

1 | Argentina

Overview of the situation

Figures 1-5

Argentina is among the countries in the region with the fewest cases of malaria. In 2008 it reported 106 cases, all of them *Plasmodium vivax*-borne. A residual malaria-endemic area is located in Salta Province in northwestern Argentina and appears, on the South American malaria map, to be a continuation of the malaria transmission area in Bolivia's Tarija Department. Another less stable pocket of malaria exists in the northeastern part of the country, in the Province of Misiones, near the Paraguayan border. A single municipality accounts for all malaria transmission in Salta Province. It is the area with the highest historical malaria endemicity in the past 30 years, where transmission depends upon the presence of *Anopheles pseudopunctipennis*. Ecologically, this part of Argentina corresponds to the southern border of South America's central Yungas forest. Low temperatures further south hamper malaria transmission, restricting the infected region to the area between the Province of Salta, Argentina and the Department of Tarija, in Bolivia.

A. pseudopunctipennis breeding sites teem all year round and it is this stability of the vector species that is responsible for their endemicity. Their numbers multiply most rapidly during the rainy season. The anthropophilic and endophi-

lic preferences of *A. pseudopunctipennis* mean that malaria transmission takes place primarily inside dwellings.

In Salta, due to its proximity to the Bolivian border, areas of imported cases usually predominate. However, in isolated areas where transmission has been autochthonous, population movements and changes in soil, which makes the environment appropriate for farming, have been responsible for the proliferation of the vector species.

Anopheles darlingi is the vector species found in the Province of Misiones and because of its sporadic presence, transmission in the area is more epidemic.

Morbidity and mortality trends

Figures 4 – 9

The number of malaria cases dropped significantly between 2001 and 2004, but 2005 saw an increase not only in Argentina, but also in many other countries in the region. In 2006 and 2007, the number stabilized in the neighborhood of 200, and in 2008 dropped to approximately one-half the amount of the previous year. The overall reduction since 2000 is 76%. Although almost 80% of the cases reported in 2000 were called 'imported,' the reduction continues to be highly significant.

Argentina has not reported any cases of *Plasmodium falciparum*-borne malaria since 2001 and there are no records of cases of acute malaria or of deaths from malaria during this past decade.

Geographical distribution

Figures 1, 12-19

In Argentina, malaria transmission is highly concentrated in the Municipality of General Jose de San Martin, in Salta Province, which accounted for 67% of the cases reported in 2008. The transmission areas encompass that municipality and those of Oran (also in Salta) and Iguazu, in the Province of Misiones.

The endemic transmission area has, over the past 30 years, given way to small scattered focal endemic areas, with those located near the Bolivian border predominating. These could be considered as pseudo-endemic areas because they are limited to imported cases and active malaria-prone areas where continued transmission depends upon migration and changes in soil use. The malaria epidemic area shrank during the '80s, expanded slightly in the '90s and is now highly focal. Very few municipalities reported cases of malaria in 2008 and all of them were *P. vivax*-borne. The Municipalities of Tafi Viejo, Salta capital and Anta recorded 1, 3 and 2 cases, respectively, all of which were considered imported.

Malaria in specific populations

Figures 25-28

A total of 14 (10%) of the 130 cases reported in 2008 occurred among children under the age of 5.

Diagnosis and treatment

Figures 20-24, 29-30

In 2008, 5,157 blood slides were examined for malaria diagnosis in Argentina, of which 2.1% tested positive. While this percentage is higher than that noted in several of the Central American countries, it is markedly lower than the figure recorded in most of the Amazon countries. The SPR in 2008 was lower compared to 2007, the number of slides examined and the positive slides were very similar to those in 2002. The historical series appears to show a decline in the intensity of malaria diagnosis starting in 2002 and up until 2005, with an increase in the number of cases thereafter. This shows the importance of maintaining an active search for cases, despite the reduction in malaria morbidity.

All (100%) of the cases of malaria in Argentina are diagnosed with the use of a microscope. There are no records in the country of the use of rapid diagnostic tests for malaria.

Of the 106 recorded cases, 85 were diagnosed within less than 72 hours after onset of symptoms.

Prevention and vector control

Figures 31-33

In 2008, 22,512 people in Argentina were protected from malaria by IRS with insecticides, making it one of the countries in the region with the highest vector control coverage through this intervention. The number of people protected by IRS has remained relatively unchanged since 2005; in fact, coverage during the past two years has been slightly higher than in 2005 and 2006, when malaria cases were more numerous.

ITNs are not used by Argentina’s malaria control program and there is no record of their having been utilized in past years.

The Program budget covers basic routine control services, but is not sufficient for intensified control measures. Vector-borne disease epidemics have a direct influence on emergency budgeting.

Financing of malaria control

Figure 34

The National Malaria Program budget is part of that allocated to National Vector Control Coordination, which is also responsible for control of Dengue, Chagas disease and Leishmaniasis.

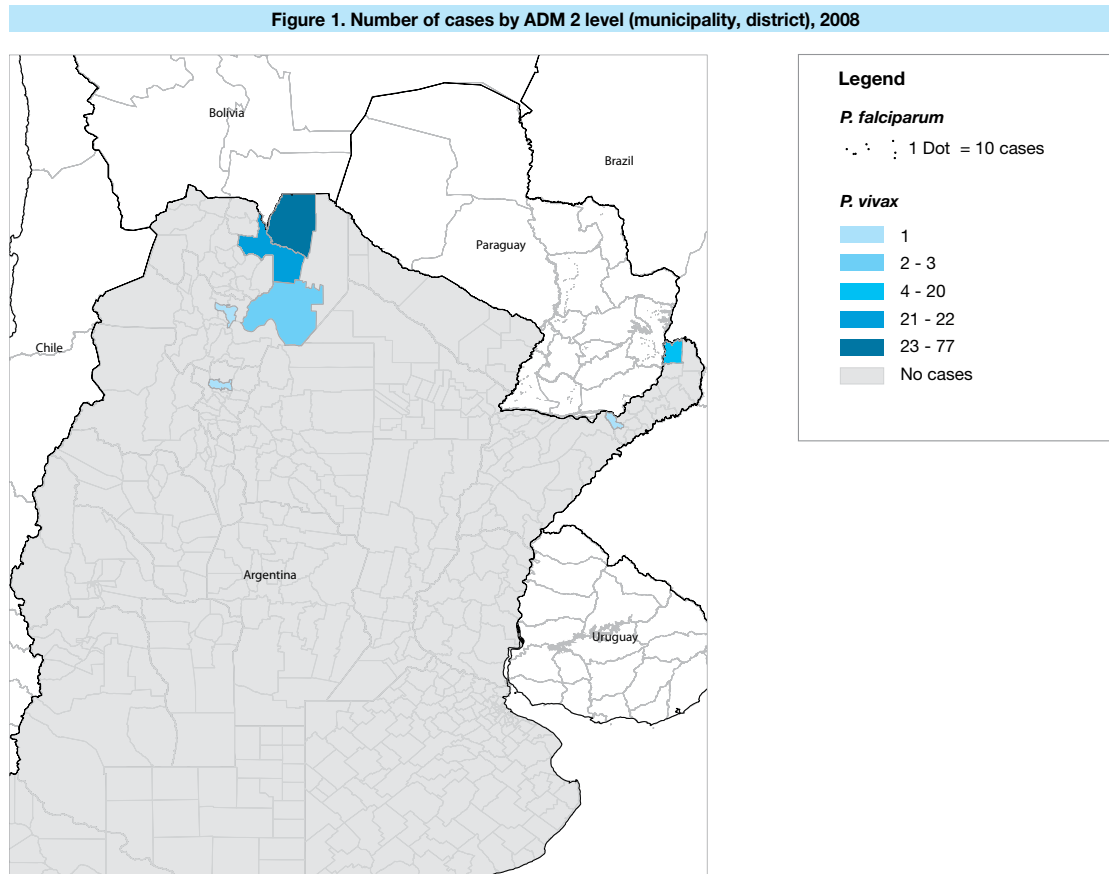
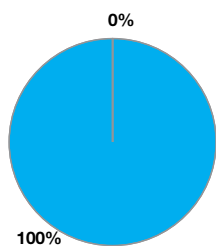


Figure 2. Proportion of cases by species, 2008

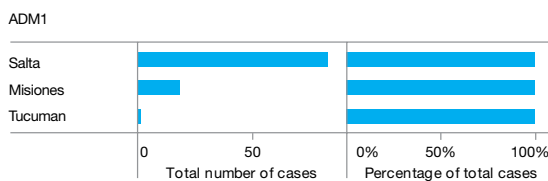


Plasmodium species

■ *P. vivax*

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

ADM1	<i>P. falciparum</i> + mixed	<i>P. vivax</i>	Total cases
Salta	0	86	86
Misiones	0	19	19
Tucuman	0	1	1

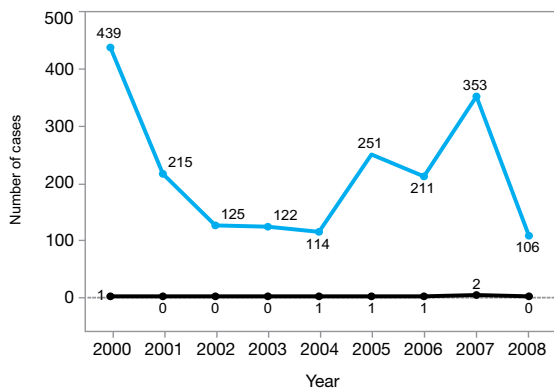


Plasmodium species

■ *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

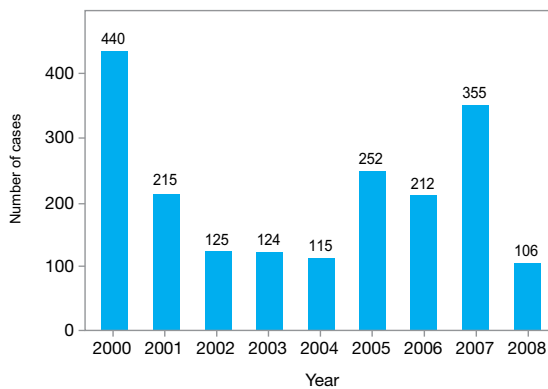


Figure 6. Number of malaria deaths, 2000 - 2008

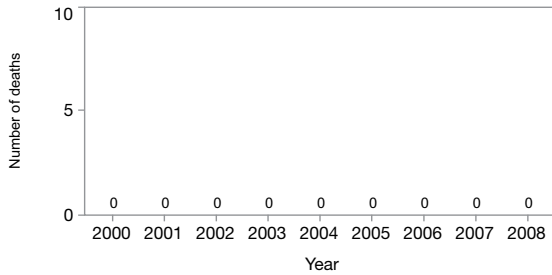


Figure 7. Number of hospitalized malaria cases, 2000 - 2008

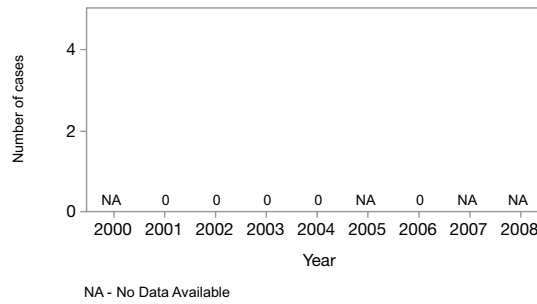


Figure 8. Annual variations in number of cases

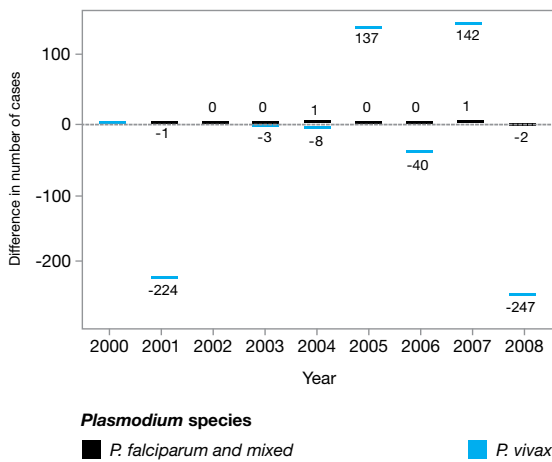


Figure 9. Percentage difference in number of cases compared to 2000

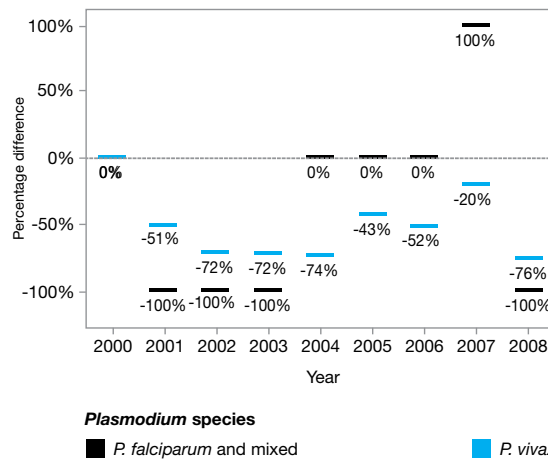


Figure 10. Number of cases and RBM / MDG targets for 2010 and 2015

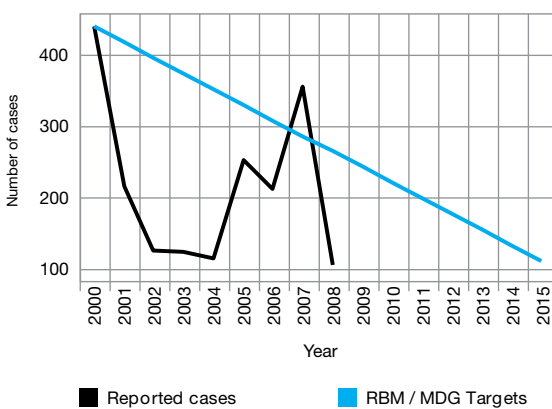


Figure 11. Percentage of hospitalized cases, 2008

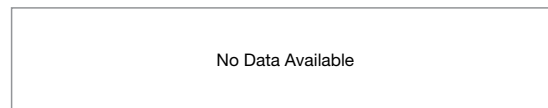


Figure 12. Districts (ADM2) with highest malaria burden and cumulative proportion of total cases in the country, 2008

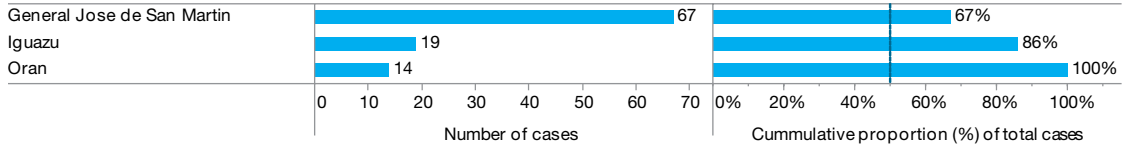


Figure 13. Districts (ADM2) by number of malaria cases, 2008

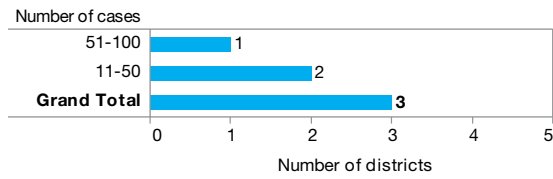


Figure 14. Districts (ADM2) by number of *P. falciparum* cases, 2008

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

Figure 15. Districts (ADM2) by number of cases, API and percentage of *P. falciparum* cases, 2008

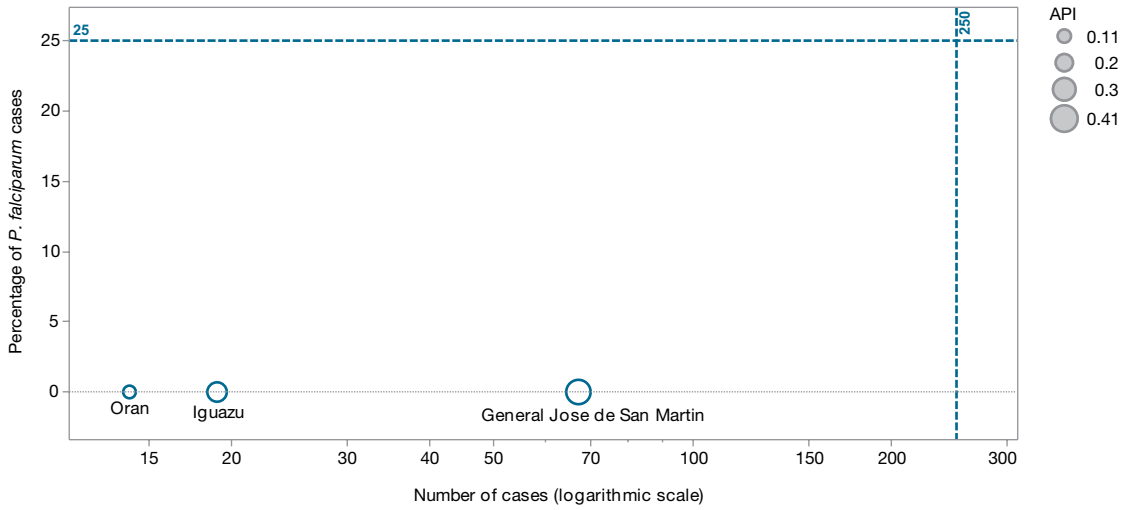


Figure 16. Annual Parasite Index (API) by districts (ADM2), 2008

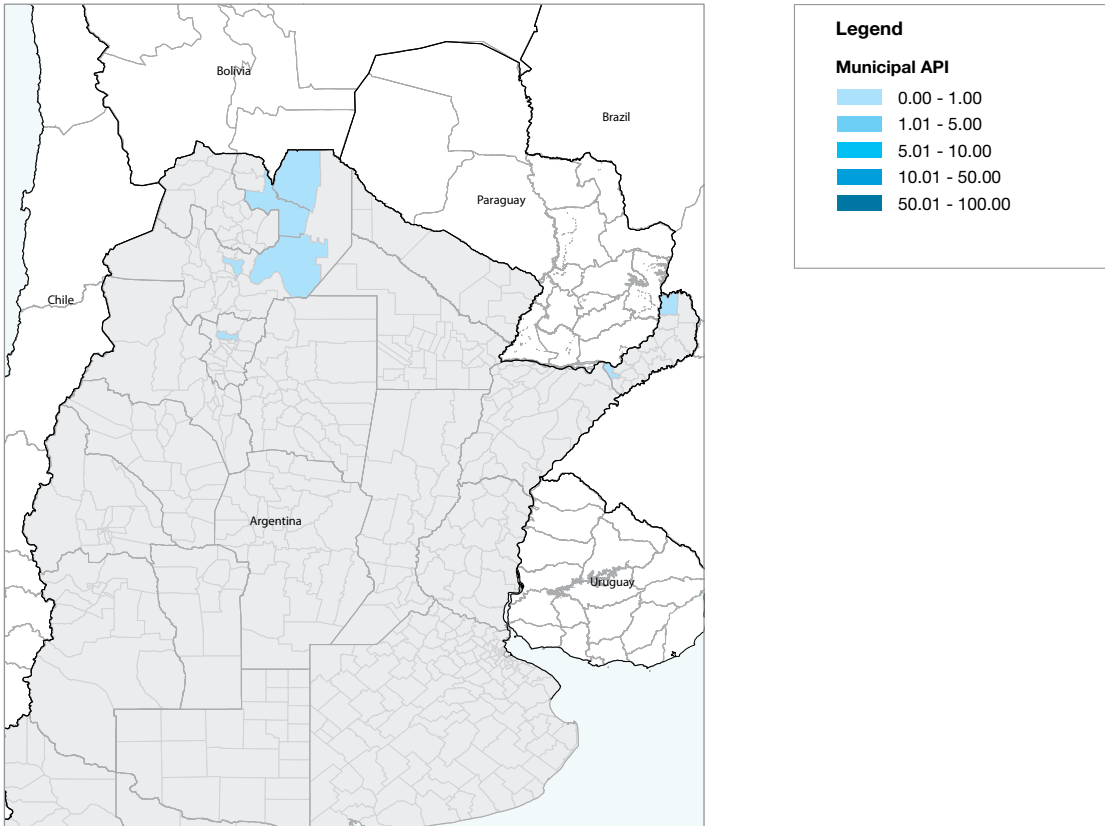


Figure 17. Population by malaria transmission risk, 2008

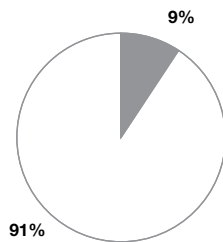
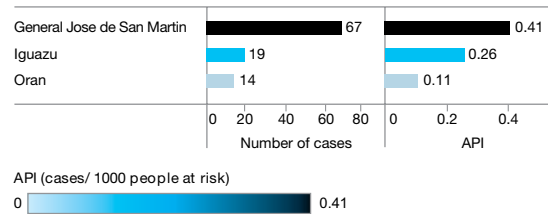


Figure 18. Annual Parasite Index (API) and number of cases by district, 2008



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 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	0	947,000	2,642,000	33,443,194
2001	0	947,000	1,949,000	34,136,000
2002	0	222,000	3,143,000	32,858,595
2003	0	222,000	3,143,000	32,858,595
2004	0	222,000	3,143,000	32,858,595
2005	0	222,000	3,143,000	32,858,595
2006	0	0	2,329,000	36,641,295
2007	0	0	2,329,000	36,641,295
2008	0	0	3,365,352	32,858,595

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

Year	Number of slides examined	Number of slides positive	Slide Positivity Rate (%)
2000	7,949	440	5.54
2001	6,685	215	3.22
2002	5,043	125	2.48
2003	3,977	124	3.07
2004	3,018	115	3.81
2005	3,018	252	8.58
2006	6,353	212	3.29
2007	6,353	355	3.29
2008	5,157	106	2.06

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

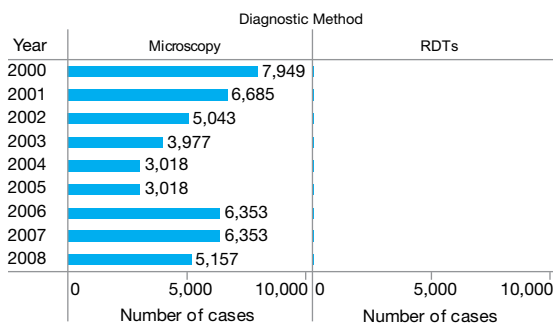


Figure 22. Number of cases diagnosed and cases treated, 2000-2008

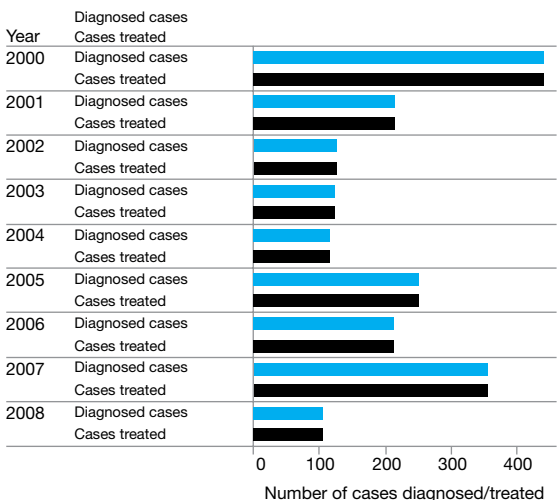
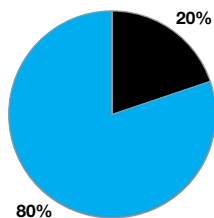


Figure 23. Slide Positivity Rate (SPR) by ADM1, 2008

ADM1	Examined	Total cases	SPR (%)
Salta	---	86	0
Misiones	---	19	0
Tucuman	---	1	0

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



Time span between onset of symptoms and diagnosis

■ >72 hours
■ <72 hours

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

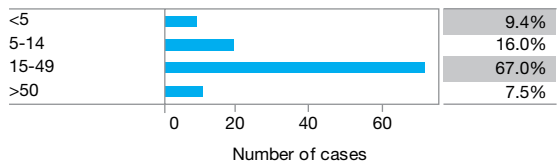


Figure 26. Number and percentage of cases by locality type, 2008

No Data Available

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

No Data Available

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

No Data Available

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

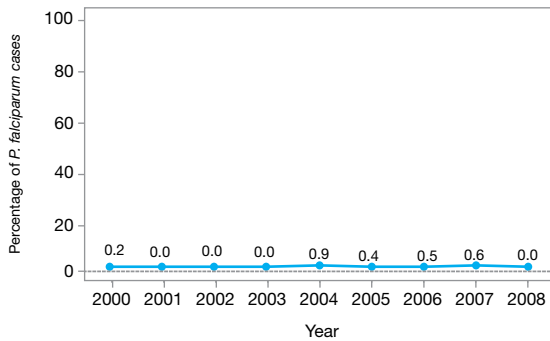


Figure 30. Number of ACT treatments distributed by year, 2000-08

Not Distributed

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

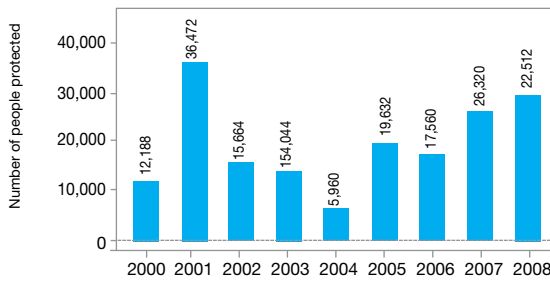


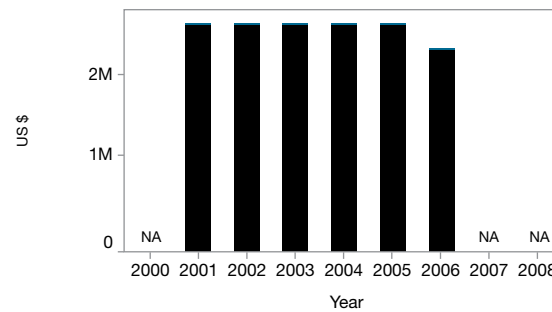
Figure 32. Number of LLINs distributed, 2000 - 2008

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
- UN agencies
- Other bilateral funds
- Global Fund
- Government

NA - Data not available