

Public Health Update

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Tuberculosis Elimination & Control: The Role of Primary Care Providers

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Tuberculosis remains a threat to the health and well-being of people around the world. Among infectious diseases, TB remains the second leading killer of adults in the world, with more than 2 million TB-related deaths each year.

Tuberculosis in Colorado

In 1992, Colorado reported 104 new cases of active tuberculosis (TB). In 2002, a decade later, Colorado is again reporting 104 new cases of TB. Though this is a decrease from the 138 cases reported in 2001, the number would have to be cut by more than half to reach the Healthy People 2010 goal of less than one case per 100,000 population.

Fifteen of Colorado's 64 counties reported cases in 2002. Three quarters of the cases were from the Denver Metropolitan area, whereas 56 percent of the state's population resides in this area. Arapahoe County had the largest increase (11 cases in 2001 and 20 cases in 2002). Douglas, Eagle, Garfield, and Morgan Counties all reported cases in 2002, though none of them reported a case in 2001. Even though Colorado is classified as a low-incidence state (<3.5 cases per 100,000 population), Denver, Saguache, Otero, Costilla, and Phillips Counties all have five-year average case rates greater than 3.5 per 100,000.

Minority groups continue to be over-represented in TB cases. Eighty-one percent of Colorado cases occurred in persons of non-white race or ethnicity. Thirty-nine percent of the cases were among persons of Hispanic origin, and 31 percent were Asian/Pacific Islanders. Asian/Pacific Islanders have the highest case rate at 28.5 per 100,000 population. By comparison, the white population had the lowest case rate at 0.6 per 100,000 population.

Cases in children are a sign of recent transmission and missed opportunities for TB prevention. In 2002, Colorado reported eight cases of TB in children less than 15 years of age. Five of these cases were in children less than five years of age.

Since 1999 greater than 50 percent of the TB cases in Colorado were among persons known to have been born outside the United States. Seventy percent of the cases reported in 2002 were born in other countries. Though approximately 40 percent of the foreign-born cases are from Mexico, there have been cases reported in persons born in 25 other countries.

No new cases of multi-drug resistant TB were reported in 2002. There were four multi-drug resistant cases reported in 2000 and all completed therapy in 2002. One case from 2001 moved

from the United States after six months of therapy, and two other cases from 2001 are currently undergoing therapy.

Table 1. Tuberculosis cases in Tri-County Health Department area by year of report.

	1997	1998	1999	2000	2001	5-year median	2002
Adams	10	7	8	5	15	8	10
Arapahoe	10	6	12	10	11	10	20
Douglas	1	1	1	0	0	1	2
Colorado Total	94	79	88	97	138	94	104

Healthy People 2010 set a national objective of 1.0 or fewer cases per 100,000 population. In 2002, the overall case rate for TB in Colorado was 2.3 per 100,000 population. Colorado continues to be categorized as a low incidence state though the case rates in African-American, Hispanic, and Asian/Pacific Islander populations all exceed “low incidence” threshold.

Table 2. TB case rates per 100,000 population in Colorado by race/ethnicity for year 2002.

	# Cases	2002 Population Estimate	Rate
White	20	3,346,424	0.6
African-American	10	181,497	5.5
Hispanic	41	818,469	5.0
Asian/Pacific Islander	32	112,173	28.5
American Indian/AK Native	1	53,727	1.9
Total	104	4,512,290	2.3

Challenges to Good Tuberculosis Control

The decrease in TB incidence to low levels creates challenges for public health officials. The decreased case numbers fail to fully describe the comprehensive TB control efforts required to maintain the low incidence levels and prevent another epidemic TB resurgence.

When TB was more common, primary health-care providers diagnosed and treated it routinely. Now, because of decreasing TB case rates, fewer primary health-care providers or even specialists have diagnosed or treated TB. However, TB diagnosis, treatment & control is a shared responsibility between private & public health care. While TB is relatively rare compared to other pneumonias, delayed and missed TB diagnoses are common. Delays in diagnosis lead to poor patient outcomes and community transmission of the disease.

Who should be screened for TB?

The Mantoux PPD skin test rather than the Tine or multipuncture Mantoux test is the best screening tool for the diagnosis of both active and latent TB. A total of 0.1 ml of tuberculin is administered intradermally in a patient. A positive reaction will consist of a site of induration (swollen skin); erythema is not indicative of infection. Induration of ≥ 10 mm is positive for individuals who are at high risk for infection. Those who are a contact to a case of TB or who have an abnormal chest x-ray or who have HIV infection are considered positive with induration of ≥ 5 mm. The following individuals should be screened with the Mantoux test:

- Close contacts of a person with active TB are the most obvious people to screen.
- People who were born or have lived in countries where TB is common
- Health care workers
- People who live or work in high-risk congregate settings (jail, nursing home, day care, shelters)
- Medically underserved and low-income individuals
- IV drug or other substance abusers
- Children exposed to high-risk adults
- Local groups thought to be a higher risk (e.g. homeless)

Individuals who have a positive Mantoux test should have an x-ray to determine if the patient has active TB. Ten percent of infected individuals with normal immune systems will develop active TB after exposure to *Mycobacterium tuberculosis*. Fifty percent of those cases will occur within 2 years of exposure. Those at greatest risk are infants (less than 1 yr old: 25-40% develop active TB), teens and the elderly. The intensity of the exposure will also be a factor in development of active disease. It takes 2-10 weeks after exposure to develop a positive PPD.

Conditions that increase the risk of progression to active disease include:

- HIV infection
- Substance abuse
- Recent TB infection
- Medical conditions including HIV, cancer, renal failure, alcoholism, immunosuppression, etc.
- Pediatric and elderly individuals
- Chest x-ray suggesting previous TB
- Persons with a history of inadequately treated TB
- Patients who fail to respond to standard treatment regimens

Tri-County Health Department contracts with Denver Health and Hospital Authority/Denver Public Health Department through the Denver Metro TB Clinic to provide tuberculosis testing, diagnosis and treatment for residents in the Tri-County Health Department area. Tri-County Health Department is partnering with DHHA to provide Direct Observed Therapy (DOT) to clients in the Aurora area, making access to services easier for clients.

Revised tuberculosis guidelines, which are designed to assist health care providers achieve success in the treatment of this potentially fatal, but often preventable disease, were released in February 2003. The new guidelines were released by the American Thoracic Society, the Centers for Disease Control and Prevention, and Infectious Diseases Society of America and are available at:

<http://www.thoracic.org/adobe/statements/treattb.pdf>

Information on tuberculosis also can be found on the Centers for Disease Control and Prevention Division of Tuberculosis Elimination Web site at:

<http://www.cdc.gov/nchstp/tb/default.htm>

For additional information contact the Tuberculosis Program at the Department of Public Health and Environment at (303)-692-2683 or visit the program's Web site at:

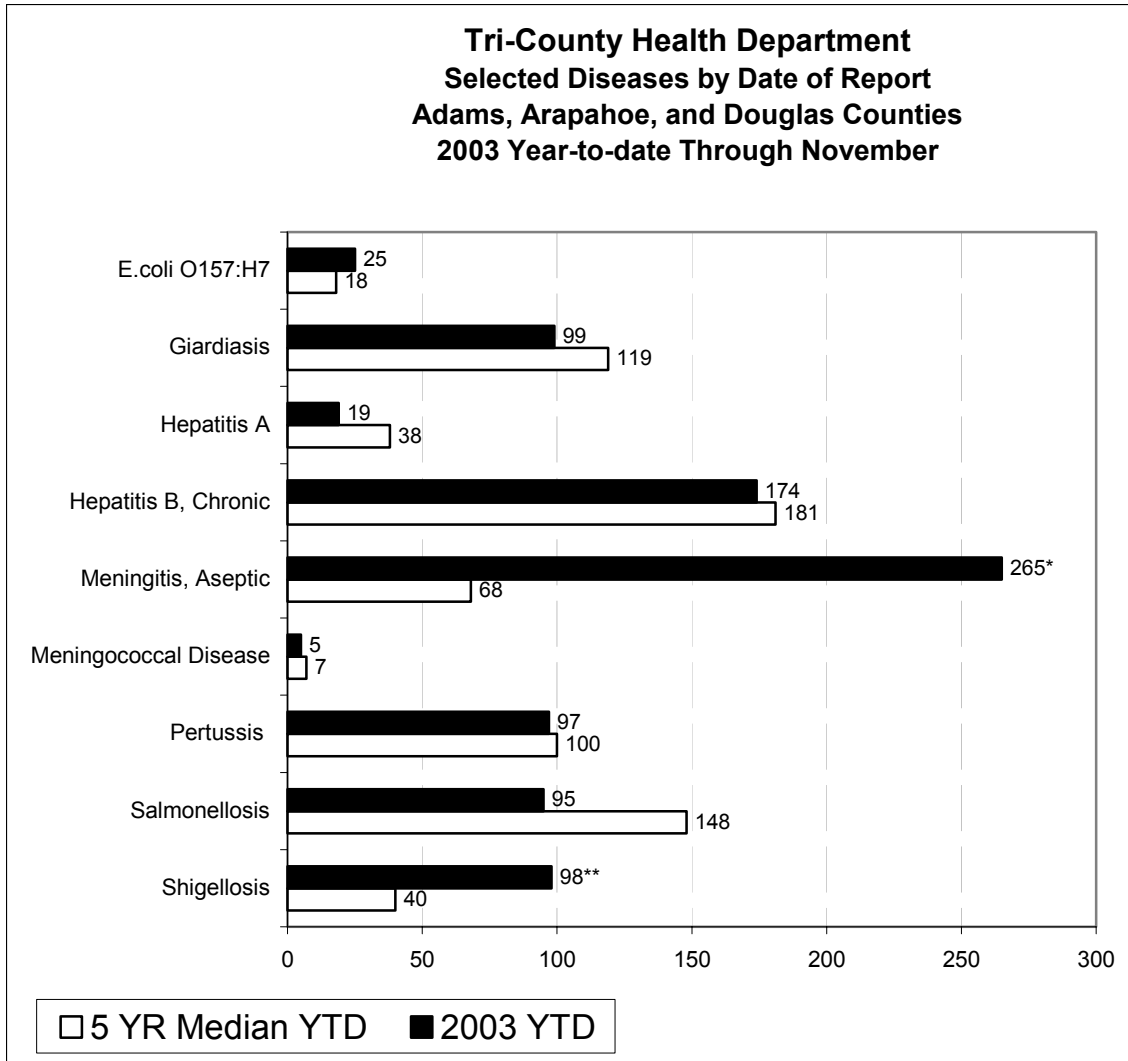
<http://www.cdphe.state.co.us/dc/tb/tbhome.asp>

**Please contact Denver Metro TB Clinic to report suspect cases at
303-436-7296**

Comments or questions on this report, please call Tri-County Health Department at
303-220-9200

Information for this issue of the Public Health Update was taken from:

Tuberculosis In Colorado: A summary of Cases Reported in 2002, Colorado Department of Public Health and Environment, May 2, 2003.



*The large number of cases of aseptic meningitis is in part due to cases of West Nile virus that have not been identified as such and in part due to an enterovirus outbreak of unknown etiology within Colorado and several other states.

** The large number of cases of shigellosis is a result of several outbreaks in childcare centers that occurred this past summer, as well as an outbreak associated with a restaurant.