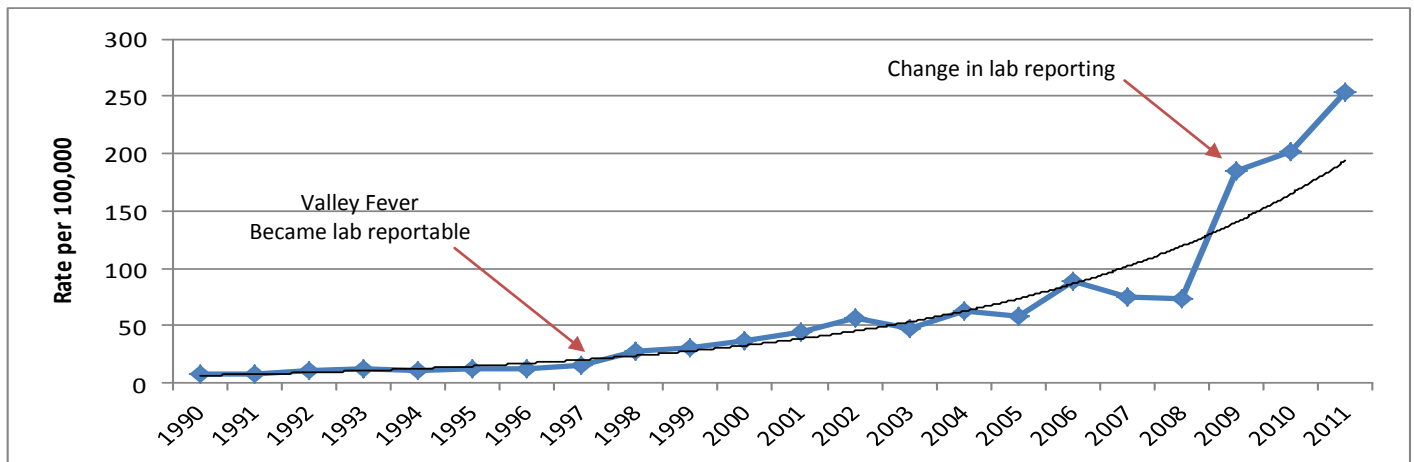


Valley fever, also known as Coccidioidomycosis, is an illness caused by a fungus that lives in the soil. When the soil gets disrupted, the fungal spores are breathed in and can cause infection. Arizona accounts for 60% of the nation’s total reported cases.

In 1997, Valley fever became lab reportable; since implementation of this mandatory requirement, reports of Valley fever have dramatically increased (Figure 1). In 2009, one of the major Valley fever testing facilities changed its reporting methods, which is the suspected cause of the apparent increase in reported Valley fever cases that has occurred since then.

**Figure 1. Rate of Arizona Valley fever cases per 100,000 population from 1990 - 2011**



**Table 1. Valley fever Cases by County for 2007– 2011, with 2010 rate**

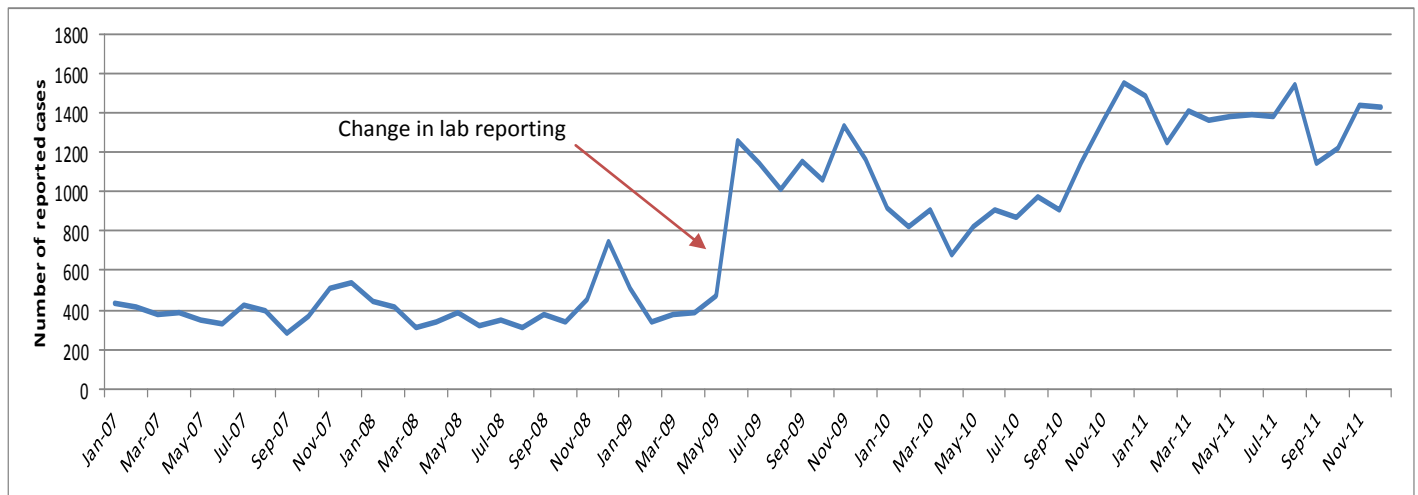
COUNTY	2007	2008	2009	2010	2011	Rate 2010*
APACHE	5	7	11	23	19	32
COCHISE	32	17	39	48	71	37
COCONINO	13	6	25	41	57	31
GILA	15	16	31	46	50	86
GRAHAM	24	12	13	24	35	64
GREENLEE	2	1	2	1	1	12
LA PAZ	15	7	21	26	45	127
MARICOPA	3450	3525	8078	9456	13405	248
MOHAVE	47	59	77	118	140	59
NAVAJO	11	11	31	34	56	32
PIMA	901	816	1320	1430	1665	146
PINAL	254	255	509	563	820	150
SANTA CRUZ	7	6	14	14	20	30
YAVAPAI	26	23	50	39	59	18
YUMA	13	7	12	21	30	11
<b>TOTAL</b>	<b>4815</b>	<b>4768</b>	<b>10233</b>	<b>11884</b>	<b>16473</b>	<b>N/A</b>

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

\*To determine the disease rate for 2010, US Census 2010 data was used.

In review of Table 1 (pg. 1): the three most populated counties, Maricopa, Pima and Pinal counties, have fairly comparable rates of reported disease. Maricopa county has the highest overall rate (248 per 100,000) of reported Valley fever disease cases for the state; of the less populated counties, La Paz county has the highest rate of reported disease (127 per 100,000).

**Figure 2. Number of Arizona Valley fever cases by month for January 2007– December 2011**



As shown in Figure 2 above, there is an apparent seasonal trend in reported cases of Valley fever: a slight increase from November to December. Valley fever’s long incubation period (7-28 days) before symptoms start, delays in seeking care for symptoms and delays in providers testing for valley fever are all reasons that make it difficult to estimate when someone got infected with Valley fever. The overall trends over time could be due to a variety of factors: an increase in susceptible populations moving to or visiting the state, and increase in construction dust exposure, and an increase in testing or reporting of Valley fever.

**Table 2. Number of Arizona Valley fever deaths by county for 2007 - 2011**

COUNTY	2007	2008	2009	2010	2011
APACHE	0	0	0	0	0
COCHISE	0	0	0	0	1
COCONINO	0	0	0	1	0
GILA	0	0	1	1	0
GRAHAM	1	0	0	0	1
GREENLEE	0	0	0	0	0
LA PAZ	1	0	1	0	0
MARICOPA	15	11	17	14	14
MOHAVE	3	3	3	5	3
NAVAJO	0	0	1	0	0
PIMA	6	4	4	7	6
PINAL	3	0	0	0	0
SANTA CRUZ	0	0	0	0	0
YAVAPAI	0	0	0	0	0
YUMA	1	0	1	1	1
<b>TOTAL</b>	<b>30</b>	<b>18</b>	<b>28</b>	<b>29</b>	<b>26</b>

Valley fever deaths seem to occur predominantly in the most populated counties (Maricopa, Pinal, Pima) as expected since these counties also have the highest case load. The year 2008 had the lowest number of deaths. Counties with no reported Valley Fever deaths since 2007: Apache, Santa Cruz and Yavapai.

Figure 3. Average number of reported Arizona Valley fever cases by age group for 2007 - 2011, with 2007 and 2010 rates

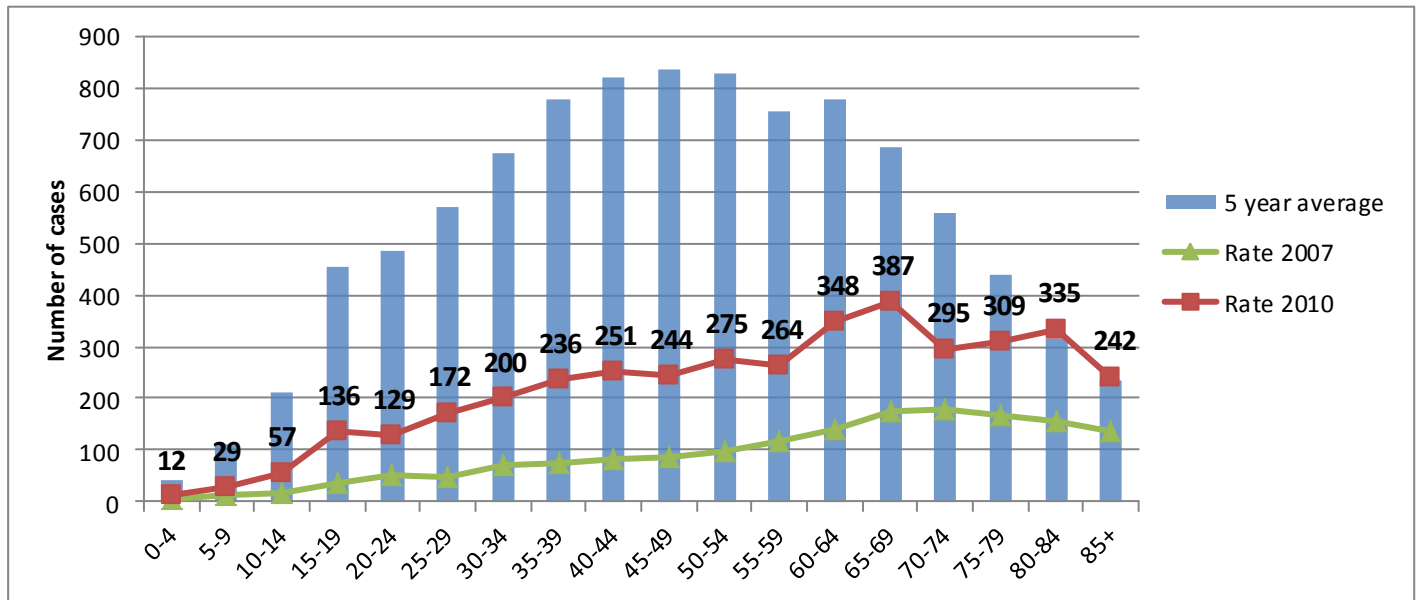


Figure 3 shows the 5 year (2007-2011) average number of reported cases by age group. The 2007 population denominators for the Arizona Department of Health Services and 2010 US Census data were used to determine rates. As demonstrated by the 2007 and 2010 rates, there is a correlation between increasing age and rate of reported Valley fever disease; with a peak in those aged 65-69. In 2007, the average age of those with Valley fever was 56; in 2011 the average age was 48. This indicates that more younger people are testing positive for Valley fever than previous years.

Figure 4 depicts the percentage of each indicated race of the reported Valley fever cases with known race. Most of the cases are white over the last 5 years, which is proportional to the race make-up for the state of Arizona; with 78% of the states population recorded as “white” according to the 2010 Census data. The percentage of missing data, as indicated above by the black line, is representative of the total number of Valley fever cases that have no race information– such high percentages of missing data (62-83%) hinder accurate race analysis.

Figure 4. Race of Arizona Valley fever cases for 2007-2011 (with total % missing data trendline)

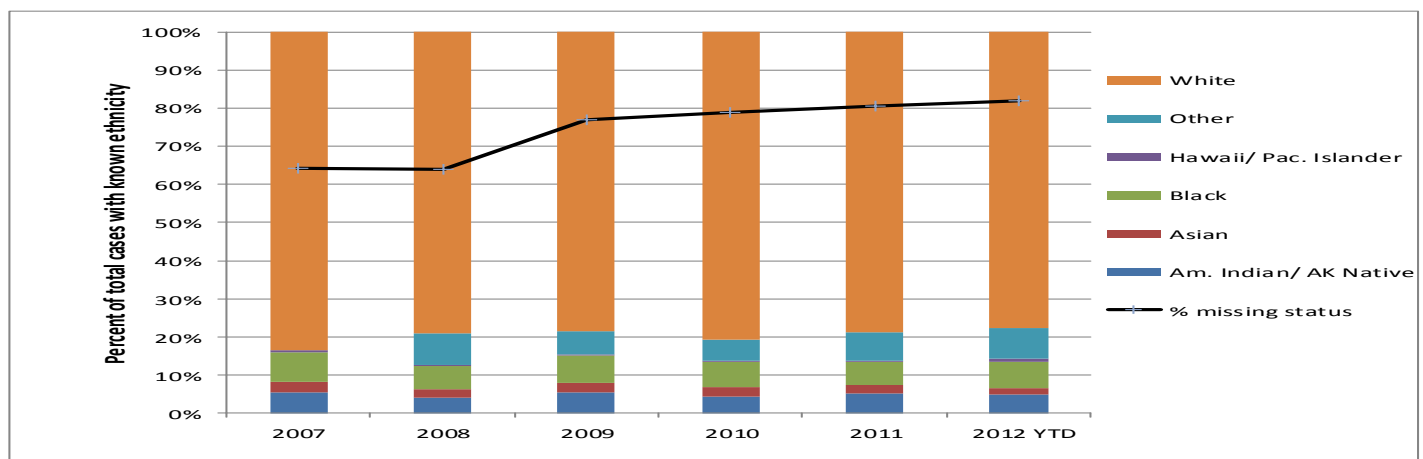
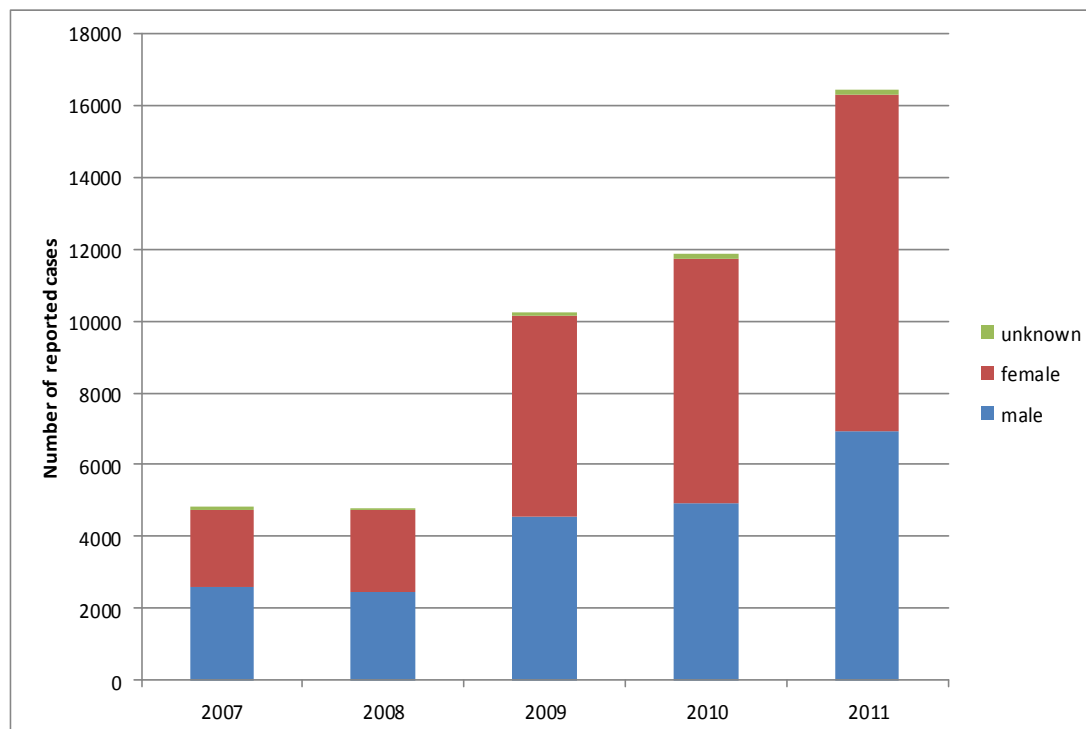


Table 3 lists reported Valley fever case race from 2007 to 2011. There is an apparent increase for all races from 2007 to 2011, which is expected considering the change in lab reporting in 2009. The amount of missing data also increases, which hopefully will be amended with provider education and collaboration. The rates of Valley fever for Hawaiian/Pacific Islanders and blacks are the highest of all races for 2007, 2010 and 2011. The rate of disease for all races increased from 2007 to 2011. (State population data for 2007 and 2010 from the US Census Bureau)

**Table 3. Race of Arizona Valley fever cases for 2007, 2010-2011, and rate per 100,000**

RACE	2007	2010	2011	RATE PER 100,000 IN 2007	RATE PER 100,000 IN 2010	RATE PER 100,000 IN 2011
AM. INDIAN/ ALASKA NATIVE	95	111	169	34	40	61
ASIAN	45	62	71	27	37	43
BLACK	135	164	193	56	68	80
HAWAIIAN/ PACIFIC ISLANDER	7	9	11	58	75	91
OTHER	0	142	234	n/a <sup>1</sup>	21	35
WHITE	1437	2034	2526	29	42	52
MISSING	3096	9362	13268			
<b>TOTAL</b>	<b>4815</b>	<b>11884</b>	<b>16472</b>	<b>N/A</b>	<b>N/A</b>	<b>N/A</b>

**Figure 5. Number of Arizona Valley fever cases by gender for 2007- 2011**

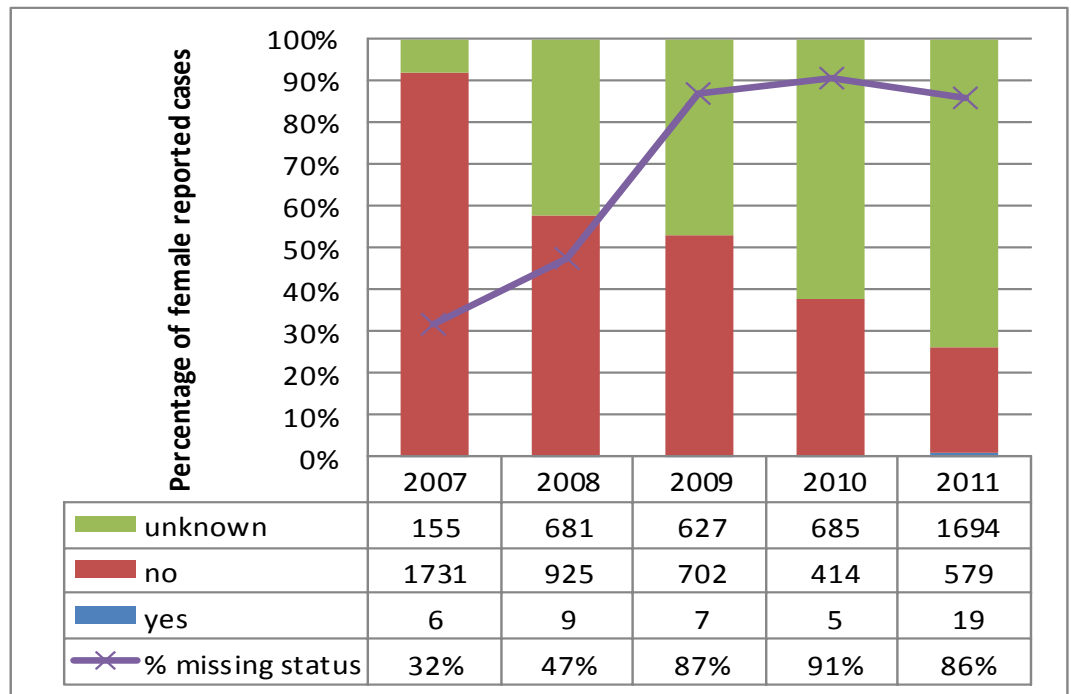


Valley fever case gender distribution appears to be shifting– with more females than males having positive lab results for Valley fever. We are currently investigating the true cause for this shift, but it may be due to a difference in gender views on health, or the change in reporting. In 2007, 54% of cases were male; in 2011 only 42% of cases were male. The percentage of missing data has remained constant at around 1% over the last 5 years.

1. For the 2007 rates, "other" was not an option for ADHS reporting.

Figure 6. Number of Arizona Valley fever cases by female pregnancy status for 2007- 2011

ADHS has found severe gaps in data when analyzing pregnancy status among Arizona Valley fever case reports. As shown in Figure 6, the percentage of missing data for pregnancy status has increased from 25% to over 90% since 2007. This will hopefully be improved through collaboration with reporting facilities. More than double the number of pregnant cases were reported in 2011 than any other year.



Laboratories and health care facilities are required to report cases of Valley fever to public health. ELR is the “electronic lab reporting.” While most reports are still received via paper, ELR have increased over the past 3 years. Figures 7 and 8 represent the major and minor report sources for Arizona Valley fever cases from 2007 to 2011. In review of Figure 7, the increase in laboratory reporting is most likely due to the change in Valley fever reporting that took place in 2009. Regular lab reporting is paper-based.

Figure 7. Number of Arizona Valley fever cases by major report source for 2007- 2011

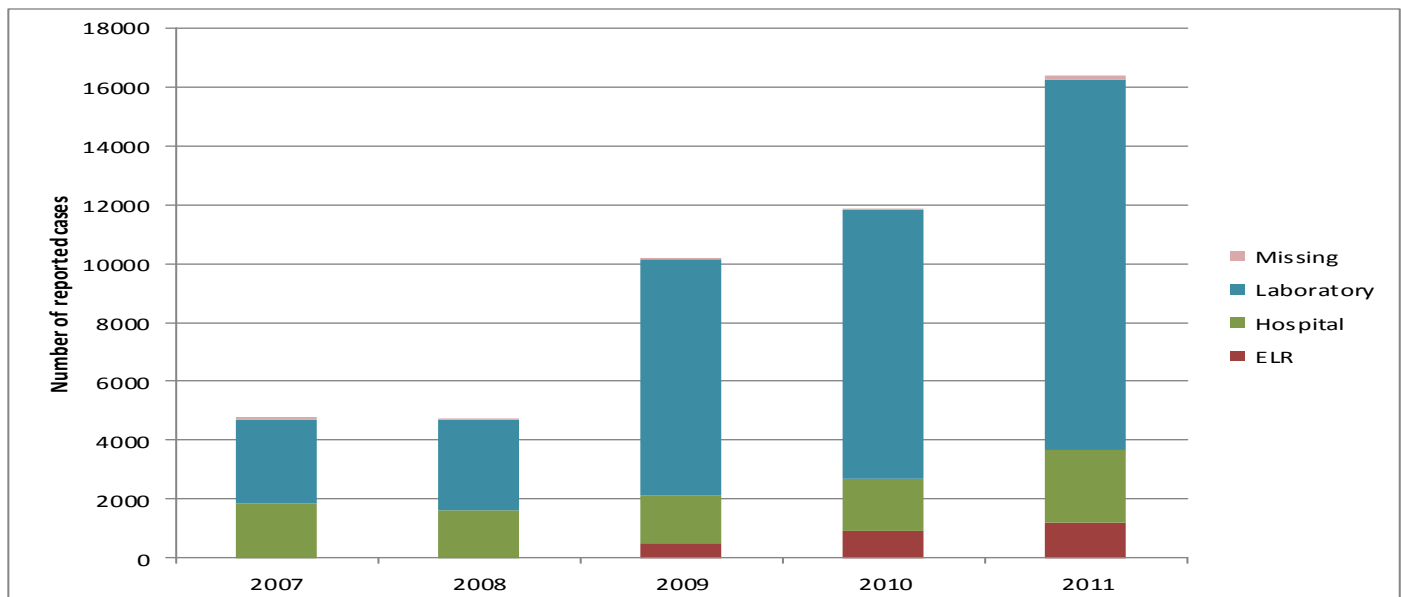


Figure 8. Number of Arizona Valley fever cases by minor report source for 2007- 2011

