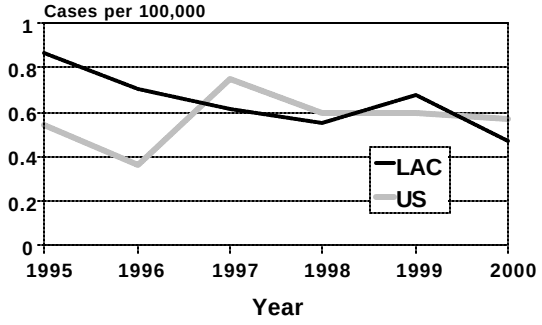
MALARIA

CRUDE DATA	
Number of Cases	43
Annual Incidence [a]	
LA County	0.47
California	0.59
United States	0.57
Age at Onset	
Mean	32 years
Median	31 years
Range	2 - 91 years
Case Fatality	
LA County	0.0%
United States	N/A

[a] Cases per 100,000 population.

Figure 57

Malaria
Incidence Rate by Year
LAC and US, 1995 - 2000

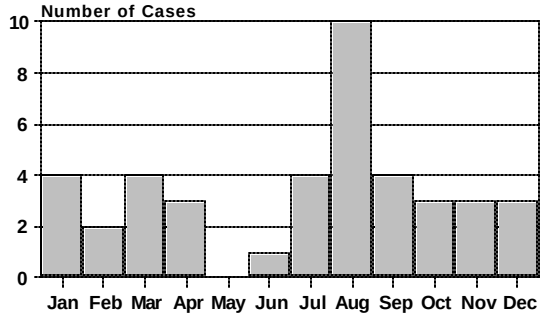


ETIOLOGY

Human malaria is caused by four species of the genus *Plasmodium*: *P. vivax*; *P. falciparum*; *P. malariae*; and *P. ovale*. *P. vivax* and *P. ovale* cause benign tertian malaria. *P. falciparum* causes malignant tertian malaria and *P. malariae* causes quartan malaria. *P. falciparum* can cause cerebral malaria and sometimes death. Malaria is acquired from the bite of an infective female *Anopheles* mosquito. Malaria is not transmitted locally in LAC, although a vector, *Anopheles hermsi*, exists here. Local transmission has not occurred here perhaps due to the dry weather and lack of a concentrated group of people circulating the parasite.

Figure 58

Malaria
by Month of Onset
LAC, 2000 (N = 41*)



DISEASE ABSTRACT

- The incidence of malaria in LAC decreased from 63 cases in 1999 to 43 in 2000.
- The percent of US resident cases who reported foreign travel dropped from 62% in 1999 to 56% in 2000.
- The percent of malaria cases who were recent immigrants or visitors to the US increased from 38% in 1999 to 44% in 2000.
- Only one US resident case was due to a relapse after immigration.
- Of US resident cases, 22% had taken some form of prophylaxis.

- There is no documentation of malaria being transmitted locally, but its vector is in LAC.

Figure 59

Malaria by Age Group LAC, 1999 - 2000

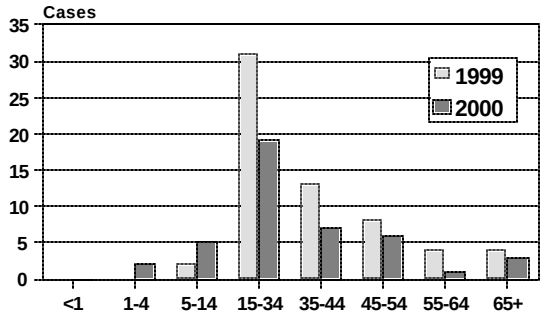
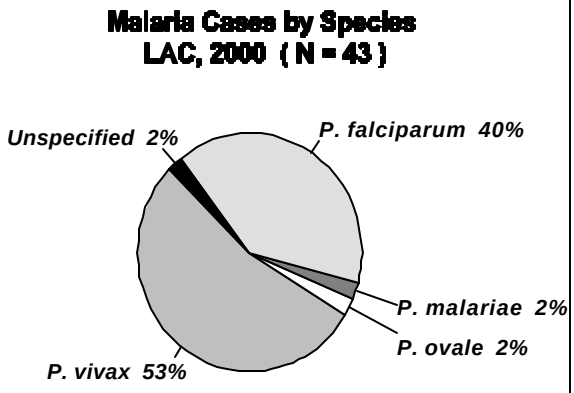


Figure 60



STRATIFIED DATA

Species Frequency: The infecting malarial species was identified for 42 cases (98%) (Figure 60). Most cases were infected with *P. vivax* (55%) or *P. falciparum* (38%). There was one unspecified case (2%).

Seasonality: Malaria is not transmitted locally probably due to a lack of ideal mosquito breeding conditions and a lack of a core group of infected people. This year August had the most cases of malaria. May had no cases and November, December and February had the fewest (Figure 58). These fluctuations in malaria cases by month are probably due to travel.

Age: Malaria incidence was greatest among individuals aged 15-34 years and least among adults aged 55-64 (Figure 59). There were no cases among children <1. Incidence dropped in all ages groups in 2000 except among children aged 1-14 where it rose. The reasons for these changes is unknown, but may be affected by the age of travelers.

Sex: The rate ratio of male-to-female cases was 5:1. The reasons for this are unknown.

Race/Ethnicity: Malaria incidence (both for total cases and LAC residents) was highest among African nationals/Black Americans (Figure 61). Most Hispanic cases were immigrants, individuals visiting the US, or whose residency status was unknown.

Location: As in 1999, the West Valley Health District had the most cases (9) of malaria countywide; West had 7 and Central had 6 cases, respectively.

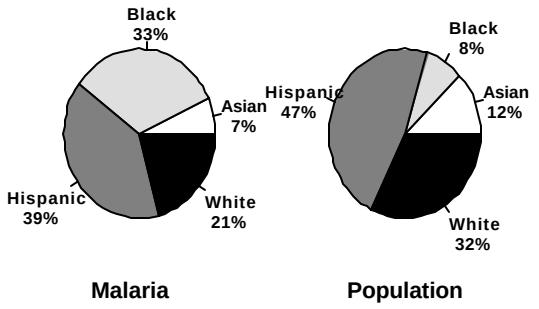
COMMENTS

Transmission of malaria locally, excluding congenital transmission and an occupationally acquired case, has not been documented recently.

Incidence rates that include cases among immigrants and foreign nationals overestimate the risk

to local residents. Residency and/or reason for travel were available for 40 of 43 cases of malaria (Table 4). Fifty-six percent (24/43) of malaria cases were LAC residents who traveled abroad either for work or vacation. Forty-four percent (19/43) were recent immigrants, individuals visiting the US, or those whose residency status was unknown. The reason for this drop in malaria cases overall is probably due to fewer people emigrating from malarial regions. There were more immigrants this year (percentage-wise) that contributed to malaria cases, but this number is still far below the numbers of cases seen throughout the late 1970s through mid- 1980s (yearly average from 1979-1986 = 133 reported cases/year).

Figure 61
Malaria Cases
Percent Cases by Race/Ethnicity
LAC, 2000



Among malaria cases in US residents traveling abroad, Africa was again the most common region visited and Nigeria the most frequent destination. This is mostly due to naturalized Nigerians visiting relatives still living in Nigeria. Forty-two percent (18/43) of all reported malaria cases were from individuals who had traveled to or were coming from African countries. Since the early '90s Blacks/African nationals have been the ethnic group with the highest incidence of malaria in LAC. Figure 62 shows that Blacks make up only 8% of the population of LAC but account for 33% of cases of malaria. Before that, immigrants/refugees from Central America and Southeast Asia made up the majority of all malaria cases seen in LAC. For cases among recent immigrants, visitors to the US, or whose residency status was unknown, Central America and Mexico were the most common regions where malaria was acquired. Sixty-three percent of cases (12/19) who were recent immigrants, visitors to the US, or whose residency status was unknown were from Central America and Mexico.

Antimalarial prophylaxis history was available for 23 of the 24 US resident cases (Table 4). Five individuals (22%) took prophylaxis, down 18% from the previous year. A higher percentage of work-related cases took prophylaxis compared to tourist cases (33 vs. 21%). However, appropriateness of prophylaxis and adherence to regime was unknown, and it was a very small group.

A low percentage of US residents and recent immigrants had a previous history of malaria this year compared to last year (Table 5), most likely due to a change in reporting format on the epidemiologic form. For 2000, a history of malaria was only documented if it was within the previous 12 months, rather than at any time in the past.

ADDITIONAL RESOURCES

CDC website:
http://www.cdc.gov/ncidod/diseases/submenus/sub_malaria.htm

Acute Communicable Disease Control website:
http://lapublichealth.org/acd/procs/b73/b73index.htm

Table 4. Malaria Cases by Species, Residency Status, and Travel Exposure–LAC, 2000

Foreign Travel by US Residents		Recent Immigration, Residency Status Unknown, or Visit to US by Non-US Residents	
Region/Country	**Number of Cases (Species) [a]**	**Country**	**Number of Cases (Species) [a]**
Africa			
Cameroon	1 (1F)	Ghana	2 (2F)
Congo	1 (1F) [b]	Nigeria	3 (3F)
Gambia	1 (1V)	Sierra Leone	1 (1F)
Ghana	1 (1V)		
Ivory Coast	1 (1F)		
Mali	1 (1F)		
Niger	1 (1F)		
Nigeria	4 (3F, 1V)		
Tanzania	1 (1N)		
Uganda	1 (1O)		
Latin America			
Ecuador	1 (1V)	El Salvador	2 (1F,1V) [c]
El Salvador	2 (1F, 1V)	Guatemala	4 (4V)
Guatemala	1 (1V)	Honduras	4 (4V)
Honduras	1 (1V)	Mexico	2 (2V)
Asia/Oceania			
India	2 (2V)		
New Guinea	2 (2V)		
Caribbean			
Guadeloupe	1 (1F)		
Unknown	1(1M)		1(1V)
Total	**24**		**19**

[a] F = *P. falciparum*, M = *P. malariae*, N = not determined, O = *P. ovale, and* V = *P. vivax.*
[b] Case traveled through other African countries.
[c] Cases traveled through other Latin American countries.

Table 5. Malaria Cases by Residency Status, Reason for Travel, Malaria Prophylaxis, and Previous Malaria History–LAC, 2000

	US Residents			Non-US Residents
	Total US Residents	**Travel for Work**	**Travel for Pleasure**	**Recent Immigrant or Foreign Visitor to US**
Prophylaxis (%)	5/24 (21)	1/3 (33)	4/18 (22)	0 *
Previous malaria within last year (%)	1/24 (4)	1/3 (33)	0/18 (0)	1/19 (5)

* Natives of malaria-endemic countries generally do not take pre-exposure prophylaxis.