



ANNUAL TUBERCULOSIS REPORT OREGON 2010

Oregon Health Authority
Public Health Division
TB Program
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Oregon
Health
Authority

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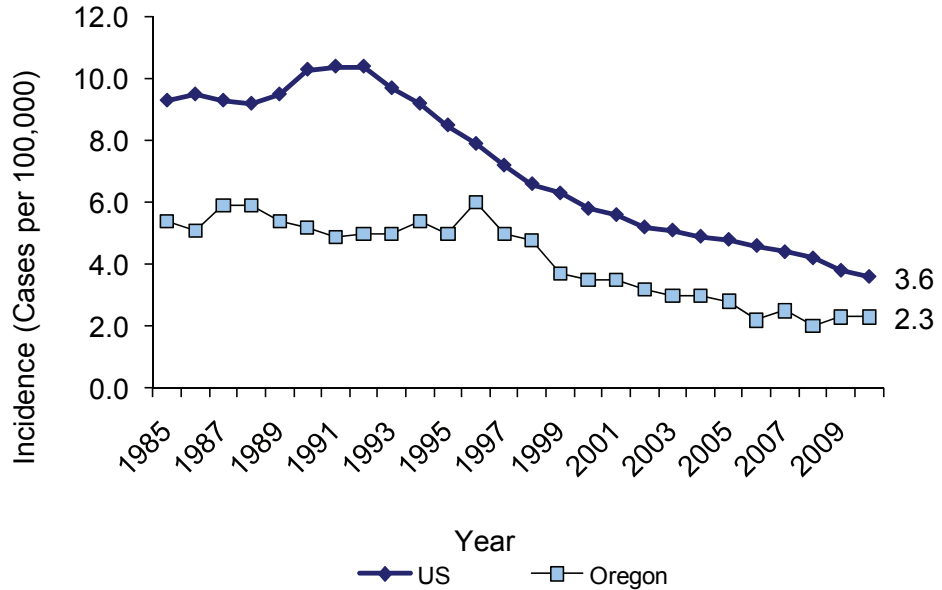
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Tuberculosis incidence

Tuberculosis (TB) disease incidence has been dropping, both nationally and in Oregon, for over a decade. National rates continue to decline, reaching a low of 3.6 cases per 100,000 persons in 2010. Oregon's 2010 TB disease rate held steady, at 2.3 cases per 100,000 persons.

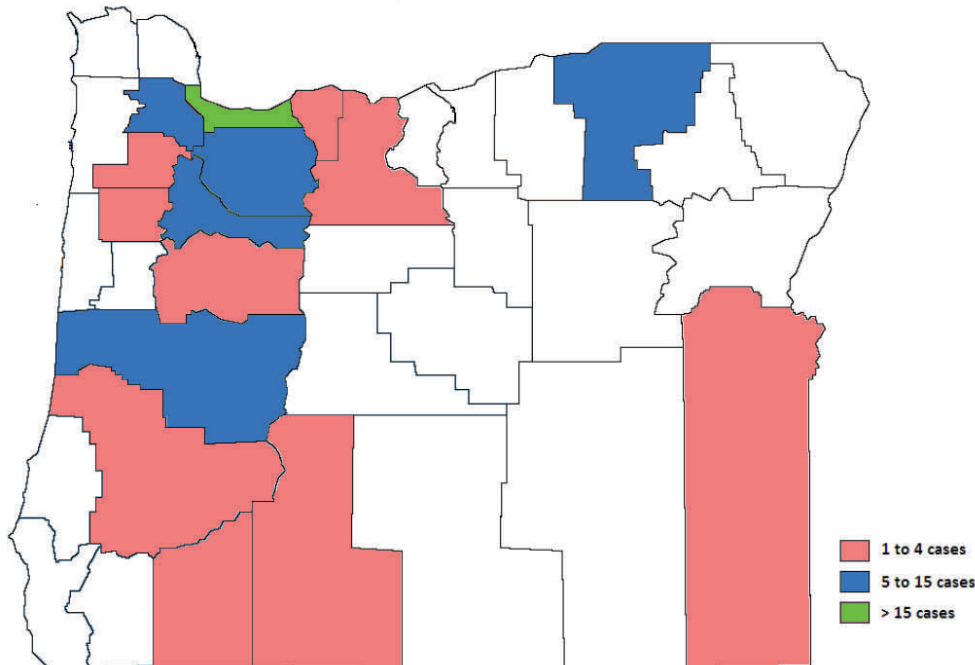
There were 87 cases in Oregon in 2010, compared to 89 cases in 2009.

Chart 1. TB Incidence in the US and Oregon, 1985-2010



Tuberculosis cases by county

Chart 2. TB Cases by County, Oregon 2010



The majority of Oregon's TB disease cases in 2010 were from Multnomah, Washington, and Lane counties.

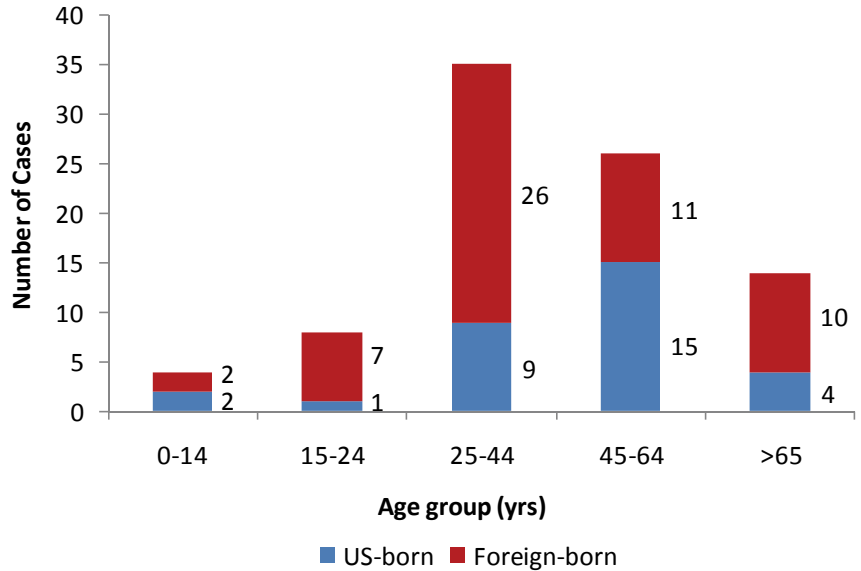
During 2010, 87 cases of TB disease were reported in Oregon. The three counties with the most cases were Multnomah (n=36), Washington (n=15), and Lane (n=8). Clackamas and Marion counties had 6 cases each; Umatilla county had 5 cases. Overall, fifteen counties reported at least one TB case in 2010.

Tuberculosis by age group

In 2010, most TB disease cases occurred in adults 25 years of age or older. The 25-44 year old age group contained the largest percentage of cases (40%), with 35 cases. The mean age was 44 yrs (range of 2-87 yrs) and median case age was 43.

There were four cases of pediatric TB disease reported in 2010; two were US-born. The percentage of foreign-born cases was highest among 15-24 year olds (88%), and lowest among 45-64 year olds (42%).

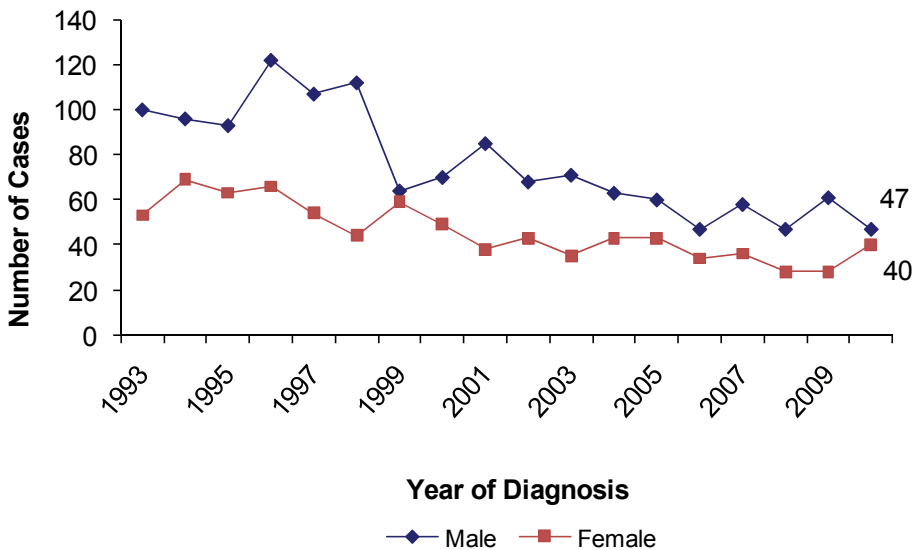
Chart 3. Number of TB Cases by Age Group and Foreign-born, Oregon 2010



Tuberculosis by sex

TB disease incidence historically has been higher among males than females. Possible reasons for this finding may include differences in access to care, underlying susceptibility to TB, or distribution of TB risk factors, such as homelessness and substance abuse. In 2010, males comprised 54% (n=47) of all TB cases in Oregon. This is a more equal male-female ratio than seen in recent years.

Chart 4. Number of TB Cases by Sex, Oregon 1993-2010



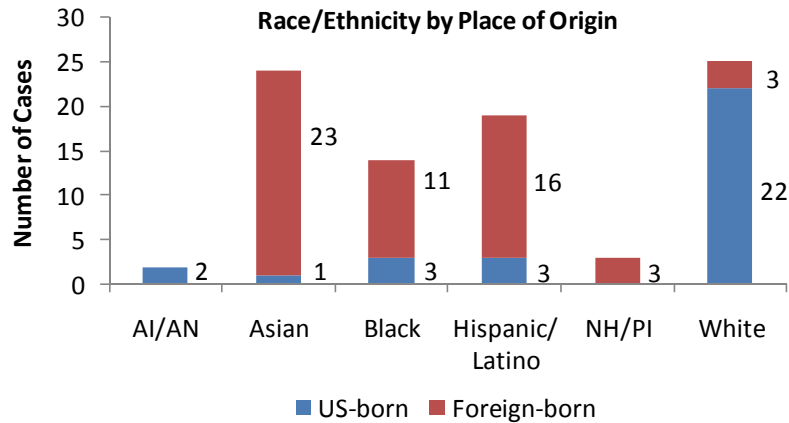
TB disease incidence is usually higher among males than females.

Tuberculosis by race/ethnicity

During 2010, 25 cases of TB disease were reported among non-Hispanic whites (29%). Twenty-four cases (28%) self-identified as Asian. Fourteen cases were reported among non-Hispanic blacks (16%), while 3 cases identified as Pacific Islander (NH/PI=Native Hawaiian/Pacific Islander). Two cases identified as American Indian (AI/AN=American Indian/Alaska Native). Hispanic or Latino ethnicity was reported for 19 cases (22%).

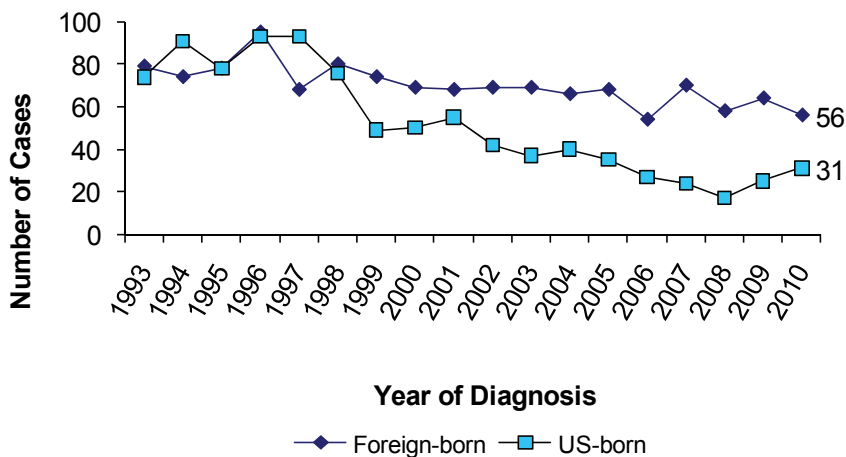
The percentage of foreign-born cases varied by race/ethnicity. All AI/AN and most non-Hispanic white cases listed the United States as their country of birth. Most, but not all, of the remaining cases in other race/ethnicity groupings were born outside of the United States.

Chart 5. Number of TB Cases by Race/Ethnicity, Oregon 2010



TB cases by place of origin

Chart 6. Number of TB Cases in Foreign-Born vs US-Born Residents, Oregon 1993-2010



In 2010, nearly 2/3 of Oregon's TB cases were among foreign-born persons.

In Oregon, the number of cases among US-born persons has generally decreased over time. 2008 marked the lowest number of US-born cases and total cases (n=17, total cases=75). Since 2008 there has been a

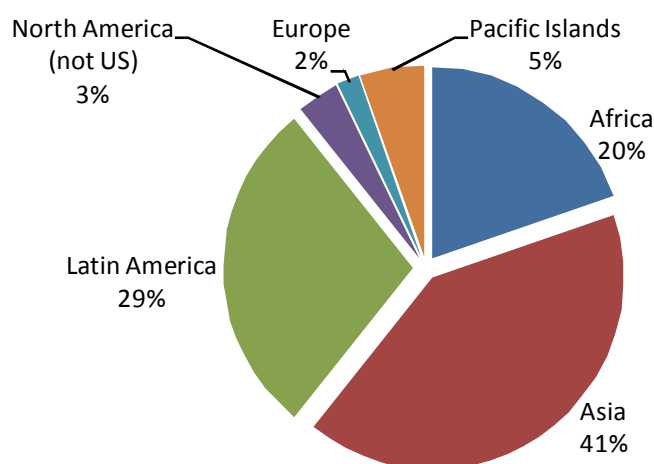
small upward trend in number and percentage of US-born cases, while the number of foreign-born TB cases has remained relatively stable. In 2010, 56 (64%) of the 87 TB cases were among foreign-born persons, a slightly lower percentage than in 2009 (72%).

Tuberculosis by region of birth

Chart 7. Percentage of Foreign-Born Cases by Region of Birth, Oregon 2010

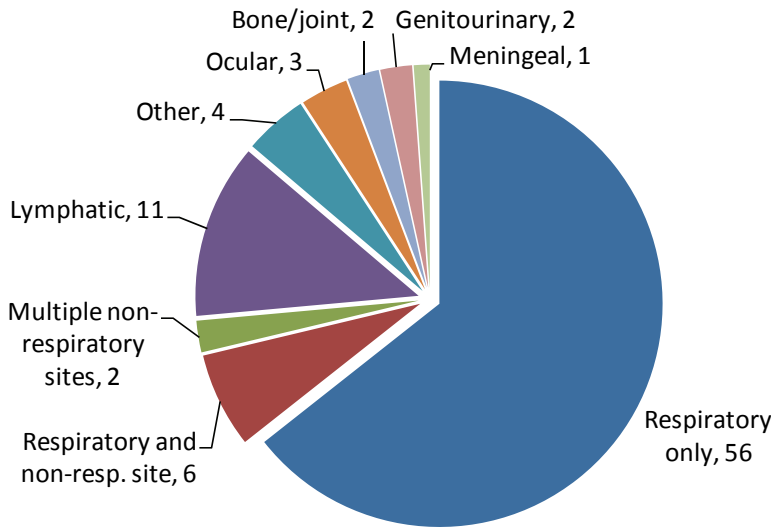
In 2010, 64% of Oregon's TB disease cases were reported to be foreign-born (n=56).

- In 2010, 41% (n=23) of foreign-born cases were from Asia, similar to 2009 (42%, n=27). Cases born in SE Asia included 6 cases from Vietnam, 5 from the Philippines, and 1 each from Cambodia, Myanmar and Thailand. Other Asian-born cases included 5 from China, 3 from India, and 1 from Nepal.
- There were fewer cases from Latin America in 2010 (29%, n=16) compared to 2009 (42%, n=27) This included 10 cases from Mexico, two from Guatemala, and one each from Cuba, Haiti, Honduras, and the Dominican Republic.
- Eleven cases were from Africa (20%), an increase from 2009 (8%, n=5). Cases born in Africa came from Ethiopia (n=4), Somalia (n=4), Senegal (n=2), and Morocco (n=1).
- One case (2%) was originally from Europe (Germany), and two were from Canada.
- The three cases (5%) from the Pacific Islands were from Micronesia.



Tuberculosis cases by major site of disease

Chart 8. Reported Major Site of Disease, Oregon 2010



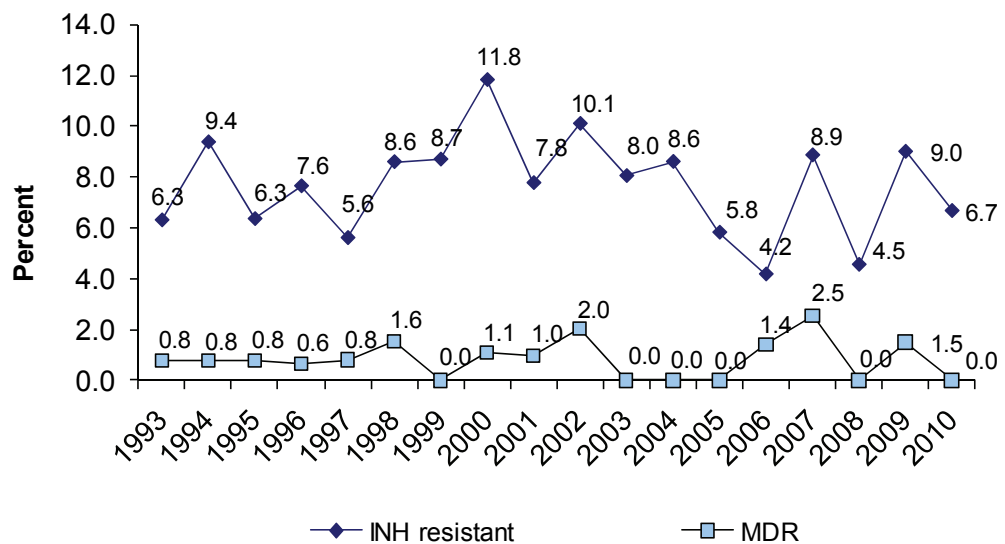
In 2010, 56 (64%) of Oregon’s 87 TB disease cases reported a respiratory site of disease only (this includes any combination of pulmonary, pleural, or laryngeal disease). Another 6 cases (7%) had both respiratory and non-respiratory sites of disease. There were 11 lymphatic cases (13%) and two cases that had TB in multiple non-respiratory sites.

Among the 62 cases with any type of respiratory involvement, 25 (40%) were sputum-smear positive. Sputum-smear positivity as well as cavitation on chest x-ray are strong indicators of infectiousness; 16 of the 87 cases (18%) had chest x-rays read as cavitary (all pulmonary cases).

Drug resistance and TB

Chart 9. INH Drug Resistance and MDR Levels, Oregon 1993-2010

Isoniazid (INH) drug resistance levels in Oregon TB disease cases have ranged from 4% to 12% over time. In 2010, 7% of cases for whom susceptibility testing was performed were resistant to INH (4 of 60 cases with drug susceptibility testing results). The US average is similar, at 8% (2010 data*).

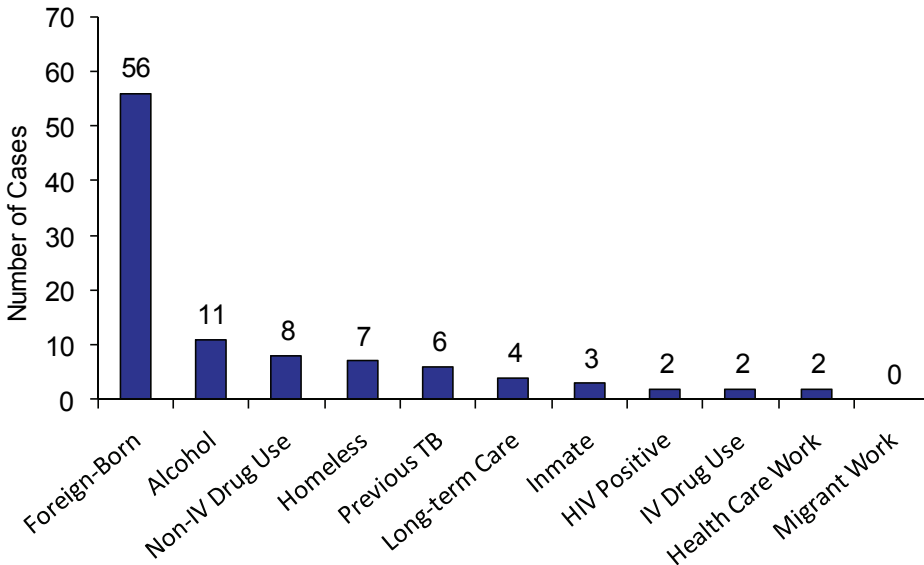


Since 1993, only 15 cases of multi-drug resistant TB disease (MDR TB, or TB that is resistant to both INH and rifampin) have been reported in Oregon; 14 (93%) were among foreign-born. The MDR TB rate in the US was 1.3% in 2010*. No MDR cases were reported in Oregon in 2010.

*<http://www.cdc.gov/tb/statistics/reports/2010/table36.htm>

Risk factors and tuberculosis disease

Chart 10. Risk factors for TB Disease, Oregon 2010



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

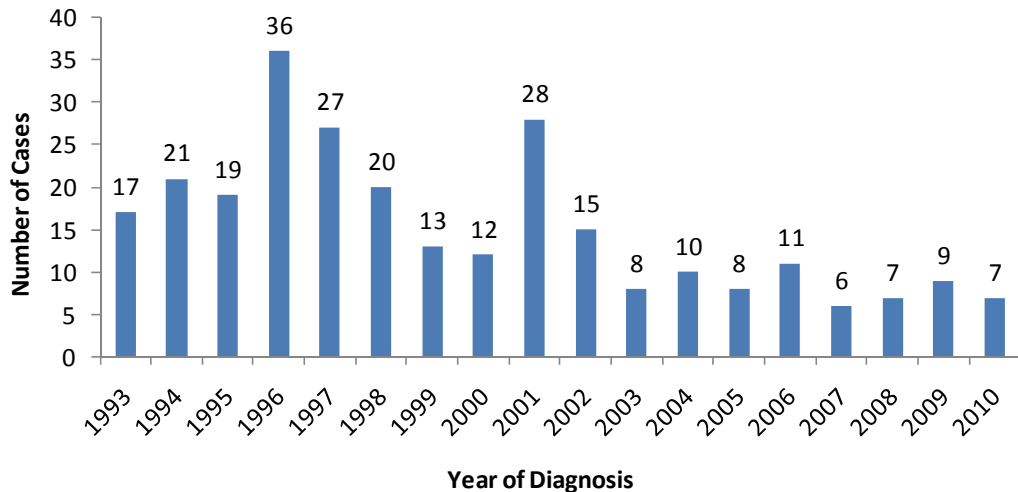
In 2010, the most common risk factor among Oregon's TB disease cases remained foreign-born status, found in 64% of all cases. About 13% of cases reported excess alcohol use. Eight cases reported non-IV drug use (9%), and seven were homeless (8%). Six cases had a previous diagnosis of TB. Four cases were diagnosed in long term care facilities, and three cases were diagnosed in correctional facilities. Two cases were HIV positive, and two reported IV drug use. Two of the cases worked in a health care setting.

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Tuberculosis in the homeless

Chart 11. Number of Homeless Cases, Oregon 1993-2010

Overall, the number of Oregon TB disease cases among the homeless has been decreasing. In 2010, 7 cases (8% 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 seven homeless cases in 2010 is a likely match to this outbreak strain.

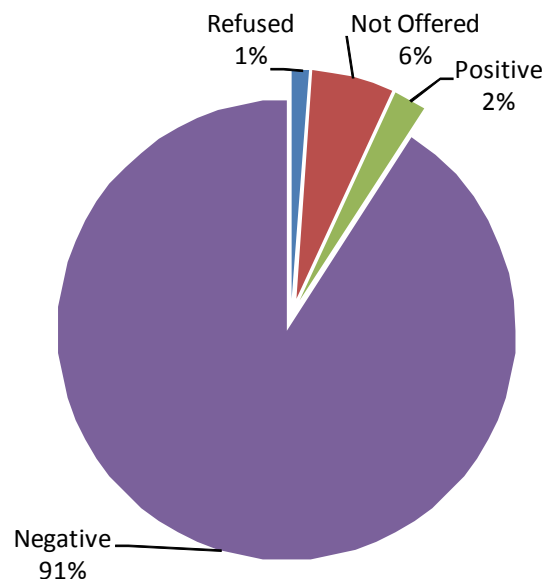
HIV and tuberculosis

HIV status was obtained for 81 of the 87 (93%) TB disease cases reported in Oregon in 2010. Two cases (2%) were HIV positive, which is below the estimated national rate for TB/HIV coinfection (6% in 2010*).

HIV status was not obtained for six individuals: one refused testing, and five were not offered testing. Included among those not offered testing were four cases deceased at the time of TB diagnosis or shortly after diagnosis.

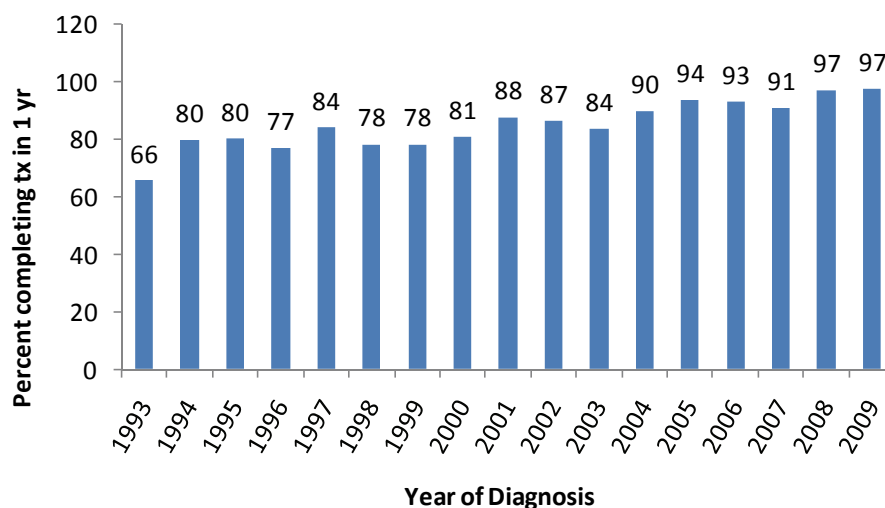
*<http://www.cdc.gov/tb/statistics/reports/2010/table13.htm>

Chart 12. TB Cases by HIV Status, Oregon 2010



Completion of TB treatment

Chart 13. Percent Completion of Treatment within 1 Year for Eligible Cases, Oregon 1993-2009



In 2008, 97% of eligible cases completed treatment within one year. In 2009, 97% of eligible cases* completed treatment within one year (2009 data are provisional).

Patients who died before starting or during treatment were excluded from the calculation. Patients with resistance to rifampin, patients with meningeal TB

(regardless of age) and children under age of 15 with disseminated TB (defined as miliary and/or positive blood culture), were also excluded due to expected longer duration of treatment.

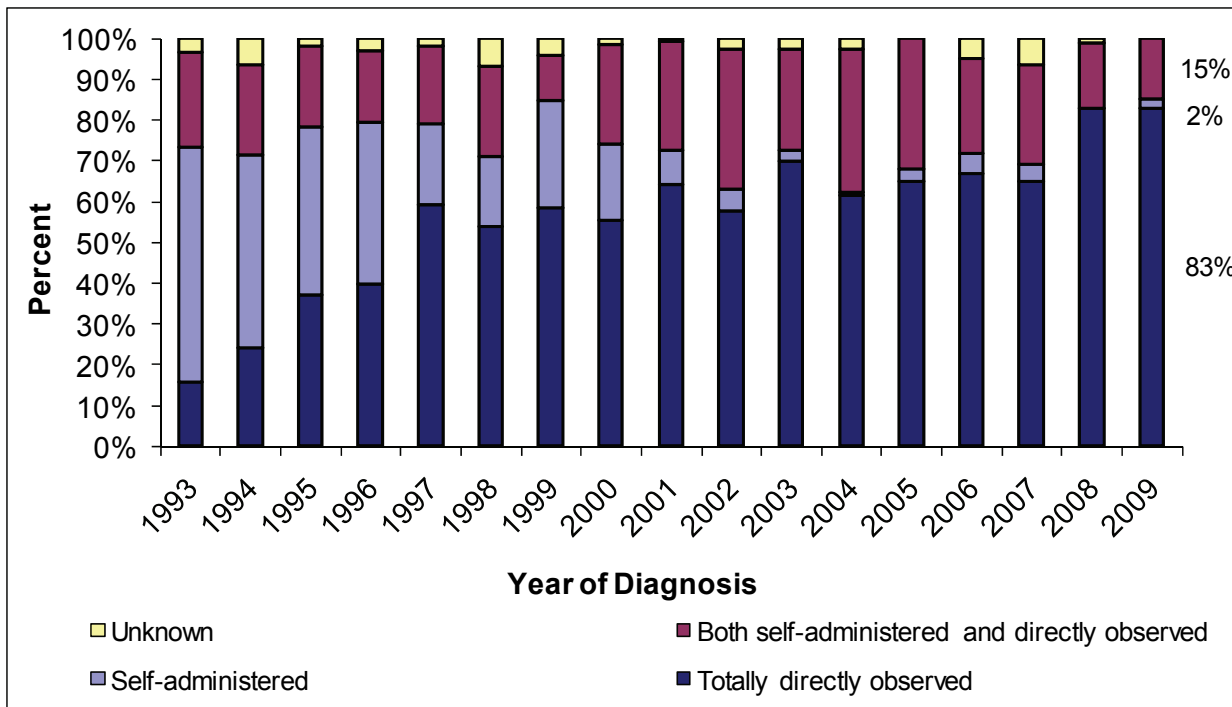
*Patients included in the chart above are patients for whom less than one year of treatment was clinically indicated.

Delivery of TB Therapy

Directly observed therapy, or DOT, is the standard of care in Oregon for treatment of TB. The use of self-administered therapy alone for treatment of TB disease has decreased since 1993, dropping from 47% to 2% in 2009. Use of directly observed therapy has increased over the years.

In 2009, 83% (n=73) of all cases starting therapy received full DOT, and another 15% (n=13) received a combination of both DOT and self-administered therapy. Two percent (n=2) were on totally self-administered therapy.

Chart 14. Mode of TB Therapy, Oregon 1993-2009



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 2011.

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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