

State of Nebraska  
Department of Health and  
Human Services

Tuberculosis Program  
Annual Report – 2010



## TUBERCULOSIS IN NEBRASKA - 2010

### **Introduction:**

Tuberculosis (TB) is an infectious disease caused by the bacterium *Mycobacterium tuberculosis*, and is one of the leading causes of death in the world today. In the United States (U.S.), TB was the leading cause of death in 1900. With the advent of effective treatment, the U.S. experienced a steady decline in cases until the mid-1980s. A resurgence of TB occurred at that time, with national case rates peaking in the early 1990s. Through extensive public health interventions at the national, state, and local levels, tuberculosis is once again on the decline nationally. There were 11,181 TB cases reported in the U.S. for 2010 for an incidence rate of 3.6/100,000 which is the lowest recorded rate since national TB surveillance began in 1953. Nebraska also had a decrease in cases in 2010. There were 27 reported cases in 2010 compared to 32 in 2009.

Although the number of active cases remains low, the cases continue to be difficult to treat because of the high percentage of foreign-born population that comprise Nebraska's TB morbidity. The language and cultural barriers of this population require a tremendous amount of public health resources to ensure a successful TB treatment outcome. Nationally, there continues to be a great need for research in tuberculosis to develop new diagnostic tools and new drugs to fight the disease. Nebraska has not yet seen the increase in multi-drug and extensive drug-resistant disease, but these are showing up more frequently around the world, and we realize that the global burden of TB is not far away from Nebraska's borders. It is true that "TB anywhere is TB everywhere."

## Tuberculosis in Nebraska: 2010 Statewide Summary

In 2010, Nebraska had a total of 27 cases of TB, for a rate of 1.5 cases per 100,000 people. Years 2006 and 2007 represent the lowest number of TB cases and the lowest attack rates over the last five years in Nebraska. The highest was in 2008 when Nebraska had 33 cases, for a rate of 1.9 cases per 100,000 people. Five-year data for low-incidence states like Nebraska are often not sufficient enough to reflect trends in morbidity.

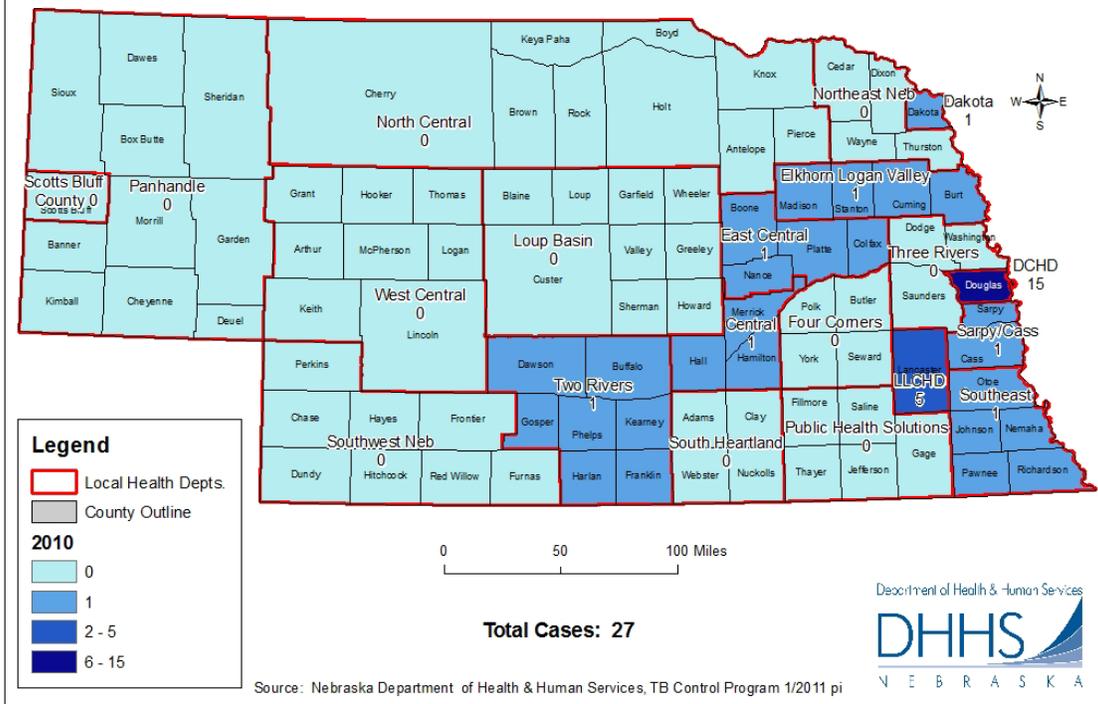
There were 9 counties in Nebraska that reported at least one case of TB for 2010. The list with the case rate is outlined below.

### 2010 County Rates of TB

County	Cases	Rate
Douglas	15	2.9
Lancaster	5	1.75
Sarpy	1	0.6
Dakota	1	4.8
Hall	1	1.7
Madison	1	2.9
Colfax	1	9.5
Otoe	1	6.3
Dawson	1	4.1

Source: Nebraska Department of Health & Human Services, TB Control Program 2010

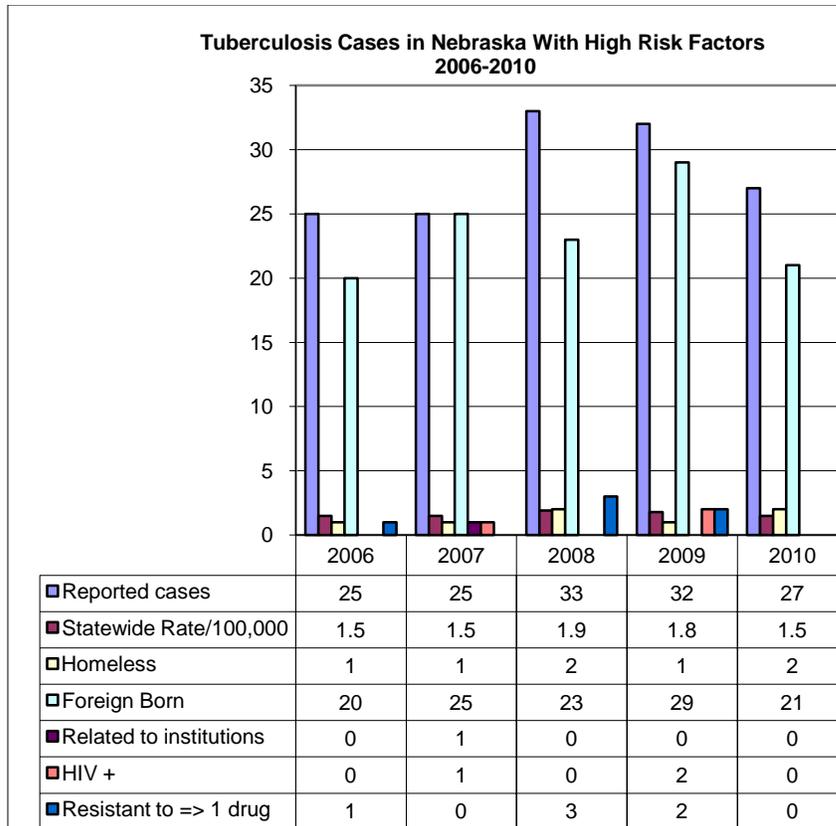
## Nebraska Department of Health & Human Services Tuberculosis Cases Reported by Health Dept. Region, 2010



### Active TB Summary

#### Tuberculosis by Risk Factors:

Of the 27 cases of tuberculosis in Nebraska in 2010, 21 were foreign born, two (2) were homeless, no case was related to institutions and no case was co-infected with HIV. There were no cases with drug resistance among the culture confirmed cases. The table below is based on data required to be collected by the Centers for Disease Control for national surveillance purposes.



Source: Nebraska Department of Health & Human Services, TB Control Program 2010

### **Tuberculosis in Nebraska 2010 by County:**

Nebraska has 93 counties, nine (9) of which reported cases of tuberculosis in 2010. For the period of 2006-2010, 21 counties reported at least one (1) case of tuberculosis and are reported on the list that follows. This list is used by health care facilities when they are working up risk assessments for tuberculosis.

Five (5) counties, reporting five (5) or more cases, accounted for one hundred seventeen (117) of the one hundred forty two (142) (82%) cases that occurred from 2006 through 2010. Douglas (Omaha), Sarpy (included in the Omaha metro area) and Lancaster are the state's three most populous counties. Together they reported one hundred two (102) cases or 72% of the cases during the last five-year period.

**NEBRASKA DEPARTMENT OF HEALTH & HUMAN  
SERVICES TUBERCULOSIS CASES REPORTED BY COUNTY  
2006-2010**

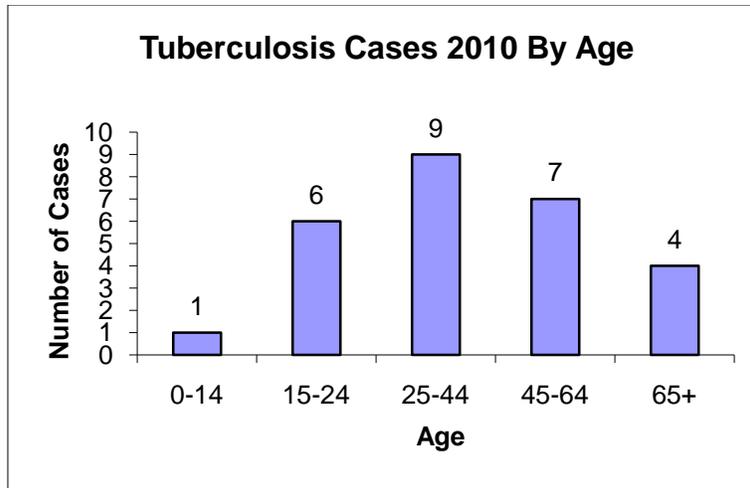
**NUMBER OF CASES  
REPORTED BY YEAR**

COUNTY	2006	2007	2008	2009	2010	5 YEAR
						TOTAL
Adams		1	1			2
Buffalo			-	1		1
Burt	1					1
Cass		1				1
Colfax				1	1	2
Dakota	2	1		5	1	9
Dawson	1				1	2
Douglas	10	10	19	16	15	70
Franklin		1				1
Hall		1	4		1	6
Howard	1					1
Lancaster	3	6	2	7	5	23
Lincoln	2	1				3
Madison				1	1	2
Nemaha	1					1
Otoe					1	1
Platte	1	1				2
Rock		1				1
Saline			2			2
Sarpy	2	1	4	1	1	9
Thurston	1		1			2
<b>TOTAL</b>	<b>25</b>	<b>25</b>	<b>33</b>	<b>32</b>	<b>27</b>	<b>142</b>

Source: Nebraska Department of Health & Human Services, TB Control Program 2010

**Tuberculosis in Nebraska 2010 by Age Group:**

In 2010, the 25-44 age group had the highest incidence of cases (9) and the 5-14 age group had the lowest incidence of cases (0). For the past several years, tuberculosis cases have occurred in greater numbers in the young adult population. Often this means that active cases are around children and in the workforce, both of which require in-depth contact investigations and follow-up.

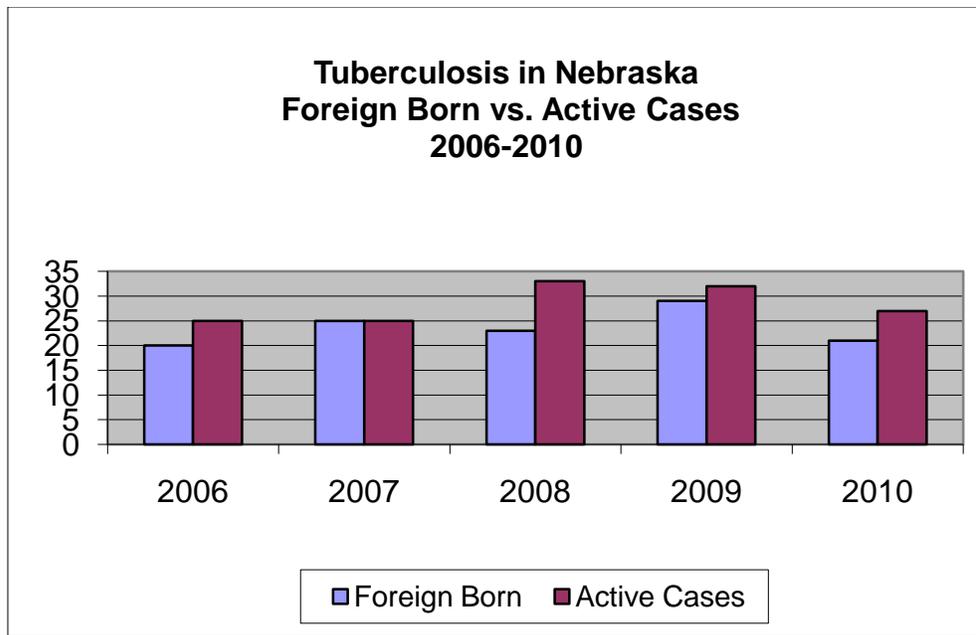


Source: Nebraska Department of Health and Human Services, TB Control Program, 2010

### **Tuberculosis in Nebraska 2010 by Country of Origin:**

Foreign-born persons have a higher risk for exposure to or infection with tuberculosis, especially those that come from areas that have a high TB prevalence such as Asia, Africa, Latin America, Eastern Europe and Russia. Many persons from these groups now reside in Nebraska.

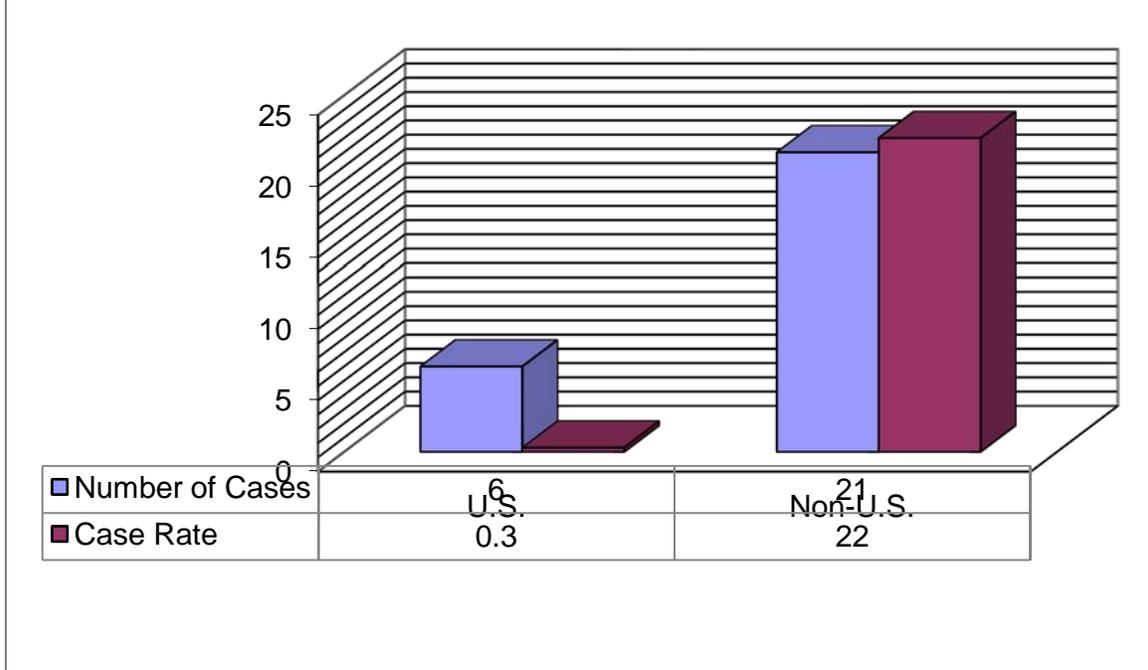
In 2010, 78% (21) of the cases reported were among the foreign born and 22% (6) among the U.S. born. The distribution by country of origin is as follows: seven (7) from Mexico, four (4) from Guatemala, three (3) from Sudan, two (2) each from Nepal and Vietnam, and one (1) each from Myanmar, Somalia and Korea.



Source: Nebraska Department of Health and Human Services, TB Control Program, 2010

The number of foreign-born cases compared to the population yields a case rate of approximately 32 per 100,000 foreign-born people compared to a case rate of 0.2 per 100,000 U.S.-born people. The case management activities around each of the foreign-born cases require a large amount of public health resources. The foreign-born population often needs resources for basic health care services, transportation, interpretation and the health department needs an understanding of cultural beliefs. Meeting these needs presents great challenges to both the state and local health departments as they work to maintain high standards in completion of therapy rates and complete contact investigations.

### Tuberculosis Cases and Case Rates in Nebraska 2010 by Place of Origin

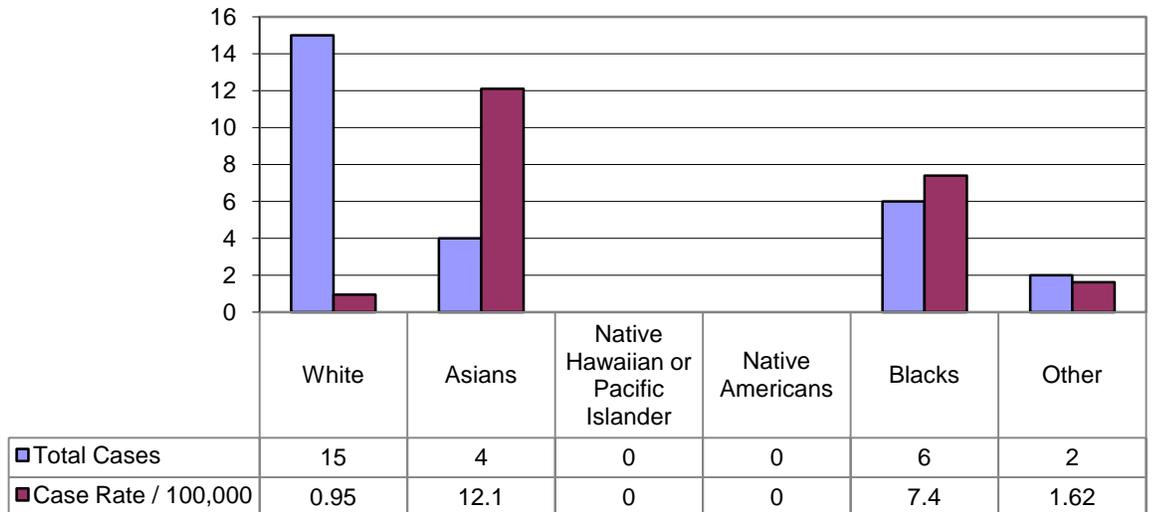


Source: Nebraska Department of Health and Human Services, TB Control Program, 2010

### Tuberculosis in Nebraska 2010 by Race and Ethnicity:

In Nebraska, the largest numbers of cases are reported in the white and black populations. However, the black race and other racial populations have significantly higher case rates. The black population group had the highest case rate at 46.83/100,000. The number of cases and the rates per 100,000 shown by race are shown in the table below.

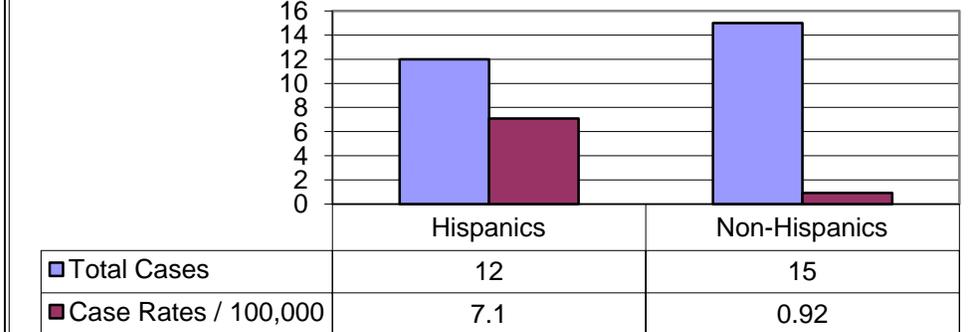
Tuberculosis Cases and Case Rates in Nebraska 2010 by Race



Source: Nebraska Department of Health and Human Services, TB Control Program, 2010

Nebraska's population is 82% non-Hispanic based upon information from the year 2010 U.S. Census Bureau. Twelve (12) cases in 2010 were of Hispanic or Latino ethnicity and 15 were non-Hispanic. The attack rates were 7.1/100,000 for Hispanics and .92 /100,000 for non-Hispanics.

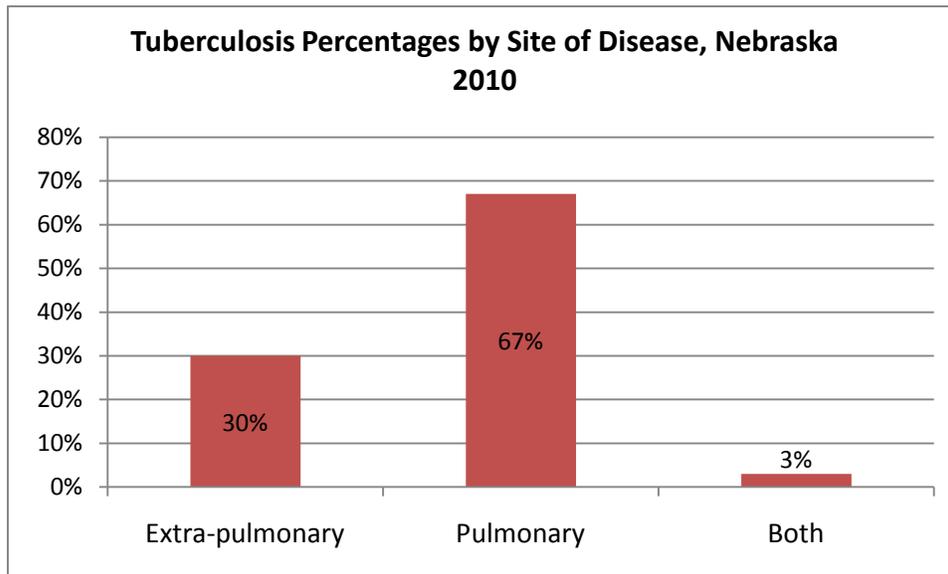
Tuberculosis Cases and Case Rates in Nebraska by Ethnicity, 2010



Source: Nebraska Department of Health and Human Services, TB Control Program, 2010

### **Tuberculosis in Nebraska 2010 by Site of Disease:**

Of the 27 cases of tuberculosis reported in 2010, 18 (67%) had pulmonary disease, 8 (30%) had extra-pulmonary disease and 1 (3%) had both.



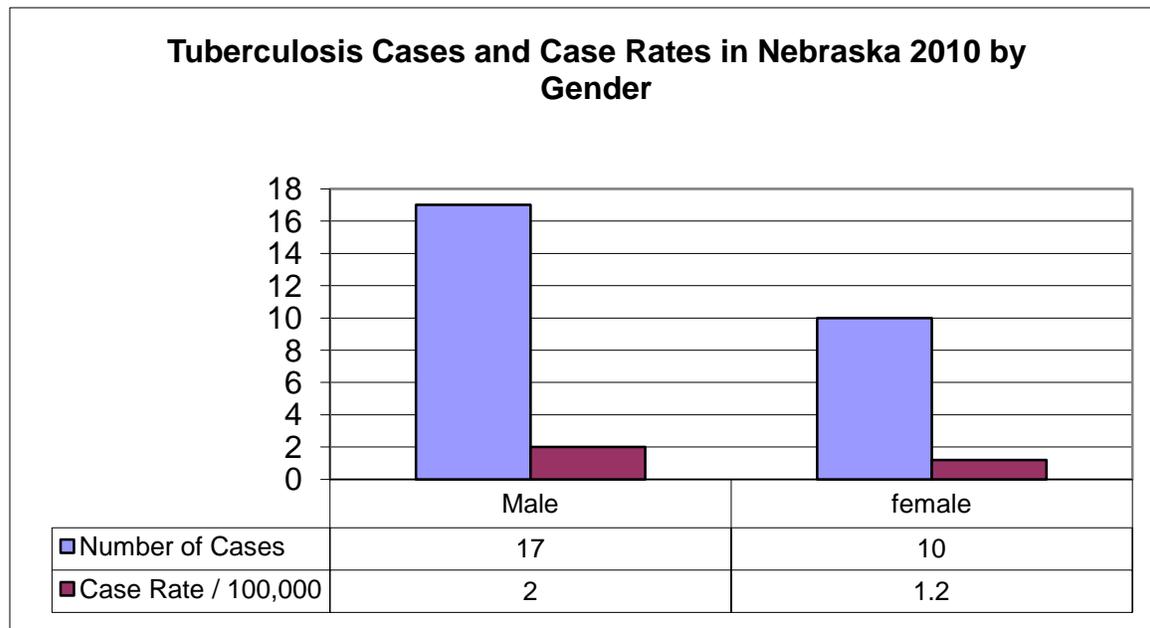
Source: Nebraska Department of Health and Human Services, TB Control Program, 2010

### **Tuberculosis in Nebraska 2010 by Verified Cases:**

Nebraska continues to use CDC's guidelines for both clinical and laboratory-confirmed cases. This surveillance method started in 2003. Thirteen of the 27 (48%) cases in 2010 were clinically diagnosed; the remaining 14 (52%) cases were laboratory-confirmed with positive cultures for tuberculosis. It should be noted that even though the tuberculosis burden in the state is low, many more cases are investigated as tuberculosis suspects. In 2010 66 suspects were evaluated and followed until either proven to be TB or until the decision was made to treat them for latent TB infection only.

## Tuberculosis in Nebraska 2010 by Gender:

In 2010, the number of male cases was 17 and the number of female cases was 10. According to the U.S. Census Bureau year 2000 data, in Nebraska, males represent approximately 49% of the population and females represent 51% of the population.



Source: Nebraska Department of Health and Human Services, TB Control Program, 2010

## DOT and Tuberculosis:

A major factor in determining the outcome of treatment is patient adherence to the drug regimen. Careful attention is paid to measures designed to foster adherence. Directly observed therapy (DOT), which is having someone observe the patient taking their medication, is becoming the standard of care for TB patients in the nation and in Nebraska. DOT assures compliance in taking the six to nine-month treatment regimen which is important to prevent drug resistance. It also provides the opportunity for

monitoring for side effects and for doing contact investigations. When DOT is used, medications may be given intermittently, which often is more convenient for the patient.

In 2010, 21 (78%) of the 27 treated cases were put on DOT. This is a decrease from the 90% that were put on DOT in 2009. This is due to the fact that there were more extra-pulmonary cases diagnosed in 2010. Currently all pulmonary cases are given DOT, even if clinically diagnosed. The majority of extra-pulmonary cases are also started on DOT, but because of a lack of resources in the local health departments, this cannot always be accomplished for cases that aren't considered an immediate public health risk.

### **Latent TB Summary**

TB also affects persons in the state who are infected with the disease but not yet sick with it. The state's TB program provides preventive medication for these people if they choose to take it, free of charge. A total of 4,796 people were enrolled in the latent TB infection (LTBI) program from 2005-2010, an average of 67 enrollees per month. The majority of enrollees, 87%, were foreign born. The distribution by age group was 2% 0-4 years, 21% 5-19 years, 56% 20-39 years, 19% 40-59 years, and 3% 60+ years.

Current CDC guidelines recommend either a 6 or a 9-month course of therapy for treatment of latent tuberculosis infection. Nebraska accepts either as completed therapy. At this time Nebraska does not require latent TB infection to be reported to the State TB Program unless medication is requested.



In 2009, the Nebraska Public Health Lab (NPHL) began offering an in vitro diagnostic test to detect TB directly from respiratory specimens. Based on CDC recommendations the test is appropriate for patients showing symptoms of active pulmonary tuberculosis for whom the test result would alter case management or TB control activities. The test can be done on either acid fast bacilli (AFB) smear positive or smear negative specimens. The name of the test is Mycobacterium TB Amplified Direct Test. Please contact the TB Program for additional information.

Starting December 1, 2009, the NPHL began using an improved TB interferon antigen response test (Quantiferon-Gold In Tube). The main advantage to this test is that the specimen is viable up to 16 hours before processing is required.

An update for the TB law was passed in the 2009 Legislative session. The legislation allows for court-ordered evaluations for TB, court-ordered health measures for TB and specifies what the program can pay for in caring for an outpatient TB patient.

In July 2010, the Nebraska TB Program and the Kansas TB Program started to do regional cohort reviews of each state's respective cases. Cohort reviews are required by the CDC for states receiving cooperative agreement federal funds. This regional approach to the reviews was the first in the nation and will provide a template for other low-incidence states. The cohort reviews have provided a great opportunity for teaching about how TB presents and the case management involved. All interested persons can listen to them as they are conducted quarterly. For more information, please contact one of the TB Program staff.

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