



COCCIDIOIDOMYCOSIS

CRUDE DATA	
Number of Cases	809
Annual Incidence ^a	
LA County	8.43
California ^b	9.96
United States ^b	3.20
Age at Diagnosis	
Mean	53
Median	53
Range	1–96 years

^aCases per 100,000 population

^bCalculated from: CDC. *Notice to Readers: Final 2016 Reports of Nationally Notifiable Infectious Diseases and Conditions Weekly* / January 6, 2018 / 65(52). Available at: https://www.cdc.gov/mmwr/volumes/65/wr/mm6552md.htm?s_cid=mm6552md_w

DESCRIPTION

Coccidioidomycosis, or Valley Fever, is a fungal disease transmitted through the inhalation of *Coccidioides immitis* spores that are carried in dust. Environmental conditions conducive to an increased occurrence of coccidioidomycosis include arid to semi-arid regions, dust storms, hot summers, warm winters, and sandy, alkaline soil. The fungus is endemic in southwestern US (including Southern California) and parts of Mexico and South America. Most infected people exhibit no symptoms or have mild respiratory illness, but a few individuals develop severe illness such as pneumonia, meningitis, or dissemination of the fungus to other parts of the body. Among the wide range of clinical presentations, only the most severe cases are usually diagnosed and reported to the health department. Blacks, Filipinos, pregnant women, young (<5 years old), elderly, and immunocompromised individuals are at higher risk for severe disease. Currently, no safe and effective vaccine or drug to prevent coccidioidomycosis exists. Prevention lies mainly in dust avoidance and control (e.g., planting grass

in dusty areas, putting oil on roadways, wetting down soil, air conditioning homes, wearing masks or respirators). Other options may be to warn people at high risk for severe disease not to travel to endemic areas when conditions are most dangerous for exposure.

Recovery from the disease confers lifelong immunity to reinfection, highlighting the importance of developing a vaccine for prevention of symptomatic or serious forms of the disease. Increasing exposure and risk associated with construction, a growing naïve population in endemic areas, and antifungal treatments that have side effects and are not uniformly effective validate the need for prevention efforts.

2016 TRENDS AND HIGHLIGHTS

- The overall LAC incidence rate for coccidioidomycosis has continued to increase over the last ten years and has tripled since 2010.
- Those >65 years old experienced the most cases (25%) with an incidence rate of 16.5 cases per 100,000 (Figure 2).
- Males represented 66.9% of cases; females 33.1% (Figure 3).
- Incidence rates were the highest among Blacks at 14.3 per 100,000, which has almost tripled from 5.3 per 100,000 since 2014 (Figure 4).
- SPA 1 has consistently reported the highest incidence of coccidioidomycosis in LAC. In 2015, the incidence rate was 53.8 per 100,000, which has increased from last year's rate of 42.6 per 100,000 (Figure 5).
- The highest number of cases (n=88, 35.4%) occurred in October. The number of cases in July peaked (n=46) as compared to the previous 5-year average. A possible reason for the increase in cases during the fall season, is the addition of 14 laboratories that began reporting electronically between late August and early October (Figure 6).



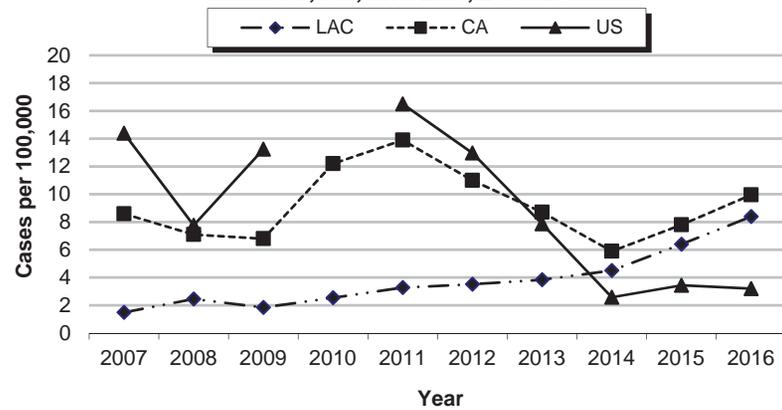
**Reported Coccidioidomycosis Cases and Rates* per 100,000 by Age Group, Race/Ethnicity, and SPA
LAC, 2012–2016**

	2012 (N=327)			2013 (N=362)			2014 (N=426)			2015 (N=613)			2016 (N=809)		
	No.	(%)	Rate/ 100,000												
Age Group															
<1	0	-	-	1	0.3	0.8	0	-	-	0	-	-	0	-	-
1-4	3	0.9	0.6	0	-	0.6	1	0.2	0.2	4	0.7	0.8	1	0.12	0.2
5-14	3	0.9	0.3	6	1.7	0.5	4	0.9	0.3	7	1.1	0.6	12	1.48	1.0
15-34	68	20.8	2.5	67	18.5	2.4	68	16.0	2.4	96	15.7	3.4	120	14.8	4.3
35-44	53	16.2	4.0	55	15.2	4.1	61	14.3	4.6	98	16.0	7.4	124	15.3	9.4
45-54	84	25.7	6.5	86	23.8	6.7	91	21.4	7.0	127	20.7	9.6	167	20.6	12.6
55-64	46	14.1	4.5	73	20.2	7.1	93	21.8	8.8	109	17.8	9.9	182	22.5	16.1
65+	70	21.4	6.3	74	20.4	6.7	108	25.4	9.5	172	28.1	14.4	203	25	16.5
Unknown	0	-	-	0	-	-	0	-	-	0	-	-	0	-	-
Race/Ethnicity															
Asian	26	8.0	2.0	30	8.3	2.2	33	7.7	2.4	47	7.7	3.4	85	10.5	6.1
Black	46	14.1	5.9	50	13.8	6.4	42	9.9	5.3	111	18.1	14.1	112	13.8	14.3
Hispanic	133	40.7	2.9	104	28.7	2.3	139	32.6	3.0	201	32.8	4.3	265	32.8	5.6
White	121	37.0	4.6	132	36.5	5.0	175	40.8	6.6	217	35.4	8.1	288	35.4	10.8
Other	0	-	-	5	1.4	-	3	0.7	-	13	2.1	-	28	2.1	-
Unknown	1	0.3	-	41	11.3	-	34	8.0	-	24	3.9	-	31	3.9	-
SPA															
1	74	22.6	19.1	74	20.4	18.9	103	24.2	26.2	169	27.6	42.6	211	26.0	53.8
2	72	22.0	3.4	83	22.9	3.8	125	29.3	5.7	157	25.6	7.0	232	28.7	10.4
3	25	7.6	1.5	38	10.5	2.3	44	10.3	2.7	36	5.9	2.2	60	7.4	3.6
4	53	16.2	4.7	46	12.7	4.0	30	7.0	2.6	57	9.3	4.9	59	7.3	5.0
5	18	5.5	2.8	22	6.1	3.4	21	4.9	3.2	25	4.1	3.8	31	3.8	4.7
6	37	11.3	3.6	38	10.5	3.7	42	9.9	4.1	57	9.3	5.4	70	8.7	6.5
7	34	10.4	2.6	29	8.0	2.2	30	7.0	2.3	64	10.4	4.8	73	9.0	5.6
8	14	4.3	1.3	25	6.9	2.3	29	6.8	2.7	44	7.2	4.0	67	8.3	6.1
Unknown	0	-	-	7	1.9	-	2	0.5	-	4	0.7	-	4	0.5	-

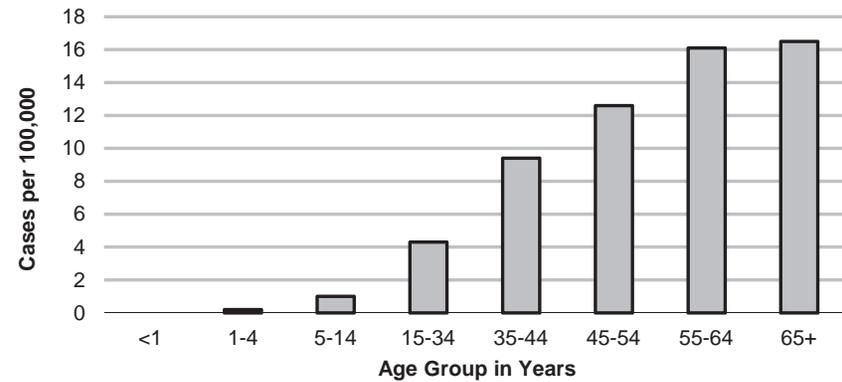
*Rates calculated based on less than 19 cases or events are considered unreliable.



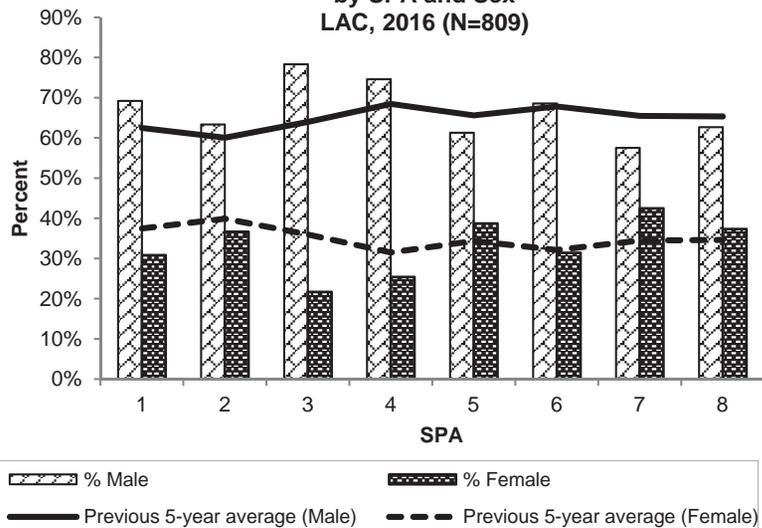
**Figure 1. Incidence Rates of Coccidioidomycosis
US*, CA, and LAC, 2007-2016**



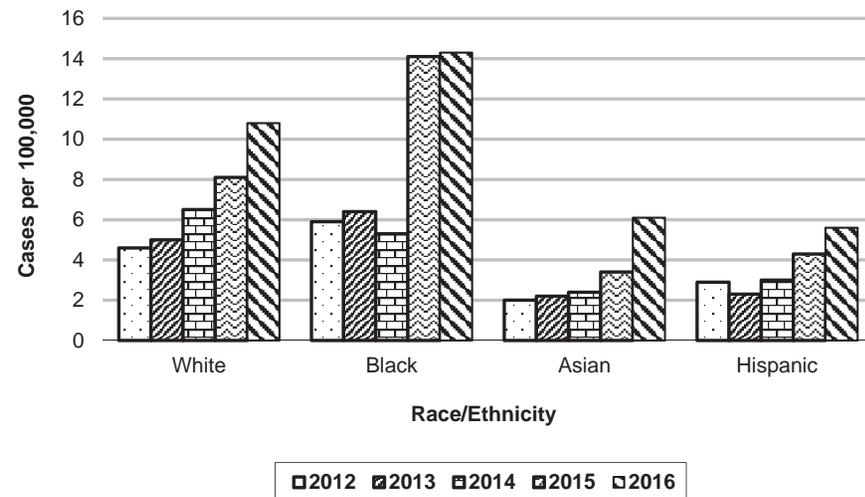
**Figure 2. Incidence Rates of Coccidioidomycosis by Age
Group LAC, 2016 (N=809)**



**Figure 3. Percent of Reported Coccidioidomycosis Cases
by SPA and Sex
LAC, 2016 (N=809)**

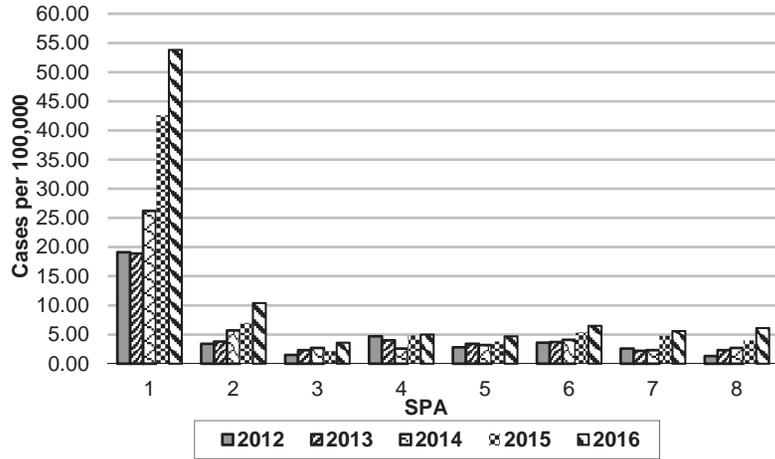


**Figure 4. Coccidioidomycosis Incidence Rates by
Race/Ethnicity LAC, 2012-2016**

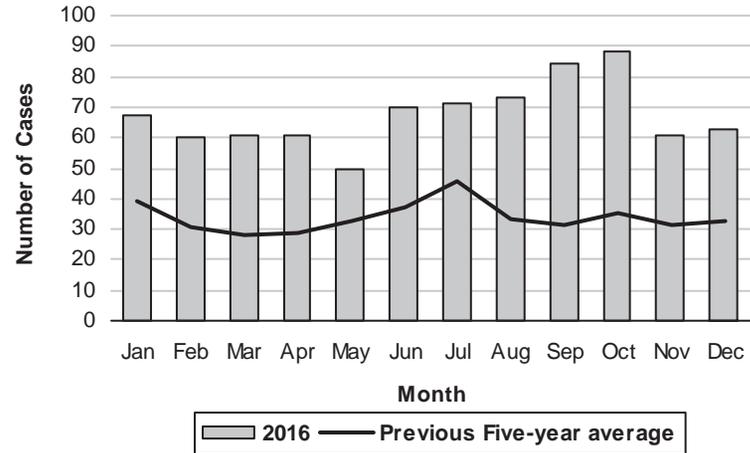




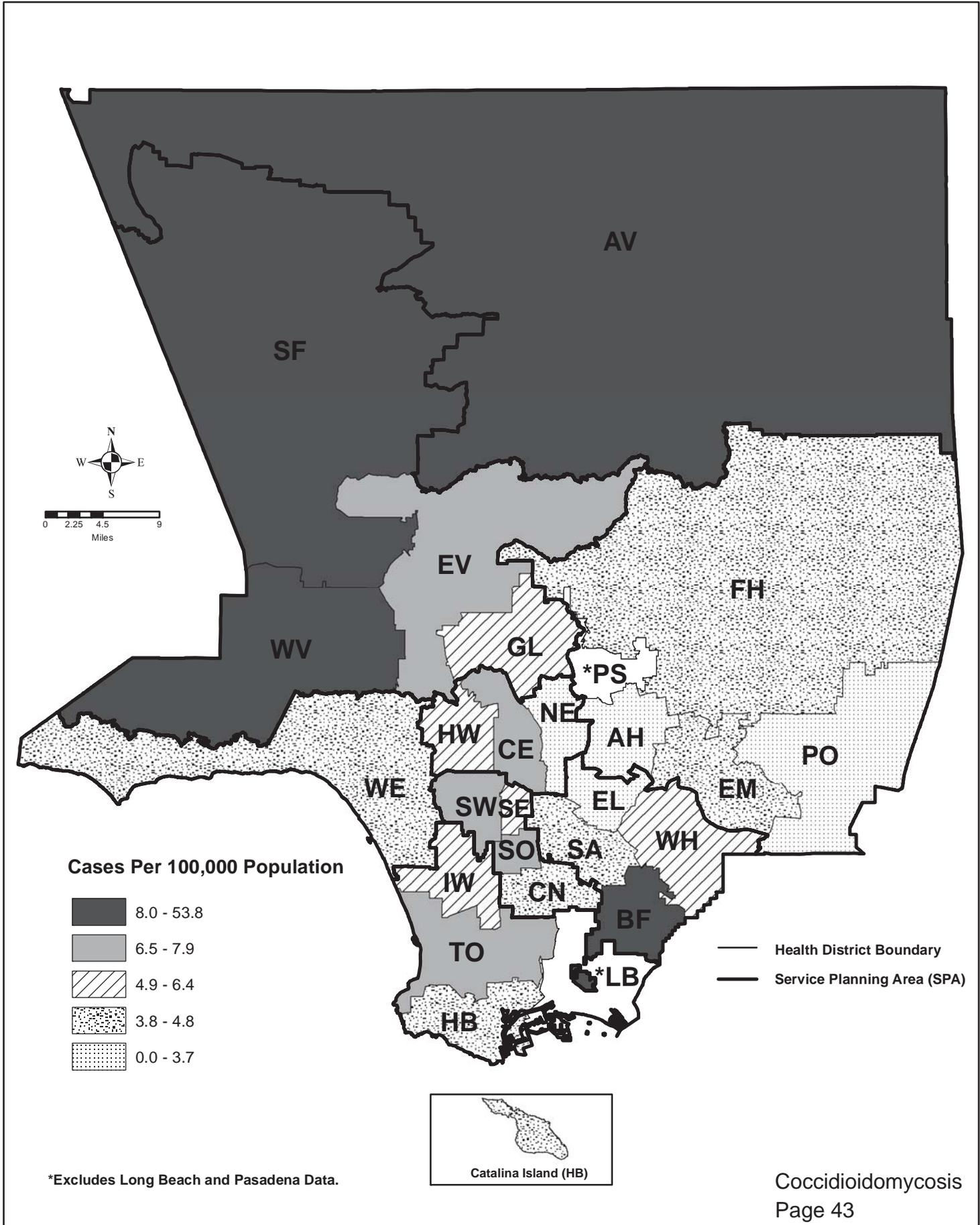
**Figure 5. Incidence Rates of Coccidioidomycosis by SPA
LAC, 2012-2016**



**Figure 6. Reported Coccidioidomycosis Cases
by Month of Onset, LAC, 2016 (N=809)**



Map 3. Coccidioidomycosis Rates by Health District, Los Angeles County, 2016*



*Excludes Long Beach and Pasadena Data.



COCCIDIOIDOMYCOSIS

CRUDE DATA	
Number of Cases	613
Annual Incidence ^a	
LA County	6.40
California ^b	7.80
United States ^b	3.44
Age at Diagnosis	
Mean	52
Median	52
Range	1–99 years

^aCases per 100,000 population

^bCalculated from: CDC. *Notice to Readers: Final 2015 Reports of Nationally Notifiable Infectious Diseases and Conditions Weekly* / November 25, 2016 / 65(46):1306–1321. Available at:

www.cdc.gov/mmwr/volumes/65/wr/mm6546a9.htm

DESCRIPTION

Coccidioidomycosis, also called Valley Fever, is a fungal disease transmitted through the inhalation of *Coccidioides immitis* spores that are carried in dust. Environmental conditions conducive to an increased occurrence of coccidioidomycosis include arid to semi-arid regions, dust storms, hot summers, warm winters, and sandy, alkaline soil. The fungus is endemic in the southwestern US (including Southern California) and parts of Mexico and South America. Most infected people exhibit no symptoms or have mild respiratory illness, but a few individuals develop severe illness such as pneumonia, meningitis, or dissemination to other parts of the body. Among the wide range of clinical presentations, only the most severe cases are usually diagnosed and reported to the health department. Blacks, Filipinos, pregnant women, young (age <5 years), elderly, and immunocompromised individuals are at higher risk for severe disease. Currently, no safe and effective vaccine or drug to prevent coccidioidomycosis exists. Prevention lies mainly in dust avoidance and control (e.g., planting grass in dusty areas, putting oil on roadways, wetting down soil, air conditioning homes, wearing masks or respirators). Other options may be to warn people

at high risk for severe disease not to travel to endemic areas when conditions are most dangerous for exposure.

Recovery from the disease confers lifelong immunity to reinfection, providing the rationale for development of a vaccine for prevention of symptomatic or serious forms of the disease. Increasing exposure and risk associated with construction, a growing naïve population in the endemic area, and antifungal treatments that have side effects and are not uniformly effective validate the need for prevention efforts.

2015 TRENDS AND HIGHLIGHTS

- The overall LAC incidence rate for coccidioidomycosis has continued to increase over the last ten years, and has tripled since 2010.
- No US data were available in year 2010 (Figure 1).
- Those over the age of 65 experienced the most cases (28%), with an incidence rate of 14.4 cases per 100,000 (Figure 2).
- Males represented 64% of cases; females 33%.
- Incidence rates were the highest among Blacks at 14.1 per 100,000, which has almost tripled from 5.3 per 100,000 since 2014 (Figure 4).
- SPA 1 has consistently reported the highest incidence rate of coccidioidomycosis in LAC; in 2015, the incidence rate was 42.6 per 100,000, which has doubled from last year's rate of 26.2 per 100,000 (Figure 5).
- July had the most cases at 14% of the total cases (n=83). However, there are no marked seasonal differences in rates based on data from the past 5 years, other than a modest decrease in late-winter and early-spring (Figure 6).



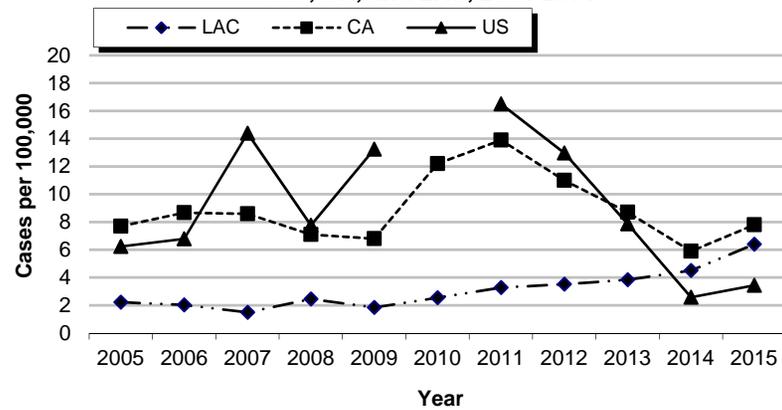
**Reported Coccidioidomycosis Cases and Rates* per 100,000 by Age Group, Race/Ethnicity, and SPA
LAC, 2011–2015**

	2011 (N=304)			2012 (N=327)			2013 (N=362)			2014 (N=426)			2015 (N=613)		
	No.	(%)	Rate/ 100,000												
Age Group															
<1	0	-	-	0	-	-	1	0.3	0.8	0	-	-	0	-	-
1-4	1	0.3	0.2	3	0.9	0.6	0	-	0.6	1	0.2	0.2	4	0.7	0.8
5-14	3	1.0	0.2	3	0.9	0.3	6	1.7	0.5	4	0.9	0.3	7	1.1	0.6
15-34	62	20.4	2.1	68	20.8	2.5	67	18.5	2.4	68	16.0	2.4	96	15.7	3.4
35-44	35	11.5	2.4	53	16.2	4.0	55	15.2	4.1	61	14.3	4.6	98	16.0	7.4
45-54	67	22.0	5.0	84	25.7	6.5	86	23.8	6.7	91	21.4	7.0	127	20.7	9.6
55-64	54	17.8	5.6	46	14.1	4.5	73	20.2	7.1	93	21.8	8.8	109	17.8	9.9
65+	82	27.0	7.7	70	21.4	6.3	74	20.4	6.7	108	25.4	9.5	172	28.1	14.4
Unknown	0	-	-	0	-	-	0	-	-	0	-	-	0	-	-
Race/Ethnicity															
Asian	23	7.6	1.7	26	8.0	2.0	30	8.3	2.2	33	7.7	2.4	47	7.7	3.4
Black	48	15.8	5.6	46	14.1	5.9	50	13.8	6.4	42	9.9	5.3	111	18.1	14.1
Hispanic	94	30.9	2.0	133	40.7	2.9	104	28.7	2.3	139	32.6	3.0	201	32.8	4.3
White	134	44.1	4.7	121	37.0	4.6	132	36.5	5.0	175	40.8	6.6	217	35.4	8.1
Other	1	0.3	-	0	-	-	5	1.4	-	3	0.7	-	13	2.1	-
Unknown	4	1.3	-	1	0.3	-	41	11.3	-	34	8.0	-	24	3.9	-
SPA															
1	93	30.6	24.9	74	22.6	19.1	74	20.4	18.9	103	24.2	26.2	169	27.6	42.6
2	86	28.3	3.9	72	22.0	3.4	83	22.9	3.8	125	29.3	5.7	157	25.6	7.0
3	13	4.3	0.7	25	7.6	1.5	38	10.5	2.3	44	10.3	2.7	36	5.9	2.2
4	26	8.6	2.1	53	16.2	4.7	46	12.7	4.0	30	7.0	2.6	57	9.3	4.9
5	17	5.6	2.6	18	5.5	2.8	22	6.1	3.4	21	4.9	3.2	25	4.1	3.8
6	29	9.5	2.7	37	11.3	3.6	38	10.5	3.7	42	9.9	4.1	57	9.3	5.4
7	20	6.6	1.5	34	10.4	2.6	29	8.0	2.2	30	7.0	2.3	64	10.4	4.8
8	18	5.9	1.6	14	4.3	1.3	25	6.9	2.3	29	6.8	2.7	44	7.2	4.0
Unknown	2	0.7	-	0	-	-	7	1.9	-	2	0.5	-	4	0.7	-

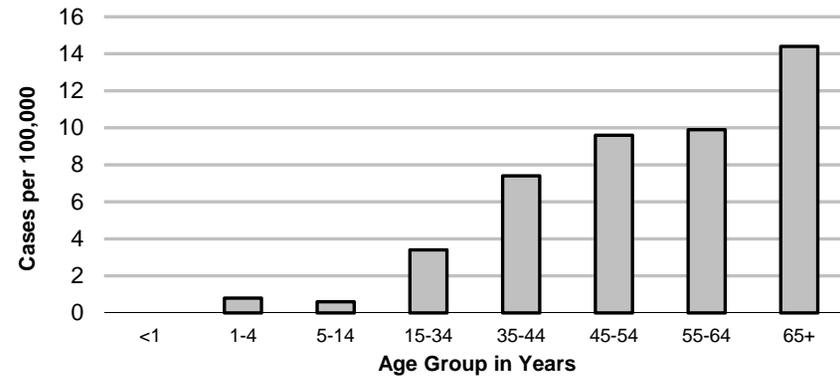
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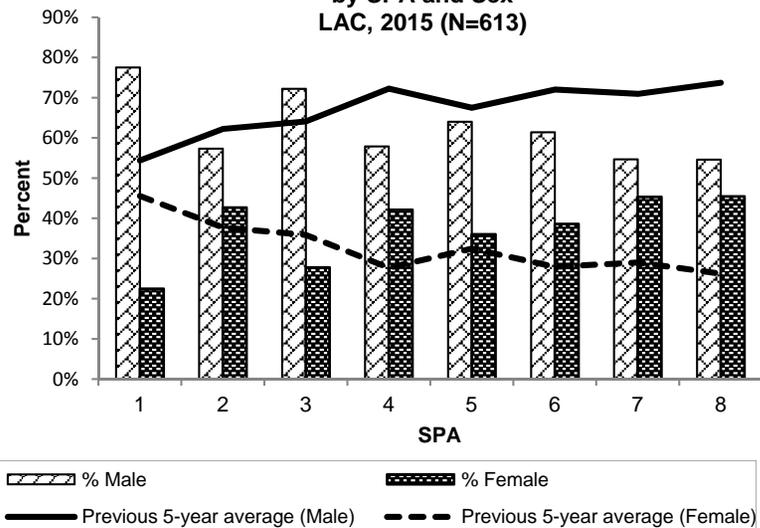
**Figure 1. Incidence Rates of Coccidioidomycosis
US*, CA, and LAC, 2004-2014**



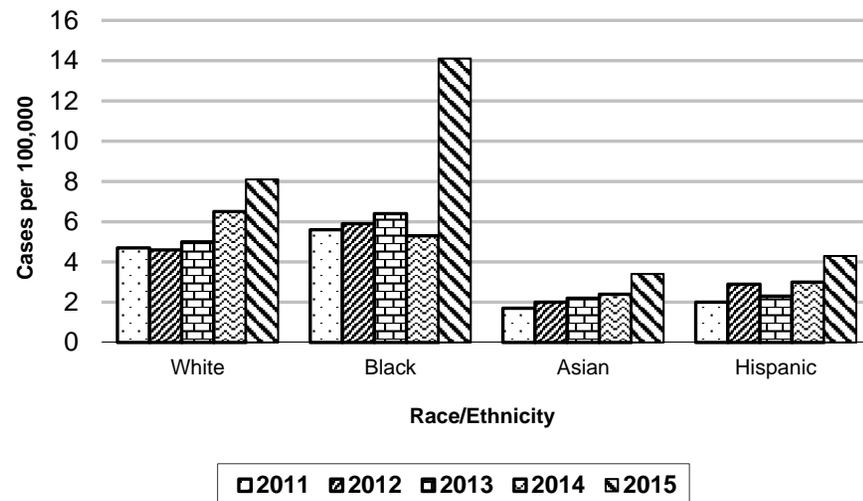
**Figure 2. Incidence Rates of Coccidioidomycosis by Age
Group LAC, 2015 (N=613)**



**Figure 3. Percent of Reported Coccidioidomycosis Cases
by SPA and Sex
LAC, 2015 (N=613)**

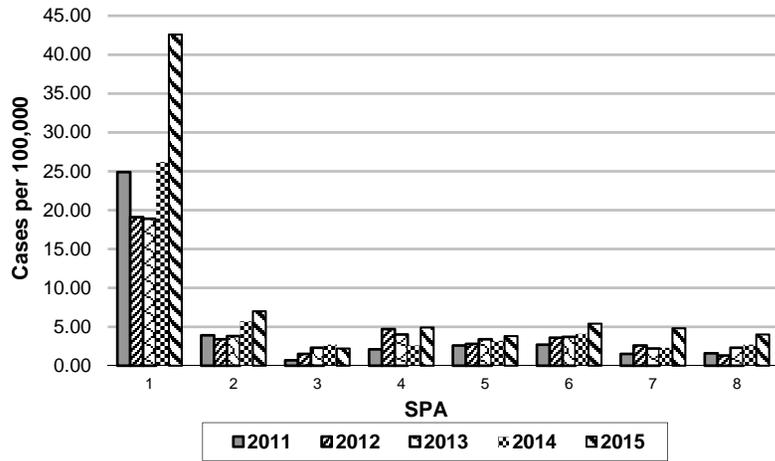


**Figure 4. Coccidioidomycosis Incidence Rates by
Race/Ethnicity LAC, 2011-2015**

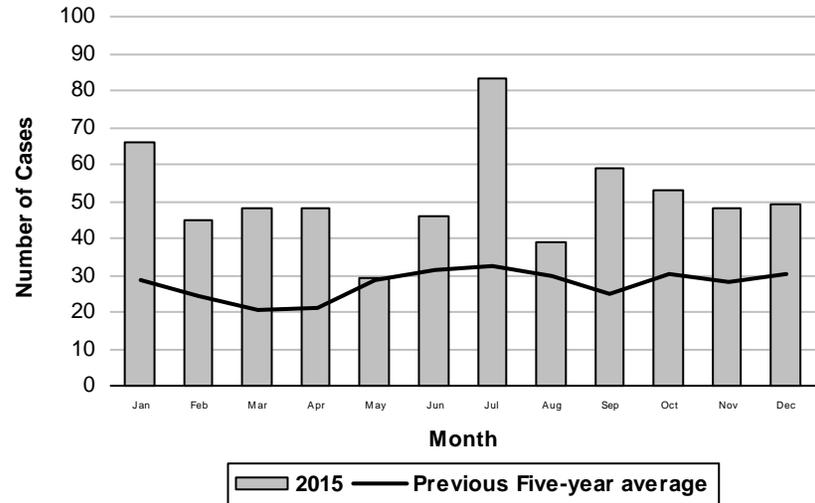




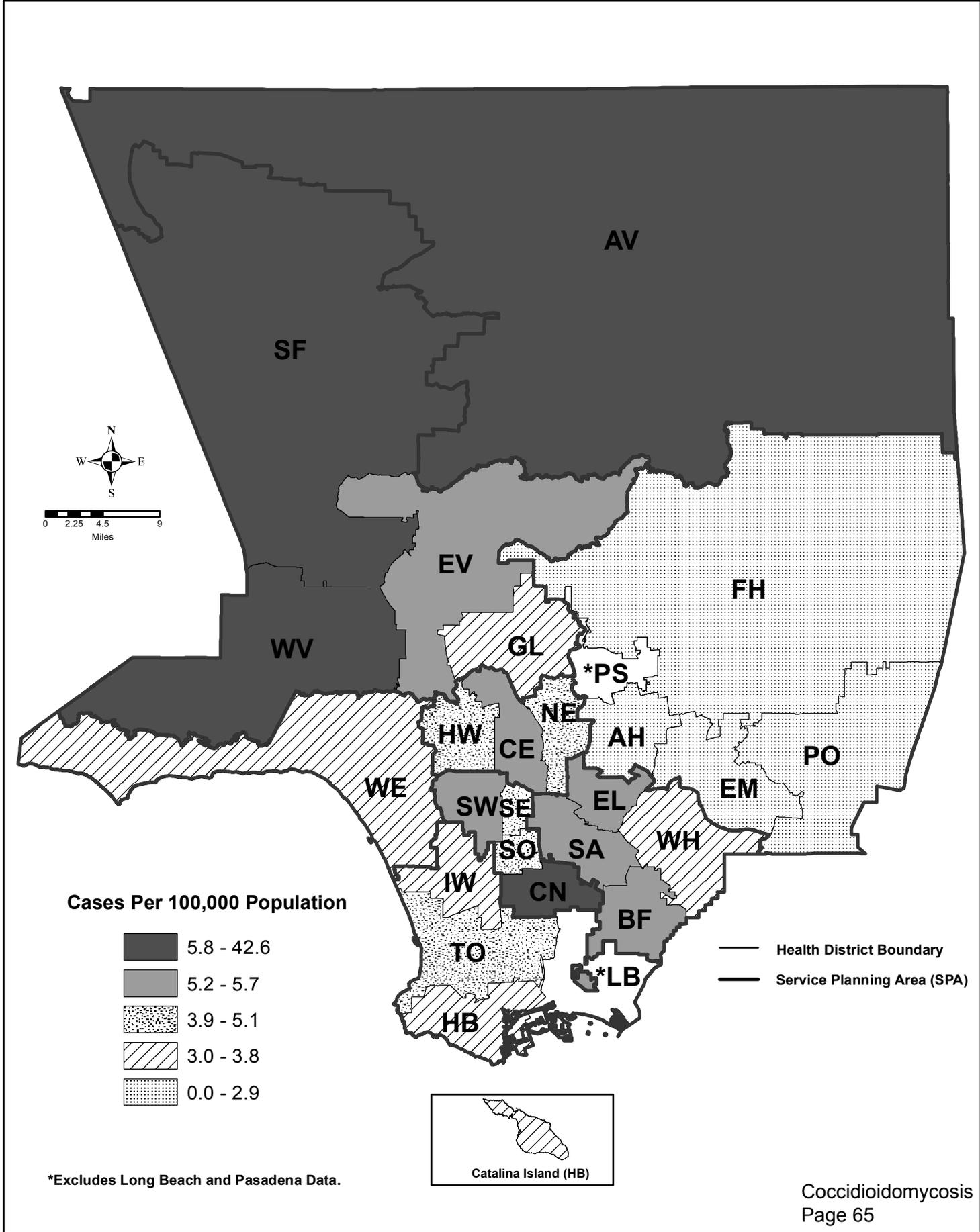
**Figure 5. Incidence Rates of Coccidioidomycosis by SPA
LAC, 2011-2015**



**Figure 6. Reported Coccidioidomycosis Cases
by Month of Onset, LAC, 2015 (N=613)**



Map 3. Coccidioidomycosis Rates by Health District, Los Angeles County, 2015*







COCCIDIOIDOMYCOSIS

CRUDE DATA	
Number of Cases	426
Annual Incidence ^a	
LA County	4.51
California ^b	5.90
United States ^b	2.58
Age at Diagnosis	
Mean	52
Median	53
Range	2–91 years

^aCases per 100,000 population.

^bCalculated from Final 2014 Reports of Nationally Notifiable Infectious Diseases. MMWR 64(36):1019–1033.

DESCRIPTION

Coccidioidomycosis, or valley fever, is a fungal disease transmitted through the inhalation of *Coccidioides immitis* spores that are carried in dust. Environmental conditions conducive to an increased occurrence of coccidioidomycosis include arid to semi-arid regions, dust storms, hot summers, warm winters, and sandy, alkaline soil. The fungus is endemic in the southwestern US and parts of Mexico and South America; Southern California is a known endemic area. Most infected people exhibit no symptoms or have mild respiratory illness, but a few individuals develop severe illness such as pneumonia, meningitis, or dissemination to other parts of the body. Among the wide range of clinical presentations, only the most severe cases are usually diagnosed and reported to the health department. Blacks, Filipinos, pregnant women, the very young (age <5 years), the elderly, and immunocompromised individuals are at higher risk for severe disease. Currently no safe and effective vaccine or drug to prevent coccidioidomycosis exists. Prevention lies mainly in dust avoidance and control (e.g., planting grass in dusty areas, putting oil on roadways, wetting down soil, air conditioning homes, wearing masks or respirators). Other options may be to warn people at high risk for severe disease not to travel to endemic areas when conditions are most dangerous for exposure.

Recovery from the disease confers lifelong immunity to reinfection, providing the rationale for development of a vaccine for prevention of symptomatic or serious forms of the disease. Increasing exposure and risk associated with construction, a growing naïve population in the endemic area, and antifungal treatments that are toxic and not uniformly effective validate the need for prevention efforts.

2014 TRENDS AND HIGHLIGHTS

- Overall, the Los Angeles County incidence rate for coccidioidomycosis has continued to increase over the last ten years. No data were available for the US in years 2005 and 2010 (Figure 1).
- Case frequency and incidence rate increased with age. The 65+ year age group had the most cases at 25% and the highest incidence rate at 9.5 cases per 100,000 (Figure 2).
- Males represented 63% of cases; females 37% (Figure 3).
- Incidence rates by race/ethnicity have remained consistent over the past five years with the exception of 2014, in which whites had the highest incidence rate of 6.6 per 100,000 and blacks the second highest incident rate of 5.3 per 100,000. This in contrast with 2010-13 when the highest incidence rates occurred among blacks (Figure 4).
- SPA 1 reported the highest incidence rate of coccidioidomycosis in LAC; at 26.2 per 100,000 this is in comparison to the next highest incidence rate in SPA 2 of 5.7 per 100,000 (Figure 5).
- In 2014, December had the most cases at 11.3%. However, there are not marked seasonal differences in rate based on data from the past 5 years, other than a modest decrease in late-winter and early-spring (Figure 6).
- There were 28 cases of disseminated coccidioidomycosis reported in LAC in 2014. SPA 1 reported the highest incidence rate at 2.5 per 100,000; this is in comparison to the next highest incidence rate of 0.4 per 100,000 in SPA 2. Males made up 70% of disseminated cases reported in SPA 1, and 89% in SPA.



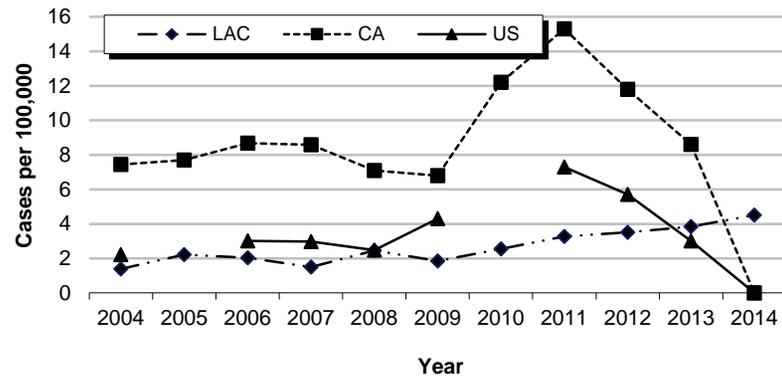
Reported Coccidioidomycosis Cases and Rates* per 100,000 by Age Group, Race/Ethnicity, and SPA Los Angeles County, 2010–2014

	2010 (N=235)			2011 (N=304)			2012 (N=327)			2013 (N=362)			2014 (N=426)		
	No.	(%)	Rate/ 100,000												
Age Group															
<1	1	0.4	0.8	0	-	-	0	-	-	1	0.3	0.8	0	-	-
1-4	0	-	-	1	0.3	0.2	3	9.2	0.6	0	-	-	1	0.2	0.2
5-14	5	2.1	0.4	3	1.0	0.2	3	9.2	0.3	6	1.6	0.5	4	0.9	0.3
15-34	43	18.3	1.5	62	20.4	2.1	68	20.8	2.5	67	18.5	2.4	68	16.0	2.4
35-44	38	16.2	2.8	35	11.5	2.4	53	16.2	4.0	55	15.2	4.1	61	14.3	4.6
45-54	55	23.4	4.3	67	22.0	5.0	84	25.7	6.5	86	23.8	6.7	91	21.3	7.0
55-64	42	17.9	4.4	54	17.8	5.6	46	14.1	4.5	73	20.2	7.1	93	21.8	8.8
65+	51	21.7	5.1	82	27.0	7.7	70	21.4	6.3	74	20.4	6.7	108	25.3	9.5
Unknown	0	-	-	0	-	-	0	-	-	0	-	-	0	-	-
Race/Ethnicity															
Asian	26	11.1	2.0	23	7.6	1.7	26	8.0	2.0	30	8.3	2.2	33	7.7	2.4
Black	43	18.3	5.6	48	15.8	5.6	46	14.1	5.9	50	13.8	6.4	42	9.9	5.3
Hispanic	71	30.2	1.6	94	30.9	2.0	133	40.7	2.9	104	28.7	2.3	139	32.6	3.0
White	76	32.3	2.9	134	44.1	4.7	121	37.0	4.6	132	36.5	5.0	174	40.8	6.5
Other	3	1.3	-	1	0.3	-	0	-	-	5	1.4	-	3	0.7	-
Unknown	16	6.8	-	4	1.3	-	1	0.3	-	41	11.3	-	35	8.2	-
SPA															
1	87	37.0	22.6	93	30.6	24.9	74	22.6	19.1	74	20.4	18.9	103	24.1	26.2
2	54	23.0	2.5	86	28.3	3.9	72	22.0	3.4	83	22.9	3.8	125	29.3	5.7
3	17	7.2	1.1	13	4.3	0.7	25	7.6	1.5	38	10.4	2.3	44	10.3	2.7
4	20	8.5	1.8	26	8.6	2.1	53	16.2	4.7	46	12.7	4.0	30	7.0	2.6
5	7	3.0	1.1	17	5.6	2.6	18	5.5	2.8	22	6.7	3.4	21	4.9	3.2
6	19	8.1	1.9	29	9.5	2.7	37	11.3	3.6	38	10.4	3.7	42	9.8	4.1
7	14	6.0	1.1	20	6.6	1.5	34	10.3	2.6	29	8.1	2.2	30	7.0	2.3
8	16	6.8	1.5	18	5.9	1.6	14	4.2	1.3	25	6.9	2.3	29	6.8	2.7
Unknown	0	-	-	2	0.7	-	0	-	-	-	-	-	0	-	-

*Rates calculated based on less than 19 cases or events are considered unreliable.

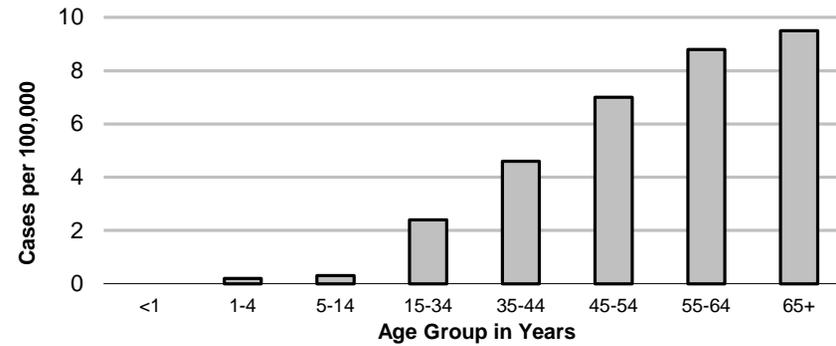


**Figure 1. Incidence Rates of Coccidioidomycosis
US*, CA and LAC, 2004-2014**

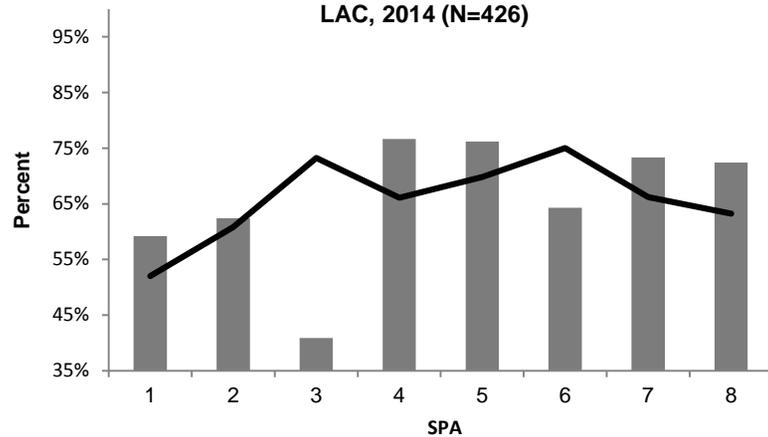


* No data were available for the US in years 2005 and 2010.

**Figure 2. Incidence Rates of Coccidioidomycosis by Age
Group LAC, 2014 (N=426)**

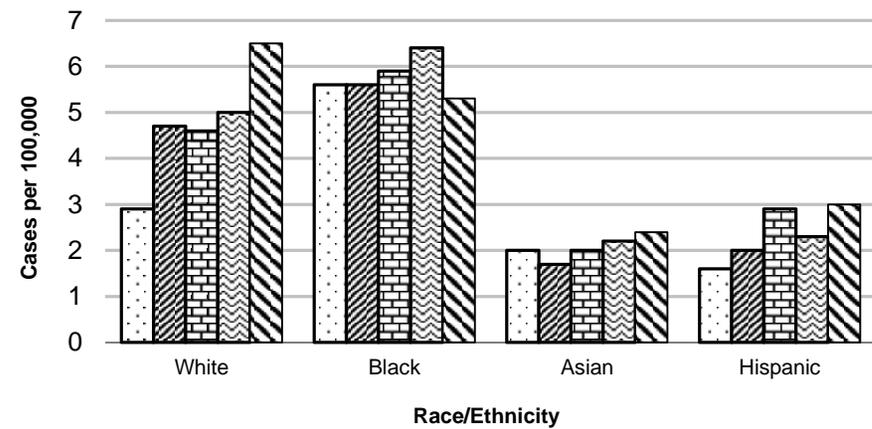


**Figure 3. Percent of Reported Coccidioidomycosis Male
Cases by SPA
LAC, 2014 (N=426)**



■ % Male — Previous 5-year average

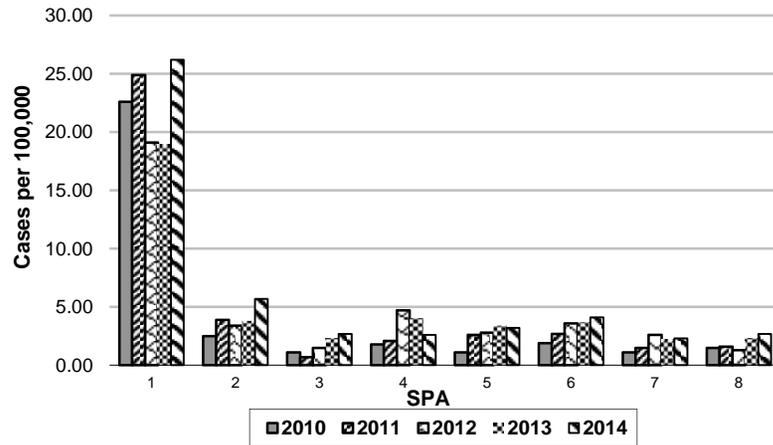
**Figure 4. Coccidioidomycosis Incidence Rates by
Race/Ethnicity LAC 2010-2014**



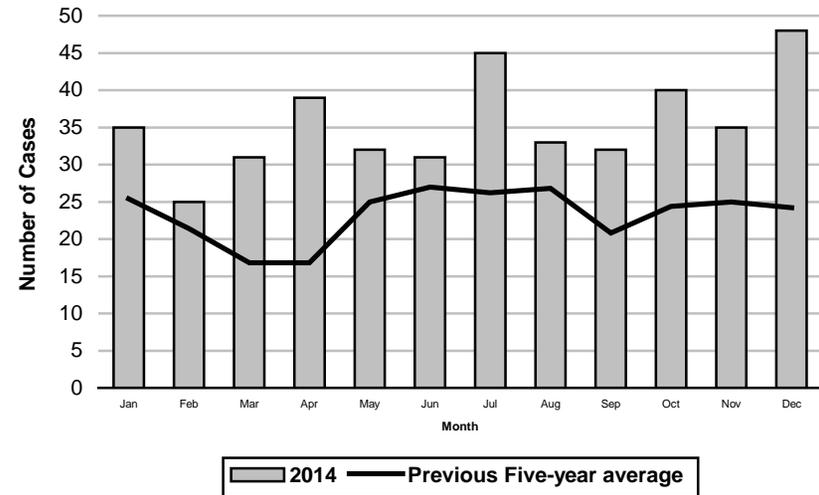
□ 2010 ■ 2011 ■ 2012 ■ 2013 ■ 2014



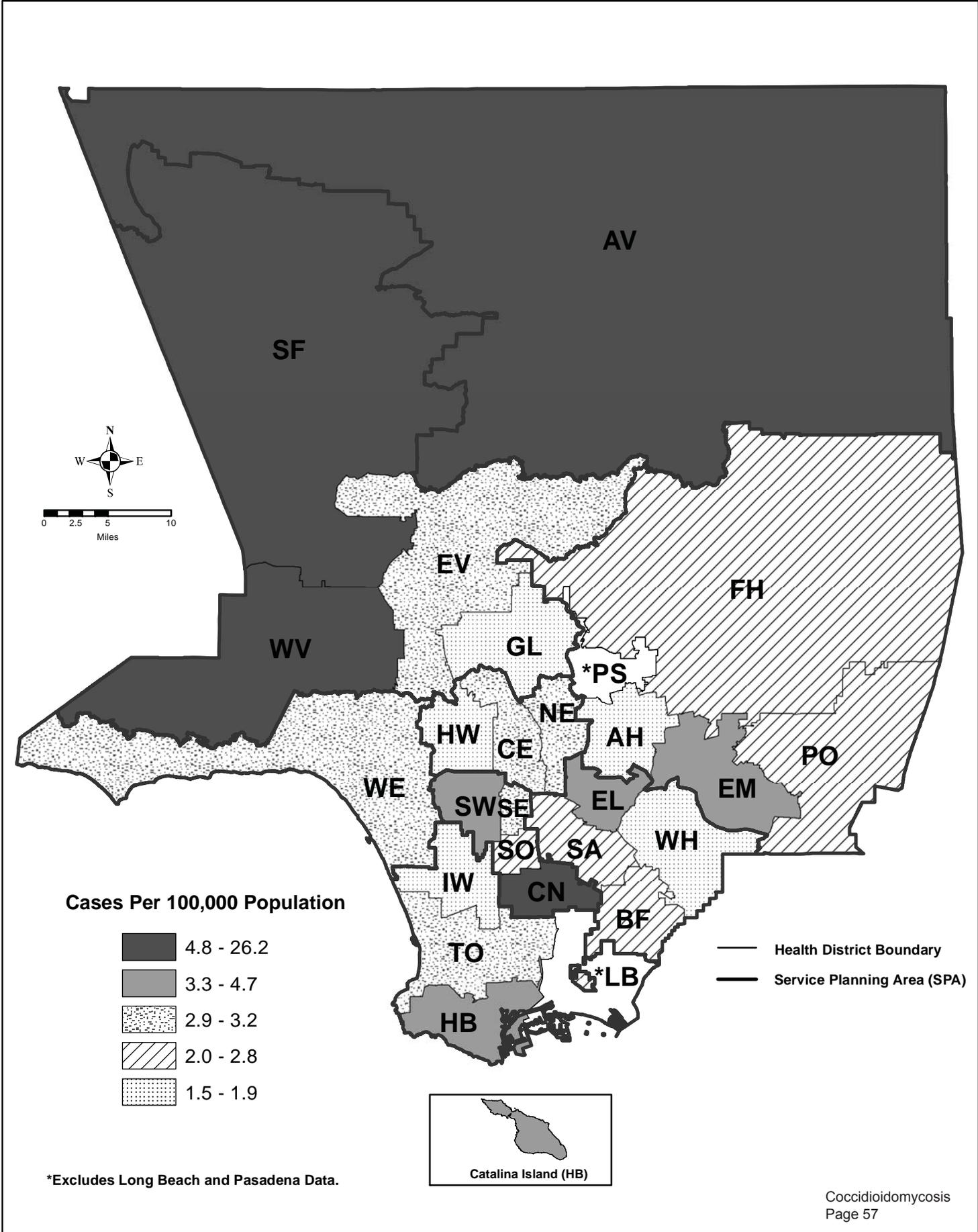
**Figure 5. Incidence Rates of Coccidioidomycosis by SPA
LAC, 2010-2014**



**Figure 6. Reported Coccidioidomycosis Cases
by Month of Onset, LAC, 2014 (N=426)**



Map 3. Coccidioidomycosis Rates by Health District, Los Angeles County, 2014*





COCCIDIOIDOMYCOSIS

CRUDE DATA	
Number of Cases	362
Annual Incidence ^a	
LA County	3.85
California ^b	8.61
United States ^b	3.01
Age at Diagnosis	
Mean	50
Median	51
Range	0-95

^aCases per 100,000 population.

^bCalculated from Final 2013 Reports of Nationally Notifiable Infectious Diseases. MMWR 63(32):702-716.

DESCRIPTION

Coccidioidomycosis, or valley fever, is a fungal disease transmitted through the inhalation of *Coccidioides immitis* spores that are carried in dust. Environmental conditions conducive to an increased occurrence of coccidioidomycosis include arid to semi-arid regions, dust storms, hot summers, warm winters, and sandy, alkaline soils. The fungus is endemic in the southwestern US and parts of Mexico and South America; Southern California is a known endemic area. Most infected people exhibit no symptoms or have mild respiratory illness, but a few individuals develop severe illness such as pneumonia, meningitis, or dissemination to other parts of the body. Among the wide range of clinical presentations, only the most severe cases are usually diagnosed and reported to the health department. Blacks, Filipinos, pregnant women, the very young (age <5 years), the elderly, and immunocompromised individuals are at high risk for severe disease. Currently no safe and effective vaccine or drug to prevent coccidioidomycosis exists. Prevention lies mainly in dust avoidance and control (e.g., planting grass in dusty areas, putting oil on roadways, wetting down soil, air conditioning homes, wearing masks or respirators). Other options may be to warn people at high risk for severe disease not to travel to endemic areas when conditions are most dangerous for exposure. Recovery from the disease confers lifelong immunity to reinfection, providing the rationale for development of a vaccine for prevention of symptomatic or serious forms of the disease.

Increasing construction, a growing naïve population in the endemic area, antifungal treatments that are toxic and not uniformly effective validate the need for prevention efforts.

2013 TRENDS AND HIGHLIGHTS

- Overall, the Los Angeles County incidence rate for coccidioidomycosis has been gradually increasing in the last ten years, doubled in the past 5 years. (Figure 1)
- Cases occurred primarily in the elderly; the greatest number of reported cases was in the 55-64 year age group, which also had the highest incidence rate, 7.1 cases per 100,000 (Figure 2).
- Males represented 67% of cases; females 33%. (Figure 3).
- This year whites had the highest percentage of cases with 36% (n=132) as compared to other racial groups. However, the incidence rate for blacks at 6.4 cases per 100,000 (n=50) was highest among racial groups, consistent with previous years (Figure 4).
- SPA 1 reported the highest incidence rate of coccidioidomycosis in LAC, 18.9 per 100,000 (n=74); though, this represents a slight decrease from the previous year (Figure 5).
- Coccidioidomycosis cases began to increase at the same time but the summer increase is greater this year 2013. (Figure 6).
- There were 23 cases of disseminated coccidioidomycosis reported in LAC.
- Case fatality rate is 2%



**Reported Coccidioidomycosis Cases and Rates* per 100,000 by Age Group, Race/Ethnicity, and SPA
Los Angeles County, 2009-2013**

	2009 (N=171)			2010 (N=235)			2011 (N=304)			2012 (N=327)			2013 (N=362)		
	No.	(%)	Rate/ 100,000												
Age Group															
<1	0	0.0	0.0	1	0.4	0.8	0	0.0	0	0	-	-	1	0.3	0.8
1-4	0	0.0	0.0	0	0.0	0.0	1	0.3	0.2	3	9.2	0.6	0		
5-14	3	1.8	0.2	5	2.1	0.4	3	1.0	0.2	3	9.2	0.3	6	1.6	0.5
15-34	30	17.5	1.1	43	18.3	1.5	62	20.4	2.1	68	20.8	2.5	67	18.5	2.4
35-44	38	22.2	2.8	38	16.2	2.8	35	11.5	2.4	53	16.2	4.0	55	15.2	4.1
45-54	30	17.5	2.4	55	23.4	4.3	67	22.0	5.0	84	25.7	6.5	86	23.8	6.7
55-64	33	19.3	3.6	42	17.9	4.4	54	17.8	5.6	46	14.1	4.5	73	20.2	7.1
65+	37	21.6	3.7	51	21.7	5.1	82	27.0	7.7	70	21.4	6.3	74	20.4	6.7
Unknown	0	0.0		0	0.0		0	0.0		0					
Race/Ethnicity															
Asian	11	6.4	0.9	26	11.1	2.0	23	7.6	1.7	26	8.0	2.0	30	8.3	2.2
Black	27	15.8	3.5	43	18.3	5.6	48	15.8	5.6	46	14.1	5.9	50	13.8	6.4
Hispanic	67	39.2	1.5	71	30.2	1.6	94	30.9	2.0	133	40.7	2.9	104	28.7	2.3
White	56	32.7	2.1	76	32.3	2.9	134	44.1	4.7	121	37.0	4.6	132	36.5	5.0
Other	2	1.2		3	1.3		1	0.3		0	-	-	5	1.4	
Unknown	8	4.7		16	6.8		4	1.3		1	0.3	-	41	11.3	
SPA															
1	45	26.3	11.9	87	37.0	22.6	93	30.6	24.9	74	22.6	19.1	74	20.4	18.9
2	52	30.4	2.4	54	23.0	2.5	86	28.3	3.9	72	22.0	3.4	83	22.9	3.8
3	16	9.4	1.0	17	7.2	1.1	13	4.3	0.7	25	7.6	1.5	38	10.4	2.3
4	13	7.6	1.2	20	8.5	1.8	26	8.6	2.1	53	16.2	4.7	46	12.7	4.0
5	11	6.4	1.7	7	3.0	1.1	17	5.6	2.6	18	5.5	2.8	22	6.1	3.4
6	15	8.8	1.5	19	8.1	1.9	29	9.5	2.7	37	11.3	3.6	38	10.4	3.7
7	9	5.3	0.7	14	6.0	1.1	20	6.6	1.5	34	10.3	2.6	29	8.1	2.2
8	9	5.3	0.8	16	6.8	1.5	18	5.9	1.6	14	4.2	1.3	25	6.9	2.3
Unknown							2	0.7		0	-	-			

*Rates calculated based on less than 19 cases or events are considered unreliable.



**Figure 1. Incidence Rates of Coccidioidomycosis
US, CA and LAC, 2001-2013**

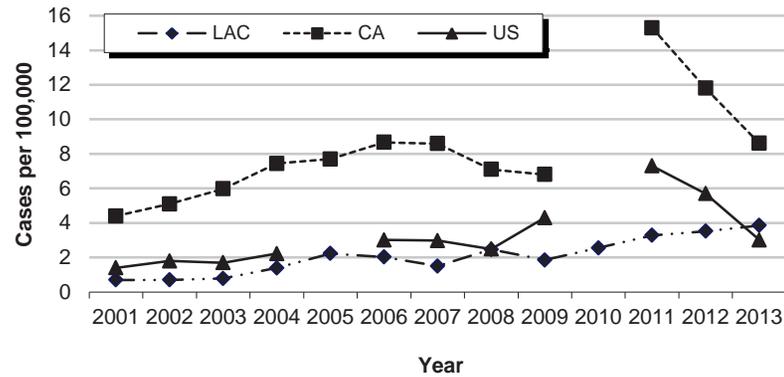


Figure 2. Incidence Rates of Coccidioidomycosis by Age Group LAC, 2013 (N=362)

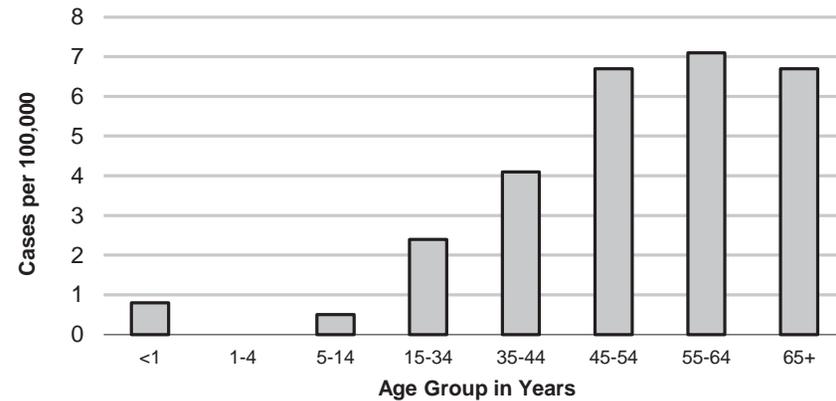


Figure 3. Percent of Reported Coccidioidomycosis Male Cases by SPA LAC, 2013 (N=362)

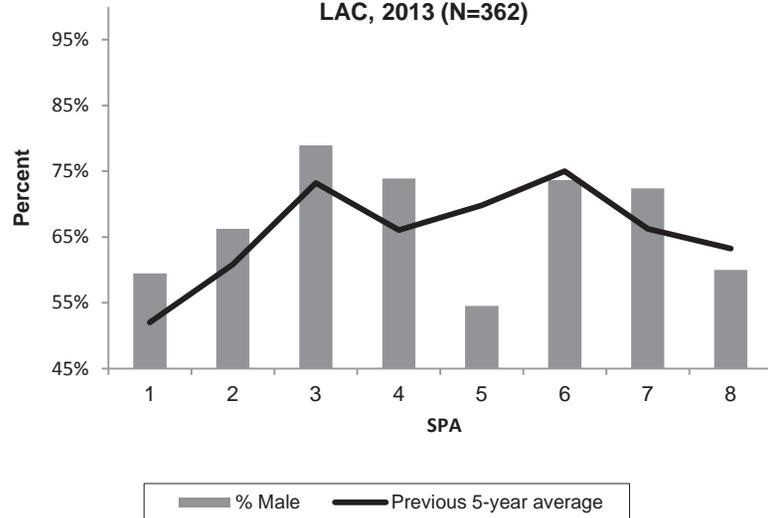
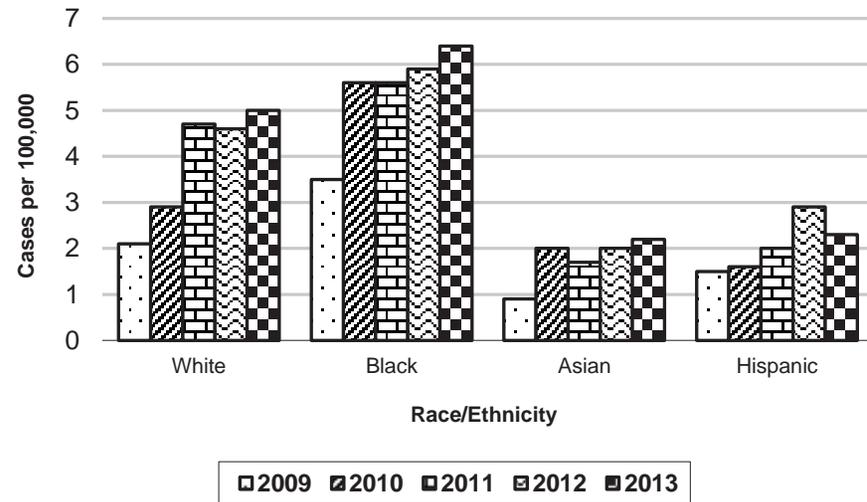
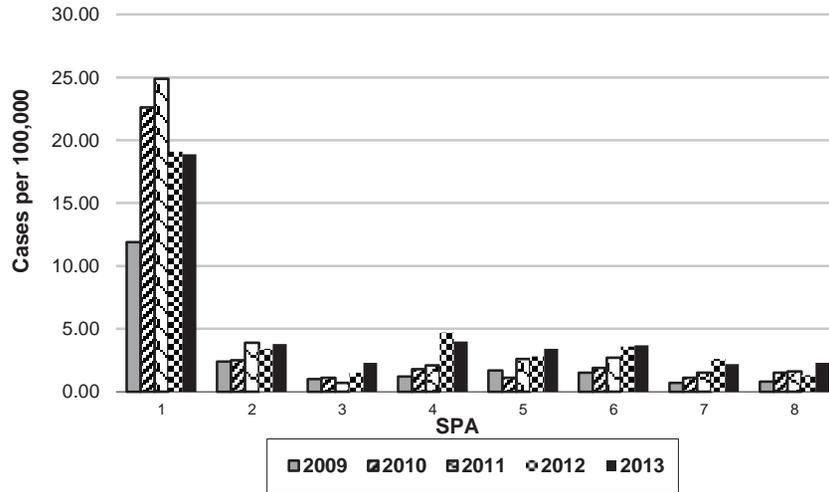


Figure 4. Coccidioidomycosis Incidence Rates by Race/Ethnicity LAC 2009-2013

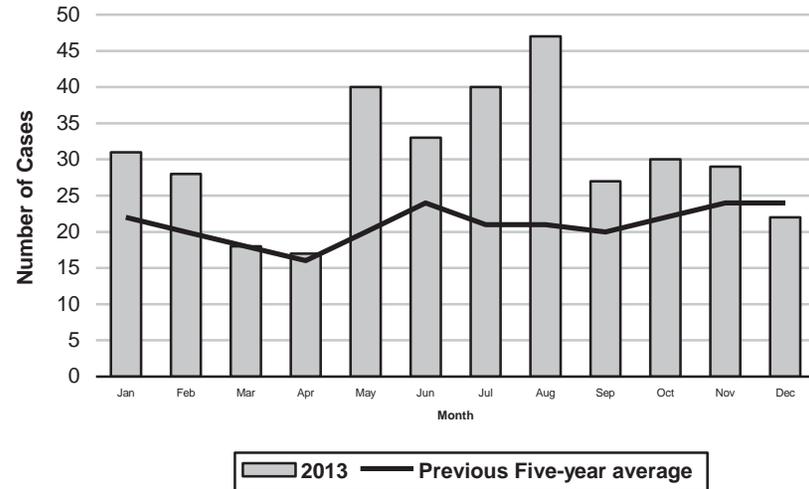




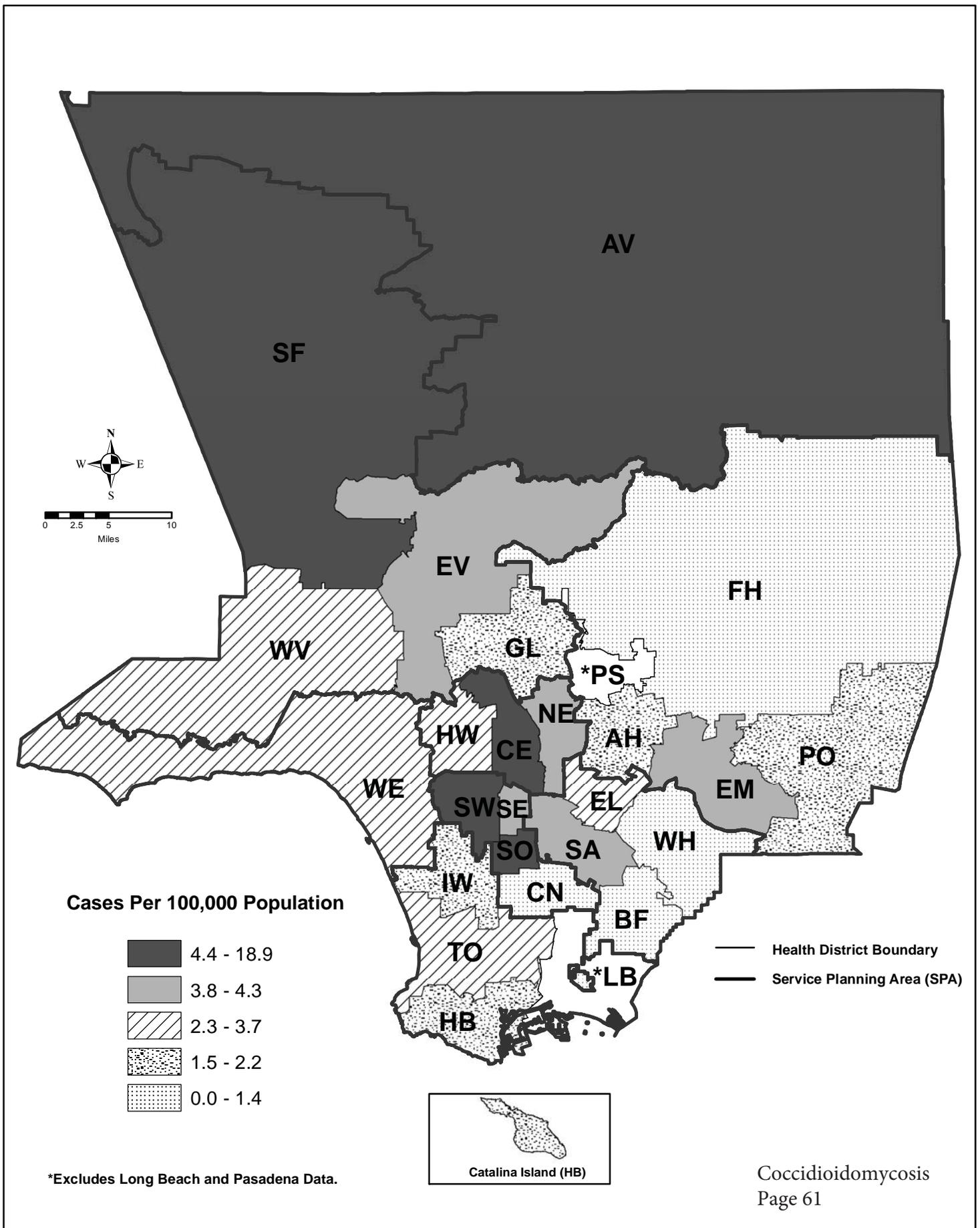
**Figure 5. Incidence Rates of Coccidioidomycosis by SPA
LAC, 2009-2013**



**Figure 6. Reported Coccidioidomycosis Cases
by Month of Onset, LAC, 2013 (N=362)**



Map 3. Coccidioidomycosis Rates by Health District, Los Angeles County, 2013*







COCCIDIOIDOMYCOSIS

CRUDE DATA	
Number of Cases	327
Annual Incidence ^a	
LA County	3.5
California ^b	11.8
United States ^b	5.7
Age at Diagnosis	
Mean	49
Median	50
Range	1-93

^aCases per 100,000 population.

^bCalculated from Final 2012 Reports

DESCRIPTION

Coccidioidomycosis, or valley fever, is a fungal disease transmitted through the inhalation of *Coccidioides immitis* spores that are carried in dust. Environmental conditions conducive to an increased occurrence of coccidioidomycosis include arid to semi-arid regions, dust storms, hot summers, warm winters, and sandy, alkaline soils. The fungus is endemic in the southwestern US and parts of Mexico and South America; Southern California is a known endemic area. Most infected individuals exhibit no symptoms or have mild respiratory illness, but a few individuals develop severe illness such as pneumonia, meningitis, or dissemination to other parts of the body. Among the wide range of clinical presentations, only the most severe cases are usually diagnosed and reported to the health department. Blacks, Filipinos, pregnant women, the very young (age <5 years), the elderly, and immunocompromised individuals are at high risk for severe disease. Currently no safe and effective vaccine or drug to prevent coccidioidomycosis exists. Prevention lies mainly in dust control (e.g., planting grass in dusty areas, putting oil on roadways, wetting down soil, air conditioning homes, wearing masks or respirators). Other options may be to warn people at high risk for severe disease not to travel to endemic areas when conditions are most dangerous for exposure. Recovery from the disease confers lifelong immunity to reinfection, providing the rationale for development of a

vaccine for prevention of symptomatic or serious forms of the disease. Increasing construction, a growing naïve population in the endemic area, antifungal treatments that are toxic and not uniformly effective validate the need for prevention efforts.

2012 TRENDS AND HIGHLIGHTS

- Overall, the Los Angeles County incidence rate for coccidioidomycosis has been gradually increasing in the last ten years, but relatively stable since 2005. (Figure 1)
- Cases occurred primarily in older adults; the greatest number of reported cases was in the 45-54 year age group, which also had the highest incidence rate, 6.5 cases per 100,000 (Figure 2).
- Males represented 62% of cases; females 38%. Of note, the percentage of males in SPA 1 continues to be lower than the other SPAs. The significance is unknown. (Figure 3).
- Hispanics had the highest percentage of cases with 41% (n=133) as compared to other racial groups. However, the incidence rate for blacks at 5.9 cases per 100,000 (n=46) was highest among racial groups, consistent with previous years (Figure 4).
- SPA 1 reported the highest incidence rate of coccidioidomycosis in LAC, 19.1 per 100,000 (n=74); though, this represents a decrease from the previous year (Figure 5).
- Coccidioidomycosis cases began to increase in the late spring of 2012, compared to the five-year average (Figure 6).
- The case fatality rate was 2%, a decrease from 2011. There were 21 cases of disseminated coccidioidomycosis reported in LAC.



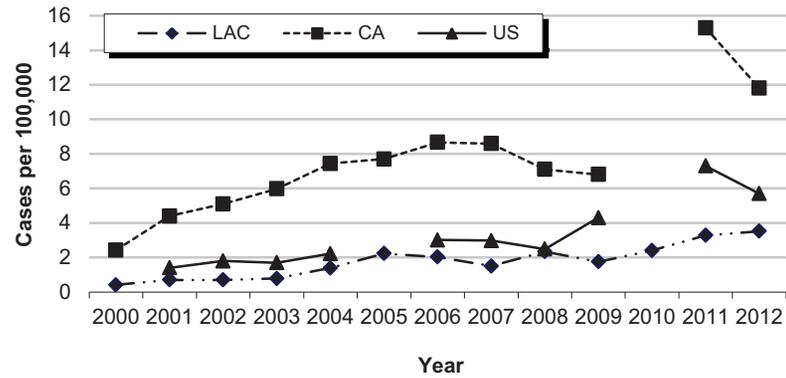
**Reported Coccidioidomycosis Cases and Rates* per 100,000 by Age Group, Race/Ethnicity, and SPA
Los Angeles County, 2008-2012**

	2008 (N=228)			2009 (N=171)			2010 (N=235)			2011 (N=304)			2012 (N=327)		
	No.	(%)	Rate/ 100,000												
Age Group															
<1	0	0.0	0.0	0	0.0	0.0	1	0.4	0.7	0	0.0	0	0	-	-
1-4	0	0.0	0.0	0	0.0	0.0	0	0.0	0.0	1	0.3	0.2	3	9.2	0.6
5-14	6	2.6	0.4	3	1.8	0.2	5	2.1	0.4	3	1.0	0.2	3	9.2	0.3
15-34	41	18.0	1.5	30	17.5	1.1	43	18.3	1.5	62	20.4	2.1	68	20.8	2.5
35-44	33	14.5	2.2	38	22.2	2.6	38	16.2	2.6	35	11.5	2.4	53	16.2	4.0
45-54	58	25.4	4.3	30	17.5	2.2	55	23.4	4.1	67	22.0	5.0	84	25.7	6.5
55-64	38	16.7	4.1	33	19.3	3.5	42	17.9	4.4	54	17.8	5.6	46	14.1	4.5
65+	52	22.8	5.0	37	21.6	3.5	51	21.7	4.8	82	27.0	7.7	70	21.4	6.3
Unknown	0	0.0		0	0.0		0	0.0		0	0.0		0		
Race/Ethnicity															
Asian	27	11.8	2.1	11	6.4	0.8	26	11.1	1.9	23	7.6	1.7	26	8.0	2.0
Black	37	16.2	4.3	27	15.8	3.2	43	18.3	5.0	48	15.8	5.6	46	14.1	5.9
Hispanic	86	37.7	1.8	67	39.2	1.4	71	30.2	1.5	94	30.9	2.0	133	40.7	2.9
White	62	27.2	2.1	56	32.7	1.9	76	32.3	2.7	134	44.1	4.7	121	37.0	4.6
Other	1	0.4	4.1	2	1.2		3	1.3		1	0.3		0	-	-
Unknown	15	6.6		8	4.7		16	6.8		4	1.3		1	0.3	-
SPA															
1	52	22.8	14.2	45	26.3	12.2	87	37.0	23.3	93	30.6	24.9	74	22.6	19.1
2	62	27.2	2.8	52	30.4	2.3	54	23.0	2.4	86	28.3	3.9	72	22.0	3.4
3	21	9.2	1.2	16	9.4	0.9	17	7.2	1.0	13	4.3	0.7	25	7.6	1.5
4	20	8.8	1.6	13	7.6	1.0	20	8.5	1.6	26	8.6	2.1	53	16.2	4.7
5	9	3.9	1.4	11	6.4	1.7	7	3.0	1.1	17	5.6	2.6	18	5.5	2.8
6	24	10.5	2.3	15	8.8	1.4	19	8.1	1.8	29	9.5	2.7	37	11.3	3.6
7	21	9.2	1.5	9	5.3	0.7	14	6.0	1.0	20	6.6	1.5	34	10.3	2.6
8	13	5.7	1.2	9	5.3	0.8	16	6.8	1.4	18	5.9	1.6	14	4.2	1.3
Unknown	6	2.6								2	0.7		0	-	-

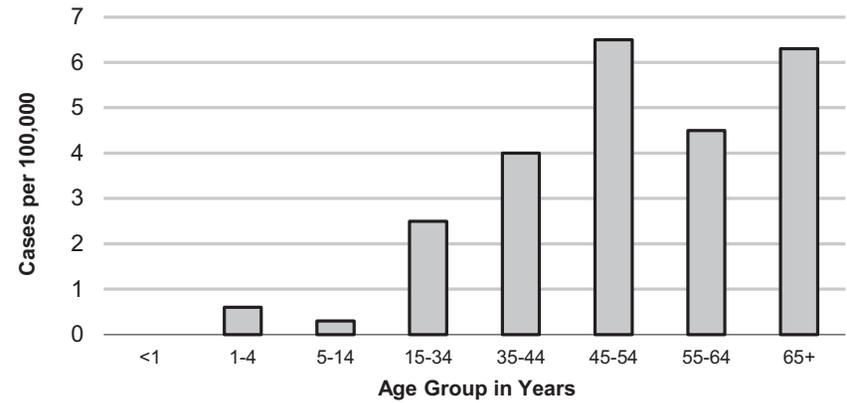
*Rates calculated based on less than 19 cases or events are considered unreliable.



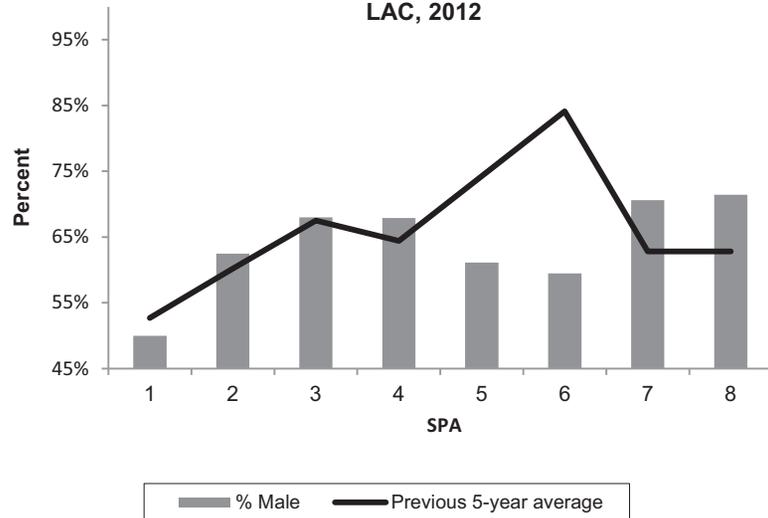
**Figure 1. Incidence Rates of Coccidioidomycosis
US, CA and LAC, 2000-2012**



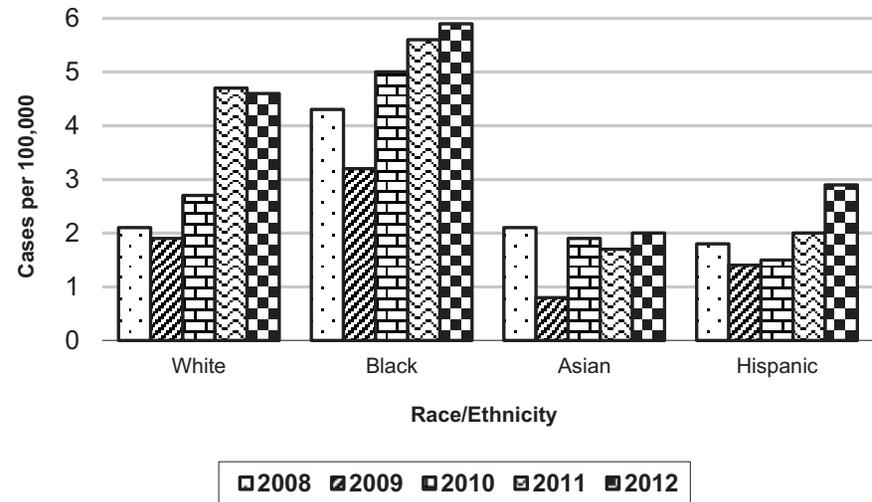
**Figure 2. Incidence Rates of Coccidioidomycosis by Age
Group LAC, 2012**



**Figure 3. Percent of Reported Coccidioidomycosis Male
Cases by SPA
LAC, 2012**

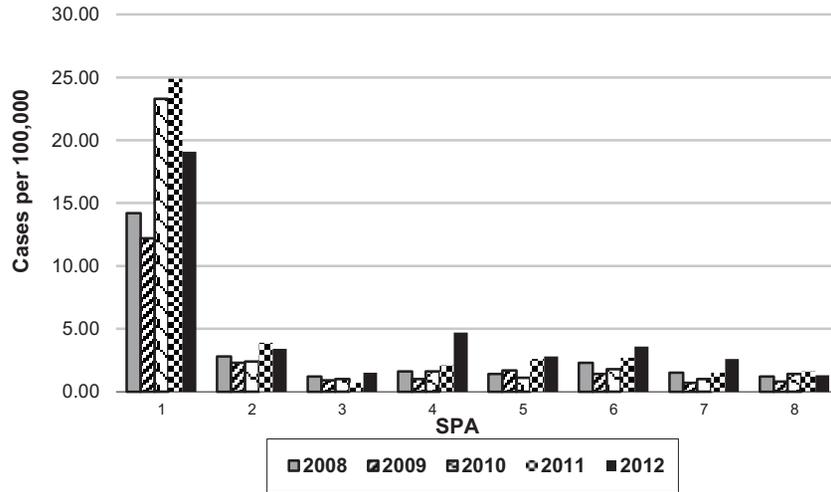


**Figure 4. Coccidioidomycosis Incidence Rates by
Race/Ethnicity LAC 2008-2012**

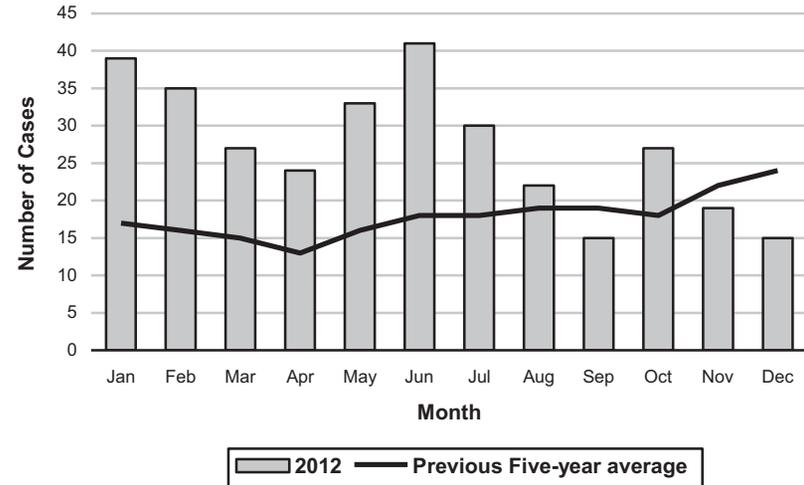




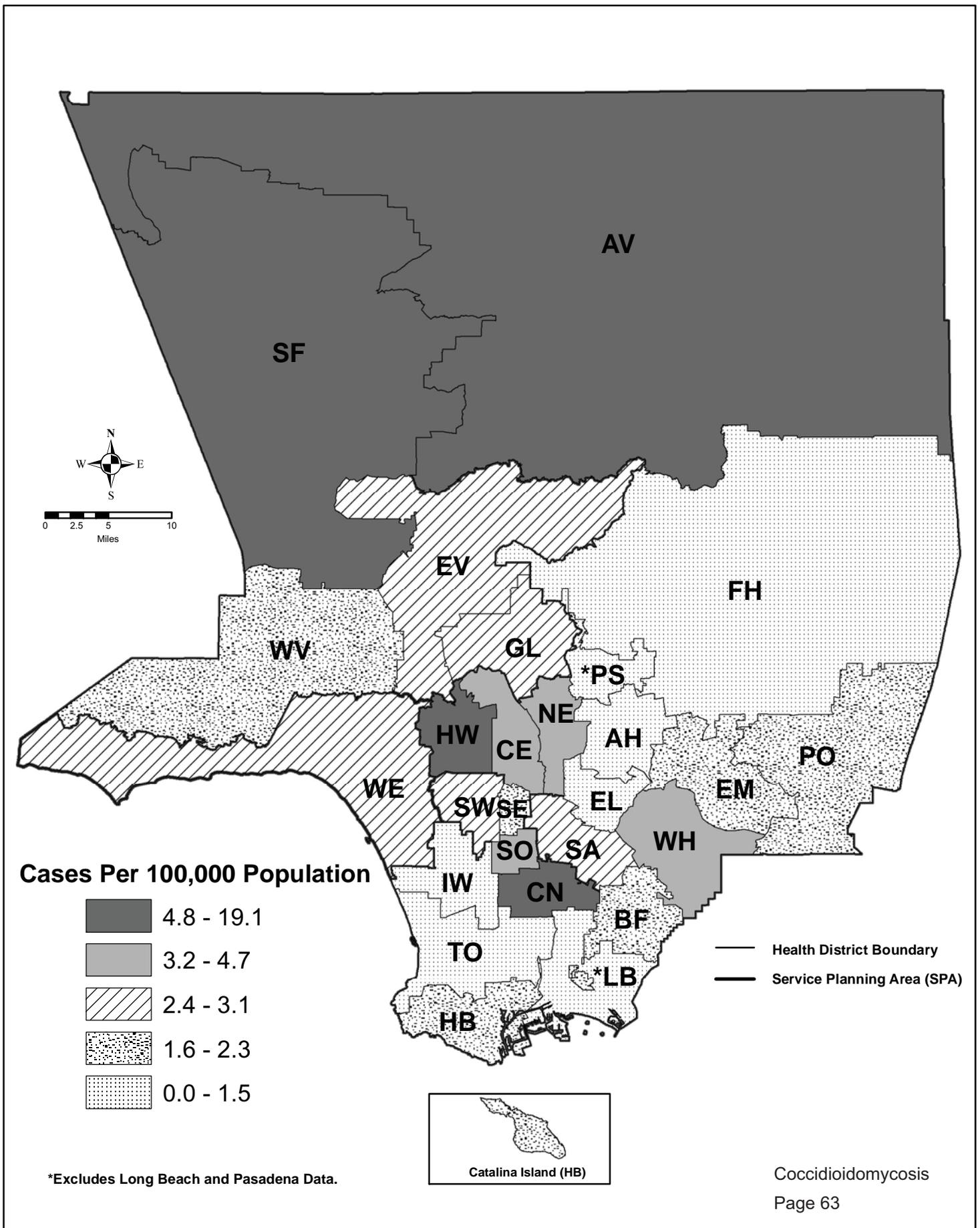
**Figure 5. Incidence Rates of Coccidioidomycosis by SPA
LAC, 2008-2012**



**Figure 6. Reported Coccidioidomycosis Cases
by Month of Onset, LAC, 2012 (N=327)**



Map 3. Coccidioidomycosis Rates by Health District, Los Angeles County, 2012*





COCCIDIOIDOMYCOSIS

CRUDE DATA	
Number of Cases	304
Annual Incidence ^a	
LA County	3.1
California ^b	15.3
United States ^b	7.3
Age at Diagnosis	
Mean	51
Median	53
Range	3-90

^aCases per 100,000 population.

^bCalculated from Final 2011 Reports of Nationally Notifiable Infectious Disease. MMWR 61(32);625-637.

DESCRIPTION

Coccidioidomycosis, or valley fever, is a fungal disease transmitted through the inhalation of *Coccidioides immitis* spores that are carried in dust. Environmental conditions conducive to an increased occurrence of coccidioidomycosis include arid to semi-arid regions, dust storms, hot summers, warm winters, and sandy, alkaline soils. The fungus is endemic in the southwestern US and parts of Mexico and South America; Southern California is a known endemic area. Most infected individuals exhibit no symptoms or have mild respiratory illness, but a few individuals develop severe illness such as pneumonia, meningitis, or dissemination to other parts of the body. Among the wide range of clinical presentations, only the most severe cases are usually diagnosed and reported to the health department. Blacks, Filipinos, pregnant women, the very young (age <5 years), the elderly, and immunocompromised individuals are at high risk for severe disease. Currently no safe and effective vaccine or drug to prevent coccidioidomycosis exists. Prevention lies mainly in dust control (e.g., planting grass in dusty areas, putting oil on roadways, wetting down soil, air conditioning homes, wearing masks or respirators). Other options may be to warn people at high risk for severe disease not to travel to endemic areas when conditions are most dangerous for exposure. Recovery from the disease confers lifelong immunity to reinfection, providing the rationale for development of a

vaccine for prevention of symptomatic or serious forms of the disease. Increasing construction, a growing naïve population in the endemic area, antifungal treatments that are toxic and not uniformly effective validate the need for prevention efforts.

2011 TRENDS AND HIGHLIGHTS

- Overall, the Los Angeles County incidence rate for coccidioidomycosis has increased in the last ten years (Figure 1), but remains relatively stable since 2005.
- Cases occurred primarily in older adults; the greatest number of reported cases was in ages 65+ years which also had the highest incidence rate, 7.7 cases per 100,000 (Figure 2), consistent with previous years. Service Planning Area (SPA) 1 (Antelope Valley Health District) differs from the rest of the county with a higher percentage of cases in the younger age groups for a more even distribution of case ages.
- Males represented 62.5% of cases; females 37.5%, but in SPA 1, the percentages were similar with males 53% and females 47% (Figure 3).
- Whites had the highest percentage of cases with 44% (n=134) as compared to other racial groups. However, the incidence rate for blacks at 5.6 cases per 100,000 (n=48) was highest among racial groups, consistent with previous years (Figure 4). This trend is also demonstrated in SPA 1, where blacks have a rate of 38.4 (the highest rate of any racial group in any SPA of Los Angeles County).
- SPA 1 reported the highest incidence rate of coccidioidomycosis in LAC, 24.9 per 100,000 (n=93), which has increased from the previous year (Figure 5).
- Coccidioidomycosis cases began to increase in the late spring of 2011, compared to the five-year average (Figure 6). Previously, increased numbers of coccidioidomycosis cases were reported from SPA 1 and 2. During 2011, increased numbers of cases were reported county-wide. (Figure 7).
- The case fatality rate was 4%, a 33% increase from 2010. There were 13 cases of disseminated coccidioidomycosis reported in LAC.



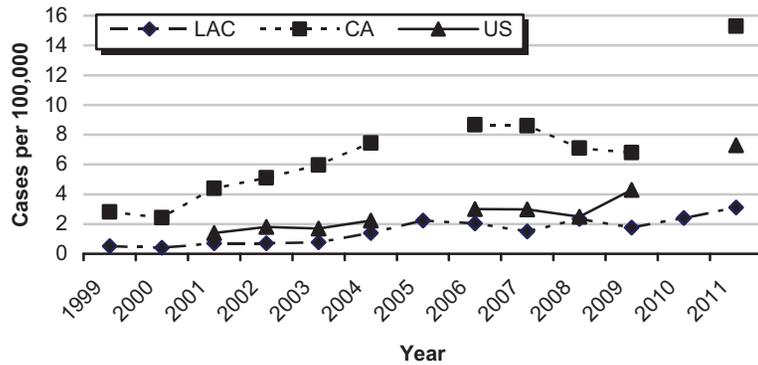
**Reported Coccidioidomycosis Cases and Rates* per 100,000 by Age Group, Race/Ethnicity, and SPA
Los Angeles County, 2007-2011**

	2007 (N=145)			2008 (N=228)			2009 (N=171)			2010 (N=235)			2011 (N=304)		
	No.	(%)	Rate/ 100,000												
Age Group															
<1	0	0.0	0.0	0	0.0	0.0	0	0.0	0.0	1	0.4	0.7	0	0.0	0
1-4	1	0.7	0.2	0	0.0	0.0	0	0.0	0.0	0	0.0	0.0	1	0.3	0.2
5-14	4	2.8	0.3	6	2.6	0.4	3	1.8	0.2	5	2.1	0.4	3	1.0	0.2
15-34	27	18.6	1.0	41	18.0	1.5	30	17.5	1.1	43	18.3	1.5	62	20.4	2.1
35-44	30	20.7	2.0	33	14.5	2.2	38	22.2	2.6	38	16.2	2.6	35	11.5	2.4
45-54	37	25.5	2.8	58	25.4	4.3	30	17.5	2.2	55	23.4	4.1	67	22.0	5.0
55-64	26	17.9	2.9	38	16.7	4.1	33	19.3	3.5	42	17.9	4.4	54	17.8	5.6
65+	20	13.8	2.0	52	22.8	5.0	37	21.6	3.5	51	21.7	4.8	82	27.0	7.7
Unknown	0	0.0		0	0.0		0	0.0		0	0.0		0	0.0	
Race/Ethnicity															
Asian	10	6.9	0.8	27	11.8	2.1	11	6.4	0.8	26	11.1	1.9	23	7.6	1.7
Black	22	15.2	2.6	37	16.2	4.3	27	15.8	3.2	43	18.3	5.0	48	15.8	5.6
Hispanic	52	35.9	1.1	86	37.7	1.8	67	39.2	1.4	71	30.2	1.5	94	30.9	2.0
White	56	38.6	1.9	62	27.2	2.1	56	32.7	1.9	76	32.3	2.7	134	44.1	4.7
Other	1	0.7	4.8	1	0.4	4.1	2	1.2		3	1.3		1	0.3	
Unknown	4	2.8		15	6.6		8	4.7		16	6.8		4	1.3	
SPA															
1	51	35.2	14.2	52	22.8	14.2	45	26.3	12.2	87	37.0	23.3	93	30.6	24.9
2	47	32.4	2.2	62	27.2	2.8	52	30.4	2.3	54	23.0	2.4	86	28.3	3.9
3	9	6.2	0.5	21	9.2	1.2	16	9.4	0.9	17	7.2	1.0	13	4.3	0.7
4	8	5.5	0.6	20	8.8	1.6	13	7.6	1.0	20	8.5	1.6	26	8.6	2.1
5	1	0.7	0.2	9	3.9	1.4	11	6.4	1.7	7	3.0	1.1	17	5.6	2.6
6	0	0.0	0.0	24	10.5	2.3	15	8.8	1.4	19	8.1	1.8	29	9.5	2.7
7	12	8.3	0.9	21	9.2	1.5	9	5.3	0.7	14	6.0	1.0	20	6.6	1.5
8	8	5.5	0.7	13	5.7	1.2	9	5.3	0.8	16	6.8	1.4	18	5.9	1.6
Unknown	9	6.2		6	2.6								2	0.7	

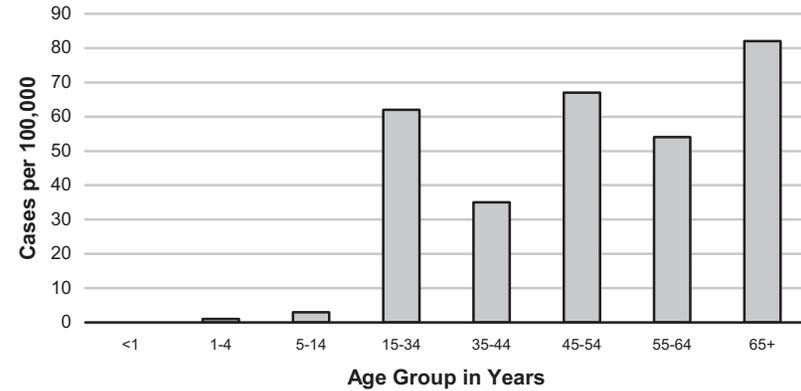
*Rates calculated based on less than 19 cases or events are considered unreliable.



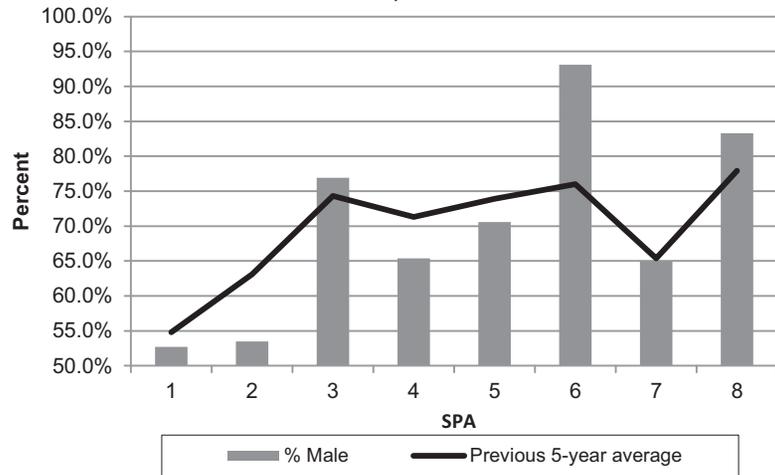
**Figure 1. Incidence Rates of Coccidioidomycosis
US, CA and LAC, 1999-2011**



**Figure 2. Incidence Rates of Coccidioidomycosis by Age Group
LAC, 2011 (N=304)**



**Figure 3. Percent of Reported Coccidioidomycosis Cases that
are Male by SPA
LAC, 2011**



**Figure 4. Coccidioidomycosis Incidence Rates by Race/Ethnicity LAC
2007-2011**

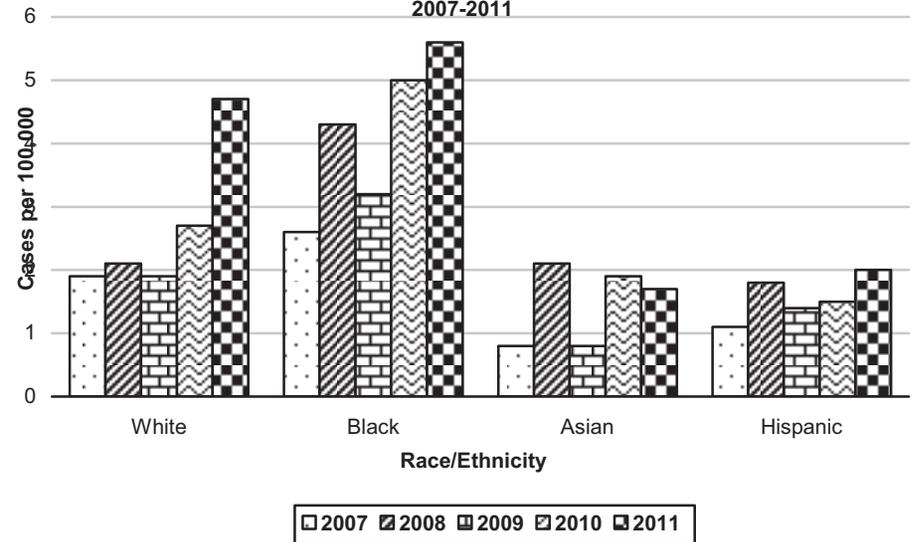




Figure 5. Incidence Rates of Coccidioidomycosis by SPA LAC, 2009-2011

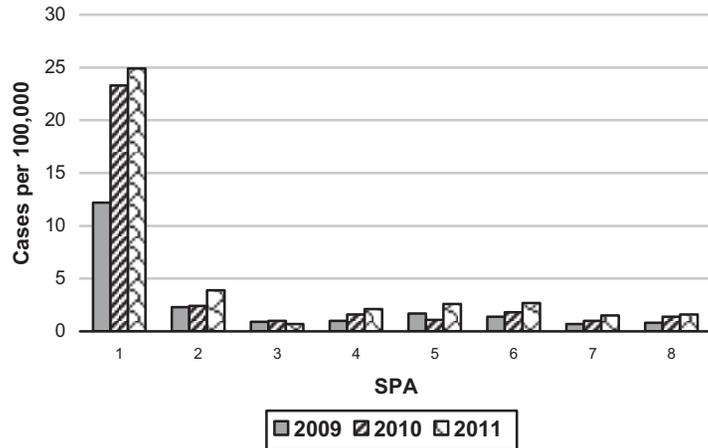


Figure 6. Reported Coccidioidomycosis Cases by Month of Onset, LAC, 2011 (N=304)

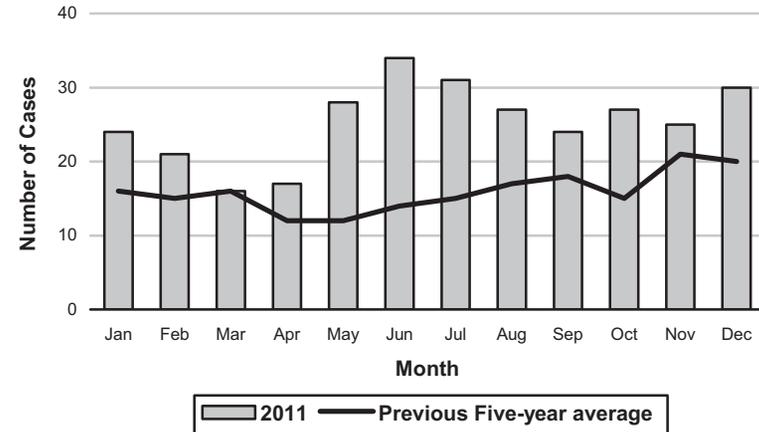
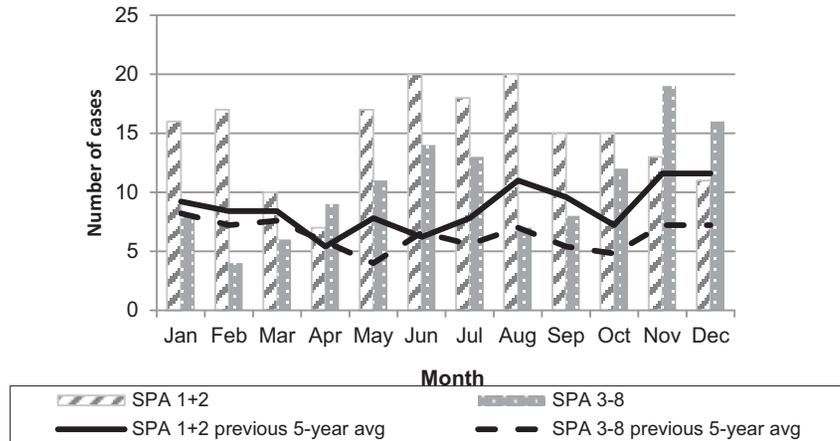
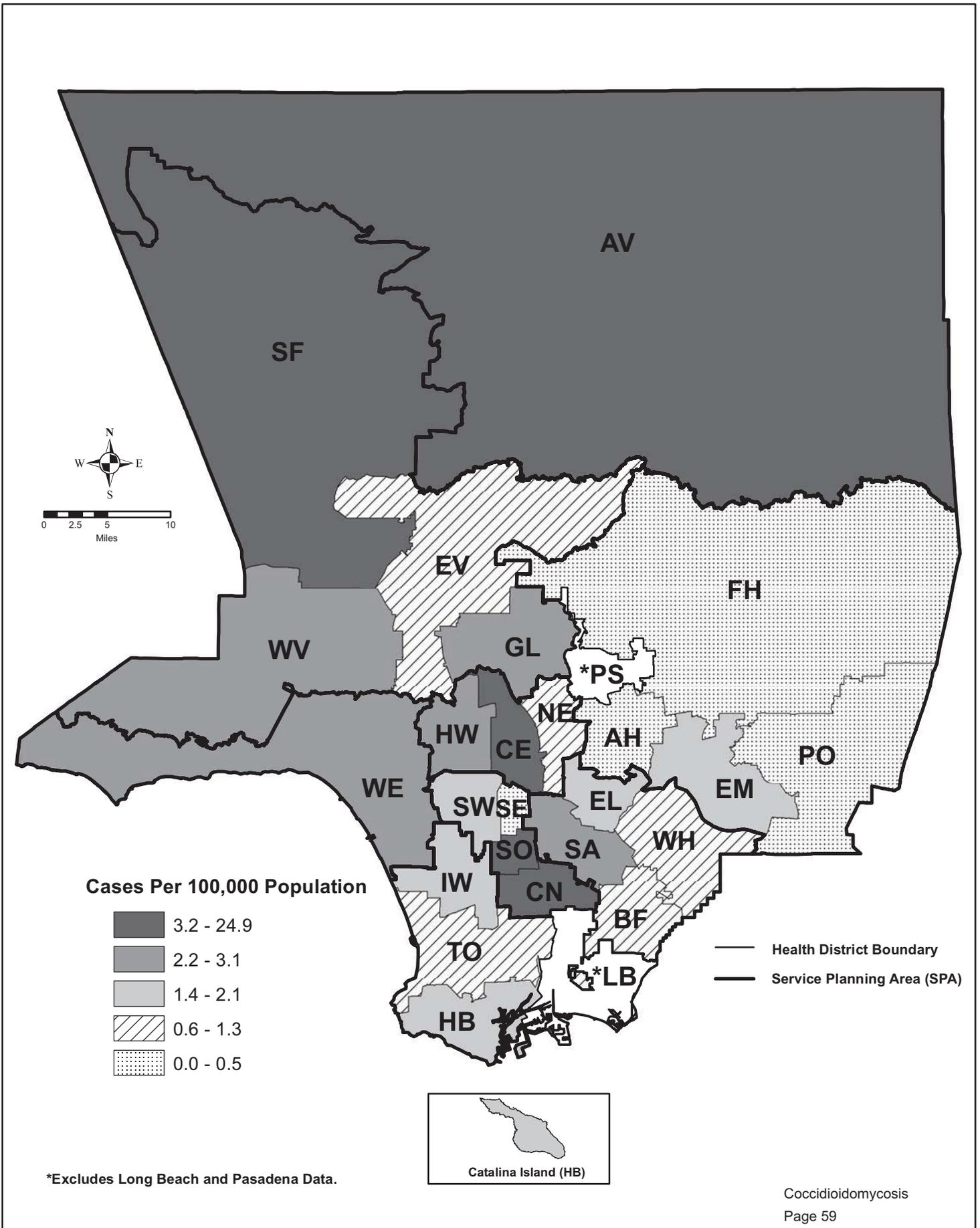


Figure 7. Reported Coccidioidomycosis Cases by SPA and Month of Onset, LAC 2011 (N=304)



Map 3. Coccidioidomycosis Rates by Health District, Los Angeles County, 2011*





COCCIDIOIDOMYCOSIS

CRUDE DATA	
Number of Cases	235
Annual Incidence ^a	
LA County	2.4
California ^b	--
United States ^b	--
Age at Diagnosis	
Mean	50
Median	50
Range	0-92

^aCases per 100,000 population.

^bSee Final Summary of Nationally Notifiable Infectious Diseases, United States on MMWR website http://www.cdc.gov/mmwr/mmwr_nd/index.html.

DESCRIPTION

Coccidioidomycosis, or valley fever, is a fungal disease transmitted through the inhalation of *Coccidioides immitis* spores that are carried in dust. Environmental conditions conducive to an increased occurrence of coccidioidomycosis include arid to semi-arid regions, dust storms, hot summers, warm winters, and sandy, alkaline soils. The fungus is endemic in the southwestern US and parts of Mexico and South America; Southern California is a known endemic area. Most infected individuals exhibit no symptoms or have mild respiratory illness, but a few individuals develop severe illness such as pneumonia, meningitis, or dissemination to other parts of the body. Among the wide range of clinical presentations, only the most severe cases are usually diagnosed and reported to the health department. Blacks, Filipinos, pregnant women, the very young (age <5 years), the elderly, and immunocompromised individuals are at high risk for severe disease. Currently no safe and effective vaccine or drug to prevent coccidioidomycosis exists. Prevention lies mainly in dust control (e.g., planting grass in dusty areas, putting oil on roadways, wetting down soil, air conditioning homes, wearing masks or respirators). Other options may be to warn people at high risk for severe disease not to travel to endemic areas when conditions are most dangerous for exposure. Recovery from the disease confers lifelong immunity to reinfection, providing the rationale for development of a

vaccine for prevention of symptomatic or serious forms of the disease. Increasing construction, a growing naïve population in the endemic area, and the lack of highly effective antifungal treatment validate the need for prevention efforts.

2010 TRENDS AND HIGHLIGHTS

- Overall, the Los Angeles County incidence rate for coccidioidomycosis has increased in the last ten years (Figure 1), but remains relatively stable since 2005.
- Cases occurred primarily in adults; the greatest number of reported cases was in ages 45-65+ years. The highest incidence rate was in the 65+ age groups, 4.8 cases per 100,000 (Figure 2), consistent with previous years. Service Planning Area (SPA) 1 (Antelope Valley Health District) differs from the rest of the county with a higher percentage of cases in the younger age groups for a more even distribution of case ages.
- Males represented 65% of cases; females 35%, but in SPA 1, the percentages were similar with males 52% and females 48% (Figure 3).
- Whites had the highest percentage of cases with 32.3% (n=76) as compared to other racial groups. However, the incidence rate for blacks 5.0 cases per 100,000 (n=43) was highest among racial groups, consistent with previous years (Figure 4). This trend is also demonstrated in SPA 1, where blacks have a rate of 32.6 (the highest rate of any racial group in any SPA of Los Angeles County).
- SPA 1 reported the highest incidence rate of coccidioidomycosis in LAC, 23.3 per 100,000 (n=87), which has increased from the previous year (Figure 5).
- Coccidioidomycosis cases began to increase in the summer of 2010, compared to the 5 year average (Figure 6). The rise in cases occurred almost exclusively in SPA 1 and 2 with the rest of the county showing little increase. (Figure 7)
- The case fatality rate was 3% among 171 cases for which this could be tracked, a 13% decrease from 2009. There were 14 cases of disseminated coccidioidomycosis in LAC.



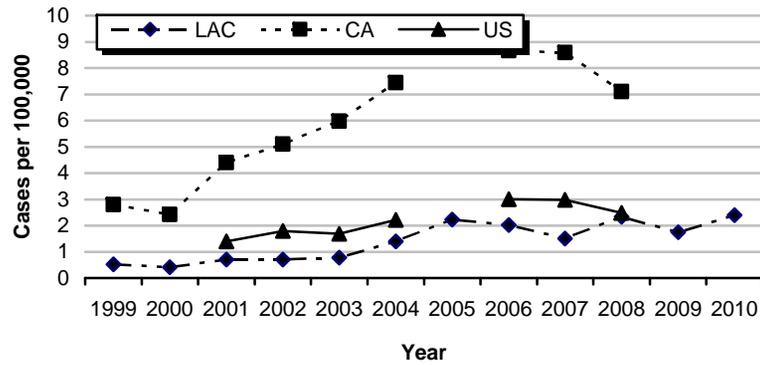
**Reported Coccidioidomycosis Cases and Rates* per 100,000 by Age Group, Race/Ethnicity, and SPA
 Los Angeles County, 2006-2010**

	2006 (N=196)			2007 (N=145)			2008 (N=228)			2009 (N=171)			2010 (N=235)		
	No.	(%)	Rate/ 100,000												
Age Group															
<1	1	0.5	0.7	0	0.0	0.0	0	0.0	0.0	0	0.0	0.0	1	0.4	0.7
1-4	1	0.5	0.2	1	0.7	0.2	0	0.0	0.0	0	0.0	0.0	0	0.0	0.0
5-14	3	1.5	0.2	4	2.8	0.3	6	2.6	0.4	3	1.8	0.2	5	2.1	0.4
15-34	51	26.0	1.8	27	18.6	1.0	41	18.0	1.5	30	17.5	1.1	43	18.3	1.5
35-44	30	15.3	2.0	30	20.7	2.0	33	14.5	2.2	38	22.2	2.6	38	16.2	2.6
45-54	42	21.4	3.2	37	25.5	2.8	58	25.4	4.3	30	17.5	2.2	55	23.4	4.1
55-64	32	16.3	3.7	26	17.9	2.9	38	16.7	4.1	33	19.3	3.5	42	17.9	4.4
65+	36	18.4	3.7	20	13.8	2.0	52	22.8	5.0	37	21.6	3.5	51	21.7	4.8
Unknown	0	0.0		0	0.0		0	0.0		0	0.0		0	0.0	
Race/Ethnicity															
Asian	15	7.7	1.2	10	6.9	0.8	27	11.8	2.1	11	6.4	0.8	26	11.1	1.9
Black	27	13.8	3.2	22	15.2	2.6	37	16.2	4.3	27	15.8	3.2	43	18.3	5.0
Hispanic	68	34.7	1.5	52	35.9	1.1	86	37.7	1.8	67	39.2	1.4	71	30.2	1.5
White	75	38.3	2.6	56	38.6	1.9	62	27.2	2.1	56	32.7	1.9	76	32.3	2.7
Other	3	1.5	10.5	1	0.7	4.8	1	0.4	4.1	2	1.2		3	1.3	
Unknown	8	4.1		4	2.8		15	6.6		8	4.7		16	6.8	
SPA															
1	67	34.2	19.3	51	35.2	14.2	52	22.8	14.2	45	26.3	12.2	87	37.0	23.3
2	57	29.1	2.7	47	32.4	2.2	62	27.2	2.8	52	30.4	2.3	54	23.0	2.4
3	11	5.6	0.6	9	6.2	0.5	21	9.2	1.2	16	9.4	0.9	17	7.2	1.0
4	14	7.1	1.1	8	5.5	0.6	20	8.8	1.6	13	7.6	1.0	20	8.5	1.6
5	9	4.6	1.4	1	0.7	0.2	9	3.9	1.4	11	6.4	1.7	7	3.0	1.1
6	16	8.2	1.5	0	0.0	0.0	24	10.5	2.3	15	8.8	1.4	19	8.1	1.8
7	9	4.6	0.7	12	8.3	0.9	21	9.2	1.5	9	5.3	0.7	14	6.0	1.0
8	12	6.1	1.1	8	5.5	0.7	13	5.7	1.2	9	5.3	0.8	16	6.8	1.4
Unknown	1	0.5		9	6.2		6	2.6							

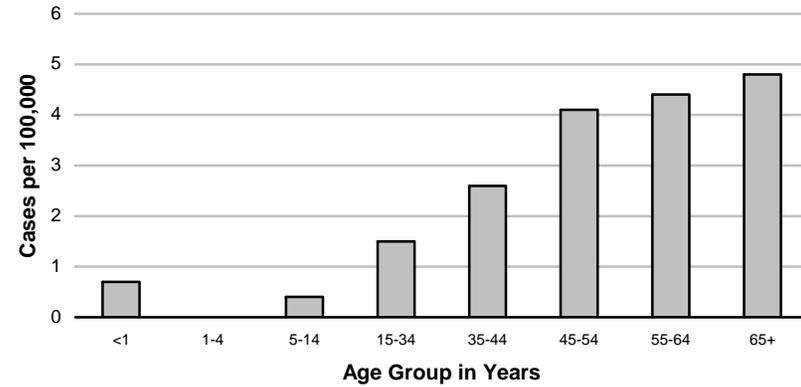
*Rates calculated based on less than 19 cases or events are considered unreliable.



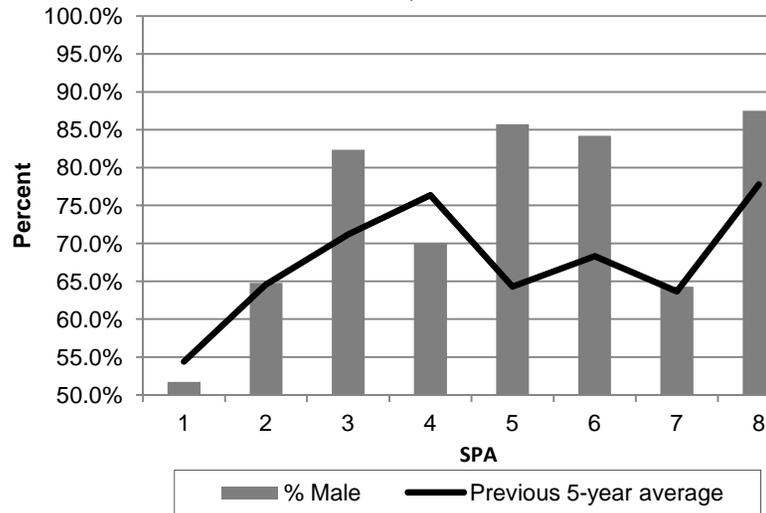
**Figure 1. Incidence Rates of Coccidioidomycosis
US, CA and LAC, 1999-2010**



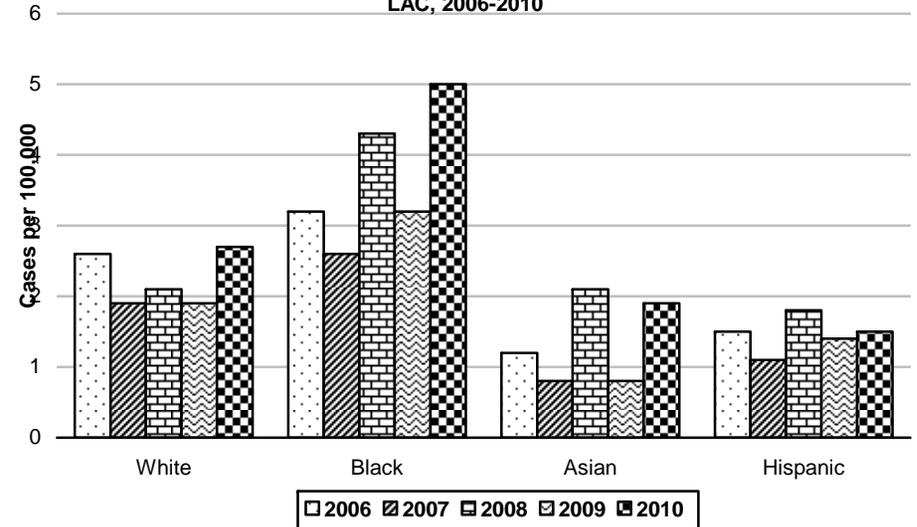
**Figure 2. Incidence Rates of Coccidioidomycosis by Age Group
LAC, 2010 (N=235)**



**Figure 3. Percent of Reported Coccidioidomycosis Cases
that are Male by SPA
LAC, 2010**

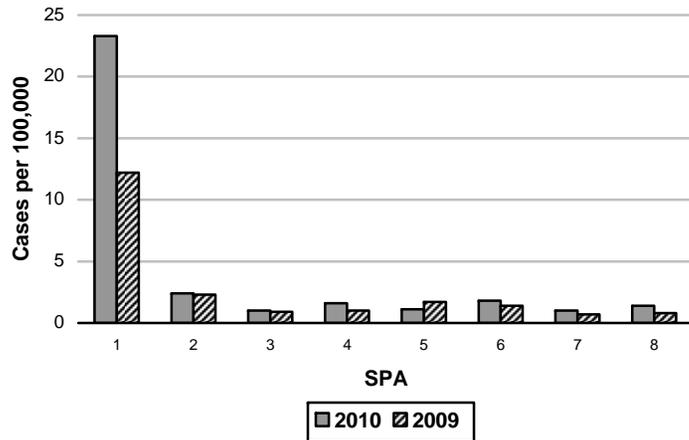


**Figure 4. Coccidioidomycosis Incidence Rates by Race/Ethnicity
LAC, 2006-2010**

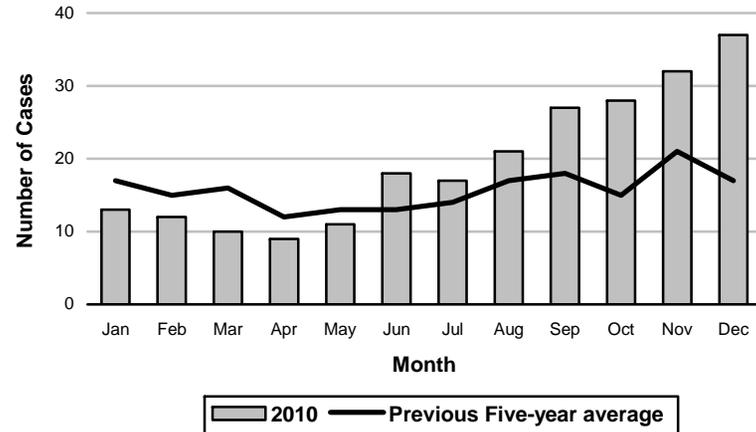




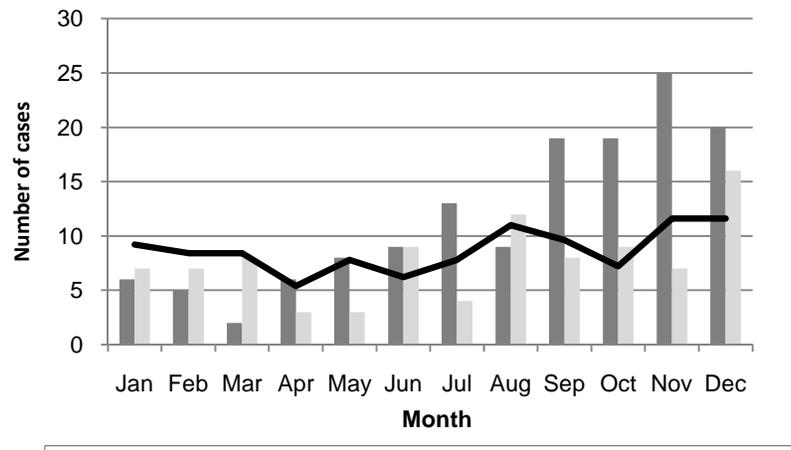
**Figure 5. Incidence Rates of Coccidioidomycosis by SPA
 LAC, 2009-2010**



**Figure 6. Reported Coccidioidomycosis Cases
 by Month of Onset, LAC, 2010 (N=235)**



**Figure 7. Reported Coccidioidomycosis Cases by SPA and Month of
 Onset, LAC 2010 (N=234)**





COCCIDIOIDOMYCOSIS

CRUDE DATA	
Number of Cases	171
Annual Incidence ^a	
LA County	1.8
California ^b	7.1
United States ^b	2.5
Age at Diagnosis	
Mean	50
Median	50
Range	5-93

^aCases per 100,000 population.

^bCalculated from Final 2008 Reports of Nationally Notifiable Infectious Disease, MMWR 58(31);856-857;859-869.

DESCRIPTION

Coccidioidomycosis, or valley fever, is a fungal disease transmitted through the inhalation of *Coccidioides immitis* spores that are carried in dust. Environmental conditions conducive to an increased occurrence of coccidioidomycosis are as follows: arid to semi-arid regions, dust storms, low altitude, hot summers, warm winters, and sandy, alkaline soils. It is endemic in the southwestern US and parts of Mexico and South America. Southern California is a known endemic area. Most infected individuals exhibit no symptoms or have mild respiratory illness, but a few individuals develop severe illness such as pneumonia, meningitis, or dissemination to other parts of the body. Among the wide range of clinical presentations, only the most severe cases are usually diagnosed and reported to the health department. Laboratory diagnosis is made by identifying the fungus through microscopic examination, culture, serologic testing or DNA probe. Blacks, Filipinos, pregnant women, the very young (age <5 years), the elderly, and immunocompromised individuals are at high risk for severe disease. Currently no safe and effective vaccine or drug to prevent coccidioidomycosis exists. Prevention lies mainly in dust control (e.g., planting grass in dusty areas, putting oil on roadways, wetting down soil, air conditioning homes, wearing masks or respirators). Other options may be to warn people at high risk for severe disease not to travel to endemic areas when conditions are most dangerous for exposure. Recovery from the

disease confers lifelong immunity to reinfection and is rationale for the development of a vaccine for the prevention of symptomatic or serious forms of the disease. Increasing construction, a growing naïve population in the endemic area, and the lack of a highly effective drug treatment validate need for prevention efforts. There is a current State initiative that funds a consortium that is working to develop a vaccine against coccidioidomycosis.

The University of Arizona has launched a three year (2007-2010) human clinical drug trial involving 60 patients with primary valley fever pneumonia. The clinical trial for, "Nikkomycin Z, discovered in the 1970s, continues to be a promising investigational treatment for valley fever. More information is available at http://www.vfce.arizona.edu/Homepage%20Articles/Bio5_summary_NikZ_development_plan_Feb_2010.pdf

2009 TRENDS AND HIGHLIGHTS

- Overall, the Los Angeles County incidence rate for coccidioidomycosis has increased in the last ten years (Figure 1).
- Cases occurred primarily in adults with the greatest number of reported cases in ages 35 to 44 and 65+ years. The greatest incidence rate was in the 55-64 and 65+ age groups, 3.5 cases per 100,000 (Figure 2) in comparison to previous years where the predominant age group was in the younger age groups.
- Hispanics had the highest percentage of cases with 39.2% (n=67) in 2009 as compared to other racial groups (Figure 3). However, the incidence rate for blacks 3.2 cases per 100,000 (n=27) was highest as compared to other racial groups, which is consistent with previous years.
- Service Planning Area (SPA) 1 (Antelope Valley Health District) reported the highest incidence rate of coccidioidomycosis in LAC, 12.2 per 100,000 (n=45), which has been decreasing over the previous years (Figure 4).
- Cases occurred year round, which is consistent with previous years (Figure 5).
- The case fatality rate is 2.3% in 2009; there were two cases of disseminated coccidiomycosis in LAC.



COCCIDIOIDOMYCOSIS

CRUDE DATA	
Number of Cases	235
Annual Incidence ^a	
LA County	2.4
California ^b	--
United States ^b	--
Age at Diagnosis	
Mean	50
Median	50
Range	0-92

^aCases per 100,000 population.

^bSee Final Summary of Nationally Notifiable Infectious Diseases, United States on MMWR website http://www.cdc.gov/mmwr/mmwr_nd/index.html.

DESCRIPTION

Coccidioidomycosis, or valley fever, is a fungal disease transmitted through the inhalation of *Coccidioides immitis* spores that are carried in dust. Environmental conditions conducive to an increased occurrence of coccidioidomycosis include arid to semi-arid regions, dust storms, hot summers, warm winters, and sandy, alkaline soils. The fungus is endemic in the southwestern US and parts of Mexico and South America; Southern California is a known endemic area. Most infected individuals exhibit no symptoms or have mild respiratory illness, but a few individuals develop severe illness such as pneumonia, meningitis, or dissemination to other parts of the body. Among the wide range of clinical presentations, only the most severe cases are usually diagnosed and reported to the health department. Blacks, Filipinos, pregnant women, the very young (age <5 years), the elderly, and immunocompromised individuals are at high risk for severe disease. Currently no safe and effective vaccine or drug to prevent coccidioidomycosis exists. Prevention lies mainly in dust control (e.g., planting grass in dusty areas, putting oil on roadways, wetting down soil, air conditioning homes, wearing masks or respirators). Other options may be to warn people at high risk for severe disease not to travel to endemic areas when conditions are most dangerous for exposure. Recovery from the disease confers lifelong immunity to reinfection, providing the rationale for development of a

vaccine for prevention of symptomatic or serious forms of the disease. Increasing construction, a growing naïve population in the endemic area, and the lack of highly effective antifungal treatment validate the need for prevention efforts.

2010 TRENDS AND HIGHLIGHTS

- Overall, the Los Angeles County incidence rate for coccidioidomycosis has increased in the last ten years (Figure 1), but remains relatively stable since 2005.
- Cases occurred primarily in adults; the greatest number of reported cases was in ages 45-65+ years. The highest incidence rate was in the 65+ age groups, 4.8 cases per 100,000 (Figure 2), consistent with previous years. Service Planning Area (SPA) 1 (Antelope Valley Health District) differs from the rest of the county with a higher percentage of cases in the younger age groups for a more even distribution of case ages.
- Males represented 65% of cases; females 35%, but in SPA 1, the percentages were similar with males 52% and females 48% (Figure 3).
- Whites had the highest percentage of cases with 32.3% (n=76) as compared to other racial groups. However, the incidence rate for blacks 5.0 cases per 100,000 (n=43) was highest among racial groups, consistent with previous years (Figure 4). This trend is also demonstrated in SPA 1, where blacks have a rate of 32.6 (the highest rate of any racial group in any SPA of Los Angeles County).
- SPA 1 reported the highest incidence rate of coccidioidomycosis in LAC, 23.3 per 100,000 (n=87), which has increased from the previous year (Figure 5).
- Coccidioidomycosis cases began to increase in the summer of 2010, compared to the 5 year average (Figure 6). The rise in cases occurred almost exclusively in SPA 1 and 2 with the rest of the county showing little increase. (Figure 7)
- The case fatality rate was 3% among 171 cases for which this could be tracked, a 13% decrease from 2009. There were 14 cases of disseminated coccidioidomycosis in LAC.



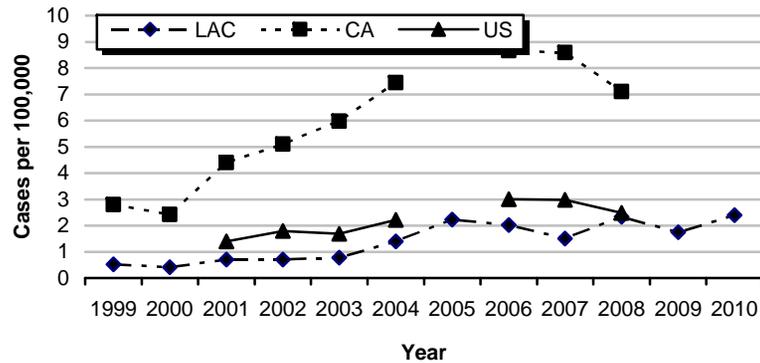
**Reported Coccidioidomycosis Cases and Rates* per 100,000 by Age Group, Race/Ethnicity, and SPA
Los Angeles County, 2006-2010**

	2006 (N=196)			2007 (N=145)			2008 (N=228)			2009 (N=171)			2010 (N=235)		
	No.	(%)	Rate/ 100,000												
Age Group															
<1	1	0.5	0.7	0	0.0	0.0	0	0.0	0.0	0	0.0	0.0	1	0.4	0.7
1-4	1	0.5	0.2	1	0.7	0.2	0	0.0	0.0	0	0.0	0.0	0	0.0	0.0
5-14	3	1.5	0.2	4	2.8	0.3	6	2.6	0.4	3	1.8	0.2	5	2.1	0.4
15-34	51	26.0	1.8	27	18.6	1.0	41	18.0	1.5	30	17.5	1.1	43	18.3	1.5
35-44	30	15.3	2.0	30	20.7	2.0	33	14.5	2.2	38	22.2	2.6	38	16.2	2.6
45-54	42	21.4	3.2	37	25.5	2.8	58	25.4	4.3	30	17.5	2.2	55	23.4	4.1
55-64	32	16.3	3.7	26	17.9	2.9	38	16.7	4.1	33	19.3	3.5	42	17.9	4.4
65+	36	18.4	3.7	20	13.8	2.0	52	22.8	5.0	37	21.6	3.5	51	21.7	4.8
Unknown	0	0.0		0	0.0		0	0.0		0	0.0		0	0.0	
Race/Ethnicity															
Asian	15	7.7	1.2	10	6.9	0.8	27	11.8	2.1	11	6.4	0.8	26	11.1	1.9
Black	27	13.8	3.2	22	15.2	2.6	37	16.2	4.3	27	15.8	3.2	43	18.3	5.0
Hispanic	68	34.7	1.5	52	35.9	1.1	86	37.7	1.8	67	39.2	1.4	71	30.2	1.5
White	75	38.3	2.6	56	38.6	1.9	62	27.2	2.1	56	32.7	1.9	76	32.3	2.7
Other	3	1.5	10.5	1	0.7	4.8	1	0.4	4.1	2	1.2		3	1.3	
Unknown	8	4.1		4	2.8		15	6.6		8	4.7		16	6.8	
SPA															
1	67	34.2	19.3	51	35.2	14.2	52	22.8	14.2	45	26.3	12.2	87	37.0	23.3
2	57	29.1	2.7	47	32.4	2.2	62	27.2	2.8	52	30.4	2.3	54	23.0	2.4
3	11	5.6	0.6	9	6.2	0.5	21	9.2	1.2	16	9.4	0.9	17	7.2	1.0
4	14	7.1	1.1	8	5.5	0.6	20	8.8	1.6	13	7.6	1.0	20	8.5	1.6
5	9	4.6	1.4	1	0.7	0.2	9	3.9	1.4	11	6.4	1.7	7	3.0	1.1
6	16	8.2	1.5	0	0.0	0.0	24	10.5	2.3	15	8.8	1.4	19	8.1	1.8
7	9	4.6	0.7	12	8.3	0.9	21	9.2	1.5	9	5.3	0.7	14	6.0	1.0
8	12	6.1	1.1	8	5.5	0.7	13	5.7	1.2	9	5.3	0.8	16	6.8	1.4
Unknown	1	0.5		9	6.2		6	2.6							

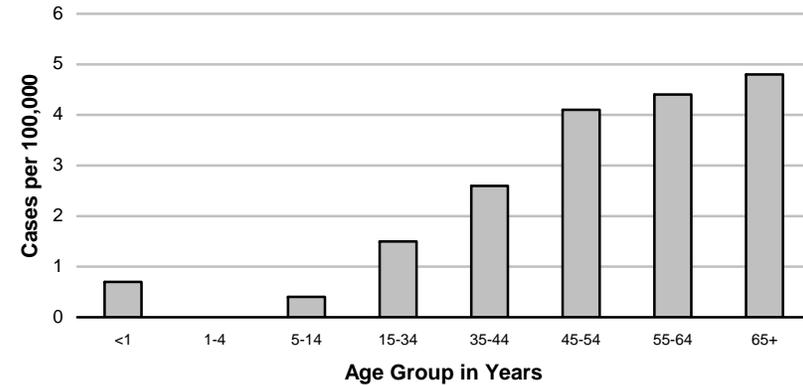
*Rates calculated based on less than 19 cases or events are considered unreliable.



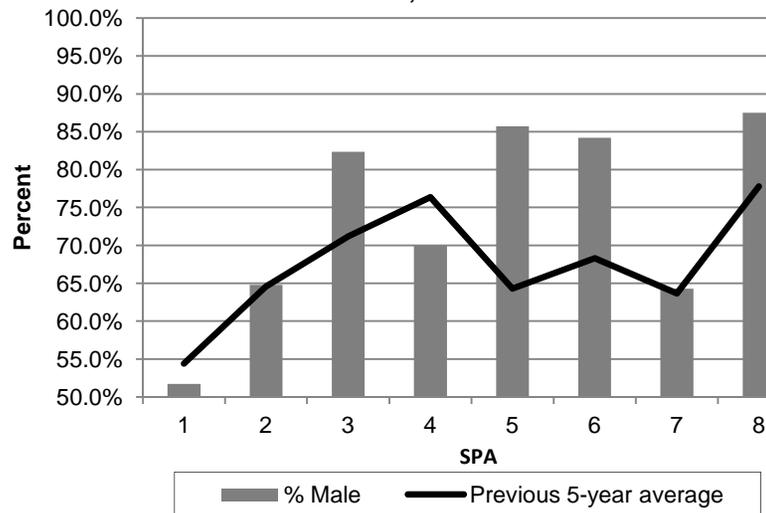
**Figure 1. Incidence Rates of Coccidioidomycosis
US, CA and LAC, 1999-2010**



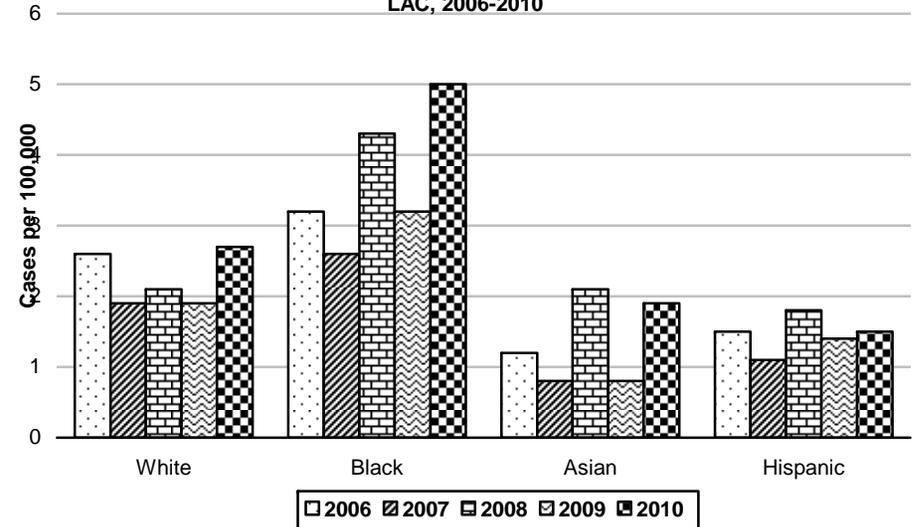
**Figure 2. Incidence Rates of Coccidioidomycosis by Age Group
LAC, 2010 (N=235)**



**Figure 3. Percent of Reported Coccidioidomycosis Cases
that are Male by SPA
LAC, 2010**

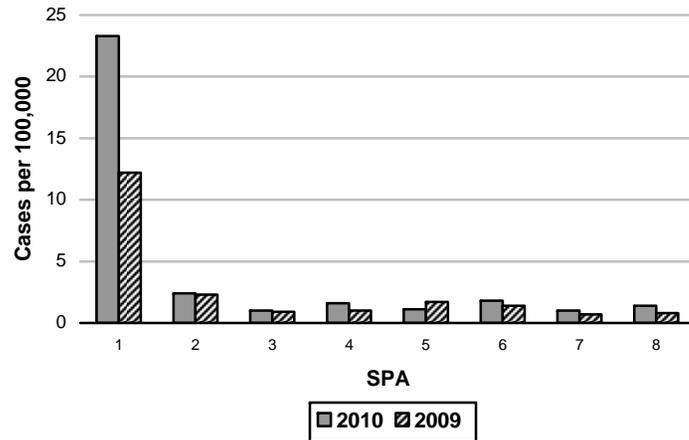


**Figure 4. Coccidioidomycosis Incidence Rates by Race/Ethnicity
LAC, 2006-2010**

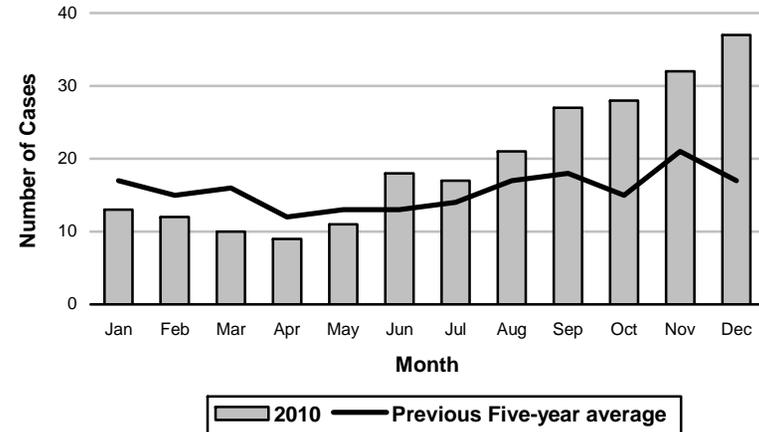




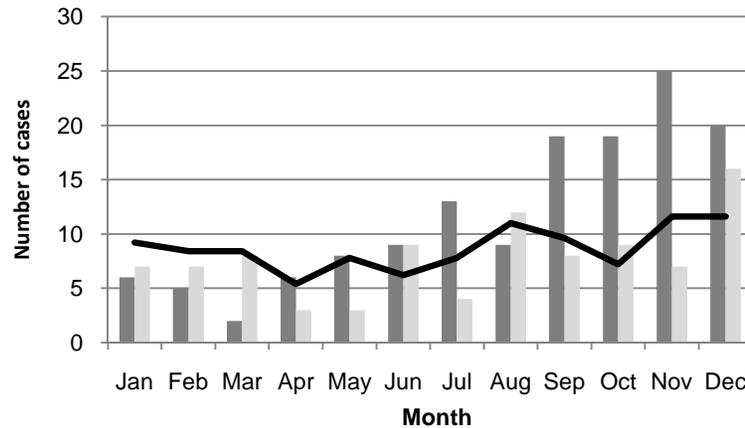
**Figure 5. Incidence Rates of Coccidioidomycosis by SPA
LAC, 2009-2010**



**Figure 6. Reported Coccidioidomycosis Cases
by Month of Onset, LAC, 2010 (N=235)**



**Figure 7. Reported Coccidioidomycosis Cases by SPA and Month of
Onset, LAC 2010 (N=234)**





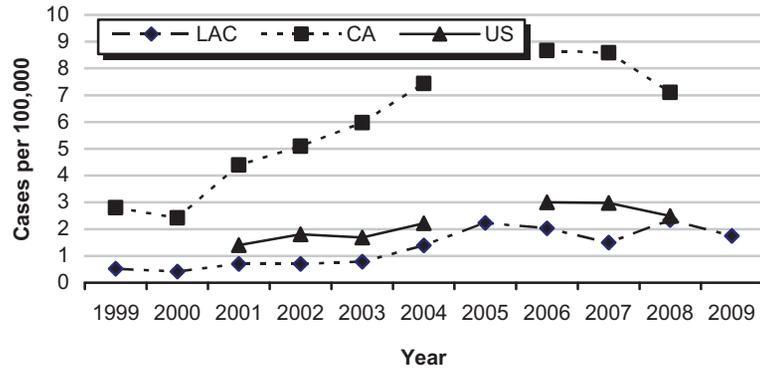
**Reported Coccidioidomycosis Cases and Rates* per 100,000 by Age Group, Race/Ethnicity, and SPA
Los Angeles County, 2005-2009**

	2005 (N=214)			2006 (N=196)			2007 (N=145)			2008 (N=228)			2009 (N=171)		
	No.	(%)	Rate/ 100,000												
Age Group															
<1	0	0.0	0.0	1	0.5	0.7	0	0.0	0.0	0	0.0	0.0	0	0.0	0.0
1-4	0	0.0	0.0	1	0.5	0.2	1	0.7	0.2	0	0.0	0.0	0	0.0	0.0
5-14	3	1.4	0.2	3	1.5	0.2	4	2.8	0.3	6	2.6	0.4	3	1.8	0.2
15-34	52	24.3	1.9	51	26.0	1.8	27	18.6	1.0	41	18.0	1.5	30	17.5	1.1
35-44	50	23.4	3.3	30	15.3	2.0	30	20.7	2.0	33	14.5	2.2	38	22.2	2.6
45-54	49	22.9	3.9	42	21.4	3.2	37	25.5	2.8	58	25.4	4.3	30	17.5	2.2
55-64	27	12.6	3.2	32	16.3	3.7	26	17.9	2.9	38	16.7	4.1	33	19.3	3.5
65+	33	15.4	3.4	36	18.4	3.7	20	13.8	2.0	52	22.8	5.0	37	21.6	3.5
Unknown	0	0.0		0	0.0		0	0.0		0	0.0		0	0.0	
Race/Ethnicity															
Asian	15	7.0	1.2	15	7.7	1.2	10	6.9	0.8	27	11.8	2.1	11	6.4	0.8
Black	28	13.1	3.3	27	13.8	3.2	22	15.2	2.6	37	16.2	4.3	27	15.8	3.2
Hispanic	70	32.7	1.5	68	34.7	1.5	52	35.9	1.1	86	37.7	1.8	67	39.2	1.4
White	96	44.9	3.3	75	38.3	2.6	56	38.6	1.9	62	27.2	2.1	56	32.7	1.9
Other	0	0.0	0.0	3	1.5	10.5	1	0.7	4.8	1	0.4	4.1	2	1.2	
Unknown	5	2.3		8	4.1		4	2.8		15	6.6		8	4.7	
SPA															
1	79	36.9	23.2	67	34.2	19.3	51	35.2	14.2	52	22.8	14.2	45	26.3	12.2
2	76	35.5	3.6	57	29.1	2.7	47	32.4	2.2	62	27.2	2.8	52	30.4	2.3
3	13	6.1	0.8	11	5.6	0.6	9	6.2	0.5	21	9.2	1.2	16	9.4	0.9
4	10	4.7	0.8	14	7.1	1.1	8	5.5	0.6	20	8.8	1.6	13	7.6	1.0
5	4	1.9	0.6	9	4.6	1.4	1	0.7	0.2	9	3.9	1.4	11	6.4	1.7
6	10	4.7	1.0	16	8.2	1.5	0	0.0	0.0	24	10.5	2.3	15	8.8	1.4
7	16	7.5	1.2	9	4.6	0.7	12	8.3	0.9	21	9.2	1.5	9	5.3	0.7
8	5	2.3	0.5	12	6.1	1.1	8	5.5	0.7	13	5.7	1.2	9	5.3	0.8
Unknown	1	0.5		1	0.5		9	6.2		6	2.6				

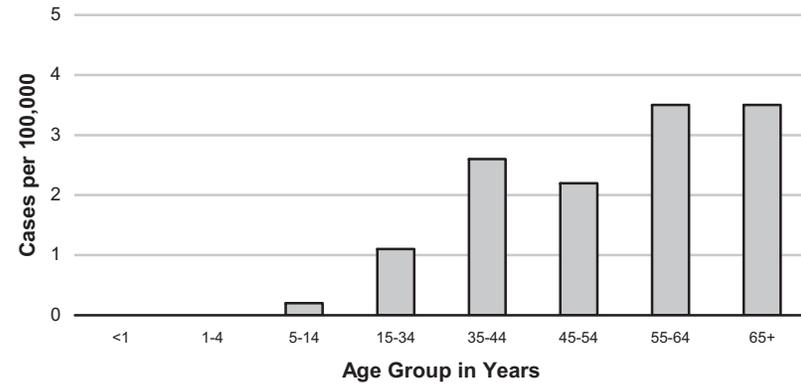
*Rates calculated based on less than 19 cases or events are considered unreliable.



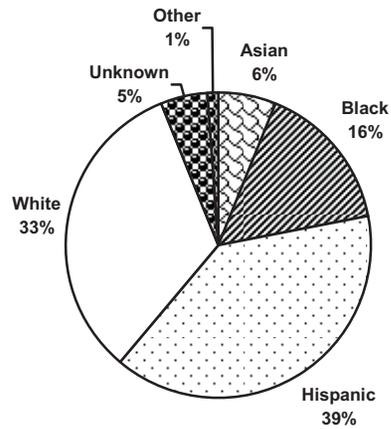
**Figure 1. Incidence Rates of Coccidioidomycosis
US, CA and LAC, 1999-2009**



**Figure 2. Incidence Rates of Coccidioidomycosis by Age Group
LAC, 2009 (N=171)**



**Figure 3. Percent Cases of Coccidioidomycosis
by Race/Ethnicity, LAC, 2009 (N=171)**



**Figure 4. Incidence Rates of Coccidioidomycosis by SPA
LAC, 2009 (N=171)**

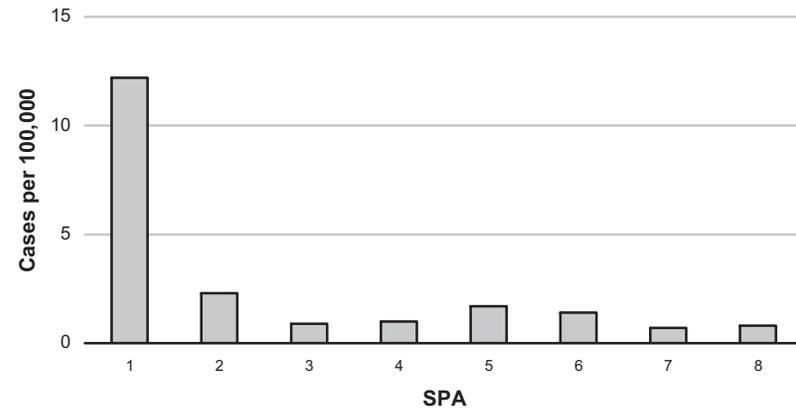




Figure 5. Reported Coccidioidomycosis Cases by Month of Onset, LAC, 2009 (N=171)

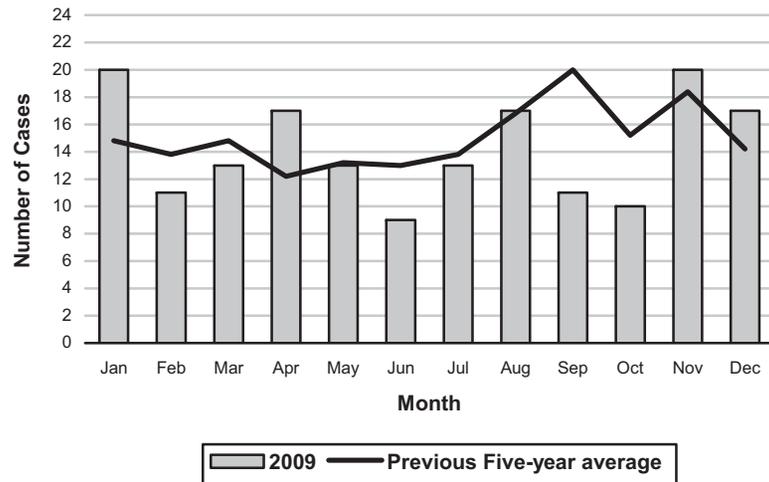
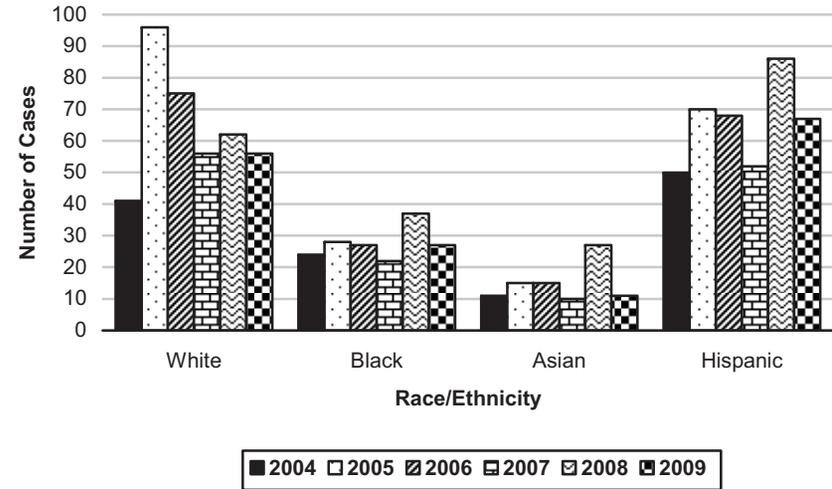
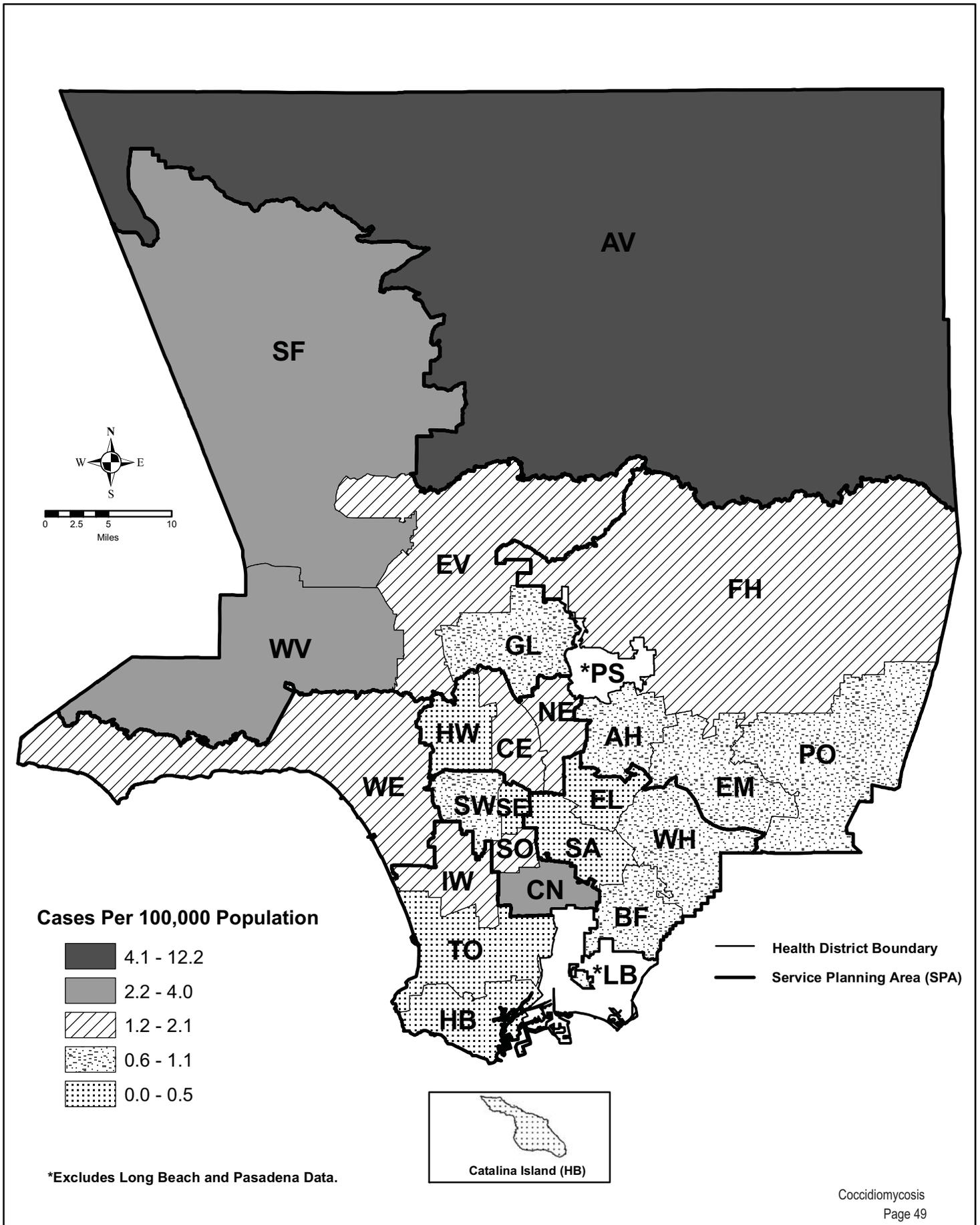


Figure 6. Coccidioidomycosis Cases by Race/Ethnicity LAC, 2004-2009



Map 3. Coccidioidomycosis Rates by Health District, Los Angeles County, 2009*





COCCIDIOIDOMYCOSIS

CRUDE DATA	
Number of Cases	228
Annual Incidence ^a	
LA County	2.3
California ^b	7.1
United States ^b	2.5
Age at Diagnosis	
Mean	50
Median	50
Range	10-90

^aCases per 100,000 population.

^bCalculated from Final 2008 Reports of Nationally Notifiable Infectious Disease, MMWR 58(31);856-857;859-869.

DESCRIPTION

Coccidioidomycosis, or Valley Fever, is a fungal disease transmitted through the inhalation of *Coccidioides immitis* spores that are carried in dust. Environmental conditions conducive to an increased occurrence of coccidioidomycosis are as follows: arid to semi-arid regions, dust storms, low altitude, hot summers, warm winters, and sandy, alkaline soils. It is endemic in the southwestern US and parts of Mexico and South America. Southern California is a known endemic area. Most infected individuals exhibit no symptoms or have mild respiratory illness, but a few individuals develop severe illness such as pneumonia, meningitis, or dissemination to other parts of the body. Among the wide range of clinical presentations, only the most severe cases are usually diagnosed and reported to the health department. Laboratory diagnosis is made by identifying the fungus through microscopic examination, culture, serologic testing or DNA probe. Blacks, Filipinos, pregnant women, the very young (age <5 years), the elderly, and immunocompromised individuals are at high risk for severe disease. Currently no safe and effective vaccine or drug to prevent coccidioidomycosis exists. Prevention lies mainly in dust control (e.g., planting grass in dusty areas, putting oil on roadways, wetting down soil, air conditioning homes, wearing masks or respirators). Other options may be to warn

people at high risk for severe disease not to travel to endemic areas when conditions are most dangerous for exposure. Recovery from the disease confers lifelong immunity to reinfection and is a rationale for the development of a vaccine for the prevention of symptomatic or serious forms of the disease. Increasing incidence of disease, a growing population in the endemic area, and the lack of a highly effective drug treatment validate need for prevention efforts rather than treatment for this disease.

University of Arizona will launch a human clinical drug trial. "Nikkomycin Z, discovered in the 1970s, will be tested in Tucson on the people diagnosed with fresh cases of the valley fever to show the drug's safety and offer insights on its effectiveness," said Dr. John Galgiani, Director of the Valley Fever Center for Excellence.

2008 TRENDS AND HIGHLIGHTS

- Overall, the Los Angeles County incidence rate for coccidioidomycosis has increased in the last ten years (Figure 1).
- Cases occurred primarily in adults with the greatest number of reported cases in ages 45 to 54 and 65+ years. The greatest incidence rate was in the 65+ age group (5 cases per 100,000) which is different than in previous years where the predominant age group was younger (Figure 2).
- Hispanics had the highest percentage of cases with 37.7% (n=86) in 2008 as compared to other racial groups. However, the incidence rate for blacks 4.3 cases per 100,000 (n=37) was highest as compared to other racial groups, which is consistent with previous years (Figure 3).
- Service Planning Area (SPA) 1 (Antelope Valley Health District) reported the highest incidence rate of coccidioidomycosis in LAC, 14.2 per 100,000 (n=52), which is consistent with previous years (Figure 4).
- Cases most commonly occurred in the fall, winter, and spring months, which is consistent with previous reports (Figure 5).
- On January 1, 2008, in concordance with the Council for State and Territorial Epidemiologists (CSTE) definitions, LAC began confirming cases with a single positive IgG serology and clinical symptoms.



**Reported Coccidioidomycosis Cases and Rates* per 100,000 by Age Group, Race/Ethnicity, and SPA
Los Angeles County, 2004-2008**

	2004 (N=133)			2005 (N=214)			2006 (N=196)			2007 (N=145)			2008 (N=228)		
	No.	(%)	Rate/ 100,000												
Age Group															
<1	0	0.0	0.0	0	0.0	0.0	1	0.5	0.7	0	0.0	0.0	0	0.0	0.0
1-4	0	0.0	0.0	0	0.0	0.0	1	0.5	0.2	1	0.7	0.2	0	0.0	0.0
5-14	1	0.8	0.1	3	1.4	0.2	3	1.5	0.2	4	2.8	0.3	6	2.6	0.4
15-34	35	26.3	1.2	52	24.3	1.9	51	26.0	1.8	27	18.6	1.0	41	18.0	1.4
35-44	33	24.8	2.2	50	23.4	3.3	30	15.3	2.0	30	20.7	2.0	33	14.5	2.2
45-54	33	24.8	2.7	49	22.9	3.9	42	21.4	3.2	37	25.5	2.8	58	25.4	4.3
55-64	20	15.0	2.5	27	12.6	3.2	32	16.3	3.7	26	17.9	2.9	38	16.7	4.2
65+	10	7.5	1.1	33	15.4	3.4	36	18.4	3.7	20	13.8	2.0	52	22.8	5.1
Unknown	1	0.8		0	0.0		0	0.0		0	0.0		0	0.0	
Race/Ethnicity															
Asian	11	8.3	0.9	15	7.0	1.2	15	7.7	1.2	10	6.9	0.8	27	11.8	2.1
Black	24	18.0	2.8	28	13.1	3.3	27	13.8	3.2	22	15.2	2.6	37	16.2	4.3
Hispanic	50	37.6	1.1	70	32.7	1.5	68	34.7	1.5	52	35.9	1.1	86	37.7	1.8
White	41	30.8	1.4	96	44.9	3.3	75	38.3	2.6	56	38.6	1.9	62	27.2	2.1
Other	1	0.8	3.6	0	0.0	0.0	3	1.5	10.5	1	0.7	4.8	1	0.4	4.1
Unknown	6	4.5		5	2.3		8	4.1		4	2.8		15	6.6	
SPA															
1	50	37.6	15.1	79	36.9	23.2	67	34.2	19.3	51	35.2	14.2	52	22.8	14.2
2	34	25.6	1.6	76	35.5	3.6	57	29.1	2.7	47	32.4	2.2	62	27.2	2.8
3	4	3.0	0.2	13	6.1	0.8	11	5.6	0.6	9	6.2	0.5	21	9.2	1.2
4	10	7.5	0.8	10	4.7	0.8	14	7.1	1.1	8	5.5	0.6	20	8.8	1.6
5	4	3.0	0.6	4	1.9	0.6	9	4.6	1.4	1	0.7	0.2	9	3.9	1.4
6	10	7.5	1.0	10	4.7	1.0	16	8.2	1.5	0	0.0	0.0	24	10.5	2.3
7	11	8.3	0.8	16	7.5	1.2	9	4.6	0.7	12	8.3	0.9	21	9.2	1.5
8	10	7.5	0.9	5	2.3	0.5	12	6.1	1.1	8	5.5	0.7	13	5.7	1.2
Unknown	0	0.0		1	0.5		1	0.5		9	6.2		6	2.6	

*Rates calculated based on less than 19 cases or events are considered unreliable.



Figure 1. Incidence Rates of Coccidioidomycosis
US, CA and LAC, 1999-2008

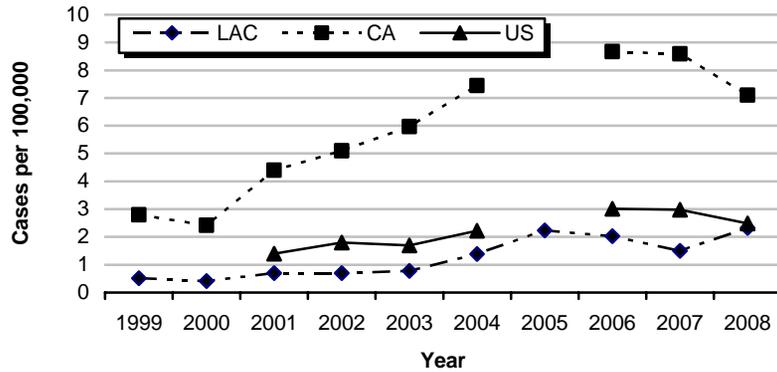


Figure 2. Incidence Rates of Coccidioidomycosis by Age Group
LAC, 2008

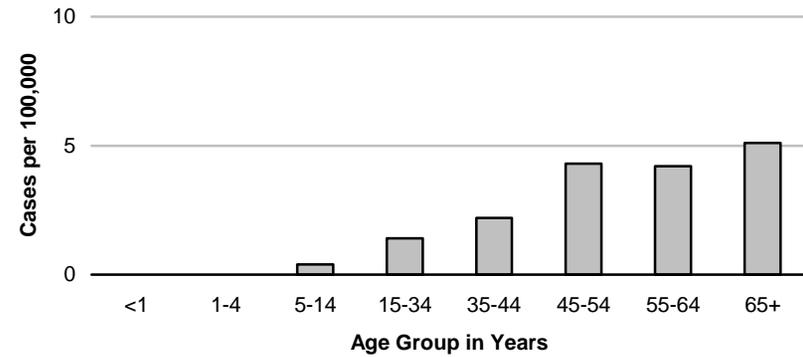


Figure 3. Percent Cases of Coccidioidomycosis
by Race/Ethnicity, LAC, 2008

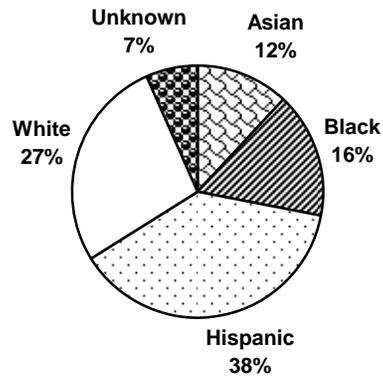


Figure 4. Incidence Rates of Coccidioidomycosis by SPA
LAC, 2008

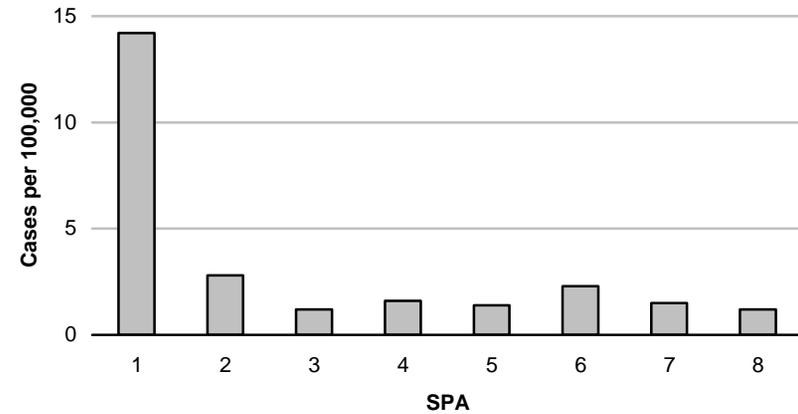




Figure 5. Reported Coccidioidomycosis Cases by Month of Onset, LAC, 2008

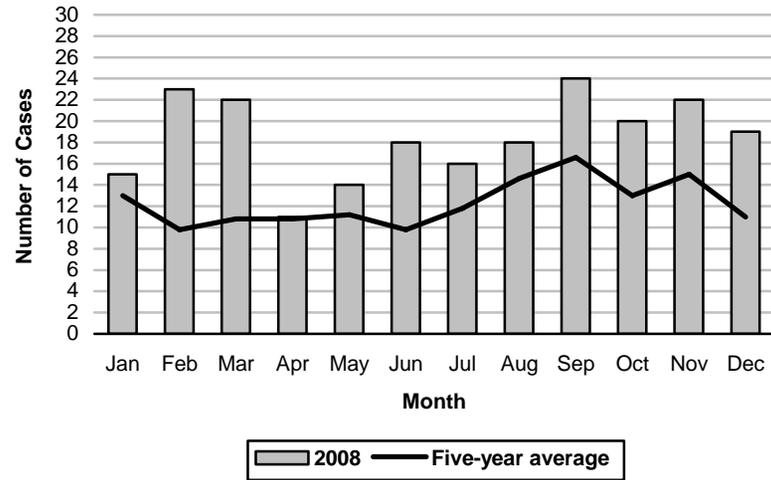
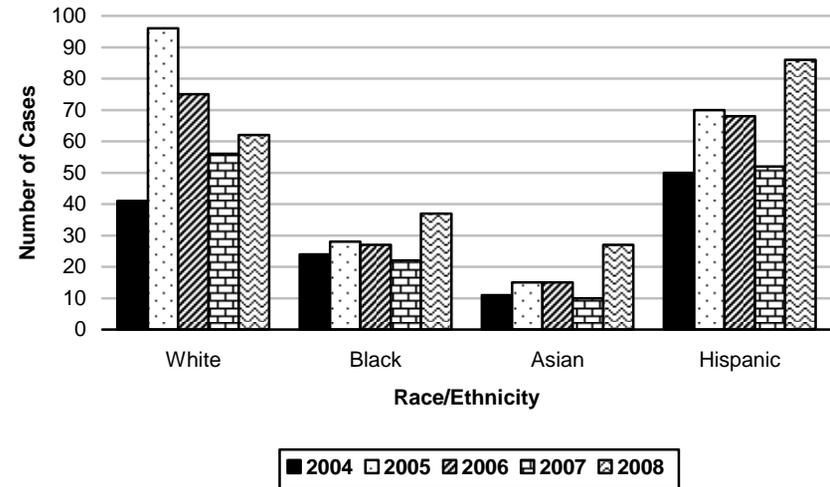
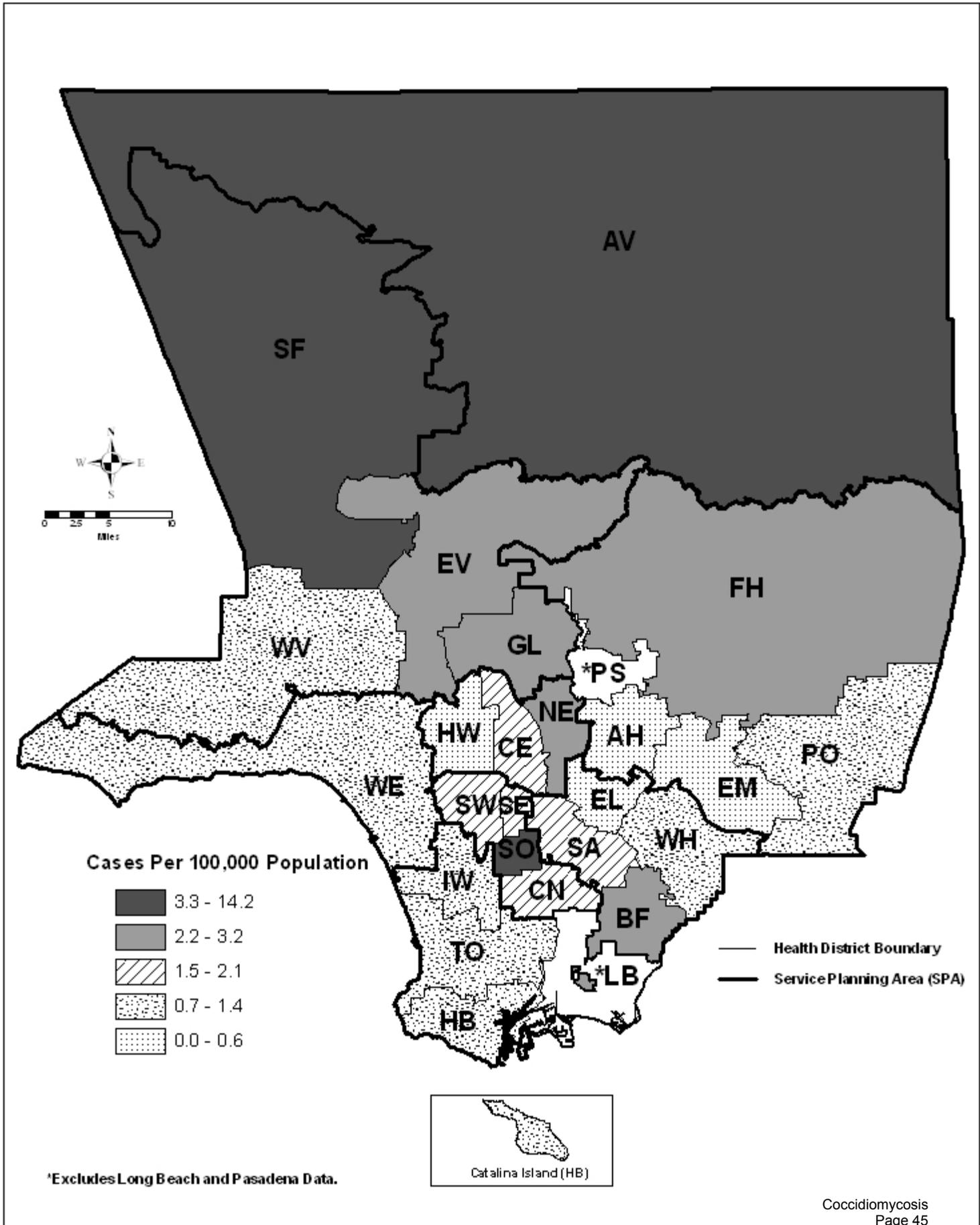


Figure 6. Coccidioidomycosis Cases by Race/Ethnicity LAC, 2004-2008



Map 3. Coccidioidomycosis Rates by Health District, Los Angeles County, 2008*



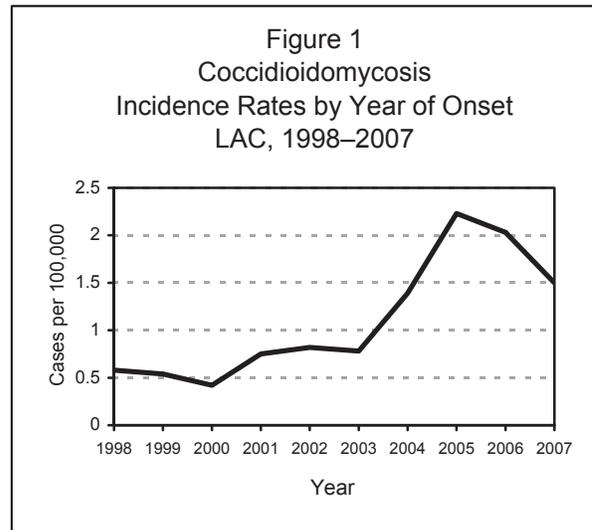


COCCIDIOIDOMYCOSIS

CRUDE DATA	
Number of Cases	145
Annual Incidence ^a	
LA County	1.50
California	8.59
United States	2.98
Age at Diagnosis	
Mean	46.9
Median	46
Range	4-88 years

^a Cases per 100,000 population.

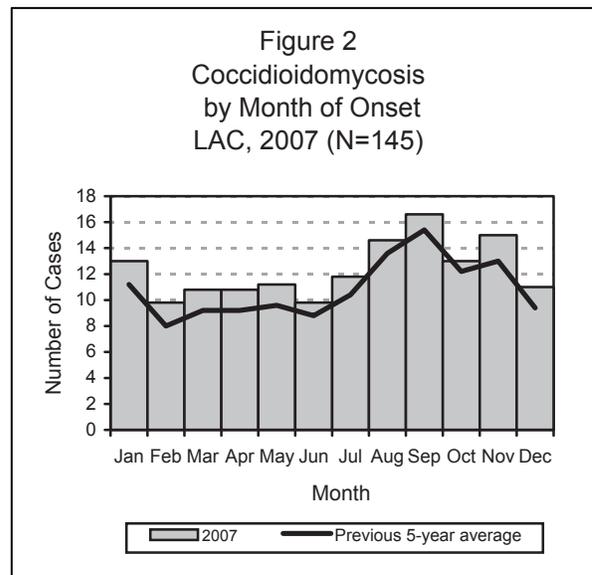
^b Calculated from Final 2007 Reports of Nationally Notifiable Infectious diseases issue of MMWR (57:901, 903-913).



DESCRIPTION

Coccidioidomycosis, or Valley Fever, is a common fungal disease transmitted through the inhalation of *Coccidioides immitis* spores that are carried in dust. Environmental conditions conducive to an increased occurrence of coccidioidomycosis are arid to semi-arid regions, dust storms, lower altitude, hotter summers, warmer winters, and sandy, alkaline soils. It is endemic in the southwestern U.S. and parts of Mexico and South America. Southern California is a known endemic area.

Most infected individuals exhibit no symptoms or have a mild respiratory illness, but a few individuals develop a severe illness such as pneumonia, meningitis, or dissemination when the fungus spreads to many parts of the body. Because of the wide range of clinical presentations, only the most severe cases are usually reported to the Health Department. Laboratory diagnosis is made by identifying the fungus through microscopic examination, culture, serologic testing, or DNA probe. The risk of dissemination is 175 times greater in Filipinos and 10 times greater in African Americans than in non-Hispanic whites. Some studies have suggested genetic bases of predisposition to dissemination, including a possible association with blood group type B (Cheung, 2006).



DISEASE ABSTRACT

- The incidence rate for coccidioidomycosis has decreased in the past two years after reaching its peak in 2005.
- Cost in terms of disease severity and hospitalization is substantial in the United States. An otherwise healthy individual diagnosed with symptomatic coccidioidomycosis may miss more than one month of school or work. Recent estimates of antifungal medication costs range from \$5,000 to \$20,000 per person per year of therapy for the disease (Cheung, 2006).
- Adults, males, blacks, and residents of the San Fernando and Antelope Valleys are at higher risk for disease.



STRATIFIED DATA

Trends: The incidence rate was 1.50 cases per 100,000 population, which decreased from last year's rate of 2.03 per 100,000 population (Figure 1).

Seasonality: The highest number of cases per month was observed in the 3rd and 4th quarters although the highest numbers of cases have typically been seen in the 3rd quarter. The number of cases per month through most of 2007 was above the five-year average (Figure 2). Cases commonly occur in the summer after a rainy winter or spring, especially after wind and dust storms.

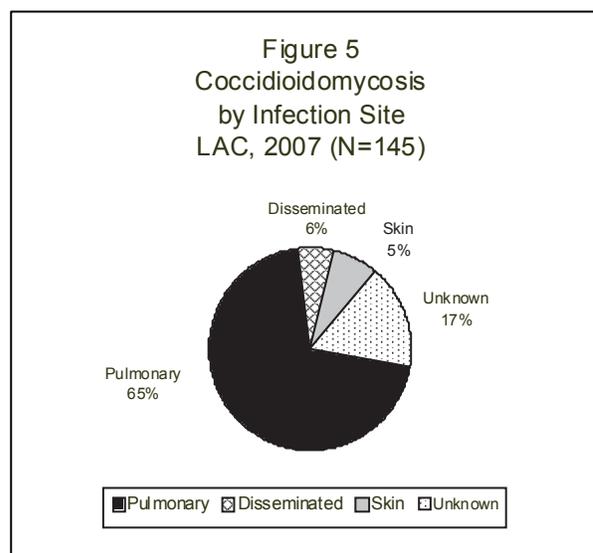
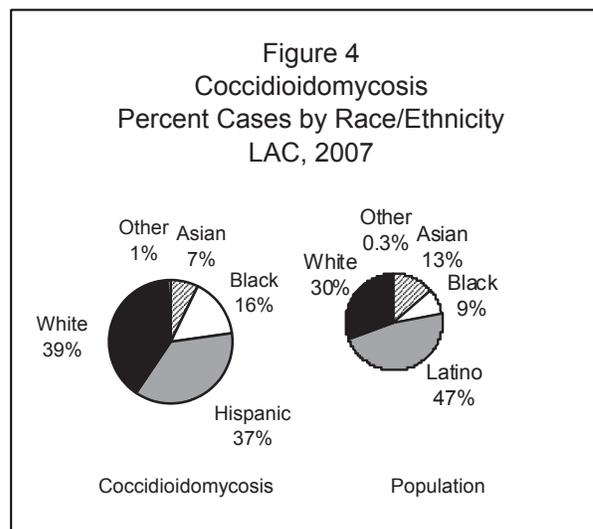
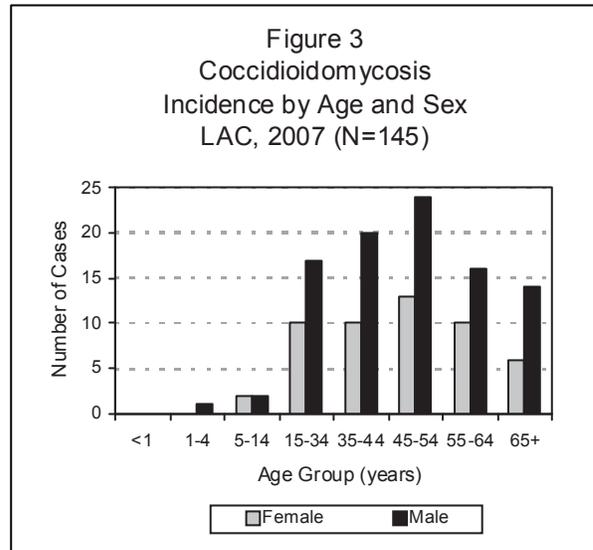
Age: Cases were predominantly in the adult age groups. The greatest numbers of cases reported were in persons aged 35-44 and 45-54 years (Figure 3). The greatest incidence rate among males and females was in the 55-64 age group (2.9/100,000). The youngest case was 4 years old. The mean age for males was 47 years and for females 46 years (Figure 3).

Sex: Males had an incidence rate of 2.0 and females 1.0. Overall, males have higher incidence rates, which is consistent with previous years. The gender difference is likely due to occupational and recreational dust exposure of males, although this is not clearly evident from the information collected. No female cases reported being pregnant.

Race/Ethnicity: The highest incidence rate (2.6 cases per 100,000) was observed among blacks; whites had an incidence rate of 1.9 (n = 56), Hispanics 1.1 (n = 52), Asians 0.8 (n=10), and others (n=1). Race was unknown in one case (Figure 4).

Location: SPA 1 (Antelope Valley Health District) had the highest number of coccidioidomycosis cases (n=51) within SPA 2-San Fernando Valley Health District (HD) had 28 cases, and West Valley HD had 8 cases. SPA 1 and 2 cases combined comprise 60% of the total. The incidence rate per 100,000 in Antelope Valley HD is 14.2, San Fernando Valley HD 6.0, and West Valley HD 0.9. These districts are more arid than the rest of the county, thus have higher risk.

Travel: Travel history was available for 103 cases. Of these, 58% (n=60) reported travel within four weeks before onset of illness, while 42% (n=43) reported no travel. Of those traveling, many reported multiple travel destinations: 25% (n=15) traveled within California including San Fernando Valley, Central Valley, and adjacent counties of Bakersfield and Oxnard; 55% (n=33) traveled outside California to Las





Vegas, Arizona; Texas, Mexico; and South America; and 20% (n=12) reported travel both within and outside of California to other locations. The fungus is known to be endemic in most of these areas.

Underlying Disease: Out of 145 total cases, 40 had unknown disease history, 41 had no disease history, and 64 cases reported having an underlying disease: 21 had diabetes, 14 malignancy, and 29 coded as other (e.g., asthma, kidney problems, IVDA, and other lung problems). Some cases had multiple underlying diseases.

Severity of Disease: Sites of infection were reported as primary pulmonary 67% (n=97), disseminated 6% (n=8), skin 8% (n=11); 20% (n=29) of the case infection sites were not indicated (Figure 5). Of the cases, 28 were culture-confirmed and 109 cases were diagnosed by serological, histopathological, or molecular testing. Some cases had multiple laboratory results available for diagnosis. Of the 124 cases for which information was available, 73% (n=90) were hospitalized.

COMMENTS

In LAC, the 2007 incidence for coccidioidomycosis was lower for the past two years. The dramatic increase began in the fall of 2003, and the wildfires in Southern California may have been a contributor by destroying vegetation and increasing dust exposure. This followed by seasonal warm temperatures, drought, and Santa Ana winds are ideal conditions for disseminating *Coccidioides immitis* spores. Although the number of cases reported is small compared to other diseases, the costs in terms of disease severity, hospitalization, and mortality are great. Also, more young adults and adults aged 45-64, especially males are affected instead of the very young and old, which may reflect a higher outdoor recreational or occupational exposure in these groups.

As in past years, residents of the Antelope Valley and West Valley are at higher risk for severe disease because these districts are more arid than the rest of the county. These areas of the county have seen a rapid growth in population. It is hypothesized that the influx of a naïve population living in areas of heavy construction greatly increased risk for disease in a coccidioidomycosis endemic area.

PREVENTION/INTERVENTION

Currently no safe and effective vaccine or drug to prevent coccidioidomycosis exists. Prevention lies mainly in dust control (e.g., planting grass in dusty areas, putting oil on roadways, wetting down soil, air conditioning homes, wearing masks or respirators). Other options may be to warn individuals who are at high risk for severe disease not to travel to endemic areas when conditions are most dangerous for exposure.

Recovery from the disease confers lifelong immunity to reinfection and is a rationale for the development and implementation of a vaccine for the prevention of symptomatic or serious forms of the disease. The combination of increasing incidence of disease, a growing population in the endemic area, and the lack of a highly effective drug treatment validates need for prevention efforts rather than treatment for this disease.

University of Arizona researchers are ready to launch a long-delayed human clinical trial on a drug they hope will cure valley fever.

"Nikkomycin Z, discovered in the 1970s, will be tested in Tucson on the people diagnosed with fresh cases of the valley fever to show the drug's safety and offer insights on its effectiveness," said Dr. John Galgiani, Director of the Valley Fever Center for Excellence.



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ADDITIONAL RESOURCES

Bussum, L.V. (2003). National Fire Weather Report, 2003. Retrieved September 18, 2008, from the National Weather Service Web site:
<http://fire.boi.noaa.gov/FIREWX/AnnualReport/2003NationalReport.pdf>

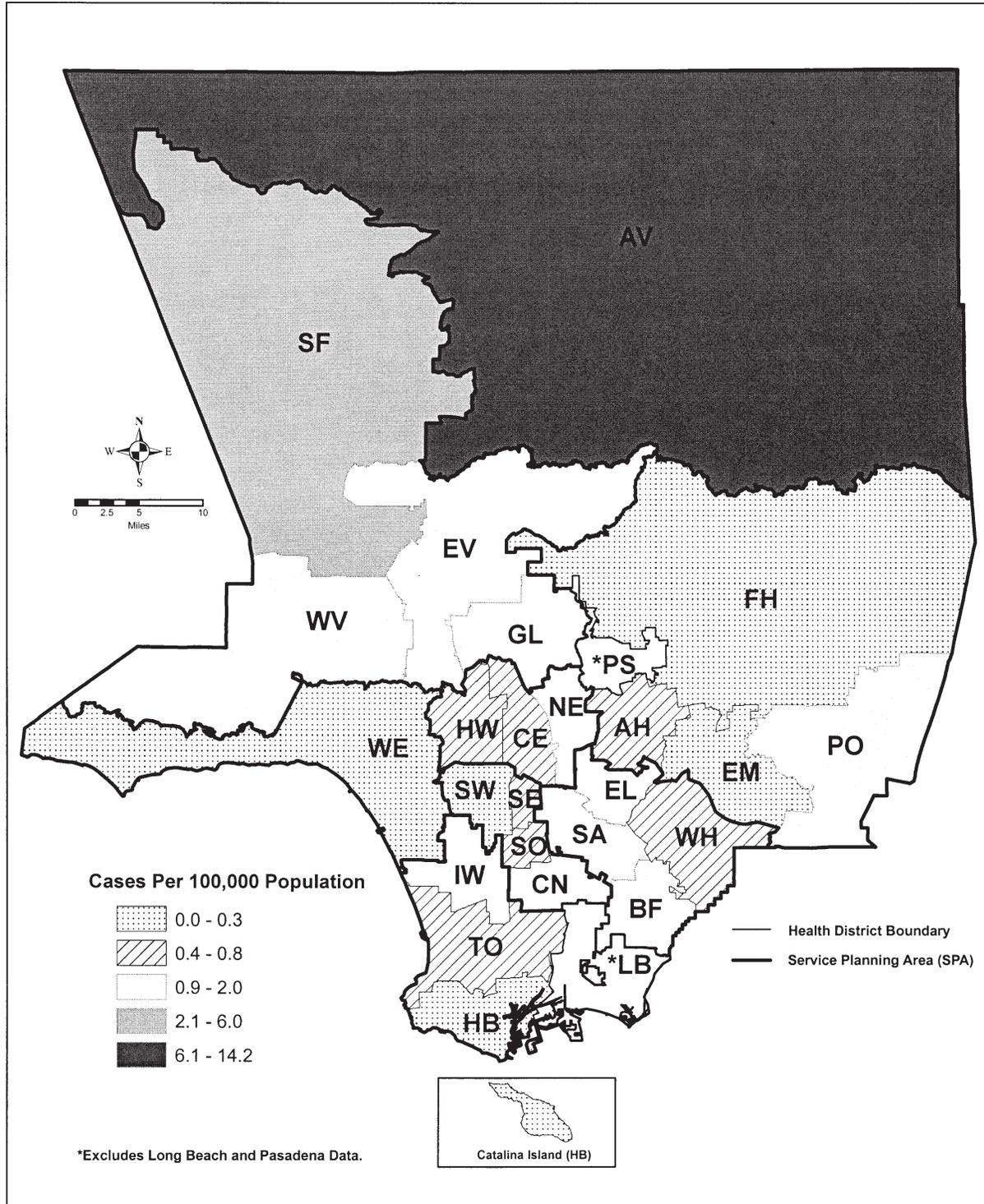
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Kirkland, T.N. & Fierer, J. (1996). Coccidioidomycosis: a reemerging infectious disease. *Emerging Infectious Disease*, 2(3), 192–199.

University of Arizona. Valley Fever Center for Excellence. Retrieved September 19, 2008, University of Arizona Web site: <http://www.vfce.arizona.edu/links.htm>



Map 3. Coccidioidomycosis Rates by Health District, Los Angeles County, 2007*

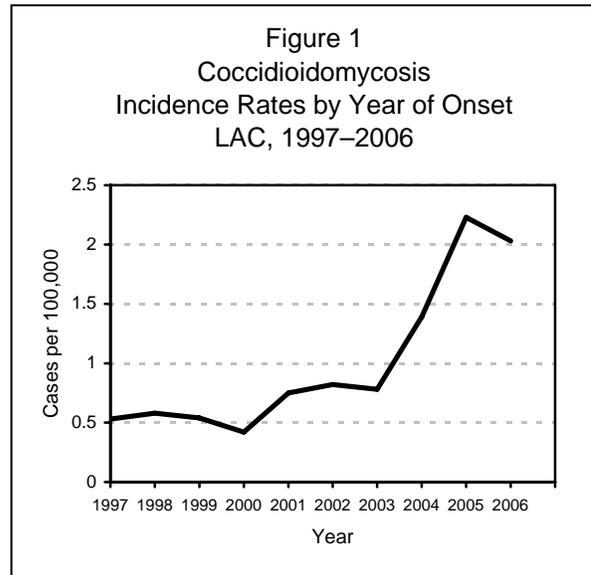


COCCIDIOIDOMYCOSIS

CRUDE DATA	
Number of Cases	196
Annual Incidence ^a	
LA County	2.03
California	8.67 ^b
United States	3.01 ^b
Age at Diagnosis	
Mean	46.8
Median	48
Range	3-88 years

^a Cases per 100,000 population.

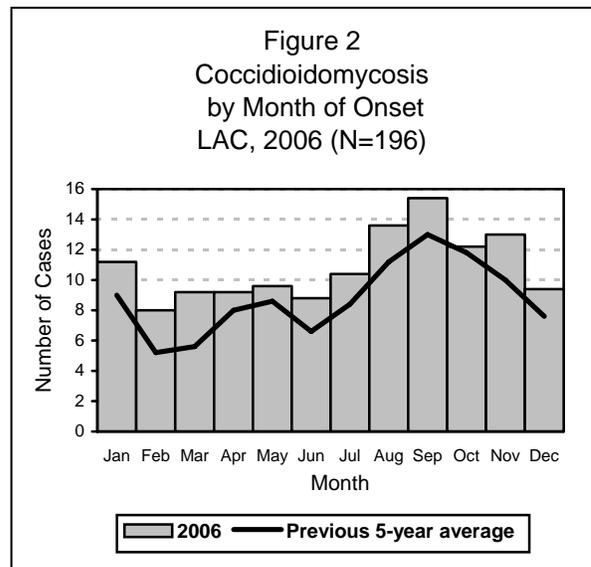
^b Calculated from 2007 Summary of notifiable diseases issue of MMWR (56:853-863).



DESCRIPTION

Coccidioidomycosis, or Valley Fever, is a common fungal disease transmitted through the inhalation of *Coccidioides immitis* spores that are carried in dust. Environmental conditions conducive to an increased occurrence of coccidioidomycosis are as follows: arid to semi-arid regions, dust storms, lower altitude, hotter summers, warmer winters, and sandy, alkaline soils. It is endemic in the southwestern US and parts of Mexico and South America. Southern California is a known endemic area.

Most infected individuals exhibit no symptoms or have a mild respiratory illness, but a few individuals develop a severe illness such as pneumonia, meningitis, or dissemination when the fungus spreads to many parts of the body. Because of the wide range of clinical presentations, only the most severe cases are usually reported to the health department. Laboratory diagnosis is made by identifying the fungus through microscopic examination, culture, serologic testing or DNA probe. Blacks, Filipinos, pregnant women, the very young (<5 years), elderly, and immunocompromised individuals are at high risk for severe disease.



DISEASE ABSTRACT

- The incidence rate for coccidioidomycosis has been increasing since 2000, when it was at its lowest point in 10 years (1997-2006) in LAC.
- Cost in terms of disease severity and hospitalization is substantial.
- The incidence of coccidioidomycosis this year is slightly lower than last year. Adults, males, blacks, and residents of the San Fernando and Antelope Valleys are at higher risk for disease.

STRATIFIED DATA

Trends: The incidence rate was 2.03 cases per 100,000 population which decreased from last year's rate of 2.23 per 100,000 population (Figure 1).

Seasonality: The highest number of cases per month was observed in the 3rd and 4th quarters, although the highest numbers of cases have typically been seen in the 3rd quarter. The number of cases per month through most of 2006 was above the five-year average (Figure 2). Cases commonly occur in the summer after a rainy winter or spring, especially after wind and dust storms.

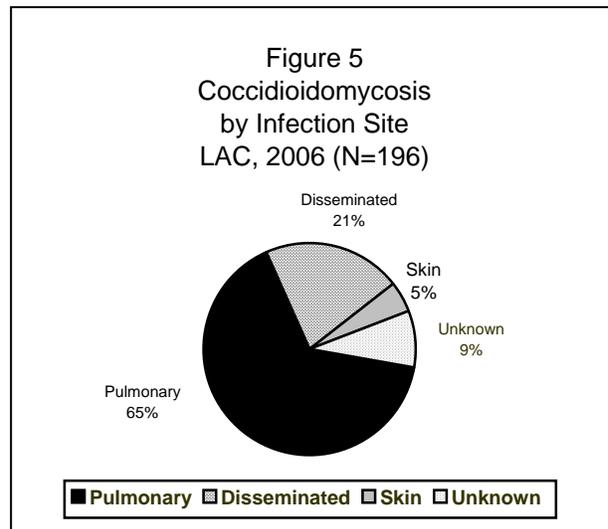
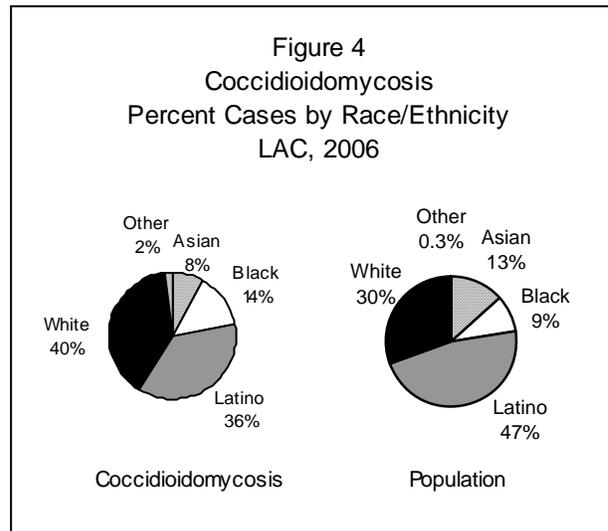
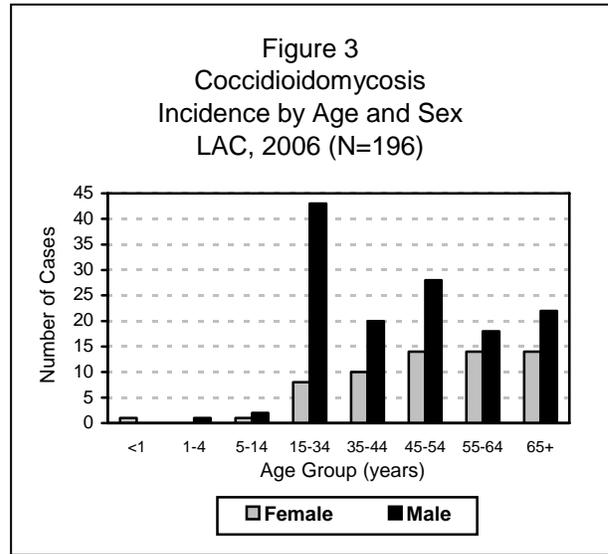
Age: Cases were predominantly in the adult age groups. The greatest numbers of cases reported were in persons aged 15-34 and 45-54 years (Figure 3). The greatest incidence rate was in the 65+ age group (3.7/100,000). The youngest case was less than 1 year of age. The mean age for males was 45 years and for females, 49 years (Figure 3).

Sex: The male-to-female rate ratio was 2.2:1. Males had an overall higher incidence rate, which is consistent with previous years. The gender difference is likely due to occupational and recreational dust exposure of males, although this is not clearly evident from the information collected. No female cases reported being pregnant.

Race/Ethnicity: The highest incidence rate of 3.2 cases per 100,000 was observed among blacks compared to the other race/ethnic groups. Whites had an incidence rate of 2.6 (n = 75), Latinos 1.5 (n= 68), Asians 1.2 (n=15) and others (n=3). Race was unknown in 2 cases (Figure 4).

Location: SPA 1 (Antelope Valley Health District) had the highest number of coccidioidomycosis cases (n=67), within SPA 2. San Fernando Valley had 32 cases and West Valley had 19 cases. SPA 1 and 2 cases combined comprise 60% of the total. This has added significance because the incidence rate per 100,000 in Antelope Valley is 19.3, San Fernando Valley 7.2 and West Valley 2.2. These districts are more arid than the rest of the county, thus have higher risk.

Travel: Travel history was available for 158 cases. Of those with a travel history, 53% (n=83) reported travel within four weeks before onset of illness, while 47% (n=75) reported no travel. Of those traveling, many reported multiple travel destinations: 42% (n=35) traveled within California including San Fernando Valley, Central Valley, and adjacent



counties of Bakersfield and Oxnard; 52% (n=43) traveled outside California to Las Vegas, Arizona, Texas, Mexico, and South America, and 6% (n=5) reported travel both within and outside of California to other locations. The fungus is known to be endemic in most of these areas.

Underlying Disease: Out of 146 cases assessed, 97 cases (66%) reported having an underlying disease: 24% (n=35) diabetes, 7% (n=10) malignancy, 2% (n=3) HIV, 3% (n=4) organ transplants, and 28% (n=41) coded as other (e.g. asthma, kidney problems, sickle cell anemia). No disease history was reported in 36% (n=53) of cases. Some cases had multiple underlying diseases.

Severity of Disease: Sites of infection were reported as primary pulmonary 65% (n=128), disseminated 21% (n=41), meningitis 0.5% (n=1), skin 5% (n=9), and 9% (n=17) of the case infection sites were not indicated (Figure 5). Of the cases, 47 were culture-confirmed and 113 cases were diagnosed by serological, histopathological, or molecular testing. Some cases had multiple labs available for diagnosis. Of the 178 cases where information was available, 71% (n=127) were hospitalized.

COMMENTS

In LAC, the 2006 incidence for coccidioidomycosis was slightly lower than the previous year. Though there is a plateau in the rate of cases this year, overall, the rate has been increasing since 2000. The dramatic increase began in the fall of 2003 and the wildfires in southern California may have been a contributor by destroying vegetation and increasing dust exposure. This, followed by seasonal warm temperatures, drought, and Santa Ana winds are ideal conditions for disseminating *Coccidioides immitis* spores. Although the number of cases reported is small compared to other diseases, the costs in terms of disease severity, hospitalization, and mortality are great. Also, more young adults and adults ages 45-64, especially males are affected instead of the very young and old, who are normally at high risk for illness, which may reflect a higher outdoor recreational or occupational exposure in these groups.

As in past years, residents of the Antelope Valley and the West Valley are at higher risk for severe disease because these districts are more arid than the rest of the county. These areas of the county have seen a rapid growth in population. It is hypothesized that the influx of a naïve population living in areas of heavy construction, greatly increased risk for disease in a cocci endemic area.

The increased number of cases reported in SPA 2 may be due to a reporting bias. It was determined that cases were not being reported consistently from a single source, and after education was provided on reporting guidelines and procedures, an increase in the number of reports was noted.

PREVENTION / INTERVENTION

Currently, no safe and effective vaccine or drug to prevent coccidioidomycosis exists. Prevention lies mainly in dust control (e.g., planting grass in dusty areas, putting oil on roadways, wetting down soil, air conditioning homes, wearing masks or respirators). Other options may be to warn individuals who are at high risk for severe disease not to travel to endemic areas when conditions are most dangerous for exposure.

Although coccidioidomycosis cannot be readily prevented, improved understanding of the epidemiology of this disease can assist in developing more effective prevention strategies. To increase awareness among Antelope Valley residents and healthcare workers, a series of presentations on the epidemiology, clinical symptoms, diagnosis and treatment of coccidioidomycosis were provided.

Nikkomycin Z is an experimental compound that has been shown to exhibit antifungal properties by inhibiting chitin synthesis. Funding to continue clinical trials of nikkomycin Z is being sought, but even if the fund-raising efforts are successful, the drug is unlikely to be available for general use for another five to seven years.

Currently, vaccine research is being conducted in part by the state of California.

ADDITIONAL RESOURCES

Bussum LV. National Fire Weather Report, 2003. Report available at the National Weather Service, Boise, ID website: <http://fire.boi.noaa.gov/FIREWX/AnnualReport/2003NationalReport.pdf>

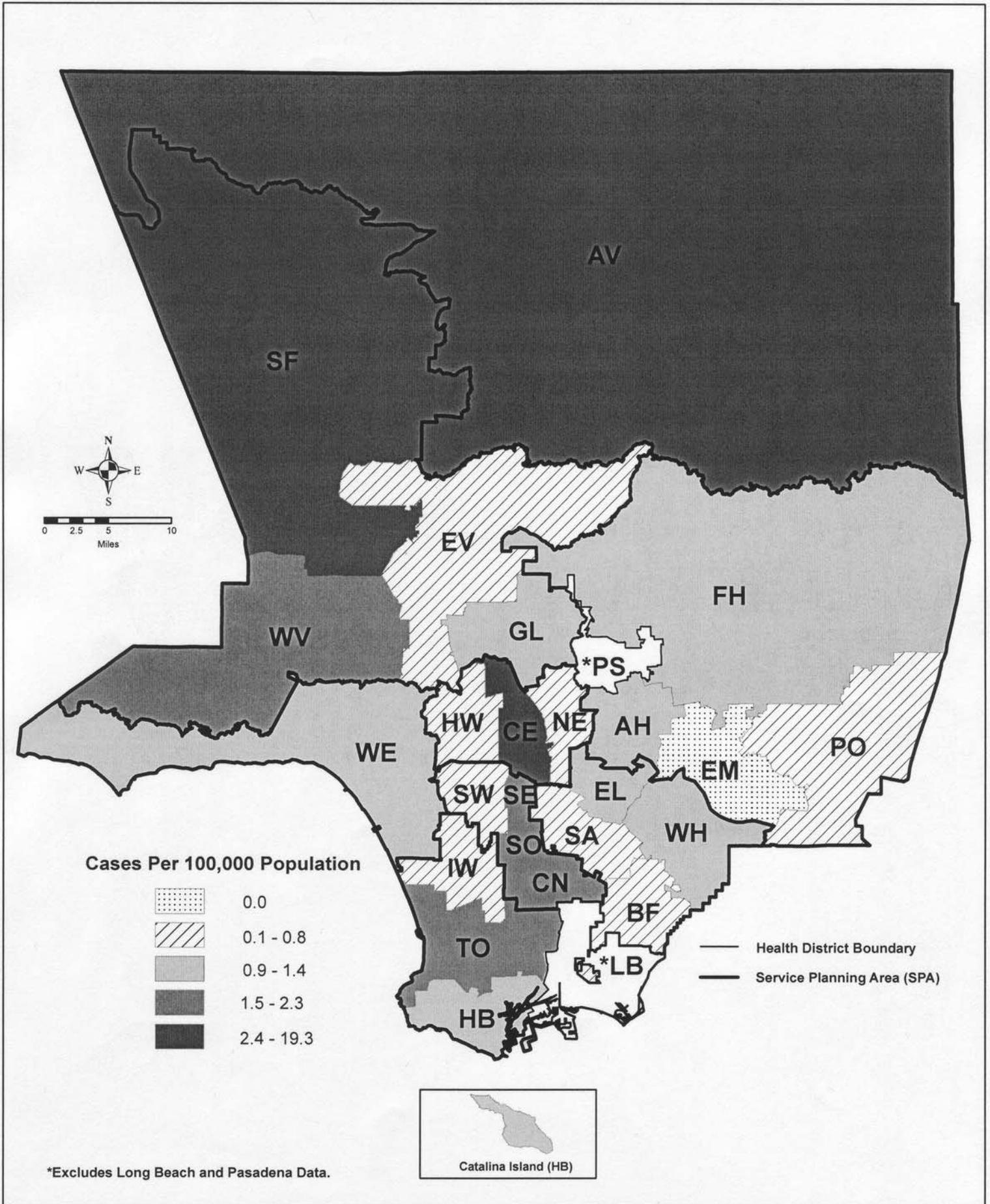
CDC website: www.cdc.gov/ncidod/dbmd/diseaseinfo/coccidioidomycosis_t.htm

Kirkland TN, Fierer J. Coccidioidomycosis: a reemerging infectious disease. *Emerg Infect Dis* 1996; 2(3):192–199.

Valdivia L, Nix D, Wright M, et al. Coccidioidomycosis as a common cause of community-acquired pneumonia. *Emerg Infect Dis* 2006; 12(8):958-969.

Valley Fever Center for Excellence website: www.vfce.arizona.edu/NAE-home.htm

Map 3. Coccidioidomycosis Rates by Health District, Los Angeles County, 2006*





COCCIDIOIDOMYCOSIS

CRUDE DATA	
Number of Cases	214
Annual Incidence ^a	
LA County	2.23
California	N/A
United States	N/A
Age at Diagnosis	
Mean	31
Median	50
Range	7-93 years
Case Fatality	
LA County	7%
United States	N/A

^a Cases per 100,000 population.

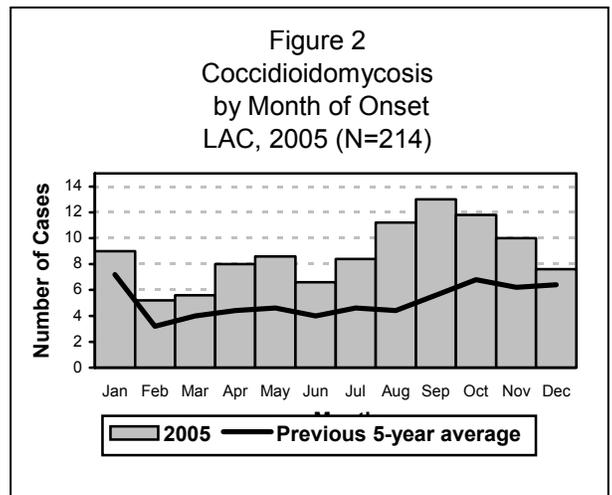
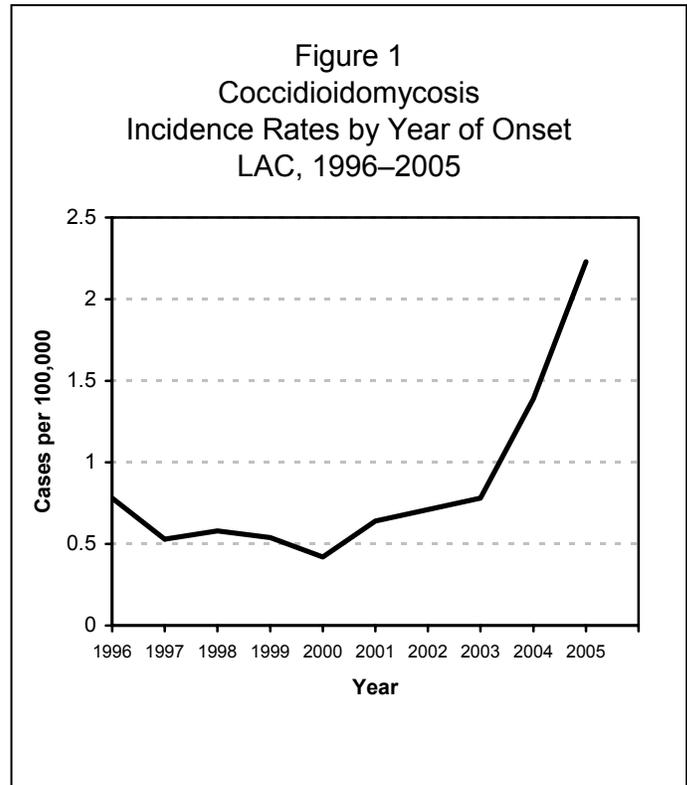
DESCRIPTION

Coccidioidomycosis, or Valley Fever, is a common fungal disease transmitted through the inhalation of *Coccidioides immitis* spores that are carried in dust. Environmental conditions conducive to an increased occurrence of coccidioidomycosis are as follows: arid to semi-arid regions, dust storms, lower altitude, hotter summers, warmer winters, and sandy, alkaline soils. It is endemic in the southwestern US and parts of Mexico and South America. Southern California is a known endemic area.

Most infected individuals exhibit no symptoms or have a mild respiratory illness, but a few individuals develop a severe illness such as pneumonia, meningitis, or dissemination when the fungus spreads to many parts of the body. Because of the wide range of clinical presentations, only the most severe cases are usually reported to the health department. Laboratory diagnosis is made by demonstrating the fungus with microscopic examination or culture or by serologic testing. Blacks, Latinos, Native Americans, Filipinos, males, pregnant women, the very young (<5 years), elderly, and immunocompromised individuals are at high risk for severe disease.

DISEASE ABSTRACT

- The incidence rate for coccidioidomycosis has been increasing since 2000, which was at its lowest point in 10 years in LAC.





- Cost in terms of disease severity and hospitalization was substantial. The incidence of coccidioidomycosis were greater than last year, though the case fatality was lower. Young adults, males, Blacks, and residents of the West Valley and Antelope Valley were at higher risk for disease.

STRATIFIED DATA

Trends: The incidence rate was 2.23 cases per 100,000 population for 2005 which was higher than last year (Figure 1). The increase in LA County is largely due to an increase of cases in Antelope Valley which had an incidence rate of 23.0 compared to last year of 14.9.

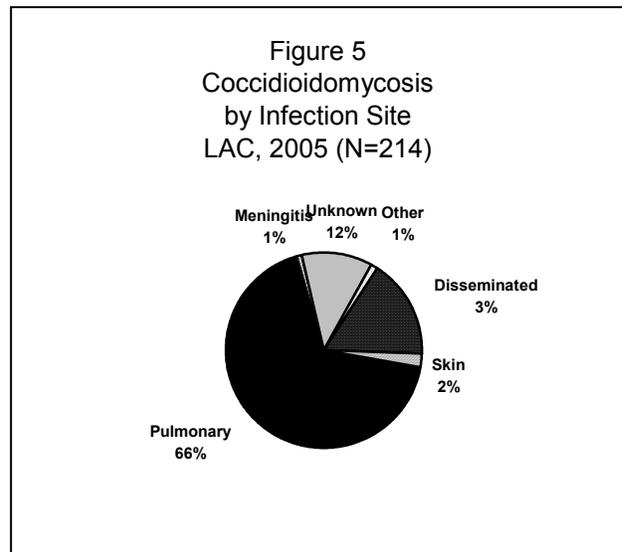
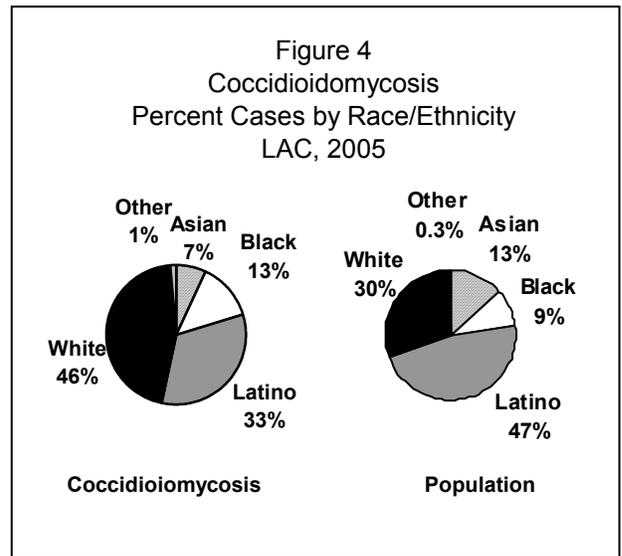
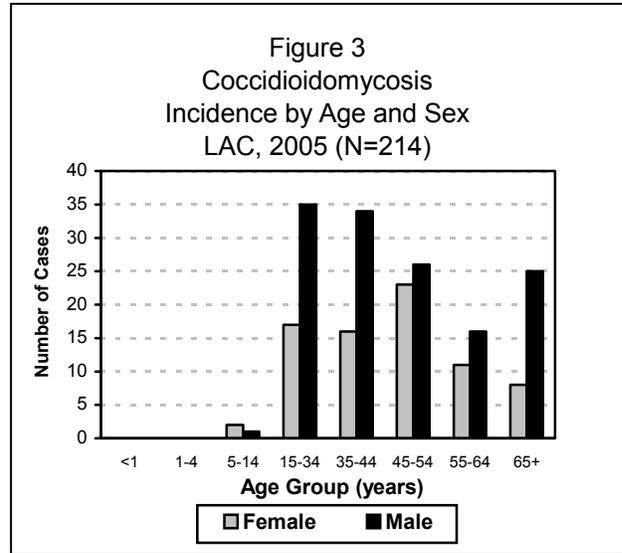
Seasonality: The highest number of cases per month was observed in the 3rd quarter and gradually decreased in the last month of the year. The number of cases per month through most of 2005 was well above the previous five-year average (Figure 2). Comparing cases from the summer months August-October 2005 to a 5-year previous average of cases for the same time period, LAC observed an increase of 542% in 2005 (77 vs. 12.0 cases). Cases commonly occur in the summer after a rainy winter or spring, especially after wind and dust storms.

Age: For 2005, males had an overall higher incidence like all previous years, and their ages predominated in the young adult age groups. The greatest numbers of cases reported were in persons aged 15-34 and 35-44 years (Figure 3) which was same from previous years. The greatest incidence rate was in the 45-54 age group (3.8/100,000). The youngest case was 7 years of age.

Sex: The male-to-female rate ratio was 1.8:1. The mean age for males was 48.5 years and for females was 46 years (Figure 3). One female reported being pregnant during infection. The most commonly reported occupations among males (13%) were construction and/or maintenance positions.

Race/Ethnicity: The highest incidence rate of 3.3 cases per 100,000 was in the White population (n=96), Latinos (n=70), Blacks (n=28), Asians (n=15) and other (n=2). Whites and Latinos had the greatest number of cases. Race was unknown in 3 cases (Figure 4).

Location: Antelope Valley (n=79) and West Valley (n=52) districts had the highest number of cases reported (61% of the total). This has added significance because the incidence rate per 100,000 in Antelope Valley is 23.0 and West Valley is 2.8,





compared to the overall LAC incidence rate of 2.23. Four cases (1.8%) were incarcerated in areas of high endemicity.

Travel: Travel history was available for 144 cases. Of those with a travel history, 82 cases (57%) reported travel within four weeks before onset of illness, while 43% (n=62) reported no travel. Of those traveling, many reported multiple travel destinations: 76% (62/82) traveled within California including San Fernando Valley, Central Valley and adjacent counties of Riverside and Imperial; 39% (n=32) traveled outside California to Arizona, Iraq, Nevada, Mexico, Taos, and Europe, and 3.7% (n=3) cases reported travel within and outside of California to other locations. The fungus is known to be endemic in most of these areas.

Underlying Disease: One hundred forty-four cases were assessed for underlying disease. Eighty-one cases (56%) reported having an underlying disease, 21% (n=30) cases were diabetic, 11% (n=16) had a malignancy, 3% (n=5) had HIV, 3%(n=4) had organ transplants and 18% (n=26) were coded as other, for example asthma and kidney problems. 44% (n=63) had no reported disease history.

Severity of Disease: Sites of infection were reported as primary pulmonary 68% (n=145), disseminated 16% (n=35), meningitis 1% (n=2), skin 2% (n=5), and other (chest cavity mass, lymph node, neck node) 1% (n=2); in 12% (n=25) of the cases infection site was not stated (Figure 5). 24% of the cases were culture-confirmed (n=46) and 96 cases were diagnosed by serological, histopathological, or molecular evidence. Some cases had multiple labs available for diagnosis. Of the 195 cases where information was available, 73% (n=142) were hospitalized. Fifteen cases died. The 2005 case fatality rate (7%) was lower than last years rate (9.8%).

COMMENTS

In LAC, the 2005 incidence for coccidioidomycosis was higher than the previous year. Overall, the rate has been increasing since 2000. The significant increase started in the fall of 2003. The wildfires in southern California may have contributed by destroying vegetation and increasing dust exposure. This followed by warm temperatures and Santa Ana winds were ideal conditions for disseminating *Coccidioides immitis* spores. Although the number of cases reported is small compared to other diseases, the costs in terms of disease severity, hospitalization, and mortality are great. As in past years, residents of the Antelope Valley and the West Valley are at higher risk for severe disease. These districts are more arid than the rest of the county. Also more young and middle-aged adults, especially males, were affected instead of the very young and old, who are normally at high risk for illness. This may reflect an increased likelihood for this age group to have outdoor recreational or occupational exposure in areas of high risk.

During 3rd quarter of 2005, ACDC noted an abrupt increase in reports of coccidioidomycosis both false and confirmed. Much of this increase was due to automated laboratory reporting by ARUP laboratories. However, the ratio of true to false case (20:80) in ARUP lab reports has remained essentially unchanged over the last nine quarters. Automatic lab reporting necessitated an increase in epidemiologic follow-up, which required all cases to have an appropriate clinical symptoms and laboratory reporting for confirmation. This resulted in an increase in the number of false cases usually due to single IgG serologies. The reason for the large increase in confirmed cases remains theoretical. Record amount of rainfall in the beginning of 2005, followed by a very dry season, are conditions conducive to fungal growth. Additionally, the population of the Antelope Valley, where the majority of cases are located, continues to grow and provide a naïve population to an endemic area. These risks, in combination with increased construction activities, may be responsible for the increased incidence.

In 2005 the following 10 counties were most severely struck by Valley Fever in California: Kern County (n=1584) with incident rate of 205.6/100,000 (Bakersfield and surrounding areas) had the most reported cases followed in descending order LA, Tulare, Fresno, San Luis Obispo, Kings, Riverside, Orange, San Bernardino and Madera. Thirty-four of 61 counties in CA reported Valley Fever cases.



PREVENTION/INTERVENTION

Currently no safe and effective vaccine or drug to prevent coccidioidomycosis is available; prevention lies mainly in dust control such as planting grass in dusty areas, putting oil on roadways, wetting down soil, air conditioning homes, and wearing masks or respirators. Other options may be to warn individuals who are at high risk for severe disease not to travel to endemic areas when conditions are most dangerous for exposure.

Since coccidioidomycosis is treatable, emphasis should also be placed on preventing progression of disease by rapid diagnosis and treatment by physicians. Residents, especially those at high risk, should be encouraged to seek care early if they develop signs or symptoms of disease.

A health advisory was sent via email in May 2005 to physicians and health care facilities regarding the increase in coccidioidomycosis and information about the disease.

An article published April 12, 2006 the Federal Government is backing the first potential cure for Valley Fever; Nikkomycin Z it has been shown to kill the fungus in mice. This medication is not in the market yet it needs commercial partners to test.

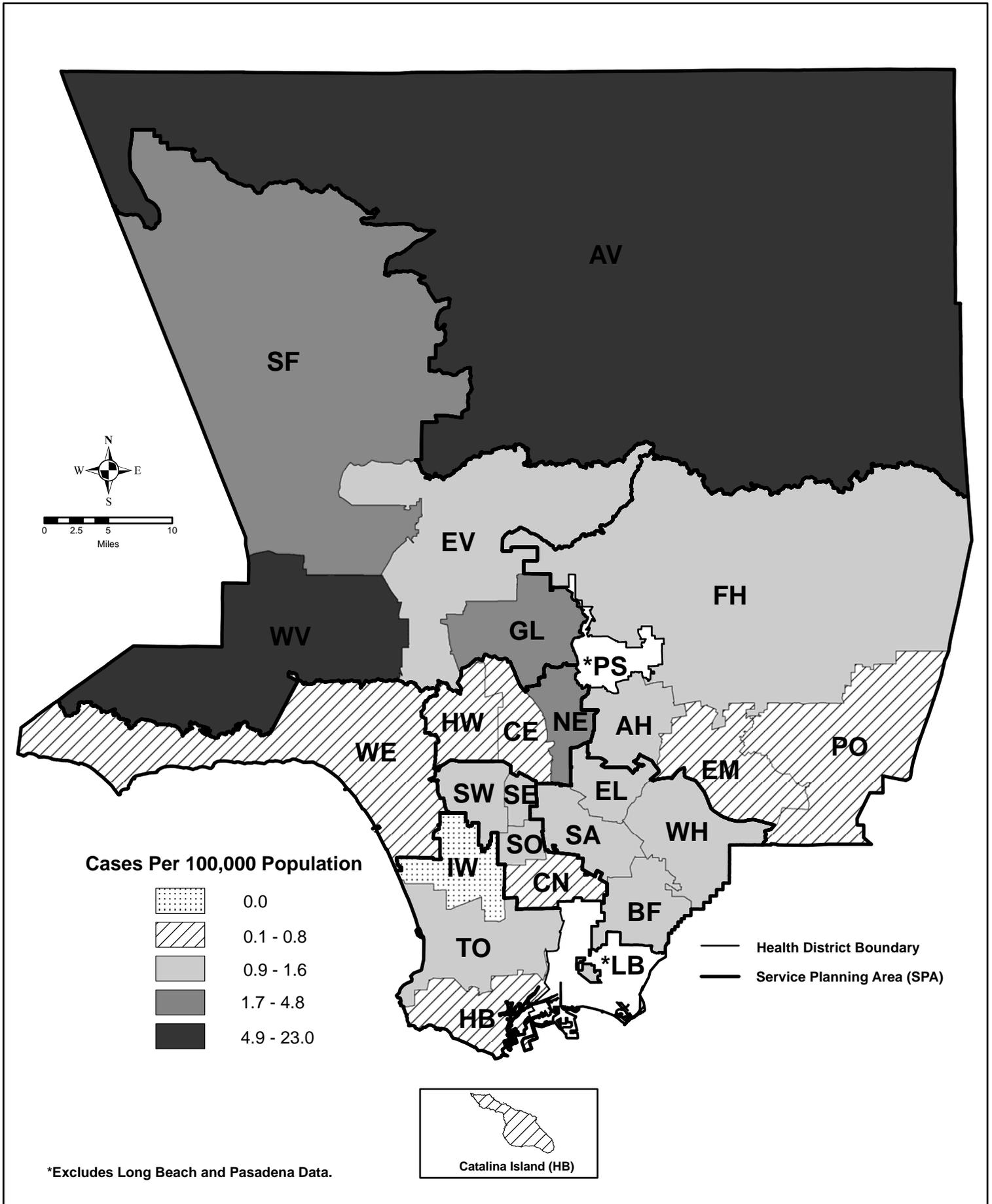
ADDITIONAL RESOURCES

National Fire Weather Report 2003 by Larry Van Bussum, National Weather Service, Boise, ID See report at: <http://fire.boi.noaa.gov/FIREWX/AnnualReport/2003NationalReport.pdf>

More information about coccidioidomycosis is available from the CDC at:
www.cdc.gov/ncidod/dbmd/diseaseinfo/coccidioidomycosis_t.htm

Kirkland TN, Fierer J. Coccidioidomycosis: A reemerging infectious disease. *Emerg Infect Dis* 1996; 2(3): 192-9.

Map 3. Coccidioidomycosis Rates by Health District, Los Angeles County, 2005*

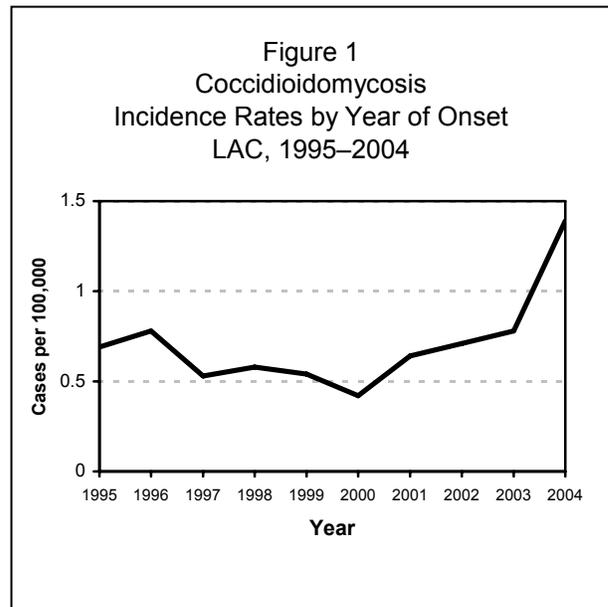




COCCIDIOIDOMYCOSIS

CRUDE DATA	
Number of Cases	133
Annual Incidence ^a	
LA County	1.39
California	7.44
United States	2.22
Age at Diagnosis	
Mean	45
Median	44
Range	12-99 years
Case Fatality	
LA County	9.8%
United States	N/A

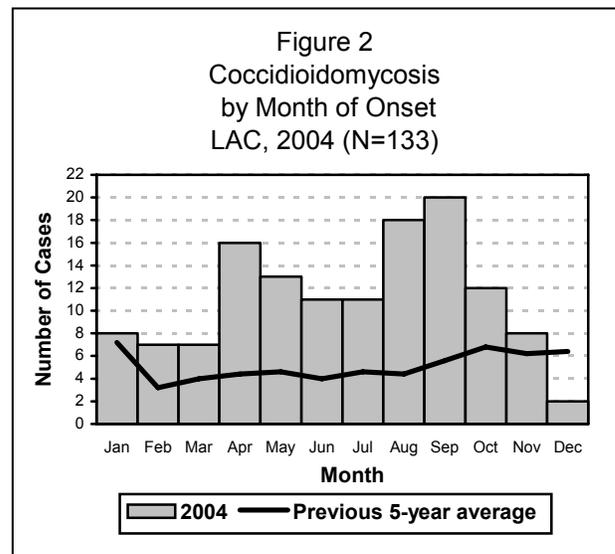
^a Cases per 100,000 population.



DESCRIPTION

Coccidioidomycosis, or “Valley Fever,” is a common fungal disease transmitted through the inhalation of *Coccidioides immitis* spores that are carried in dust. Environmental conditions conducive to an increased occurrence of coccidioidomycosis are as follows: arid to semi-arid regions, dust storms, lower altitude, hotter summers, warmer winters, and sandy, alkaline soils. It is endemic in the southwestern US and parts of Mexico and South America. Southern California is a known endemic area.

Most infected individuals exhibit no symptoms or have a mild respiratory illness, but a few individuals develop a severe illness such as pneumonia, meningitis, or dissemination when the fungus spreads to many parts of the body. Because of the wide range of clinical presentations, only the most severe cases are usually reported to the health department. Laboratory diagnosis is made by demonstrating the fungus with microscopic examination or culture or by serologic testing. Blacks, Latinos, Native Americans, Filipinos, males, pregnant women, the very young (<5 years), elderly, and immunocompromised individuals are at high risk for severe disease.



DISEASE ABSTRACT

- The incidence rate for coccidioidomycosis has been increasing since 2000, which was at its lowest point in 10 years in LAC.



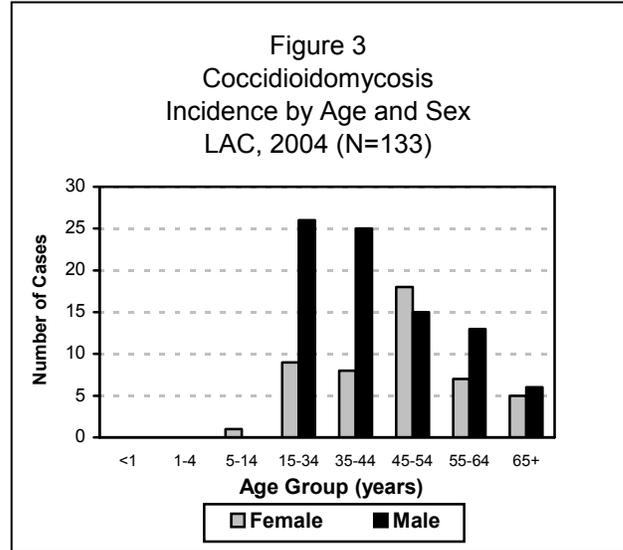
- Cost in terms of disease severity and hospitalization was substantial. Though the case fatality rate was lower, the actual number of deaths was higher because the incidence of coccidioidomycosis was greater than last year. Young adults, males, Blacks, and residents of the West Valley and Antelope Valley were at higher risk for disease.

STRATIFIED DATA

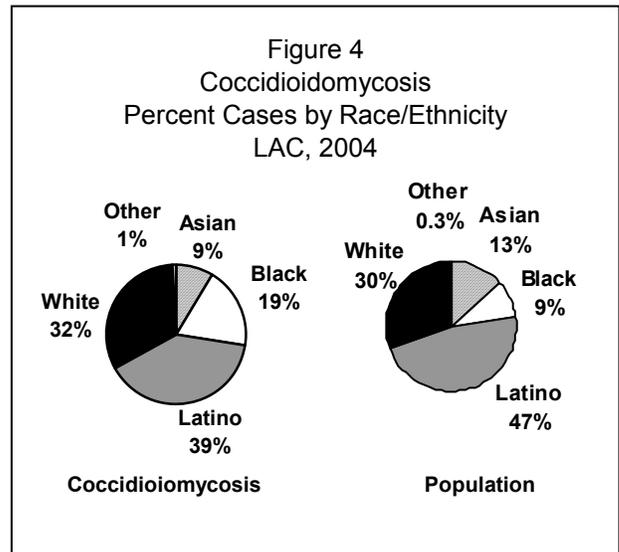
Trends: The incidence rate was 1.39 cases per 100,000 population for 2004 which was 78% higher than last year (Figure 1).

Seasonality: The highest number of cases per month was observed in the middle of the year. The number of cases per month through most of 2004 was well above the previous five-year average (Figure 2). Comparing cases from the summer months July-September 2004 to a 5-year previous average of cases for the same time period, LAC observed an increase of 229% in 2004 (48 vs. 14.6 cases). Climate conditions most likely contributed to the increase of cases. Cases commonly occur in the summer after a rainy winter or spring, especially after wind and dust storms.

Age: For 2004, males had an overall higher incidence and especially predominated in the young adult age groups. The greatest numbers of cases reported were in persons aged 15-34 years (Figure 3) which was a change from previous years where the greatest numbers were in persons aged 45-54. This was largely due to an increase in males with the disease in the 15-34 age group. The greatest incidence rate was in the 45-54 age group (2.6/100,000). The youngest case was 12 years of age.



Sex: The male-to-female rate ratio was 1.8:1. The mean age for males was 42 years and for females was 48 years (Figure 3). Two female cases reported being pregnant during infection. Of the 68 cases reporting occupation, the high risk occupations such as construction, demolition, firefighting, roofer, farm laborer, and concrete pourer comprised (16%). Also of interest, four cases (6%) worked outdoors with airplanes.



Race/Ethnicity: The highest incidence rate of 2.7 cases per 100,000 was in the Black population although these rates are unstable due to small numbers (24 cases). Latinos and Whites had the greatest number of cases with 50 and 41, respectively (Figure 4).

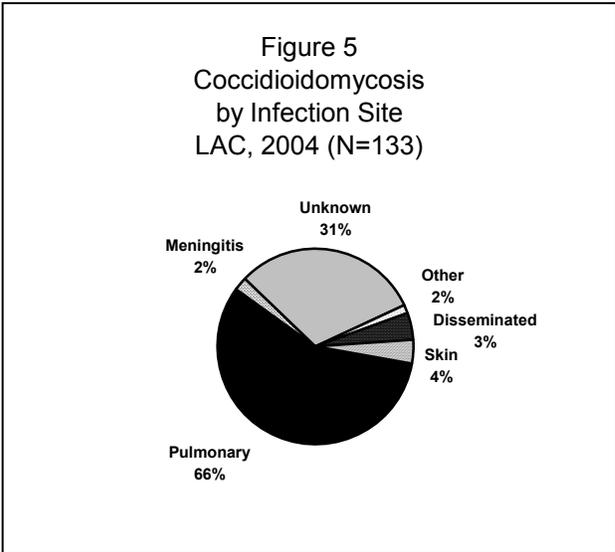
Location: Antelope Valley (n=50) and West Valley (n=24) districts had the highest number of cases reported (56% of the total). This has added significance because the incidence rate per 100,000 in Antelope Valley is 14.9 and West Valley is 2.8, compared to the overall LAC incidence rate of 1.39. These districts are more arid than the rest of the county, thus have a higher risk.



Travel: Twenty-nine cases reported travel within four weeks before onset of illness: 15 traveled within California (San Fernando Valley, Central Valley and adjacent counties, Riverside County, Imperial County near San Diego) and 16 traveled outside California to Arizona, Hawaii, Utah, Nevada, Mexico, El Salvador, and Europe (2 cases reported travel within and outside of California). The fungus is known to be endemic in most of these areas. Four cases were incarcerated in areas of high endemicity.

Underlying Disease: Of 21 cases known to have underlying disease, 10 cases were diabetic, 2 had a malignancy, 6 had HIV, and 3 had organ transplants.

Severity of Disease: Sites of infection were reported as primary pulmonary 66% (n=76), disseminated 3% (n=6), meningitis 2% (n=3), skin 4% (n=5), and other (chest cavity mass, lymph node, neck node) 1% (n=2); in 31% (n=41) of the cases infection site was not stated (Figure 5). 34% of the cases were culture-confirmed (n=46) and 96 cases were diagnosed by serological, histopathological, or molecular evidence. Some cases had multiple labs available for diagnosis. Of the 108 cases where information was available, 81% (n=87) were hospitalized. Thirteen cases died. The 2004 case fatality rate (9.8%) was lower than last year's rate (12%).



COMMENTS

In LAC, the 2004 incidence for coccidioidomycosis was higher than the previous year. Overall, the rate has been increasing since 2000. The significant increase started in the fall of 2003. The October 2003 wildfires in southern California may have contributed by destroying vegetation and increasing dust exposure. Warm temperatures, below normal precipitation, and Santa Ana winds were ideal conditions for disseminating *Coccidioides immitis* spores. Although the number of cases reported is small compared to other diseases, the costs in terms of disease severity, hospitalization, and mortality are great. As in past years, males, Blacks, and residents of the Antelope Valley and the West Valley are at higher risk for severe disease. Unlike previous years, more young adults were affected instead of the elderly, who are normally at high risk for illness. This may reflect an increased likelihood for this younger age group to have outdoor recreational or occupational exposure in areas of high risk.

One city in the neighboring county of Kern experienced a four-fold increase of coccidioidomycosis in 2003 compared to 2002. An Epi-Aid investigation was performed in December 2004 to identify factors associated with the increased incidence. A higher rate of disease was detected among persons in the 10-19 age group. No specific outdoor activity or location was implicated.

PREVENTION/INTERVENTION

There is no safe and effective vaccine or drug to prevent coccidioidomycosis; prevention lies mainly in dust control such as planting grass in dusty areas, putting oil on roadways, wetting down soil, air conditioning homes, and wearing masks or respirators. Other options may be to warn individuals who are at high risk for severe disease not to travel to endemic areas when conditions are most dangerous for exposure.

Since coccidioidomycosis is treatable, emphasis should also be placed on preventing progression of disease by rapid identification and treatment by physicians. Residents, especially those at high risk, should be encouraged to seek care early if they develop signs or symptoms of disease. An article for medical professionals called "Coccidioidomycosis: Cases of Valley Fever on the Rise in Southern California" was published in the April 2004 edition of *The Public's Health*.



ADDITIONAL RESOURCES

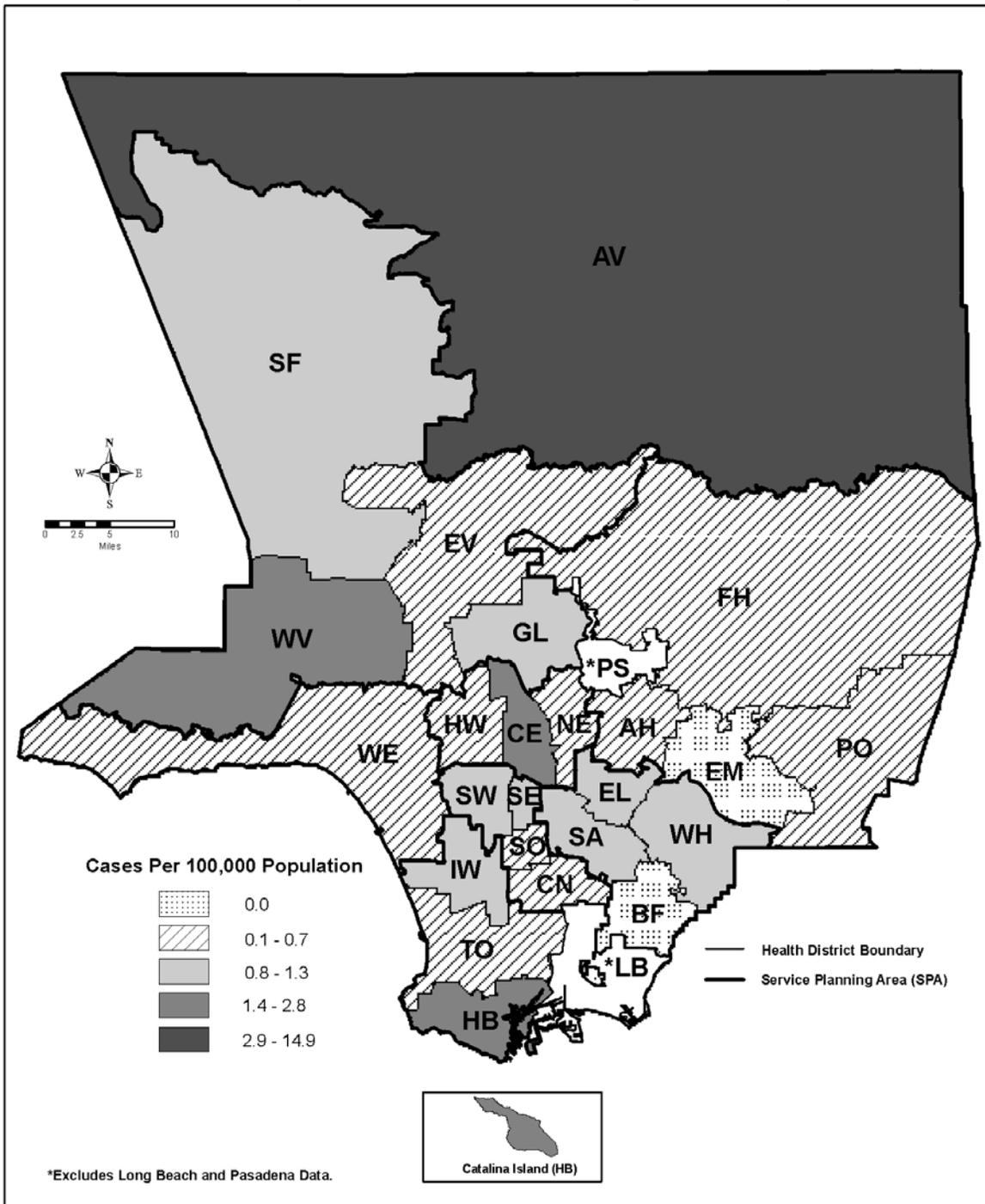
National Fire Weather Report 2003 by Larry Van Bussum, National Weather Service, Boise, ID See report at: <http://fire.boi.noaa.gov/FIREWX/AnnualReport/2003NationalReport.pdf>

More information about coccidiomycosis is available from the CDC at:
www.cdc.gov/ncidod/dbmd/diseaseinfo/coccidioidomycosis_t.htm

Kirkland TN, Fierer J. Coccidioidomycosis: A reemerging infectious disease. *Emerg Infect Dis* 1996; 2(3): 192-9.



**Map 3. Coccidioidomycosis
 Rates by Health District, Los Angeles County, 2004***



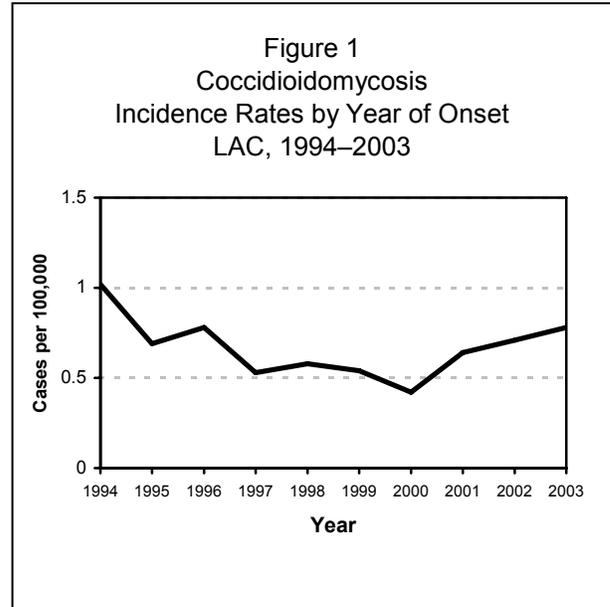


COCCIDIOIDOMYCOSIS

CRUDE DATA	
Number of Cases	73
Annual Incidence ^a	
LA County	0.78
California ^b	5.97
United States	1.69
Age at Diagnosis	
Mean	49
Median	47
Range	18–83 years
Case Fatality	
LA County	12%
United States	N/A

^a Cases per 100,000 population.

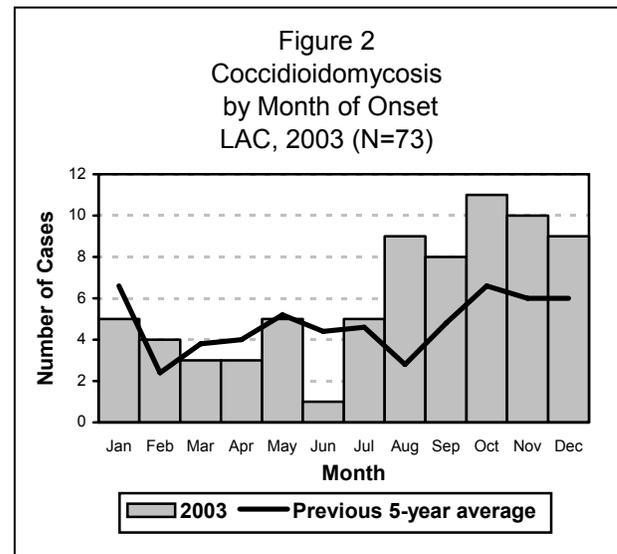
^b California DHS Surveillance and Statistics Section.



DESCRIPTION

Coccidioidomycosis, or “Valley Fever,” is a common fungal disease transmitted through the inhalation of infective spores from *Coccidioides immitis* that are carried in dust. Environmental conditions conducive to an increased occurrence of coccidioidomycosis are as follows: arid to semi-arid regions, dust storms, lower altitude, hotter summers, warmer winters, and sandy, alkaline soils. It is endemic in the southwestern US and parts of Mexico and South America. Southern California is a known endemic area.

Most infected individuals exhibit no symptoms or have a mild respiratory illness, but a few individuals develop a severe illness such as pneumonia, meningitis, or dissemination when the fungus spreads to many parts of the body. Because of the wide range of clinical presentations, only the most severe cases are usually reported to the health department. Laboratory diagnosis is made by demonstrating the fungus with microscopic examination or culture or by serologic testing. Blacks, Latinos, Native Americans, Filipinos, males, pregnant women, the very young (<5 years), elderly, and immunocompromised individuals are at high risk for severe disease.





DISEASE ABSTRACT

- The incidence rate for coccidioidomycosis has been increasing since 2000, which was at its lowest point in 10 years in LAC.
- Increase of cases in the last 5 months of 2003
- Cost in terms of disease severity and hospitalization was substantial. The case fatality rate was higher and the incidence of coccidioidomycosis was greater than last year. Adults, males, Blacks, and residents of the West Valley and Antelope Valley are at higher risk for disease.

STRATIFIED DATA

Trends: The incidence rate was 0.78 cases per 100,000 population for 2003 which was higher than last year (Figure 1).

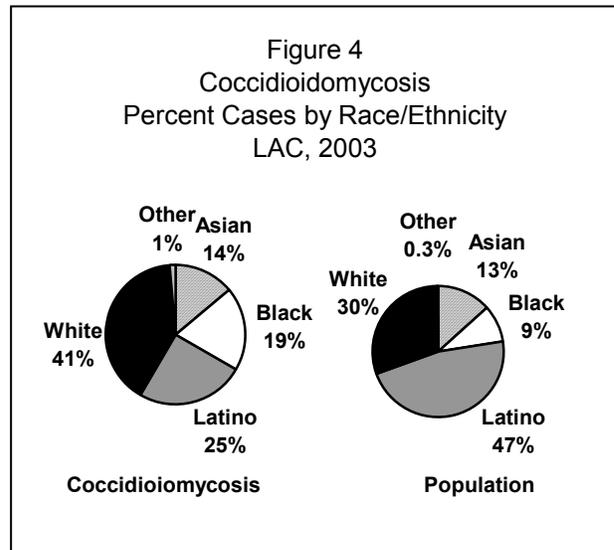
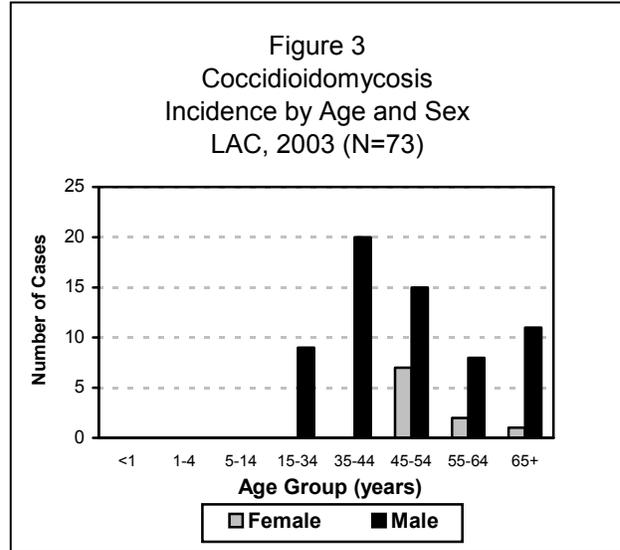
Seasonality: The highest number of cases per month was observed in the latter half of the year. The number of cases per month in the last five months of 2003 was well above the previous five-year average (Figure 2). Comparing cases from August to December 2003 to a 5-year previous average of cases for the same time period, LAC observed an increase of 79% in 2003 (47 vs. 26.2 cases). Climate conditions most likely contributed to the increase of cases. Cases commonly occur in the summer after a rainy winter or spring, especially after wind and dust storms.

Age: For 2003, males once again have the highest incidence in all age groups. The greatest numbers of cases reported were in persons aged 45-54 years (Figure 3). The youngest case was 18 years of age.

Sex: The male-to-female rate ratio was 6.5:1. The mean age for males was 48 years and for females it was 55 (Figure 3). The gender difference is likely due to occupational and recreational dust exposure of males although this is not clearly evident from the information collected. No female cases reported being pregnant. Of the 56 cases reporting occupation, the most commonly reported occupation was construction (16%).

Race/Ethnicity: The highest incidence rate of 3.52 cases per 100,000 population was in the Other category which includes Native Americans followed by Blacks with a rate of 1.60 although these rates are unstable due to small numbers (1 Native American case and 14 Black cases). Latinos and Whites had the greatest number of cases with 18 and 29, respectively (Figure 4).

Location: Antelope Valley (n=19) and West Valley (n=17) districts had the highest number of cases reported.

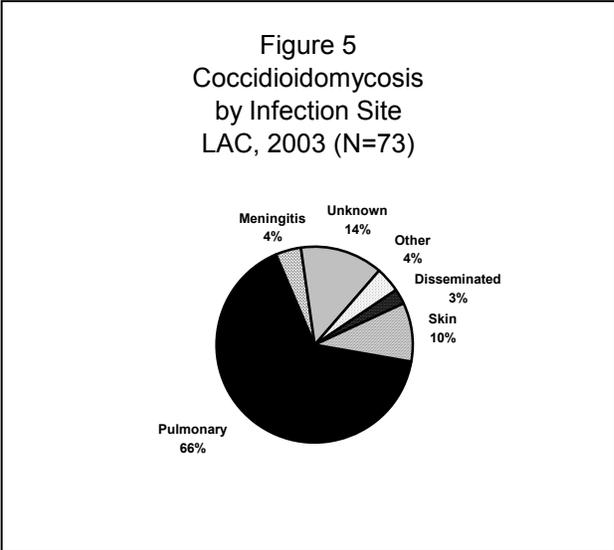




Travel: 21 cases reported travel within four weeks before onset of illness: 12 traveled within California (San Fernando Valley, Central Valley and adjacent counties, Riverside County, Imperial County near San Diego) and 9 traveled outside California to Arizona, Nevada, Mexico, Italy and Vietnam. The fungus is known to be endemic in most of these areas. Four cases were incarcerated in areas of high endemicity.

Underlying Disease: Of 17 cases known to have underlying disease, 8 cases were diabetic, 2 had malignancies (1 also was a bone marrow transplant recipient), 1 had HIV, and 6 had other diagnoses (Graves' disease, renal disease, heart disease, and/or pulmonary disease).

Severity of Disease: Sites of infection were reported as primary pulmonary 66% (n=48), disseminated 3% (n=2), meningitis 4% (n=3), skin 10% (n=7), other (chest cavity mass, lymph node, neck node) 4% (n=3), and; in 14% (n=10) of the cases infection site was not stated (Figure 5). More than half of the cases were culture-confirmed (47%, n=34) and 31 cases were diagnosed by serological, histopathological, or molecular evidence. Of the 59 cases where information was available, 86% (n=51) were hospitalized. Nine cases died. The 2003 case fatality rate (12%) was the same as last year and lower than 2000's rate (16%).



COMMENTS

In LAC, the 2003 incidence for coccidioidomycosis was higher than the previous year. Overall, the rate has been increasing since 2000. The increase appears to start in the fall of 2003. Although the number of cases reported is small compared to other diseases, the costs in terms of disease severity, hospitalization, and mortality are great. As in past years, males, Blacks, and residents of the Antelope Valley and the West Valley are at higher risk for severe disease. Unlike previous years, more middle-aged adults were affected instead of the elderly, who are normally at high risk for illness.

In the fall of 2003, surrounding counties noted an increase of coccidioidomycosis cases. In particular, Ventura County noted a nine times than expected increase of cases (70 culture-confirmed). There was a less dramatic increase observed in LAC. Warm temperatures, below normal precipitation, and Santa Ana winds in the fall were ideal conditions for disseminating *Coccidioides immitis* spores. Also, the October 2003 wildfires in southern California may have contributed by destroying vegetation and increasing dust exposure.

PREVENTION

There is no safe and effective vaccine or drug to prevent coccidioidomycosis; prevention lies mainly in dust control such as planting grass in dusty areas, putting oil on roadways, wetting down soil, air conditioning homes, and wearing masks or respirators. Other options may be to warn individuals who are at high risk for severe disease not to travel to endemic areas when conditions are most dangerous for exposure.



ADDITIONAL RESOURCES

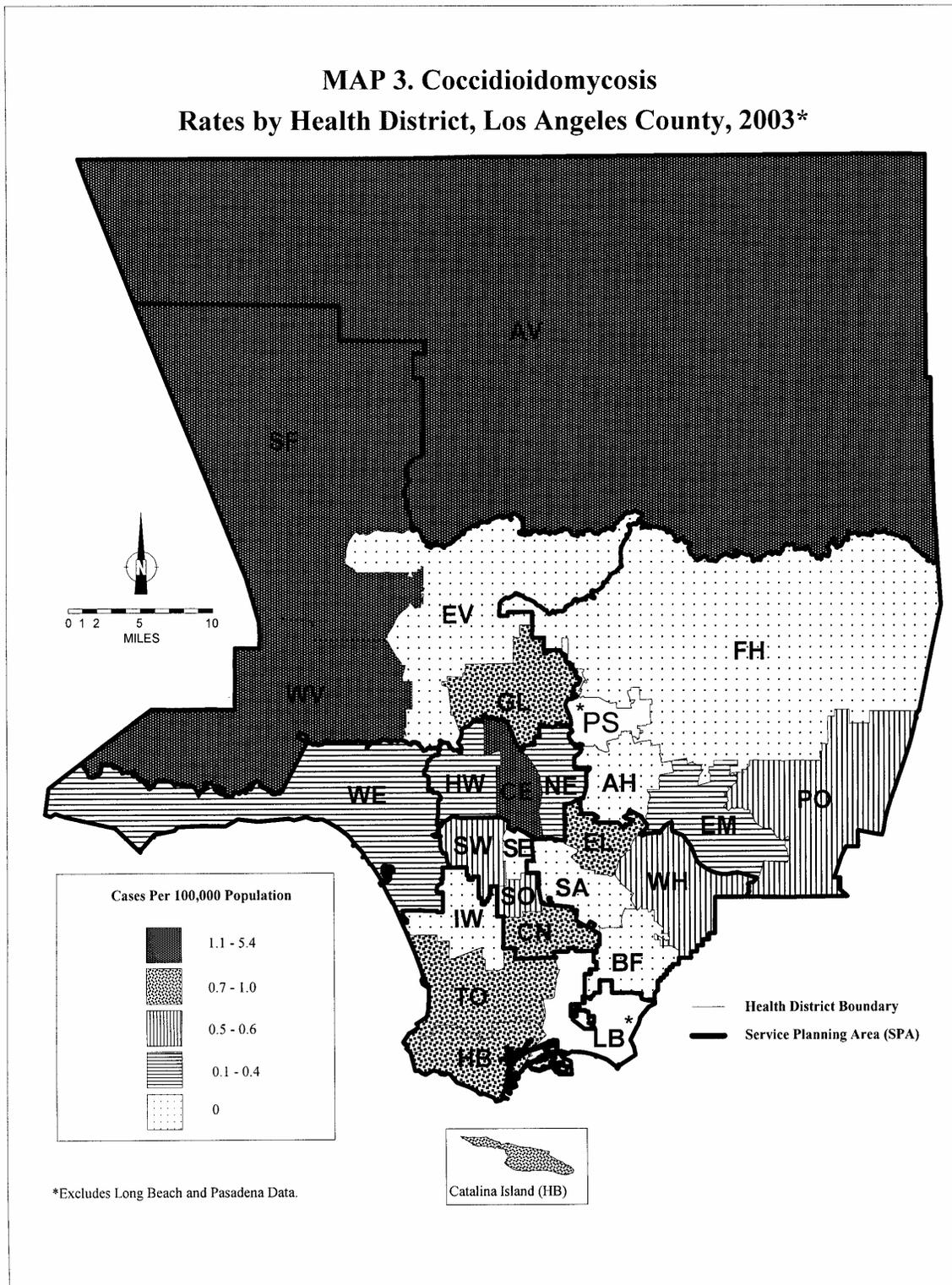
National Fire Weather Report 2003 by Larry Van Bussum, National Weather Service, Boise, ID See report at: <http://fire.boi.noaa.gov/FIREWX/AnnualReport/2003NationalReport.pdf>

More information about coccidiomycosis is available from the CDC at:
www.cdc.gov/ncidod/dbmd/diseaseinfo/coccidioidomycosis_t.htm

Kirkland TN, Fierer J. Coccidioidomycosis: A reemerging infectious disease. *Emerg Infect Dis* 1996; 2(3): 192-9.



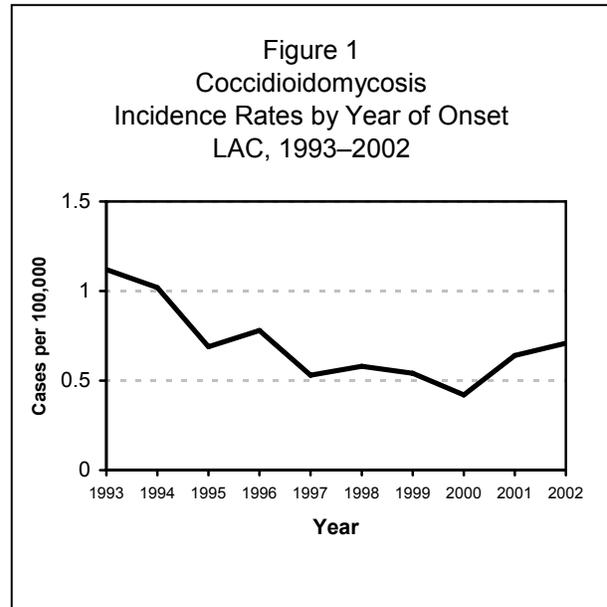
MAP 3. Coccidioidomycosis
Rates by Health District, Los Angeles County, 2003*





COCCIDIOIDOMYCOSIS

CRUDE DATA	
Number of Cases	66
Annual Incidence	
LA County	0.7
California ^b	5.1
United States	1.8
Age at Diagnosis	
Mean	46
Median	45
Range	17–86 years
Case Fatality	
LA County	12%
United States	N/A



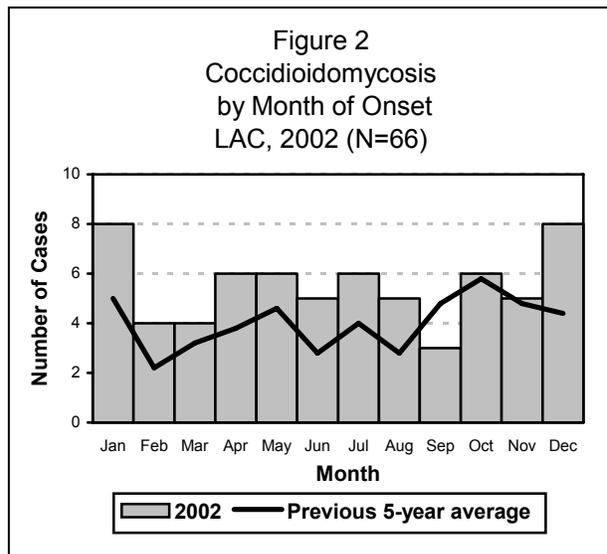
^a Cases per 100,000 population.

^b California Department of Health Services Surveillance and Statistics Section.

DESCRIPTION

Coccidioidomycosis, or “Valley Fever,” is a common fungal disease transmitted through the inhalation of infective spores from *Coccidioides immitis* that are carried in dust. Environmental conditions conducive to an increased occurrence of coccidioidomycosis are as follows: arid to semi-arid regions, dust storms, lower altitude, hotter summers, warmer winters, and sandy, alkaline soils. It is endemic in the southwestern US and parts of Mexico and South America. Southern California is a known endemic area.

Most infected individuals exhibit no symptoms or have a mild respiratory illness, but a few individuals develop a severe illness such as pneumonia, meningitis, or dissemination when the fungus spreads to many parts of the body. Because of the wide range of clinical presentations, only the most severe cases are usually reported to the health department. Laboratory diagnosis is made by demonstrating the fungus with microscopic examination or culture or by serologic testing. Blacks, Latinos, Native Americans, Filipinos, males, pregnant women, the very young (<5 years), elderly, and immunocompromised individuals are at high risk for severe disease.





DISEASE ABSTRACT

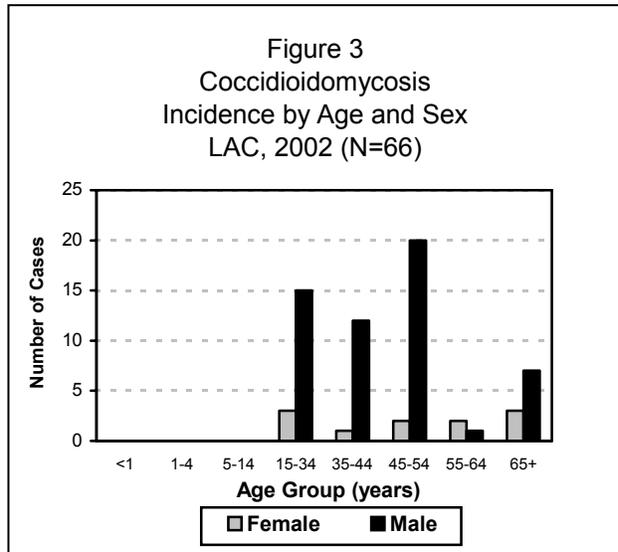
- The incidence rate for coccidioidomycosis has been increasing since 2000, which was at its lowest point in 10 years in LAC.
- Cost in terms of disease severity and hospitalization was substantial. The case fatality rate was higher and the incidence of coccidioidomycosis was greater than last year. Adults, males, Blacks, and residents of the West Valley and Antelope Valley are at higher risk for disease.

STRATIFIED DATA

Trends: The incidence rate was 0.71 cases per 100,000 population for 2002 which was higher than last year (Figure 1).

Seasonality: The highest number of cases per month was observed in January (n=8) and December (n=8). For most of the year, the number of cases per month was above the previous 5-year average (Figure 2). Although not reflected in LAC, cases commonly occur in the summer after a rainy winter or spring, especially after wind and dust storms. Perhaps because of LAC's temperate climate, the monthly fluctuation of cases is not great.

Age: For 2002, males once again have the highest incidence in all age groups where cases occurred except for persons aged 55–64 years (two female cases). The greatest numbers of cases reported were in persons aged 45–54 years (Figure 3). The youngest case was 17 years of age.

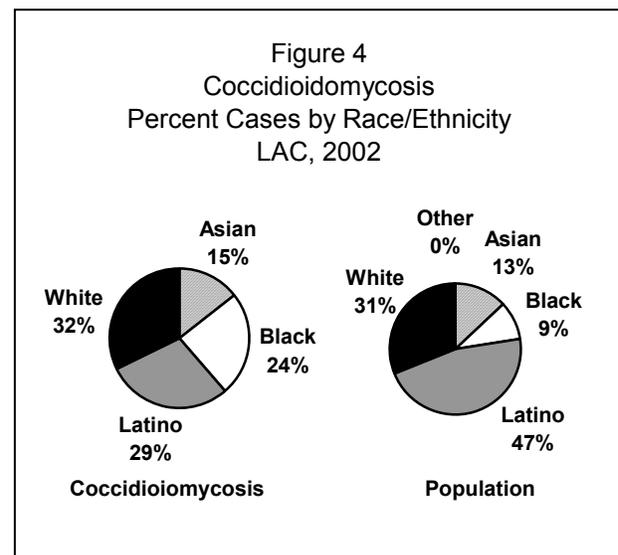


Sex: The male-to-female rate ratio was 5.2:1. The mean age for males was 45 years and for females it was 52 (Figure 3). The gender difference is likely due to occupational and recreational dust exposure of males although this is not clearly evident from the information collected. No female cases reported being pregnant.

Race/Ethnicity: A higher incidence rate was observed among Blacks (1.73 cases per 100,000) compared to the other groups although the rates were unstable due to small numbers. Whites and Latinos had the greatest number of cases with 20 and 18, respectively (Figure 4).

Location: West Valley (n=14) and Antelope Valley (n=11) districts had the highest number of cases reported.

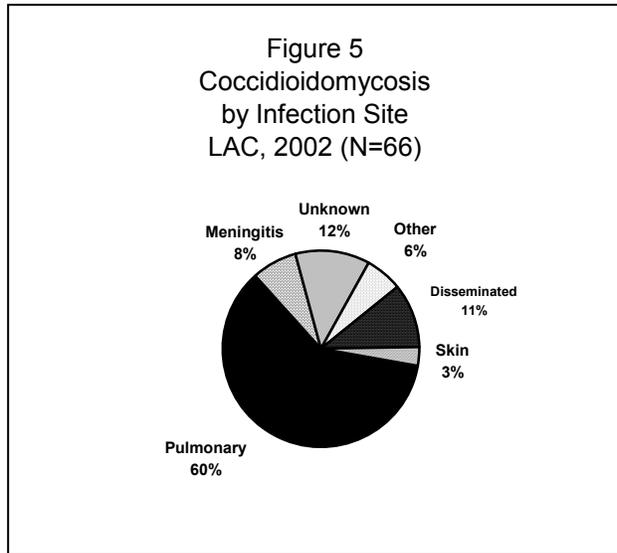
Travel: Of the 20 cases where travel was known, 14 reported travel within four weeks before onset of illness: 9 traveled within California (Agoura, Saugus, Lancaster, and San Joaquin Valley) and 5 traveled outside California to Arizona and Texas. Coccidioidomycosis is known to be endemic in all these areas.





Immunosuppression: Of 16 cases known to be immunosuppressed, 5 cases had HIV, 4 were diabetic, 1 had a malignancy, 1 had an organ transplant and 5 had other diagnoses (hyperthyroidism, liver failure, infected hip prosthesis, renal failure, and disseminated TB). An HIV case also had tuberculosis and one of the diabetic cases also had a malignancy.

Severity of Disease: Sites of infection were reported as primary pulmonary 60% (n=40), disseminated 9% (n=7), meningitis 8% (n=5), skin 3% (n=2), other (bone, finger, neck lump, and synovial fluid) 6% (n=4), and; in 12% (n=8) of the cases infection site was not stated (Figure 5). More than half of the were cases culture-confirmed (58%, n=38) and 26 cases were diagnosed by serological, histopathological, or molecular evidence. Of the 55 cases where information was available, 84% (n=46) were hospitalized. Eight cases died. The 2002 case fatality rate (12%) was almost twice as high as last year (7%) but lower than 2000's rate (16%).



COMMENTS

In LAC, the 2002 incidence for coccidioidomycosis was higher than the previous year. Overall, the rate has been increasing since 2000. Although the number of cases reported is small compared to other diseases, the costs in terms of disease severity, hospitalization, and mortality are great. As in past years, males, Blacks, and residents of the Antelope Valley and the West Valley are at higher risk for severe disease. Unlike previous years, more middle-aged adults were affected instead of the elderly, who are normally at high risk for illness.

A documented peak occurred in 1992 to 1994 probably as a result of a 5-year drought (1986–1990) with heavy rainfall in 1991, 1992, and 1993. It appears that the organisms competing with *C. immitis* decrease in the soil during a drought and, after a heavy rain, dormant *C. immitis* spores multiply because of lack of competing organisms. Also, there was increased media attention and reporting because of a Simi Valley outbreak resulting from increased dust exposure related to the Northridge earthquake in 1994.

PREVENTION

There is no safe and effective vaccine or drug to prevent coccidioidomycosis; prevention lies mainly in dust control such as planting grass in dusty areas, putting oil on roadways, wetting down soil, air conditioning homes, and wearing masks or respirators. Other options may be to warn individuals who are at high risk for severe disease not to travel to endemic areas when conditions are most dangerous for exposure.

ADDITIONAL RESOURCES

More information about coccidioidomycosis is available from the CDC at:
www.cdc.gov/ncidod/dbmd/diseaseinfo/coccidioidomycosis_t.htm

Kirkland TN, Fierer J. Coccidioidomycosis: A reemerging infectious disease. *Emerg Infect Dis* 1996; 2(3):192–9.



MAP 3. Coccidioidomycosis Rates by Health District, Los Angeles County, 2002*

