on 3-year average
- Limitations of NAAQS

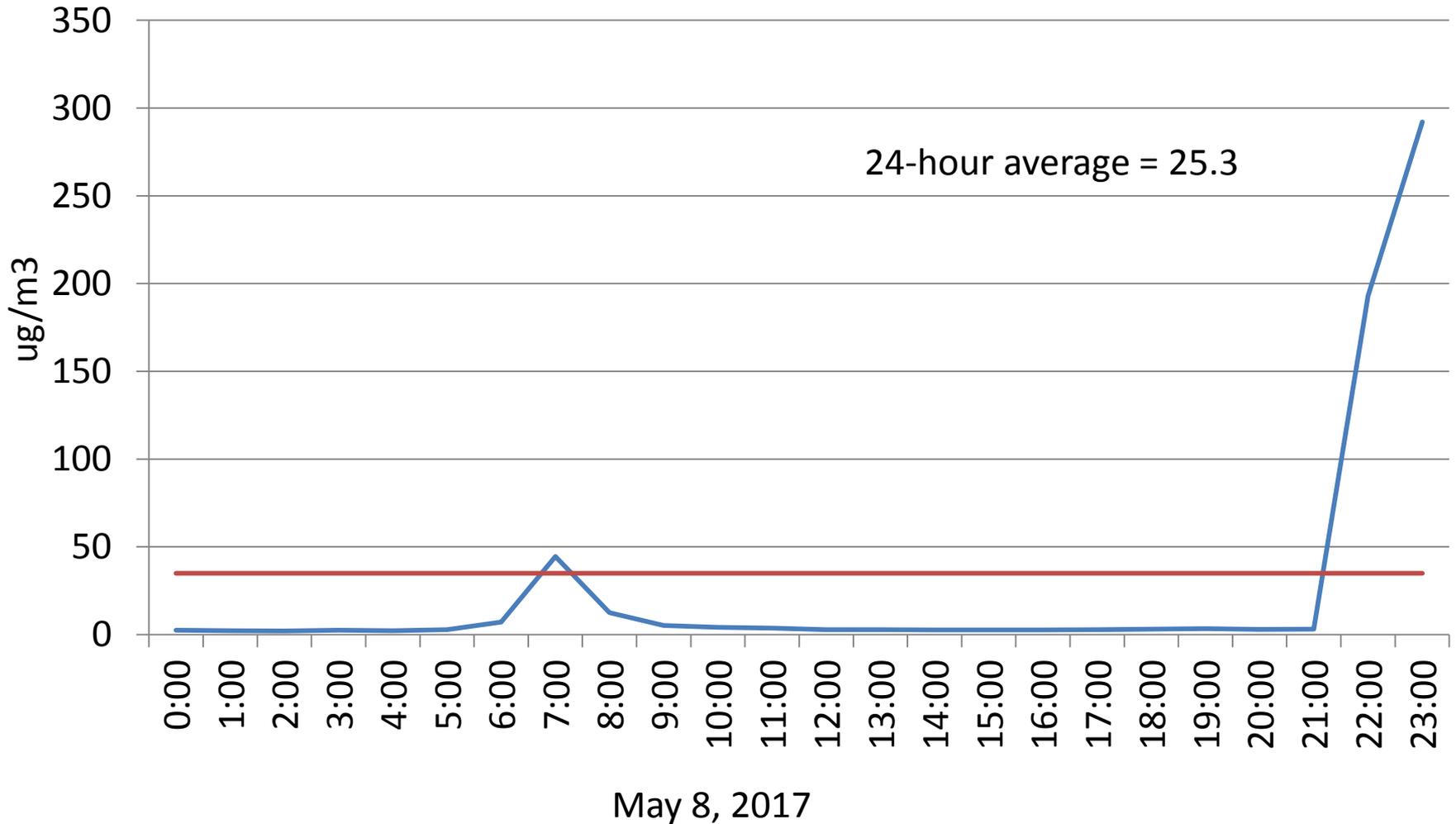
Limitations of 24-hour PM2.5 standard

Sisters, Oregon



Limitations of 24-hour PM2.5 standard

Sisters, Oregon



Monitoring & Bscat

- DEQ has a network of PM2.5 monitors
 - Federal reference monitors – used to determine compliance
 - Captures particulates on a filter, must be analyzed by a Lab
 - Measurements are provided in $\mu\text{g}/\text{m}^3$
 - Nephelometers – can provide real-time hourly data 
 - Measurements are provided in Bscat (beta scattering)



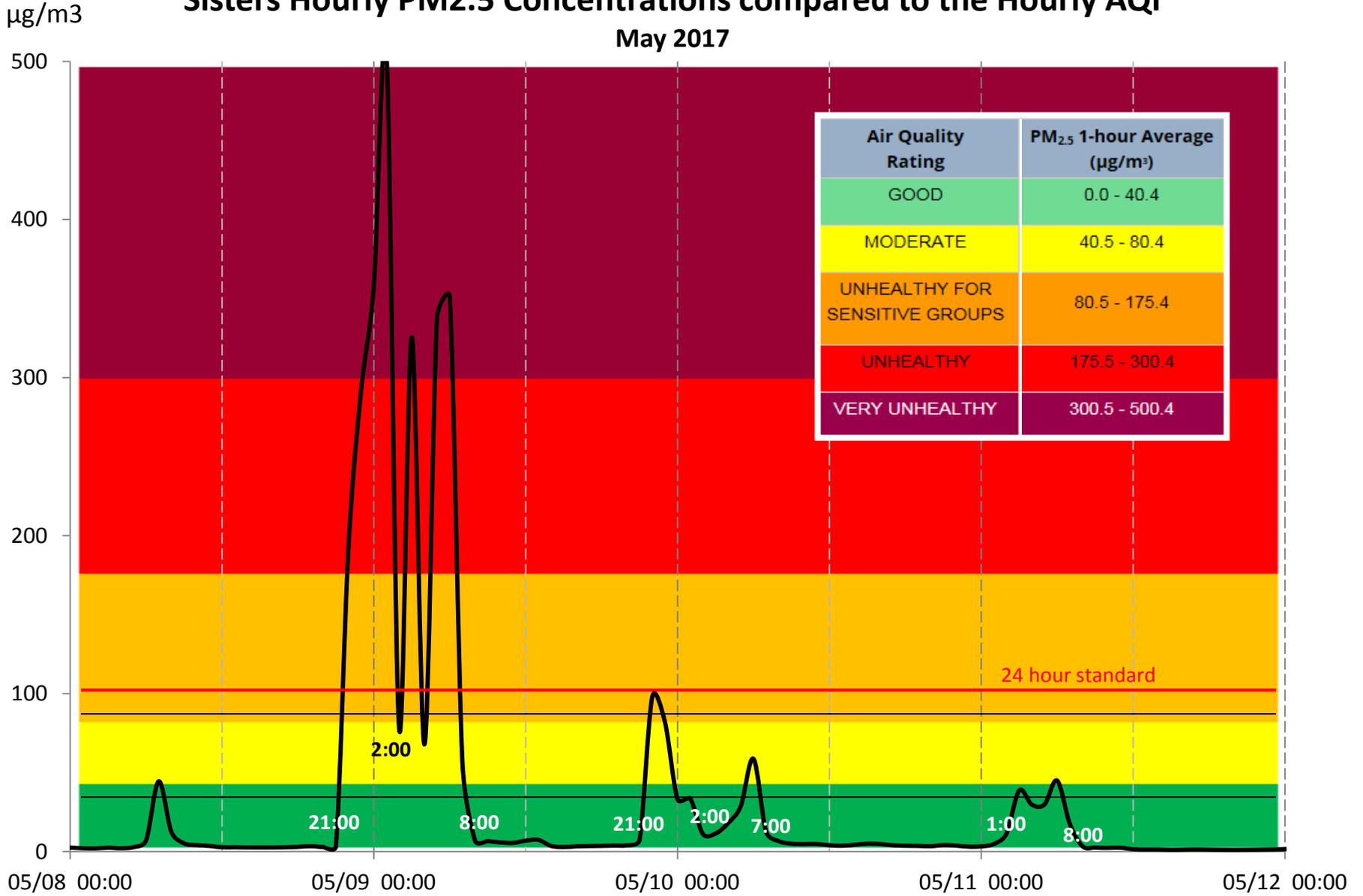
Air Quality Index (AQI) & NAAQS

- AQI is index for reporting daily air quality

Air Quality Rating	Air Quality Index	PM _{2.5} 1-hour average (ug/m ³)	PM _{2.5} 24-hour average (ug/m ³)
GOOD	0-50	0.0 – 40.4	0.0 – 12.0
MODERATE	51-100	40.5 – 80.4	12.1 – 35.4
UNHEALTHY FOR SENSITIVE GROUPS	101-150	80.5 – 175.4	35.5 – 55.4
UNHEALTHY	151-200	175.5 – 300.4	55.5 – 150.4
VERY UNHEALTHY	201-300	300.5 – 500.4	150.5 – 250.4
HAZARDOUS	>300	>500.5	>250.5

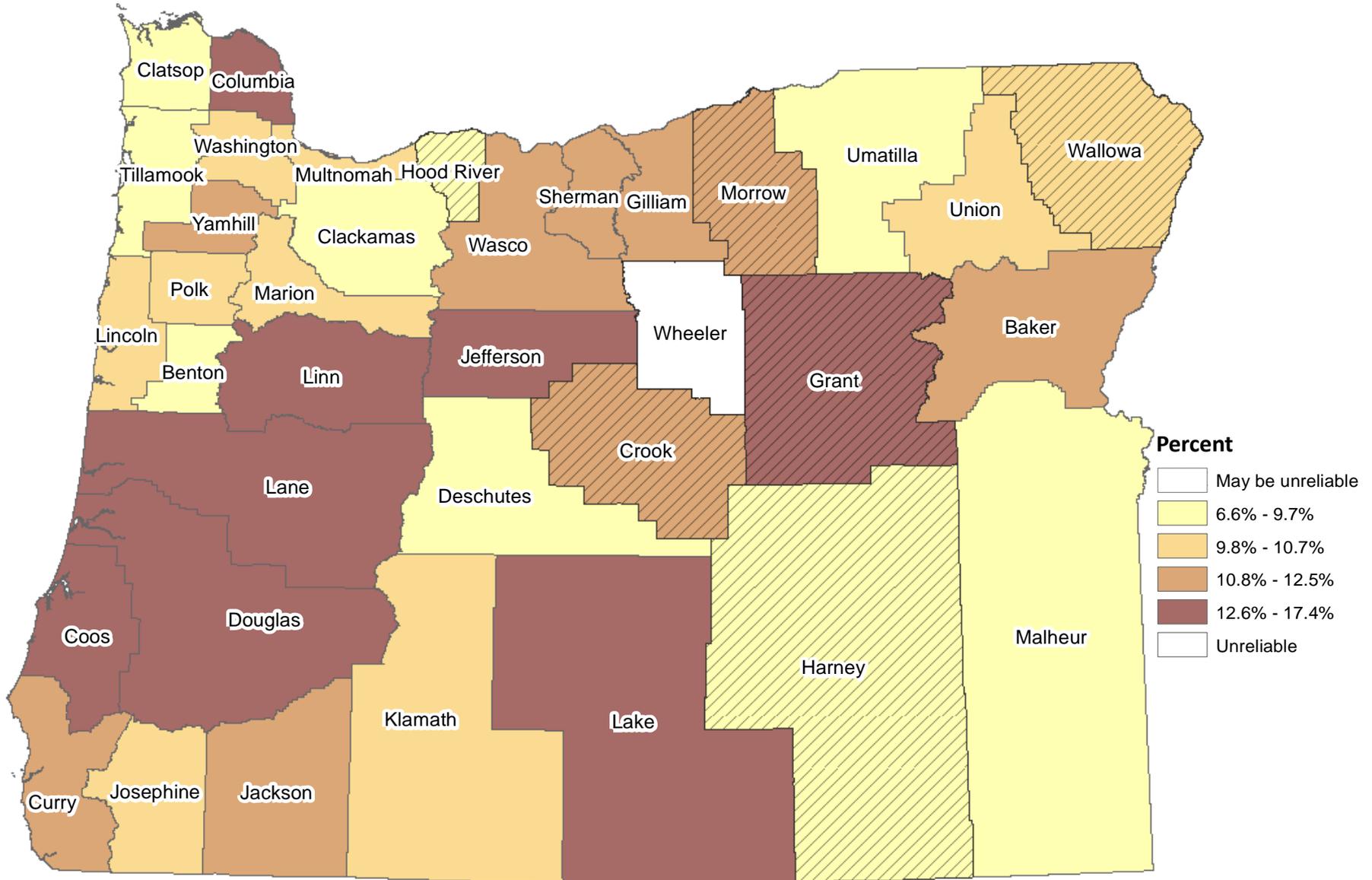
Sisters Hourly PM2.5 Concentrations compared to the Hourly AQI

May 2017



Times are for the bottom of the hour and in PST

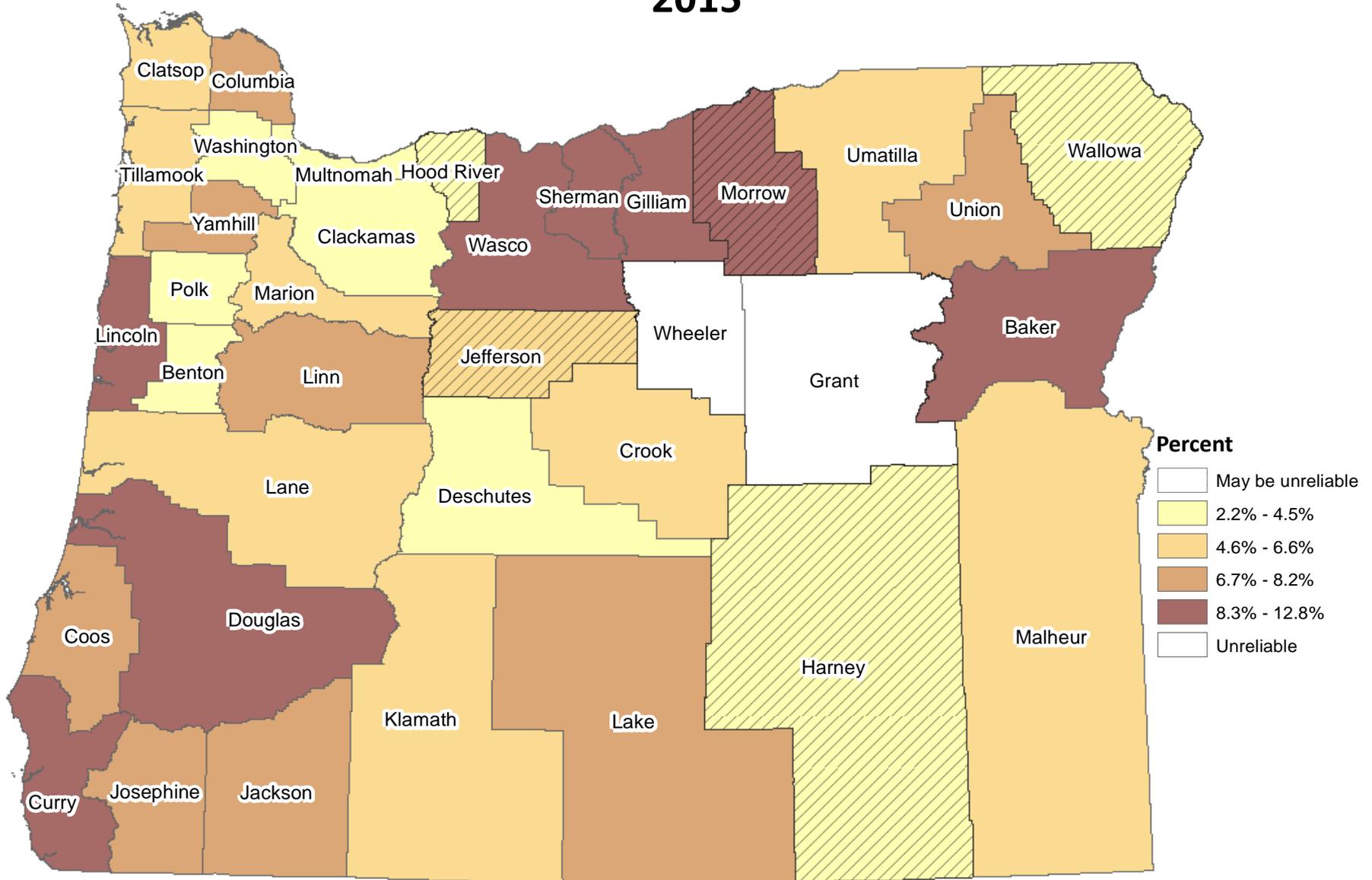
Adult asthma prevalence, 2012-2015



Data source: Oregon Behavioral Risk Factors Surveillance System, 2012-2015

Reliability is based on the number of people surveyed. Counties with small numbers of adults surveyed will result in a warning that the prevalence may be unreliable or being suppressed because the prevalence is unreliable.

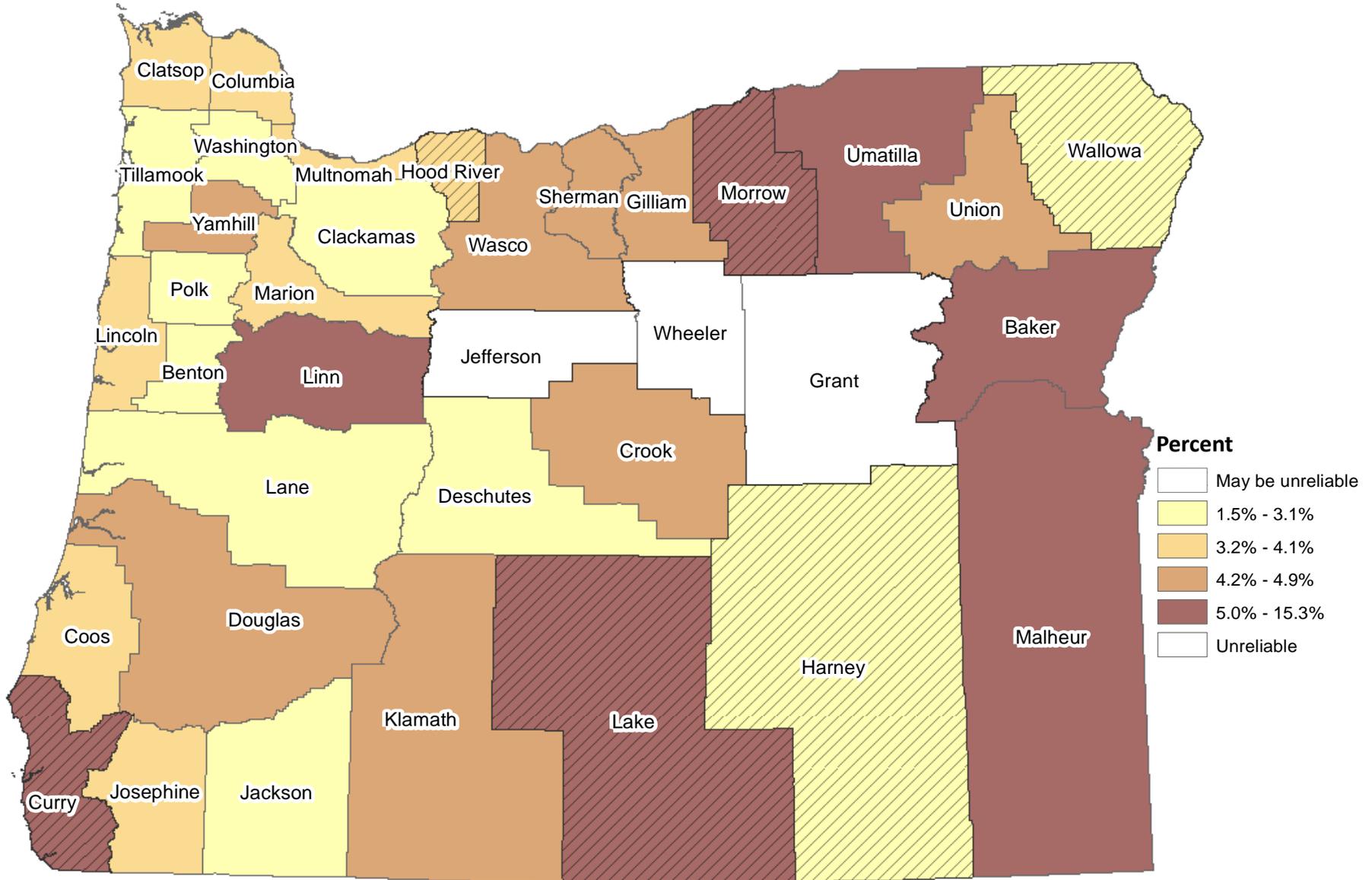
Adult chronic obstructive pulmonary disease prevalence, 2012-2015



Data source: Oregon Behavioral Risk Factors Surveillance System, 2012-2015

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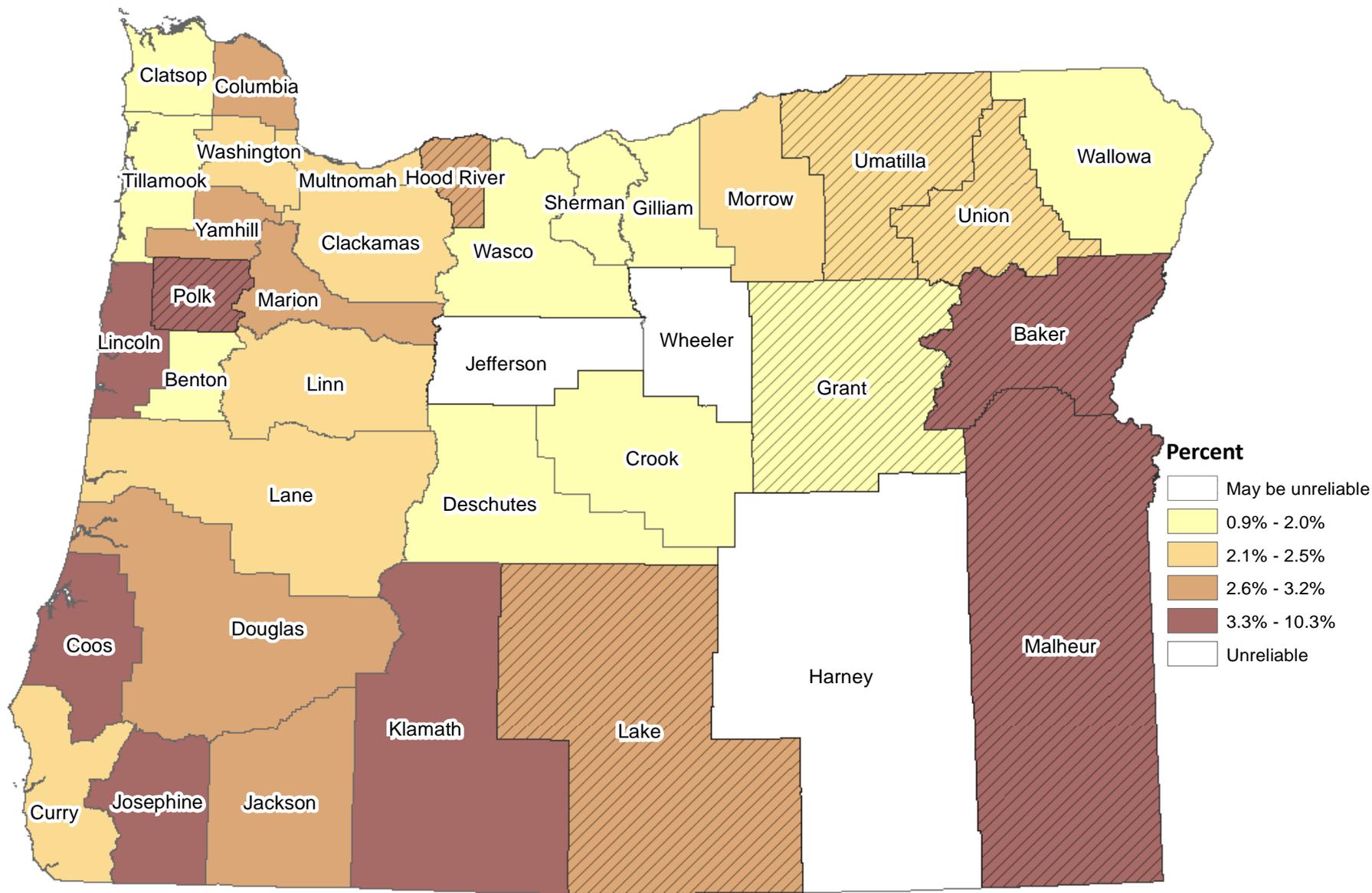
Adult heart attack prevalence, 2012-2015



Data source: Oregon Behavioral Risk Factors Surveillance System, 2012-2015

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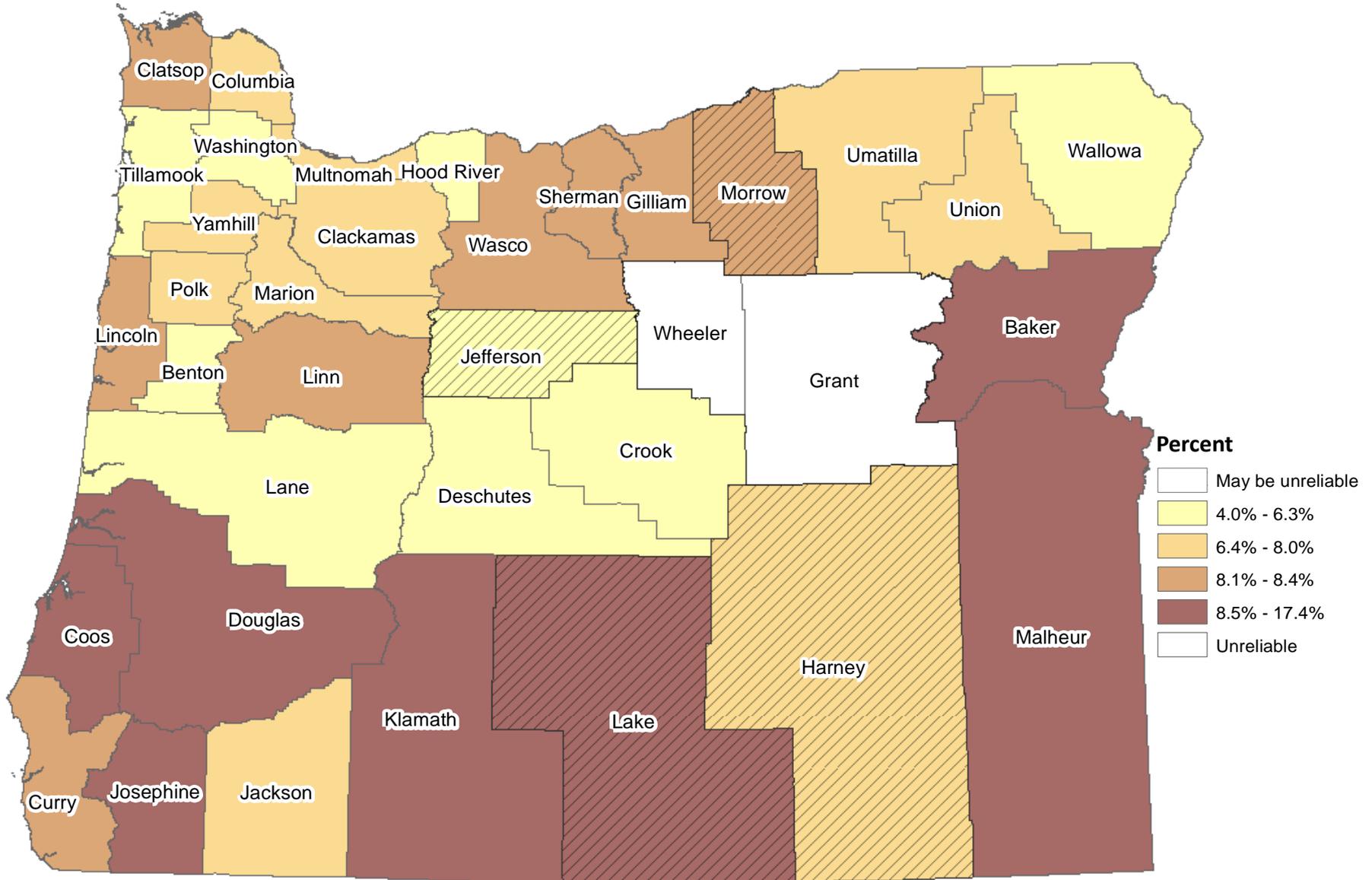
Adult stroke prevalence, 2012-2015



Data source: Oregon Behavioral Risk Factors Surveillance System, 2012-2015

Reliability is based on the number of people surveyed. Counties with small numbers of adults surveyed will result in a warning that the prevalence may be unreliable or being suppressed because the prevalence is unreliable.

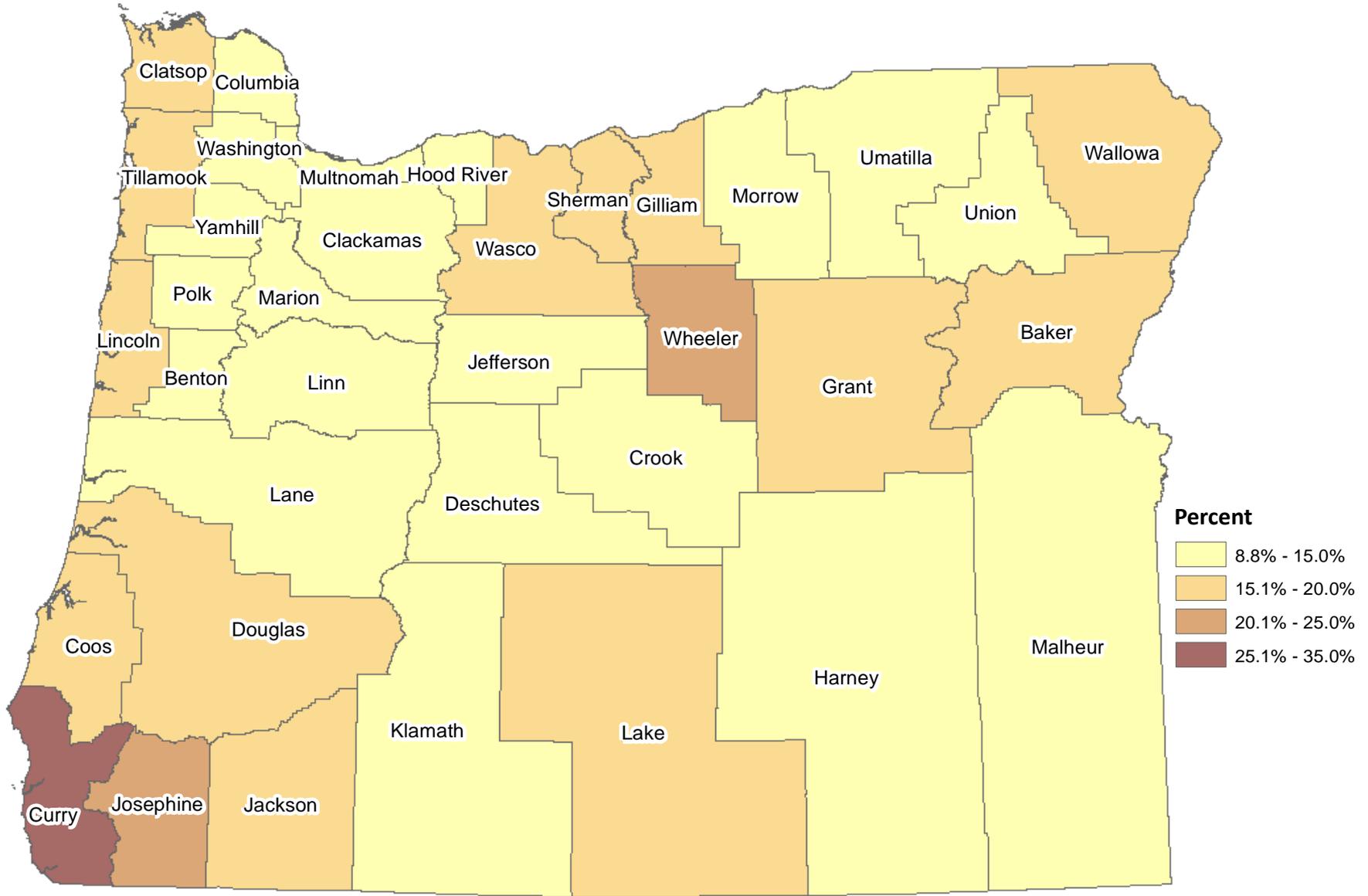
Adult cardiovascular disease prevalence, 2012-2015



Data source: Oregon Behavioral Risk Factors Surveillance System, 2012-2015

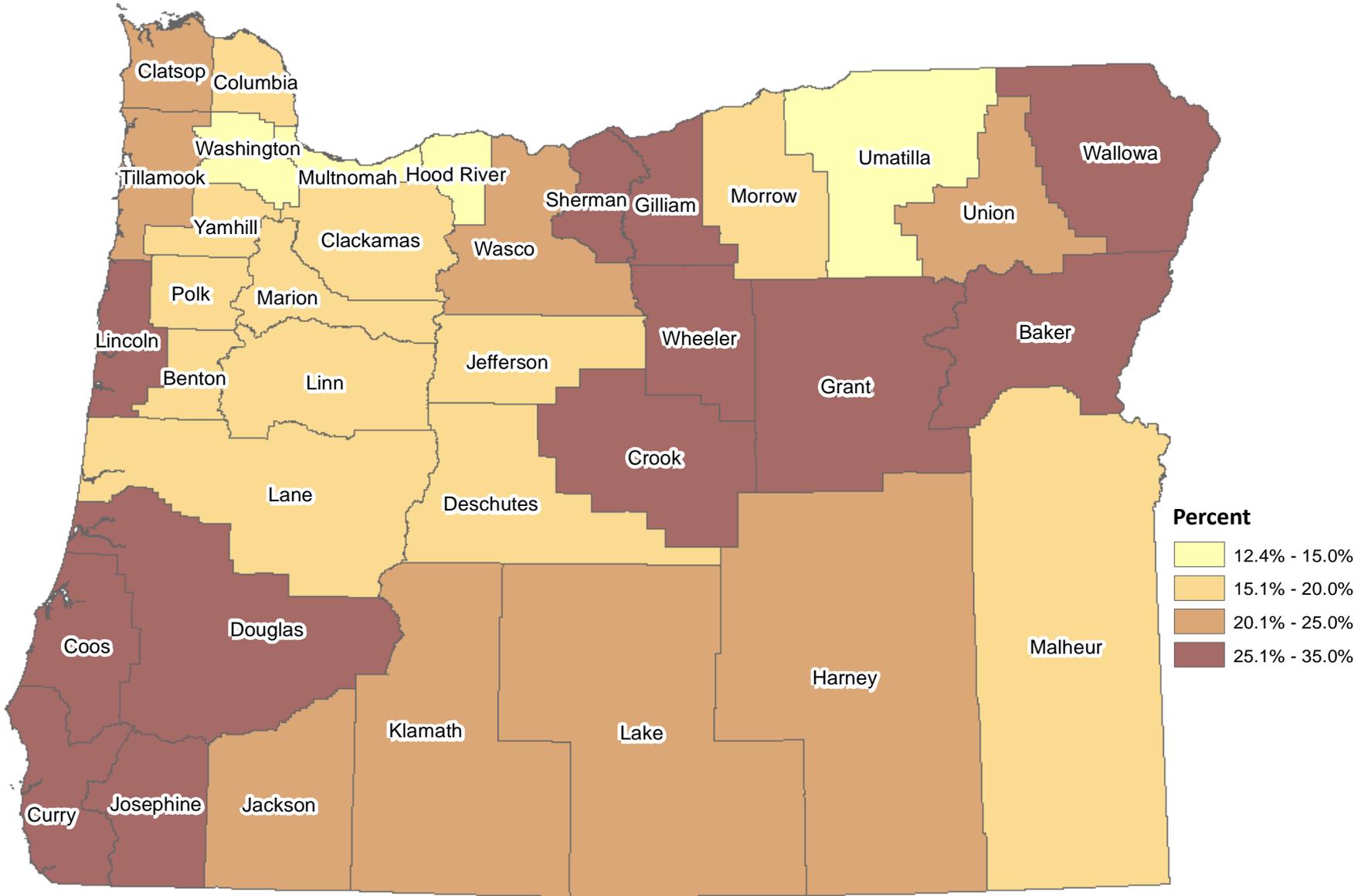
Reliability is based on the number of people surveyed. Counties with small numbers of adults surveyed will result in a warning that the prevalence may be unreliable or being suppressed because the prevalence is unreliable. Cardiovascular disease includes angina, heart attack, or stroke.

Population age 65 and over in 2000



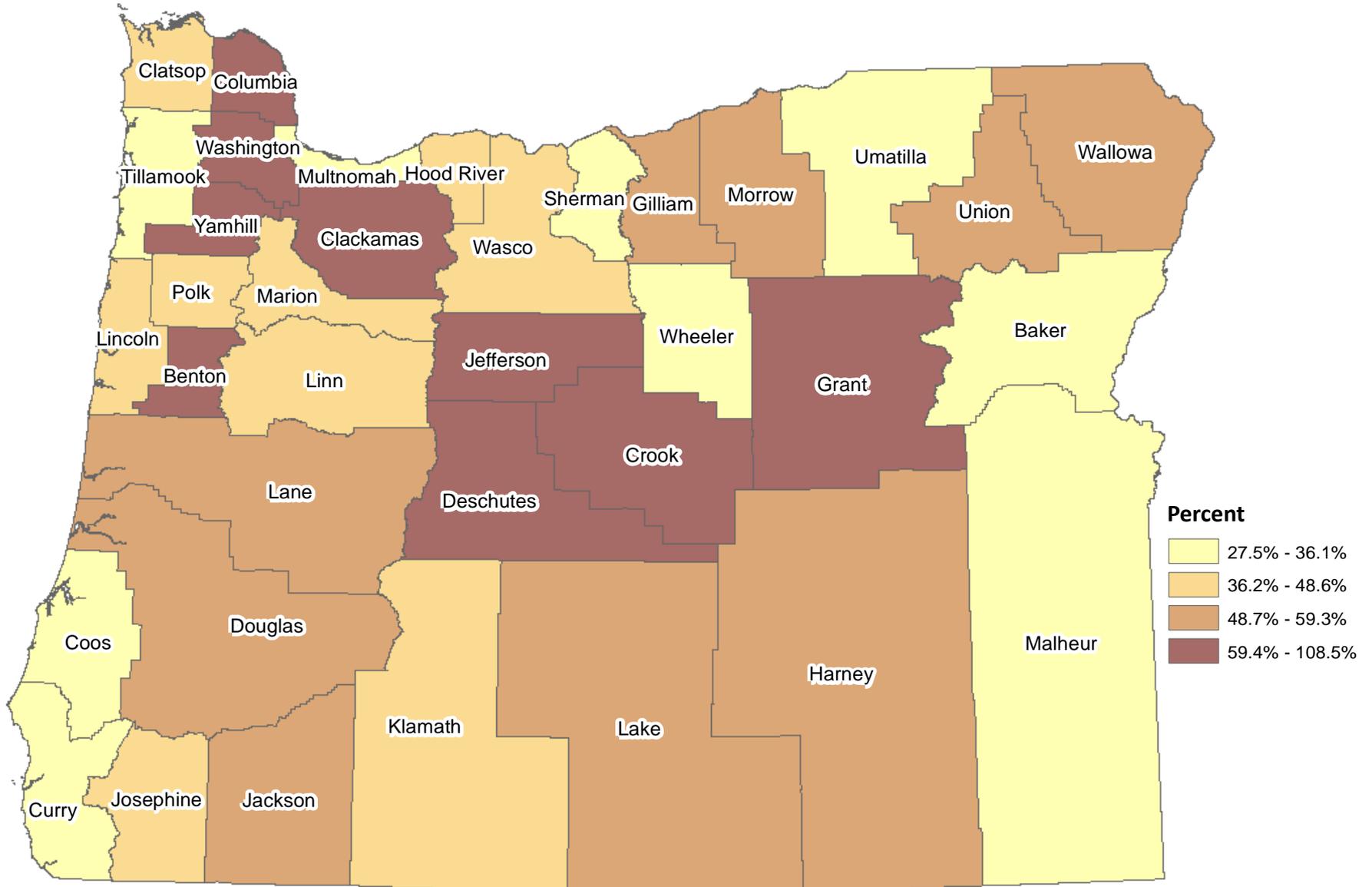
Data source: U.S. Census Bureau

Population age 65 and over in 2016



Data source: Oregon Population Research Center

Percent increase of people age 65 and over from 2000 to 2016



Data source: U.S. Census Bureau and Oregon Population Research Center

Health concerns

- Vulnerable populations
 - Elderly, children
 - Includes people who work outside
- How do we limit exposure to communities

Questions?

