KAWASAKI SYNDROME

CRUDE DATA	
Number of Cases	43
Annual Incidence	
LA County[a]	N/A
California[b]	N/A
Age at Diagnosis	
Mean	2.28
Median	2
Range	2 months – 7 years

The data were collected from 01/01/11 to 08/15/11.

[a]Rate not calculated due to surveillance ending as of August 15, 2011.
[b]Not notifiable.

DESCRIPTION

Kawasaki syndrome (KS), also called mucocutaneous lymph node syndrome (MLNS), was first described by Dr. Tomisaku Kawasaki in Japan in 1967 and emerged in the US in the 1970s. Several regional outbreaks have been reported since 1976. This is an illness that affects children, usually under five years of age. It occurs more often in boys than girls (ratio of about 1.5:1). Clinical manifestations include an acute febrile illness and acute self-limited systemic vasculitis leading to vessel wall injury with potentially fatal complications affecting the heart and large arteries. In the US, it is a major cause of heart disease in children. Though the etiology is unknown, there are multiple theories including an infectious etiology with a possible autoimmune component. In the US, the mortality rate is approximately 1%.

CDC Case Definition

Fever lasting five or more days without any other reasonable explanation and must satisfy at least four of the following criteria:

- bilateral conjunctival injection;
- oral mucosal changes (erythema of lips or oropharynx, strawberry tongue, or drying or fissuring of the lips);
- peripheral extremity changes (edema, erythema, generalized or periungual desquamation);
- rash;
- cervical lymphadenopathy > 1.5 cm in diameter.

Patients whose illness does not meet the CDC case definition but who have fever and coronary artery abnormalities are classified as having atypical or incomplete KS.

2011 TRENDS AND HIGHLIGHTS

- This report is not comparable with other annual reports because California Department of Public Health removed KS from the list of mandatory reportable diseases. KS surveillance in LAC ended August 16, 2011. For this reason, incidence rates are not reported for 2011 (Figure 1). Surveillance period for the report was from 01/01/2011 to 08/15/2011.
- A total of 43 cases including five with atypical KS, and one recurrent case met the CDC surveillance case definition.
- Eighty-four percent (n=36) of confirmed cases (N=43) were in children under five years old. Mean age was 2.3 years old, and the age range was from two months to seven years old.
- The male to female ratio was 2:1, 67% (n=29) of confirmed cases were male, 33% (n=14) were female.
- Hispanics had the highest number of cases (n=22, 51%) (Figure 3).
- KS occurs year-round, but more cases are reported in winter and spring. In 2011, 26% (n=11) of confirmed cases were reported in March (Figure 4).
- There were no fatal cases in 2011. Thirty-seven percent of cases (n=16) had cardiac complications including cardiac coronary aneurysms (37%, n=6), cardiac coronary artery dilatation (44%, n=7), and valvular abnormalities (19%, n=3).
- Failure to consider the possibility of atypical KS could lead to delayed or missed diagnosed and treatment with a consequent increased likelihood of coronary artery aneurysms development.

Reported Kawasaki Syndrome Cases and Rates* per 100,000 by Age Group, Race/Ethnicity, and SPA
Los Angeles County, 2007 – August 15, 2011

	2007 (N=52)			2008(N=55)			2009 (N=70)			2010 (N=65)			August 15, 2011 (N=43)		
	No.	(%)	Rate/ 100,000	No.	(%)	Rate/ 100,000	No.	(%)	Rate/ 100,000	No.	(%)	Rate/ 100,000	No.	(%)	
Age Group															
<1	9	17.3	6.1	10	18.2	7.0	9	12.9	6.6	6	9.2	4.3	10	23.2	--
1-4	35	67.3	6.1	32	58.2	5.6	50	71.4	8.9	49	75.4	8.4	26	60.5	--
5-14	8	15.4	0.6	13	23.6	0.9	11	15.7	0.8	10	15.4	0.8	7	16.3	--
15-34	0	0.0	0.0	0	0.0	0.0	0	0.0	0.0	0	0	0	0	0	--
35-44	0	0.0	0.0	0	0.0	0.0	0	0.0	0.0	0	0	0	0	0	--
45-54	0	0.0	0.0	0	0.0	0.0	0	0.0	0.0	0	0	0	0	0	--
55-64	0	0.0	0.0	0	0.0	0.0	0	0.0	0.0	0	0	0	0	0	--
65+	0	0.0	0.0	0	0.0	0.0	0	0.0	0.0	0	0	0	0	0	--
Unknown	0	0.0		0	0.0		0	0.0							
Race/Ethnicity															
Asian	13	25.0	1.0	17	30.9	1.2	15	21.4	1.2	22	33.9	1.6	13	30.2	--
Black	5	9.6	0.6	3	5.5	0.2	5	7.1	0.6	8	12.3	0.9	3	7.0	--
Hispanic	26	50.0	0.6	28	50.9	0.6	39	55.7	0.8	29	44.6	0.6	22	51.2	--
White	3	5.8	0.1	4	7.3	0.1	8	11.4	0.3	8	11.4	0.3	5	11.6	--
Other	3	5.8	14.4	3	5.5	12.2	3	4.3	-	5	7.7	0.2	0	0	--
Unknown	2	3.8		0	0.0		0	0.0	0	1	1.5				
SPA															
1	1	1.9	0.3	1	1.8	0.3	2	2.3	0.5	5	7.7	1.3	2	4.7	--
2	8	15.4	0.4	11	20.0	0.5	12	17.1	0.5	12	18.5	0.5	8	18.6	--
3	10	19.2	0.6	8	14.5	0.5	12	17.0	0.7	16	24.6	0.9	9	20.9	--
4	6	11.5	0.5	9	16.4	0.7	10	14.3	0.8	9	13.8	0.7	7	16.3	--
5	3	5.8	0.5	3	5.5	0.3	5	7.1	0.8	1	1.5	0.2	1	2.3	--
6	6	11.5	0.6	4	7.3	0.4	16	22.9	1.5	5	7.7	0.5	4	9.3	--
7	10	19.2	0.7	13	23.6	0.9	6	8.6	0.4	10	15.4	0.7	6	13.9	--
8	8	15.4	0.7	6	10.9	0.5	7	10.0	0.6	7	10.8	0.6	6	13.9	--
Unknown	0	0.0		0	0.0										

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

Figure 1. Incidence Rates of Kawasaki Syndrome LAC, 2001 - 2010

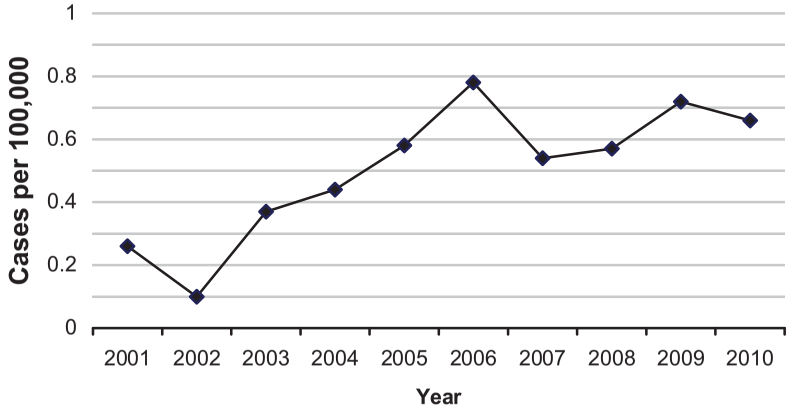


Figure 2. Number of Kawasaki Syndrome by Age Group LAC, August 15, 2011 (N=43)

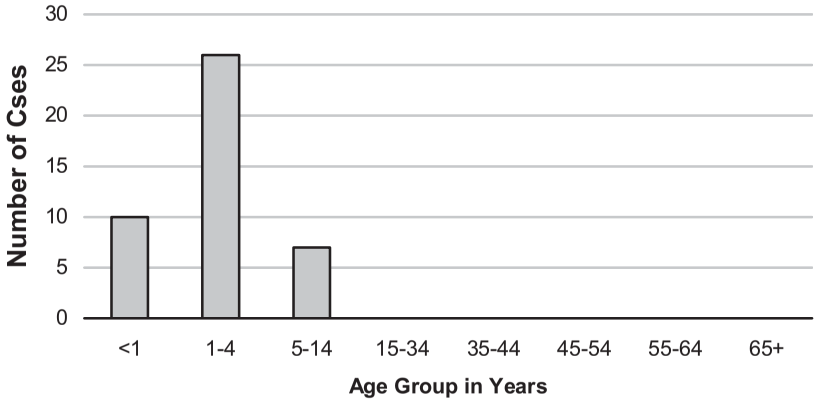


Figure 3. Percent Cases of Kawasaki Syndrome by Race/Ethnicity, LAC, August 15, 2011 (N=43)

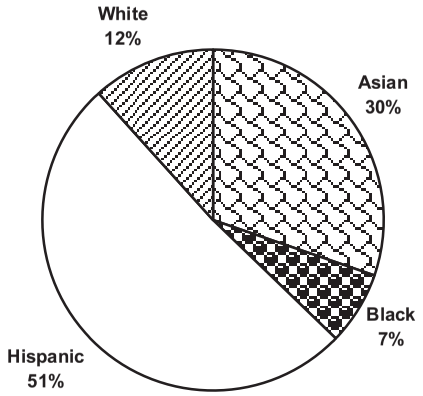
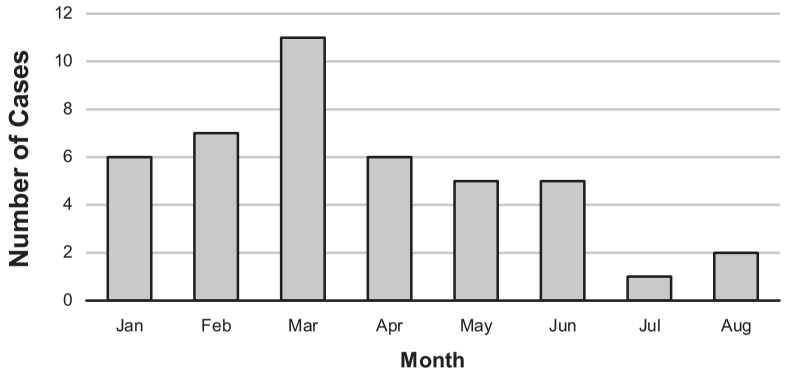


Figure 4. Reported Kawasaki Syndrome Cases by Month of Onset LAC, August 15, 2011 (N=43)



KAWASAKI SYNDROME

CRUDE DATA	
Number of Cases	65
Annual Incidence[a]	
LA County	0.66
California[b]	N/A
Age at Diagnosis	
Mean	2.7
Median	2
Range	6 months – 11 years

[a]Cases per 100,000 population.
[b]Not notifiable.

DESCRIPTION

Kawasaki syndrome (KS), also called mucocutaneous lymph node syndrome (MLNS), was first described by Dr. Tomisaku Kawasaki in Japan in 1967 and emerged in the US in the 1970s. Several regional outbreaks have been reported since 1976. This is an illness that affects children, usually under five years of age. It occurs more often in boys than girls (ratio of about 1.5:1). Clinical manifestations include an acute febrile illness and acute self-limited systemic vasculitis leading to vessel wall injury with potentially fatal complications affecting the heart and large arteries. In the US, it is a major cause of heart disease in children. Though the etiology is unknown, there are multiple theories including an infectious etiology with a possible autoimmune component. In the US, the mortality rate is approximately 1%.

CDC Case Definition

Fever lasting five or more days without any other reasonable explanation and must satisfy at least four of the following criteria:

- bilateral conjunctival injection;
- oral mucosal changes (erythema of lips or oropharynx, strawberry tongue, or drying or fissuring of the lips);
- peripheral extremity changes (edema, erythema, generalized or periungual desquamation);
- rash;
- cervical lymphadenopathy > 1.5 cm in diameter.

Patients whose illness does not meet the CDC case definition but who have fever and coronary artery abnormalities are classified as having atypical or incomplete KS.

2010 TRENDS AND HIGHLIGHTS

- A total of 65 persons, including four with atypical KS, and one recurrent case met the CDC surveillance case definition in 2010, representing a 7% decrease from 2009 (n=70) (Figure 1).
- Eighty-five percent (n=55) of confirmed cases were in children under five years old. Mean age was 2.7 years old, and the age range was from six months to eleven years old. The highest incidence rate occurred in children one to four years old (8.4 per 100,000) followed by children ages <1 year of age (4.3 per 100,000) (Figure 2).
- The male to female ratio was 1.2:1. 55% of confirmed cases were male, 45% were female.
- Hispanics had the highest number of cases (n=29, 45%) in 2010. However, the highest incidence rate occurred among Asians (1.6 per 100,000), which is consistent with previous years (Figure 3, 6).
- Service Planning Area (SPA) 1 had the highest incidence rate—1.3 per 100,000 and SPA 5 had lowest incident rates—0.2 per 100,000, respectively (Figure 4).
- KS occurs year-round, but more cases are reported in winter and spring. In 2010, 17% (n=11) of confirmed cases were reported in May (Figure 5).
- There were no fatal cases in 2010. Two cases in the same family were reported.
- Forty percent of cases (n=26) had cardiac complications including cardiac coronary aneurysms (12%, n=3), cardiac coronary artery dilatation (31%, n=8), and valvular abnormalities (42%, n=11).
- All but one of the cases was treated with intravenous immune globulin (IVIG) and high doses of aspirin.

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

	2006 (N=75)			2007 (N=52)			2008 (N=55)			2009 (N=70)			2010 (N=65)		
	No.	(%)	Rate/ 100,000	No.	(%)	Rate/ 100,000	No.	(%)	Rate/ 100,000	No.	(%)	Rate/ 100,000	No.	(%)	Rate/ 100,000
Age Group															
<1	18	24.0	12.4	9	17.3	6.1	10	18.2	7.0	9	12.9	6.6	6	9.2	4.3
1-4	50	66.7	8.6	35	67.3	6.1	32	58.2	5.6	50	71.4	8.9	49	75.4	8.4
5-14	7	9.3	0.5	8	15.4	0.6	13	23.6	0.9	11	15.7	0.8	10	15.4	0.8
15-34	0	0.0	0.0	0	0.0	0.0	0	0.0	0.0	0	0	0	0	0	0
35-44	0	0.0	0.0	0	0.0	0.0	0	0.0	0.0	0	0	0	0	0	0
45-54	0	0.0	0.0	0	0.0	0.0	0	0.0	0.0	0	0	0	0	0	0
55-64	0	0.0	0.0	0	0.0	0.0	0	0.0	0.0	0	0	0	0	0	0
65+	0	0.0	0.0	0	0.0	0.0	0	0.0	0.0	0	0	0	0	0	0
Unknown	0	0.0		0	0.0		0	0.0							
Race/Ethnicity															
Asian	25	33.3	2.0	13	25.0	1.0	17	30.9	1.2	15	21.4	1.2	22	33.9	1.6
Black	8	10.7	0.9	5	9.6	0.6	3	5.5	0.2	5	7.1	0.6	8	12.3	0.9
Hispanic	28	37.3	0.6	26	50.0	0.6	28	50.9	0.6	39	55.7	0.8	29	44.6	0.6
White	11	14.7	0.4	3	5.8	0.1	4	7.3	0.1	8	11.4	0.3	8	11.4	0.3
Other	3	4.0	10.5	3	5.8	14.4	3	5.5	12.2	3	40.0	-	5	7.7	0.2
Unknown	0	0.0		2	3.8		0	0.0		0	0	0	1	1.5	-
SPA															
1	1	1.3	0.3	1	1.9	0.3	1	1.8	0.3	2	2.3	0.5	5	7.7	1.3
2	14	18.7	0.7	8	15.4	0.4	11	20.0	0.5	12	17.1	0.5	12	18.5	0.5
3	13	17.3	0.8	10	19.2	0.6	8	14.5	0.5	12	17.0	0.7	16	24.6	0.9
4	10	13.3	0.8	6	11.5	0.5	9	16.4	0.7	10	14.3	0.8	9	13.8	0.7
5	3	4.0	0.5	3	5.8	0.5	3	5.5	0.3	5	7.1	0.8	1	1.5	0.2
6	8	10.7	0.8	6	11.5	0.6	4	7.3	0.4	16	22.9	1.5	5	7.7	0.5
7	9	12.0	0.7	10	19.2	0.7	13	23.6	0.9	6	8.6	0.4	10	15.4	0.7
8	17	22.7	1.5	8	15.4	0.7	6	10.9	0.5	7	10.0	0.6	7	10.8	0.6
Unknown	0	0.0		0	0.0		0	0.0							

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

**Figure 1. Incidence Rates of Kawasaki Syndrome
LAC, 20000 - 2010**

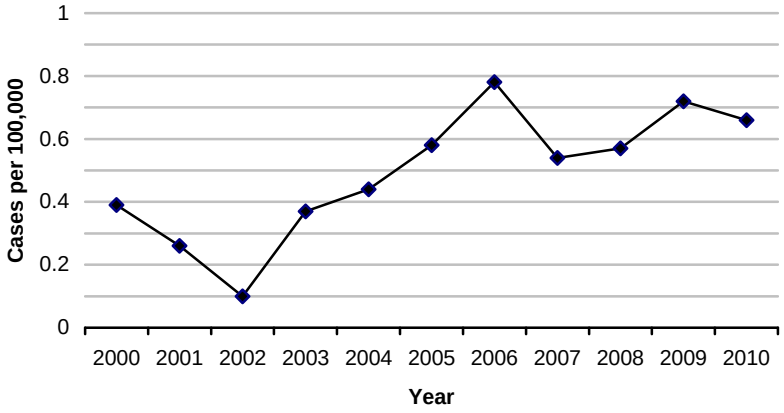


**Figure 2. Incidence Rates of Kawasaki Syndrome by Age Group
LAC, 2010 (N=65)**

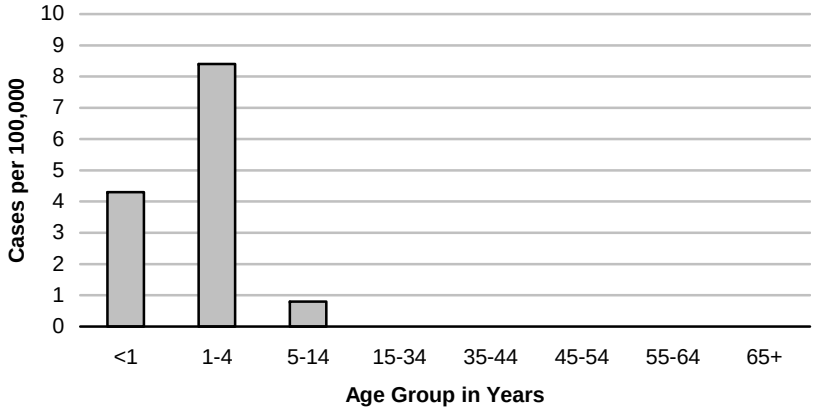
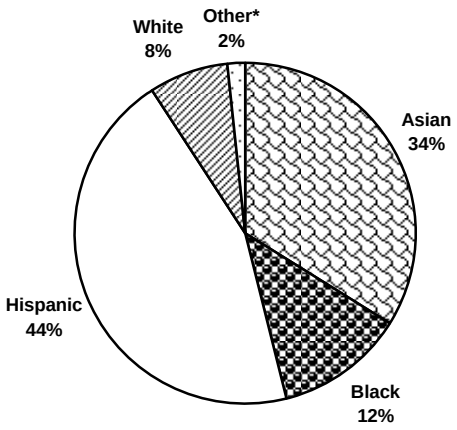


**Figure 3. Percent Cases of Kawasaki Syndrome
by Race/Ethnicity, LAC, 2010 (N=65)**



* Other includes Native American and any additional racial/ethnic group that cannot be categorized as Asian, black, Hispanic, and white.

**Figure 4. Incidence Rates of Kawasaki Syndrome by SPA
LAC, 2010 (N=65)**

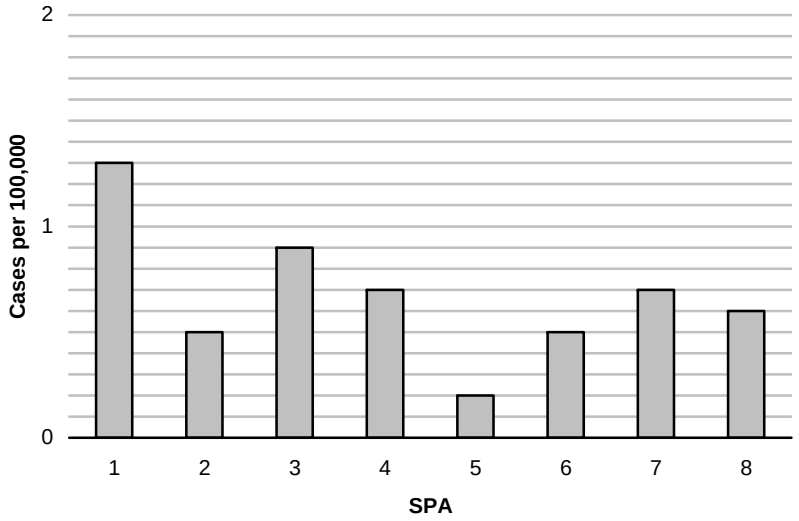


Figure 5. Reported Kawasaki Syndrome Cases by Month of Onset LAC, 2010 (N=65)

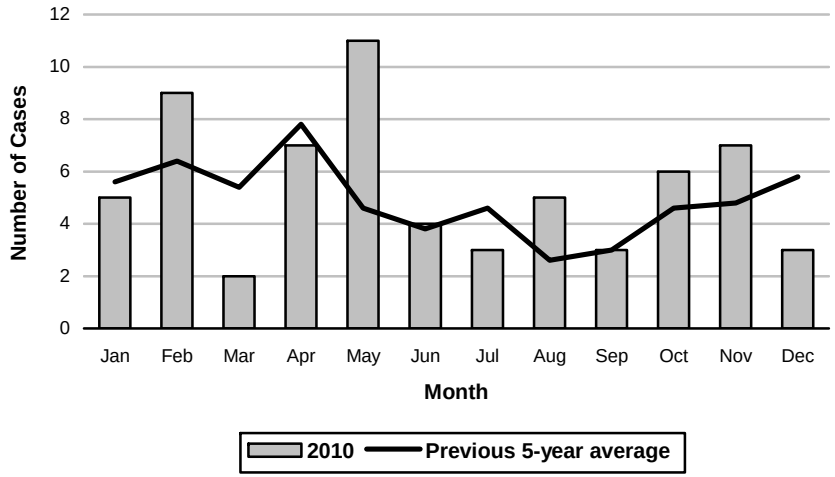
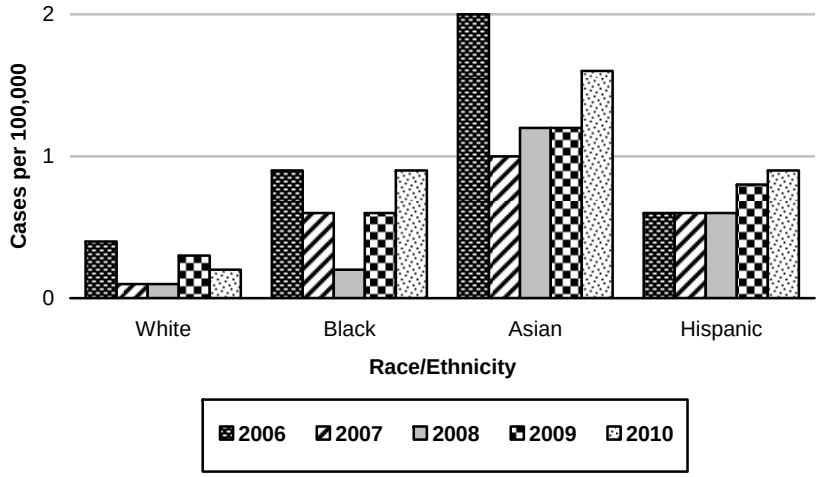


Figure 6. Kawasaki Syndrome Incidence by Race/Ethnicity LAC, 2006-2010



KAWASAKI SYNDROME

CRUDE DATA	
Number of Cases	70
Annual Incidence[a]	
LA County	0.72
California[b]	N/A
Age at Diagnosis	
Mean	2.5
Median	2
Range	2 months – 9 years

[a]Cases per 100,000 population.
[b]Not notifiable.

DESCRIPTION

Kawasaki Syndrome (KS), also called mucocutaneous lymph node syndrome (MLNS), was first described by Dr. Tomisaku Kawasaki in Japan in 1967 and emerged in the US in the 1970s. Several regional outbreaks have been reported since 1976. This is an illness that affects children, usually under five years of age. It occurs more often in boys than girls (ratio of about 1.5:1). Clinical manifestations include an acute febrile illness and acute self-limited systemic vasculitis leading to vessel wall injury with potentially fatal complications affecting the heart and large arteries. In the US, it is a major cause of heart disease in children. Though the etiology is unknown, there are multiple theories including an infectious etiology with a possible autoimmune component. In the US, the mortality rate is approximately 1%.

CDC Case Definition

Fever lasting five or more days without any other reasonable explanation and must satisfy at least four of the following criteria:

- bilateral conjunctival injection;
- oral mucosal changes (erythema of lips or oropharynx, strawberry tongue, or drying or fissuring of the lips);
- peripheral extremity changes (edema, erythema, generalized or periungual desquamation)
- rash;
- cervical lymphadenopathy > 1.5 cm diameter.

Patients whose illness does not meet the CDC case definition but who have fever and coronary artery abnormalities are classified as having atypical or incomplete KS.

2009 TRENDS AND HIGHLIGHTS

- A total of 70 confirmed patients (incidence rate; 0.72 per 100,000) including ten with atypical KS met the CDC surveillance case definition in 2009, representing a 27% increase from 2008 (n=55) (Figure 1). Overall, incidence of KS has increased in LAC since 2006.
- Eighty-four percent (n=59) of confirmed cases were reported in children under five years old. Mean age was 2.5 years old, and the age range was from two months to nine years old. The highest incidence rate occurred in children one to four years old (8.9 per 100,000) followed by children ages <1 year (6.6 per 100,000) (Figure 2).
- The male to female ratio was 1.2:1. 54.3% (n=38) of confirmed cases were male, 45.7% (n=32) of confirmed cases were female.
- Hispanics had the highest number of cases (n=39, 55.7%) in 2009. However, the highest incidence rate occurred among Asians (1.2 per 100,000), which is consistent with previous years (Figure 3, 6).
- Service Planning Area (SPA) 6 had the highest incidence rates—1.5 per 100,000 and SPA 7 had lowest incident rates—0.4 per 100,000 , respectively (Figure 4).
- KS occurs year-round, but more cases are reported in winter and spring. In 2009, 15.7% (n=11) of confirmed cases were reported in April (Figure 5).
- There were no fatal or recurrent cases in 2009. Family history was reported in 1% (n=1) of confirmed cases (N=70)
- Of the confirmed cases (N=70), 48.6% (n=34) had cardiac complications including cardiac coronary aneurysms (5.9%, n=2), cardiac coronary artery dilatation (29.4%, n=10), and valvular abnormalities (50%, n=17).
- Of the confirmed cases (N=70), 99% (n=69) was treated with intravenous immune globulin (IVIG) and high doses of aspirin.

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

	2005 (N=56)			2006 (N=75)			2007 (N=52)			2008 (N=55)			2009 (N=70)		
	No.	(%)	Rate/ 100,000	No.	(%)	Rate/ 100,000	No.	(%)	Rate/ 100,000	No.	(%)	Rate/ 100,000	No.	(%)	Rate/ 100,000
Age Group															
<1	9	16.1	6.4	18	24.0	12.4	9	17.3	6.1	10	18.2	7.0	9	12.9	6.6
1-4	38	67.9	6.6	50	66.7	8.6	35	67.3	6.1	32	58.2	5.6	50	71.4	8.9
5-14	9	16.1	0.6	7	9.3	0.5	8	15.4	0.6	13	23.6	0.9	11	15.7	0.8
15-34	0	0.0	0.0	0	0.0	0.0	0	0.0	0.0	0	0.0	0.0	0	0	0
35-44	0	0.0	0.0	0	0.0	0.0	0	0.0	0.0	0	0.0	0.0	0	0	0
45-54	0	0.0	0.0	0	0.0	0.0	0	0.0	0.0	0	0.0	0.0	0	0	0
55-64	0	0.0	0.0	0	0.0	0.0	0	0.0	0.0	0	0.0	0.0	0	0	0
65+	0	0.0	0.0	0	0.0	0.0	0	0.0	0.0	0	0.0	0.0	0	0	0
Unknown	0	0.0		0	0.0		0	0.0		0	0.0				
Race / Ethnicity															
Asian	19	33.9	1.5	25	33.3	2.0	13	25.0	1.0	17	30.9	1.2	15	21.4	1.2
Black	3	5.4	0.4	8	10.7	0.9	5	9.6	0.6	3	5.5	0.2	5	7.1	0.6
Hispanic	23	41.1	0.5	28	37.3	0.6	26	50.0	0.6	28	50.9	0.6	39	55.7	0.8
White	7	12.5	0.2	11	14.7	0.4	3	5.8	0.1	4	7.3	0.1	8	11.4	0.3
Other	4	7.1	14.2	3	4.0	10.5	3	5.8	14.4	3	5.5	12.2	3	40.0	-
Unknown	0	0.0		0	0.0		2	3.8		0	0.0		0	0	0
SPA															
1	2	3.6	0.6	1	1.3	0.3	1	1.9	0.3	1	1.8	0.3	2	2.3	0.5
2	13	23.2	0.6	14	18.7	0.7	8	15.4	0.4	11	20.0	0.5	12	17.1	0.5
3	12	21.4	0.7	13	17.3	0.8	10	19.2	0.6	8	14.5	0.5	12	17.0	0.7
4	12	21.4	1.0	10	13.3	0.8	6	11.5	0.5	9	16.4	0.7	10	14.3	0.8
5	2	3.6	0.3	3	4.0	0.5	3	5.8	0.5	3	5.5	0.3	5	7.1	0.8
6	3	5.4	0.3	8	10.7	0.8	6	11.5	0.6	4	7.3	0.4	16	22.9	1.5
7	5	8.9	0.4	9	12.0	0.7	10	19.2	0.7	13	23.6	0.9	6	8.6	0.4
8	7	12.5	0.6	17	22.7	1.5	8	15.4	0.7	6	10.9	0.5	7	10.0	0.6
Unknown	0	0.0		0	0.0		0	0.0		0	0.0				

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

Figure 1. Incidence Rates of Kawasaki Syndrome LAC, 1999-2009

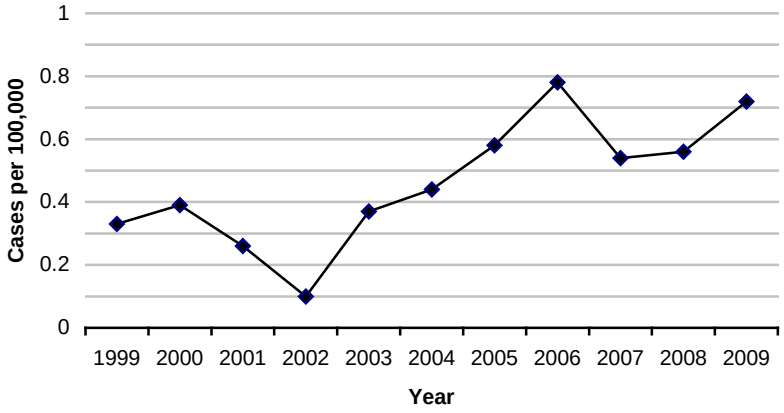


Figure 2. Incidence Rates of Kawasaki Syndrome by Age Group LAC, 2009 (N=70)

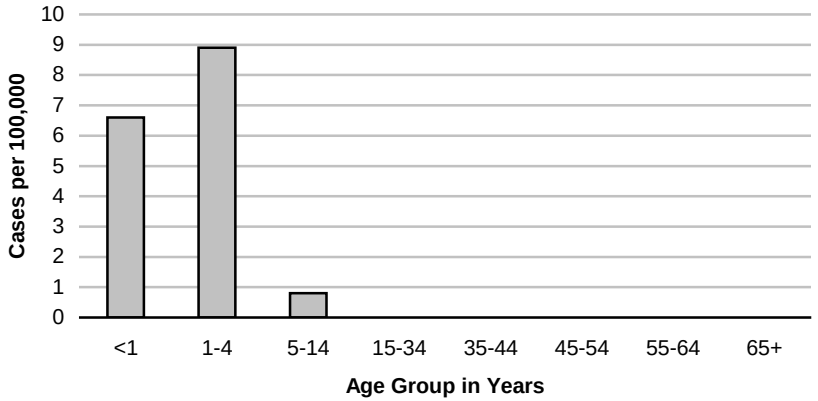
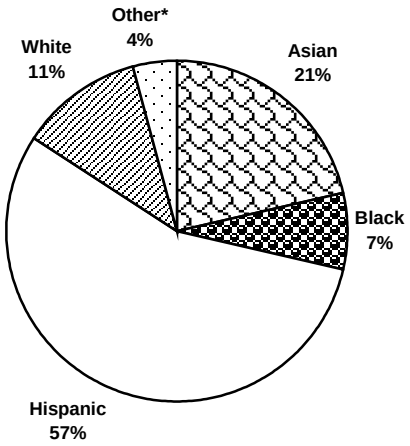


Figure 3. Percent Cases of Kawasaki Syndrome by Race/Ethnicity, LAC, 2009 (N=70)



* Other includes Native American and any additional racial/ethnic group that cannot be categorized as Asian, black, Hispanic, and white.

Figure 4. Incidence Rates of Kawasaki Syndrome by SPA LAC, 2009 (N=70)

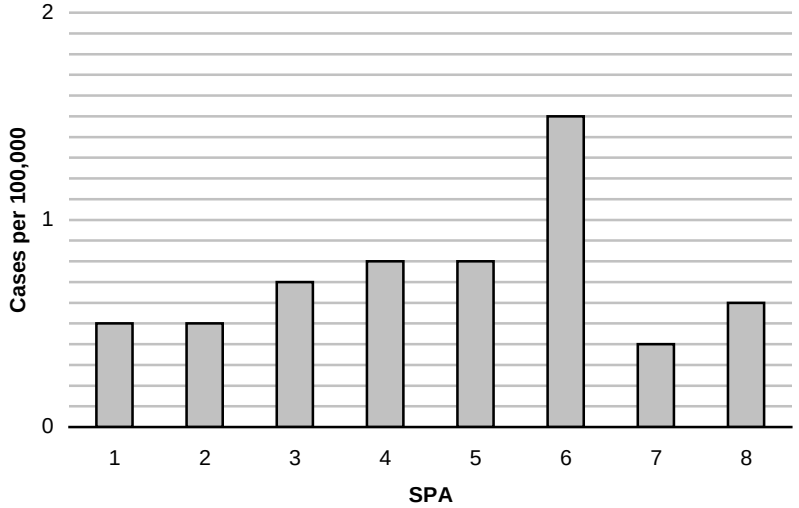


Figure 5. Reported Kawasaki Syndrome Cases by Month of Onset LAC, 2009 (N=70)

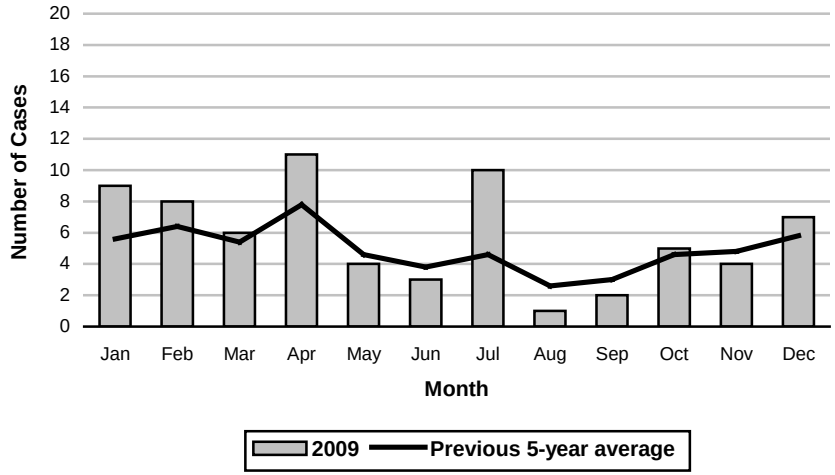
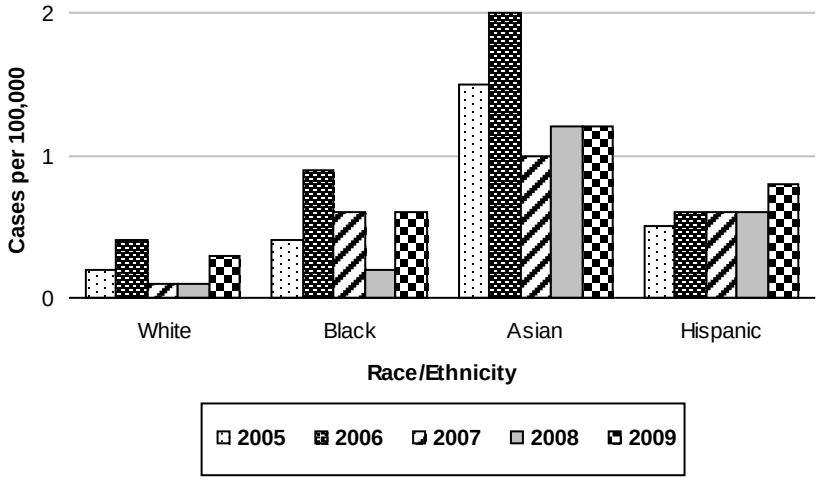
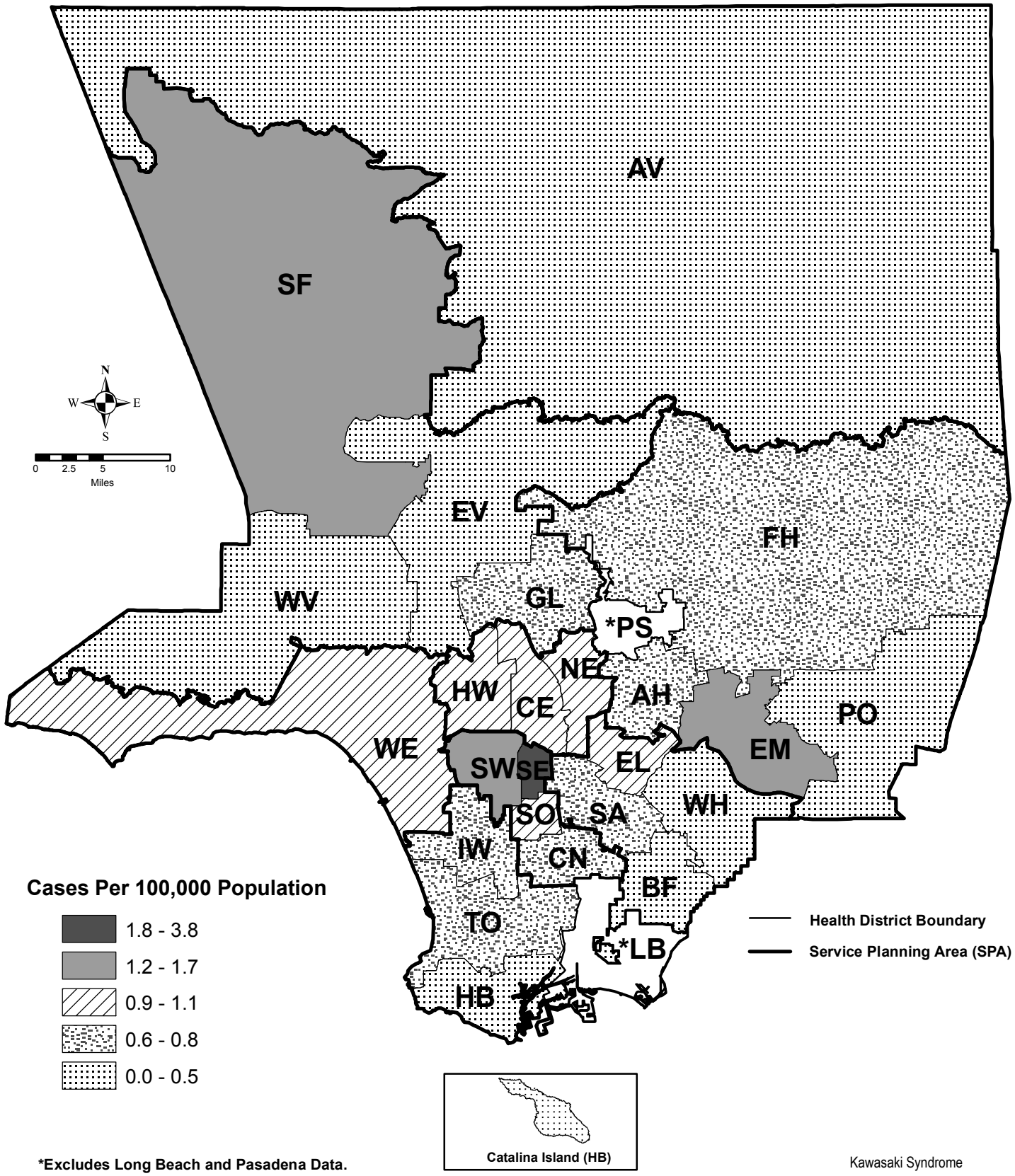


Figure 6. Kawasaki Syndrome Incidence by Race/Ethnicity LAC, 2005-2009



Map 7. Kawasaki
Rates by Health District, Los Angeles County, 2009*



*Excludes Long Beach and Pasadena Data.

KAWASAKI SYNDROME

CRUDE DATA	
Number of Cases	55
Annual Incidence[a]	
LA County	0.56
California	N/A
Age at Diagnosis	
Mean	2.95
Median	2
Range	3 months – 12 years

[a]Cases per 100,000 population.

DESCRIPTION

Kawasaki Syndrome (KS), also called mucocutaneous lymph node syndrome (MLNS), was first described by Dr. Tomisaku Kawasaki in Japan in 1967 and emerged in the US in the 1970s. Several regional outbreaks have been reported since 1976. This is an illness that affects children usually under 5 years of age. It occurs more often in boys than girls (ratio of about 1.5:1). Clinical manifestations include an acute febrile illness and acute self-limited systemic vasculitis leading to vessel wall injury with potentially fatal complications affecting the heart and large arteries. In the US, it is a major cause of heart disease in children. The etiology is unknown and is considered a non-communicable infection. In the US, the mortality rate is approximately 1%.

CDC Case Definition

Fever lasting 5 or more days without any other reasonable explanation and must satisfy at least four of the following criteria:

- bilateral conjunctival injection;
- oral mucosal changes (erythema of lips or oropharynx, strawberry tongue, or drying or fissuring of the lips);
- peripheral extremity changes (edema, erythema, generalized or periungual desquamation)
- rash and;
- cervical lymphadenopathy > 1.5 cm diameter.

2008 TRENDS AND HIGHLIGHTS

- A total of 55 confirmed cases including three cases of atypical KS met the CDC surveillance case definition in 2008, representing a 7% increase from 2007 (N=52).
- 76% (n=42) of confirmed cases were reported in children under 5 years old. Mean age was 2.95 years old, and the age range was from 3 months to 12 years old. The highest incidence rate occurred in children <1 year (7.2 per 100,000) followed by children ages 1 to 4 (5.7 per 100,000) (Figure 2).
- Hispanics had the highest number of cases (n=28, 50.9%) in 2008. However, the highest incidence rate occurred among Asians (1.3 per 100,000), which is consistent with previous years (Figure 3, 6).
- Service Planning Area (SPA) 7 and SPA 4 had the highest incidence rates—0.9 per 100,000 and 0.7 per 100,000, respectively (Figure 4). This data correlates with race/ethnicity demographics as both SPAs are majorly populated with Hispanics and Asians—SPA 7 (79.3%) and SPA 4 (73.0%).
- KS occurs year-round, but more cases are reported in winter and spring. In 2008, 21.8% (n=12) of confirmed cases were reported in April (Figure 5).
- There were no fatal or recurrent cases in 2008. Family history was reported in 2% of confirmed cases.

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

	2004 (N=41)			2005 (N=56)			2006 (N=75)			2007 (N=52)			2008 (N=55)		
	No.	(%)	Rate/ 100,000	No.	(%)	Rate/ 100,000	No.	(%)	Rate/ 100,000	No.	(%)	Rate/ 100,000	No.	(%)	Rate/ 100,000
Age Group															
<1	7	17.1	4.9	9	16.1	6.4	18	24.0	12.4	9	17.3	6.1	10	18.2	7.2
1-4	29	70.7	5.0	38	67.9	6.6	50	66.7	8.6	35	67.3	6.1	32	58.2	5.7
5-14	5	12.2	0.3	9	16.1	0.6	7	9.3	0.5	8	15.4	0.6	13	23.6	0.9
15-34	0	0.0	0.0	0	0.0	0.0	0	0.0	0.0	0	0.0	0.0	0	0.0	0.0
35-44	0	0.0	0.0	0	0.0	0.0	0	0.0	0.0	0	0.0	0.0	0	0.0	0.0
45-54	0	0.0	0.0	0	0.0	0.0	0	0.0	0.0	0	0.0	0.0	0	0.0	0.0
55-64	0	0.0	0.0	0	0.0	0.0	0	0.0	0.0	0	0.0	0.0	0	0.0	0.0
65+	0	0.0	0.0	0	0.0	0.0	0	0.0	0.0	0	0.0	0.0	0	0.0	0.0
Unknown	0	0.0		0	0.0		0	0.0		0	0.0		0	0.0	
Race / Ethnicity															
Asian	12	29.3	1.0	19	33.9	1.5	25	33.3	2.0	13	25.0	1.0	17	30.9	1.3
Black	5	12.2	0.6	3	5.4	0.4	8	10.7	0.9	5	9.6	0.6	3	5.5	0.4
Hispanic	19	46.3	0.4	23	41.1	0.5	28	37.3	0.6	26	50.0	0.6	28	50.9	0.6
White	4	9.8	0.1	7	12.5	0.2	11	14.7	0.4	3	5.8	0.1	4	7.3	0.1
Other	1	2.4	3.6	4	7.1	14.2	3	4.0	10.5	3	5.8	14.4	3	5.5	12.2
Unknown	0	0.0		0	0.0		0	0.0		2	3.8		0	0.0	
SPA															
1	0	0.0	0.0	2	3.6	0.6	1	1.3	0.3	1	1.9	0.3	1	1.8	0.3
2	3	7.3	0.1	13	23.2	0.6	14	18.7	0.7	8	15.4	0.4	11	20.0	0.5
3	5	12.2	0.3	12	21.4	0.7	13	17.3	0.8	10	19.2	0.6	8	14.5	0.5
4	7	17.1	0.6	12	21.4	1.0	10	13.3	0.8	6	11.5	0.5	9	16.4	0.7
5	3	7.3	0.5	2	3.6	0.3	3	4.0	0.5	3	5.8	0.5	3	5.5	0.5
6	5	12.2	0.5	3	5.4	0.3	8	10.7	0.8	6	11.5	0.6	4	7.3	0.4
7	7	17.1	0.5	5	8.9	0.4	9	12.0	0.7	10	19.2	0.7	13	23.6	0.9
8	11	26.8	1.0	7	12.5	0.6	17	22.7	1.5	8	15.4	0.7	6	10.9	0.5
Unknown	0	0.0		0	0.0		0	0.0		0	0.0		0	0.0	

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

Figure 1. Incidence Rates of Kawasaki Syndrome LAC, 1999-2008

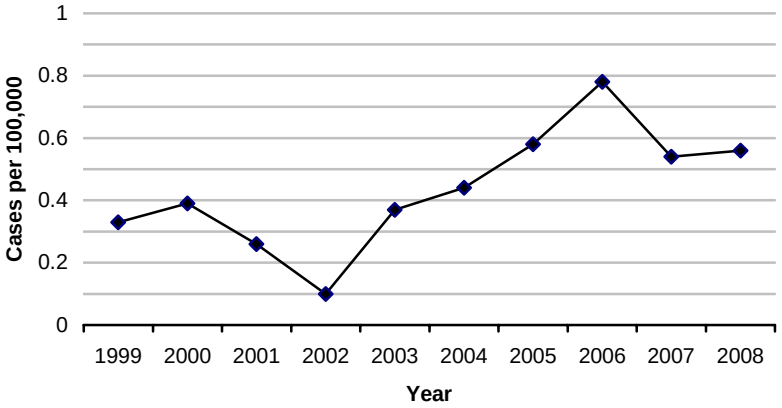


Figure 2. Incidence Rates of Kawasaki Syndrome by Age Group LAC, 2008

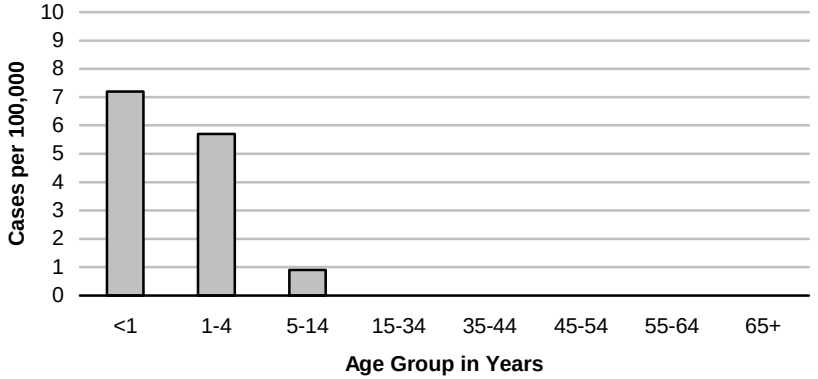
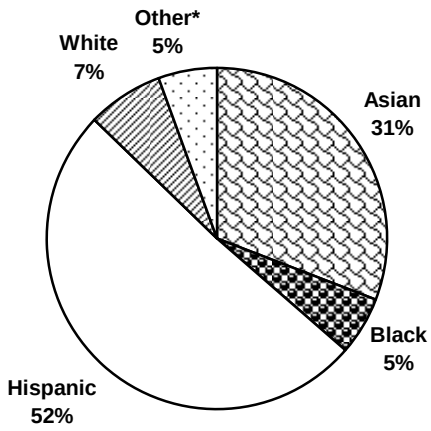


Figure 3. Percent Cases of Kawasaki Syndrome by Race/Ethnicity, LAC, 2008



* Other includes Native American and any additional racial/ethnic group that cannot be categorized as Asian, black, Hispanic, and white.

Figure 4. Incidence Rates of Kawasaki Syndrome by SPA LAC, 2008

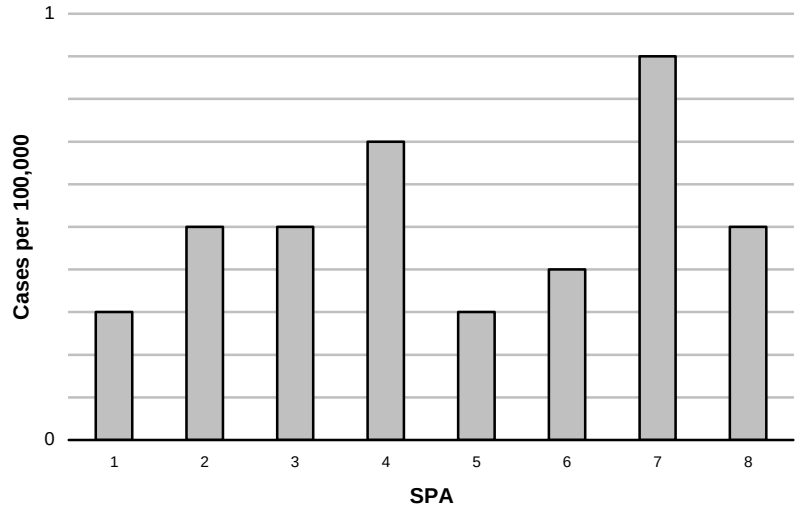


Figure 5. Reported Kawasaki Syndrome Cases by Month of Onset LAC, 2008

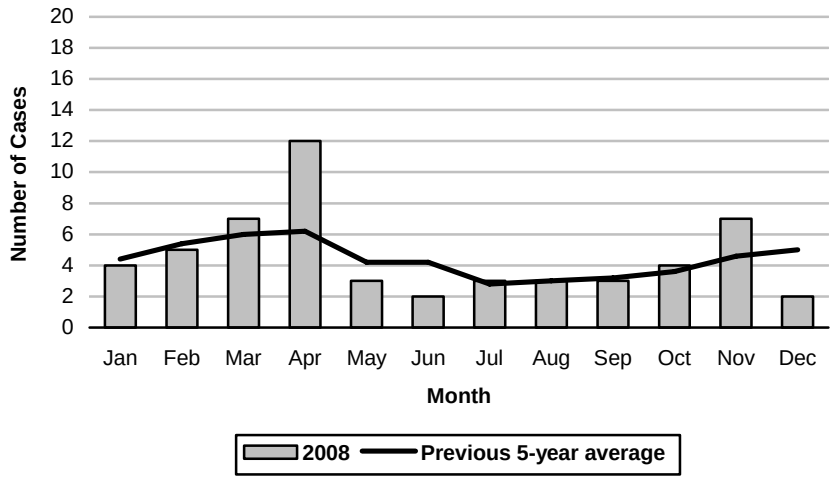
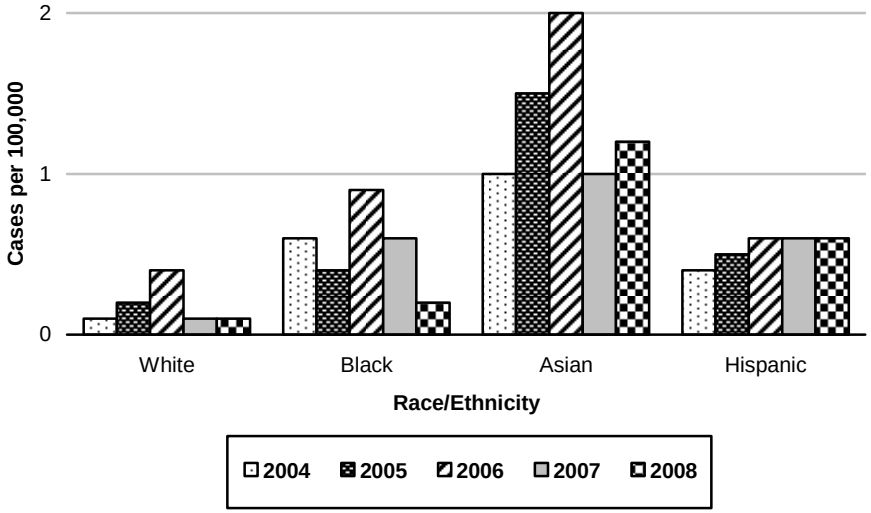
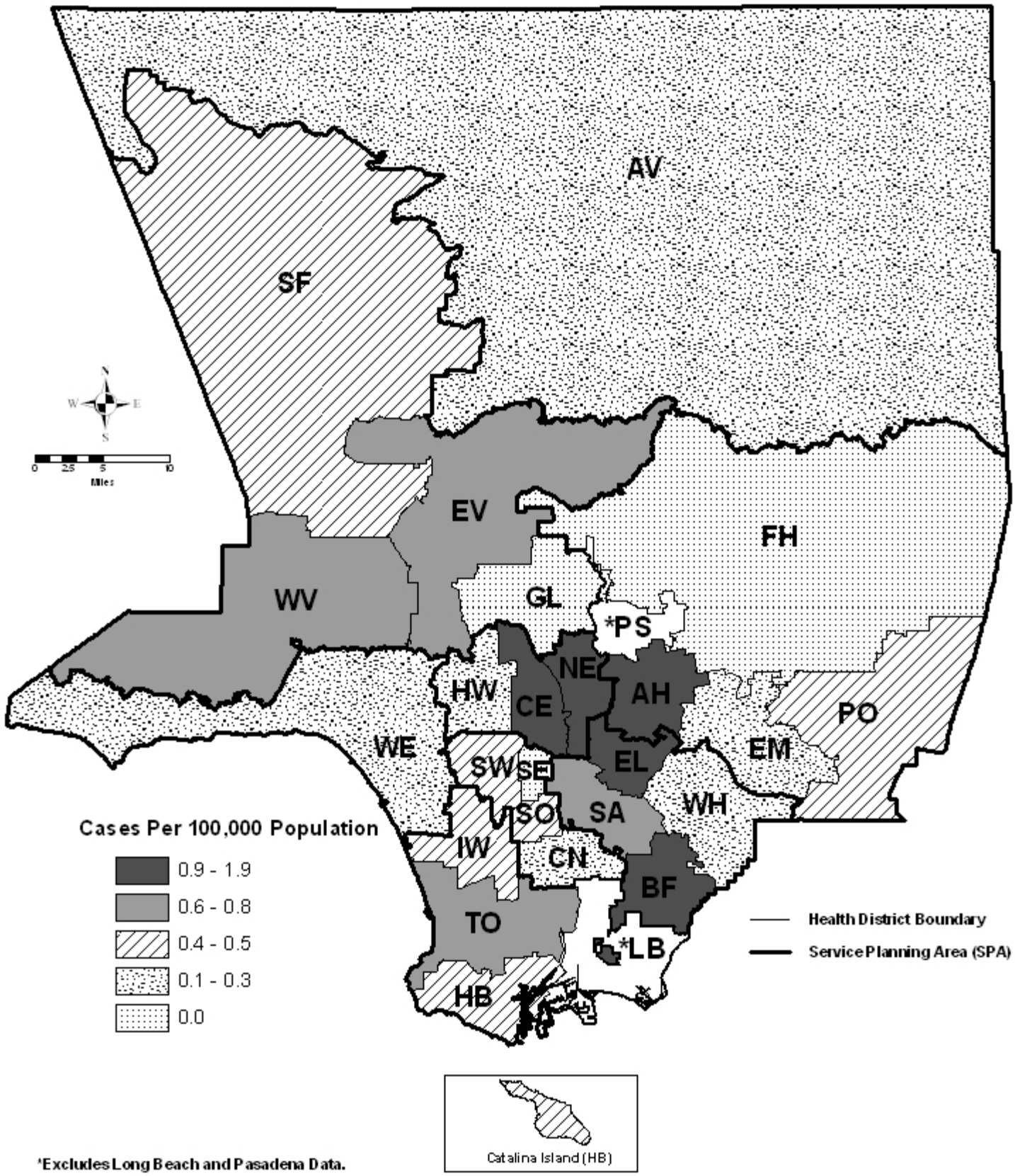


Figure 6. Kawasaki Syndrome Incidence by Race/Ethnicity LAC, 2004-2008



Map 8. Kawasaki Syndrome
Rates by Health District, Los Angeles County, 2008*



*Excludes Long Beach and Pasadena Data.

KAWASAKI SYNDROME

CRUDE DATA	
Number of Cases	52
Annual Incidence[a]	
LA County	0.54
United States	N/A
Age at Diagnosis	
Mean	2.44
Median	2
Range	3 mo – 12 y/o

[a] Cases per 100,000 population 2007 LAC Census Estimates.

Figure 1
Kawasaki Syndrome
Cases by Year of Onset
LAC, 2002–2007

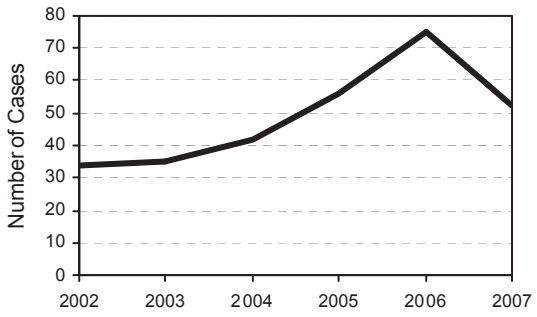
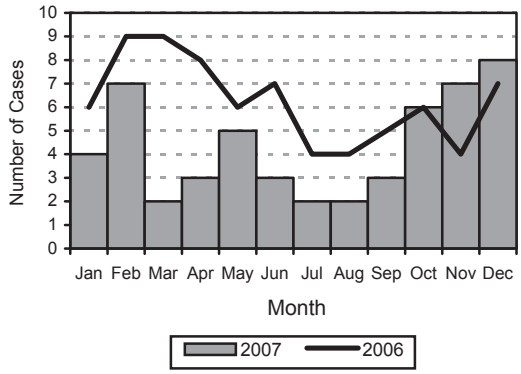


Figure 2
Kawasaki Syndrome
Cases by Month of Onset
LAC, 2006-2007



DESCRIPTION

Kawasaki Syndrome (KS), also called mucocutaneous lymph node syndrome (MLNS), was first described by Dr. Tomisaku Kawasaki in Japan in 1967 and emerged in the US in the 1970s. Several regional outbreaks have been reported since 1976. This is an illness that affects children usually under 5 years of age. It occurs more often in boys than girls (ratio of about 1.5:1). This is an acute febrile illness that causes an autoimmune inflammation of the blood vessels throughout the body, leading to vessel wall injury with potentially fatal complications affecting the heart and its larger arteries. In the US, it is a major cause of heart disease in children. The etiology is unknown and is considered a noncommunicable infection. In the US, the mortality rate is approximately 1%. The diagnosis is clinical, and by CDC case definition, a KS patient must have fever lasting 5 or more days without any other reasonable explanation and must satisfy at least four of the following criteria:

- bilateral conjunctival injection;
- oral mucosal changes (erythema of lips or oropharynx, strawberry tongue, or drying or fissuring of the lips);
- peripheral extremity changes (edema, erythema, generalized or periungual desquamation);
- rash and;
- cervical lymphadenopathy > 1.5 cm diameter.

Although laboratory findings are nonspecific for KS, they may assist in establishing the diagnosis (Taubert, 1999). Chest X-rays and a series of echocardiograms and electrocardiograms are additional important tests to follow up coronary aneurysm or arteritis. The course of KS can be divided into three clinical phases: acute febrile phase, subacute phase, and convalescent phase (Taubert, 1999). KS is usually treated with a combination of aspirin (typically, 80-100 mg/kg/day in four doses) and IVIG (intravenous immunoglobulin 2 gm/kg, a single infusion over 8 to 12 hours). Early treatment can prevent the processes that can lead to coronary artery disease.

DISEASE ABSTRACT

- The incidence of KS in LAC decreased 31% in 2007 (N=52) compared to 2006 (N=75).
- In 2007, coronary artery aneurysm was reported in 6% (n= 3) of cases with IVIG treatment (n=51).
- The incidence rate in Asians remains the highest compared to other race/ethnicity groups.

STRATIFIED DATA

Trends: In 2007, there was a total of 52 confirmed cases as compared to 75 in 2006, representing a 31% decrease from 2006.

Seasonality: No specifically seasonality is observed, however, more cases are reported in winter and spring (October, November, December, and February). (Figure 2).

Age: 85% (n=44) of confirmed cases (N=52) were reported in children under 5 years old. Mean age was 2.4 years old, median was 2 years old. The age range was from 3 months to 12 years old.

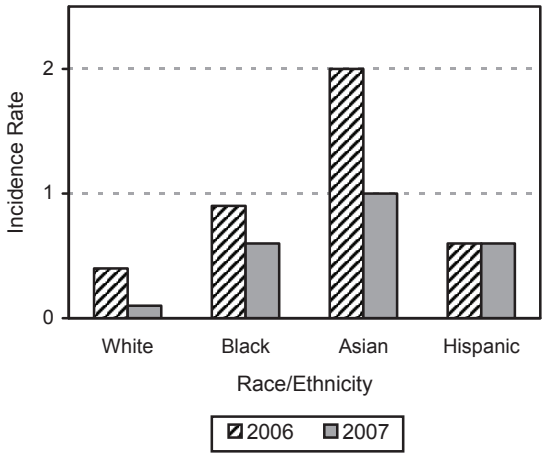
Gender: The male-to-female ratio was 1.9:1. More than half of the confirmed cases (65%, n=34) were male, while 35% (n=18) were female.

Race/Ethnicity: The incidence rate for Asians (1.0 per 100,000, n=13) was higher compared to other racial groups, as observed in past years. The incidence rate of other racial groups decreased in 2007 compared to 2006; black (0.6 per 100,000), white (0.1 per 100,000). The incidence rate among the Hispanic group remained the same in 2006 (0.6 per 100,000). (Figure 3).

Location: The highest rate was found in SPA 7 and 8 East and South Bay Area (0.7 per 100,000). The lowest rate was found in SPA 1 Antelope Valley.

Risk Factors: Unknown according to the CDC (CDC, 1993) and other research reports.

Figure 3
Kawasaki Syndrome
Incidence by Race/Ethnicity
LAC, 2006-2007



COMMENTS

There were no fatal cases in 2007. Additional studies on the etiology and pathogenesis of KS are needed to allow for improved diagnosis, treatment, and prevention. All confirmed cases were hospitalized from 1 to 9 days. ACDC uses documentation of admission, history and physical, discharge summary, and the result of the echocardiogram to determine KS cases.

Most patients with KS will recover completely, but about 1-2% die as a result of blood clots forming in the coronary arteries, or as a result of a heart attack, without proper treatment.

PREVENTION

There are no known measures that will prevent KS. However, early treatment with intravenous immunoglobulin (IVIG) and aspirin has been found to decrease the incidence of sequelae, the most serious of which is coronary artery aneurysm.

REFERENCES

Centers for Disease Control and Prevention (1983). Kawasaki Syndrome--United States. *Morbidity and Mortality Weekly Report*, 32(7), 98-100.

Taubert, K.A. and Shulman, S.T. (1999). Kawasaki disease. *American Family Physician*, 59(11), 3093-3102, 3107-3108.

ADDITIONAL RESOURCE

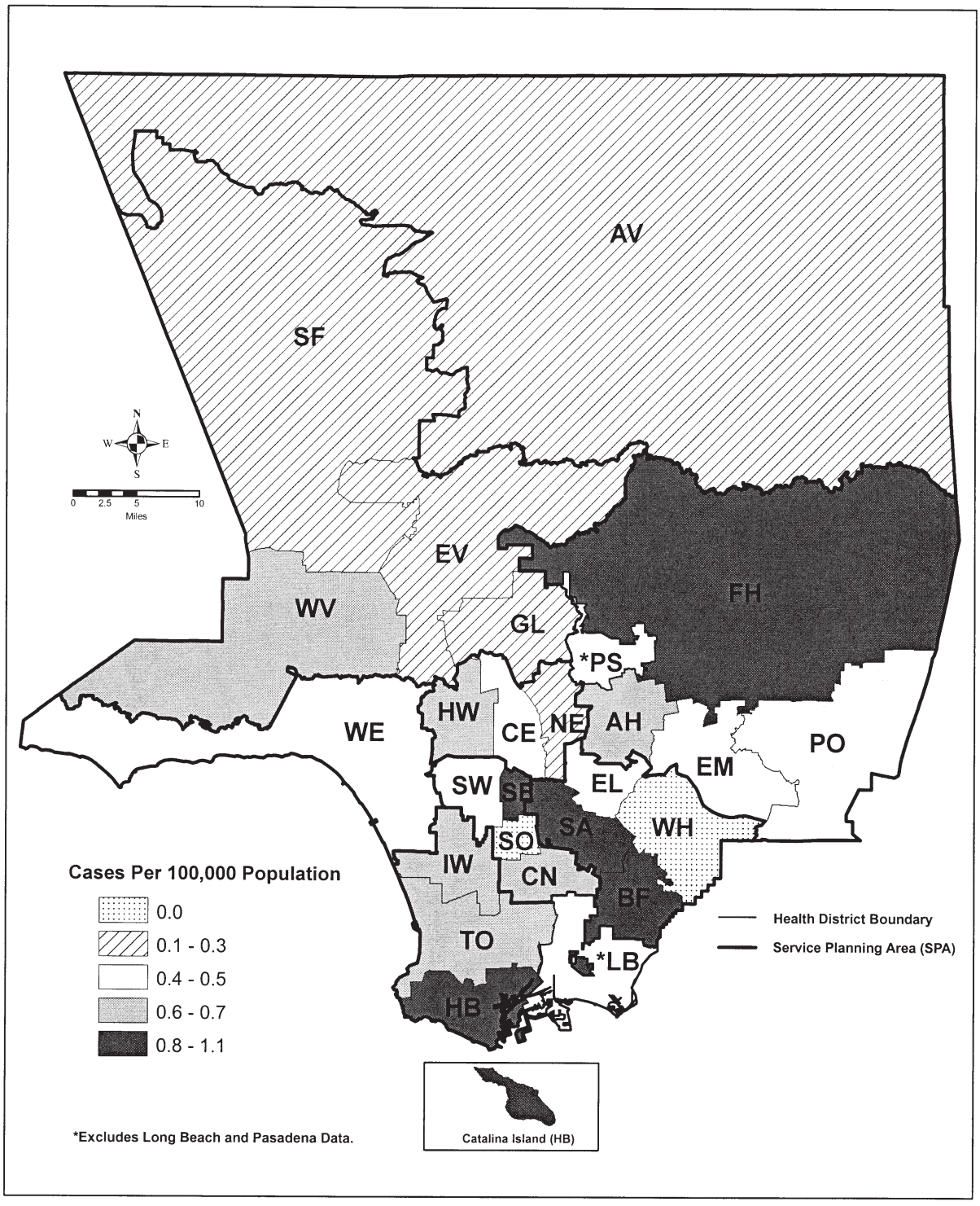
Baragona, S. (2006). *New study finds no link between Kawasaki disease and newly discovered coronavirus*. Retrieved September 18, 2008 from EurekAlert Web site: http://www.eurekalert.org/pub_releases/2006-11/idso-nsf112006.php

Burns, J.C. (2007). The riddle of Kawasaki disease. *New England Journal of Medicine*, 356(7), 659-661.

McCrindle, B.W., Li, J.S., Minich, L., Colan, S.D., Atz, A.M., Takahashi, M., et al. (2007). Coronary artery involvement in children with Kawasaki disease. *Circulation*, 116,174-179. Retrieved from American Heart Association Web site: http://circ.ahajournals.org/cgi/content/abstract/116/2/174?etoc

Pinna, G.P., Kafetzis, D.A., Orestis, I.T., & Skevaki, C.L. (2008). Kawasaki disease: an overview. *Current Opinion in Infectious Diseases*, 21, 263-270.

Map 9. Kawasaki Syndrome
Rates by Health District, Los Angeles County, 2007*

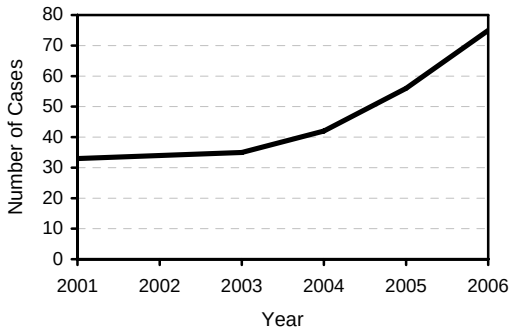


KAWASAKI SYNDROME

CRUDE DATA	
Number of Cases	75
Annual Incidence[a]	
LA County	0.78
United States	N/A
Age at Diagnosis	
Mean	2.3
Median	2
Range	3 m/o – 8 y/o

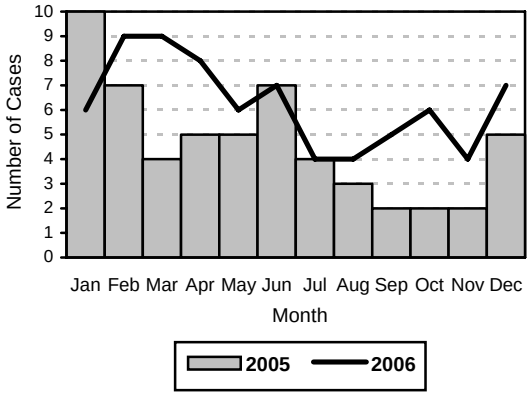
[a] Cases per 100,000 population 2006 LAC Census Estimates.

Figure 1
Kawasaki Syndrome
Cases by Year of Onset
LAC, 2001–2006



DESCRIPTION

Figure 2
Kawasaki Syndrome
Cases by Month of Onset
LAC, 2005-2006



Kawasaki Syndrome (KS), also called mucocutaneous lymph node syndrome (MLNS), was first described by Dr. Tomisaku Kawasaki in Japan in 1967 and emerged in the US in the 1970s. Several regional outbreaks have been reported since 1976. This is an illness that affects children usually under 5 years of age. It occurs more often in boys than girls (ratio of about 1.5:1). This is an acute febrile illness that causes an autoimmune inflammation of the blood vessels throughout the body, leading to vessel wall injury with potentially fatal complications affecting the heart and its larger arteries. In the US, it is a major cause of heart disease in children. The etiology is unknown and is considered a noncontagious infection. In the US, the mortality rate is approximately 1%. The diagnosis is clinical, and by CDC case definition, a KS patient must have fever lasting 5 or more days without any other reasonable explanation and must satisfy at least four of the following criteria:

- bilateral conjunctival injection;
- oral mucosal changes (erythema of lips or oropharynx, strawberry tongue, or drying or fissuring of the lips);
- peripheral extremity changes (edema, erythema, generalized or periungual desquamation)
- rash and;
- cervical lymphadenopathy > 1.5 cm diameter.

Although laboratory findings are nonspecific for KS, they may assist in establishing the diagnosis [3]. Chest X-ray and a series of echocardiograms and electrocardiograms are additional important tests to follow up coronary aneurysm or arteritis. The course of KS can be divided into three clinical phases: acute febrile phase, subacute phase, and convalescent phase [3]. KS is usually treated with a combination of aspirin (typically, 80-100 mg/kg/day in four doses) and IVIG (intravenous gamma globulin 2 gm/kg, a single infusion over 8 to 12 hours). Early treatment can prevent the processes that lead to coronary artery disease.

DISEASE ABSTRACT

- The incidence of KS in LAC increased 34% in 2006 (N=75) compared to 2005 (N=56).
- The recurrent cases were reported in 4% (n=3) of confirmed cases (N=75) in 2006.
- In 2006, coronary artery aneurysm was reported in 5% (n= 4) of cases with IVIG treatment (n=74).

STRATIFIED DATA

Trends: A total of 75 confirmed cases met the CDC surveillance case definition in 2006. There is a continued increase in the number of reported cases from 2001 to 2006 (Figure 1).

Seasonality: KS occurs year-round, but more cases are reported in winter and spring (Figure 2).

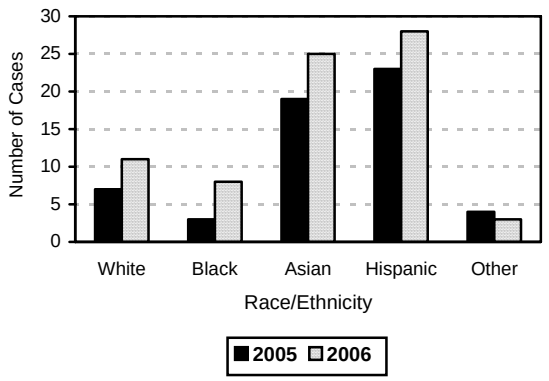
Age: 91% (n=68) of confirmed cases (N=75) were reported in children under 5 years old. Mean age was 2.3 years old, median was 2 years old. The range of age was from 3 months to 8 years old.

Gender: The male-to-female ratio was 1.03:1, unusual to previous reports. 51% (n=38) of confirmed cases were boys, 49% (n=37) of confirmed cases were girls. Descriptive studies show this disease has been approximately 1.5 times more common in boys than in girls.

Race/Ethnicity: The incidence rate for Asians (2.0 per 100,000 population, n=25) was higher compared to other racial groups, as it has been in past years. The incidence rates of other racial groups increased in 2006; black (0.9 per 100,000 population, n=8), Hispanic (0.6 per 100,000 population, n=28), white (0.4 per 100,000 population, n=11), Other (n=3) (Figure 3).

Location: The highest rate was found in SPA 8 (1.5 per 100,000 population, n=17), South Bay Area in LAC. The lowest rate was found in SPA 1 (0.3 per 100,000 population, n=1), Antelope Valley Area in LAC. SPA 3 (0.8 per 100,000, n=13), SPA 4 (0.8 per 100,000 population, n=10), SPA 6 (0.8 per 100,000 population, n=8), SPA 2 (0.7 per 100,000 population, n=14), SPA 7 (0.7 per 100,000 population, n=9), SPA 5 (0.5 per 100,000 population, n=5) incidence rates were noted.
Note: Incidence rate for cases less than 20 is unreliable.

Figure 3
Kawasaki Syndrome
Incidence by Race/Ethnicity
LAC, 2005-2006



Risk Factors: Unknown according to CDC [1] and other research reports.

Prevention: There is no known measure that will prevent KS. However, early treatment with intravenous gamma globulin (IVIG) and aspirin has been found to decrease the incidence of sequelae, the most serious of which is coronary artery aneurysm.

Prognosis: Most patients with KS will recover completely, but about 1-2% will die as a result of blood clots forming in the coronary arteries, or as a result of a heart attack without proper treatment.

COMMENTS

There were three recurrent cases (4%) similar to previously reported rates. All three cases of recurrent cases developed cardiac complications including coronary artery aneurysm. Additional studies on the etiology and pathogenesis of KS are needed to allow for improved diagnosis, treatment, and prevention. In November 2006, a new study refuted an earlier study. The new study finds no link between KS and a newly discovered coronavirus [2]. Atypical or incomplete cases in infants are not counted as confirmed cases because they do not meet the CDC case definition criteria. ACDC uses the documentation of admission, history and physical, discharge summary, and the result of the echocardiogram submitted by infection control professionals to determine possible KS cases.

REFERENCES

1. CDC. Kawasaki Syndrome--United States. MMWR 1983; 32(7):98-100.
2. New study finds no link between Kawasaki disease and newly discovered coronavirus. Retrieved from EurekAlert website: www.eurekalert.org/pub_releases/2006-11/idso-nsf112006.php.
3. Taubert KA, Shulman ST. Kawasaki disease. Am Fam Physician 1999; 59(11):3093-3102, 3107-3108.

ADDITIONAL RESOURCE

Burns JC. The riddle of Kawasaki disease. N Engl J Med 2007; 356(7):659-661.