Tuberculosis Surveillance Report
Arizona, 2008

Arizona Department of Health Services
Bureau of Epidemiology and Disease Control
Office of Infectious Disease Services
July 2010

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Arizona Department of Health Services

Executive Summary

This Tuberculosis (TB) Annual Surveillance Report provides data regarding TB in Arizona for 2008. While the local health departments provide direct patient care, the Arizona Department of Health Services (ADHS) TB Control Program provides surveillance, data analysis, health education, dissemination of guidelines, and consultation for the local health departments.

Arizona ranked fifteenth among all fifty states for TB morbidity in 2008. There were 227 reported cases of TB, which reflects a 25% decrease in the number of cases from 2007. The 2008 case rate was 3.5 per 100,000 population, which was lower than the national case rate of 4.2 per 100,000 population. Four of Arizona's fifteen counties account for 91% (207/227) of all cases. These counties are Maricopa, Pima, Yuma, and Pinal.

Foreign-born status is an important risk factor associated with TB. Since 1993, there has been an increasing trend in the number of TB cases reported as foreign-born, both in Arizona and nationally. In Arizona, TB cases occurring in foreign-born patients accounted for 65% (148/227) of the reported cases in 2008. Nationally, 59% of the reported cases occurred in foreign-born individuals.

Arizona has ranked first in the nation for the percentage of cases diagnosed in a correctional facility for the past several years. In 2008, 22% (50/227) of all cases were reported by federal, state, local, or private correctional facilities. Routine screening and evaluation for TB of all inmates and detainees during the intake process allows for diagnosis of both latent and active TB in this population. Completion of treatment is difficult within this population since many of the inmates and detainees may be released to the community or repatriated to their home country before treatment completion is achieved.

Active TB in young children is indicative of ongoing transmission in the community, and more importantly, of missed opportunities for preventive therapy. In Arizona, children less than six years of age comprised 8.4% (19/227) of all cases.

Drug resistance to Isoniazid was reported in 4% (6/146) of cases. There were no cases of multi-drug resistant or extensively-drug resistant TB reported in Arizona in 2008. Drug resistance patterns excluding Isoniazid were reported in 8% (12/146) of the cases.

The ADHS TB Control Program strives to achieve the national goal of completion of therapy within twelve months for 90% of active TB cases. In 2006, the most recent year for which data were complete, 76% (209/274) completed treatment within twelve months. Overall completion of treatment for all individuals was 83% (231/279).

I. Purpose of the Report

This Tuberculosis (TB) Annual Surveillance Report is designed to be a source of data for TB in Arizona for purposes of prevention and control of the disease through interventions, new or changes in policies, rules and statutes, allocation of funds and planning services. The target audience includes government agencies, health care organizations and providers and other interested parties.

II. TB Surveillance, Prevention, and Control in Arizona

The Arizona Department of Health Services (ADHS) TB Control Program is assigned the responsibility of monitoring, controlling and preventing infection, disease, and death associated with TB statewide through surveillance, data analyses, health education, dissemination of guidelines, consultation, and rule making. The ADHS TB Control Program assesses the burden of disease and latent TB infection (LTBI), including the characteristics, distribution and the risk factors associated with disease.

The local health departments in Arizona provide the direct patient care, including medical evaluation, treatment, and contact investigations. They also coordinate with private and other public providers (e.g., correctional health) who provide these services to patients with active TB disease or LTBI.

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

Key statewide TB control activities include conducting disease surveillance using state and national databases; conducting case management and directly observed therapy to ensure completion of therapy; monitoring drug resistance patterns; and conducting contact investigations and follow-up of persons exposed to active TB cases to ensure absence of LTBI or medical evaluation and completion of preventive therapy if positive for LTBI.

III. Demographics

A. Incidence of TB

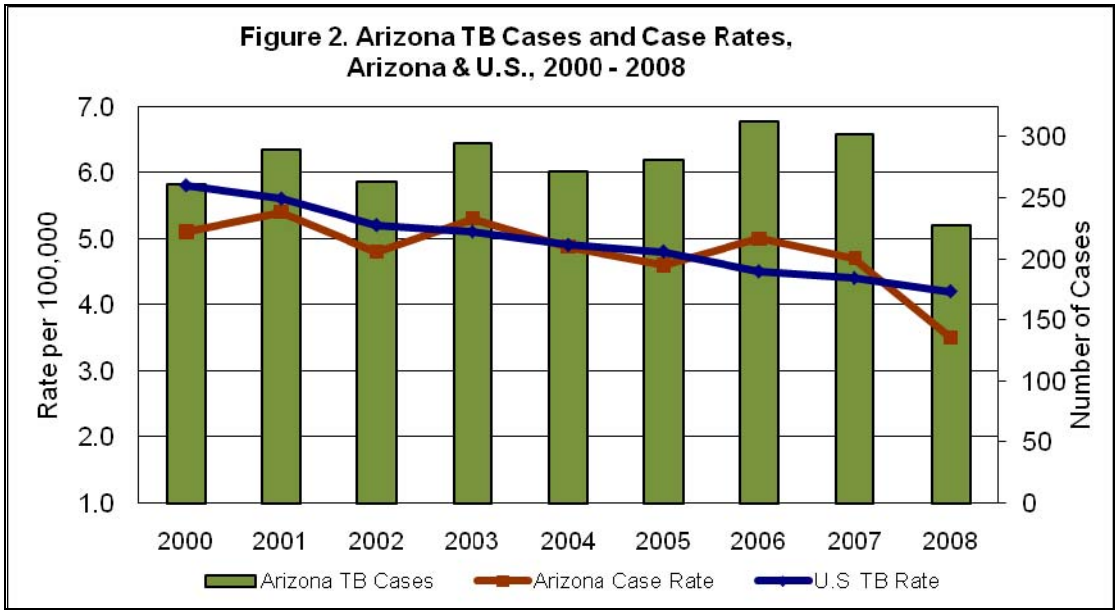
The ADHS TB Control Program received reports of 227 TB cases in 2008, as compared to 302 TB cases in 2007, reflecting a 25% decrease in the number of cases. In the past ten years, Arizona TB case trends have been relatively stable. During this time, a mean of 276 cases were reported, with a range of 227 and 314 (Table 1 and Figure 1).

The 2008 case rate in Arizona was 3.5 per 100,000 population, which was less than the U.S. case rate of 4.2 per 100,000 population. In 2008, Arizona ranked 15th among all states for TB morbidity. The case rate has fluctuated for the past ten years between 3.5 and 5.4 cases per 100,000 population.

Table 1. TB Cases and Case Rates per 100,000 Population, Arizona and United States, 1999-2008

	Arizona			United States[a]	
	Cases	Population[b,c]	Rate	Cases	Rate
1999	262	5,023,823	5.2	17,531	6.4
2000	261	5,130,632	5.1	16,377	5.8
2001	289	5,306,966	5.4	15,989	5.6
2002	263	5,456,453	4.8	15,078	5.2
2003	295	5,580,811	5.3	14,871	5.1
2004	272	5,580,811	4.9	14,511	4.9
2005	281	6,044,985	4.6	14,093	4.8
2006	314	6,239,482	5.0	13,767	4.6
2007	302	6,432,007	4.7	13,293	4.4
2008	227	6,534,921	3.5	12,898	4.2

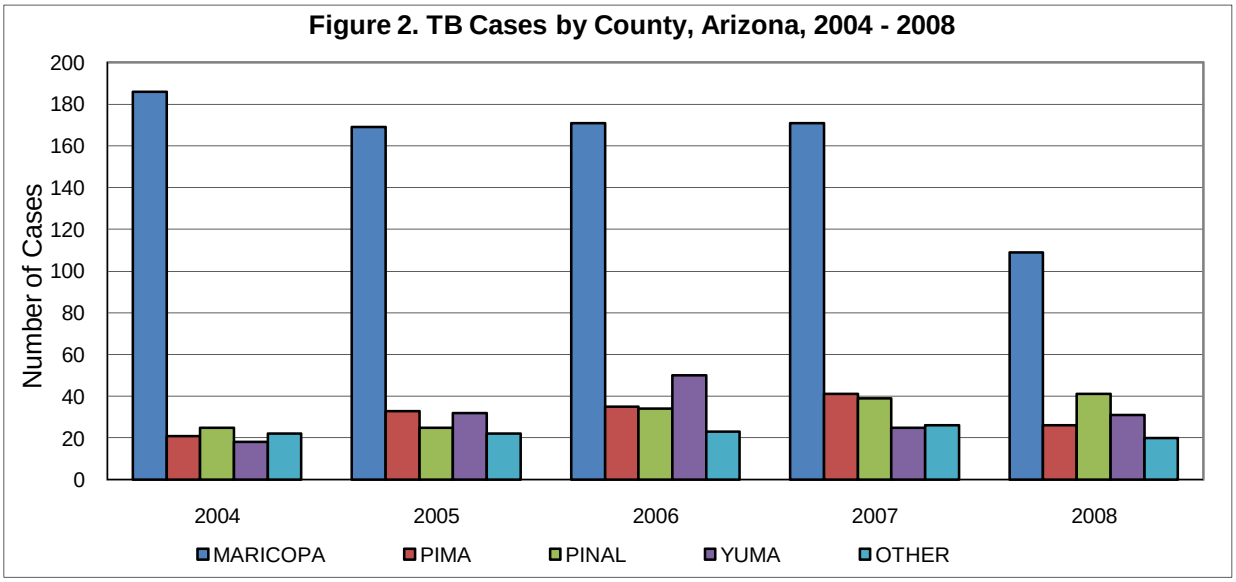
[a]Data from U.S. Department of Health and Human Services, Centers for Disease Control and Prevention, available at: http://www.cdc.gov/tb/surv/
[b]Population denominators for 1999-2003 are estimates from the National Center for Health Statistics (http://www.cdc.gov/nchs/about/major/dvs/popbridge/popbridge.htm), with the exception of year 2000, which was taken from the 2000 U.S. Census
[c]Population denominators for 2004 - 2007 are estimates provided by the Arizona Department of Economic Security



B. County of Residence and County Case Rates

Four of Arizona's fifteen counties accounted for 91% (207/227) of the state's TB cases. Maricopa County, which represents 60% of the state population, reported 48% (109/227) of the cases statewide and a case rate of 2.8 per 100,000 population. Pima County, the state's second largest county with 16% of the state's population reported 11% of the cases (26/227) and a case rate of 2.6 per 100,000 population. Pinal County had a case rate of 12.7 per 100,000 population and reported 18% of the cases (41/227) and Yuma County reported 14% (31/227) with a case rate of 15.2 per 100,000 population. Nine counties plus the Navajo Nation and the Tohono O'odham Nation accounted for the remaining 9% (20/227) of the cases. Gila and Graham counties did not have any reported cases in 2008. Figure 2 presents the number of cases by county.

Figure 2. TB Cases by County, Arizona, 2004 - 2008

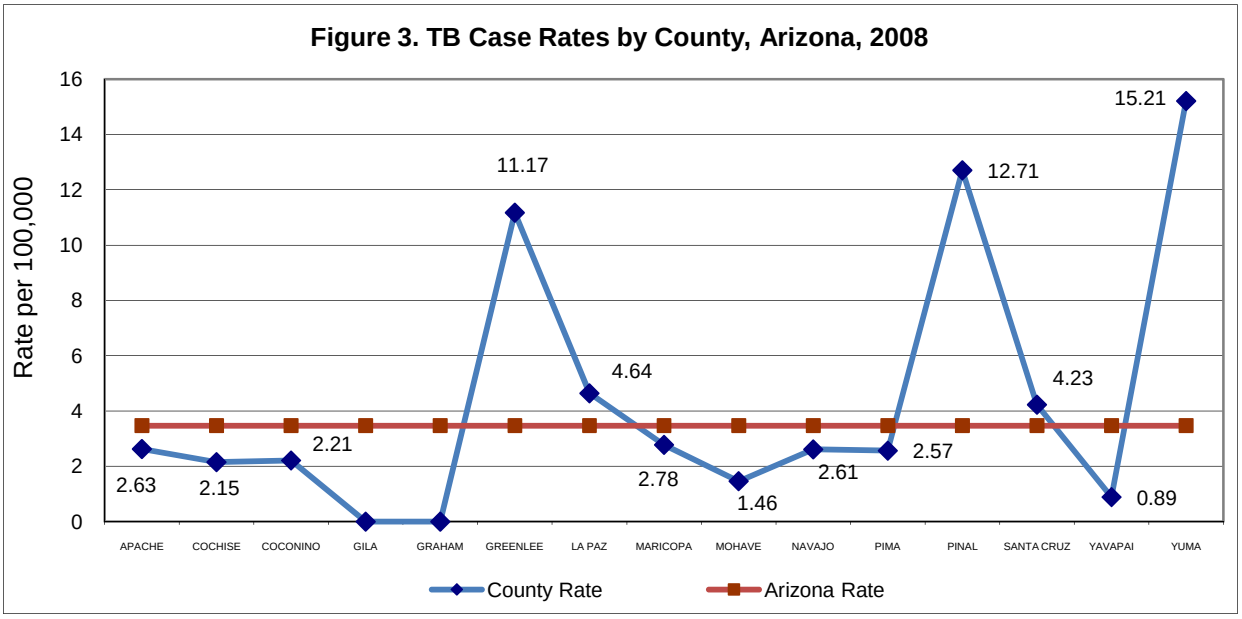


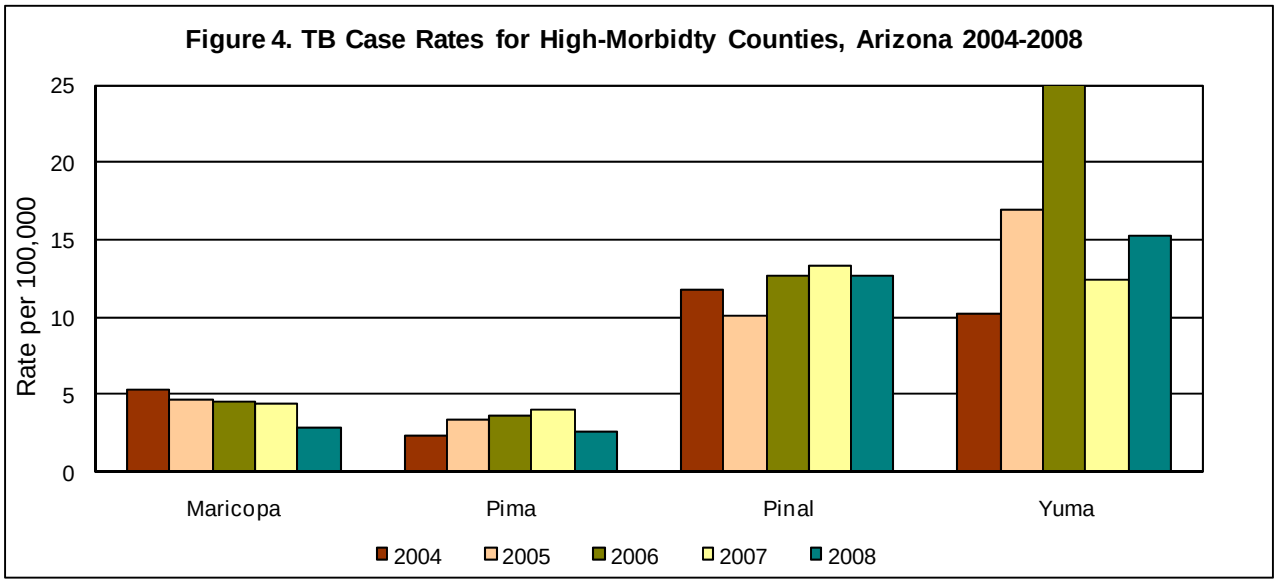
TB case rates by county are presented in Figure 3. Both Pinal County and Yuma County have case rates higher than the statewide case rate of 3.5 per 100,000 population. These counties have relatively small populations and very few cases. The small populations and low number of cases may artificially inflate the incidence rate. Other counties for which this is also true include Greenlee, La Paz, and Santa Cruz.

The majority of cases (37/41 cases) in Pinal County were diagnosed in correctional facilities located within the county. Twenty-one facilities are located in Pinal County including two of the largest state correctional facilities, private prisons, a U.S. Immigration and Customs Enforcement Service Processing Center (ICE-SPC), and county jails.

Several counties experienced a notable decrease in both the number of active TB cases and case rate in 2008. In Maricopa County, the number of reported cases (109 cases in

2008, 171 cases in 2007) decreased by 36% and the case rate (2.78 per 100,000 population) decreased by 37% from 2007. It is not known why Maricopa County and Pima County experienced such a decrease in reported cases. Figure 4 presents the five year case rates for the high morbidity counties including Maricopa, Pima, Pinal, and Yuma counties.



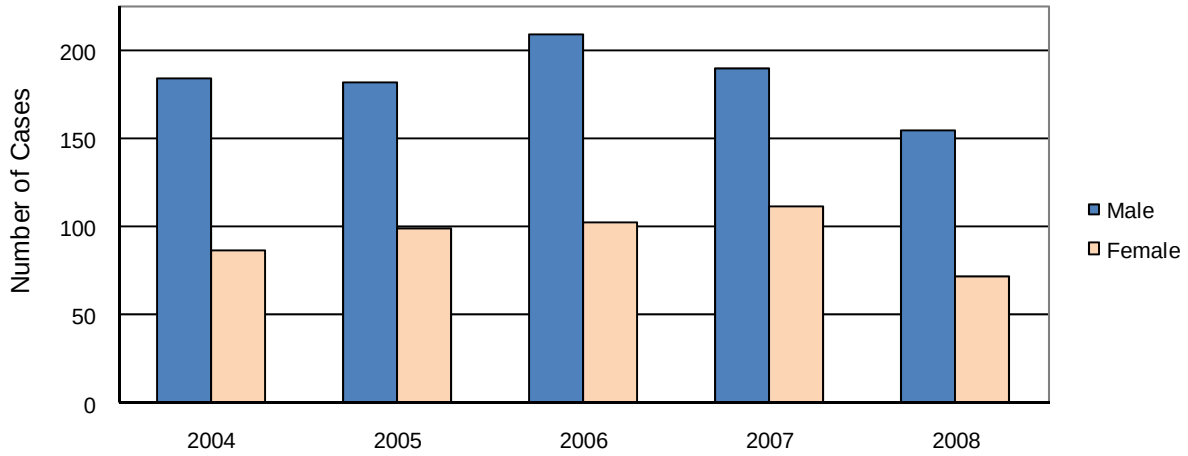


C. Gender/Age/Race/Ethnicity

Gender

Males accounted for 68% (155/227) of the cases and females accounted for 32% (72/227) of the cases. This higher percentage of cases among males is consistent with national data as males accounted for 62% of cases in the United State. Statewide, the ratio of male to female active TB cases is 2.2 male TB cases to one female TB case. The case rate for males is 4.7 per 100,000 population and the case rate for females is 2.2 per 100,000 population. Figure 5 presents the TB cases by gender from 2004 through 2008.

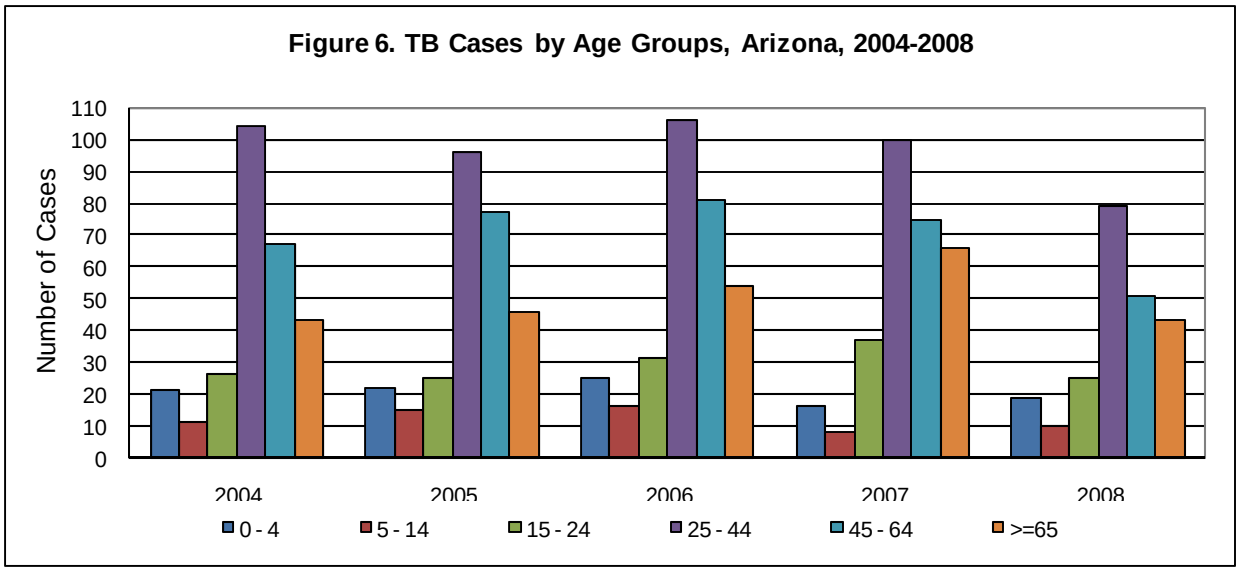
Figure 5. TB Cases by Gender, Arizona, 2004 - 2008

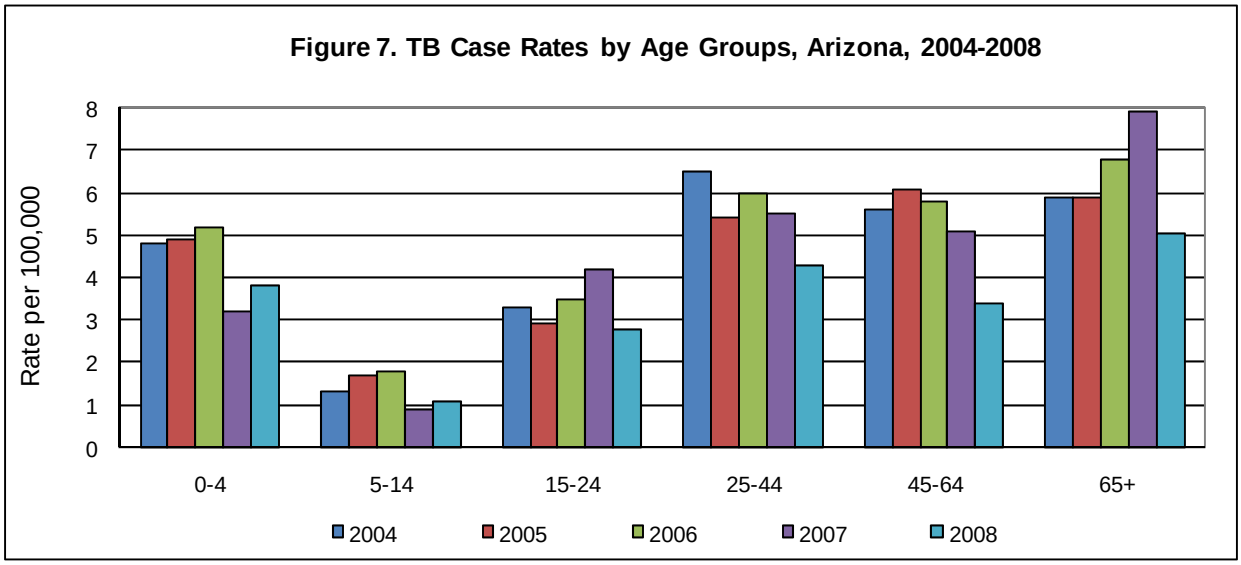


Age

The mean age for all TB cases was 41 years of age and the median age was 39 years. For males, the mean age was 43 years and the median age was 41 years. For females, the mean age was 38 years and the median age was 32 years.

The number of cases by age group is presented in Figure 6 and the case rate by age groups is presented in Figure 7. The highest case rate (5.1 per 100,000 population) occurred among those over 65 years of age (43/227), followed by the 25-44 year old age group (79/227) at 4.3 per 100,000 population. The 25-44 year old age group accounted for 35% (79/227) of Arizona's TB cases.





TB in Children Less than Six Years of Age

Disease found in children under the age of six indicates ongoing transmission in the community and represents missed opportunities for TB prevention. The case rate for children less than six years of age was 3.8 per 100,000 population and was slightly higher than the statewide case rate for all ages of 3.5 per 100,000 population. Children in this age group accounted for 8.4% (19/227) of all cases in 2008. In 2007, the case rate for this age group was 3.2 per 100,000 population.

In 2008, Maricopa County reported 53% (10/19) of the total cases found in children under six years of age. To address this issue, the ADHS TB Control Program conducts

monthly pediatric case reviews with Maricopa County Department of Public Health TB Control staff.

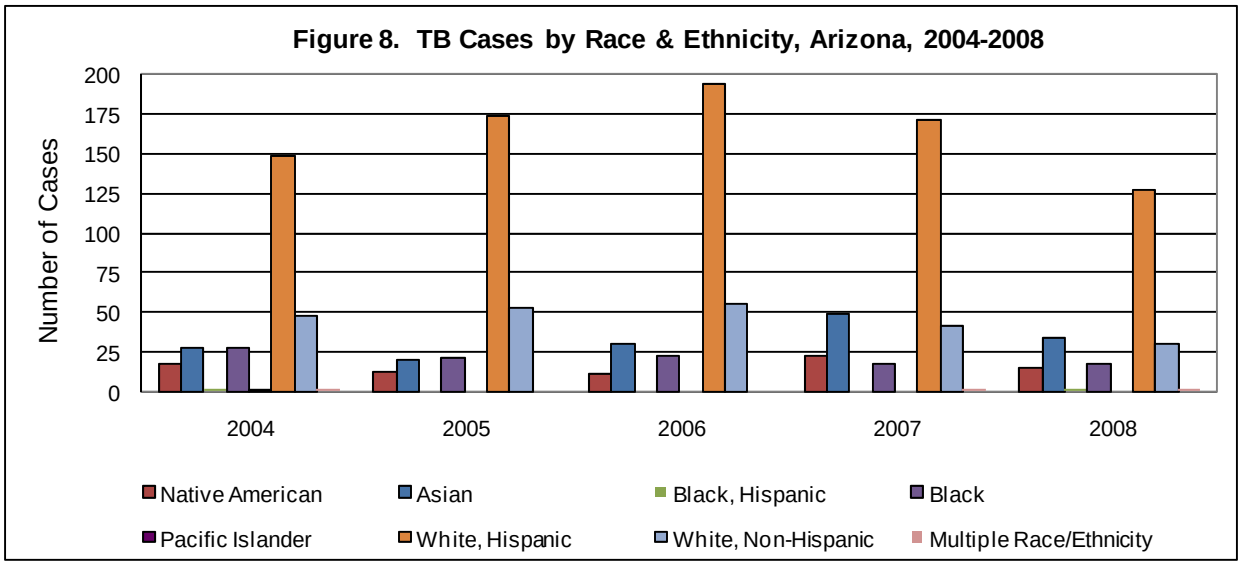
Hispanic children accounted for 53% (10/19) of cases less than six years of age, which suggests active pulmonary TB continues to occur among Hispanic adults in the state. The ADHS TB Control Program's current efforts to improve TB control in adults should reduce pediatric TB.

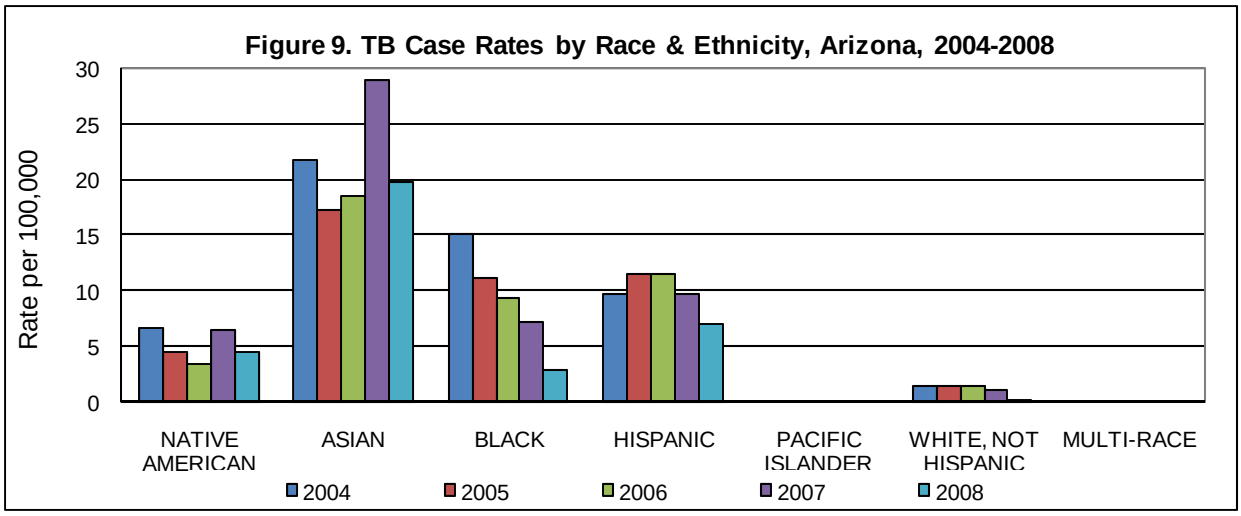
Race/Ethnicity

In Arizona, Hispanic ethnicity of any race accounted for 57% (128/227) of the reported cases. Asian was reported in 15% (34/227) of the cases, followed by non-Hispanic white in 13% (30/227), Native American 7% (15/227), and Black 8% (18/227). There were two cases reported as multiple race and no reported cases among Native Hawaiians or Pacific Islanders (Figure 8).

From 2007 to 2008, TB rates decreased in the U.S. for all racial/ethnic minorities. The TB case rates by race and ethnicity for Arizona are presented in Figure 5. The highest case rate is 19.7 per 100,000 population for those of Asian descent. The Asian case rate decreased by 32% from 28.9 per 100,000 reported in 2007. The U.S. case rate among Asians in 2008 was 25.1 per 100,000 population.

The TB case rate among Hispanics also decreased 27% in 2008 to 7.0 per 100,000 population from 9.6 per 100,000 population in 2007. The case rate for Hispanics had been as high as 11.4 per 100,000 population in previous years. Nationally, the TB case rate for Hispanics decreased by 5.1% in 2008. The TB case rate among White non-Hispanics decreased 27% from 1.1 per 100,000 population in 2007 to 0.8 per 100,000 population in 2008 (Figure 9).





D. Site of Infection and Vital Status at Diagnosis

Table 2 presents the TB cases by site of disease and the vital status of the case at diagnosis. Pulmonary TB with no additional site of disease accounted for 79% (177/227) of all cases in 2008. Extrapulmonary disease accounted for 20% (45/227). Both pulmonary and extrapulmonary disease accounted for 1% (3/227). Cases diagnosed after death accounted for 1% (2/227).

Table 2. TB Cases by Form of Disease and Vital Status at Diagnosis, Arizona, 2008

	Alive at Diagnosis		Diagnosis After Death		Total Cases	
	No.	%	No.	%	No.	%
Pulmonary[a]	177	78.7	2	1.1	179	78.9
Extrapulmonary[b]	45	20	0	0	45	19.8
Persons with Both Pulmonary and Extrapulmonary Disease[c]	3	1.3	0	0	3	1.3
Total	225	99.1	2	0.9	227	100

[a]Includes cases with pulmonary listed as major site of disease and no additional site of disease
[b]Includes cases with pleural, lymphatic, bone and/or joint, meningeal, peritoneal, or other site, excluding pulmonary, listed as the major site of disease
[c]Includes miliary cases

III. Risk Factors

Table 3 presents the risk factors associated with the 2008 Arizona cases.

A. Occupation

High-risk occupations for TB transmission include correctional facility workers, health care workers and migrant farm workers. Migrant farm workers comprised 3.5% (8/227) of the total cases in 2008. Health care workers were reported in 1.8% (4/227) of the cases.

B. Reported Behaviors

Substance abuse (including alcohol abuse and/or illicit drug use) is defined a having a history of substance abuse during the 12 months prior to diagnosis. Substance abuse was reported in approximately 16% (36/227) of TB cases.

In 2008, 12.8% (28/227) reported excess alcohol use, 5.3% reported (12/227) non-injecting drug use, and 2.6% (6/227) reported injection drug use. The variables for substance abuse are underreported in Arizona. Approximately 13% (29/227) of the 2008 TB cases have missing data for these variables. Cases that involved correctional facility inmates often do not report this information.

Table 3. TB Cases by Selected Risk Factors, Arizona, 2004 - 2008

	2004		2005		2006		2007		2008	
	Cases	(%)	Cases	(%)	Cases	(%)	Cases	(%)	Cases	(%)
Occupation										
Correctional Facility Worker	0	(0.0)	0	(0.0)	2	(0.6)	0	(0.0)	0	(0.0)
Health Care Worker	6	(2.6)	1	(0.4)	9	(2.9)	10	(3.3)	4	(1.8)
Migrant Farm Worker	10	(4.4)	5	(1.8)	11	(3.5)	10	(3.3)	8	(3.5)
Reported Behaviors										
Injecting Drug Use[a]	7	(3.1)	11	(3.9)	7	(2.2)	10	(3.3)	6	(2.6)
Non-injecting Drug Use[a]	31	(13.7)	20	(7.1)	17	(5.4)	22	(7.3)	12	(5.3)
Excess Alcohol Use[a]	48	(21.1)	29	(10.3)	38	(12.4)	36	(11.9)	28	(12.8)
Type of Residence										
Long Term Care Facility[b]	10	(4.4)	7	(2.5)	10	(3.2)	9	(3.0)	6	(2.6)
Correctional Facility ≥15 years	36	(15.9)	40	(16.4)	38	(14)	54	(17.9)	50	(22.0)
Homeless[a]	21	(9.3)	23	(8.2)	29	(9.2)	26	(8.6)	14	(6.2)
Country of Origin										
Foreign Born	156	(68.7)	170	(60.5)	181	57.8	185	(61.3)	148	(65.2)
Underlying Disease										
HIV infection, All Ages	23	(10.1)	20	(7.1)	15	(4.8)	17	(5.6)	6	(2.6)
HIV infection, 25-44 Years Old	19	(7.0)	12	(4.3)	9	(8.5)	11	(11.0)	5	(6.3)
Total Cases	**272**		**281**		**313**		**302**		**227**	

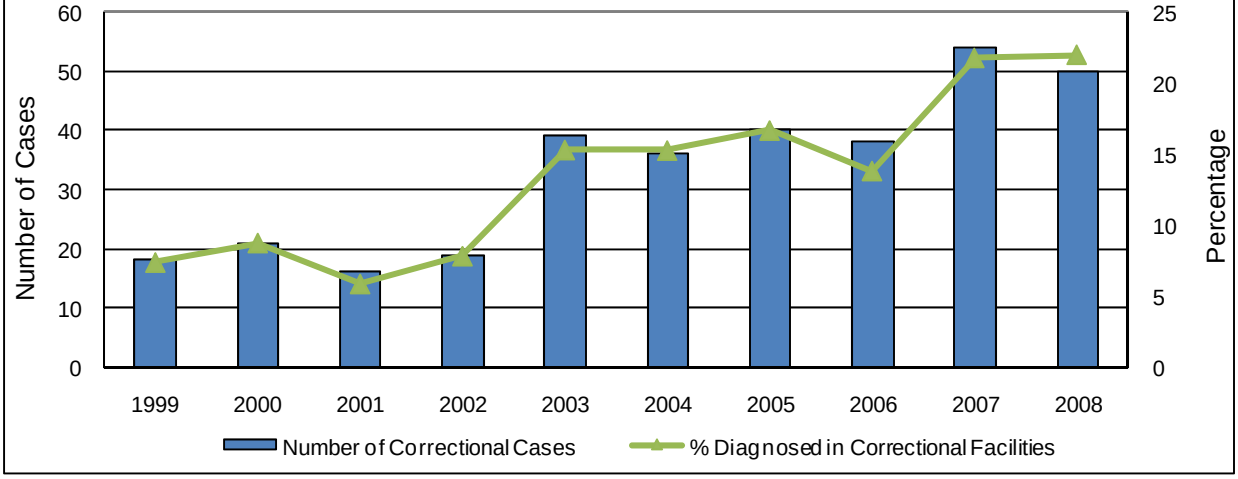
[a]Within one year prior to diagnosis of tuberculosis.
[b]Residence at time of diagnosis.
[c]Includes persons born outside the United States and its territories.
[d]Tuberculosis cases with a reported positive HIV test result. The percent positive represents HIV co-infection among all verified TB cases, including those not tested for HIV infection.

C. Correctional Facilities

Preventing TB transmission in congregate settings such as correctional and detention facilities is a significant challenge. Individuals from diverse backgrounds and communities are housed in close proximity for varying lengths of time. Routine evaluation of all inmates for TB during the intake process allows for diagnosis of both latent and active TB in this population.

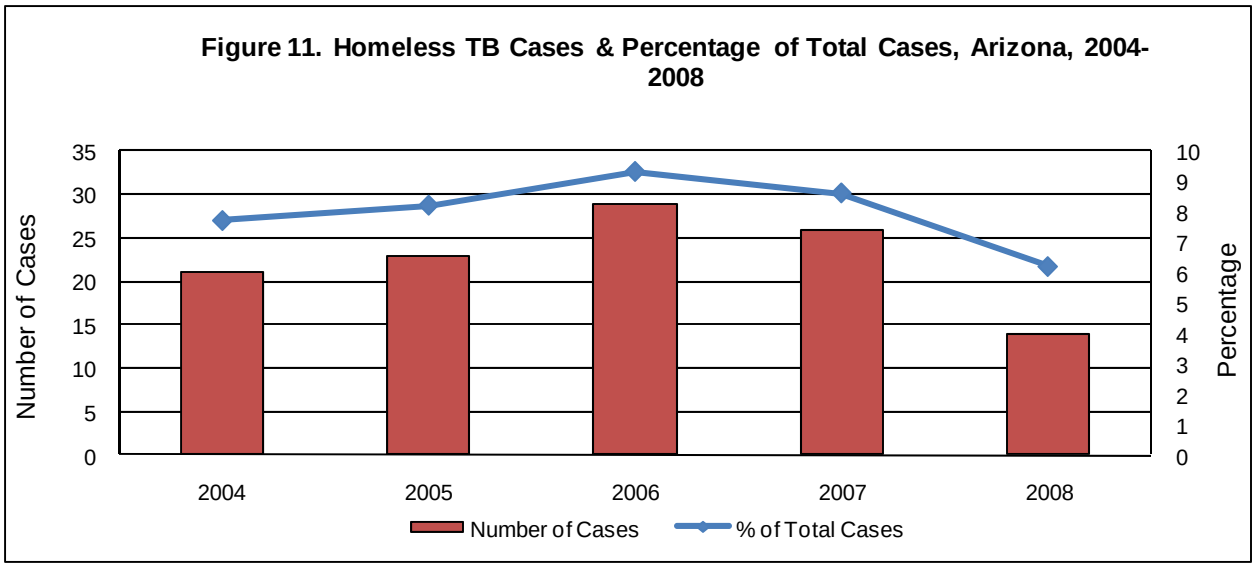
In previous years, Arizona has consistently ranked first in the nation for the percentage of cases greater than fifteen years of age diagnosed in correctional facilities. In 2008, correctional facilities accounted for 22% (50/227) of the state's reported cases (Figure 10). The ADHS TB Program has been working closely with correctional health staff to provide TB training and education and ensuring the facilities comply with the inmate screening requirements.

Figure 10. Number & Percentage of TB Cases Diagnosed in Correctional Facilities, Arizona, 1999 - 2008



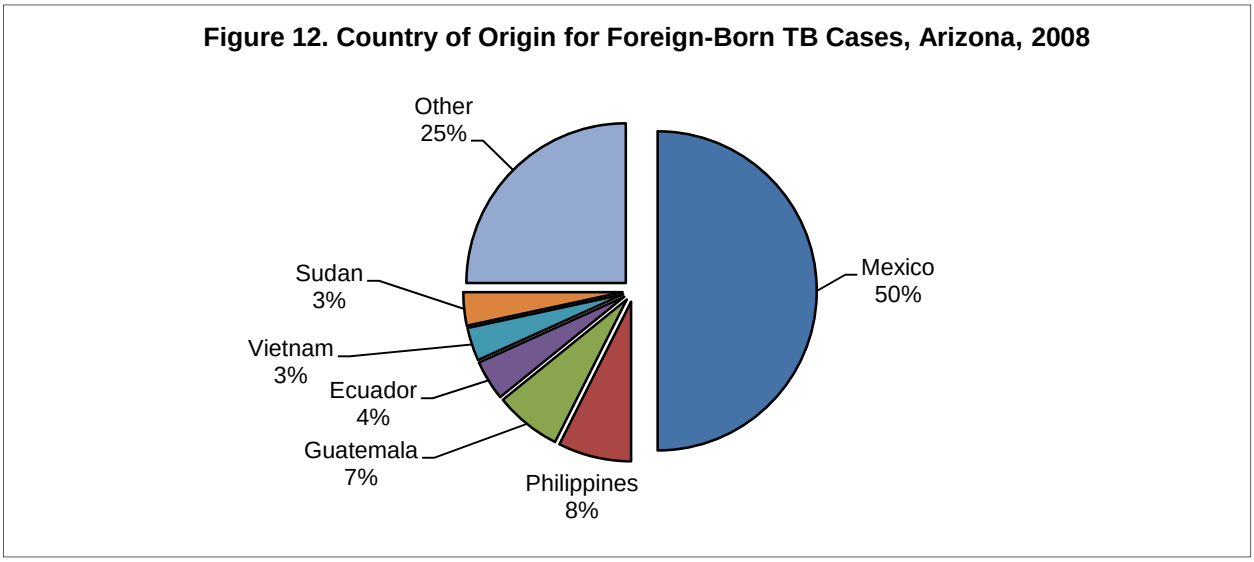
D. Homelessness

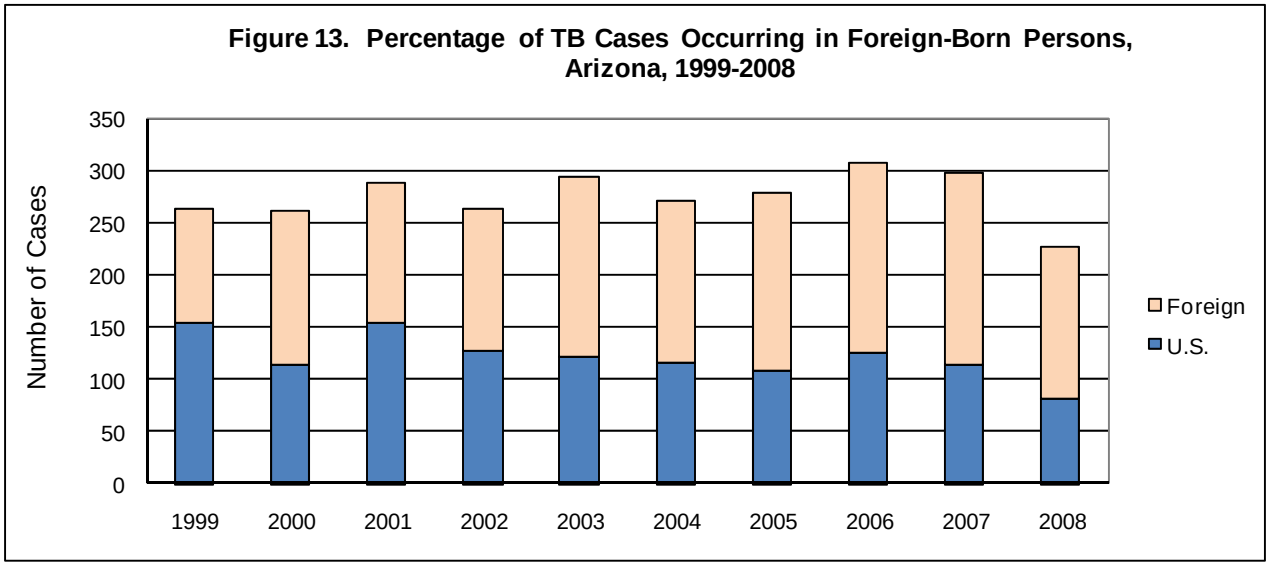
Homelessness is another important risk factor for TB with 6.2% (14/227) of cases in 2008 reported as being homeless within the year prior to diagnosis with TB (Figure 11). Maricopa County reported 50% (7/14) of the homeless cases. Yuma, Pinal, Pima, and Coconino counties reported the remaining seven active homeless TB cases.



E. Country of Birth

Arizona has observed an increasing proportion of cases among foreign-born individuals (Figures 12 and 13). In 2008, 65% (148/227) of Arizona cases were born outside the U.S. and its territories. Mexico accounted for 50% (74/148) of the country of origin for foreign-born cases in 2008. Only 6.8% (10/148) of the foreign-born cases from Mexico reported being in the U.S. less than one year and 12.8% (19/148) reported U.S. residence for more than 20 years.



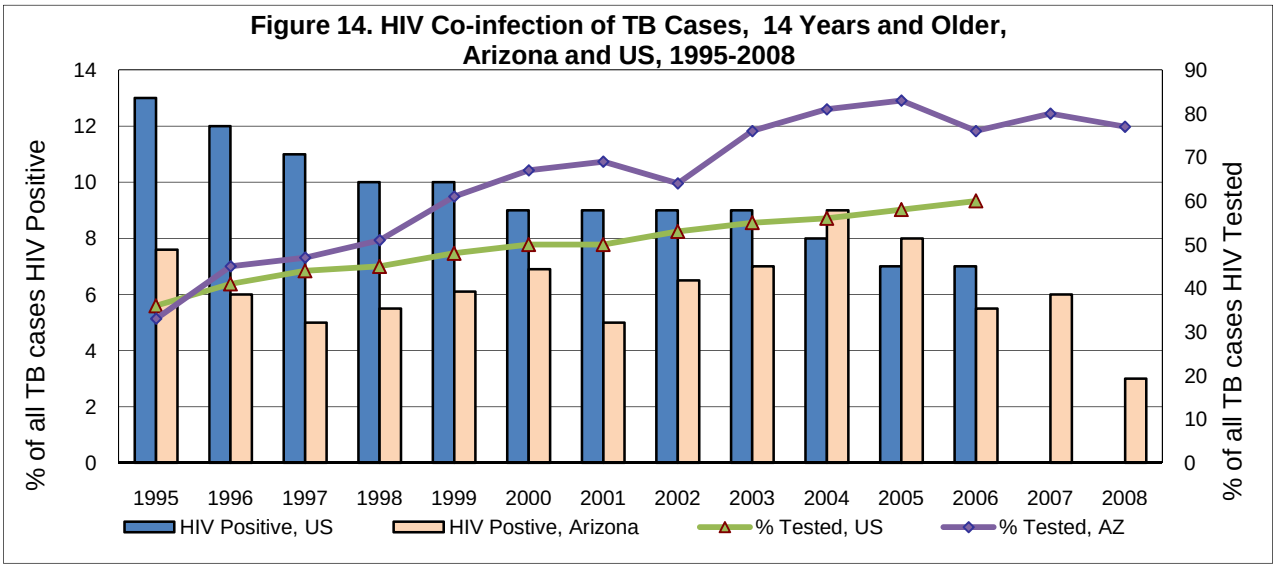


F. TB-HIV Co-Infection

Co-infection with HIV in individuals with TB is a major concern because immunosuppression by HIV can impact the body's ability to fight TB. Individuals with co-infection have higher mortality and are susceptible to increased drug resistance, leading to longer and more complex treatment regimens.

In Arizona, TB/HIV co-infection has remained relatively stable from 1996 through 2007 but at lower levels than seen nationally (Figure 14). However, in 2008 the percentage of co-infection in those greater than fourteen years old dropped from 6% (n=17/278) in 2007 to 3% (6/198) in 2008. Of the cases reported as TB/HIV co-infected, all were males, 83% (5/6) were Hispanic, and 67% (4/6) were foreign-born (Figure 14).

Testing for HIV among 25 – 44 year olds diagnosed with TB has increased since 1995. In 2008, 86% (68/79) of all cases ages 25-44 years of age received HIV results. Among persons with TB in the 25-44 year age group in Arizona, 6% (5/79) were reported to be TB/HIV co-infected.



IV. Directly Observed Therapy

Directly observed therapy (DOT) is the standard of care for administering TB medications. In DOT, health care workers observe the patient take his/her medications to ensure compliance with the treatment regimen.

Table 4 presents the number and percentage of cases receiving DOT. Due to the length of time to complete treatment for TB, 2006 data were the most recently finalized data available.

Table 4. Number and Percentage of Cases Receiving DOT, Arizona, 2002-2006

	2002		2003		2004		2005		2006	
	No.	%	No.	%	No.	%	No.	%	No.	%
DOT	175	70	210	74	196	75	195	72	225	75
Both DOT & Self-Administered	34	14	24	9	31	12	36	13	38	13
Self-Administered Only	40	16	31	11	18	7	28	10	12	4
Unknown	1	0.4	1	0	4	2	1	0	0	0
Not Available	1	0.4	18	6	13	5	10	4	25	8
Total	251		284		262		270		300	

V. Completion of Treatment

The ADHS TB Control Program strives to achieve the national goal of completion of therapy within twelve months for 90% of active TB cases. In 2006, 76% (209/274) of all

cases completed treatment within twelve months. Overall, 83% (231/279) of the cases completed therapy in 2006, regardless of time frame (Figure 15).

The percentage of completion of treatment within twelve months for non-correctional facility cases was 82% (195/239). The overall completion of treatment for non-correctional facility cases was 89% (217/244) (Figure 16).

Only 40% (14/35) of correctional facility cases completed treatment overall, of which all completed treatment within twelve months. Many of the correctional cases were lost to follow-up after being released to the community or repatriated to their home country (Figure 17).

The completion of treatment within twelve months among homeless cases (Figure 18) was 72% (13/18) and overall completion was 95% (18/19).

Figure 15. Percentage of Completion of TB Therapy, Arizona, 1995 - 2006

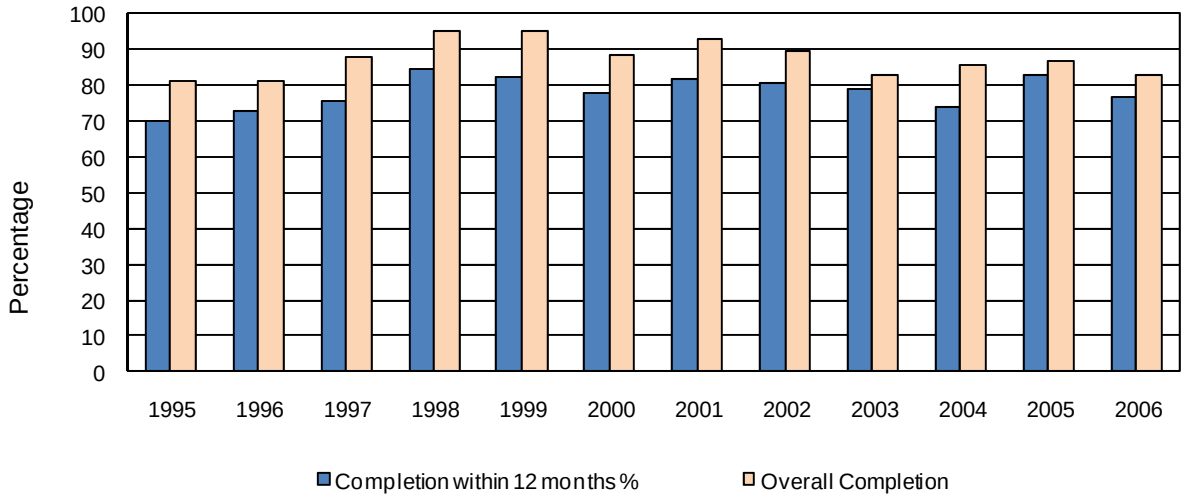
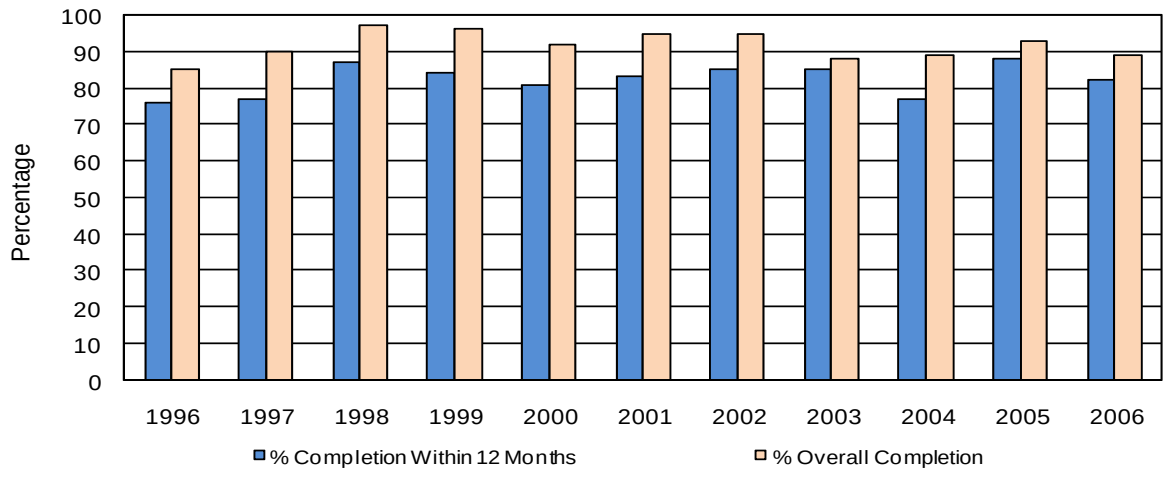
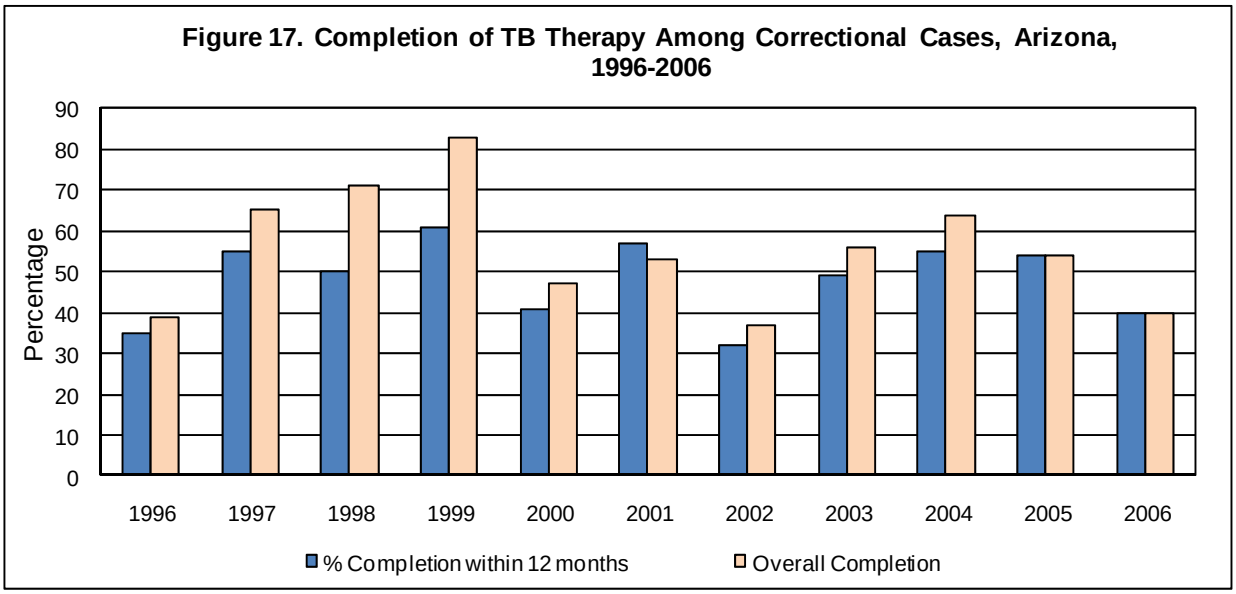
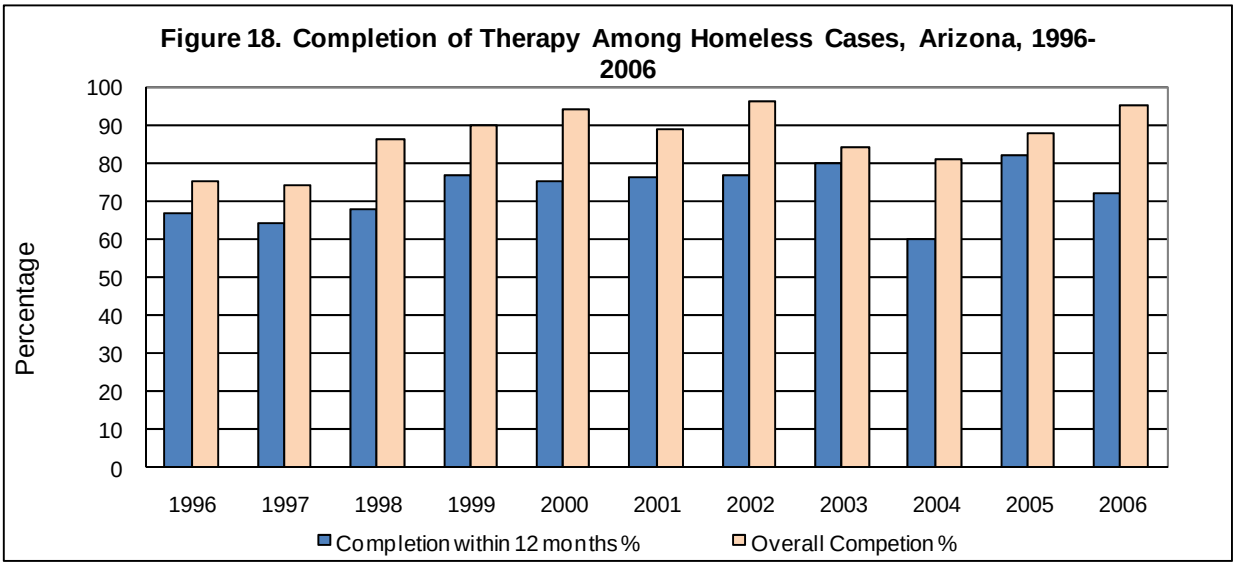


Figure 16. Completion of TB Therapy Among Non-Correctional Cases, Arizona, 1996-2006







VI. Drug Susceptibility

Initial drug susceptibility testing was completed on 96% (146/152) of culture-confirmed TB cases in Arizona in 2008. Isoniazid (INH) resistance occurred among 4% (6/146) of the culture positive cases that received drug susceptibility testing. This represents a 66% decrease in INH resistance from 2007. Foreign-born individuals accounted for 67% (4/6) of these INH resistant cases.

Multidrug-resistant TB (MDR-TB) is defined as resistance to INH and Rifampin. Extensively drug resistant TB (XDR-TB) is defined as resistance to INH and Rifampin, plus resistance to any Fluoroquinolones and at least one of three injectable second-line

anti-TB drugs such as Amikacin, Kanamycin, or Capreomycin. There were no multi-drug or extensively drug-resistant TB cases identified in Arizona in 2008 (Table 5).

Table 5. TB Cases Resistant to INH and Other Anti-TB Drugs, Arizona, 2000-2008

Year	Cases	Culture Confirmed	Drug Sensitivity Testing		INH Resistant[a]		MDR[b]		Other Resistance[c]		Total Resistance[d]	
			No.	(%)	No.	(%)	No.		No.	(%)	No.	(%)
2000	261	228	221	(96.9)	17	(7.7)	3	(1.4)	19	(8.6)	39	(17.6)
2001	289	228	226	(99.1)	12	(5.3)	3	(1.3)	18	(8.0)	33	(14.6)
2002	263	212	209	(98.6)	11	(5.3)	1	(0.5)	24	(11.5)	36	(17.2)
2003	295	228	227	(99.6)	14	(6.2)	2	(0.9)	19	(8.4)	35	(15.4)
2004	272	208	205	(98.6)	20	(9.8)	2	(1.0)	24	(11.7)	46	(22.4)
2005	281	208	180	(86.5)	22	(12.2)	1	(0.6)	21	(11.7)	44	(24.4)
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)

[a]Isolates may also be resistant to other drugs, including rifampim, includes initial and final susceptibility results

[b]Resistant to at least isoniazid and rifampin, includes initial and final susceptibility results.

[c]Other patterns of drug resistance excluding INH resistance

[d]Isolates with resistance to any first or second line TB drug

VII. Contact Investigations

Contact investigations identify, examine, and evaluate all persons who are at risk of infection with *Mycobacterium tuberculosis* due to recent exposure to a diagnosed case. It is a method for new case finding and allows for early treatment of disease, and early detection and treatment of a new infection. In some cases, it may prevent infection. It is an essential component of tuberculosis containment.

The local health departments are responsible for ensuring that 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 that contact investigations are completed. Table 6 presents a summary of contact investigations for sputum smear positive TB cases.

In 2006, 76% (94/124) of sputum smear positive cases had contacts identified. It is often difficult to obtain contact investigation information for correctional cases, and for those who are repatriated. Given the high number of correctional cases in the state, an analysis of community contacts only and correctional contacts only was done. The percent of sputum smear positive TB cases with contacts is 80% (91/114) among community cases and 27% (3/10) among correctional cases.

Of the contacts to sputum smear positive TB cases, 82% (807/981) were evaluated. Among contacts to correctional cases, 56% (146/262) were evaluated compared to 92%

(661/719) among community cases.

In 2006, 73% (111/152) of infected contacts who were started on LTBI treatment completed therapy. Among infected contacts to community cases, 76% (110/144) of those who were started on LTBI treatment completed treatment. LTBI treatment was completed by 13% (1/8) contacts to correctional cases.

Among children less than six years of age, 71% (75/105) who began treatment for LTBI completed treatment. Among these children, 70% (48/69) of infected non-contacts completed LTBI therapy and 75% (27/36) of infected contacts to both smear positive and smear negative cases completed LTBI therapy. 23 children less than six years of age were contacts to smear positive cases. 91% (21/23) of these contacts were started on LTBI therapy. From these 21 contacts that began therapy, 71% (15/21) completed LTBI therapy.

Table 6. Summary of Contact Investigations, Arizona, 2002-2006

	2003		2004		2005		2006	
	No.	%	No.	%	No.	%	No.	%
Total Sputum Smear Positive TB Cases	121		104		101		124	
Sputum Smear Positive Cases with Contacts	101	83	86	83	79	78	94	76
Infected Contacts Started on LTBI Therapy	187		90		80		152	
Infected Contacts Completing LTBI Therapy	105	56	43	48	54	68	111	73

VIII. Activities

A. 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 from the U.S. CureTB facilitates the referral process with health officials from Mexico. TBNet facilitates the referral process for all other countries. In 2008, the ADHS TB Control Program referred 31 cases each to CureTB and TB Net. Final treatment outcome was difficult to obtain because many of these individuals were lost upon return to their home country, despite the efforts of the referral agencies.

B. Evaluation of Class B1/B2 Referrals

Immigrants and refugees who are 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. An individual found to have noninfectious active TB is classified as a Class

B1. Those with a chest x-ray that suggests a history of TB disease that is not currently active are classified as Class B2. The Division of Global Migration and Quarantine notifies the ADHS TB Control Program of all class B1 and B2 individuals who are 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 for infection.

In 2007, the ADHS TB Control Program received 245 notifications for immigrants and refugees designated as B1 and B2, of which 81% (198/245) were evaluated.

There were six immigrants/refugees designated as B1 and evaluated as having active TB. All six patients were started on treatment with 83% (5/6) completing treatment. There were 11 immigrants and refugees designated as B2 who were started on LTBI treatment. Only 36% (4/11) completed treatment.

C. 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," which involve the escorting of these individuals from Arizona law enforcement authorities to Mexican law and public health authorities.

A "Meet and Greet" requires coordination between the ADHS TB Control Program, ADHS Office of Border Health, Sonora Health Department, Immigration and Customs Enforcement (ICE), local health departments, and the correctional facility or detention center that is 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.

In 2008, four Meet and Greets were successfully completed. One of the Meet and Greet cases is still continuing treatment while the other three have been lost to follow-up.

IX. 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. While the number of TB cases and case rates continue to decline, the number of TB cases reported among foreign-born, correctional facilities, and in children less than six years of age continue to be of concern. 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.