6 Costa Rica

Overview of the situation

Figures 1-5

In 2008, Costa Rica along with Nicaragua, Panama and Belize was among the Central American countries with less than 1,000 cases of malaria per year. A total of 966 cases were reported in 2008, of which a single municipality in Limon Province was responsible for 80% of the cases. Malaria transmission in the country is highly focal and attributable exclusively to *Plasmodium vivax*.

The main vector species are *Anopheles albimanus* and *A. pseudopunctipennis*, which proliferate in single-crop areas, converted into farmland in recent decades, where population movements are responsible for perpetuating transmission.

Other cases are reported in Puntarenas, on the Panamanian border, and Guanacaste, to the north, on the Pacific coast.

Morbidity and mortality trends

Figures 4 – 9

A *Plasmodium falciparum* malaria outbreak occurred in Matina Canton, Limon Province, in 2006, with 236 cases being reported. *P. falciparum* malaria was reduced in 2007 to 11 cases and not a single case was reported in 2008. Matina canton also accounted for 80% of the cases (*P. vivax* malaria) reported in the country in 2008. There have been no records over the past decade of deaths from malaria or hospitalizations of acute malaria cases in Costa Rica.

Geographical distribution

Figures 1, 12 – 19

Matina canton, where 80% of the country's cases are concentrated, had an API of 17.1 cases per 1,000 inhabitants. API in the other cantons reporting malaria cases in 2008 was very low.

The population at risk, as a percentage of the country's total population, was similar in 2008 to what it had been in 2000 (34% in 2000 and 35% in 2008). Nonetheless, the population living in medium-risk areas has decreased considerably (from 493,000 inhabitants in 2000 to 33,739 in 2008).

Malaria in specific groups

Figures 25–28

Only 4.2% of the cases registered in 2008 were among children under the age of 5, a percentage lower than that noted in most countries. This is due to the characteristic occupational malaria transmission in Matina Canton. There are no records of pregnant women with malaria, despite the registration of 246 cases of *P. vivax* malaria infections among women between the ages of 15 and 50.

Diagnosis and treatment

Figures 20-24, 29–30

In 2008, 17,304 slides were examined in suspected fever patients, resulting in a SPR similar to that of the previous year (5.6%). In Limon Province, where over 80% of the cases are concentrated, the SPR was 5.5%. This was very high when compared to other provinces with focal malaria transmission (Puntaneras and Guanacaste), indicating the need to intensify active detection of cases in selected localities.

The malaria information system does not consolidate information about time taken between the onset of symptoms and the initiation of treatment.

Costa Rica's control program has not adopted the use of RDTs for malaria diagnosis. On the other hand, the number of treatments distributed was nearly 10 times the total number of confirmed cases.

P. falciparum malaria in Costa Rica, as in the other Central American countries, is sensitive to 4-aminoquinolines, and for that reason the use of ACTs has not been adopted.

Prevention and vector control

Figures 31-33

Vector control actions in 2008 included IRS. However, considerably less people were protected by IRS when compared to 2006. Use of LLINs has not been adopted as a control strategy in Costa Rica.

Financing of malaria control

Figure 34

Malaria control in Costa Rica in recent years has been financed totally by the government, without the assistance of Global Fund projects or of grants or funding from multinational organizations.

Figure 1. Number of cases by ADM 2 level (municipality, district), 2008

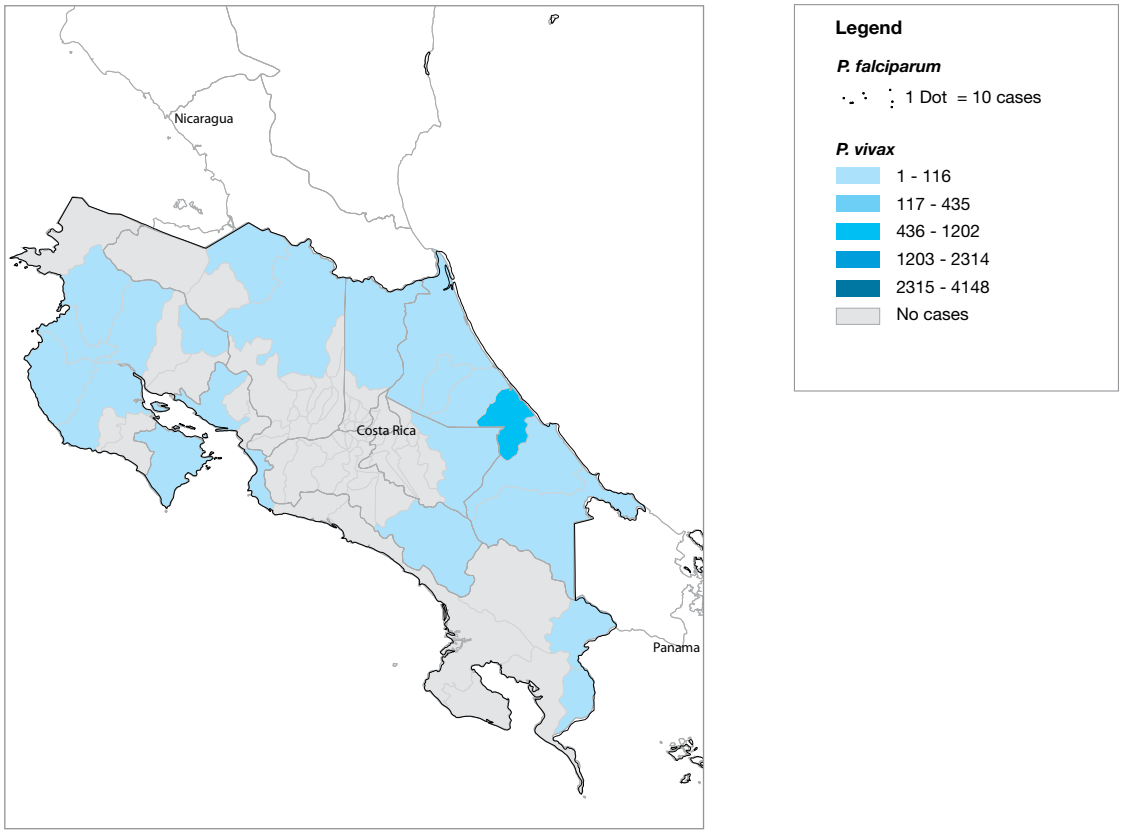
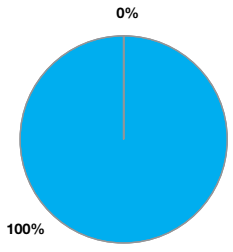


Figure 2. Proportion of cases by species, 2008

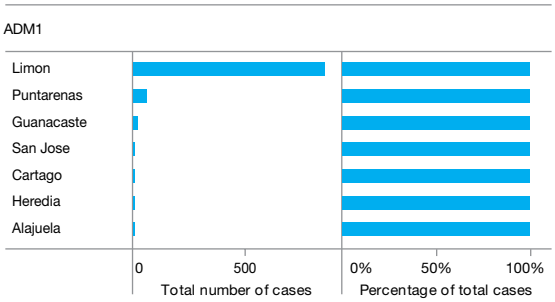


***Plasmodium* species**

- *P. vivax*
- *P. falciparum* and mixed

Figure 3. Number of malaria cases by species by ADM1 level in 2008

ADM1	*P. falciparum* + mixed	*P. vivax*	Total cases
Limon	0	863	863
Puntarenas	0	60	60
Guanacaste	0	24	24
San Jose	0	6	6
Cartago	0	4	4
Heredia	0	3	3
Alajuela	0	2	2

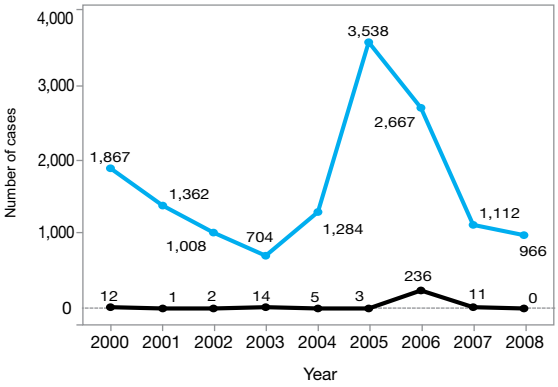


***Plasmodium* species**

P. falciparum and mixed

P. vivax

Figure 4. Number of cases by species, 2000 - 2008



***Plasmodium* species**

P. falciparum and mixed

P. vivax

Figure 5. Number of malaria cases, 2000-2008

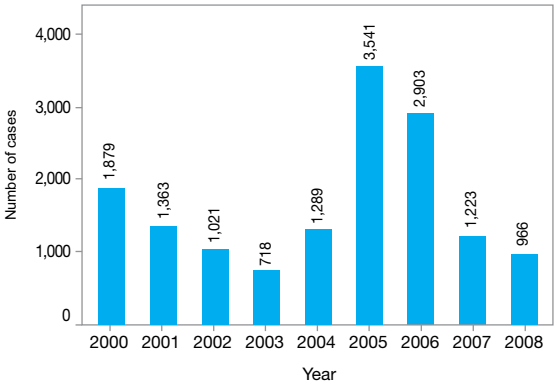


Figure 6. Number of malaria deaths, 2000-2008

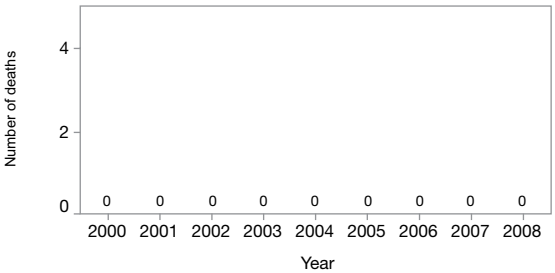


Figure 7. Number of hospitalized malaria cases, 2000 - 2008

No Data Available

Figure 8. Annual variations in number of cases

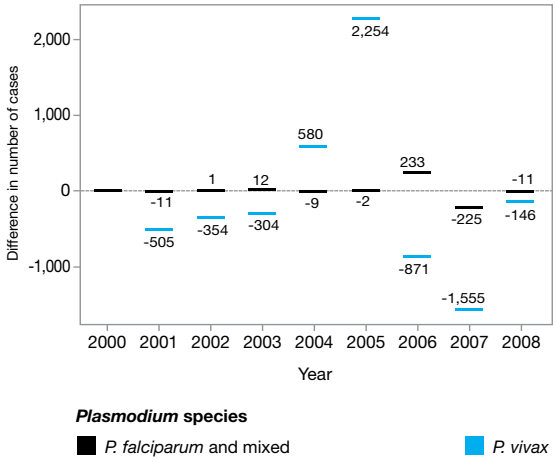


Figure 9. Percentage difference in number of cases compared to 2000

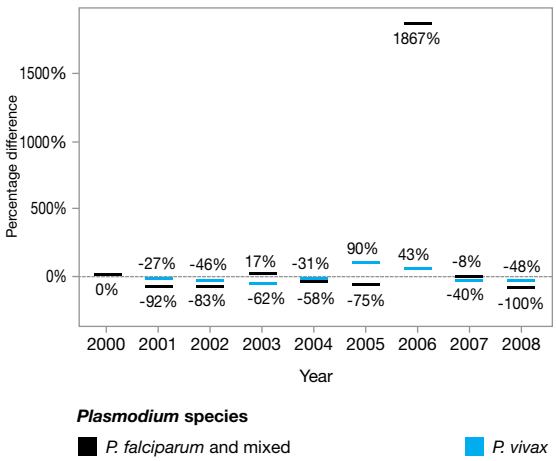


Figure 10. Number of cases and RBM / MDG targets for 2010 and 2015

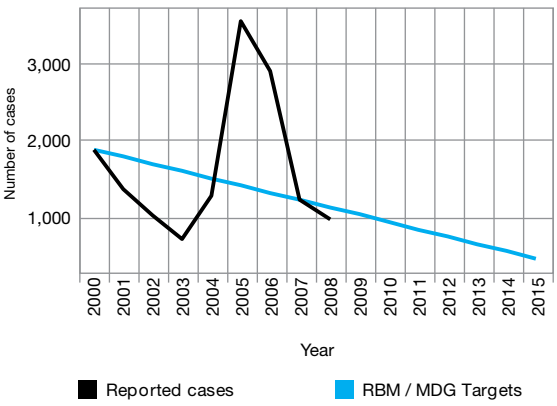
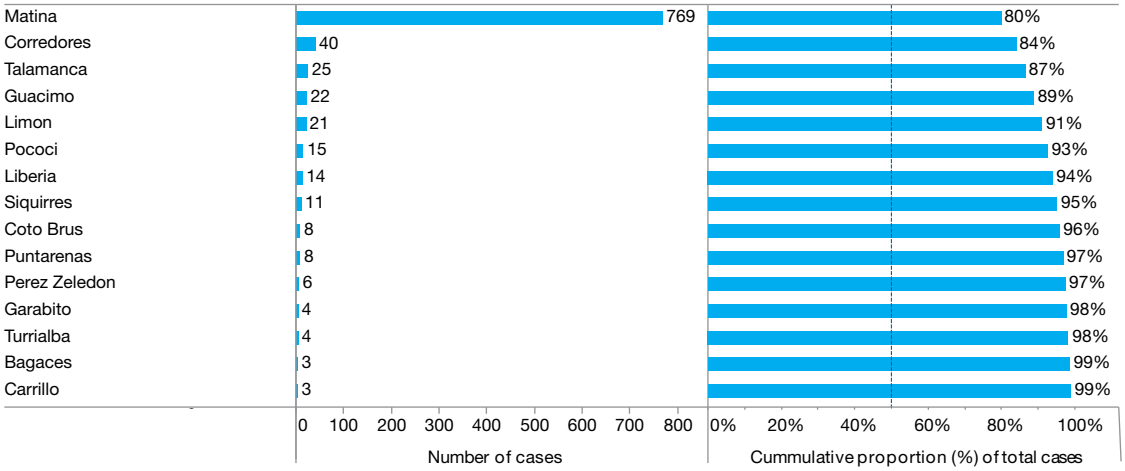


Figure 11. Percentage of hospitalized cases, 2008

No Data Available

Figure 12. Districts (ADM2) with highest malaria burden and cummulative proportion of total cases in the country, 2008



* See Annex A for a complete list.

Figure 13. Districts (ADM2) by number of malaria cases, 2008

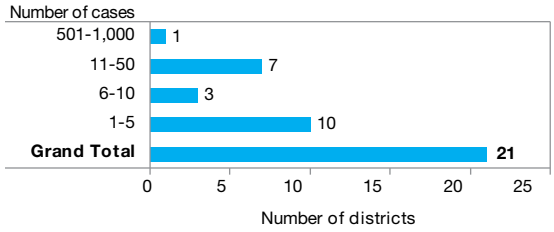


Figure 14. Districts (ADM2) by number of *P. falciparum cases*, 2008

No district reported cases of *P. falciparum* malaria in 2008

Figure 15. Districts by number of cases, API and percentage of *P. falciparum* cases, 2008

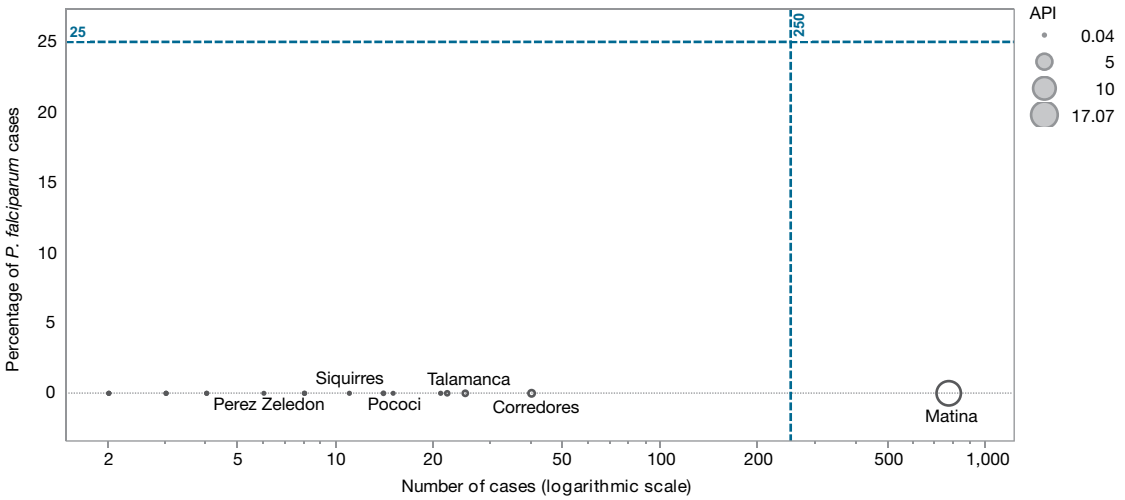


Figure 16. Annual Parasite Index (API) by districts (ADM2), 2008

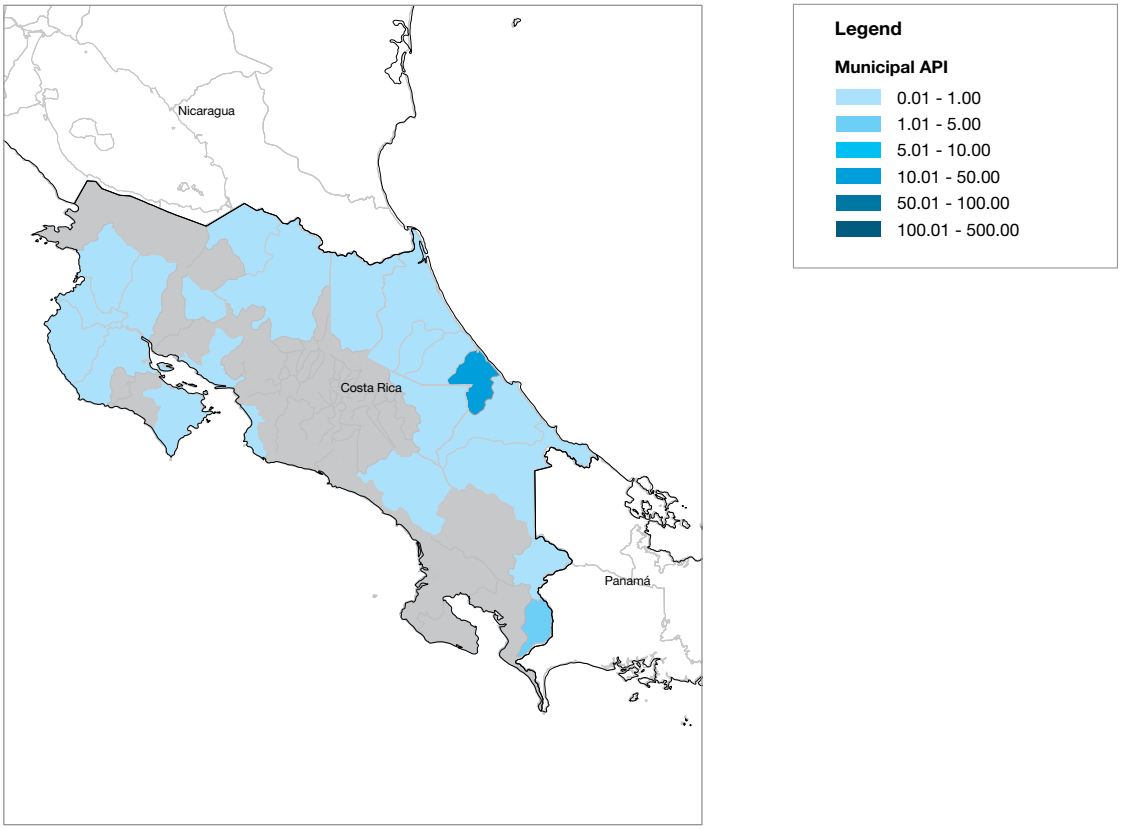
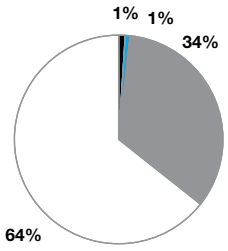


Figure 17. Population by malaria transmission risk, 2008



Population

- High risk (API > 10/1000)
- Medium risk (1/1000 < API < 10/1000)
- Low risk (API < 1/1000)
- Malaria free areas (No indigenous transmission)

Figure 18. Annual Parasite Index (API) and number of cases by district, 2008

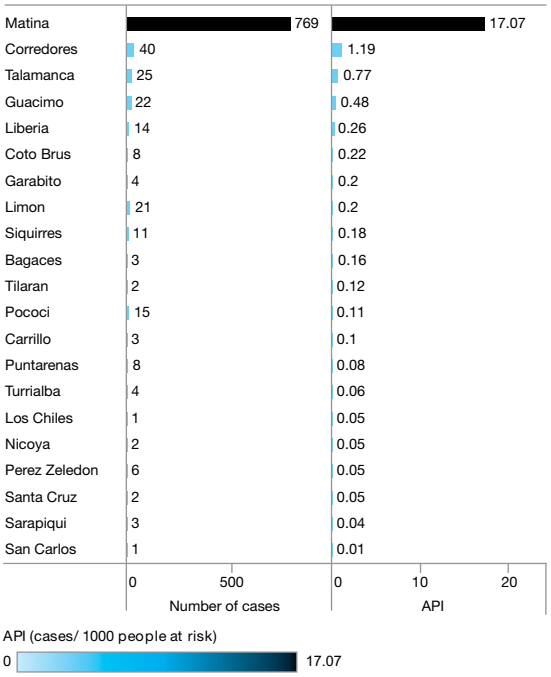


Figure 19. Population by malaria transmission risk, 2000-08

Year	High risk (API > 10/1000)	Medium risk (1/1000 < API < 10/1000)	Low risk (API < 1/1000)	Malaria free areas (No indigenous transmission)
2000	25,000	493,000	841,000	2,665,000
2001	33,000	307,000	948,000	2,522,000
2002	36,000	281,000	1,057,000	2,651,000
2003	39,000	149,000	1,215,000	2,767,092
2004	41,000	187,000	1,196,000	2,825,000
2005	42,000	235,000	1,298,000	2,751,108
2006	43,000	240,000	1,312,000	2,807,094
2007	22,699	126,634	280,530	1,184,278
2008	45,040	33,739	1,517,128	2,880,773

Figure 20. Slides examined and Slide Positivity Rate (SPR). 2000-2008

Year	Number of slides examined	Number of slides positive	Slide Positivity Rate (%)
2000	61,261	1,879	3.07
2001	43,053	1,363	3.17
2002	16,738	1,021	6.1
2003	9,622	718	7.46
2004	9,204	1,289	14
2005	12,767	3,541	27.74
2006	24,498	2,903	11.85
2007	22,641	1,223	5.4
2008	17,304	966	5.58

Figure 21. Cases diagnosed by microscopy and RDTs, 2000-08

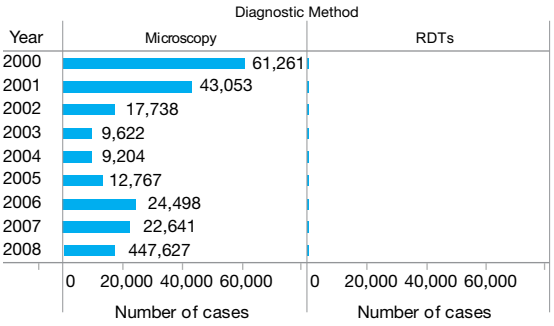


Figure 22. Number of cases diagnosed and cases treated, 2000-2008

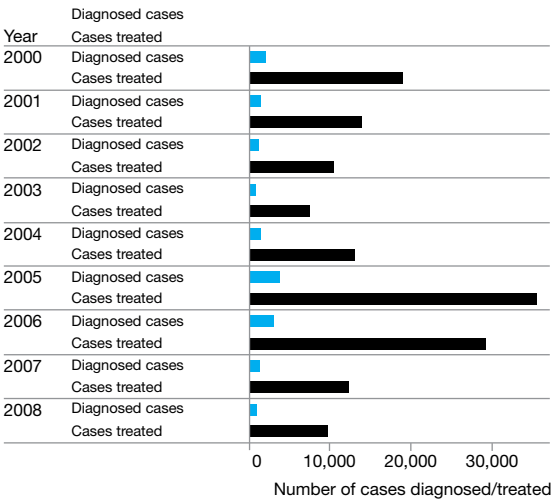


Figure 23. Slide Positivity Rate (SPR) by ADM1, 2008

ADM1	Examined	Total cases	SPR (%)
Limon	15,711	863	5.49
Puntarenas	119	60	50.42
Guanacaste	28	24	85.71
San Jose	20	6	30
Cartago	4	4	100
Heredia	3	3	100
Alajuela	451	2	0.44

Figure 24. Time span between onset of symptoms and diagnosis, 2008

No Data Available

Figure 25. Number and percentage of cases by age group, 2008

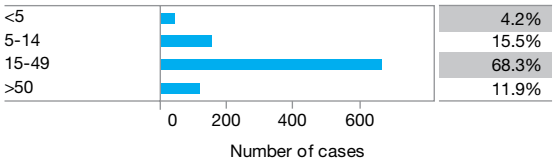


Figure 26. Number and percentage of cases by locality type, 2008

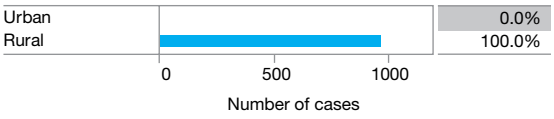


Figure 27. Number and percentage of cases in pregnant women among women of child bearing age, 2008

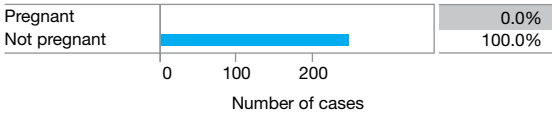


Figure 28. Number and percentage of cases in indigenous population, 2008

No Data Available

Figure 29. Proportion of *P. falciparum* cases. 2000-2008

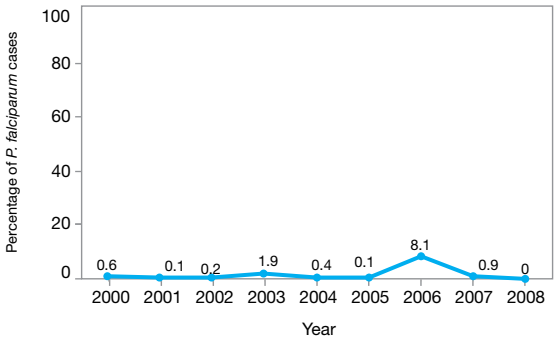


Figure 30. Number of ACT treatments distributed by year, 2000-08

Not Distributed

Figure 31. Indoor residual spraying coverage by year, 2000-08

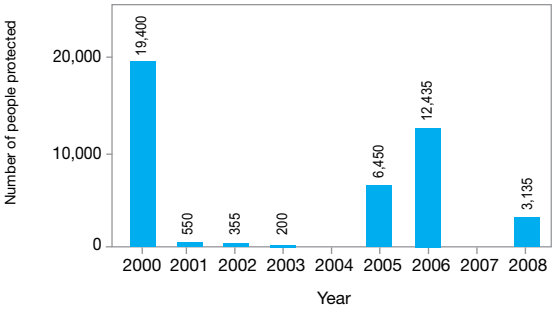


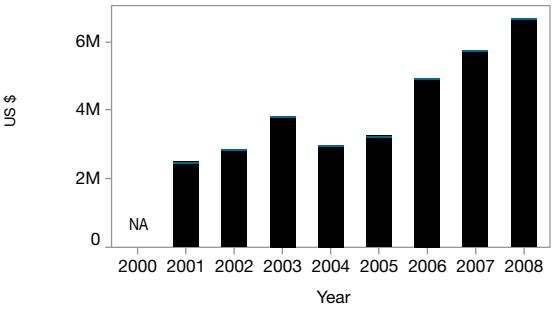
Figure 32. Number of LLINs distributed by year, 2000-2008

Not Distributed

Figure 33. Number of ITNs distributed by year, 2000-08

Not Distributed

Figure 34. Sources for malaria control funds by year, 2000-08



Financing sources

USAID
Other bilateral funds
Government
UN agencies
Global Fund

NA - Data not available