

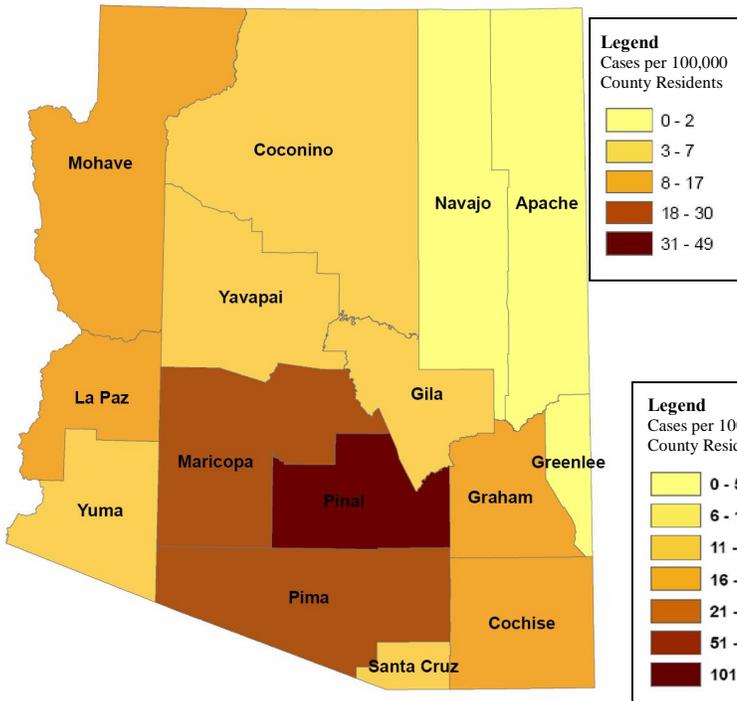
Summary:

For the year 2007, a total of 4871 valley fever (coccidioidomycosis) cases were reported from across all fifteen counties in Arizona. 446 cases were reported for the month of January 2008 while 528 cases were reported for the month of December 2007.

Data in this report are provisional and may change as more reports are received.

Valley Fever Activity by County:

Map 1. Valley Fever Incidence (1/1/2007-6/29/2007)



Map 2. Valley Fever Incidence, 2006

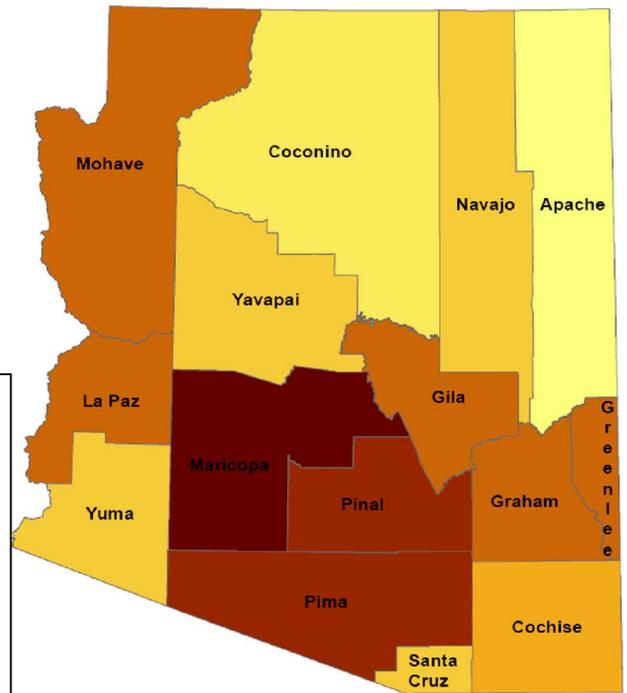


Table 1. Valley Fever Cases by County

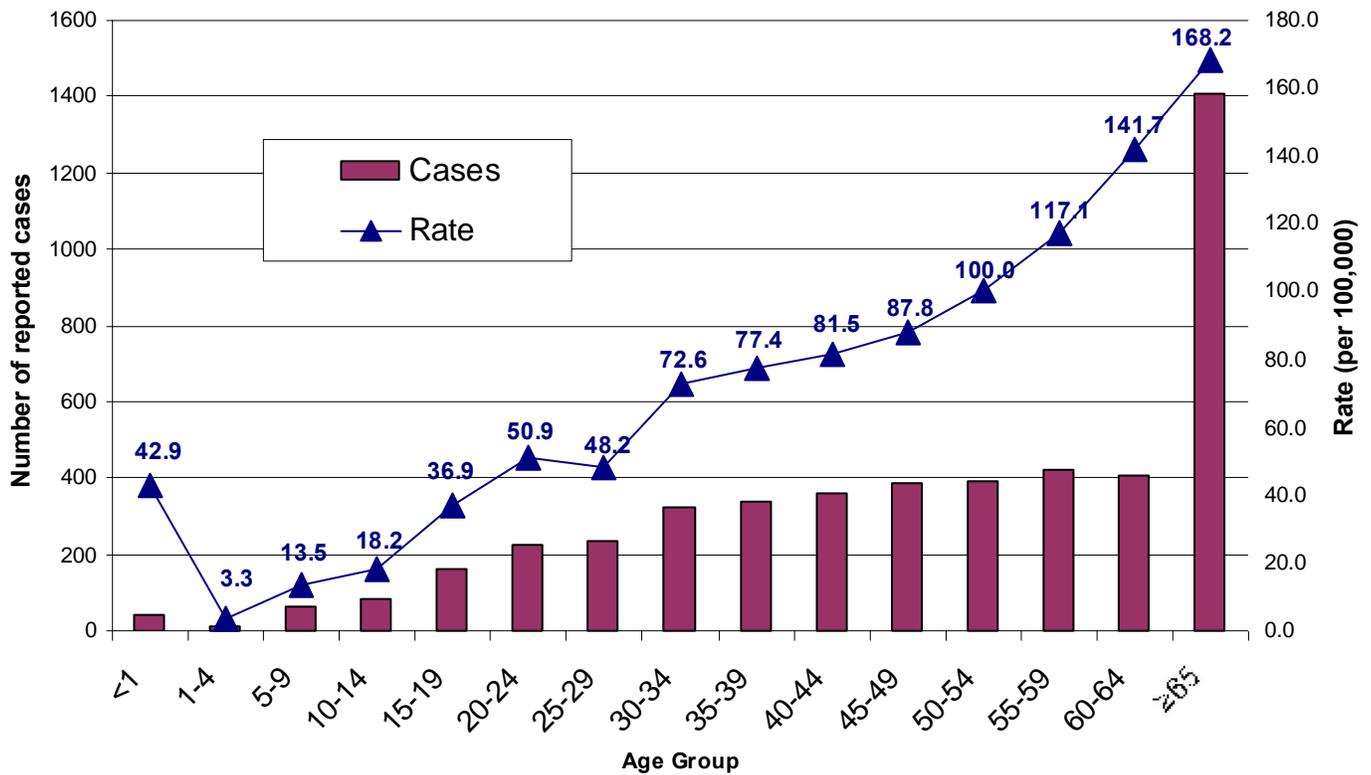
COUNTY	DEC 2007	JAN 2008	2007
APACHE	0	0	5
COCHISE	4	2	33
COCONINO	1	0	13
GILA	0	1	14
GRAHAM	4	3	24
GREENLEE	0	0	2
LA PAZ	0	0	16
MARICOPA	364	319	3500
MOHAVE	2	1	50
NAVAJO	2	2	11
PIMA	129	97	897
PINAL	21	20	258
SANTA CRUZ	0	1	7
YAVAPAI	1	0	26
YUMA	0	0	13
TOTAL	528	446	4869*

For both December 2007 and January 2008, nine counties reported cases of valley fever. Valley fever cases continue to occur predominantly in the most populated counties of Maricopa, Pinal, and Pima.

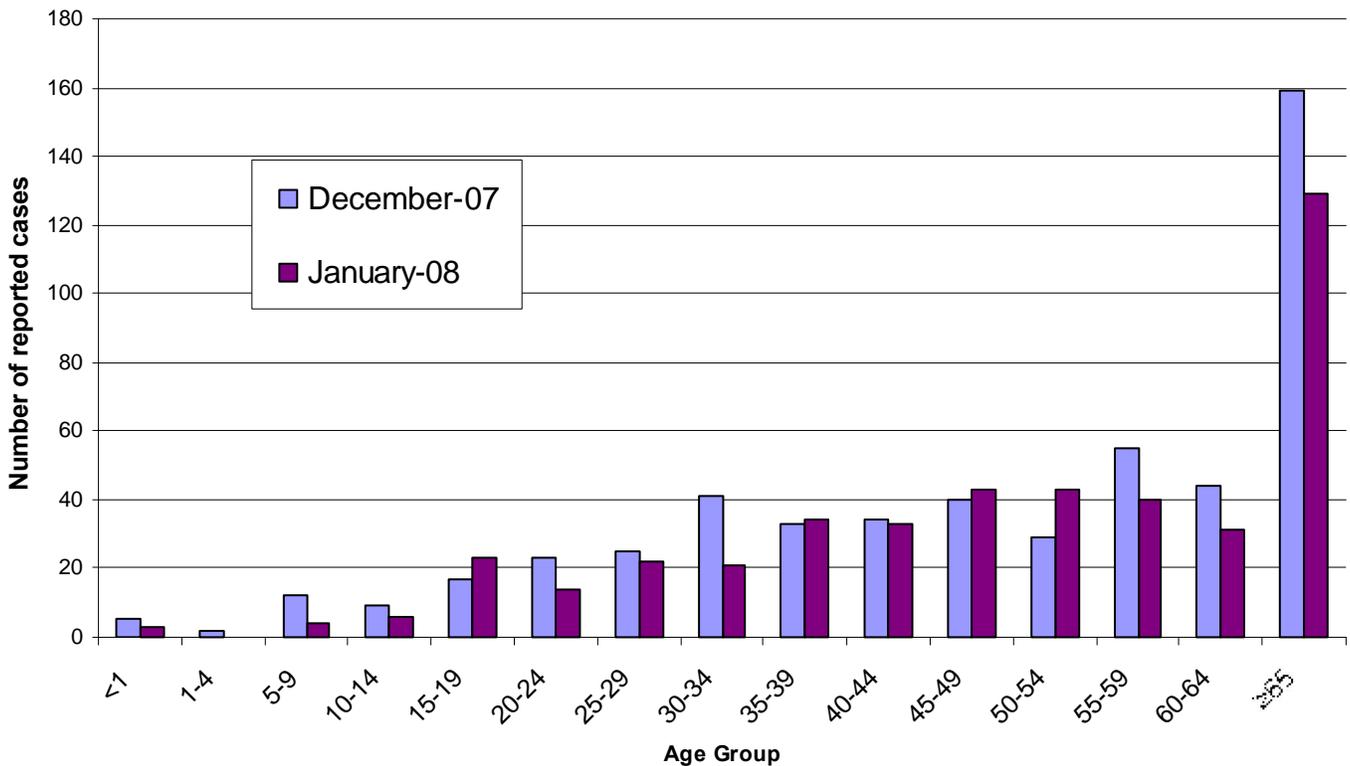
*For the year 2007, two cases were unable to be classified by county.

Demographics of Valley Fever Cases:

Graph 1. Reported Valley Fever Cases by Age Group, 2007



Graph 2. Valley Fever Cases by Age Group, Dec 2007 and Jan 2008



When comparing the number of cases and rates of valley fever by age group (see Graph 1 and 2), we see that the majority of cases continue to occur in people who are 65 years old or older. The average age of valley fever cases for 2007 was 50.8 (median = 52). We estimate that every year about 50,000 people in the United States (30,000 Arizonans) become ill with valley fever. Most of these cases experience mild flu-like symptoms and are less likely to visit healthcare providers, get tested, and be reported to the health department.

Table 2. Race and Ethnicity of Valley Fever Cases compared to Arizona Demographics

Race	Dec 2007 (n=153)	Jan 2008 (n=162)	2007 (n=1861)	2007 Demo* (n=6,432,007)
American Indian/ Alaska Native	4 (2.6%)	9 (5.6%)	89 (4.8%)	337,764 (5.3%)
Asian/Hawaiian/ Pacific Island	4 (2.6%)	3 (1.8%)	51 (2.7%)	169,780 (2.6%)
Black/African- American	6 (3.9%)	7 (4.3%)	136 (7.3%)	253,477 (3.9%)
White	124 (81.1%)	125 (77.2%)	1429 (76.8%)	3,872,764 (60.2%)**
Other	15 (9.8%)	18 (11.1%)	156 (8.4%)	—

For the year 2007, only 38.2% (1861/4871) of the valley fever cases reported to the state health department contain information about race and ethnicity. African-Americans are more likely to be reported with valley fever as compared to the general population (Table 2).

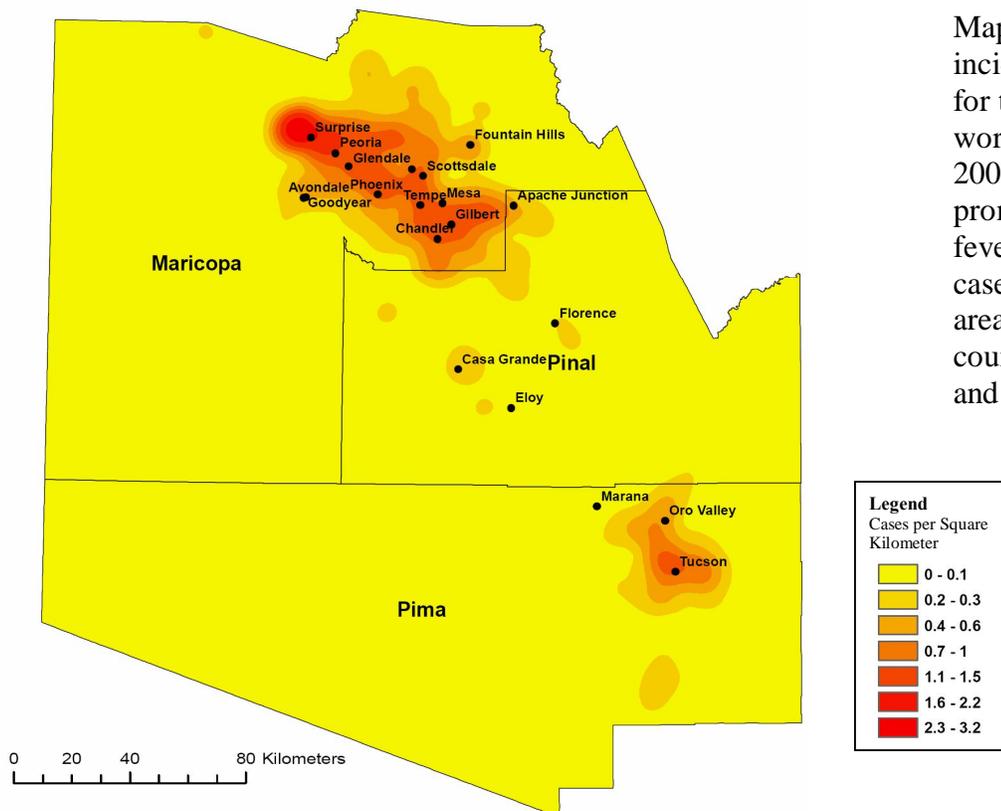
Ethnicity	Dec 2007 (n=475)	Jan 2008 (n=402)	2007 (n=4343)	2007 Demo (n=6,432,007)
Hispanic	24 (5.1%)	18 (4.5%)	268 (6.2%)	1,798,222 (28.0%)
Not Hispanic	61 (12.8%)	66 (16.4%)	835 (19.2%)	4,633,785 (72.0%)
Unknown	390 (82.1%)	318 (79.1%)	3240 (74.6%)	—

*Arizona Vital Statistics uses five categories for race/ethnicity: American Indian or Alaska Native, Asian or Pacific Islander, Black or African-American, White non-Hispanic and Hispanic or Latino ethnicity. Demo = demographics
**For 2007 demographics for the state of Arizona, white means white non-Hispanic.

Areas with Valley Fever Activity:

Map 3.

Density Map of Valley Fever Incidence in Maricopa, Pinal & Pima Counties, 2006



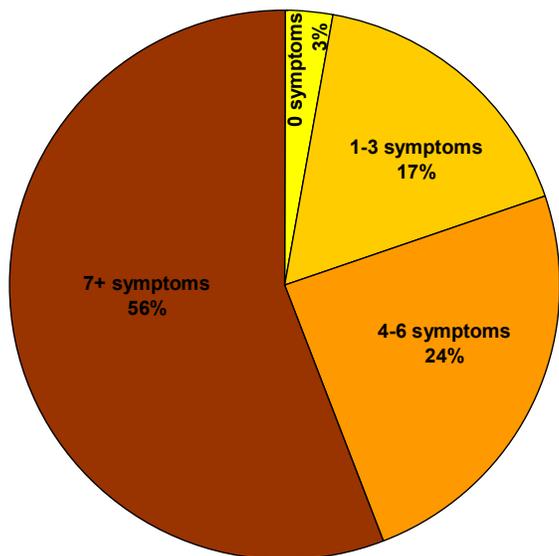
Map 3 measures valley fever incidence per square kilometer for the year 2006. We are working on a density map for 2007 in our efforts to identify prominent areas of valley fever incidence. Valley fever cases occur primarily in urban areas, most notably in the counties of Maricopa, Pinal, and Pima.

Enhanced Surveillance of Valley Fever:

The Arizona Department of Health Services is carrying out enhanced surveillance measures to investigate the valley fever epidemic. Our aim is to interview every 10th valley fever case that is reported. So far we have interviewed 401 cases. This report highlights some of the major findings of this project.

Symptoms and Pre-existing Conditions:

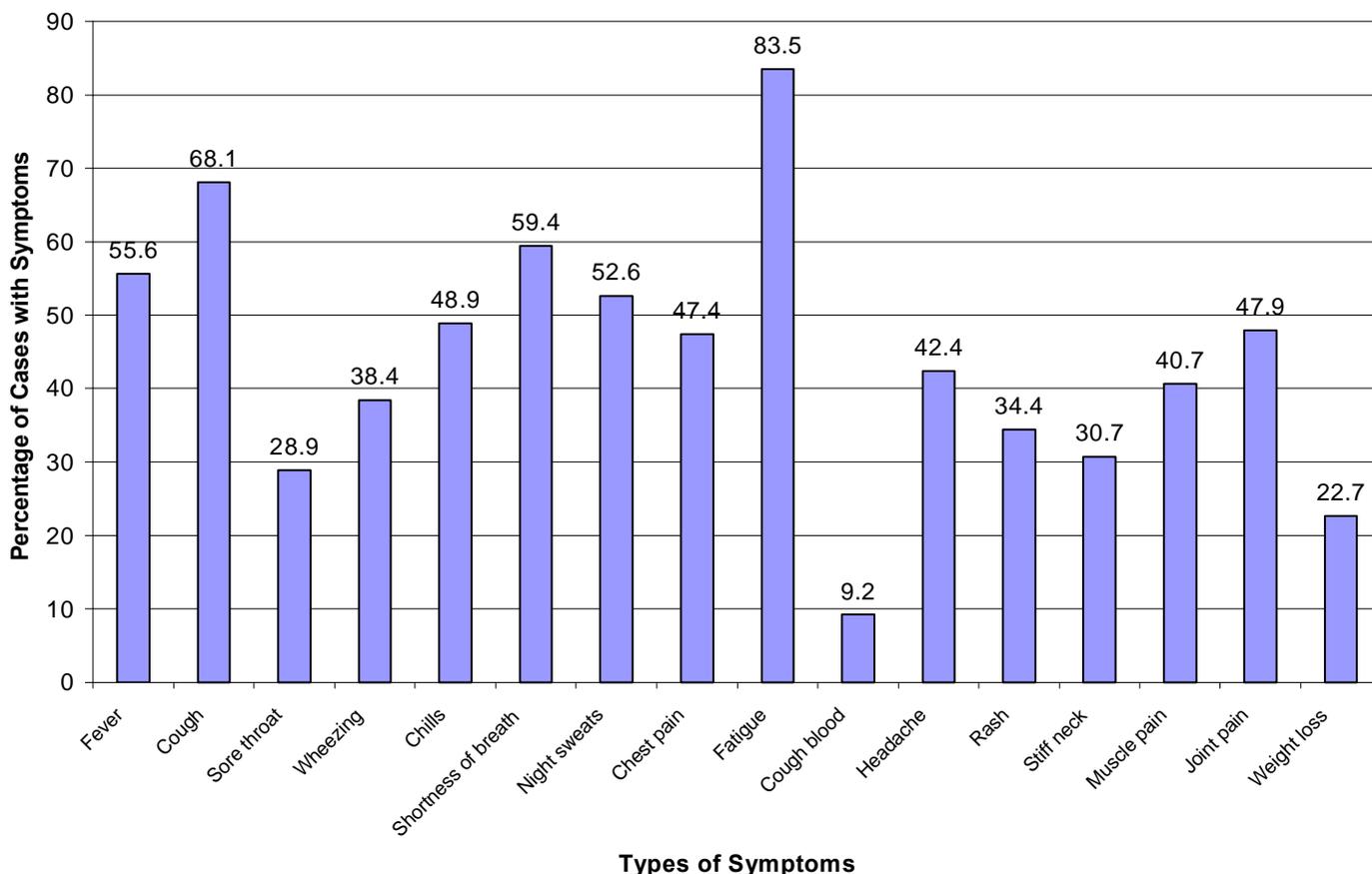
Graph 3. Distribution of Symptoms in Valley Fever Cases*



As shown in Graph 3, 56% of cases interviewed had seven or more symptoms for valley fever. The percentages of cases reporting some of the most common symptoms of valley fever are shown below in Graph 4. 83.5% had fatigue and 68.1% had a cough. Previous data show that 60% of people who are infected with *Coccidioides* species have mild or no symptoms. Thus, people who have symptoms are more likely to visit providers, get tested for valley fever and be reported to the health department. For this reason, our data is more likely to include the most severe cases of coccidioidomycosis.

*The graphs only include the common symptoms of fever, cough, sore throat, wheezing, chills, dyspnea (shortness of breath), night sweats, chest pain, fatigue, hemoptysis (coughing up blood), headache, rash, stiff neck, myalgias (muscle pain), arthralgia (joint pain), and weight loss.

Graph 4. Common Symptoms of Valley Fever Cases*



Diagnosis and Healthcare Visits:

We evaluated where valley fever cases were seen for their illness and how often they sought medical care. As shown in Table 5, 41.9% of patients reported going to the emergency room at least once over the course of their illness, and 40.1% said that they were hospitalized overnight for their illness. People with valley fever waited an average of 51.3 days before seeking care for their symptoms. It took an average of 3 visits to a healthcare provider before a patient was tested for valley fever. 28.6% of patients saw their doctor more than ten times for their valley fever illness (Graph 5). Prior to the most recent diagnoses of valley fever, 10.7% of patients interviewed had been told that they had valley fever before. 45.4% of patients were told that they had pneumonia and 56.4% were treated with antibiotics. 58.4% of patients were treated with antifungals.

Table 3.
Location where Cases First Sought Treatment for Valley Fever

Location	Count (n=401)
Emergency room	90 (22.4%)
Primary care physician	222 (55.4%)
Urgent Care	49 (12.2%)
Other	20 (5.0%)
Unknown	20 (5.0%)

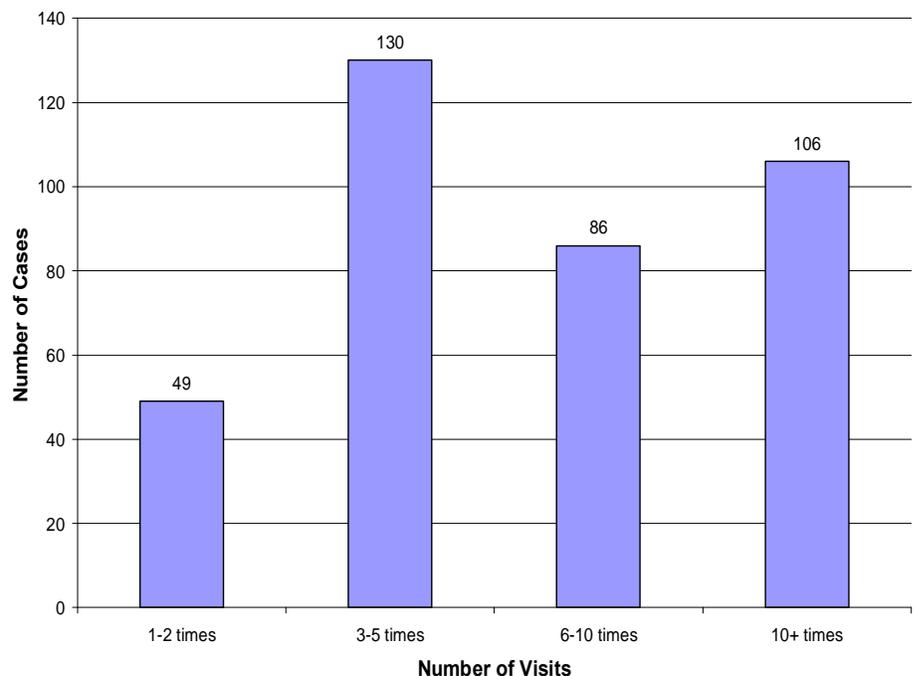
Table 4.
Length of Antibiotic Treatment

Length of treatment	Count (n=241)
Less than 1 week	56 (23.2%)
1-2 weeks	90 (37.3%)
3-4 weeks	36 (14.9%)
1-2 months	13 (5.4%)
Greater than 2 months	17 (7.1%)
Unknown	29 (12.0%)

Table 5.
Specifics of Healthcare Visits

Healthcare Visit (n=401)	Yes	No	Unknown
Visited the emergency room for illness	168 (41.9%)	214 (53.4%)	19 (4.7%)
Hospitalized overnight for illness	161 (40.1%)	228 (56.9%)	12 (3.0%)
Chest x-ray performed by provider	360 (89.8%)	25 (6.2%)	16 (4.0%)
Provider informed patient of pneumonia	182 (45.4%)	195 (48.6%)	24 (6.0%)
Patient knew of diagnosis before contacted by ADHS	312 (77.8%)	57 (14.2%)	32 (8.0%)
Patient asked provider to test for valley fever	63 (15.7%)	324 (80.8%)	14 (3.5%)
Provider prescribed antibiotic for illness	226 (56.4%)	122 (30.4%)	53 (13.2%)
Provider prescribed antifungal for illness	234 (58.4%)	145 (36.2%)	22 (5.5%)

Graph 5.
Number of Times Valley Fever Cases Visited a Healthcare Provider over the Course of Illness



Impact of Valley Fever and Exposures:

At the time of the interview, individuals reported that the average length of their symptoms was 202 days (median = 124) (Table 6). At the time of the interview, 55.1% of the patients had not yet recovered from their symptoms of valley fever. Of those that have not yet recovered, the average length of symptom duration was 291.5 days (median = 167). 47.4% of the cases interviewed did not have a paid job or business and 12.0% were attending school when their illnesses began. Of those who had jobs, 74.2% missed work due to their illnesses, and 60.4% of those who were attending school missed school due to their illnesses. 74.6% of the people interviewed said that their illnesses prevented them from doing their usual daily activities. On average, the amount of time missed from performing daily activities was almost three months (86 days). 49.6% said they were exposed to dust through their work or daily activities. Most of the cases (73.3%) said that they spent at least 2 hours a week outdoors (Table 7). 54.4% of people diagnosed with valley fever said that they lived within one mile of construction.

Table 6.
Symptom Duration and Number of Days Lost for Valley Fever Cases

Impact of Valley Fever	n	Mean	Median
Symptom duration (days) for those who recovered	139	68.7	42
Symptom duration (days) for those not yet recovered	207*	291.5	167
Symptom duration (days) for both recovered and not yet recovered	346	202.0	124
Number of days missed from work	136	33.2	14
Number of days missed from school	28	15.6	8
Number of days missed from daily activities	311	86.0	45

*221 cases had not yet recovered from their symptoms. Only 207 cases had complete data about symptom duration.

Demographics and Valley Fever Awareness:

Although the average number of years lived in Arizona at the time of diagnosis was 17.3 years (Table 9), 54.6% lived in Arizona for less than 15 years (Graph 6). Our data support the hypothesis that those who are newer to the Arizona area are more susceptible to acquiring valley fever. However, many of our cases lived 10 years or longer in Arizona (Graph 6) indicating that other factors may be important in getting infected with the *Coccidioides* fungus. Table 9 shows that the average age of the cases interviewed was 51.5 years old, which is comparable to the average age of reported cases in 2007 (50.8 years old).

Table 7.
Length of Time Spent Outdoors for Valley Fever Cases

Length of Time/Week	Count (n=401)
<2 hrs	47 (11.7%)
2-20 hrs	195 (48.6%)
20-40 hrs	69 (17.2%)
>40 hrs	30 (7.5%)
Unknown	60 (15.0%)

Table 8.
Dust Exposures for Valley Fever Cases

Exposed	Count (n=226)
Constantly	40 (17.7%)
Intermittently/Sometimes	140 (61.9%)
Rarely	46 (20.4%)

Table 9.
Years Lived in Arizona & Average Age of Cases Interviewed

Demographics	n	Mean	Median
Number of years lived in Arizona	369	17.3	13
Age of cases interviewed	400	51.5	53

Graph 6.
Length of Time that Valley Fever Cases Lived in Arizona

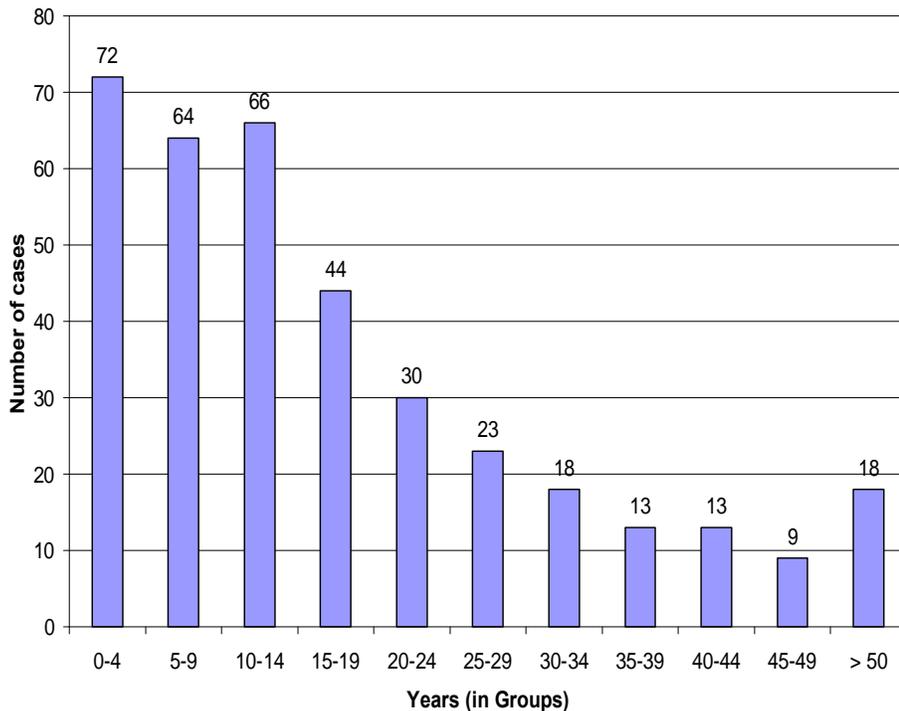


Table 10.
Race and Ethnicity of Valley Fever Cases compared to State Demographics

Race	Cases Interviewed (n=401)	2007 (n=1861)	2007 Demo* (n=6,432,007)
American Indian/Alaska Native	10 (2.5%)	89 (4.8%)	337,764 (5.3%)
Asian/Hawaiian/ Pacific Island	18*** (4.5%)	51 (2.7%)	169,780 (2.6%)
Black/African-American	27 (6.7%)	136 (7.3%)	253,477 (3.9%)
White	313 (78.1%)	1429 (76.8%)	3,872,764 (60.2%)**
Other	28 (7.0%)	156 (8.4%)	—
Unknown	5 (1.2%)	—	—

Ethnicity	Cases Interviewed (n=401)	2007 (n=4343)	2007 Demo (n=6,432,007)
Hispanic	48 (12.0%)	268 (6.2%)	1,798,222 (28.0%)
Not Hispanic	343 (85.5%)	835 (19.2%)	4,633,785 (72.0%)
Unknown	10 (2.5%)	3240 (74.6%)	—

In Table 10, we see that only 2.5% of cases interviewed during our enhanced surveillance were American Indians compared to the 4.8% incidence of American Indian valley fever cases. This may suggest the need to communicate with Indian Health Services and other related agencies in obtaining contact information so that we can interview more American Indians. Although successful in interviewing Asian valley fever cases, we may want to interview more Filipino cases because previous studies suggest that Filipinos are at a higher risk of severe infection from valley fever. 89.5% of the people interviewed had health insurance when they were seeking medical treatment for their illnesses whereas 81.8% of the Arizonan population is insured (U.S. 2000 Census Data). 64.8% of the cases said they knew about valley fever before they were diagnosed. Of the people who had previous knowledge about valley fever, only 5.4% learned about valley fever from their healthcare providers. At the time of the interview, 20.2% of cases did not know how the disease is contracted.

*Arizona Vital Statistics uses five categories for race/ethnicity: American Indian or Alaska Native, Asian or Pacific Islander, Black or African-American, White non-Hispanic and Hispanic or Latino ethnicity. Demo = demographics
 **For 2007 state demographics, white means white non-Hispanic.
 *** 2 Filipinos

Further analysis will be done as we complete more interviews and receive more reports.

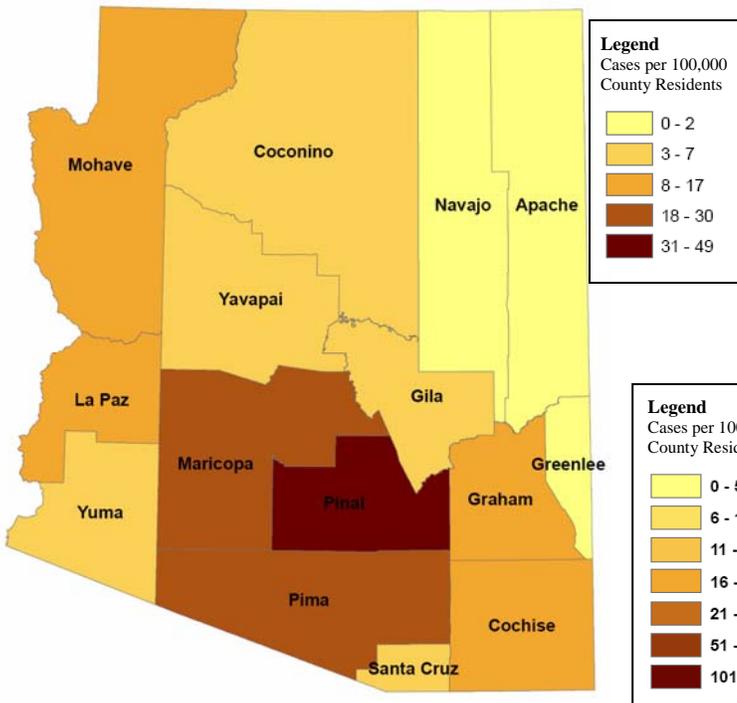
Summary:

For the year 2007, a total of 4865 valley fever (coccidioidomycosis) cases were reported from across all fifteen counties in Arizona. For the month of February 2008, 417 cases were reported. 438 cases were reported for the month of January 2008 while 548 cases were reported for the month of December 2007.

Data in this report are provisional and may change as more reports are received.

Valley Fever Activity by County:

Map 1. Valley Fever Incidence (1/1/2007-6/29/2007)



Map 2. Valley Fever Incidence, 2006

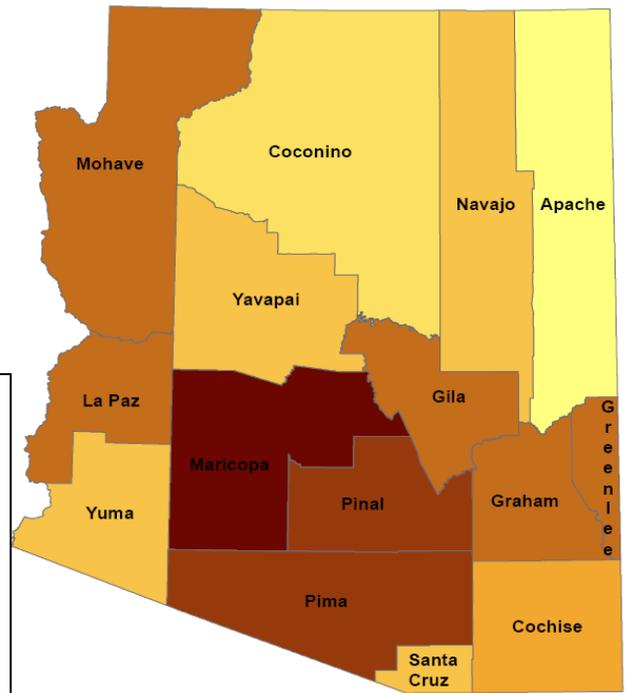


Table 1. Valley Fever Cases by County

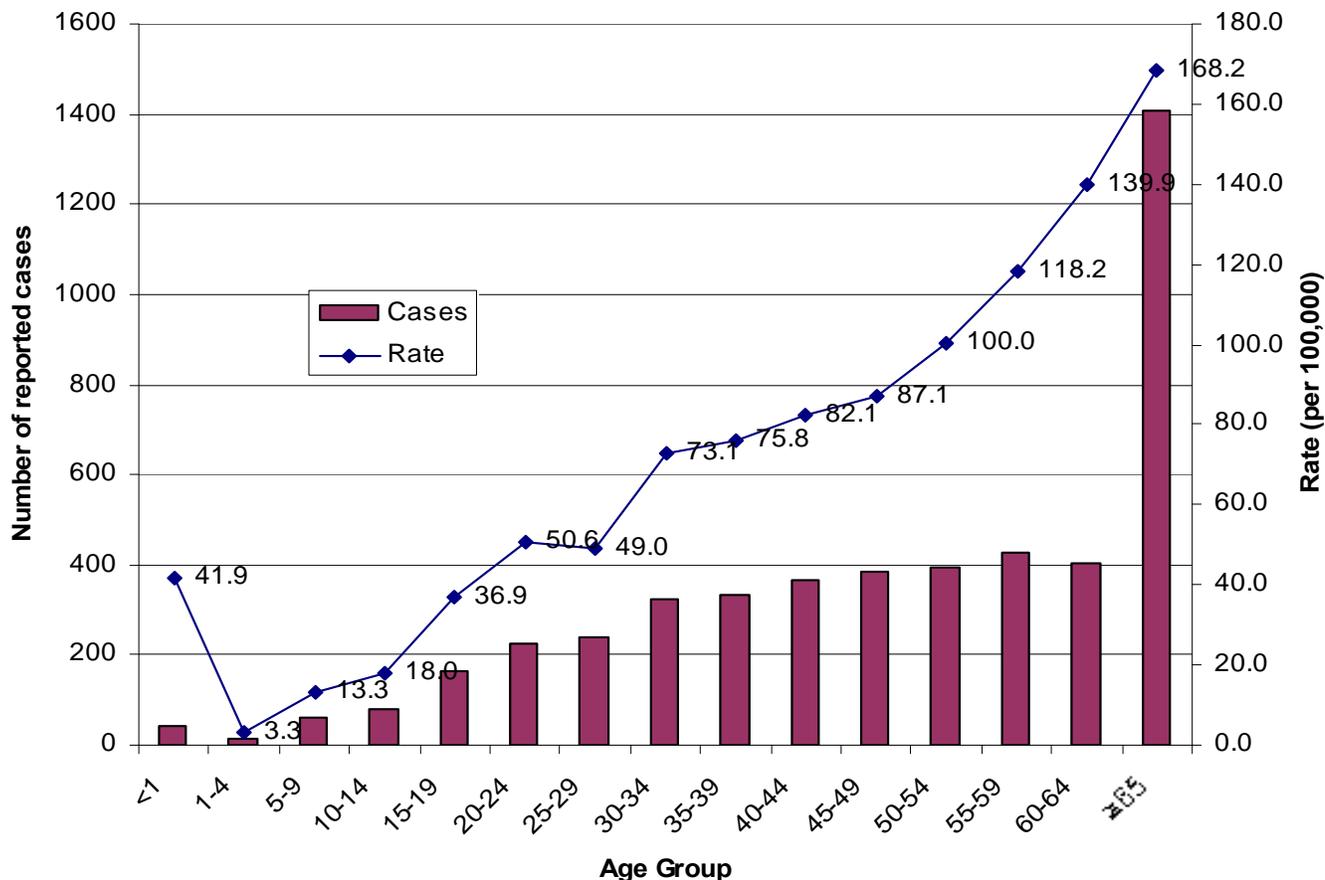
COUNTY	DEC 2007	JAN 2008	FEB 2008	2007
APACHE	0	0	1	5
COCHISE	4	2	1	32
COCONINO	1	0	0	13
GILA	0	1	0	15
GRAHAM	4	3	0	24
GREENLEE	0	0	0	2
LA PAZ	0	1	0	15
MARICOPA	378	309	308	3477
MOHAVE	2	1	7	50
NAVAJO	2	2	3	11
PIMA	134	96	67	919
PINAL	21	21	27	256
SANTA CRUZ	0	1	1	7
YAVAPAI	1	1	0	26
YUMA	0	0	2	13
TOTAL	547*	438	417	4865

From December 2007 to February 2008, fourteen counties reported cases of valley fever. Valley fever cases continue to occur predominantly in the most populated counties of Maricopa, Pinal, and Pima.

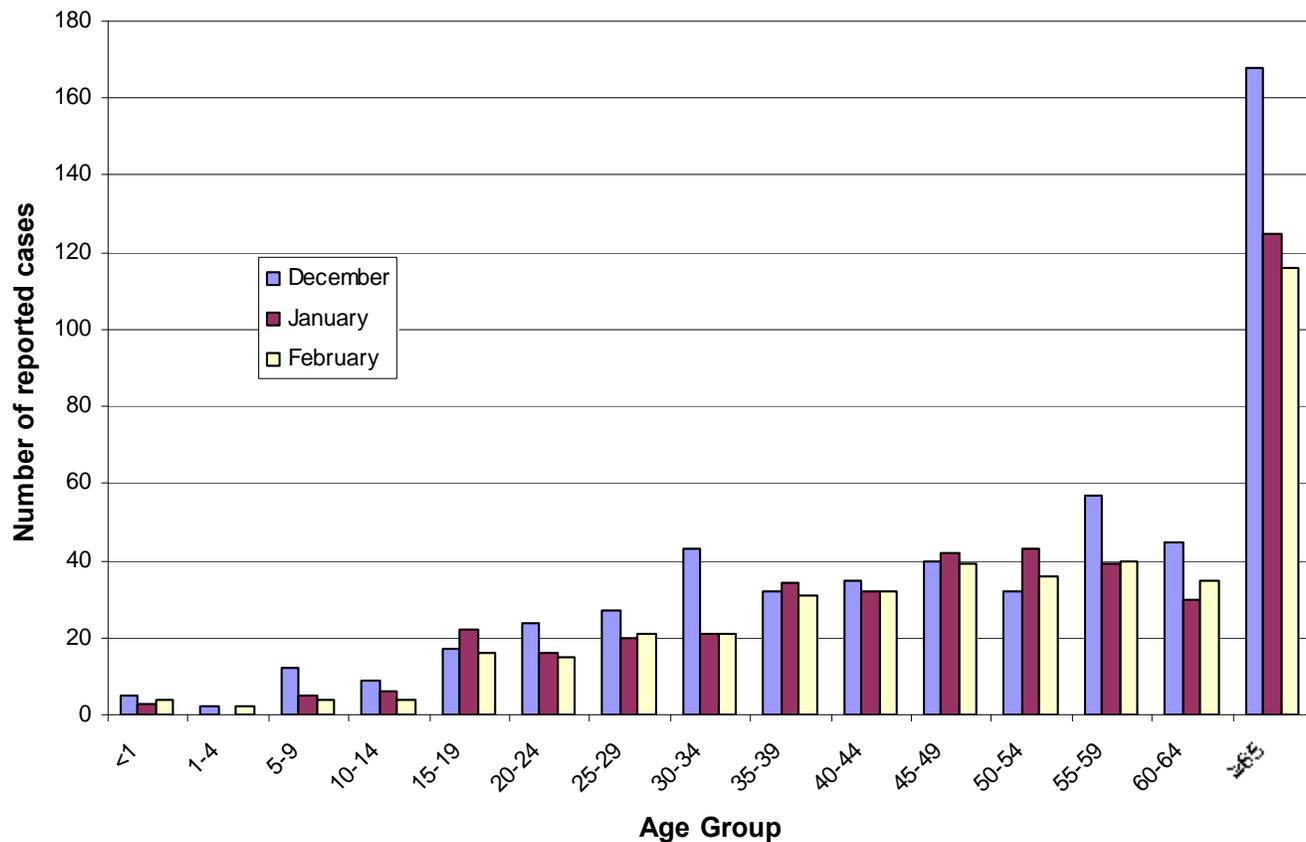
*For December 2007, one case was unable to be classified by county.

Demographics of Valley Fever Cases:

Graph 1. Reported Valley Fever Cases by Age Group, 2007



Graph 2. Valley Fever Cases by Age Group, Dec 2007, Jan & Feb 2008



When comparing the number of cases and rates of valley fever by age group (see Graph 1 and 2), we see that the majority of cases continue to occur in people who are 65 years old or older. The average age of valley fever cases for 2007 was 51 (median = 52). We estimate that every year about 50,000 people in the United States (30,000 Arizonans) become ill with valley fever. Most of these cases experience mild flu-like symptoms and are less likely to visit healthcare providers, get tested, and be reported to the health department.

Table 2. Race and Ethnicity of Valley Fever Cases compared to Arizona Demographics

Race	Dec 2007 (n=166)	Jan 2008 (n=164)	Feb 2008 (n=124)	2007 (n=1878)	2007 Demo* (n=6,432,007)
American Indian/ Alaska Native	4 (2.4%)	9 (5.5%)	6 (4.8%)	92 (4.9%)	337,764 (5.3%)
Asian/Hawaiian/ Pacific Island	4 (2.4%)	3 (1.8%)	2 (1.6%)	51 (2.7%)	169,780 (2.6%)
Black/African-American	7 (4.2%)	7 (4.3%)	12 (9.7%)	136 (7.2%)	253,477 (3.9%)
White	134 (80.7%)	127 (77.4%)	89 (71.8%)	1438 (76.6%)	3,872,764 (60.2%)**
Other	17 (10.2%)	18 (11.0%)	15 (12.1%)	161 (8.6%)	—

For the year 2007, only 39% (1878/4850) of the valley fever cases reported to the state health department contain information about race. African-Americans are more likely to be reported with valley fever as compared to the general population (Table 2).

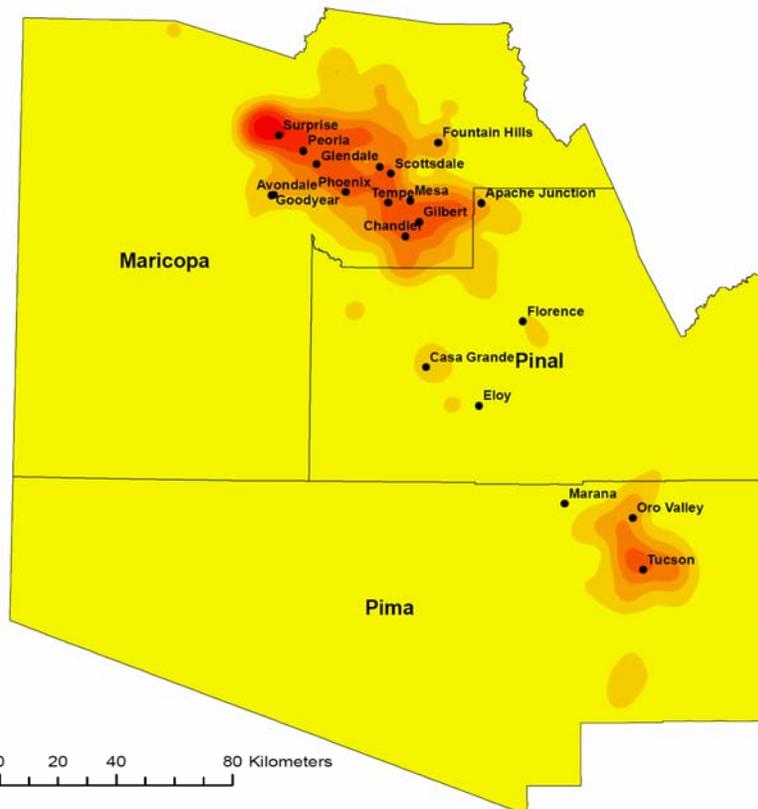
Ethnicity	Dec 2007 (n=490)	Jan 2008 (n=398)	Feb 2008 (n=371)	2007 (n=4353)	2007 Demo (n=6,432,007)
Hispanic	27 (5.5%)	18 (4.5%)	20 (5.4%)	272 (6.3%)	1,798,222 (28.0%)
Not Hispanic	70 (14.3%)	68 (17.1%)	52 (14.0%)	864 (19.9%)	4,633,785 (72.0%)
Unknown	393 (80.2%)	312 (78.4%)	299 (80.6%)	3217 (73.9%)	—

*Arizona Vital Statistics uses five categories for race/ethnicity: American Indian or Alaska Native, Asian or Pacific Islander, Black or African-American, White non-Hispanic and Hispanic or Latino ethnicity. Demo = demographics
**For 2007 demographics for the state of Arizona, white means white non-Hispanic.

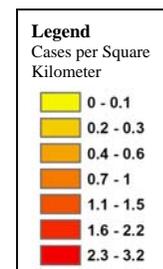
Areas with Valley Fever Activity:

Map 3.

Density Map of Valley Fever Incidence in Maricopa, Pinal & Pima Counties, 2006



Map 3 measures valley fever incidence per square kilometer for the year 2006. We are working on a density map for 2007 in our efforts to identify prominent areas of valley fever incidence. Valley fever cases occur primarily in populated areas, most notably in the counties of Maricopa, Pinal, and Pima.

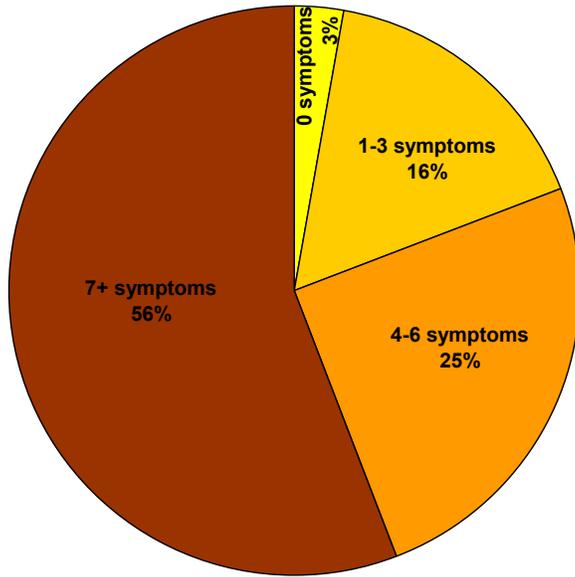


Enhanced Surveillance of Valley Fever:

The Arizona Department of Health Services is carrying out enhanced surveillance measures to investigate valley fever. Our aim is to interview every 10th valley fever case that is reported. So far we have interviewed 436 cases. This report highlights some of the major findings of this project.

Symptoms and Pre-existing Conditions:

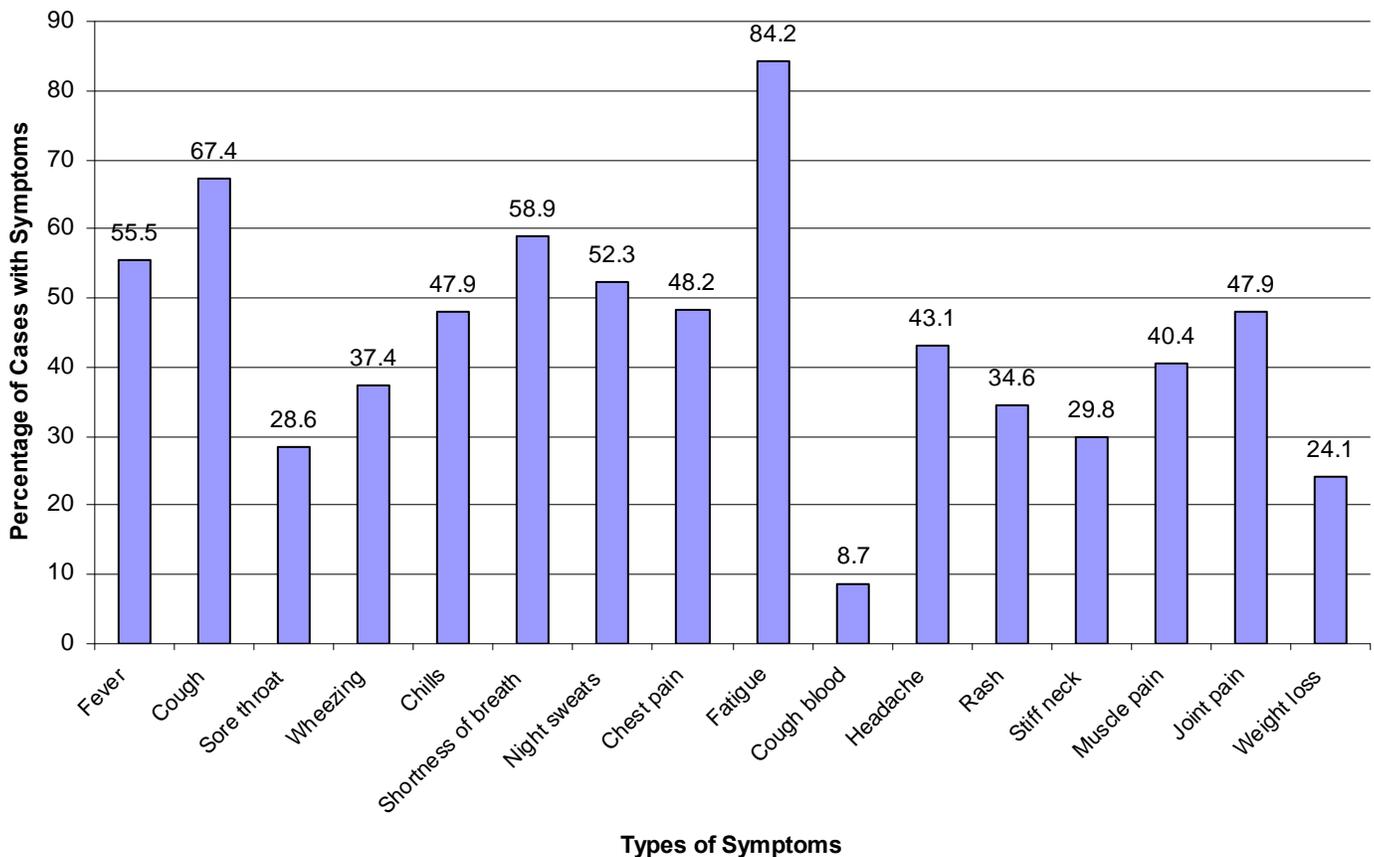
Graph 3. Distribution of Symptoms in Valley Fever Cases*



As shown in Graph 3, 56% of cases interviewed had seven or more symptoms for valley fever. The percentages of cases reporting some of the most common symptoms of valley fever are shown below in Graph 4. 84% had fatigue and 67% had a cough. Previous data show that 60% of people who are infected with *Coccidioides* species have mild or no symptoms. Thus, people who have symptoms are more likely to visit providers, get tested for valley fever and be reported to the health department. For this reason, our data is more likely to include the most severe cases of coccidioidomycosis.

*The graphs only include the common symptoms of fever, cough, sore throat, wheezing, chills, dyspnea (shortness of breath), night sweats, chest pain, fatigue, hemoptysis (coughing up blood), headache, rash, stiff neck, myalgias (muscle pain), arthralgia (joint pain), and weight loss.

Graph 4. Common Symptoms of Valley Fever Cases*



Diagnosis and Healthcare Visits:

We evaluated where valley fever cases were seen for their illness and how often they sought medical care. As shown in Table 5, 43% of patients reported going to the emergency room at least once over the course of their illness, and 40% said that they were hospitalized overnight for their illness. People with valley fever waited an average of 48 days before seeking care for their symptoms. It took an average of 3 visits to a healthcare provider before a patient was tested for valley fever. 16% of patients asked their providers to test them for valley fever. 28% of patients saw their doctors more than ten times for their valley fever illness (Graph 5). Prior to the most recent diagnoses of valley fever, 10% of patients interviewed had been told that they had valley fever before. 46% of patients were told that they had pneumonia and 58% were treated with antibiotics. 58% of patients were treated with antifungals.

Table 3.
Location where Cases First Sought Treatment for Valley Fever

Location	Count (n=436)
Emergency room	100 (22.9%)
Primary care physician	242 (55.5%)
Urgent Care	50 (11.5%)
Other	23 (5.3%)
Unknown	21 (4.8%)

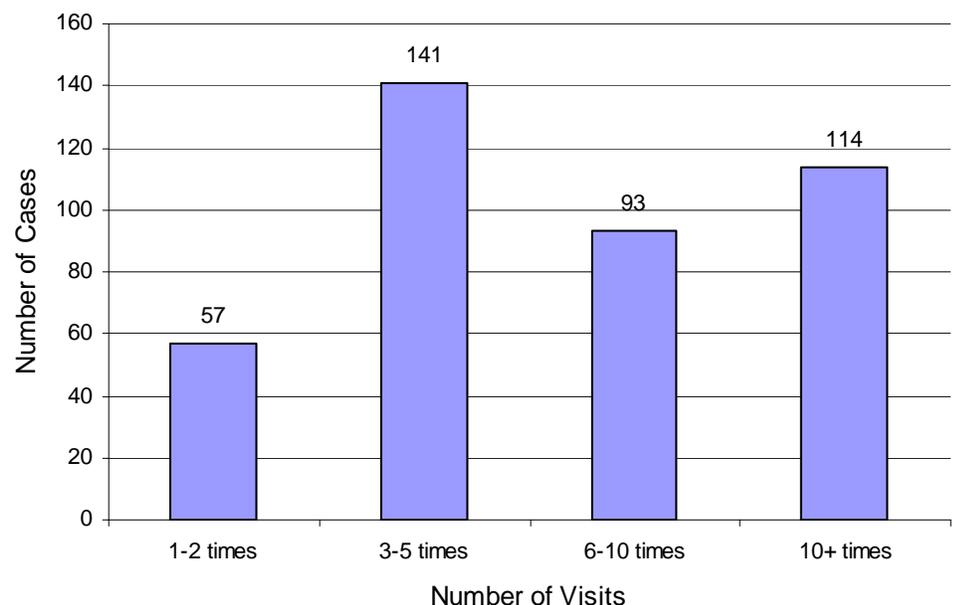
Table 4.
Length of Antibiotic Treatment

Length of treatment	Count (n=267)
Less than 1 week	62 (23.2%)
1-2 weeks	103 (38.6%)
3-4 weeks	38 (14.2%)
1-2 months	15 (5.6%)
Greater than 2 months	17 (6.4%)
Unknown	32 (12.0%)

Table 5.
Specifics of Healthcare Visits

Healthcare Visit (n=436)	Yes	No	Unknown
Visited the emergency room for illness	186 (42.7%)	230 (52.8%)	20 (4.6%)
Hospitalized overnight for illness	176 (40.4%)	249 (57.1%)	11 (2.5%)
Chest x-ray performed by provider	389 (89.2%)	31 (7.1%)	16 (3.7%)
Provider informed patient of pneumonia	201 (46.1%)	211 (48.4%)	24 (5.5%)
Patient knew of diagnosis before contacted by ADHS	345 (79.1%)	59 (13.5%)	32 (7.3%)
Patient asked provider to test for valley fever	71 (16.3%)	350 (80.3%)	15 (3.4%)
Provider prescribed antibiotic for illness	252 (57.8%)	130 (29.8%)	54 (12.4%)
Provider prescribed antifungal for illness	254 (58.3%)	160 (36.7%)	22 (5.0%)

Graph 5.
Number of Times Valley Fever Cases Visited a Healthcare Provider over the Course of Illness



Impact of Valley Fever and Exposures:

Individuals reported that the average length of their symptoms was 197 days (median = 120) (Table 6). However, 56% of the patients had not yet recovered from their symptoms of valley fever at the time of the interview. Of those that have not yet recovered, the average length of symptom duration was 290 days (median = 162). 50% of the cases interviewed did not have a paid job or business and 12% were attending school when their illnesses began. Of those who had jobs, 74% missed work due to their illnesses, and 59% of those who were attending school missed school due to their illnesses. 75% of the people interviewed said that their illnesses prevented them from doing their usual daily activities. On average, the amount of time missed from performing daily activities was three months (90 days). 51% said they were exposed to dust through their work or daily activities. Most of the cases (73%) said that they spent at least 2 hours a week outdoors (Table 7). 54% of people diagnosed with valley fever said that they lived within one mile of construction.

Table 6.
Symptom Duration and Number of Days Lost for Valley Fever Cases

Impact of Valley Fever	n	Mean	Median
Symptom duration (days) for those who recovered	173	61.1	35
Symptom duration (days) for those not yet recovered	217*	290.2	162
Symptom duration (days) for both recovered and not yet recovered	374	196.7	120
Number of days missed from work	146	32.0	14
Number of days missed from school	30	16.0	8
Number of days missed from daily activities	338	90.2	45

*242 cases had not yet recovered from their symptoms. We were able to calculate symptom duration for 217 of the cases.

Demographics and Valley Fever Awareness:

53% of patients interviewed were male. 57% had a history of smoking. 17% had malignant disease, cancer or transplant as an underlying medical condition present at time of diagnosis. Although the average number of years lived in Arizona at the time of diagnosis was 17 years (Table 9), 56% lived in Arizona for less than 15 years (Graph 6). Our data support the hypothesis that those who are newer to the Arizona area are more susceptible to acquiring valley fever. However, many of our cases lived 10 years or longer in Arizona (Graph 6) indicating that other factors may be important in getting infected with the *Coccidioides* fungus. Table 9 shows that the average age of the cases interviewed was 52 years old, which is comparable to the average age of reported cases in 2007 (51 years old).

Table 7.
Length of Time Spent Outdoors for Valley Fever Cases

Length of Time/Week	Count (n=436)
<2 hrs	48 (11.0%)
2-20 hrs	213 (48.9%)
20-40 hrs	72 (16.5%)
>40 hrs	31 (7.1%)
Unknown	72 (16.5%)

Table 8.
Dust Exposures for Valley Fever Cases

Exposed	Count (n=252)
Constantly	43 (17.1%)
Intermittently/Sometimes	162 (64.3%)
Rarely	47 (18.7%)

Table 9.
Years Lived in Arizona & Average Age of Cases Interviewed

Demographics	n	Mean	Median
Number of years lived in Arizona	403	16.8	13
Age of cases interviewed	436	52.2	54

Graph 6.
Length of Time that Valley Fever Cases Lived in Arizona Prior to Diagnosis

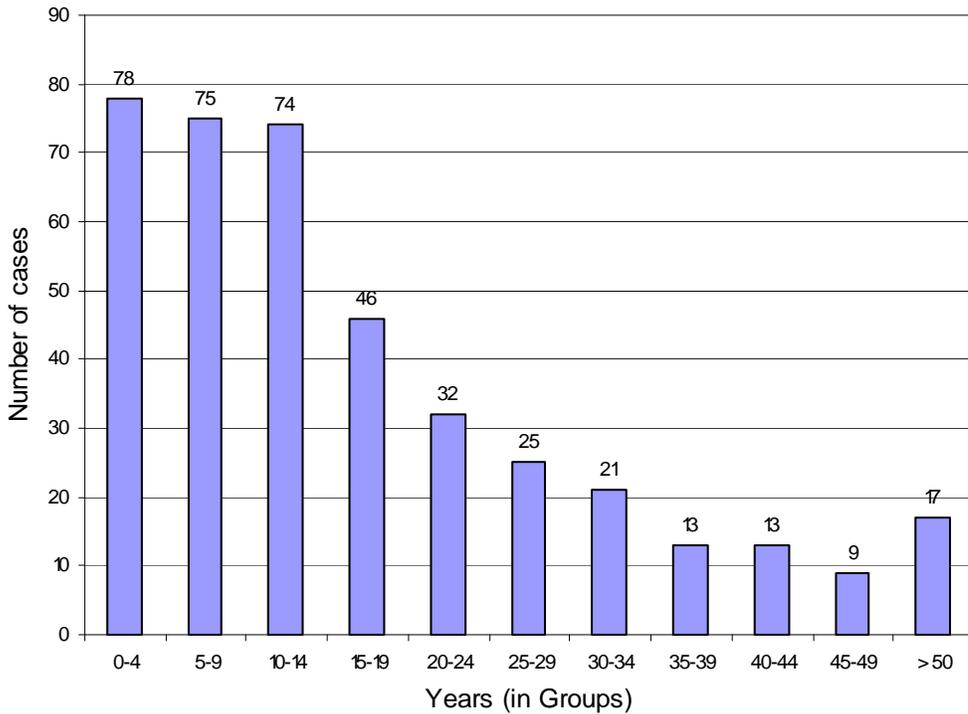


Table 10.
Race and Ethnicity of Valley Fever Cases compared to State Demographics

Race	Cases Interviewed (n=436)	2007 (n=1878)	2007 Demo* (n=6,432,007)
American Indian/Alaska Native	10 (2.3%)	92 (4.9%)	337,764 (5.3%)
Asian/Hawaiian/ Pacific Island	20 (4.6%)	51 (2.7%)	169,780 (2.6%)
Black/African-American	32 (7.3%)	136 (7.2%)	253,477 (3.9%)
White	343 (78.7%)	1438 (76.6%)	3,872,764 (60.2%)**
Other	26 (6.0%)	161 (8.6%)	—
Unknown	5 (1.1%)	—	—

Ethnicity	Cases Interviewed (n=436)	2007 (n=4353)	2007 Demo (n=6,432,007)
Hispanic	52 (11.9%)	272 (6.3%)	1,798,222 (28.0%)
Not Hispanic	373 (85.6%)	864 (19.9%)	4,633,785 (72.0%)
Unknown	11 (2.5%)	3217 (73.9%)	—

In Table 10, we see that only 2% of cases interviewed during our enhanced surveillance were American Indians compared to the 5% incidence of American Indian valley fever cases. This may suggest the need to communicate with Indian Health Services and other related agencies in obtaining contact information so that we can interview more American Indians. 90% of the people interviewed had health insurance when they were seeking medical treatment for their illnesses whereas 82% of the Arizonan population is insured (U.S. 2000 Census Data). 65% of the cases said they knew about valley fever before they were diagnosed. Of the people who had previous knowledge about valley fever, only 6% learned about valley fever from their healthcare providers. At the time of the interview, 19% of cases did not know how the disease is contracted.

*Arizona Vital Statistics uses five categories for race/ethnicity: American Indian or Alaska Native, Asian or Pacific Islander, Black or African-American, White non-Hispanic and Hispanic or Latino ethnicity. Demo = demographics
 **For 2007 state demographics, white means white non-Hispanic.

Further analysis will be done as we complete more interviews and receive more reports.

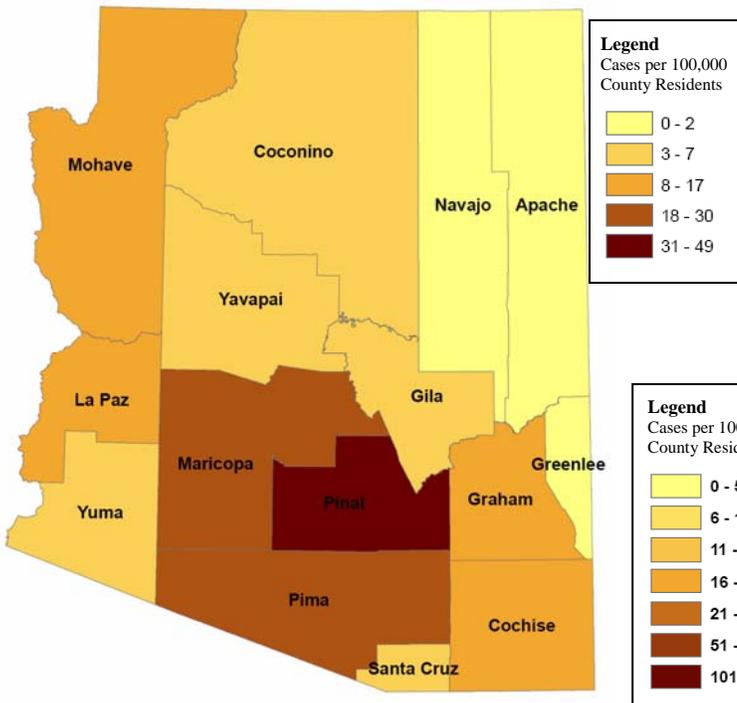
Summary:

For the year 2007, a total of 4858 valley fever (coccidioidomycosis) cases were reported from across all fifteen counties in Arizona. For the year-to-date 2008, 1184 valley fever cases have been reported to the state: 446 cases for the month of January, 417 cases for February, and 321 cases for March.

Data in this report are provisional and may change as more reports are received.

Valley Fever Activity by County:

Map 1. Valley Fever Incidence (1/1/2007-6/29/2007)



Map 2. Valley Fever Incidence, 2006

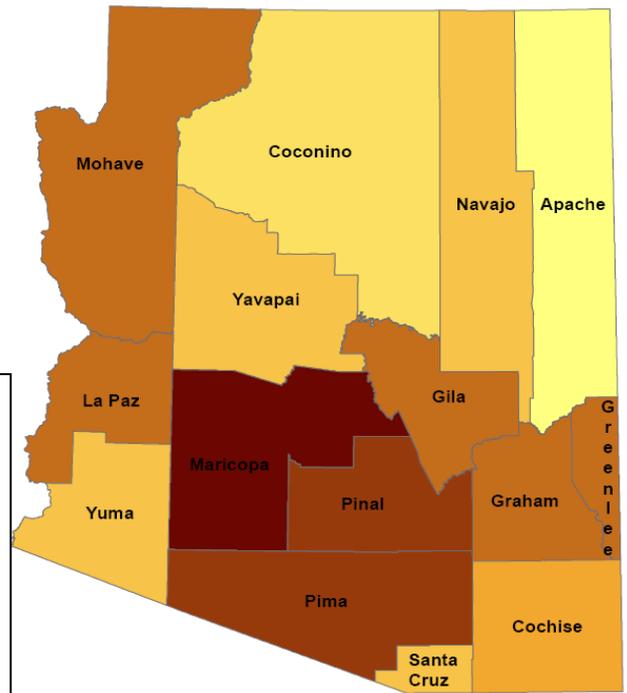


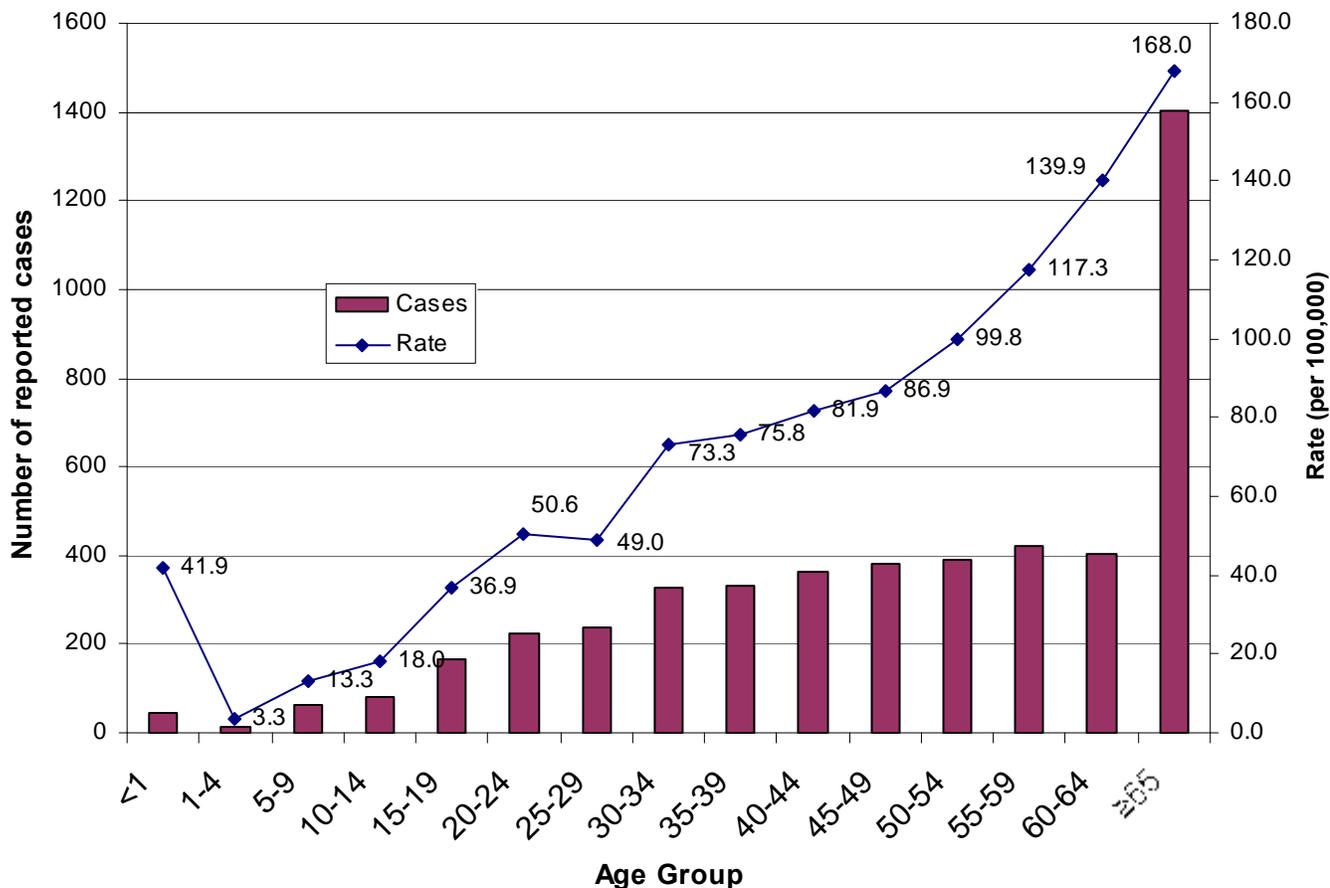
Table 1. Valley Fever Cases by County

COUNTY	JAN 2008	FEB 2008	MAR 2008	2007
APACHE	0	1	2	5
COCHISE	2	1	1	32
COCONINO	0	0	0	13
GILA	1	0	2	15
GRAHAM	3	0	0	24
GREENLEE	0	0	1	2
LA PAZ	1	0	0	15
MARICOPA	314	309	243	3471
MOHAVE	1	7	4	50
NAVAJO	2	3	2	11
PIMA	98	67	46	918
PINAL	22	26	17	256
SANTA CRUZ	1	1	0	7
YAVAPAI	1	0	3	26
YUMA	0	2	0	13
TOTAL	446	417	321	4858

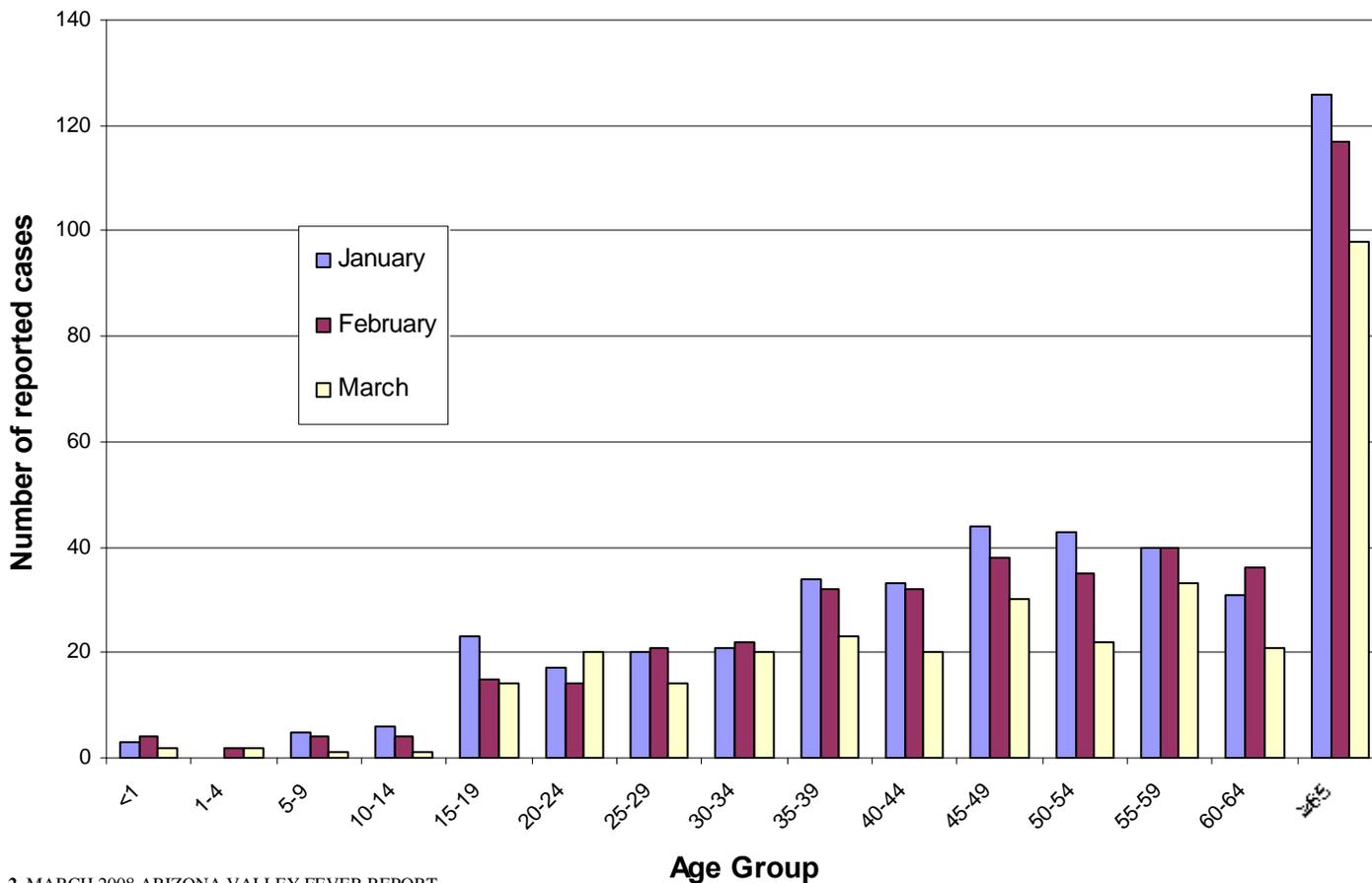
From January 2008 to March 2008, fourteen counties reported cases of valley fever. Valley fever cases continue to occur predominantly in the most populated counties of Maricopa, Pinal, and Pima.

Demographics of Valley Fever Cases:

Graph 1. Reported Valley Fever Cases by Age Group, 2007



Graph 2. Valley Fever Cases by Age Group, January-March 2008



When comparing the number of cases and rates of valley fever by age group (see Graph 1 and 2), we see that the majority of cases continue to occur in people who are 65 years old or older. The average age of valley fever cases for 2007 was 51 (median = 52). We estimate that every year about 50,000 people in the United States (30,000 Arizonans) become ill with valley fever. Most of these cases experience mild flu-like symptoms and are less likely to visit healthcare providers, get tested, and be reported to the health department than people who are more severely ill.

Table 2. Race and Ethnicity of Valley Fever Cases compared to Arizona Demographics

Race	Jan 2008 (n=176)	Feb 2008 (n=130)	Mar 2008 (n=96)	2007 (n=1882)	2007 Demo* (n=6,432,007)
American Indian/ Alaska Native	9 (5.1%)	5 (3.9%)	6 (6.3%)	92 (4.9%)	337,764 (5.3%)
Asian/Hawaiian/ Pacific Island	3 (1.7%)	2 (1.5%)	0 (0.0%)	51 (2.7%)	169,780 (2.6%)
Black/African- American	9 (5.1%)	13 (10.0%)	6 (6.3%)	136 (7.2%)	253,477 (3.9%)
White	136 (77.3%)	95 (73.1%)	71 (74.0%)	1442 (76.6%)	3,872,764 (60.2%)**
Other	19 (10.8%)	15 (11.5%)	13 (13.5%)	161 (8.6%)	—

For the year 2007, only 39% (1882/4858) of the valley fever cases reported to the state health department contain information about race. African-Americans are more likely to be reported with valley fever as compared to the general population (Table 2).

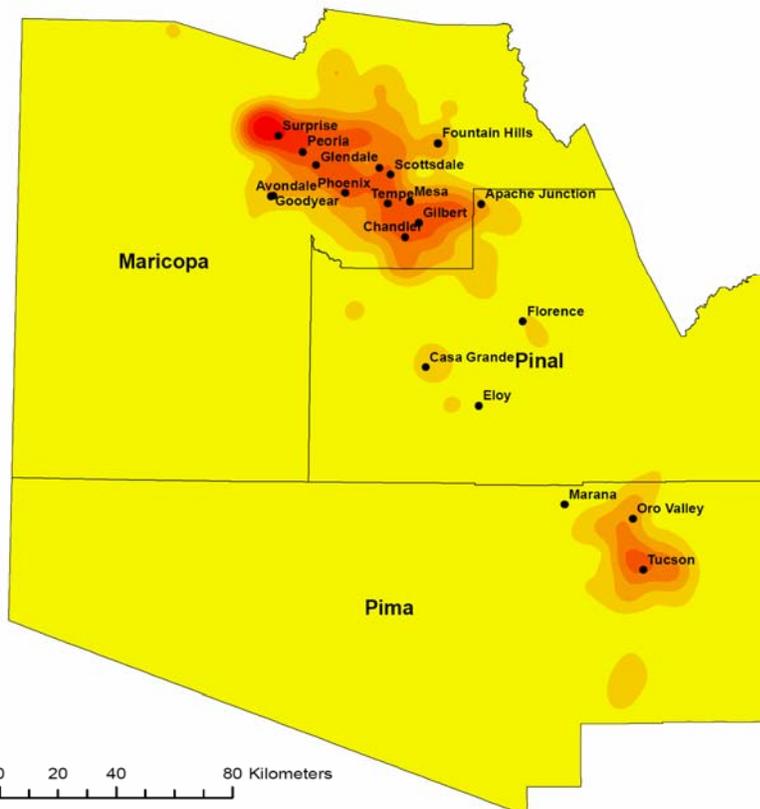
Ethnicity	Jan 2008 (n=406)	Feb 2008 (n=371)	Mar 2008 (n=255)	2007 (n=4350)	2007 Demo (n=6,432,007)
Hispanic	19 (4.7%)	21 (5.7%)	16 (6.3%)	272 (6.3%)	1,798,222 (28.0%)
Not Hispanic	80 (19.7%)	57 (15.4%)	42 (16.5%)	874 (20.1%)	4,633,785 (72.0%)
Unknown	307 (75.6%)	293 (79.0%)	197 (77.3%)	3204 (73.7%)	—

*Arizona Vital Statistics uses five categories for race/ethnicity: American Indian or Alaska Native, Asian or Pacific Islander, Black or African-American, White non-Hispanic and Hispanic or Latino ethnicity. Demo = demographics
**For 2007 demographics for the state of Arizona, white means white non-Hispanic.

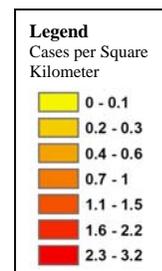
Areas with Valley Fever Activity:

Map 3.

Density Map of Valley Fever Incidence in Maricopa, Pinal & Pima Counties, 2006



Map 3 measures valley fever incidence per square kilometer for the year 2006. We are working on a density map for 2007 in our efforts to identify prominent areas of valley fever incidence. Valley fever cases occur primarily in populated areas, most notably in the counties of Maricopa, Pinal, and Pima.

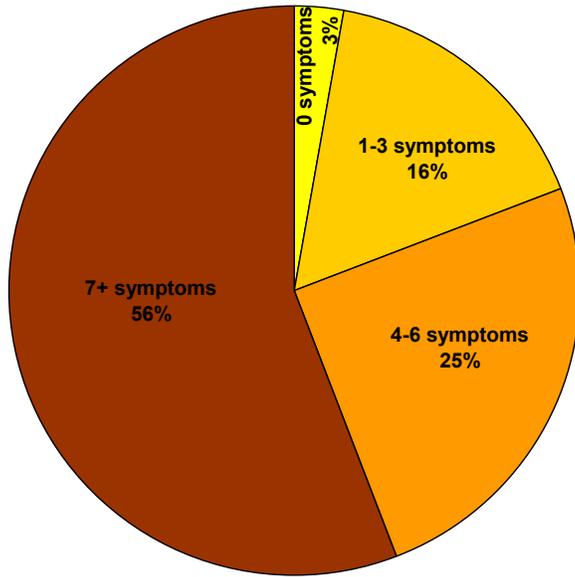


Enhanced Surveillance of Valley Fever:

The Arizona Department of Health Services is carrying out enhanced surveillance measures to investigate valley fever. Our aim is to interview every 10th valley fever case that is reported. So far we have interviewed 451 cases. This report highlights some of the major findings of this project.

Symptoms and Pre-existing Conditions:

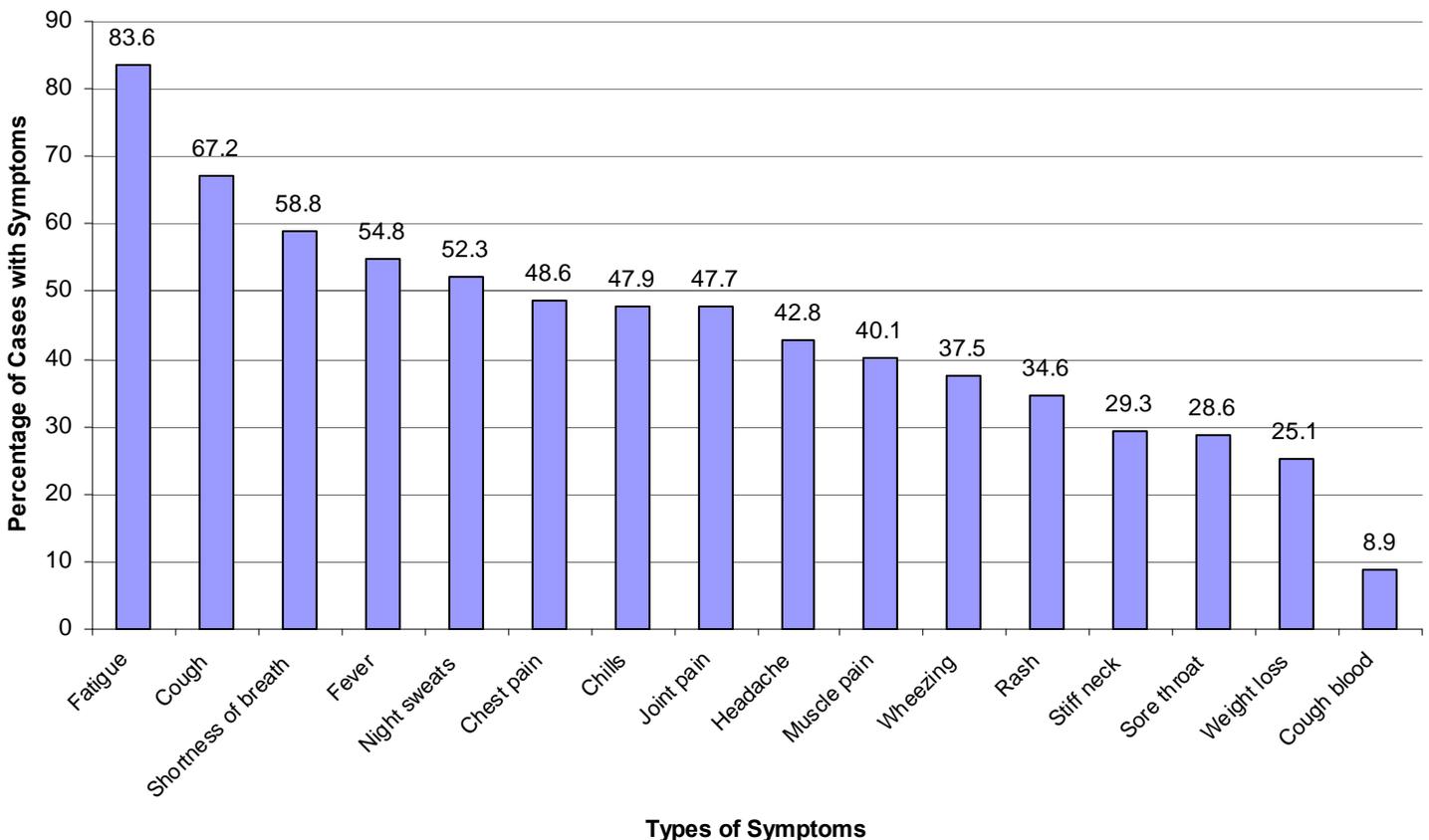
Graph 3. Distribution of Symptoms in Valley Fever Cases*



As shown in Graph 3, 56% of cases interviewed had seven or more symptoms for valley fever. The percentages of cases who reported experiencing some of the most common symptoms of valley fever are shown below in Graph 4. 84% had fatigue and 67% had a cough. Previous data show that 60% of people who are infected with *Coccidioides* species have mild or no symptoms. Thus, people who have symptoms are more likely to visit providers, get tested for valley fever and be reported to the health department. For this reason, our data is more likely to include the most severe cases of coccidioidomycosis.

*The graphs only include the common symptoms of fever, cough, sore throat, wheezing, chills, dyspnea (shortness of breath), night sweats, chest pain, fatigue, hemoptysis (coughing up blood), headache, rash, stiff neck, myalgias (muscle pain), arthralgia (joint pain), and weight loss.

Graph 4. Common Symptoms of Valley Fever Cases*



Diagnosis and Healthcare Visits:

We evaluated where valley fever cases were seen for their illness and how often they sought medical care. As shown in Table 5, 43% of patients reported going to the emergency room at least once over the course of their illness, and 40% said that they were hospitalized overnight for their illness. People with valley fever waited an average of 47 days before seeking care for their symptoms. It took an average of 3 visits to a healthcare provider before a patient was tested for valley fever. 17% of patients asked their providers to test them for valley fever. 28% of patients saw their doctors more than ten times for their valley fever illness (Graph 5). Prior to the most recent diagnoses of valley fever, 10% of patients interviewed had been told that they had valley fever before. 46% of patients were told that they had pneumonia and 58% were treated with antibiotics. 59% of patients were treated with antifungals.

Table 3.
Location where Cases First Sought Treatment for Valley Fever

Location	Count (n=451)
Emergency room	103 (22.8%)
Primary care physician	251 (55.7%)
Urgent Care	52 (11.5%)
Other	24 (5.3%)
Unknown	21 (4.7%)

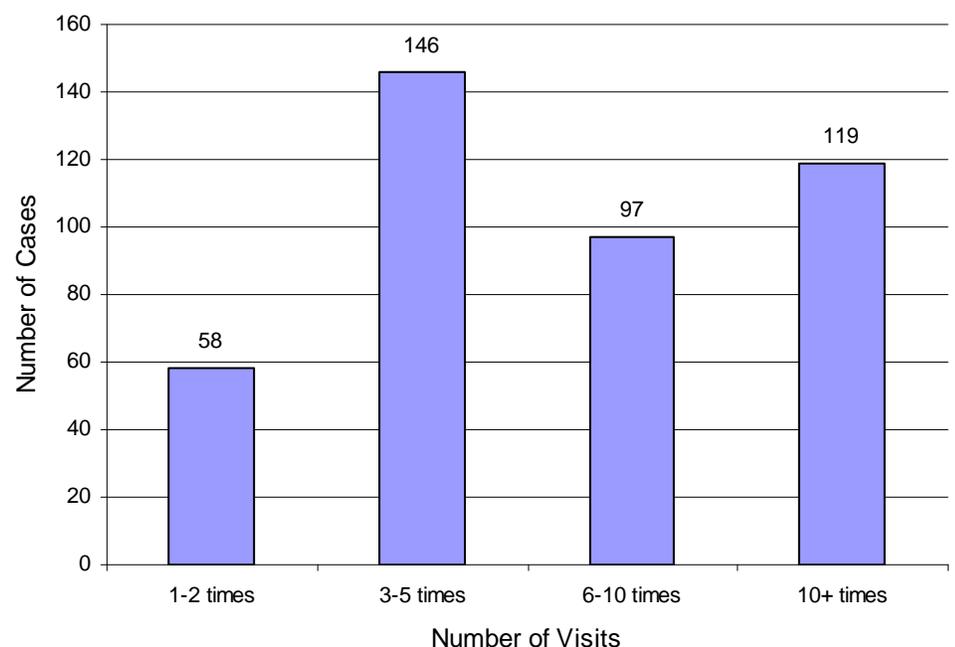
Table 4.
Length of Antibiotic Treatment

Length of treatment	Count (n=278)
Less than 1 week	64 (23.0%)
1-2 weeks	108 (38.8%)
3-4 weeks	38 (13.7%)
1-2 months	18 (6.5%)
Greater than 2 months	17 (6.1%)
Unknown	33 (11.9%)

Table 5.
Specifics of Healthcare Visits

Healthcare Visit (n=451)	Yes	No	Unknown
Visited the emergency room for illness	195 (43.2%)	236 (52.3%)	20 (4.4%)
Hospitalized overnight for illness	182 (40.4%)	258 (57.2%)	11 (2.4%)
Chest x-ray performed by provider	402 (89.1%)	33 (7.3%)	16 (3.5%)
Provider informed patient of pneumonia	208 (46.1%)	218 (48.3%)	25 (5.5%)
Patient knew of diagnosis before contacted by ADHS	359 (79.6%)	60 (13.3%)	32 (7.1%)
Patient asked provider to test for valley fever	77 (17.1%)	358 (79.4%)	16 (3.5%)
Provider prescribed antibiotic for illness	263 (58.3%)	131 (29.0%)	57 (12.6%)
Provider prescribed antifungal for illness	266 (59.0%)	163 (36.1%)	22 (4.9%)

Graph 5.
Number of Times Valley Fever Cases Visited a Healthcare Provider over the Course of Illness



Impact of Valley Fever and Exposures:

Individuals reported that the average length of their symptoms was 197 days (median = 120) (Table 6). However, 56% of the patients had not yet recovered from their symptoms of valley fever at the time of the interview. Of those that have not yet recovered, the average length of symptom duration was 313 days (median = 162). 51% of the cases interviewed did not have a paid job or business and 12% were attending school when their illnesses began. Of those who had jobs, 74% missed work due to their illnesses, and 60% of those who were attending school missed school due to their illnesses. 75% of the people interviewed said that their illnesses prevented them from doing their usual daily activities. On average, the amount of time missed from performing daily activities was three months (90 days). 51% said they were exposed to dust through their work or daily activities. Most of the cases (73%) said that they spent at least 2 hours a week outdoors (Table 7). 55% of people diagnosed with valley fever said that they lived within one mile of construction.

Table 6.
Symptom Duration and Number of Days Lost for Valley Fever Cases

Impact of Valley Fever	n	Mean	Median
Symptom duration (days) for those who recovered*	153	65.3	42
Symptom duration (days) for those not yet recovered	234	277.6	159.5
Symptom duration (days) for both recovered and not yet recovered	387	193.7	120
Number of days missed from work	149	31.8	14
Number of days missed from school	32	15.1	8
Number of days missed from daily activities	344	89.6	45

*An error in the previous report showed that n = 178 for symptom duration for those who recovered. This mistakenly included symptom duration for some individuals who had not yet recovered.

Table 7.
Length of Time Spent Outdoors for Valley Fever Cases

Length of Time/Week	Count (n=451)
<2 hrs	48 (10.6%)
2-20 hrs	223 (49.4%)
20-40 hrs	74 (16.4%)
>40 hrs	33 (7.3%)
Unknown	73 (16.2%)

Table 8.
Dust Exposures for Valley Fever Cases

Exposed	Count (n=264)
Constantly	45 (17.0%)
Intermittently/Sometimes	167 (63.3%)
Rarely	52 (19.7%)

Table 9.
Years Lived in Arizona & Average Age of Cases Interviewed

Demographics	n	Mean	Median
Number of years lived in Arizona	415	16.7	13
Age of cases interviewed	451	52.4	54

Demographics and Valley Fever Awareness:

53% of patients interviewed were male. 57% had a history of smoking. 17% had malignant disease, cancer or transplant as an underlying medical condition present at time of diagnosis. Although the average number of years lived in Arizona at the time of diagnosis was 17 years (Table 9), 57% lived in Arizona for less than 15 years (Graph 6). Our data support the hypothesis that those who are newer to the Arizona area are more susceptible to acquiring valley fever. However, many of our cases lived 10 years or longer in Arizona (Graph 6) indicating that other factors may be important in becoming infected with the *Coccidioides* fungus. Table 9 shows that the average age of the cases interviewed was 52 years old, which is comparable to the average age of reported cases in 2007 (51 years old).

Graph 6.
Length of Time that Valley Fever Cases Lived in Arizona Prior to Diagnosis

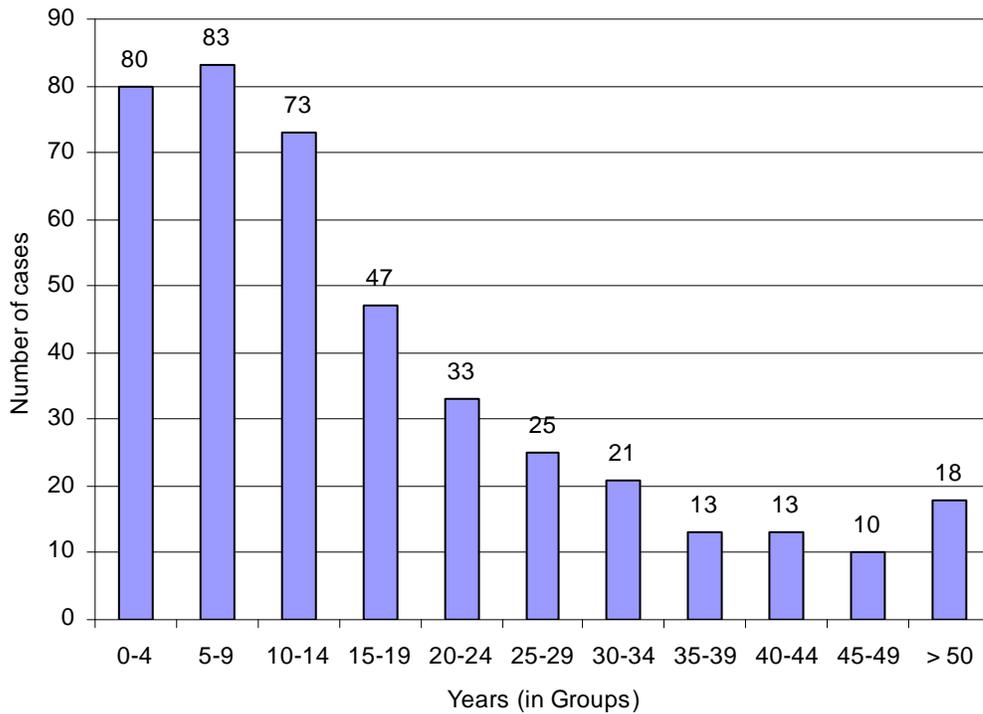


Table 10.
Race and Ethnicity of Valley Fever Cases compared to State Demographics

Race	Cases Interviewed (n=451)	2007 (n=1882)	2007 Demo* (n=6,432,007)
American Indian/Alaska Native	10 (2.2%)	92 (4.9%)	337,764 (5.3%)
Asian/Hawaiian/ Pacific Island	20 (4.4%)	51 (2.7%)	169,780 (2.6%)
Black/African-American	36 (8.0%)	136 (7.2%)	253,477 (3.9%)
White	354 (78.5%)	1442 (76.6%)	3,872,764 (60.2%)**
Other	26 (5.8%)	161 (8.6%)	—
Unknown	5 (1.1%)	—	—

Ethnicity	Cases Interviewed (n=451)	2007 (n=4350)	2007 Demo (n=6,432,007)
Hispanic	52 (11.5%)	272 (6.3%)	1,798,222 (28.0%)
Not Hispanic	388 (86.0%)	874 (20.1%)	4,633,785 (72.0%)
Unknown	11 (2.4%)	3204 (73.7%)	—

In Table 10, we see that only 2% of cases interviewed during our enhanced surveillance were American Indians compared to the 5% incidence of American Indian valley fever cases. This may suggest the need to communicate with Indian Health Services and other related agencies to identify and interview more American Indians. 90% of the people interviewed had health insurance when they were seeking medical treatment for their illnesses whereas 82% of the Arizonan population is insured (U.S. 2000 Census Data). 65% of the cases said they knew about valley fever before they were diagnosed. Of the people who had previous knowledge about valley fever, only 6% learned about valley fever from their healthcare providers. At the time of the interview, 19% of cases did not know how the disease is contracted.

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 **For 2007 state demographics, white means white non-Hispanic.

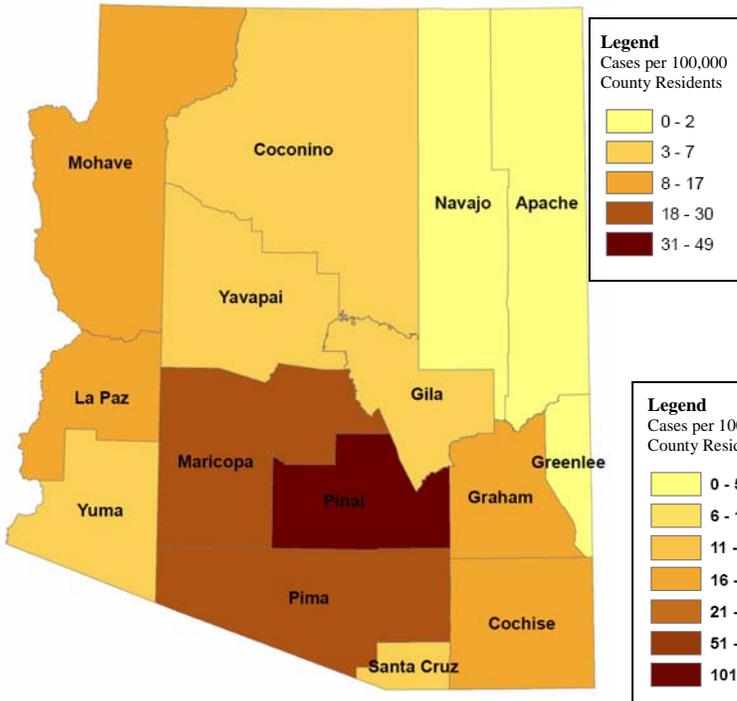
Further analysis will be done as we complete more interviews and receive more reports.

Summary:

For the year 2007, a total of 4835 valley fever (coccidioidomycosis) cases were reported from across all fifteen counties in Arizona. For the year-to-date 2008, 1503 valley fever cases have been reported to the state: 436 cases for the month of January, 412 cases for February, 308 cases for March, and 347 cases for April.

Valley Fever Activity by County:

Map 1. Valley Fever Incidence (1/1/2007-6/29/2007)



Map 2. Valley Fever Incidence, 2006

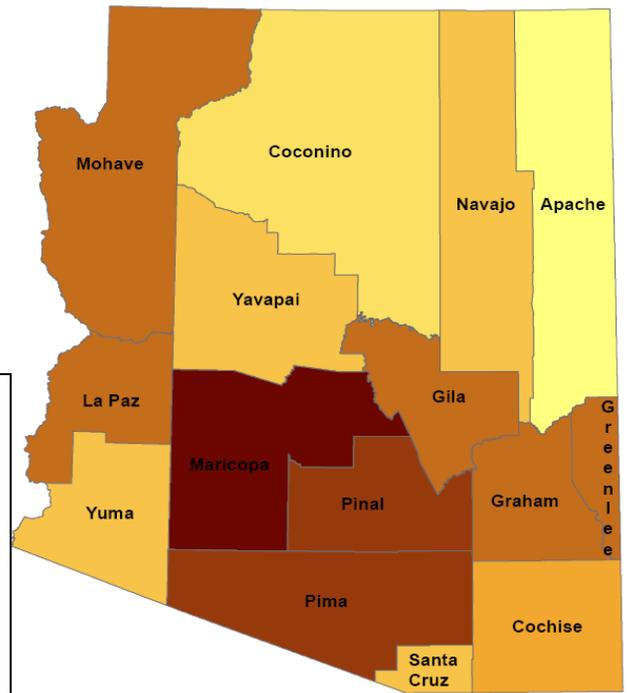


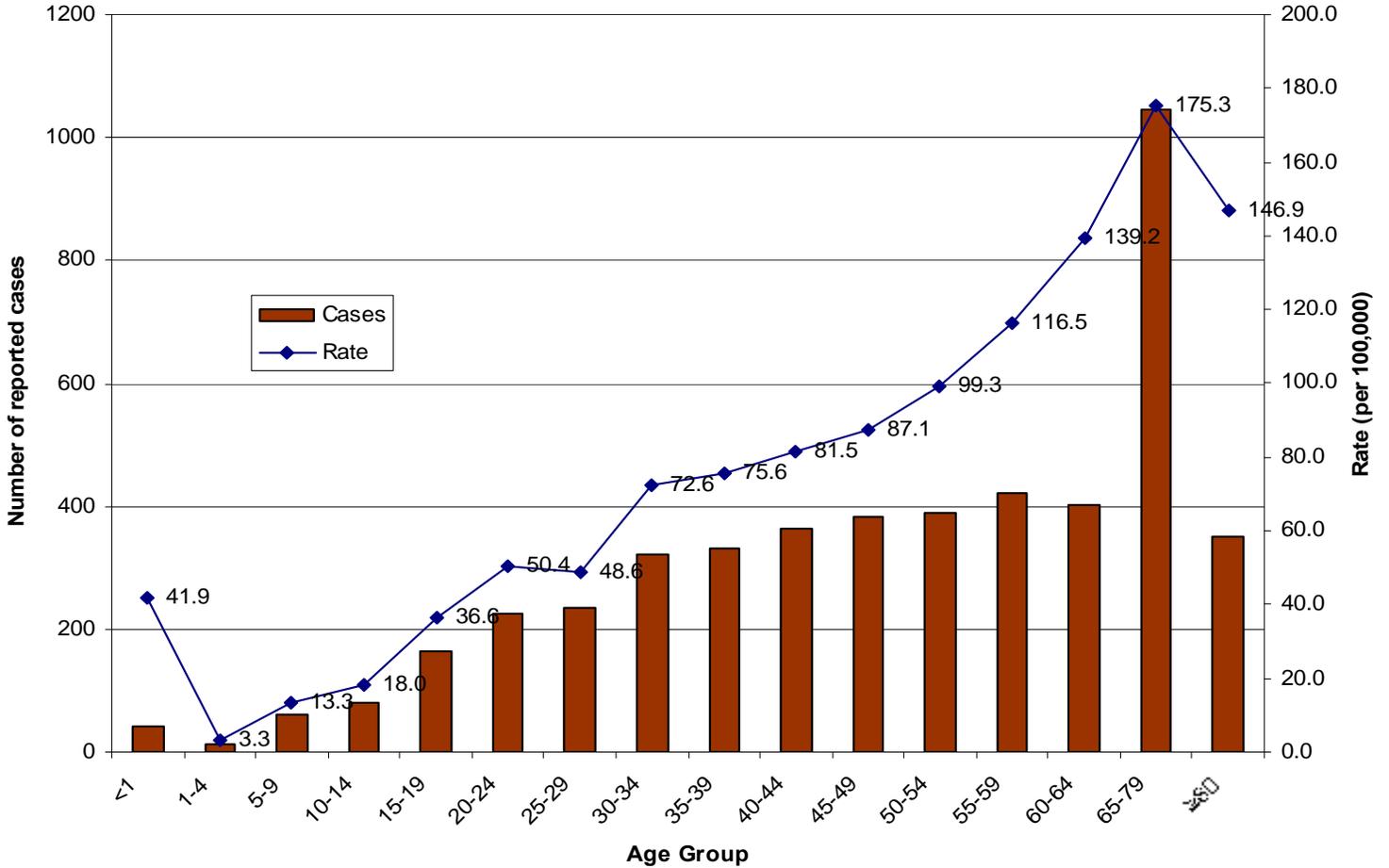
Table 1. Valley Fever Cases by County

COUNTY	APR 2008	APR 2007	YTD 2008	2007
APACHE	0	1	3	5
COCHISE	1	2	5	32
COCONINO	1	1	1	13
GILA	2	0	5	15
GRAHAM	1	1	4	24
GREENLEE	0	0	1	2
LA PAZ	0	0	1	15
MARICOPA	258	288	1106	3462
MOHAVE	0	5	12	50
NAVAJO	1	1	7	11
PIMA	59	55	266	904
PINAL	20	26	81	256
SANTA CRUZ	1	1	3	7
YAVAPAI	1	3	4	26
YUMA	2	1	4	13
TOTAL	347	385	1503	4835

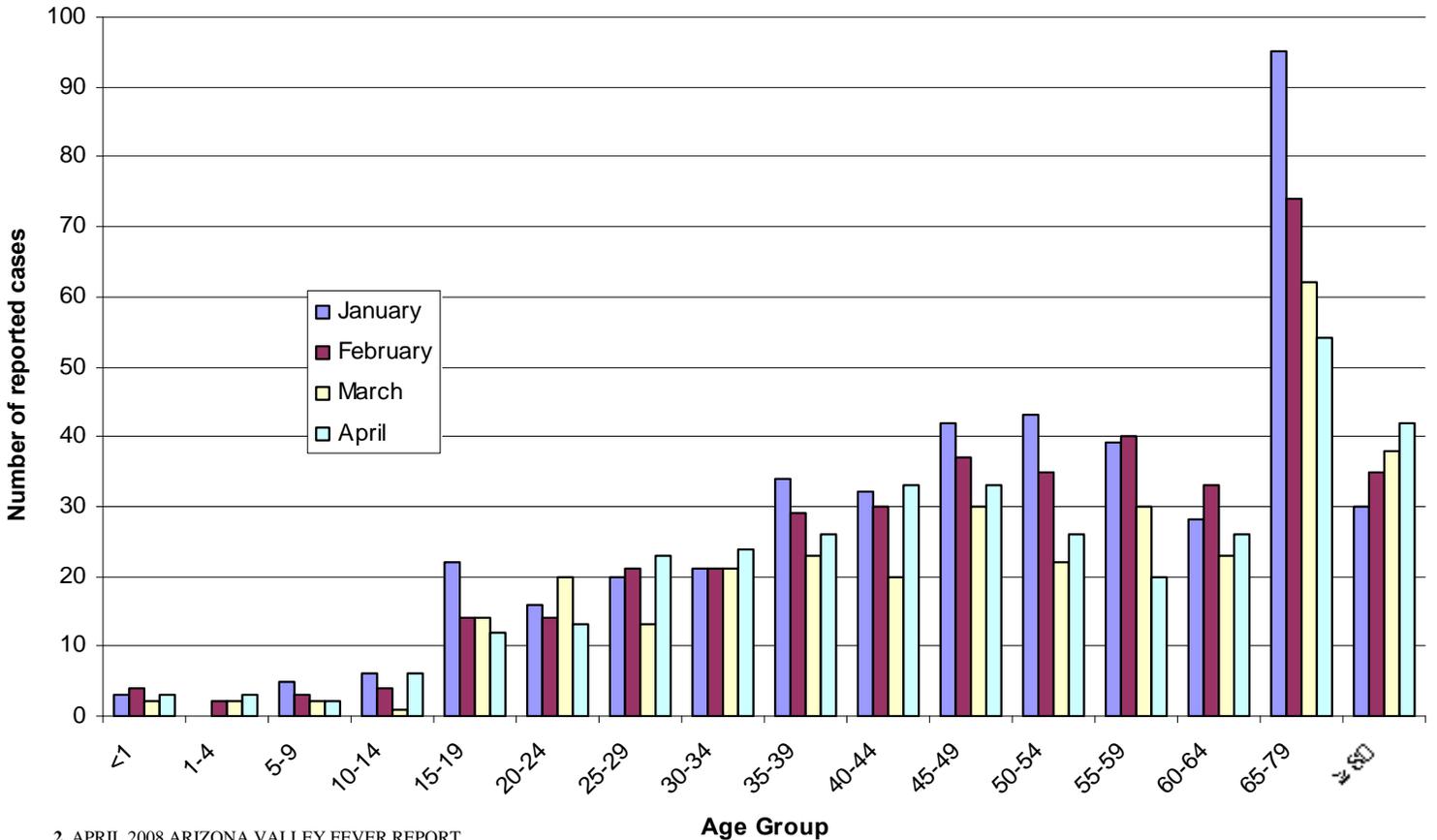
Valley fever cases continue to occur predominantly in the most populated counties of Maricopa, Pinal, and Pima.

Demographics of Valley Fever Cases:

Graph 1. Reported Valley Fever Cases by Age Group, 2007



Graph 2. Valley Fever Cases by Age Group, Year-to-Date 2008



When comparing the number of cases and rates of valley fever by age group (see Graph 1 and 2), we see that the majority of cases continue to occur in people who are 65 years old or older. The average age of valley fever cases for 2007 was 51 (median = 52). We estimate that every year about 50,000 people in the United States (30,000 Arizonans) become ill with valley fever. Most of these cases experience mild flu-like symptoms and are less likely to visit healthcare providers, get tested, and be reported to the health department than people who are more severely ill.

Table 2. Race and Ethnicity of Valley Fever Cases compared to Arizona Demographics

Race	Apr 2008 (n=108)	Apr 2007 (n=167)	YTD 2008 (n=500)	2007 (n=1878)	2007 Demo* (n=6,432,007)
American Indian/ Alaska Native	2 (1.9%)	10 (6.0%)	22 (4.4%)	94 (5.0%)	337,764 (5.3%)
Asian/Hawaiian/ Pacific Island	2 (1.9%)	6 (3.6%)	7 (1.4%)	52 (2.8%)	169,780 (2.6%)
Black/African- American	4 (3.7%)	10 (6.0%)	33 (6.6%)	137 (7.3%)	253,477 (3.9%)
White	87 (80.6%)	131 (78.4%)	381 (76.2%)	1434 (76.4%)	3,872,764 (60.2%)**
Other	13 (12.0%)	10 (6.0%)	57 (11.4%)	161 (8.6%)	—

For the year 2007, only 39% (1878/4835) of the valley fever cases reported to the state health department contain information about race. African-Americans are more likely to be reported with valley fever as compared to the general population (Table 2).

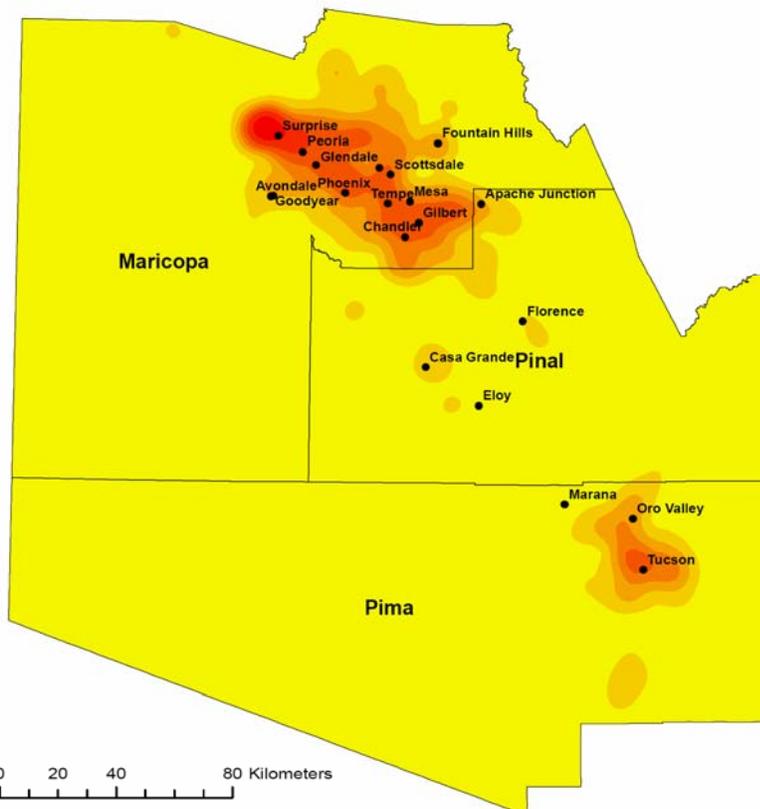
Ethnicity	Apr 2008 (n=118)	Apr 2007 (n=321)	YTD 2008 (n=1128)	2007 (n=4338)	2007 Demo (n=6,432,007)
Hispanic	15 (12.7%)	17 (5.3%)	67 (5.9%)	275 (6.3%)	1,798,222 (28.0%)
Not Hispanic	45 (38.1%)	64 (19.9%)	218 (19.3%)	868 (20.0%)	4,633,785 (72.0%)
Unknown	58 (49.2%)	240 (74.8%)	843 (74.7%)	3195 (73.7%)	—

*Arizona Vital Statistics uses five categories for race/ethnicity: American Indian or Alaska Native, Asian or Pacific Islander, Black or African-American, White non-Hispanic and Hispanic or Latino ethnicity. Demo = demographics
**For 2007 demographics for the state of Arizona, white means white non-Hispanic.

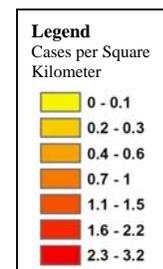
Areas with Valley Fever Activity:

Map 3.

Density Map of Valley Fever Incidence in Maricopa, Pinal & Pima Counties, 2006



Map 3 measures valley fever incidence per square kilometer for the year 2006. We are working on a density map for 2007 in our efforts to identify prominent areas of valley fever incidence. Valley fever cases occur primarily in populated areas, most notably in the counties of Maricopa, Pinal, and Pima.

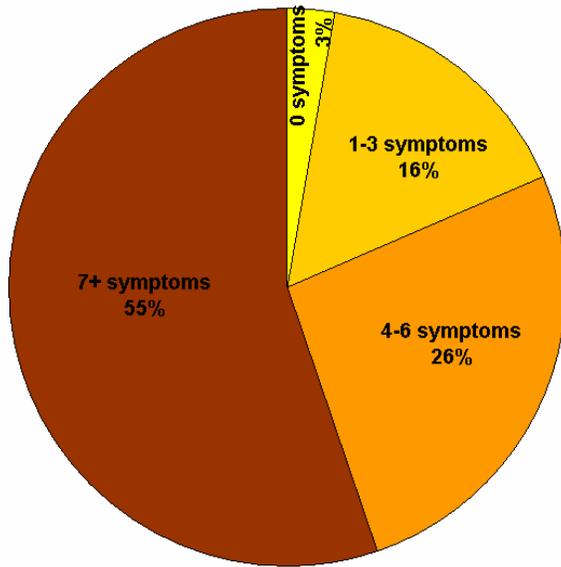


Enhanced Surveillance of Valley Fever:

The Arizona Department of Health Services is carrying out enhanced surveillance measures to investigate valley fever. Our aim is to interview every 10th valley fever case that is reported. So far we have interviewed 482 cases. This report highlights some of the major findings of this project.

Symptoms and Pre-existing Conditions:

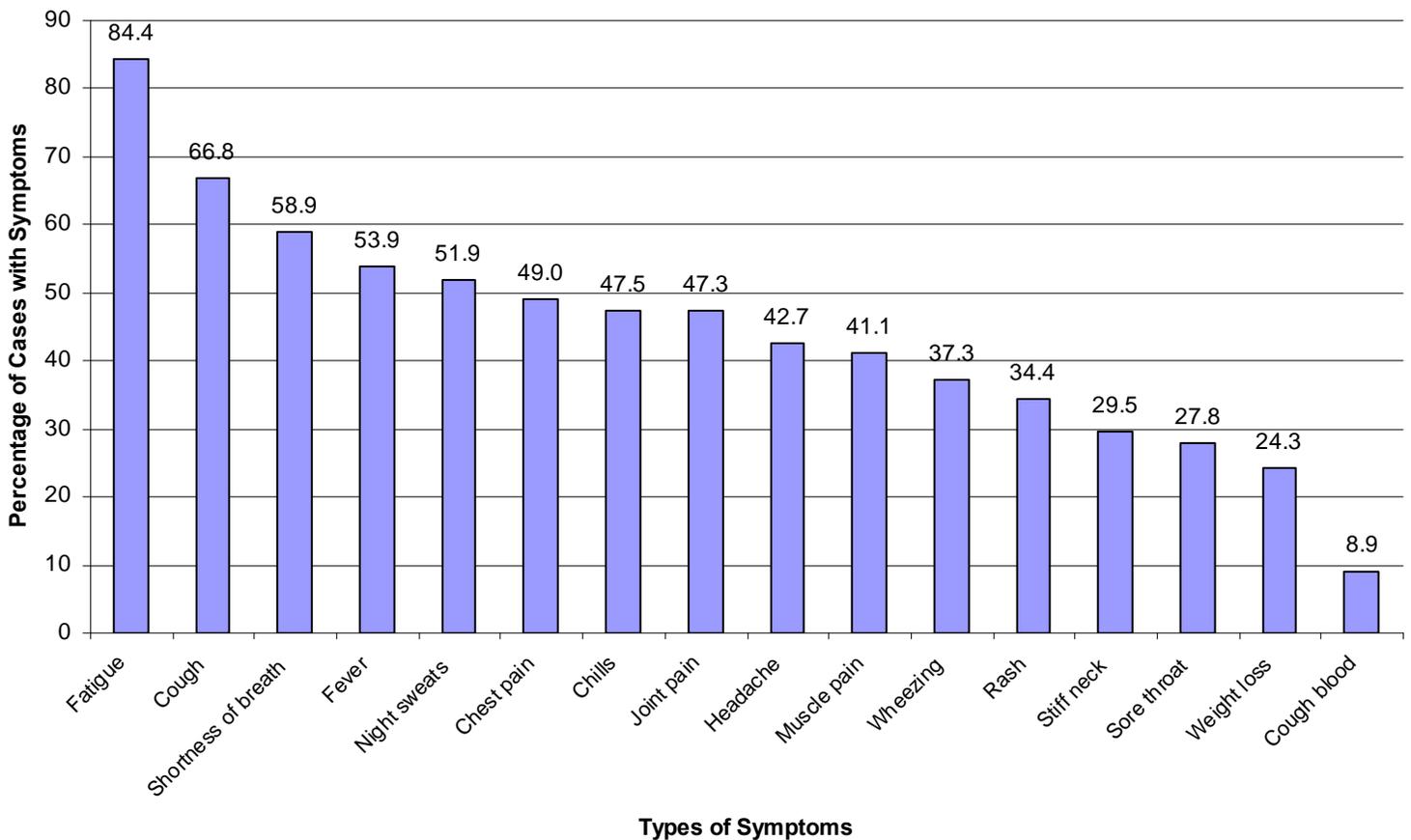
Graph 3. Distribution of Symptoms in Valley Fever Cases*



As shown in Graph 3, 55% of cases interviewed had seven or more symptoms for valley fever. The percentages of cases who reported experiencing some of the most common symptoms of valley fever are shown below in Graph 4. 84% had fatigue and 67% had a cough. Previous data show that 60% of people who are infected with *Coccidioides* species have mild or no symptoms. Thus, people who have symptoms are more likely to visit providers, get tested for valley fever and be reported to the health department. For this reason, our data is more likely to include the most severe cases of coccidioidomycosis.

*The graphs only include the common symptoms of fever, cough, sore throat, wheezing, chills, dyspnea (shortness of breath), night sweats, chest pain, fatigue, hemoptysis (coughing up blood), headache, rash, stiff neck, myalgias (muscle pain), arthralgia (joint pain), and weight loss.

Graph 4. Common Symptoms of Valley Fever Cases*



Diagnosis and Healthcare Visits:

We evaluated where valley fever cases were seen for their illness and how often they sought medical care. As shown in Table 5, 44% of patients reported going to the emergency room at least once over the course of their illness, and 40% said that they were hospitalized overnight for their illness. People with valley fever waited an average of 45 days before seeking care for their symptoms. It took an average of 3 visits to a healthcare provider before a patient was tested for valley fever. 16% of patients asked their providers to test them for valley fever. 29% of patients saw their doctors more than ten times for their valley fever illness (Graph 5). Prior to the most recent diagnoses of valley fever, 10% of patients interviewed had been told that they had valley fever before. 46% of patients were told that they had pneumonia and 58% were treated with antibiotics. 59% of patients were treated with antifungals.

Table 3.
Location where Cases First Sought Treatment for Valley Fever

Location	Count (n=482)
Emergency room	109 (22.6%)
Primary care physician	268 (55.6%)
Urgent Care	55 (11.4%)
Other	26 (5.4%)
Unknown	24 (5.0%)

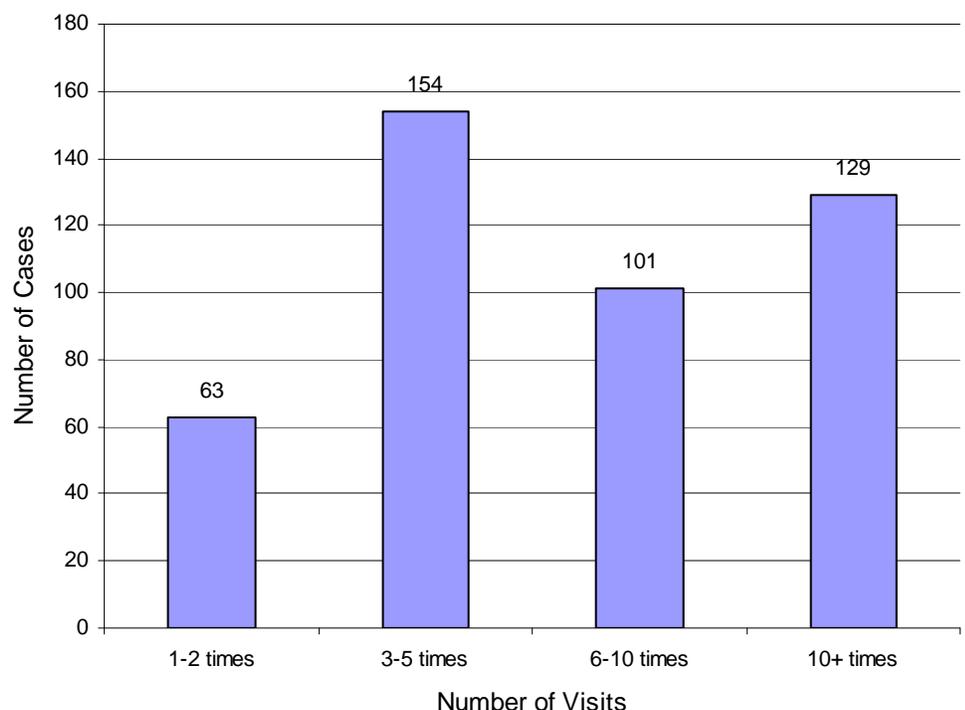
Table 4.
Length of Antibiotic Treatment

Length of treatment	Count (n=293)
Less than 1 week	68 (23.2%)
1-2 weeks	113 (38.6%)
3-4 weeks	41 (14.0%)
1-2 months	19 (6.5%)
Greater than 2 months	18 (6.1%)
Unknown	34 (11.6%)

Table 5.
Specifics of Healthcare Visits

Healthcare Visit (n=482)	Yes	No	Unknown
Visited the emergency room for illness	211 (43.8%)	247 (51.2%)	24 (5.0%)
Hospitalized overnight for illness	192 (39.8%)	274 (56.8%)	16 (3.3%)
Chest x-ray performed by provider	428 (88.8%)	38 (7.9%)	16 (3.3%)
Provider informed patient of pneumonia	218 (45.2%)	238 (49.4%)	26 (5.4%)
Patient knew of diagnosis before contacted by ADHS	384 (79.7%)	65 (13.5%)	33 (6.8%)
Patient asked provider to test for valley fever	78 (16.2%)	385 (79.9%)	19 (3.9%)
Provider prescribed antibiotic for illness	279 (57.9%)	139 (28.8%)	64 (13.3%)
Provider prescribed antifungal for illness	284 (58.9%)	173 (35.9%)	25 (5.2%)

Graph 5.
Number of Times Valley Fever Cases Visited a Healthcare Provider over the



Impact of Valley Fever and Exposures:

Individuals reported that the average length of their symptoms was 190 days (median = 120) (Table 6). However, 56% of the patients had not yet recovered from their symptoms of valley fever at the time of the interview. Of those that have not yet recovered, the average length of symptom duration was 272 days (median = 156). 48% of the cases interviewed had a paid job or business and 12% were attending school when their illnesses began. Of those who had jobs, 74% missed work due to their illnesses, and 62% of those who were attending school missed school due to their illnesses. 74% of the people interviewed said that their illnesses prevented them from doing their usual daily activities. On average, the amount of time missed from performing daily activities was three months (91 days). 51% said they were exposed to dust through their work or daily activities. Most of the cases (73%) said that they spent at least 2 hours a week outdoors (Table 7). 56% of people diagnosed with valley fever said that they lived within one mile of construction.

Table 6.
Symptom Duration and Number of Days Lost for Valley Fever Cases

Impact of Valley Fever	n	Mean	Median
Symptom duration (days) for those who recovered	163	64.7	42
Symptom duration (days) for those not yet recovered	249	272.0	156
Symptom duration (days) for both recovered and not yet recovered	412	190.0	120
Number of days missed from work	157	31.3	14
Number of days missed from school	36	16.2	8.5
Number of days missed from daily activities	369	90.9	45

Table 7.
Length of Time Spent Outdoors for Valley Fever Cases

Length of Time/Week	Count (n=482)
<2 hrs	48 (10.0)
2-20 hrs	239 (49.6%)
20-40 hrs	76 (15.8%)
>40 hrs	38 (7.9%)
Unknown	81 (16.8%)

Table 8.
Dust Exposures for Valley Fever Cases

Exposed	Count (n=278)
Constantly	49 (17.6%)
Intermittently/Sometimes	176 (63.3%)
Rarely	53 (19.1%)

Table 9.
Years Lived in Arizona & Average Age of Cases Interviewed

Demographics	n	Mean	Median
Number of years lived in Arizona	440	16.5	12
Age of cases interviewed	482	52.4	54

Demographics and Valley Fever Awareness:

53% of patients interviewed were male. 57% had a history of smoking. 17% had malignant disease, cancer or transplant as an underlying medical condition present at time of diagnosis. Although the average number of years lived in Arizona at the time of diagnosis was 17 years (Table 9), 40% lived in Arizona for less than 10 years (Graph 6). Our data support the hypothesis that those who are newer to the Arizona area are more susceptible to acquiring valley fever. However, many of our cases lived 10 years or longer in Arizona (Graph 6) indicating that other factors may be important in becoming infected with the *Coccidioides* fungus. Table 9 shows that the average age of the cases interviewed was 52 years old, which is comparable to the average age of reported cases in 2007 (51 years old).

Graph 6.
Length of Time that Valley Fever Cases Lived in Arizona Prior to Diagnosis

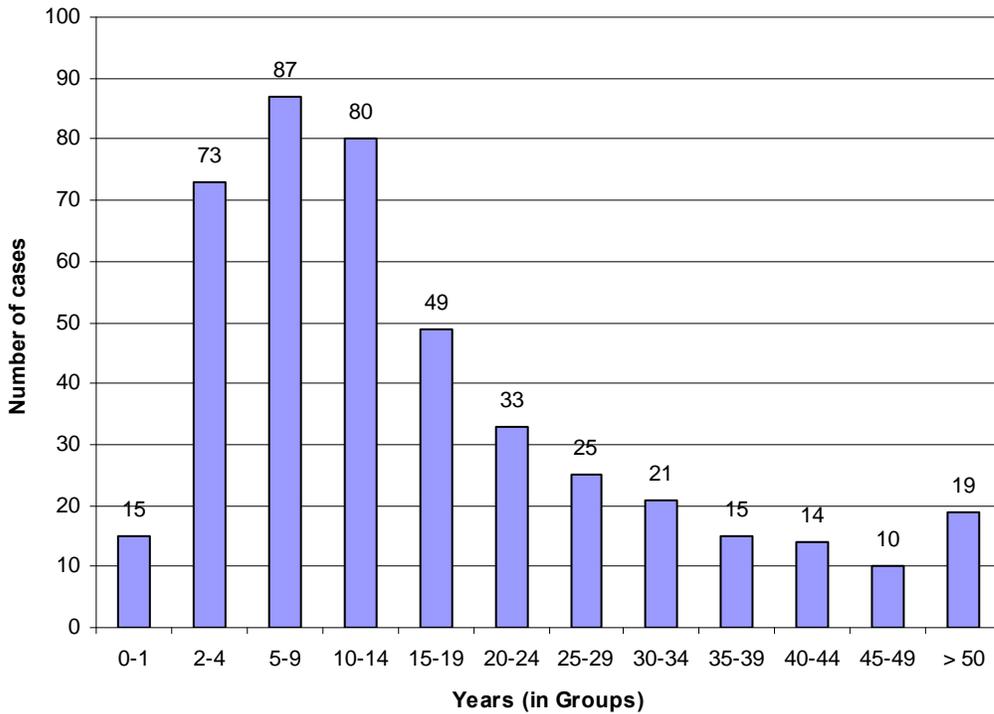


Table 10.
Race and Ethnicity of Valley Fever Cases compared to State Demographics

Race	Cases Interviewed (n=482)	2007 (n=1878)	2007 Demo* (n=6,432,007)
American Indian/Alaska Native	11 (2.3%)	94 (5.0%)	337,764 (5.3%)
Asian/Hawaiian/ Pacific Island	21 (4.4%)	52 (2.8%)	169,780 (2.6%)
Black/African-American	36 (7.5%)	137 (7.3%)	253,477 (3.9%)
White	379 (78.6%)	1434 (76.4%)	3,872,764 (60.2%)**
Other	29 (6.0%)	161 (8.6%)	—
Unknown	6 (1.2%)	—	—

Ethnicity	Cases Interviewed (n=482)	2007 (n=4338)	2007 Demo (n=6,432,007)
Hispanic	58 (12.0%)	275 (6.3%)	1,798,222 (28.0%)
Not Hispanic	413 (85.7%)	868 (20.0%)	4,633,785 (72.0%)
Unknown	11 (2.3%)	3195 (73.7%)	—

In Table 10, we see that only 2% of cases interviewed during our enhanced surveillance were American Indians compared to the 5% incidence of American Indian valley fever cases. This may suggest the need to communicate with Indian Health Services and other related agencies to identify and interview more American Indians. 90% of the people interviewed had health insurance when they were seeking medical treatment for their illnesses whereas 82% of the Arizonan population is insured (U.S. 2000 Census Data). 66% of the cases said they knew about valley fever before they were diagnosed. Of the people who had previous knowledge about valley fever, only 5% learned about valley fever from their healthcare providers. At the time of the interview, 18% of cases did not know how the disease is contracted.

*Arizona Vital Statistics uses five categories for race/ethnicity: American Indian or Alaska Native, Asian or Pacific Islander, Black or African-American, White non-Hispanic and Hispanic or Latino ethnicity. Demo = demographics
 **For 2007 state demographics, white means white non-Hispanic.

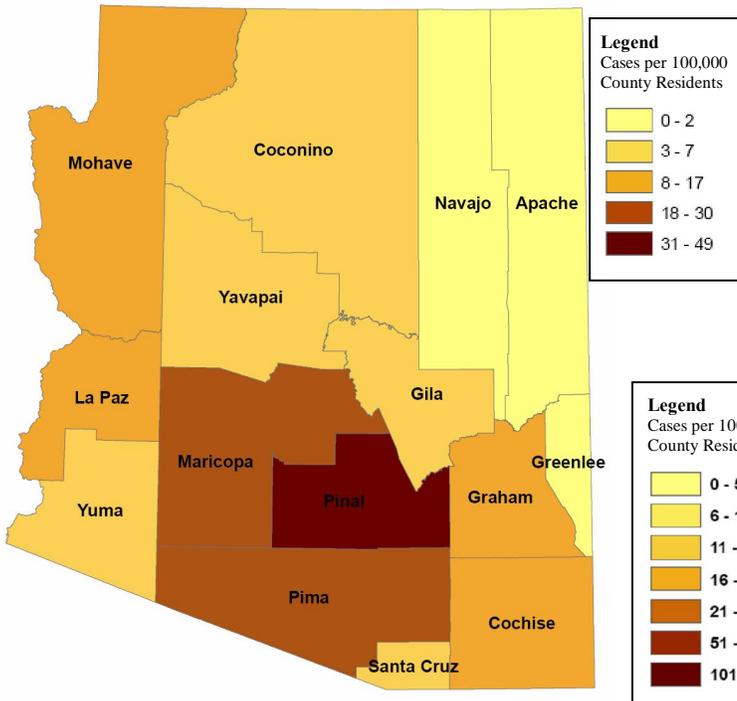
Further analysis will be done as we complete more interviews and receive more reports.

Summary:

For the year 2007, a total of 4832 valley fever (coccidioidomycosis) cases were reported from across all fifteen counties in Arizona. For the year-to-date 2008, 1901 valley fever cases have been reported to the state: 436 cases for the month of January, 410 cases for February, 308 cases for March, 334 cases for April, and 413 cases for May.

Valley Fever Activity by County:

Map 1. Valley Fever Incidence (1/1/2007-6/29/2007)



Map 2. Valley Fever Incidence, 2006

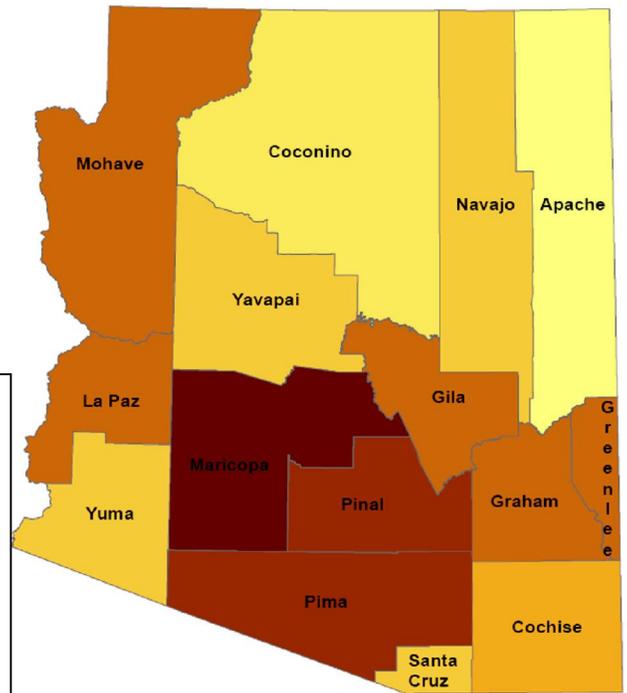


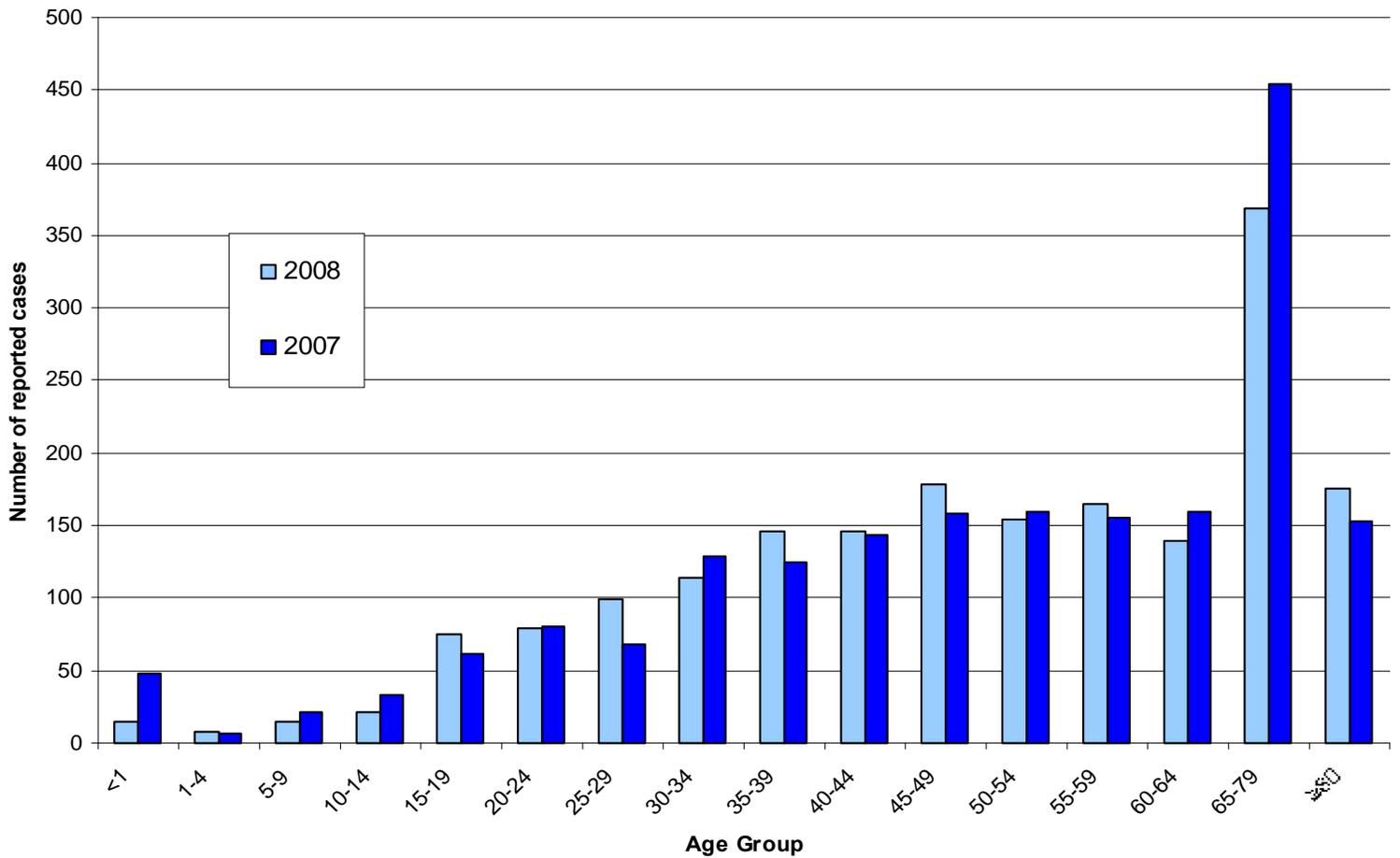
Table 1. Valley Fever Cases by County

COUNTY	MAY 2008	MAY 2007	YTD 2008	YTD 2007
APACHE	0	0	3	1
COCHISE	1	3	6	14
COCONINO	0	1	1	6
GILA	3	1	8	6
GRAHAM	1	1	4	14
GREENLEE	0	0	1	0
LA PAZ	1	0	2	6
MARICOPA	335	245	1432	1448
MOHAVE	3	4	15	26
NAVAJO	0	0	7	3
PIMA	45	72	306	298
PINAL	21	14	103	122
SANTA CRUZ	1	2	4	4
YAVAPAI	1	0	5	8
YUMA	1	1	4	7
TOTAL	413	344	1901	1963

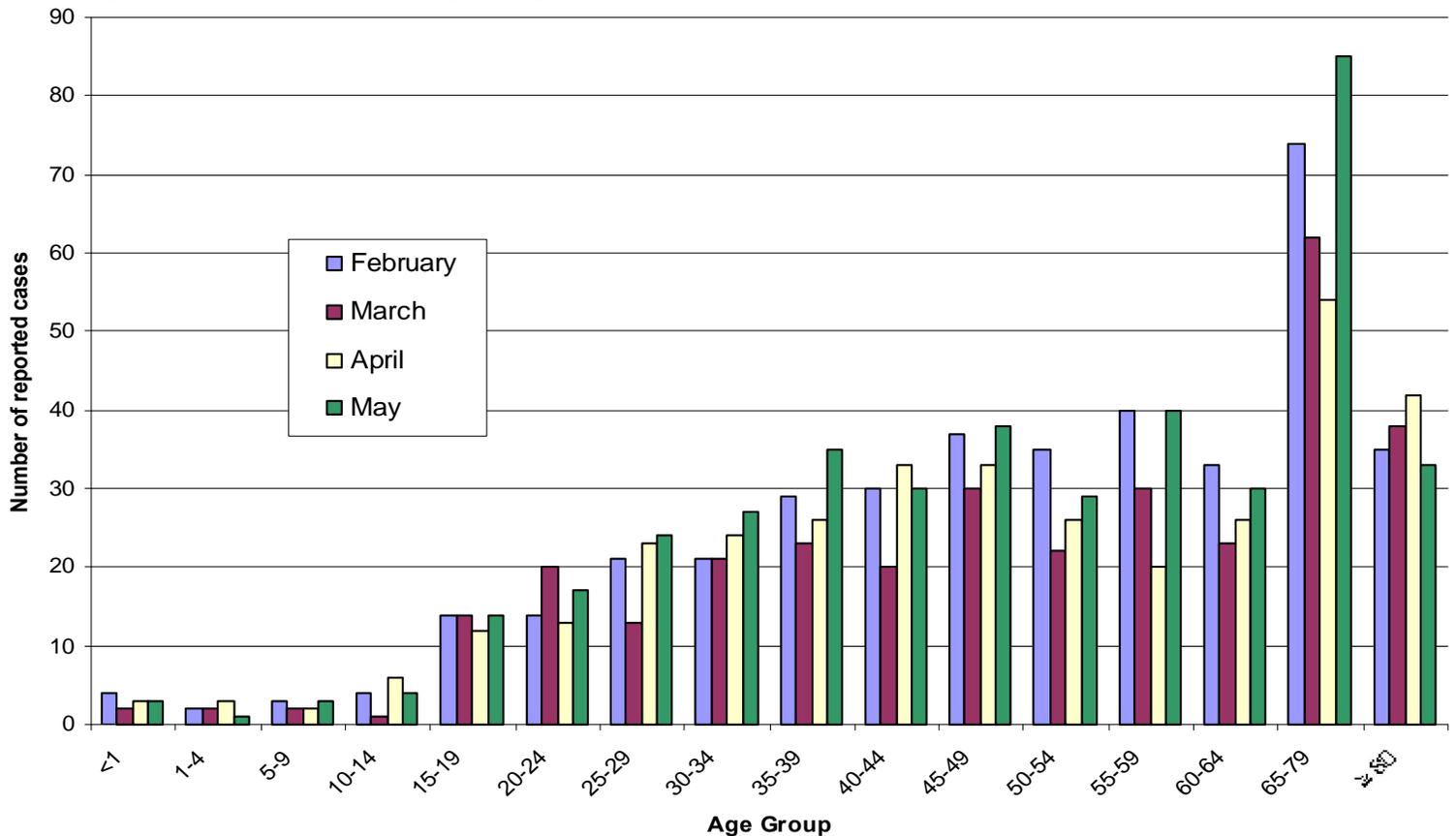
Valley fever cases continue to occur predominantly in the most populated counties of Maricopa, Pinal, and Pima.

Demographics of Valley Fever Cases:

Graph 1. Reported Valley Fever Cases by Age Group, YTD 2008 and YTD 2007



Graph 2. Valley Fever Cases by Age Group, February-May 2008



When comparing the number of cases and rates of valley fever by age group (see Graph 1 and 2), we see that the majority of cases continue to occur in people who are 65 years old or older. The average age of valley fever cases for 2007 was 51 (median = 52). We estimate that every year about 50,000 people in the United States (30,000 Arizonans) become ill with valley fever. Most of these cases experience mild flu-like symptoms and are less likely to visit healthcare providers, get tested, and be reported to the health department than people who are more severely ill.

Table 2. Valley Fever Cases with Known Race/ Ethnicity compared to Arizona Demographics

Race	May 2008 (n=106)	May 2007 (n=130)	YTD 2008 (n=566)	YTD 2007 (n=765)	2007 Demo* (n=6,432,007)
American Indian/ Alaska Native	5 (4.7%)	6 (4.6%)	27 (4.8%)	49 (6.4%)	337,764 (5.3%)
Asian/Hawaiian/ Pacific Island	4 (3.8%)	5 (3.8%)	11 (1.9%)	24 (3.1%)	169,780 (2.6%)
Black/African- American	7 (6.6%)	9 (6.9%)	40 (7.1%)	61 (8.0%)	253,477 (3.9%)
White	90 (84.9%)	110 (84.6%)	488 (86.2%)	631 (82.5%)	3,872,764 (60.2%)**

For year-to-date 2008, only 30% (566/1901) of the valley fever cases reported to the state health department contain information about race. African-Americans are more likely to be reported with valley fever as compared to the general population (Table 2).

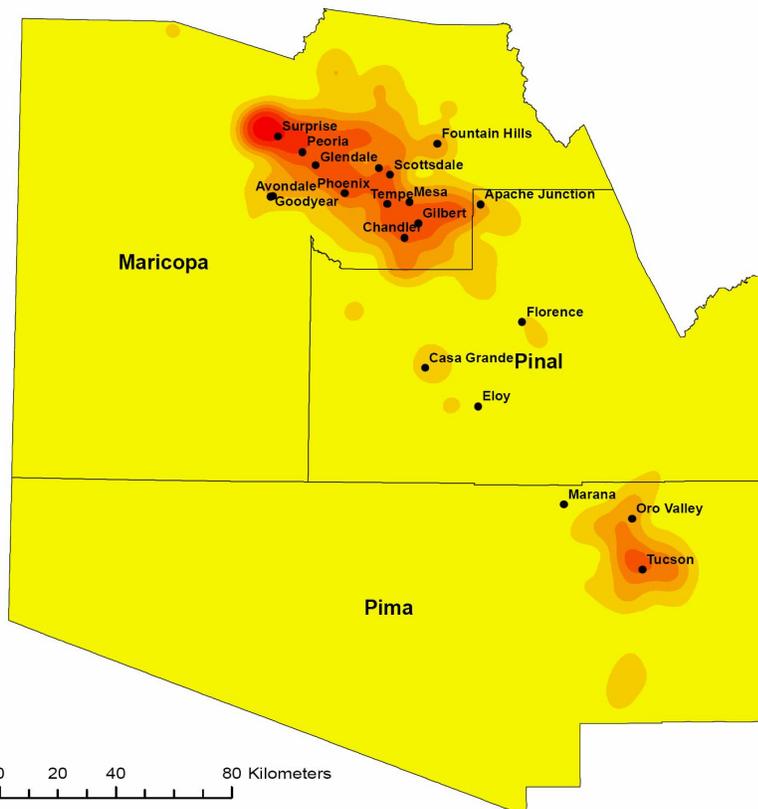
Ethnicity	May 2008 (n=176)	May 2007 (n=301)	YTD 2008 (n=1302)	YTD 2007 (n=1759)	2007 Demo (n=6,432,007)
Hispanic	8 (4.6%)	17 (5.7%)	78 (6.0%)	113 (6.4%)	1,798,222 (28.0%)
Not Hispanic	43 (24.4%)	70 (23.3%)	279 (21.4%)	355 (20.2%)	4,633,785 (72.0%)
Unknown	125 (71.0%)	214 (71.1%)	945 (72.6%)	1291 (73.4%)	—

*Arizona Vital Statistics uses five categories for race/ethnicity: American Indian or Alaska Native, Asian or Pacific Islander, Black or African-American, White non-Hispanic and Hispanic or Latino ethnicity. Demo = demographics
**For 2007 demographics for the state of Arizona, white means white non-Hispanic.

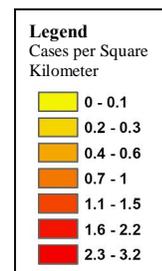
Areas with Valley Fever Activity:

Map 3.

Density Map of Valley Fever Incidence in Maricopa, Pinal & Pima Counties, 2006



Map 3 measures valley fever incidence per square kilometer for the year 2006. We are working on a density map for 2007 in our efforts to identify prominent areas of valley fever incidence. Valley fever cases occur primarily in populated areas, most notably in the counties of Maricopa, Pinal, and Pima.

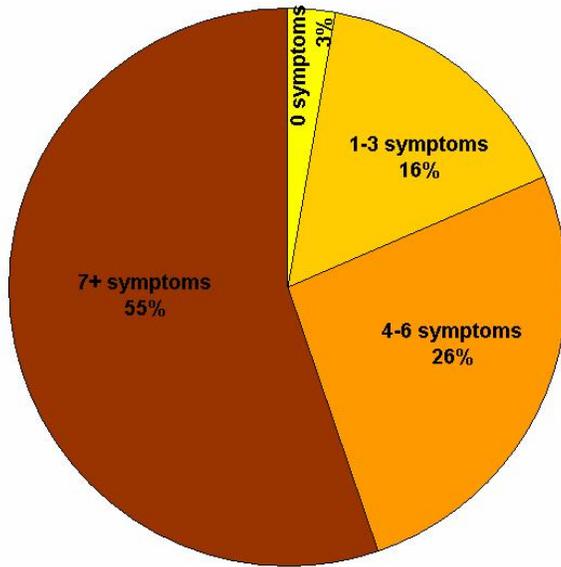


Enhanced Surveillance of Valley Fever:

The Arizona Department of Health Services is carrying out enhanced surveillance measures to investigate valley fever. Our aim is to interview every 10th valley fever case that is reported. So far we have interviewed 492 cases. This report highlights some of the major findings of this project.

Symptoms and Pre-existing Conditions:

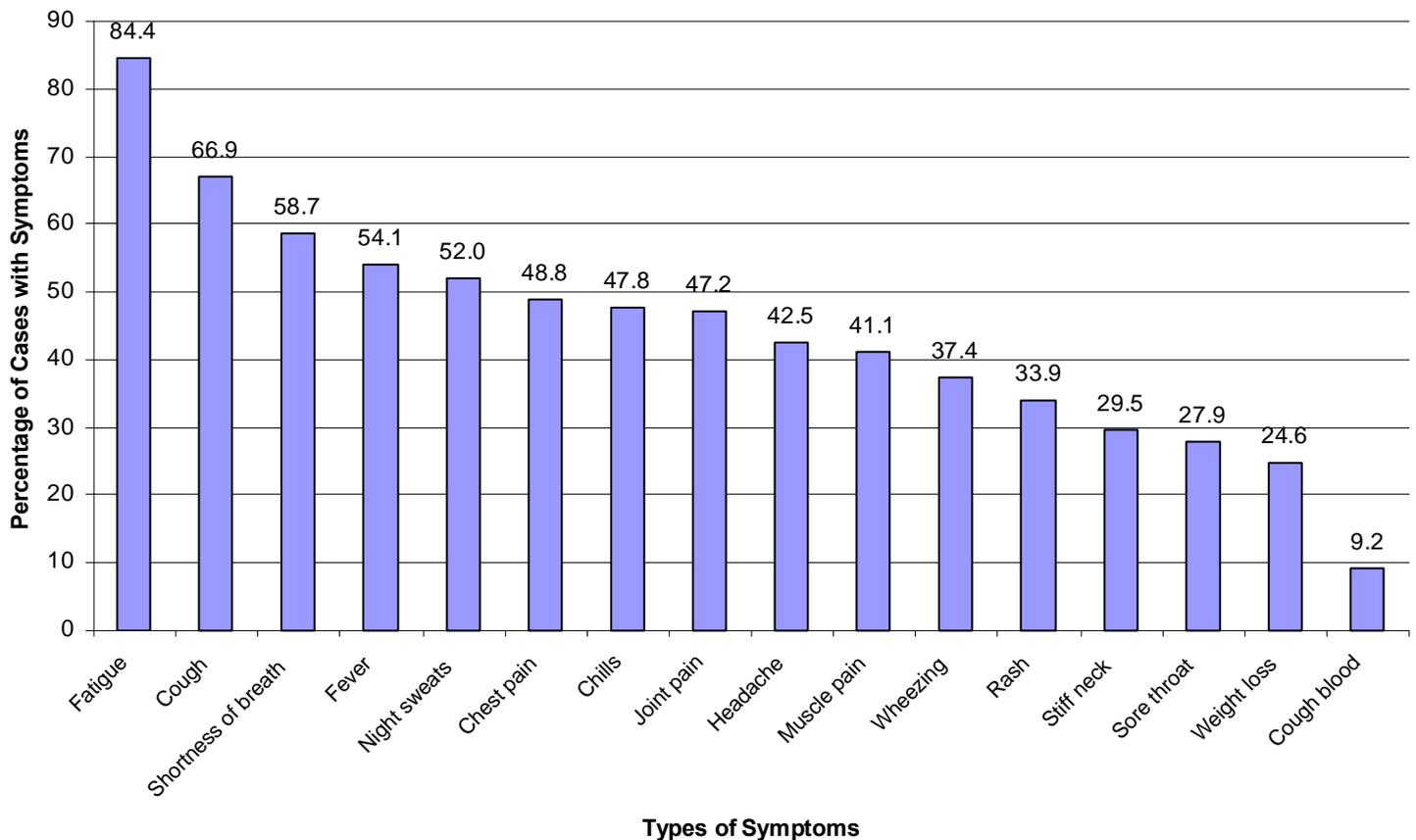
Graph 3. Distribution of Symptoms in Valley Fever Cases*



As shown in Graph 3, 55% of cases interviewed had seven or more symptoms for valley fever. The percentages of cases who reported experiencing some of the most common symptoms of valley fever are shown below in Graph 4. 84% had fatigue and 67% had a cough. Previous data show that 60% of people who are infected with *Coccidioides* species have mild or no symptoms. Thus, people who have symptoms are more likely to visit providers, get tested for valley fever and be reported to the health department. For this reason, our data is more likely to include the most severe cases of coccidioidomycosis.

*The graphs only include the common symptoms of fever, cough, sore throat, wheezing, chills, dyspnea (shortness of breath), night sweats, chest pain, fatigue, hemoptysis (coughing up blood), headache, rash, stiff neck, myalgias (muscle pain), arthralgia (joint pain), and weight loss.

Graph 4. Common Symptoms of Valley Fever Cases*



Diagnosis and Healthcare Visits:

We evaluated where valley fever cases were seen for their illness and how often they sought medical care. As shown in Table 5, 44% of patients reported going to the emergency room at least once over the course of their illness, and 40% said that they were hospitalized overnight for their illness. People with valley fever waited an average of 45 days before seeking care for their symptoms. It took an average of 3 visits to a healthcare provider before a patient was tested for valley fever. 16% of patients asked their providers to test them for valley fever. 28% of patients saw their doctors more than ten times for their valley fever illness (Graph 5). Prior to the most recent diagnoses of valley fever, 10% of patients interviewed had been told that they had valley fever before. 45% of patients were told that they had pneumonia and 58% were treated with antibiotics. 59% of patients were treated with anti-fungals.

Table 3.
Location where Cases First Sought Treatment for Valley Fever

Location	Count (n=492)
Emergency room	111 (22.6%)
Primary care physician	274 (55.7%)
Urgent Care	55 (11.2%)
Other	28 (5.7%)
Unknown	24 (4.9%)

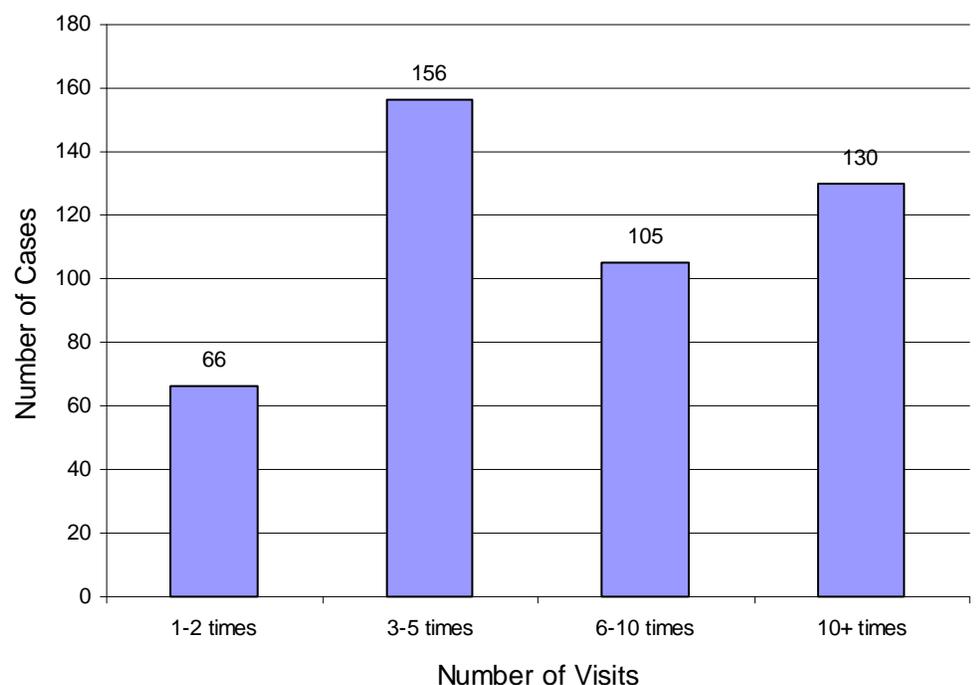
Table 4.
Length of Antibiotic Treatment

Length of treatment	Count (n=302)
Less than 1 week	68 (23.2%)
1-2 weeks	117 (38.6%)
3-4 weeks	41 (14.0%)
1-2 months	19 (6.5%)
Greater than 2 months	20 (6.1%)
Unknown	37 (11.6%)

Table 5.
Specifics of Healthcare Visits

Healthcare Visit (n=492)	Yes	No	Unknown
Visited the emergency room for illness	215 (43.7%)	252 (51.2%)	25 (5.0%)
Hospitalized overnight for illness	198 (40.2%)	277 (56.3%)	17 (3.5%)
Chest x-ray performed by provider	437 (88.8%)	39 (7.9%)	16 (3.3%)
Provider informed patient of pneumonia	223 (45.3%)	243 (49.4%)	26 (5.3%)
Patient knew of diagnosis before contacted by ADHS	393 (79.9%)	66 (13.4%)	33 (6.7%)
Patient asked provider to test for valley fever	78 (15.9%)	394 (80.1%)	20 (4.1%)
Provider prescribed antibiotic for illness	287 (58.3%)	141 (28.7%)	64 (13.0%)
Provider prescribed antifungal for illness	290 (58.9%)	176 (35.8%)	26 (5.3%)

Graph 5.
Number of Times Valley Fever Cases Visited a Healthcare Provider over the Course of Illness



Impact of Valley Fever and Exposures:

Individuals reported that the average length of their symptoms was 181 days (median = 108) (Table 6). However, 55% of the patients had not yet recovered from their symptoms of valley fever at the time of the interview. Of those that have not yet recovered, the average length of symptom duration was 259 days (median = 148). 46% of the cases interviewed had a paid job or business and 13% were attending school when their illnesses began. Of those who had jobs, 74% missed work due to their illnesses, and 62% of those who were attending school missed school due to their illnesses. 74% of the people interviewed said that their illnesses prevented them from doing their usual daily activities. On average, the amount of time missed from performing daily activities was three months (90 days). 51% said they were exposed to dust through their work or daily activities. Most of the cases (73%) said that they spent at least 2 hours a week outdoors (Table 7). 56% of people diagnosed with valley fever said that they lived within one mile of construction.

Table 6.
Symptom Duration and Number of Days Lost for Valley Fever Cases

Impact of Valley Fever	n	Mean	Median
Symptom duration (days) for those who recovered	167	63.9	42
Symptom duration (days) for those not yet recovered	250	258.7	148
Symptom duration (days) for both recovered and not yet recovered	417	180.7	108
Number of days missed from work	159	30.9	14
Number of days missed from school	37	16.4	9
Number of days missed from daily activities	375	89.9	45

Table 7.
Length of Time Spent Outdoors for Valley Fever Cases

Length of Time/Week	Count (n=492)
<2 hrs	50 (10.1)
2-20 hrs	244 (49.6%)
20-40 hrs	77 (15.7%)
>40 hrs	38 (7.7%)
Unknown	83 (16.9%)

Table 8.
Dust Exposures for Valley Fever Cases

Exposed	Count (n=284)
Constantly	52 (18.3%)
Intermittently/Sometimes	179 (63.0%)
Rarely	53 (18.7%)

Table 9.
Years Lived in Arizona & Average Age of Cases Interviewed

Demographics	n	Mean	Median
Number of years lived in Arizona	448	16.4	12
Age of cases interviewed	492	52.3	54

Demographics and Valley Fever Awareness:

53% of patients interviewed were male. 57% had a history of smoking. 18% had malignant disease, cancer, HIV/AIDS or transplant as an underlying medical condition present at time of diagnosis. Although the average number of years lived in Arizona at the time of diagnosis was 16 years (Table 9), 40% lived in Arizona for less than 10 years (Graph 6). Our data suggest that those who are newer to the Arizona area are more likely to be reported with valley fever. However, many of our cases lived 10 years or longer in Arizona (Graph 6) indicating that other factors may be important in becoming infected with the *Coccidioides* fungus. Table 9 shows that the average age of the cases interviewed was 52 years old, which is comparable to the average age of reported cases in 2007 (51 years old).

Graph 6.
Length of Time that Valley Fever Cases Lived in Arizona Prior to Diagnosis

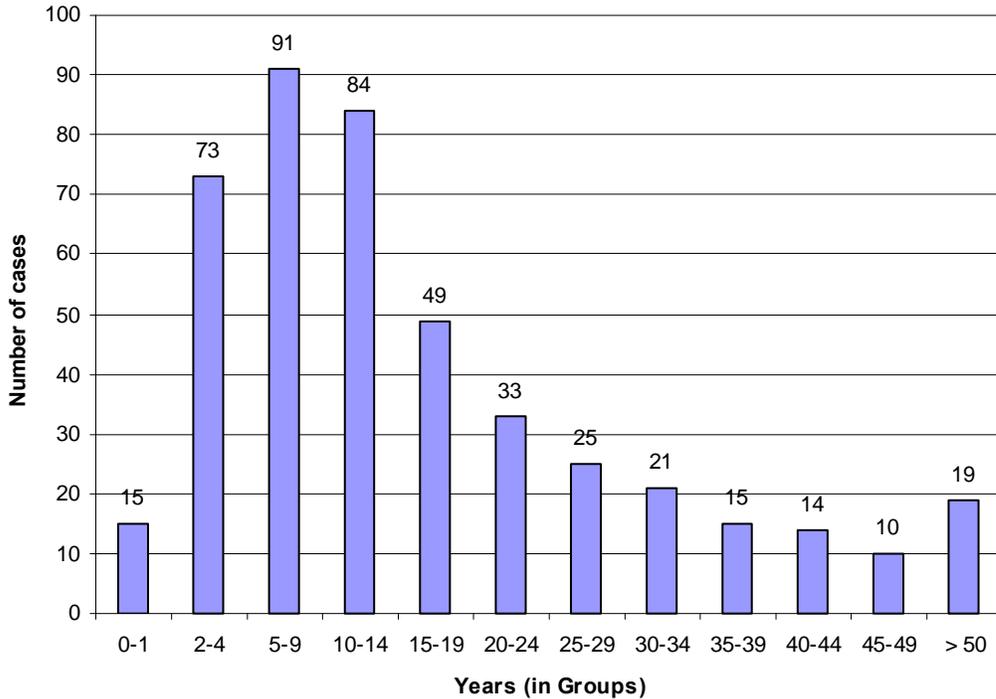


Table 10.
Race and Ethnicity of Valley Fever Cases compared to State Demographics

Race	Cases Interviewed (n=492)	Reported Cases in 2007 (n=1726)*	2007 Demo** (n=6,432,007)
American Indian/Alaska Native	11 (2.2%)	95 (5.5%)	337,764 (5.3%)
Asian/Hawaiian/ Pacific Island	21 (4.3%)	52 (3.0%)	169,780 (2.6%)
Black/African-American	36 (7.3%)	136 (7.9%)	253,477 (3.9%)
White	384 (78.0%)	1443 (83.6%)	3,872,764 (60.2%***)
Other	29 (5.9%)	—	—
Unknown	11 (2.2%)	—	—

Ethnicity	Cases Interviewed (n=492)	Reported Cases in 2007 (n=4334)*	2007 Demo (n=6,432,007)
Hispanic	63 (12.8%)	277 (6.4%)	1,798,222 (28.0%)
Not Hispanic	418 (85.0%)	872 (20.1%)	4,633,785 (72.0%)
Unknown	11 (2.2%)	3185 (73.5%)	—

In Table 10, we see that only 2% of cases interviewed during our enhanced surveillance were American Indians compared to the 5% incidence of American Indian valley fever cases. This may suggest the need to communicate with Indian Health Services and other related agencies to identify and interview more American Indians. 90% of the people interviewed had health insurance when they were seeking medical treatment for their illnesses whereas 82% of the Arizonan population is insured (U.S. 2000 Census Data). 65% of the cases said they knew about valley fever before they were diagnosed. Of the people who had previous knowledge about valley fever, only 5% learned about valley fever from their healthcare providers. At the time of the interview, 19% of cases did not know how the disease is contracted.

*Number of cases with race or ethnicity reported to state
 **Arizona Vital Statistics uses five categories for race/ethnicity: American Indian or Alaska Native, Asian or Pacific Islander, Black or African-American, White non-Hispanic and Hispanic or Latino ethnicity. Demo = demographics
 ***For 2007 state demographics, white means white non-Hispanic.

Further analysis will be done as we complete more interviews and receive more reports.

Summary:

For the year 2007, a total of 4832 valley fever (coccidioidomycosis) cases were reported from across all fifteen counties in Arizona. For the year-to-date 2008, 2201 valley fever cases have been reported to the state: 436 cases for the month of January, 410 cases for February, 308 cases for March, 334 cases for April, 394 cases for May, and 319 cases for June.

Valley Fever Activity by County:

Map 1 and Table 1 show that the highest rates of valley fever occur in the counties of Maricopa, Pinal, and Pima. However, Map 2 and Table 1 show rising rates of valley fever in La Paz and Graham counties.

Map 1. Valley Fever Incidence, 2006

Map 2. Valley Fever Incidence, 2007

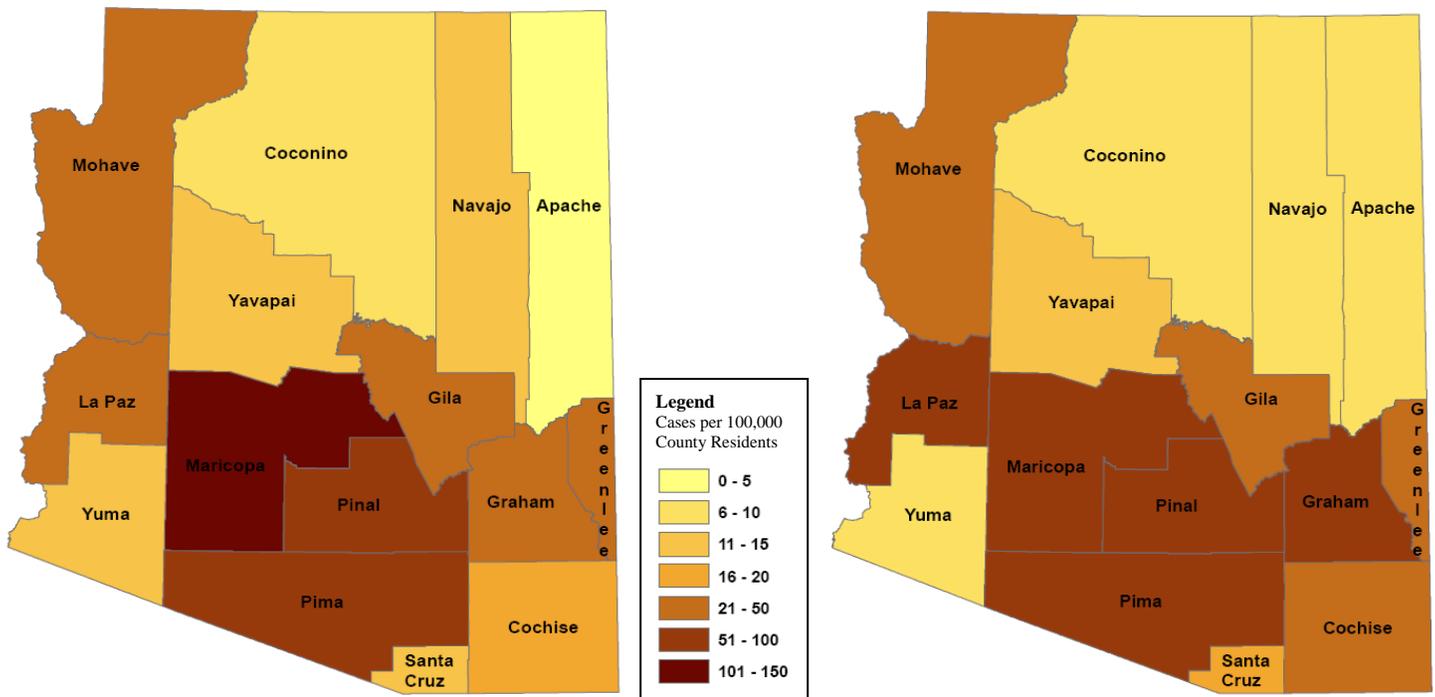
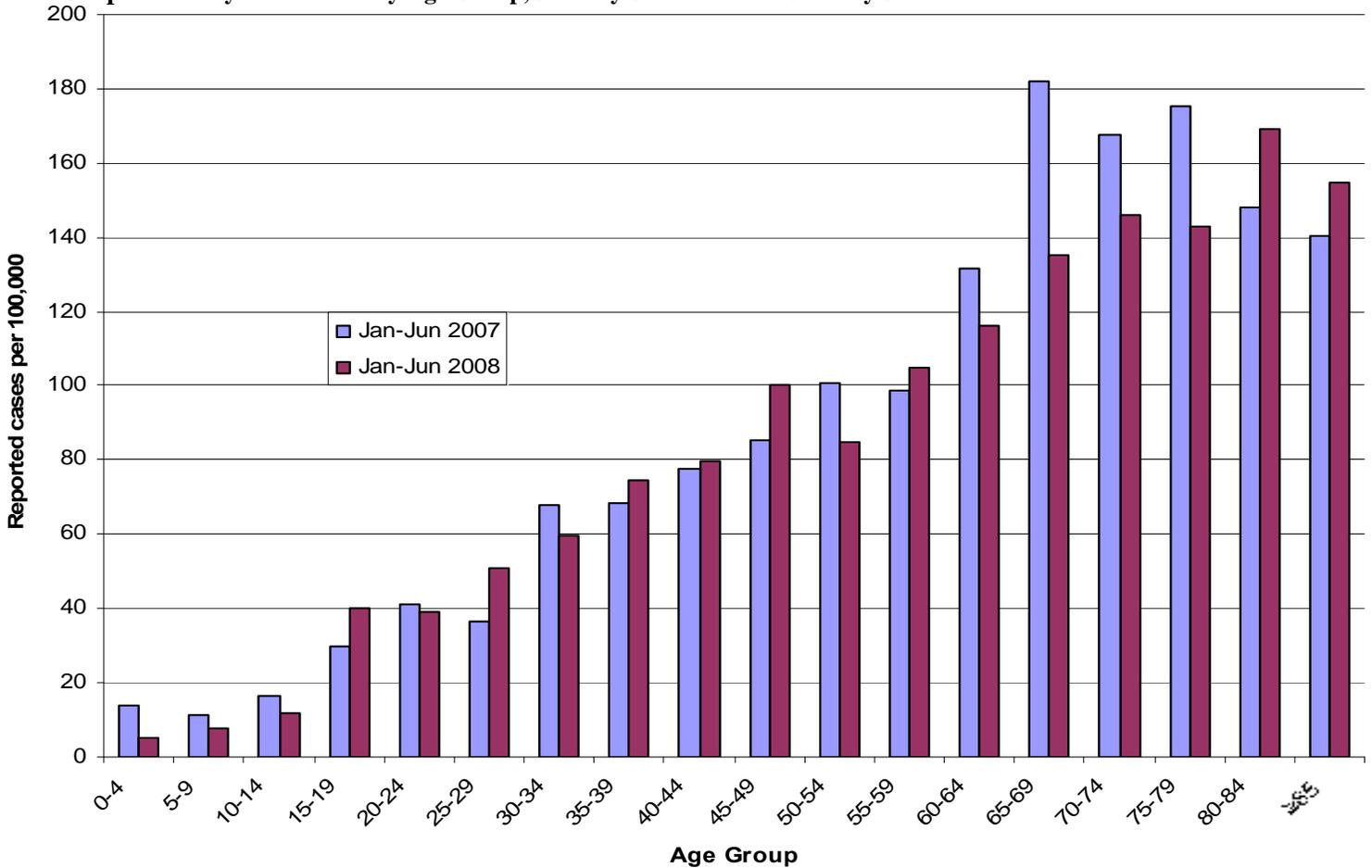


Table 1. Valley Fever Cases by County

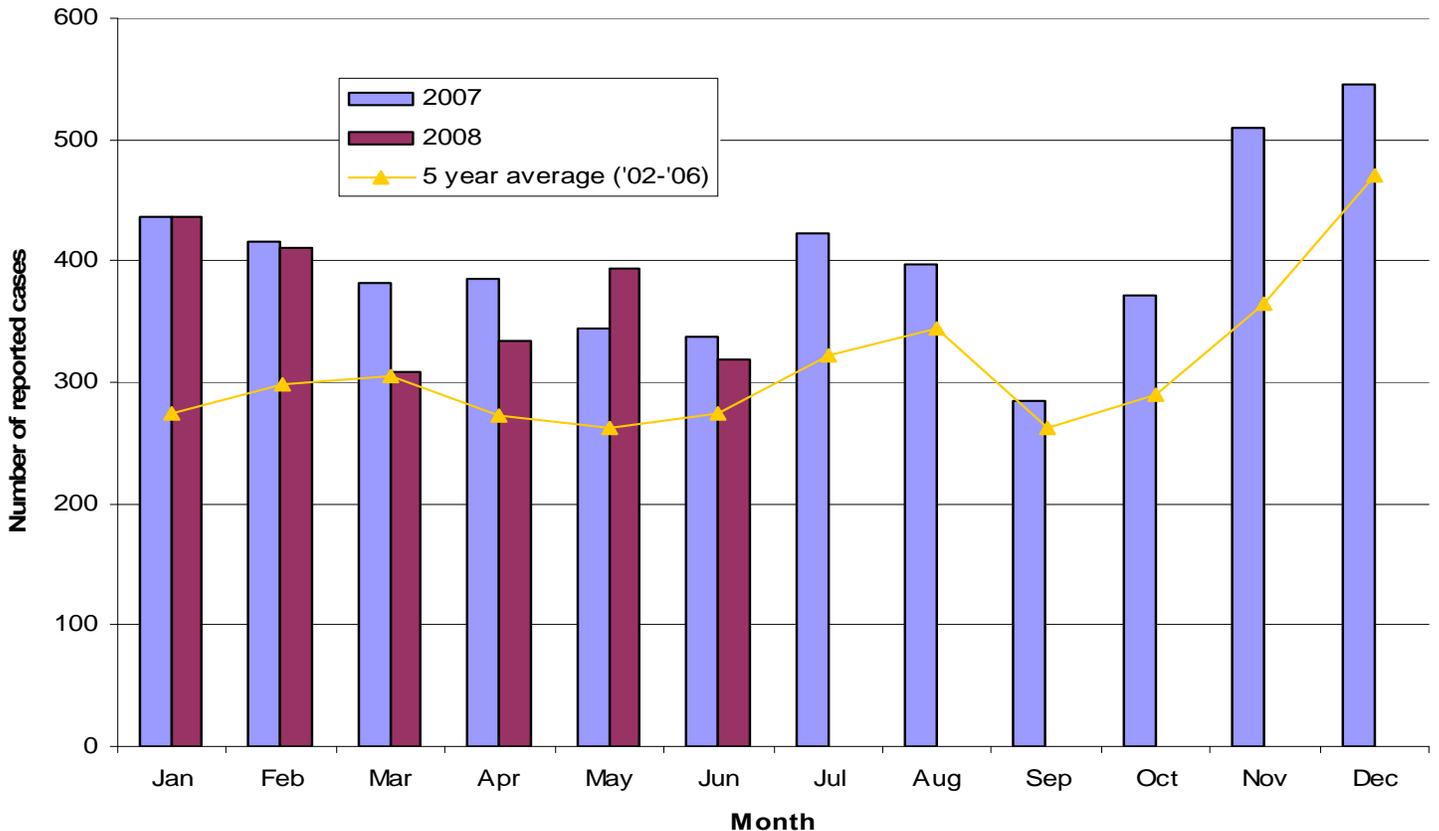
COUNTY	YEAR 2006		YEAR 2007	
	Cases per 100,000 Residents	Total cases	Cases per 100,000 Residents	Total cases
MARICOPA	112	4,209	89	3,459
PIMA	91	897	90	904
PINAL	83	225	87	256
LA PAZ	47	10	69	15
GRAHAM	42	15	66	24
GILA	27	15	27	15
MOHAVE	25	49	25	50
GREENLEE	24	2	24	2
COCHISE	16	21	23	32
YUMA	14	27	6	13
YAVAPAI	14	29	12	26
NAVAJO	13	15	10	11
SANTA CRUZ	13	6	15	7
COCONINO	8	11	10	13
APACHE	5	4	7	5

Demographics of Valley Fever Cases:

Graph 1. Valley Fever Rates by Age Group, January-June 2007 and January-June 2008



Graph 2. Reported Valley Fever Cases by Month, 2002-YTD 2008



When comparing the rates of valley fever by age group (see Graph 1), we see that the rates are highest among people who are 65 years old or older. The average age of valley fever cases for 2007 was 51 (median = 52). Graph 2 suggests that the number of reported valley fever cases peaks from October to December. We estimate that every year about 50,000 people in the United States (30,000 Arizonans) become ill with valley fever. Most of these cases experience mild flu-like symptoms and are less likely to visit healthcare providers, get tested, and be reported to the health department than people who are more severely ill.

Table 2. Valley Fever Cases with Known Race/ Ethnicity compared to Arizona Demographics

Race	Jun 2008 (n=75)	Jun 2007 (n=112)	Jan-Jun 2008 (n=639)	Jan-Jun 2007 (n=877)	2007 Demo* (n=6,432,007)
American Indian/ Alaska Native	—	5 (4.5%)	27 (4.2%)	54 (6.2%)	337,764 (5.3%)
Asian/Hawaiian/ Pacific Island	2 (2.7%)	6 (5.4%)	13 (2.0%)	30 (3.4%)	169,780 (2.6%)
Black/African-American	4 (5.3%)	11 (9.8%)	42 (6.6%)	72 (8.2%)	253,477 (3.9%)
White	69 (92.0%)	90 (80.4%)	557 (87.1%)	721 (82.2%)	3,872,764 (60.2%)**

Ethnicity	Jun 2008 (n=84)	Jun 2007 (n=307)	Jan-Jun 2008 (n=1381)	Jan-Jun 2007 (n=2066)	2007 Demo (n=6,432,007)
Hispanic	13 (15.5%)	19 (6.2%)	92 (6.7%)	132 (6.4%)	1,798,222 (28.0%)
Not Hispanic	40 (47.6%)	78 (29.2%)	323 (23.4%)	414 (20.0%)	4,633,785 (72.0%)
Unknown	31 (36.9%)	307 (74.6%)	966 (70.0%)	1520 (73.6%)	—

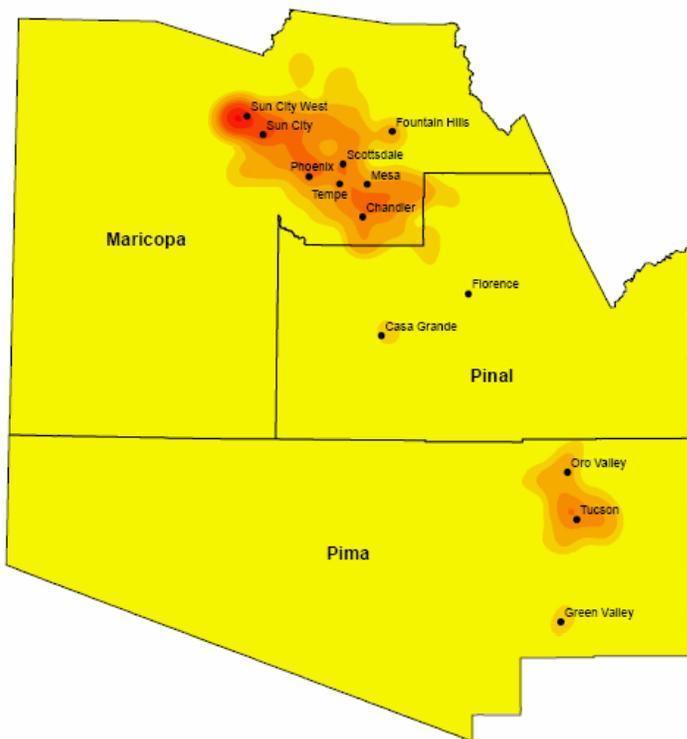
For year-to-date 2008, only 29% (639/2201) of the valley fever cases reported to the state health department contain information about race. African-Americans are more likely to be reported with valley fever as compared to the general population (Table 2).

*Arizona Vital Statistics uses five categories for race/ethnicity: American Indian/ Alaska Native, Asian/Pacific Islander, Black/African-American, White non-Hispanic and Hispanic/Latino ethnicity. Demo = demographics
 **For 2007 demographics for the state of Arizona, white means white non-Hispanic.

Areas with Valley Fever Activity:

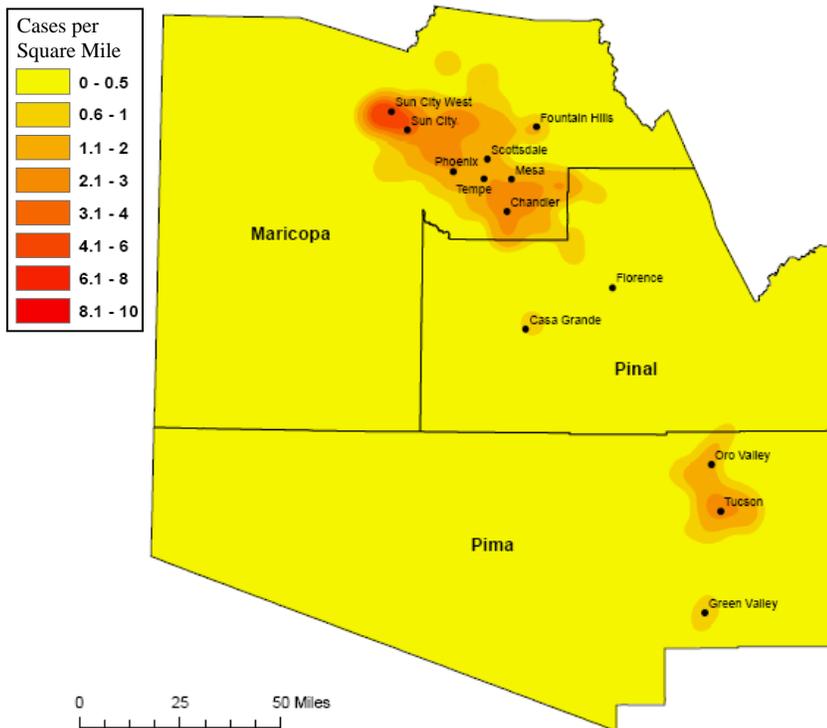
Map 3.

Density Map of Valley Fever Incidence in Maricopa, Pinal & Pima Counties, 2006



Map 4.

Density Map of Valley Fever Incidence in Maricopa, Pinal & Pima Counties, 2007



Maps 3 and 4 measure valley fever incidence per square mile for the years 2006 and 2007.

Data in this report are provisional and may change as more reports are received.