

Tuberculosis Surveillance Report

Arizona, 2011

Arizona Department of Health Services

Bureau of Epidemiology and Disease Control Services

Office of Disease Integration and Services

August 2012

Executive Summary

The Arizona Department of Health Services (ADHS) TB Control Program (the Department) provides surveillance, data analysis, health education, dissemination of guidelines, and consultation for Arizona's local health departments. This 2011 Tuberculosis (TB) Annual Surveillance Report provides data for TB in Arizona.

- There were 255 cases of active TB disease reported in Arizona in 2011. The TB case rate in Arizona in 2011 was 4.0 per 100,000 population compared to 3.4 per 100,000 nationally. Arizona ranked ninth among all states for TB morbidity.
- Risk factors identified for Arizona TB cases included:
 - 67.1% (171/255) of the TB cases reported a country of birth other than the U.S.
 - 26.4% (64/242) of the TB cases were diagnosed while incarcerated.
 - 5.9% (15/255) of the TB cases were a contact to an infectious TB case in the previous two years.
 - 3.9% (10/255) of the TB cases were reported with HIV co-infection.
- Drug susceptibility testing was reported for 98.4% (189/192) of the culture positive TB cases.
 - 7.9% (15/189) reported isoniazid (INH) resistance.
 - One case of multi-drug resistance (resistance to INH and rifampin) was reported.
- Completion of treatment for all cases is a major concern of the Department. The latest year for which completion of treatment data is available is 2009. The national objective for completion of treatment within 12 months is 90% for cases of active TB disease.
 - Completion of treatment for all TB cases within twelve months was 76.5% (153/200). Completion of treatment regardless of time duration was 85.6% (173/202).
 - Completion of treatment within twelve months for non-correctional TB cases was 86.3% (145/168). Overall completion of treatment regardless of time duration was 91.8% (156/170).
 - Completion of treatment within twelve months for correctional TB cases was 50% (16/32). Overall completion of treatment regardless of time duration was 53.1% (17/32).
 - Completion of treatment within twelve months for TB cases that did not move from the U.S. while on treatment was 83.5% (147/175). Overall completion of treatment regardless of time duration was 89.0% (161/181).
- Continuity of care for active TB cases who return to their home country is accomplished with international referrals to CureTB and TBNet. These agencies provide assistance to TB cases for medical care and continuation of treatment. The Department coordinates Meet and Greets through the Ports of Entry of Nogales and San Luis for cases returning to Mexico. These Meet and Greets are coordinated with several outside agencies. In 2011, twelve Meet and Greets were completed.

The Arizona Department of Health Services Tuberculosis Control Program

The Arizona Department of Health Services (ADHS) Tuberculosis Control Program (the Department) has the overall responsibility for surveillance, management, and assessment of tuberculosis (TB) activities in Arizona. The Department provides epidemiological, technical, medical, nursing, and programmatic consultative services regarding TB prevention and control to public and private health care providers, local and tribal health departments (LHDs) TB control programs, and public and private health care facilities. Through collaboration with the Arizona State Public Health Laboratory (ASPHL), the Department ensures appropriate laboratory testing for specimens and monitors drug-resistance patterns in the state.

Arizona is comprised of fifteen counties and twenty-one federally recognized tribes. The LHDs provide all direct patient care for TB control activities. The LHDs coordinate with medical providers and correctional health staff within their jurisdictions who provide TB control services.

The Department is included in the ADHS Office of Disease Integration and Services along with the programs of HIV Surveillance, Ryan White Part B, Care and Services, STD Control, and Refugee Health Coordination. As significant patterns of co-morbidity are found with TB, HIV, and STD, the Office will prioritize control and elimination through an integrated capacity.

The Arizona State Public Health Laboratory provides testing services including acid-fast bacilli smear, culture, identification, and drug susceptibility testing for clinical mycobacterial samples statewide. The laboratory serves as a reference laboratory for all isolates suspected to be positive for TB and performs drug susceptibility testing for all first –time positive isolates. The laboratory also provides isolates to a national laboratory for genotyping of all positive culture isolates.

This report provides information about Arizona’s reported TB cases in 2011 and completion of treatment for 2009. The latest year that completion of treatment information is available is 2009 due to the length of time needed to successfully complete TB treatment.

Figure 1. TB Cases in Arizona and the United States, 2000 – 2011. In 2011, Arizona’s LHDs reported 255 cases of active TB with a case rate of 4.0 per 100,000 population. This represents a 10% decrease in both the number of cases and the case rate from 2010. Arizona had the ninth highest case rate in the nation in 2011. In the United States, a total of 10,521 TB cases were reported in 2011 with a case rate of 3.4 per 100,000. This was the lowest rate recorded in the U.S. since 1953.

In 2011, 96.5% (246/255) of the cases were alive at diagnosis. Diagnosis after death occurred in 3.5% (9/255) of the cases. Pulmonary TB disease was diagnosed in 86.7% (221/255) of the cases. Extrapulmonary disease represented 13.3% (34/255) of the cases. The diagnosis of both pulmonary and extrapulmonary disease was reported in 4.3% (11/255) of the cases.

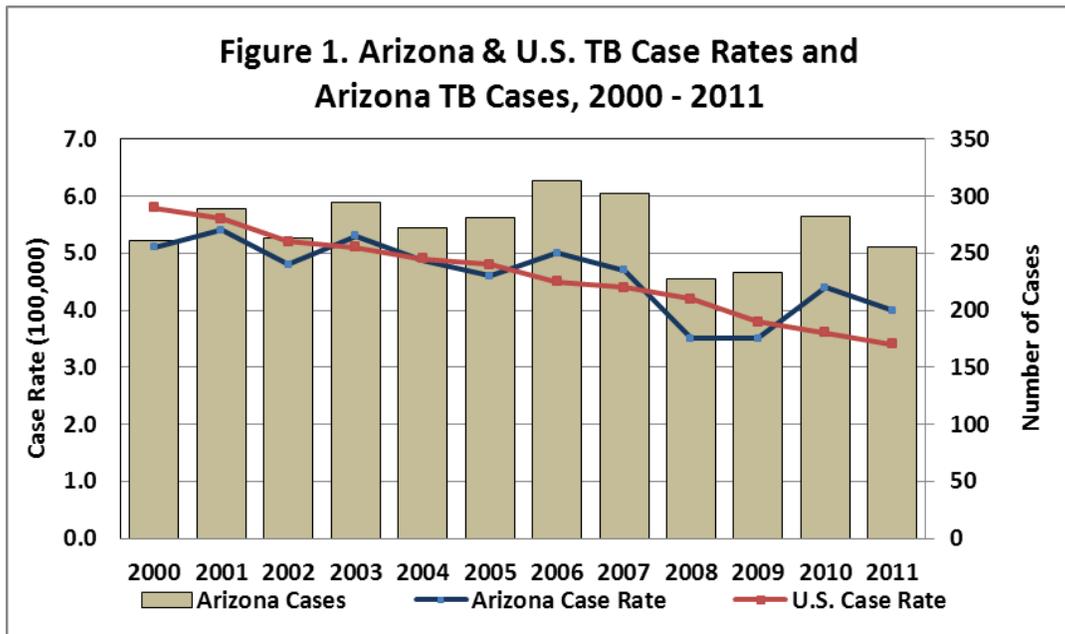


Figure 2. TB Cases Rates by Selected Population Groups, Arizona, 2011. In 2011, the TB case rate among foreign-born individuals was 18.4 per 100,000. Nationally, the foreign-born case rate was 16.9 per 100,000. The Arizona and national TB case rate among U.S. -born persons was 1.5 per 100,000. Among U.S. -born Non-Hispanic blacks, the rate was 2.8 per 100,000 compared to 4.4 per 100,000 in the U.S. TB case rates among children less than five years of age was 1.5 per 100,000 compared to 1.7 per 100,000 nationally.

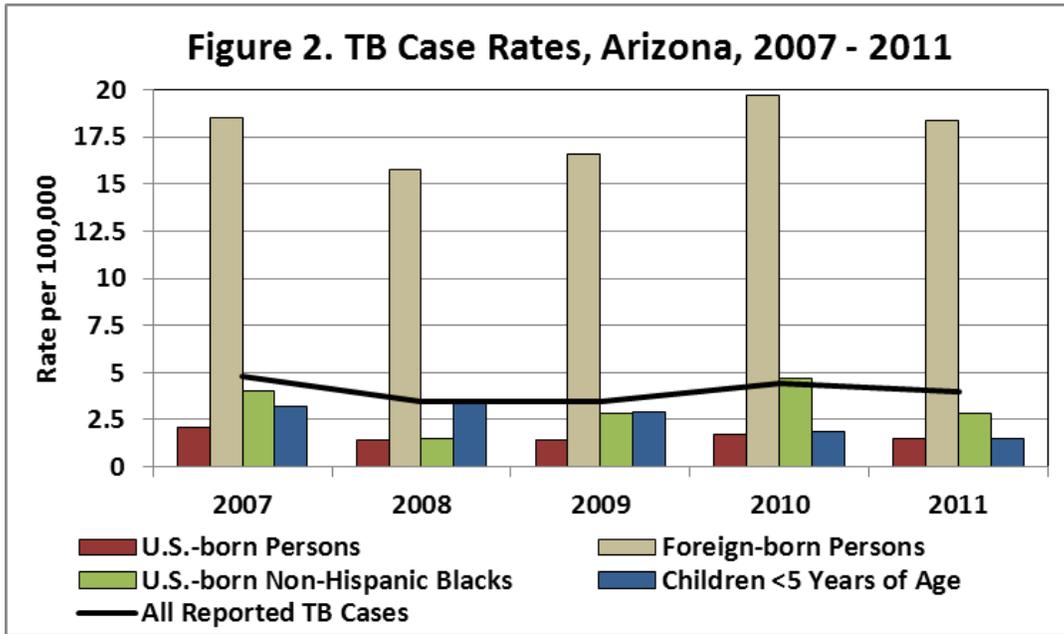


Figure 3. TB Cases by County of Residence, Arizona, 2011. Four of Arizona’s fifteen counties, Maricopa, Pima, Pinal, and Yuma, accounted for 89.8% (229/255) of the reported TB cases. Maricopa County, the most highly populated county in Arizona, reported 45.9% (117/255) of the cases. The number of cases reported in Maricopa County decreased 23% from the number of cases reported 2010.

The TB cases reported from Pinal County accounted for 21.2% (54/255) of the state’s cases, with 88.9% (48/54) diagnosed in a correctional facility. There are twenty-one correctional facilities located in Pinal County, including U.S. Immigrations and Customs Enforcement Service Processing Centers (ICE-SPC), federal, state, local, and privately managed correctional facilities. Yuma County reported 11.8% (30/255) of the total cases and Pima County reported 11% (28/255). There were no cases reported in 2011 from Gila, Graham, Greenlee, or La Paz counties.

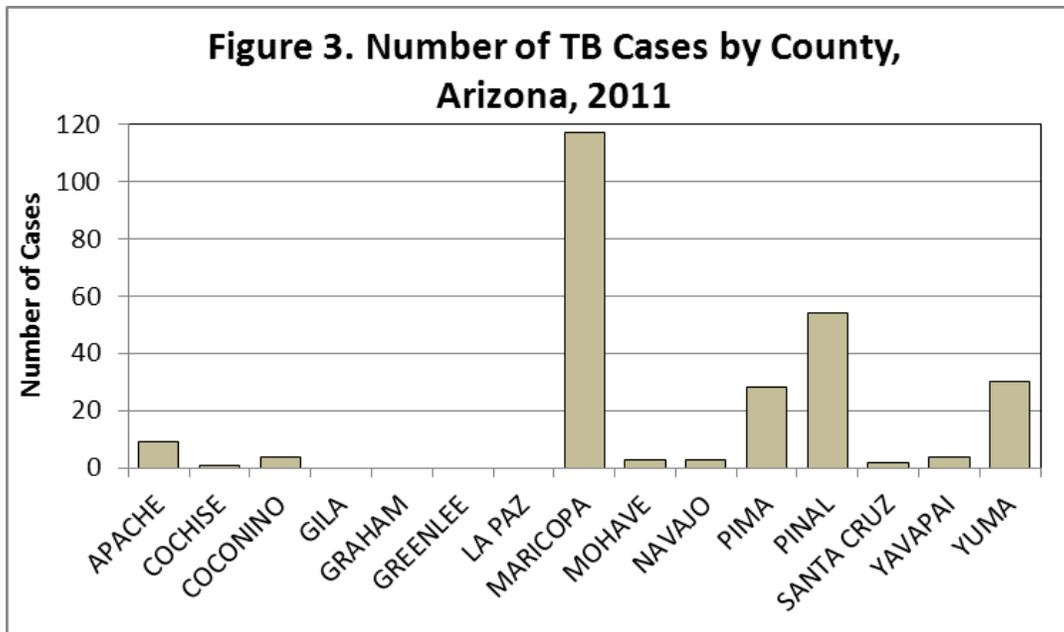
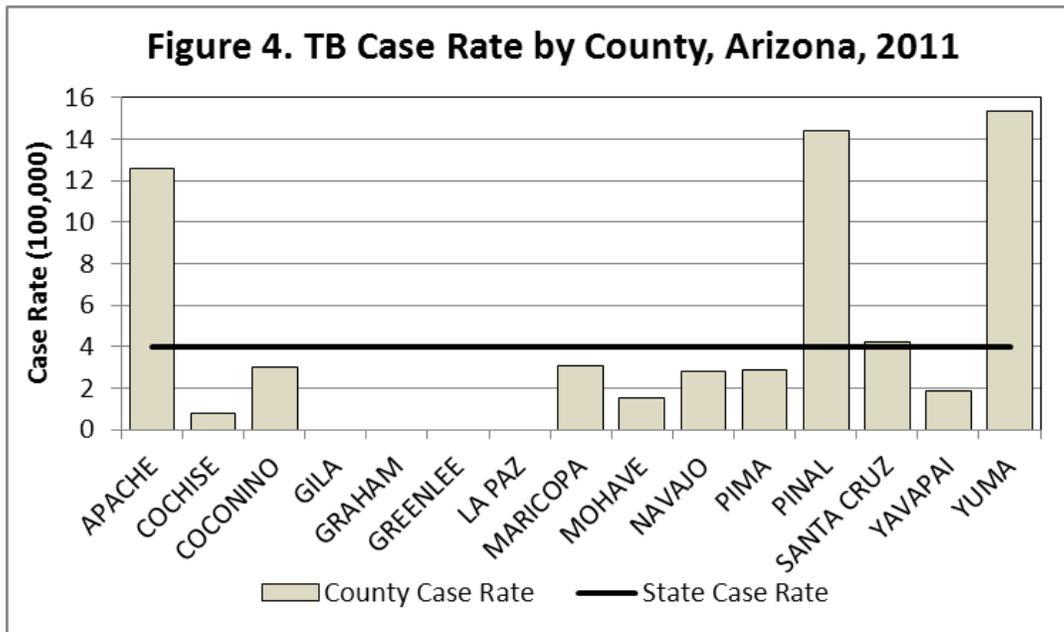


Figure 4. TB Case Rates by County, Arizona, 2011. The statewide case rate was exceeded in Apache, Pinal, Santa Cruz, and Yuma counties. The case rate in these counties may be artificially elevated because these counties have few cases and low population numbers. Maricopa County, which reports nearly 50% of the state’s TB cases annually, showed a 22.5% decrease from 4.0 per 100,000 in 2010 to 3.1 per 100,000 in 2011.

The TB case rates increased in 2011 for the remaining three high-morbidity Arizona counties. The TB case rate for Pinal County increased 5.9% to 14.4 per 100,000 in 2011 from 13.6 per 100,000 in 2010. In Yuma County, the TB case rate increased 30.8% to 15.3 per 100,000 in 2011 from 11.7 per 100,000 in 2010. The TB case rate for Pima County increased 52.6% to 2.9 per 100,000 in 2011 from 1.9 per 100,000 in 2010.



Figures 5 and 6. The number of cases by race and ethnicity are provided in Figure 5. Figure 6 presents the case rates by race and ethnicity. Hispanic ethnicity of any race accounts for approximately 50% of the reported TB cases annually. In 2011, Hispanic TB cases accounted for 53.7% (137/255) of the TB cases. TB cases of Asian descent accounted for 16.1% (41/255), followed by White, non-Hispanic at 14.9% (38/255), American Indian at 7.8% (20/255) and African-American accounted for 7.5% (19/255) of the cases.

The highest TB case rate among racial/ethnic groups was reported for TB cases of Asian descent. The TB case rate of 20.5 per 100,000 decreased 27% from 28.1 per 100,000 reported in 2010. Nationally, the TB case rate for Asian TB cases was 21.4 per 100,000 in 2011 and was relatively unchanged from 2010. The rates among American Indians decreased 31.3% from 8.0 per 100,000 in 2010 to 5.5 per 100,000 in 2011. The TB case rate among African-Americans decreased 5.4% from 7.4 per 100,000 in 2010 to 7.0 per 100,000 in 2011. The TB cases rates remained nearly level for both Hispanics and White non-Hispanics in 2011. The TB case rate among Hispanics in 2011 was 7.5 per 100,000 compared to 7.4 per 100,000 in 2010. Among White, non-Hispanics the TB case rate in 2011 was 1.0 per 100,000 compared to 1.1 per 100,000 in 2010.

Figure 5. TB Cases by Race & Ethnicity, Arizona, 2007 - 2011

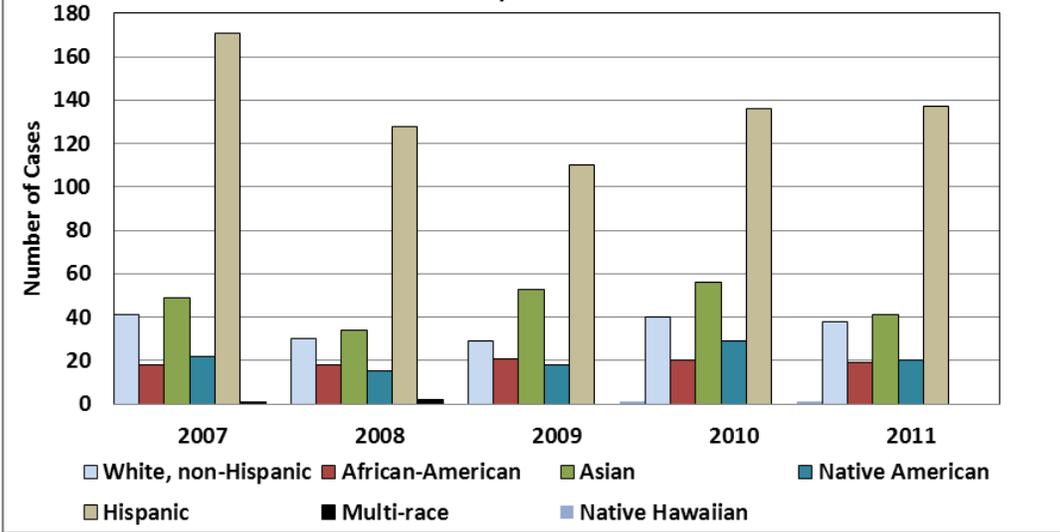


Figure 6. TB Case Rates by Race & Ethnicity, Arizona, 2007 - 2011

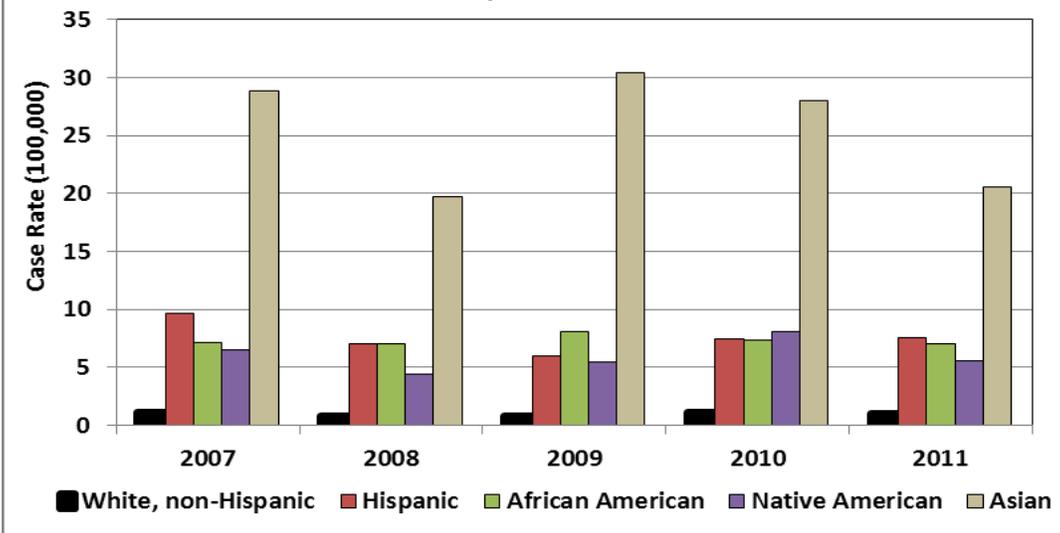


Figure 7. TB Cases by Gender, Arizona, 2011. In 2011, males accounted for 66.7% (170/255) of reported TB cases which is consistent with previous year's data. Females accounted for 33.3% (85/255) of the cases.

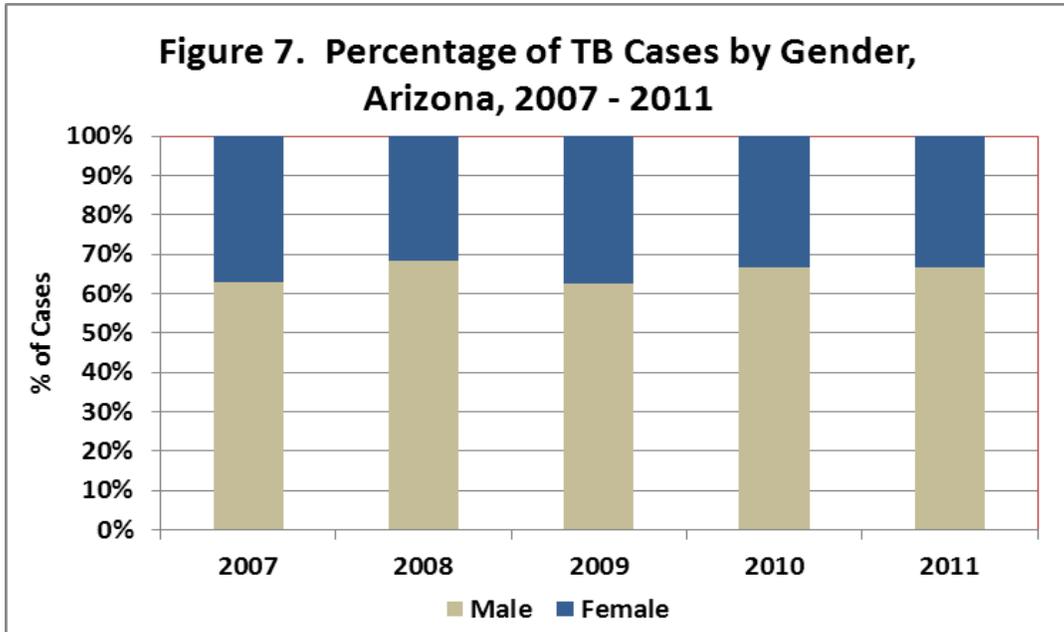


Figure 8 and 9. Figure 8 presents the number of cases by age groups. Figure 9 presents the case rates by age groups. In 2011, 36.9% (94/255) of the TB cases were reported in the 25 – 44 year age group. Those 65 years of age or older accounted for 24.7% (63/255) of the TB cases followed by 22.7% (58/255) in the 45 – 64 age group. The age group of 15 – 24 years accounted for 10.6% (27/255) of the cases. Pediatric cases 5 – 14 years of age accounted for 2% (5/255) of the cases and those 0 – 4 years accounted for 3.1% (8/255) of the cases.

In Arizona, the highest case rate among age groups occurred in the 25 – 44 year old age group (7.7 per 100,000) followed by those 65 years or older (7.1 per 100,000). The TB case rate for the 25 – 44 year age group declined 15.4% from 2010 while the TB case rate for those 65 years and older increased 47.9% from 2010. The TB case rates for those 15 – 24 years and 5 – 14 years remained relatively flat from 2010. The TB case rate for those 0 – 4 years decreased 0.4% from 2010.

Figure 8. TB Cases by Age Groups, Arizona, 2007 - 2011

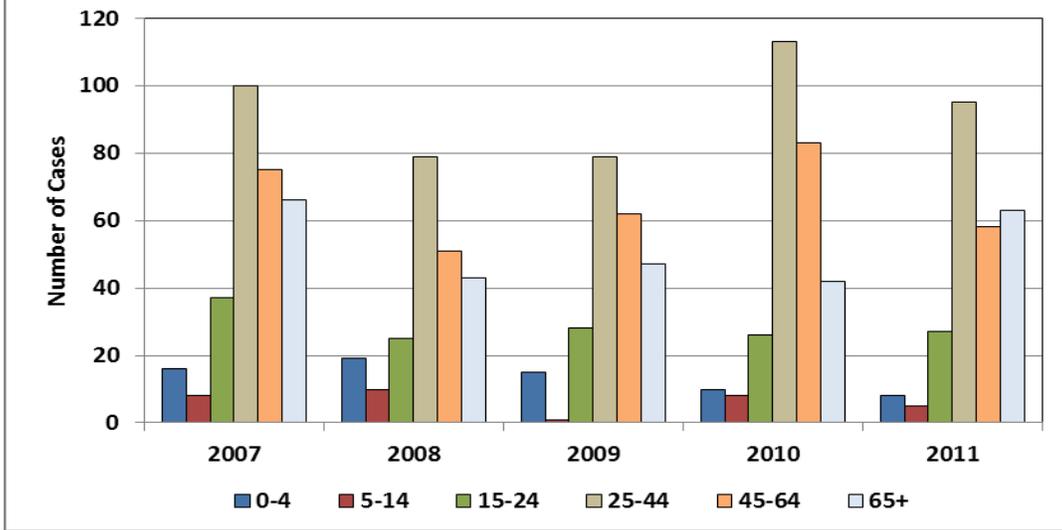


Figure 9. TB Case Rates by Age Groups, Arizona, 2007 - 2011

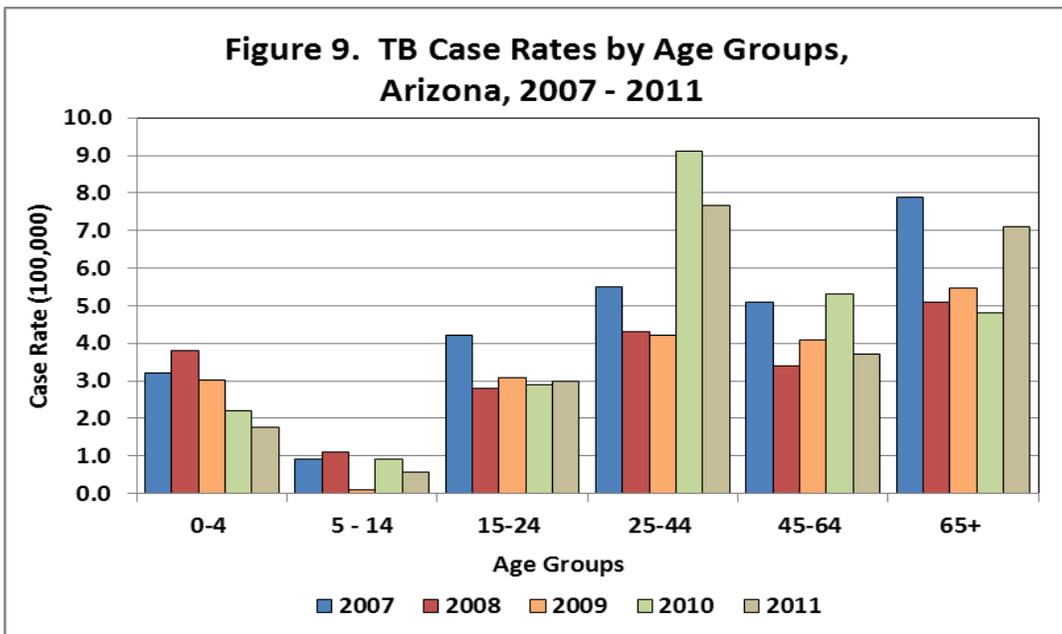


Table 1. TB Cases Reported with Drug Sensitivity Results and Drug Resistance. In 2011, 75.3% (192/255) of the TB cases were reported with positive culture results. Of these cases, 98.4% (189/192) reported drug sensitivity results. Isoniazid (INH) resistance was reported for 7.9% (15/189) of the cases with sensitivity results and is similar to INH resistance reported nationally. One case of multi-drug resistant was reported in 2011. Multi-drug resistance is characterized as resistance to isoniazid and rifampin. Extensively drug-resistant TB has not been reported in Arizona. Extensively drug-resistance is defined as resistance to isoniazid and rifampin, plus resistance to any fluoroquinolone, and resistance to at least one second line injectable drug.

Table 1. Tuberculosis Cases Resistant to INH and Other TB Drugs, Arizona, 2006 - 2011

Year	Cases	Culture Confirmed	Drug Sensitivity Testing		INH Resistant ^a		MDR ^b		Other Resistance ^c		Total Resistance ^d	
			No.	(%)	No.	(%)	No.	(%)	No.	(%)	No.	(%)
2006	313	228	210	(92.1)	17	(8.1)	2	(1.0)	10	(4.8)	29	(13.8)
2007	302	222	218	(98.2)	18	(8.3)	3	(1.4)	14	(6.4)	35	(16.1)
2008	227	152	146	(96.1)	6	(4.1)	0	(0.0)	6	(4.1)	12	(8.2)
2009	232	181	178	(98.3)	13	(7.3)	0	(0.0)	23	(12.9)	36	(20.2)
2010	282	202	198	(98.0)	15	(7.6)	0	(0.0)	14	(7.1)	29	(14.6)
2011	255	192	189	(98.4)	15	(7.9)	1	(0.5)	13	(6.9)	29	(15.3)

^aIsolates may also be resistant to other drugs, including rifampin, includes initial and final susceptibility results

^bResistant to at least isoniazid and rifampin, includes initial and final susceptibility results.

^cOther patterns of drug resistance excluding INH resistance

^dIsolates with resistance to any first or second line TB drug

Table 2. TB Cases by Selected Risk Factors. A major risk factor associated with TB cases in Arizona is country of birth. Foreign-born TB cases represented 67.1% (171/255) of the TB cases. Other risk factors associated with cases reported to the Department in 2011 include diabetes mellitus in 12.2% (31/255) of cases, homeless in 5.9% (15/255), and contact of an infectious TB case within the previous two years in 5.9% (15/255) of cases. TB/HIV co-infection occurred in 3.9% (10/255) of the cases.

Among reported cases over the age of fourteen, risk factors included residence in a correctional facility at time of diagnosis for 26.4% (64/242) of cases, excess alcohol use in 14% (34/242), and non-injecting drug use in 10.3% (25/242). High-risk occupations for TB transmission include health care workers and migrant farm workers. Migrant farm workers comprised 7.9% (19/242) of the cases. Health care workers represented 4.1% (10/242) of the cases.

Table 2. Tuberculosis Cases by Selected Risk Factors, Arizona, 2006 - 2011

	2009		2010		2011 ^e	
	Cases	%	Cases	%	Cases	%
Total Cases	232		282		255	
Occupation						
Health Care Worker ≥ 15 years	3	1.3	4	1.5	10	4.1
Migrant Farm Worker ≥ 15 years	4	1.8	8	3.0	19	7.9
Reported Behaviors						
Injecting Drug Use ^a ≥ 15 years	3	1.3	8	3.0	8	3.3
Non-injecting Drug Use ^a ≥ 15 years	17	7.3	16	6.1	25	10.3
Excess Alcohol Use ^a ≥ 15 years	16	6.9	27	10.2	34	14.0
Type of Residence						
Long Term Care Facility ^b	2	0.8	6	1.8	8	3.1
Correctional Facility ≥ 15 years	37	17	61	23.1	64	26.4
Homeless ^a	8	3.4	24	8.5	15	5.9
Comorbidity						
HIV infection, All Ages	16	6.9	10	3.5	10	3.9
HIV infection, 25-44 Years Old	16	11	8	7.1	8	8.5
Diabetes Mellitus ^c	33	14.2	31	11.0	31	12.2
Immunosuppression (Not HIV/AIDS) ^f	7	3.0	9	3.2	6	2.3
Foreign Born	154	66	182	64.5	171	67.1
Incomplete LTBI Therapy^c	3	1.3	10	3.5	6	2.4
Contact of infectious TB case (2 years or less)^f	13	5.6	15	5.3	15	5.9
^a Within one year prior to diagnosis of tuberculosis.						
^b Residence at time of diagnosis.						
^c Data not collected prior to 2009						

Figure 9. TB Cases Diagnosed in a Correctional Facility. Arizona has consistently ranked as one of the highest states in the nation for the percentage of cases diagnosed in correctional facilities. In 2011, 26.4% (64/242) of the TB cases fifteen years and older were diagnosed in a Arizona correctional facility. Routine evaluation of all inmates for TB during the intake process allows for diagnosis of both latent and active TB in this population. The Department works closely with all correction facilities within the state and provides medical staff with TB training and education to ensure the facilities comply with inmate screening requirements.

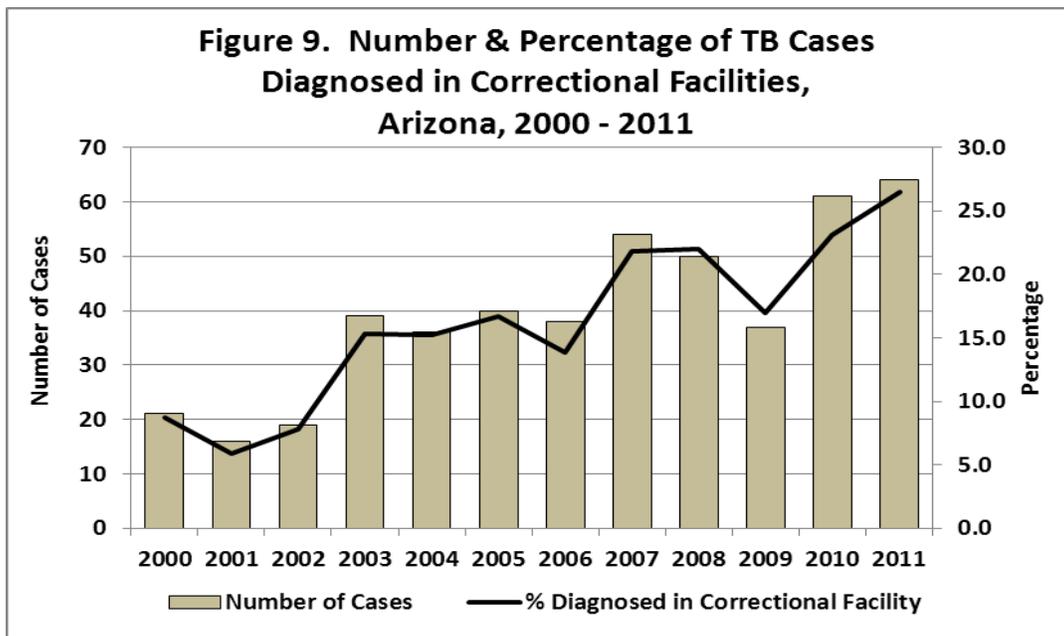


Figure 10. TB Cases by Country of Birth, Arizona, 2011. Over half of all reported cases of TB in the United States occur among foreign-born persons, most of these due to activation of latent TB infection (LTBI). In 2011, 67.1% (171/255) of the TB cases were identified as foreign-born. U.S.-born TB cases accounted for 32.9% (84/255) of the cases. For TB surveillance, a U.S.-born person is defined as someone born in the United States or its associated jurisdictions, or someone born in a foreign country but having at least one U.S.-citizen parent.

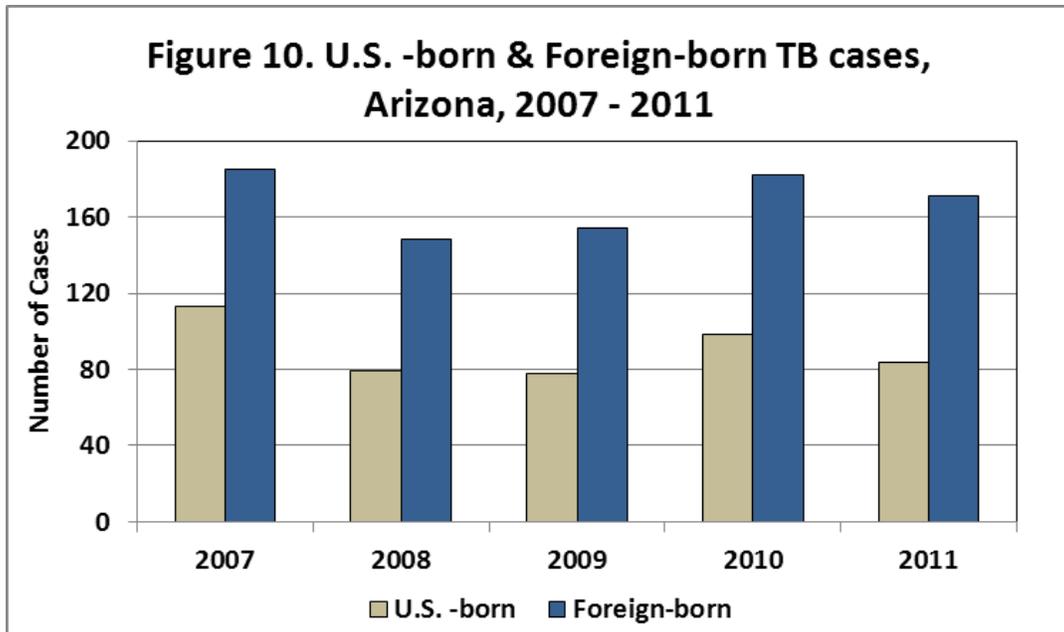


Figure 11. TB Cases by Country of Birth, Arizona, 2011. Foreign-born TB cases are likely the result of reactivation of infection acquired outside the U.S. The risk of disease among the foreign-born also appears related to chronological age and age at immigration; younger people and those who immigrated at younger ages are at lower risk for subsequent infection with TB.

U.S.-born individuals accounted for 33.3% (82/255) of the cases. Mexico was the country of birth for 41.6% (106/255) of TB cases in 2011. The Philippines accounted for 5.5% (14/255), Somalia accounted for 2.4% (6/255), Viet Nam accounted for 2.0% (5/255), and India and China each accounted for 1.57%, (4/255). Other countries accounted for 13.3% (34/255) of the cases.

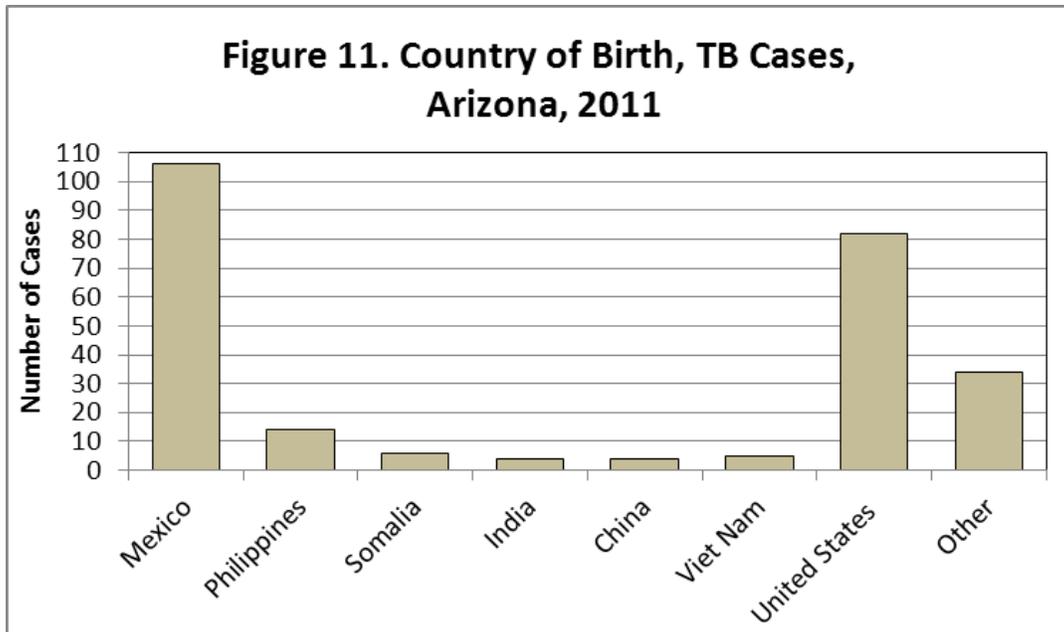


Figure 12. Percentage of TB cases with HIV Co-infection and % of HIV Results Known, Arizona 2007 – 2011. HIV is the strongest known risk factor for TB disease. The Department recommends for all medical providers to provide HIV counseling and testing for all TB patients. HIV in individuals with TB is a major concern because immunosuppression by HIV can impact the body’s ability to fight infection. Individuals with co-infection have higher mortality and are susceptible to increased drug resistance, leading to longer and more complex treatment regimens. The Centers for Disease Control and Prevention (CDC) estimates approximately 10 – 15% of the TB cases in the United States also have HIV infection. For those TB cases 25 – 44 years of age, the estimated co-infection increases to 30%. Worldwide, the 25 – 44 year old age group is the most impacted by HIV co-infection.

In 2011, 82.7% (211/255) of the TB cases of all ages had HIV screening results reported with positive results reported for 3.9% (10/255) of the cases. In Arizona, 89.4% (84/94) of TB cases within the 25 -44 year old age group had HIV screening results reported with 8.5% (8/94) reported positive results.

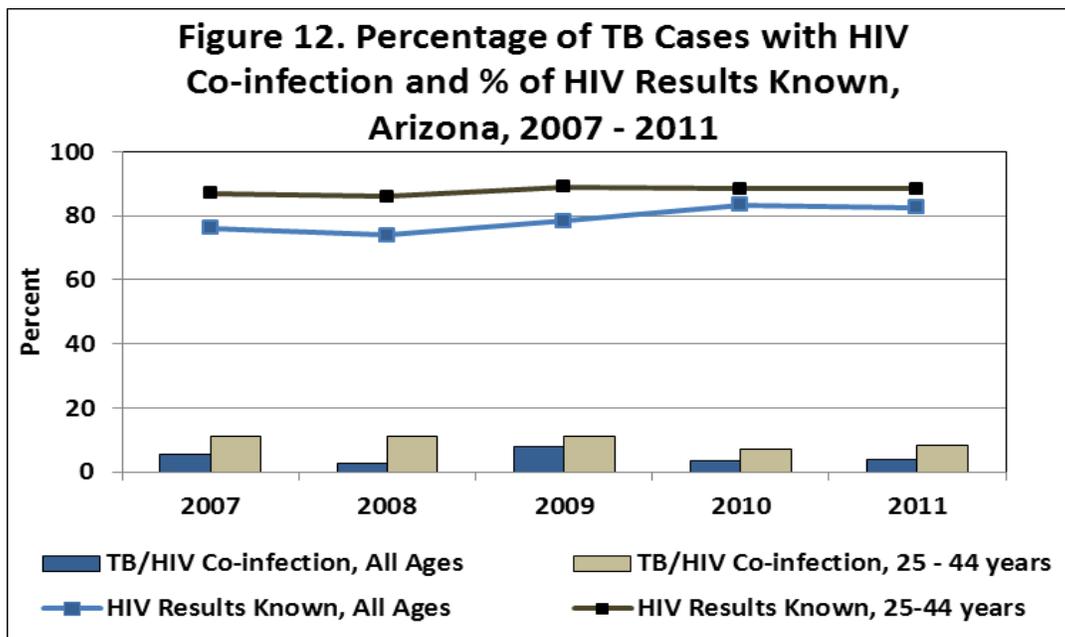


Figure 13. Directly Observed Therapy, Arizona, 2000- 2009. Directly observed therapy (DOT) is the standard of care for administering TB medications. In DOT, health care workers observe the individual take his/her medications to ensure compliance with the treatment regimen. All LHDs are encouraged to provide DOT for community cases. DOT can be difficult for some of Arizona’s LHDs as most of the rural counties are large and require LHD staff to travel significant distances to provide this service. Several LHDs also provide DOT services for correctional facilities in their jurisdictions.

In 2009, 84.8% (179/211) of the TB cases who started treatment received directly observed therapy services or a combination of directly observed therapy and self-administered therapy. Self-administered therapy only was reported for 3.8% (8/211) of the cases.

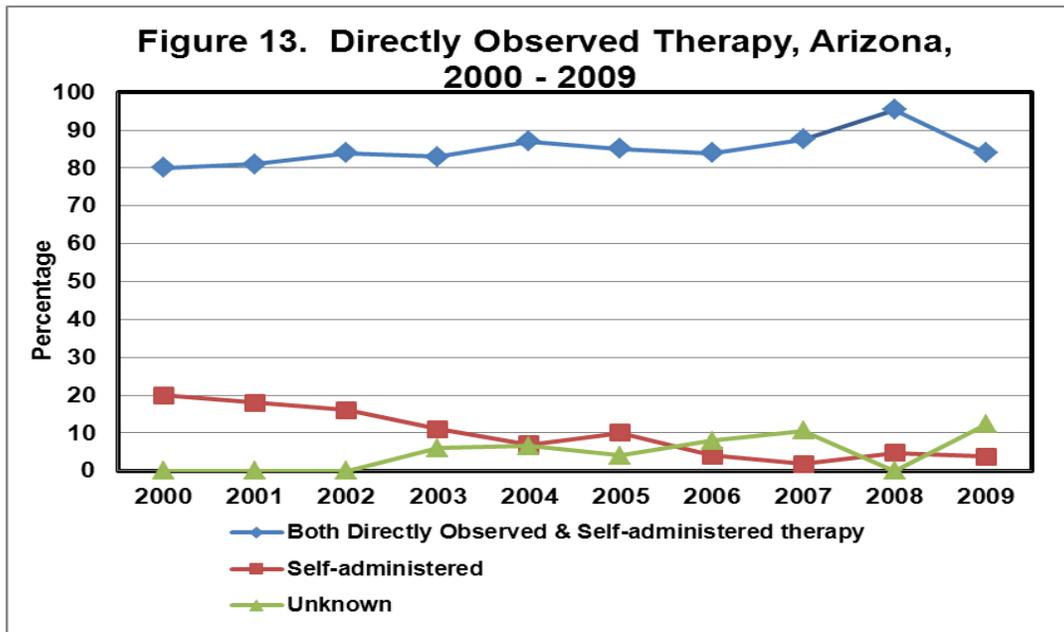


Figure 14. Completion of Treatment, Arizona, 2000 – 2009. Completion of treatment for TB cases is a focus for the Department. The overall goals for treatment of tuberculosis are to cure the individual patient and minimize the transmission of TB to other persons. Thus, successful treatment of tuberculosis has benefits both for the individual patient and the community in which the patient resides. The Department conducts case and cohort reviews, and collaborates with local health departments to improve completion of treatment in Arizona. In addition, the Department relies on international referral agencies to provide completion of treatment information for TB cases that have left the U.S. and returned to their country of origin.

The ADHS TB Control Program strives to achieve the national goal of completion of therapy for 90% of the cases that are eligible to complete treatment within 12 months. In 2009, 76.5% (153/200) of the eligible cases completed treatment within twelve months. Overall, 85.6% (173/202) of the cases completed therapy in 2009, regardless of the time frame. In July 2012, the CDC approved excluding TB cases that moved out of the country during treatment from the completion of therapy objective. In Arizona, 84% (147/175) of the eligible TB cases who remained in the United States during therapy completed treatment within 12 months. Overall, 89% (161/181) of the cases completed therapy in 2009, regardless of the time frame.

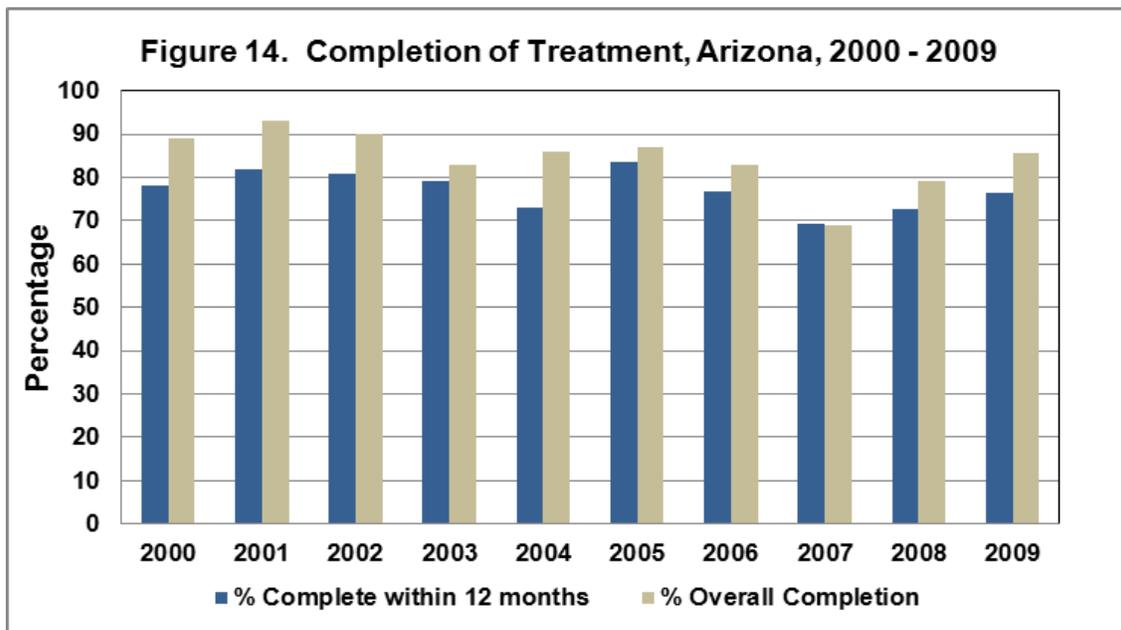


Figure 15. Completion of Treatment for Non-Correctional Facility TB Cases. The low completion of treatment rates are impacted by the number of TB cases diagnosed in a correctional facility. The percentage of completion of treatment within twelve months for non-correctional facility cases was 86.3% (145/168). The overall completion of treatment for non-correctional facility cases was 91.8% (156/170).

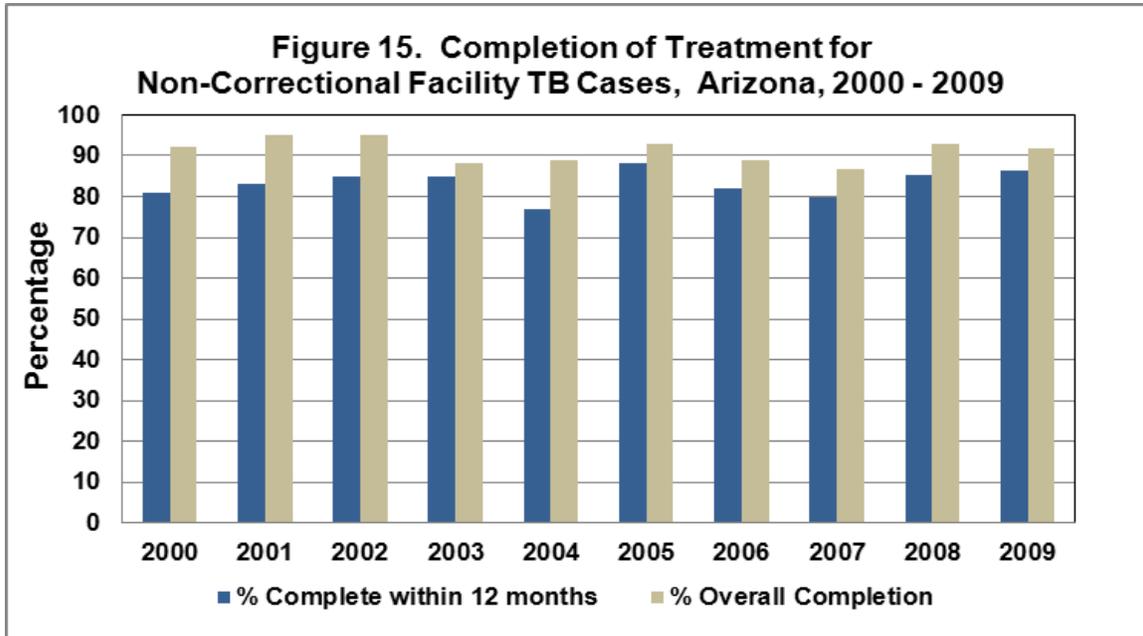
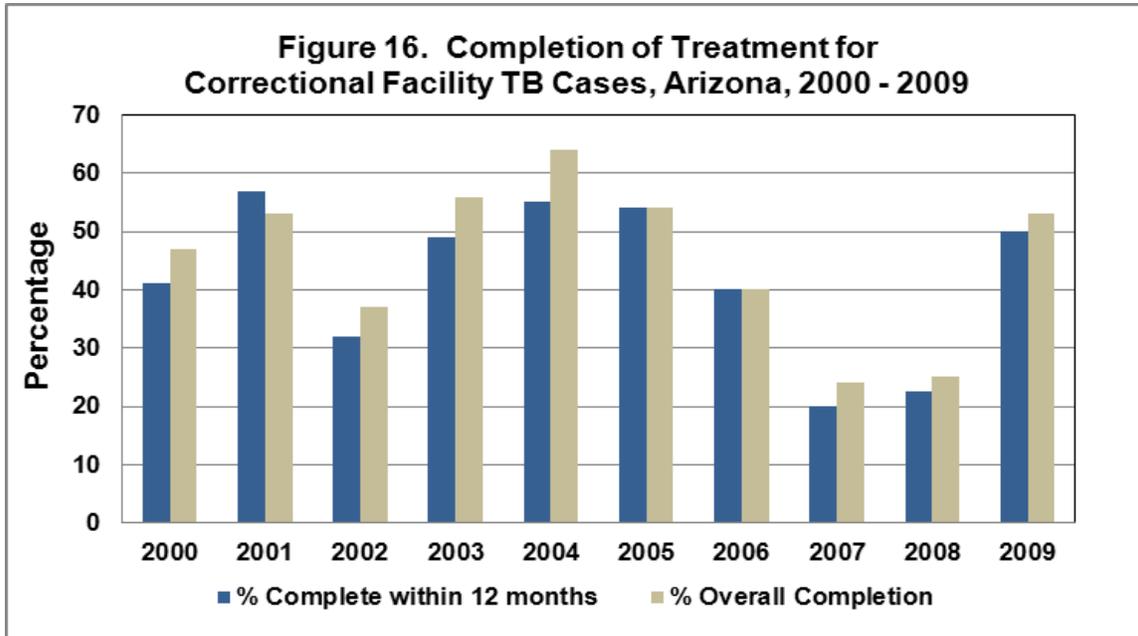


Figure 16. Completion of Treatment for Correctional Facility TB Cases, Arizona, 2000 – 2009. In 2009, 50% (16/32) of TB cases diagnosed in a correctional facility completed treatment within one year. Overall completion of treatment for correctional inmates was 53.1% (17/32).



Contact Investigations

Contact investigations identify, examine, and evaluate all persons who are at risk of infection with TB due to recent exposure to a diagnosed infectious case. It facilitates new case finding which allows for early treatment of disease and early detection and treatment of new infection. In some cases, it may prevent disease. It is an essential component of tuberculosis containment. The local health departments are responsible for ensuring contact investigations are conducted at the local level. The local health departments either conduct the contact investigation or coordinate with responsible parties outside public health to ensure contact investigations are completed. The last year for which contact investigation data is available is 2009 due to the length of time needed to complete treatment for latent TB infection.

In 2009, contacts were identified for 82% (58/71) of sputum-smear positive TB cases. Contacts were identified for 50% (6/12) of correctional cases and 88.1% (52/59) of community cases. Of the contacts to sputum smear positive TB cases, 70% (594/844) were evaluated. There were 213 new diagnosed infected contacts identified and 18.3% (39/231) started treatment. Of those that started treatment, 69.0% (27/39) have completed treatment.

	2006		2007		2008		2009		2010*	
	No.	%	No.	%	No.	%	No.	%	No.	%
Cases with Contacts	94	76	64	71	63	82	58	82	61	74
Cases without Contacts	30		26		14		13		22	
Total Sputum-Smear Positive Cases	124		90		77		71		83	

*Preliminary data.

	2006		2007		2008		2009		2010*	
	No.	%	No.	%	No.	%	No.	%	No.	%
Contacts Evaluated	807	82	409	88	476	63	594	70	816	69
Contacts Not Evaluated	174		54		281		250		370	
Total Contacts to Sputum-Smear Positive Cases	981		463		757		844		1186	

*Preliminary data.

	2006		2007		2008		2009		2010*	
	No.	%	No.	%	No.	%	No.	%	No.	%
Newly Diagnosed Infected Contacts	159		142		164		213		230	
Infected Contacts Started on LTBI Therapy	103	65	98	69	91	55	39	18	157	68
Infected Contacts Completing LTBI Therapy	66	64	66	67	65	71	27	69	77	49

*Preliminary data.

Evaluation of Class B1/B2 Referrals

Immigrants and refugees traveling to the U.S. are evaluated for TB as part of the admission process, and assigned a classification according to the status of their disease. Class A individuals have TB disease and have been granted a waiver. Class B1 includes individuals with non-infectious pulmonary TB disease with negative acid-fast bacilli sputum smears and cultures and those with extra pulmonary TB disease. Class B2 individuals have positive skin tests but have negative evaluations for active TB disease. Class B3 individuals are recent contacts of a known TB case.

The CDC Division of Global Migration and Quarantine notifies the ADHS TB Control Program of all Class B individuals entering the state. The ADHS TB Control Program forwards these referrals to the local health departments of the counties where the individual will reside. The local health departments provide medical evaluation and treatment. The transitory nature of the immigrant and refugee population makes it difficult to initiate or complete evaluations and treatment for these individuals.

In 2011, the ADHS TB Control Program received 268 notifications for immigrants and refugees designated as Class B1, of which 78.0% (209/268) initiated evaluation and 68.6% (184/268) completed the evaluation. There were 160 notifications for Class B2s in 2011, of which 73.1% (117/160) initiated evaluation and 72.5% (116/160) completed evaluation. Of these evaluated Class B2s, 85 were newly diagnosed LTBI and 56.5% (48/85) were started on treatment for latent TB infection.

International Referral and Case Management

The ADHS TB Control Program coordinates with international referral agencies to ensure continuity of care for individuals with TB or suspected of having TB who return to their home country. CureTB facilitates the referral process with public health officials in Mexico. TBNet facilitates the referral process for all countries including Mexico. In 2011, the ADHS TB Control Program referred 122 TB cases and suspect cases to CureTB and TB Net.

Border Health Activities

To ensure continuity of care for individuals being treated for TB who are repatriated to Mexico through Nogales, Arizona, the ADHS TB Control Program coordinates “Meet and Greets.” The Meet and Greet involves transferring these individuals from Arizona and federal law enforcement authorities to Mexican law enforcement and public health authorities. In 2011, the Department also assisted with several Meet and Greets through the Port of Entry at San Luis, Arizona. The protocol for Meet and Greets conducted through the Port of Entry at San Luis is under development.

A “Meet and Greet” requires coordination between the ADHS TB Control Program, ADHS Office of Border Health, Sonora Health Department, ICE, local health departments, and the correctional facility or detention center housing the inmate. The ADHS Office of Border Health coordinates the Meet and Greet with physicians from the Hospital General of Nogales, representatives from the Mexican National Institute of Immigration, and the Mexican Consulate.

Final treatment outcome is difficult to obtain because many of these individuals are lost upon return to their home country, despite the efforts of the referral agencies. Follow-up information often indicates the individuals were not found in their home country after returning or the individual failed contact the local health department. In some cases, treatment is stopped in the home country as case management policies vary by country. The Department is collaborating with the Sonoran public health officials to improve communication and completion of treatment for binational TB cases. In 2011, the Department arranged twelve Meet and Greets.

Conclusion

The ADHS TB Control Program continues to partner with local health departments, federal agencies, correctional facilities, and the international community to prevent and control TB in Arizona. Emphasis on completion of treatment for community and correctional cases requires close collaboration with local health departments and outside partners to prevent further spread of the disease and the emergence of drug-resistant TB.