



ANNUAL TUBERCULOSIS REPORT OREGON 2012

Oregon Health Authority
Public Health Division
TB Program
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Oregon
Health
Authority

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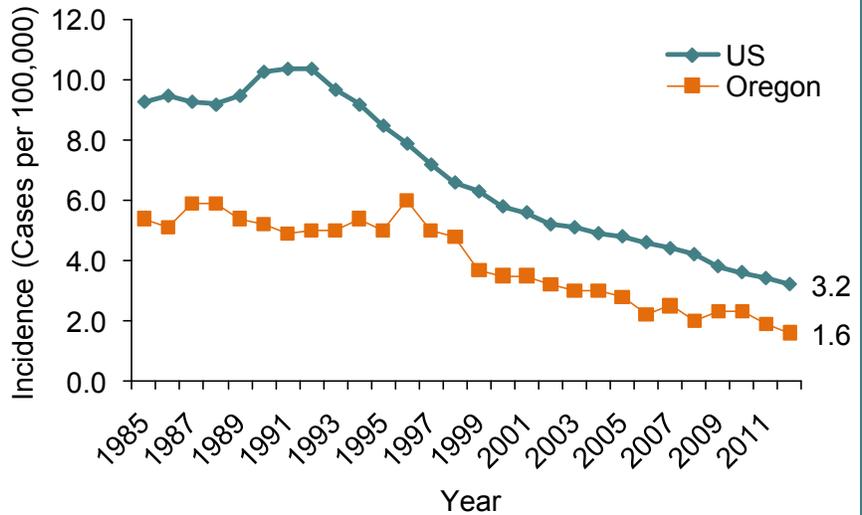
Tuberculosis incidence

Rates of tuberculosis (TB) disease have been dropping in Oregon and the US.

Oregon's TB disease rate is lower than the US rate. National rates reached a low of 3.2 cases per 100,000 persons in 2012. Oregon's 2012 TB disease rate decreased to its lowest point yet, at 1.6 cases per 100,000 persons.

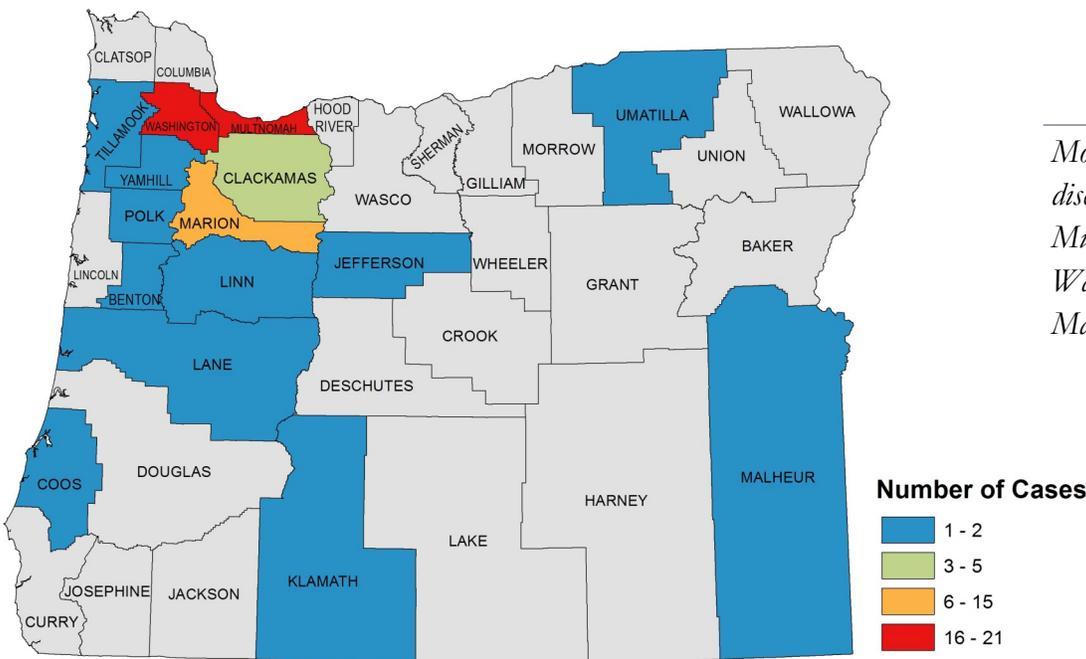
There were 61 cases in Oregon in 2012, compared to 74 cases in 2011.

Chart 1. TB Incidence in the US and Oregon, 1985-2012



Tuberculosis cases by county

Chart 2. TB Cases by County, Oregon 2012



Most 2012 cases of TB disease were in Multnomah, Washington, and Marion counties.

During 2012, 61 cases of TB disease were reported in Oregon. The three counties with the most cases were Multnomah (n=21), Washington (n=17), and Marion (n=7). Overall, fifteen counties reported at least one TB case in 2012.

Tuberculosis by age group

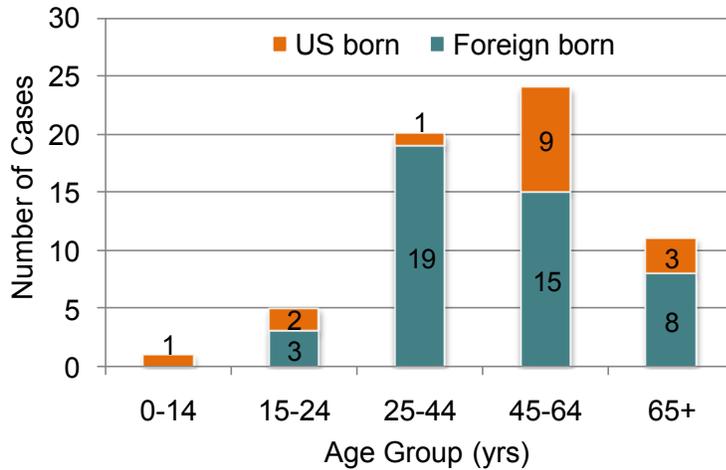
In 2012, most TB disease cases were in adults age 25 or older. The 45-64 year old age group contained the largest percentage of cases (39%), with 24 cases.

The percentage of foreign-born adult cases was highest among 25-44 year olds (95%).

The mean case age was 46 years (range of 14 - 91 years) and median case age was 48 years.

There was one case of pediatric TB disease reported in 2012 in a US-born child.

Chart 3. Number of TB Cases by Age Group and Foreign-born, Oregon 2012

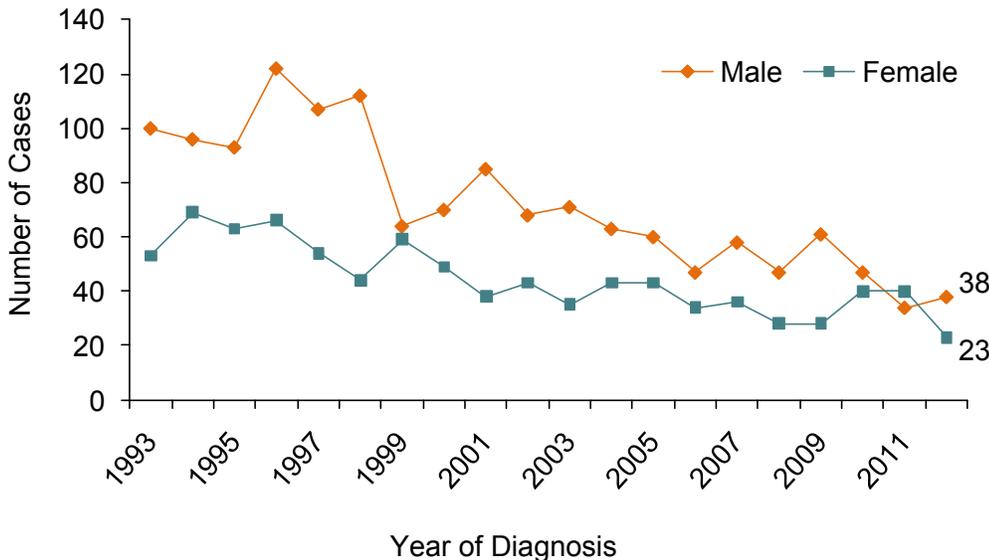


Tuberculosis by sex

Historically, TB disease rates are higher among men than women. Reasons for this may include differences in access to care, underlying susceptibility to TB, or distribution of TB risk factors, such as homelessness and substance abuse.

In 2012, 62% of Oregon TB cases were men (n=38, 1.98 cases/100,000 men) . Women made up 38% of cases (n=23, 1.17 cases/100,000 women).

Chart 4. Number of TB Cases by Sex, Oregon 1993-2012



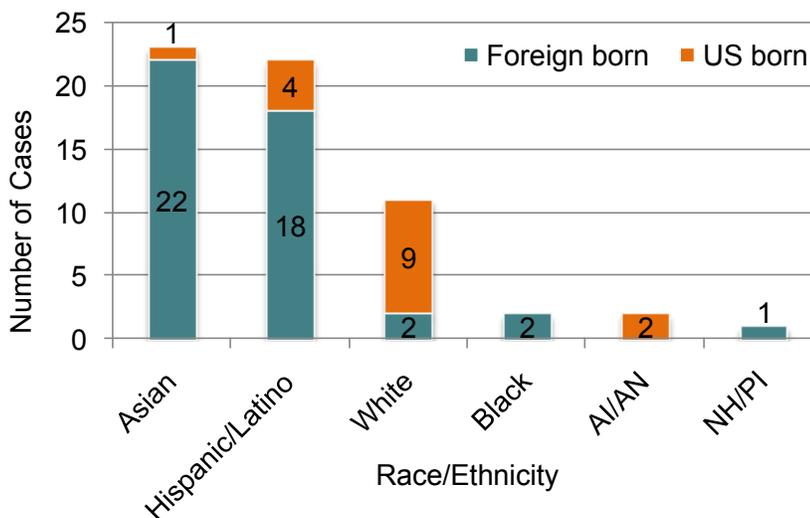
Men usually have higher TB disease rates than women.

Tuberculosis by race/ethnicity

During 2012, 23 cases (38%) of TB disease occurred among people identifying as Asian. Eleven cases were reported among non-Hispanic whites (18%), while two cases identified as non-Hispanic black (3%). Two cases identified as American Indian (AI/AN=American Indian/Alaska Native) and one case identified as Pacific Islander (NH/PI=Native Hawaiian/Pacific Islander). Hispanic or Latino ethnicity was reported for 22 cases (36%), regardless of race.

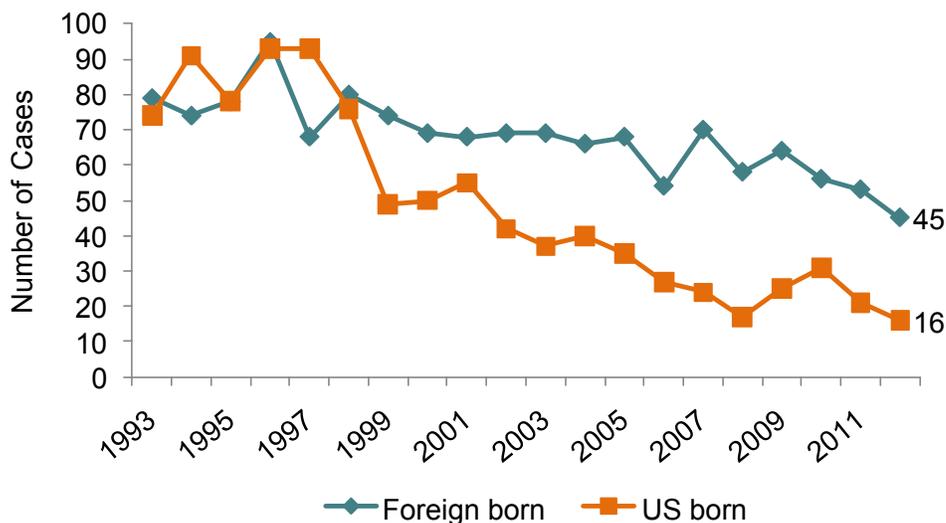
The percentage of foreign-born cases varied by race/ethnicity. All AI/AN and most non-Hispanic white cases were born in the United States. Most, but not all, of the remaining cases in other race/ethnicity groupings were born outside of the United States.

Chart 5. Number of TB Cases by Race/Ethnicity, Oregon 2012



TB cases by place of origin

Chart 6. Number of TB Cases in Foreign-Born and US-Born Residents, Oregon 1993-2012



In 2012, 74% of Oregon's TB cases were among foreign-born persons.

In Oregon, the number of US-born cases generally has dropped over time.

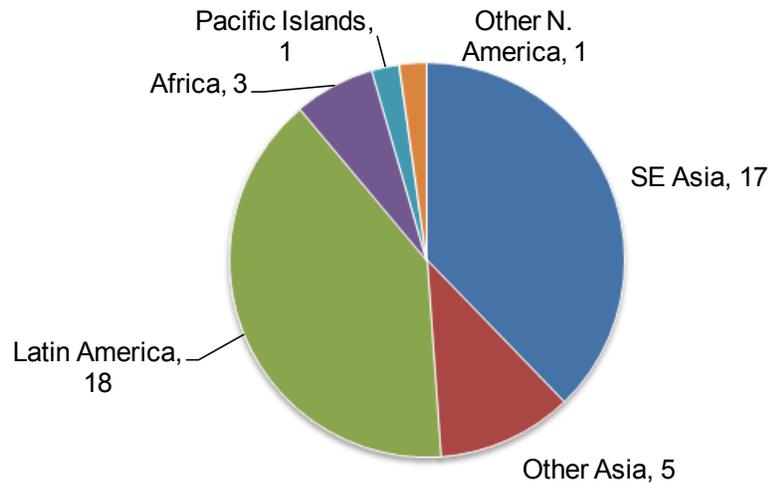
Since 2008, the percentage of TB cases among foreign-born persons has ranged from 64% to 77%. In 2012, 45 cases (74%) were among foreign-born persons.

Tuberculosis by region of birth

Chart 7. Percentage of Foreign-Born Cases by Region of Birth, Oregon 2012

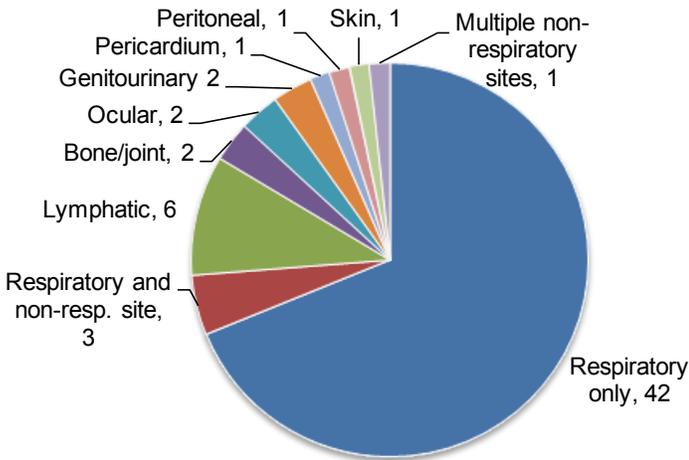
In 2012, 74% of Oregon's TB disease cases were reported as foreign-born (n=45).

- 49% (n=22) of foreign-born 2012 cases were from Asia. Cases born in SE Asia included twelve from Vietnam, two from the Philippines, and one each from Cambodia, Laos, and Myanmar. Other Asian-born cases included three from China, and one each from India and Taiwan.
- 2012 saw an increase in cases from Latin America (n=18, 40%). This number has fluctuated over the past few years. In 2011: 10 cases (19%); in 2010: 16 cases (29%); and in 2009: 27 cases (42%). 2012 cases included 13 from Mexico, four from Guatemala, and one from Honduras.
- Three cases in 2012 were from Africa (7%), a decrease from 2011 (19%, n=10) and 2010 (20%, n=11), and similar to 2009 (8%, n=5). Cases born in Africa came from Morocco (n=1), Uganda (n=1) and Zimbabwe (n=1).
- One case was from the Pacific Islands (Marshall Islands), and one was from Canada.



Tuberculosis cases by major site of disease

Chart 8. Reported Major Site of Disease, Oregon 2012



In 2012, 42 (69%) of Oregon's 61 TB disease cases had TB in a respiratory site only (any combination of pulmonary, pleural, or laryngeal disease). Another three cases (5%) had both respiratory and non-respiratory sites of disease. There were six lymphatic cases (10%), and ten cases with TB in other sites.

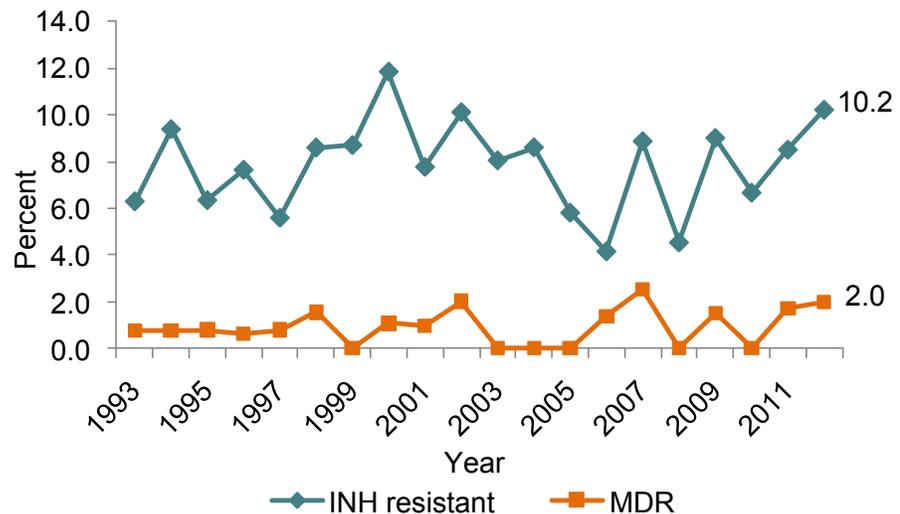
Among the 45 cases with any type of respiratory involvement, 23 were sputum-smear positive. Sputum-smear positivity as well as cavitation on chest x-ray are strong indicators of infectiousness; seven cases had chest x-rays read as cavitory.

Drug resistance and TB

Isoniazid (INH) drug resistance levels in Oregon TB disease cases have ranged from 4% to 12% over time. In 2012, 10.2% of cases with susceptibility results were resistant to INH (5 of 49 cases with drug susceptibility testing results*). The US average is similar, at 9.1% (2012 data**).

Since 1993, only 17 cases of multi-drug resistant TB disease (MDR TB, or TB that is resistant to at least both INH and rifampin) have been reported in Oregon. 15 (88%) of the MDR cases were among foreign-born persons. The MDR TB rate in the US was 1.1% in 2012**, similar to Oregon's rate. One MDR case was reported in Oregon in 2012 (2.0%).

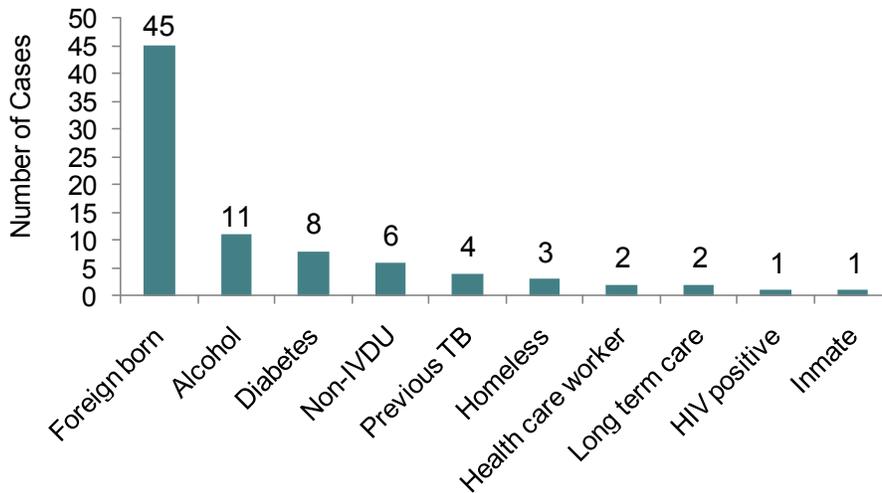
Chart 9. INH Drug Resistance and MDR Levels, Oregon 1993-2012



*INH and MDR resistance numbers are not mutually exclusive
 **<http://www.cdc.gov/tb/statistics/reports/2012/pdf/Table50.pdf>

Risk factors and tuberculosis disease

Chart 10. Risk Factors for TB Disease, Oregon 2012



The most prevalent risk factor among Oregon's TB disease cases is foreign birth.

In 2012, the most common risk factor among Oregon's TB disease cases remained foreign-born status, found in 74% of all cases (n=45). Eight cases reported diabetes as a medical risk factor (13%). Eleven reported

excess alcohol use (18%), while six reported non IV drug use in the year prior to diagnosis (10%). Four cases had a previous diagnosis of TB, and three reported homelessness. Two were diagnosed in a long term care facility, and two worked in a health care setting. One case had HIV as medical risk factor, and one was diagnosed while incarcerated. Risks are not mutually exclusive; cases can have multiple risks listed.

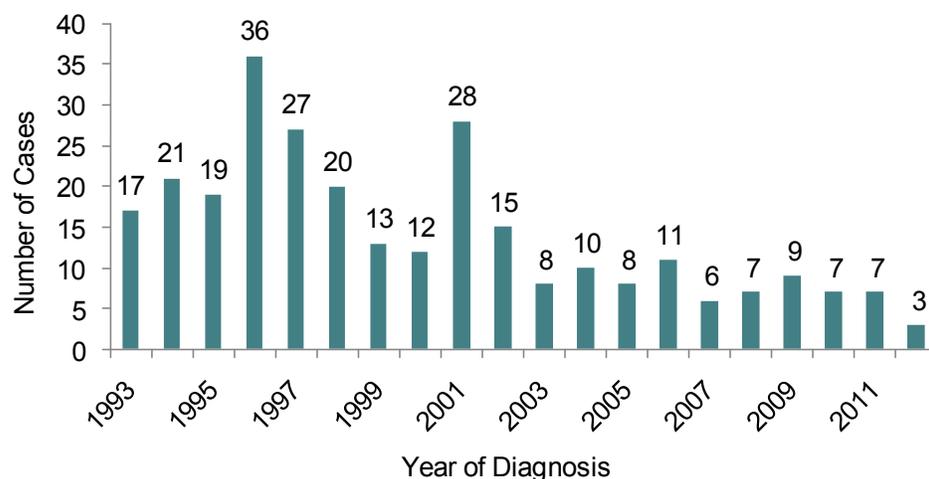
Tuberculosis in the homeless

Overall, the number of Oregon TB disease cases among the homeless has declined. In 2012, 3 cases (5% of all cases) reported homelessness in the year prior to diagnosis.

A spike in the number of homeless cases occurred in 2001, due to a homeless shelter outbreak in Lane County; 18 of the 28 homeless cases that year were from Lane County.

Cases with the 2001 Lane County outbreak strain continue to arise sporadically. Genotyping has confirmed that one of the three homeless cases in 2012 is a likely match to this outbreak strain.

Chart 11. Number of Homeless Cases, Oregon 1993-2012



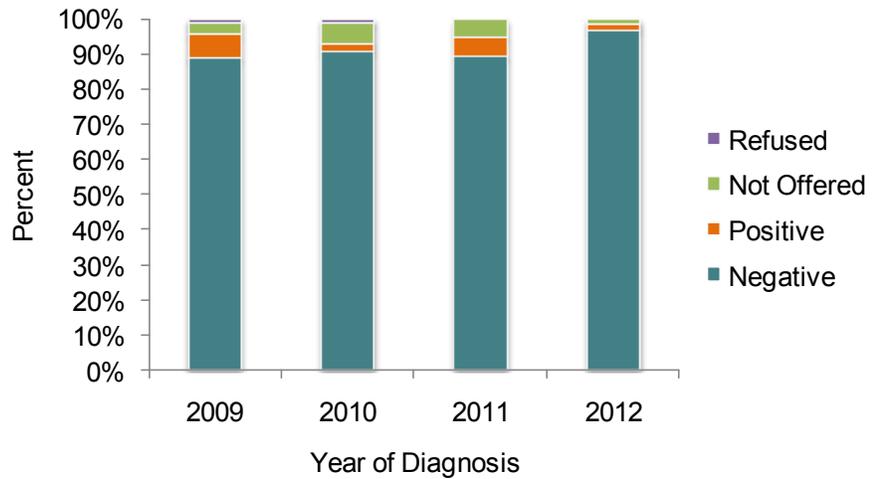
HIV and tuberculosis

HIV status was known for 60 of the 61 (98%) TB disease cases reported in Oregon in 2012. One case (1.6%) was HIV positive, which is below the national rate for TB/HIV coinfection (7.5% in 2012*).

HIV status was not obtained for one individual, who was not offered a test.

*<http://www.cdc.gov/tb/statistics/reports/2012/pdf/Table51.pdf>

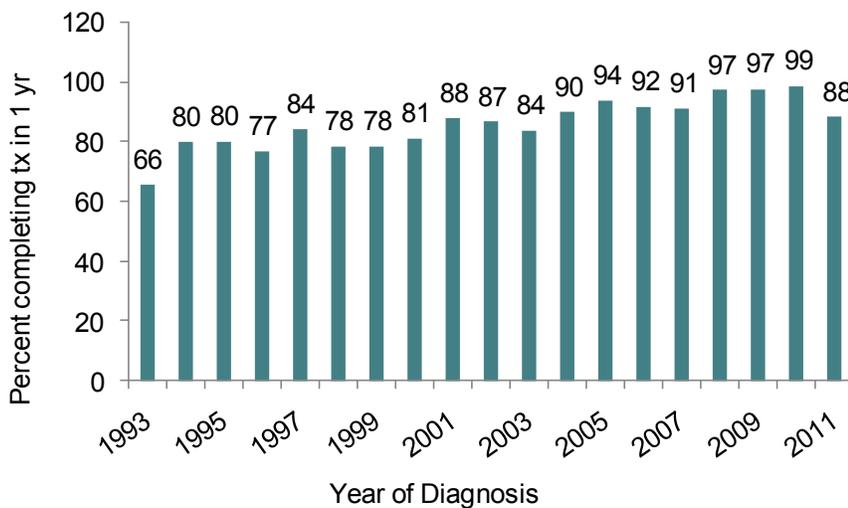
Chart 12. TB Cases by HIV Status, Oregon 2009-2012



Completion of TB treatment

Chart 13. Percent Completion of Treatment within 1 Year for Eligible Cases*, Oregon 1993-2011

In 2010, 99% of eligible cases completed treatment within one year (73 of 74 cases). In 2011, 88% of eligible cases completed treatment within one year (2011 treatment data are not yet finalized).



Patients who died before starting or during treatment were excluded from the calculation. Patients with resistance to rifampin, meningeal TB (regardless of age) or children under the age of 15 with disseminated TB (defined as miliary and/or positive blood culture), were also excluded due to expected longer duration of treatment. Patients moving out of the country while on treatment are now also excluded from the calculation.

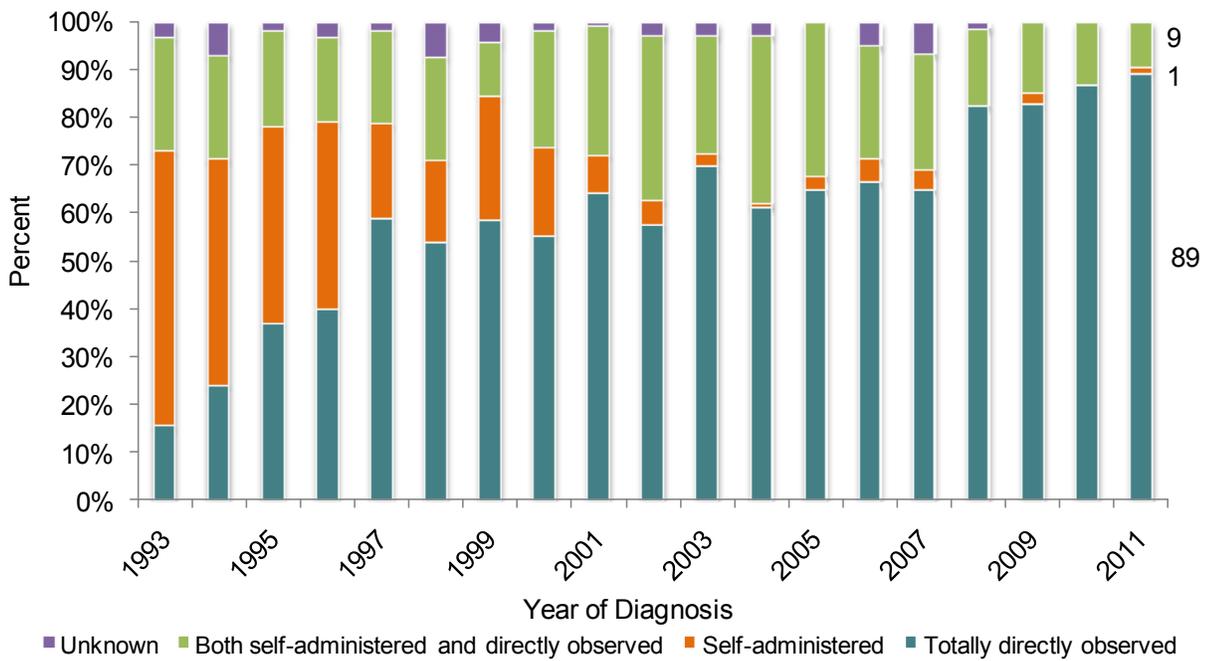
*Patients included in the chart above are patients for whom less than one year of treatment was clinically indicated.

Delivery of TB Therapy

Directly observed therapy, or DOT, is the standard of care in Oregon for treatment of TB. The use of DOT for treatment of TB disease has increased since 1993, rising from 16% to 89% in 2011.

In 2011, 89% (n=66) of all cases starting therapy (n=74) received full DOT, and another 9% (n=7) received a combination of both DOT and self-administered therapy. One case was on self-administered therapy alone.

Chart 14. Mode of TB Therapy, Oregon 1993-2011



Technical Notes:

The data presented in this report come from Oregon's Tuberculosis Information Management System (TIMS, data through 2008) and the Oregon Public Health Epi User System (Orpheus, data collected starting in 2009). Data are as of October 2013.

Percentages may not sum to 100 due to rounding.

Age is calculated based on date case is reported to the local health department.

Surveillance Case Definition for Oregon:

1. Laboratory Case Definition

- a. Isolation of M. Tuberculosis Complex from a culture of a clinical specimen, using an FDA approved test
- or**
- b. Demonstration of M. Tuberculosis from a clinical specimen using FDA approved Nucleic Acid Amplification Test (NAAT) (a positive test means that the probe detected ribosomal RNA of the M. tuberculosis complex in the clinical specimen)
 - i. Genprobe[®] MTD (Mycobacterium Direct Test) of respiratory specimen
 - ii. Amplicor[®] Mycobacterium Tuberculosis Test of respiratory specimen

2. Clinical Case Definition*

- a. Full diagnostic evaluation
 - i. Tuberculin Skin Test (TST) or Interferon Gamma Release Assay (IGRA) test
 - ii. Chest X-ray/imaging
 - iii. Clinical specimens for culture/NAAT
 - iv. Risk factor evaluation: host factors (e.g. documented immunosuppression) and environmental factors (e.g. contact to an active case, born in a country with endemic TB, travel to endemic country)
- and**
- b. Lab test indicative of infection
 - i. Positive TST **and/or**
 - ii. Positive IGRA or
 - iii. Negative TST or IGRA with reason for not positive (immunosuppression)
- and**
- c. Signs or symptoms compatible with TB disease
- and**
- d. Improvement of signs or symptoms after treatment with 2 or more anti-TB drugs

* Factors including pretest risk, other potential diagnoses, opportunity to improve on TB treatment, and site of disease (pulmonary vs extrapulmonary) may also be considered in the decision to count a clinical case.

For more information on tuberculosis in Oregon, please visit our website at:

<http://www.healthoregon.org/tb>

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