

# MADAGASCAR

Transmission occurs all year round in the north, with seasonal peaks between September and June elsewhere. About 70% of the population live in low-transmission areas, prone to epidemics, whereas the remainder inhabit high-transmission areas. The reported number of malaria cases dropped from an average of 1.4 million in 2001–2006 to only 352 000 cases in 2008 (76% decrease); only 89 000 cases were confirmed. The percentage of suspected cases tested increased from 2% in 2003 to 85% in 2008 as a result of the introduction of RDTs in 2007. The number of inpatient malaria cases also decreased, from an average of 10 283 during 2001–2006 to 5367 in 2008 (a decrease of 47%). Similarly, the number of malaria deaths during this period decreased from an average of 665 to 276 (decrease of 58%). In spite of limitations due to under reporting, the marked decreases in numbers of cases and deaths perhaps reflect the growing use of ITN, IRS and ACTs. The national malaria control programme distributed nearly 3.6 million LLINs during the period 2006–2008, covering half the target population. IRS has also increased since 2003, covering 1.3 million households and protecting 6.5 million people at risk (34%) in 2008. The national malaria control programme reported that 1 167 480 malaria cases received ACT. In a national household survey in 2008, 59% of households had an ITN and 60% of children under 5 had slept under an ITN the previous night. Funding for malaria control has increased every year, from about US\$ 2 million in 2004 to over US\$ 23 million in 2008, mainly from the Global Fund, United Nations agencies, the United States President's Malaria Initiative and other bilateral agencies.

## I. EPIDEMIOLOGICAL PROFILE

### Population, endemicity and malaria burden

Population (in thousands)	2008	%
All age groups	19 111	
< 5 years	3 060	16
≥ 5 years	16 051	84

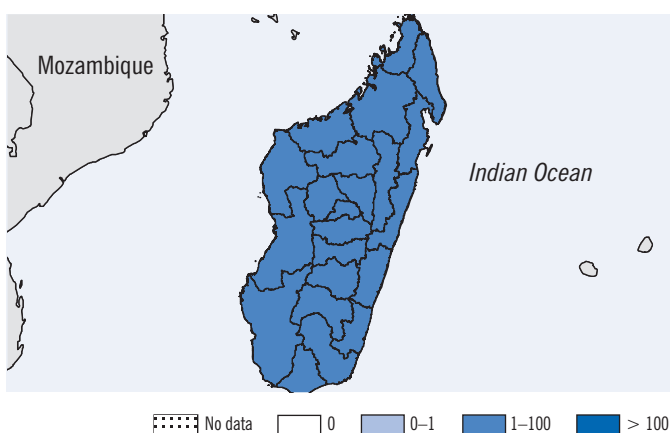
Population by malaria endemicity (in thousands)	2008	%
High transmission ≥ 1/1000	5 758	30
Low transmission (0–1/1000)	13 352	70
Malaria-free (0 cases)	0	0
Rural population	13 480	71

#### Vector and parasite profiles

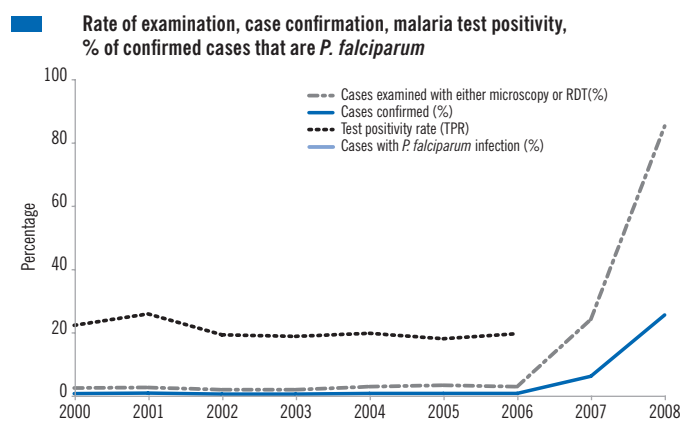
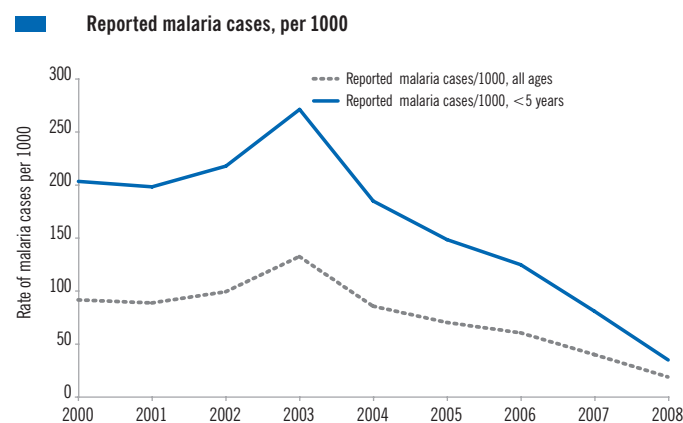
Major *Anopheles* species: *gambiae*, *arabiensis*, *funestus*, *coustani*, *flavicosta*, *merus*, *pharoensis*

*Plasmodium* species: *falciparum*, *vivax*

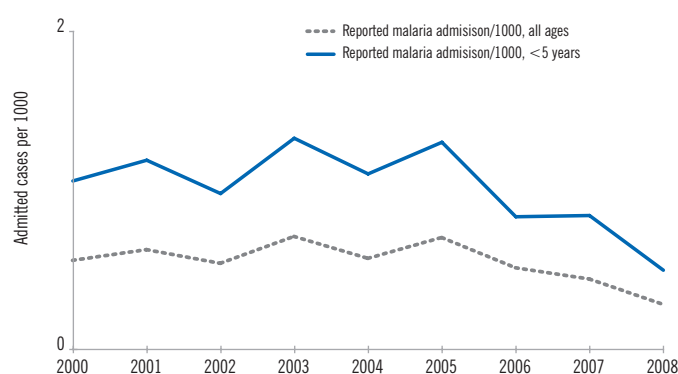
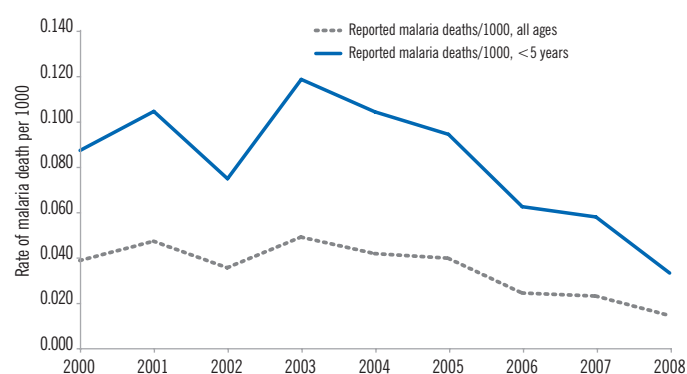
Stratification of burden (reported cases, per 1000)



### Trends in malaria morbidity and mortality



Year	Reported malaria cases, all ages	Reported malaria cases, < 5 years	All-cause outpatient consultations, all ages	All-cause outpatient consultations, < 5 years	Examined	Positive	<i>P. falciparum</i>	Reporting completeness of outpatient health facilities (%)	Reporting completeness of districts (%)
2000	1 392 483	553 350	7 425 845	2 435 584	31 575	6 946		100	85
2001	1 386 291	549 457	7 163 740	2 307 873	33 354	8 538		99	81
2002	1 598 919	612 724	8 189 035	3 641 821	27 752	5 272		98	75
2003	2 198 297	774 142	11 693 122	3 588 525	37 333	6 909		96	85
2004	1 458 408	534 201	8 091 929	2 451 234	39 174	7 638		93	87
2005	1 229 385	434 849	7 296 934	2 118 281	37 943	6 753		92	84
2006	1 087 563	370 356	6 991 184	1 957 387	29 318	5 689		85	85
2007	736 194	243 638	6 900 024	1 859 232	175 595	43 674		86	90
2008	352 520	106 090	6 809 115	1 793 241	299 000	89 138		73	73

**Reported malaria admissions, per 1000**

**Reported malaria deaths, per 1000**


Year	Reported malaria admissions, all ages	Reported malaria admissions, < 5 years	All-cause admissions, all ages	All-cause admissions, < 5 years	Reported malaria deaths, all ages	Reported malaria deaths, < 5 years	All-cause deaths, all ages	All-cause deaths, < 5 years	Reporting completeness of inpatient health facilities (%)	Reporting completeness of districts (%)
2000	8 514	2 883	84 020	12 528	591	238	4 023	1 107		
2001	9 826	3 298	88 853	12 177	742	290	4 300	1 078		
2002	8 730	2 758	80 604	11 376	575	211	3 897	1 975		
2003	11 795	3 790	106 283	15 176	817	339	4 849	1 308		
2004	9 753	3 192	93 960	12 085	715	302	4 148	1 058		
2005	12 346	3 819	108 313	13 570	699	277	4 229	1 021		
2006	9 246	2 479	88 303	10 387	441	186	3 357	717		
2007	8 190	2 537	102 157	12 794	428	175	3 721	793		
2008	5 367	1 521	118 882	9 094	276	102	2 830	566		

## II. INTERVENTION POLICIES AND STRATEGIES

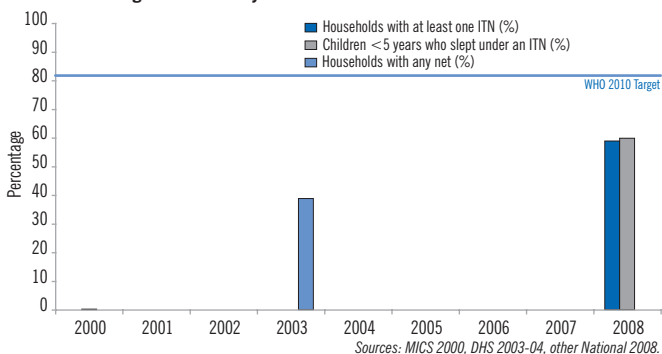
Intervention	WHO-RECOMMENDED POLICIES / STRATEGIES	Yes or No	Year adopted	OPTIONAL POLICIES / STRATEGIES	
				Yes or No	Year adopted
Insecticide-treated nets (ITN)	Distribution of ITN/LLINs – Free	Yes	2004	Distribution – Antenatal care	Yes 2005
	Targeting all age groups	Yes	2009	Distribution – EPI routine and campaign	Yes 2007
				Targeting children < 5 years and pregnant women	Yes 2000
				ITN distribution is subsidized	Yes 2000
Indoor residual spraying (IRS)	IRS is a primary vector control intervention	Yes	1998	Insecticide-resistance management implemented	Yes 1998
	DDT is used for IRS (public health) only	No	–	Where IRS is conducted, other options are also implemented, e.g. ITN	Yes 1998
				IRS is used for prevention and control of epidemics	Yes 1998
Intermittent preventive treatment (IPT)	IPT used to prevent malaria during pregnancy	Yes	2006		
Case management	Oral artemisinin monotherapies banned (prohibited from registration or removed from the system)	Yes	2005	Parasitological confirmation for patients ≥ 5 years only	No –
	Parasitological confirmation for patients of all ages	Yes	2006	Malaria diagnosis is free of charge in the public sector	Yes 2006
	ACT is free of charge for < 5 years old in the public sector	Yes	2006	ACT is free of charge for patients ≥ 5 years in the public sector	Yes 2006
	Diagnosis of malaria of inpatients is based on parasitological confirmation	No	–	ACT is delivered at community level through community agents (beyond the health facilities)	Yes 2008
	Pre-referral treatment with quinine or artemether IM or artesunate suppositories	No	–	Uncomplicated malaria cases are admitted	No –
	Oversight regulation of case management in the private sectors	–	–		
	RDTs used at community level	No	–		

### Results of therapeutic efficacy tests

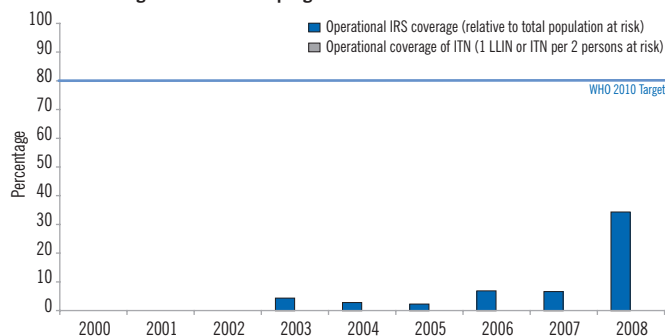
Antimalarial policy	Type of medicine	Year adopted	Study year	No. of studies	Median	Minimum	Maximum	Percentiles: 25%	75%
First-line treatment of <i>P. falciparum</i> (unconfirmed)	AS+AQ	2006	2006–2007	10	0	0	8.7	0	6.9
First-line treatment of <i>P. falciparum</i> (confirmed)	AS+AQ	2006							
Treatment failure of <i>P. falciparum</i>	QN(7d)	2006							
Treatment of severe malaria	QN(7d)	2006							
Treatment of <i>P. vivax</i>	–	–							

### III. IMPLEMENTING MALARIA CONTROL

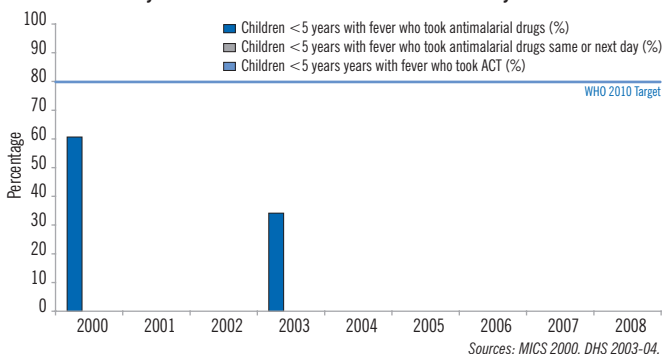
**Coverage of ITN: survey data**



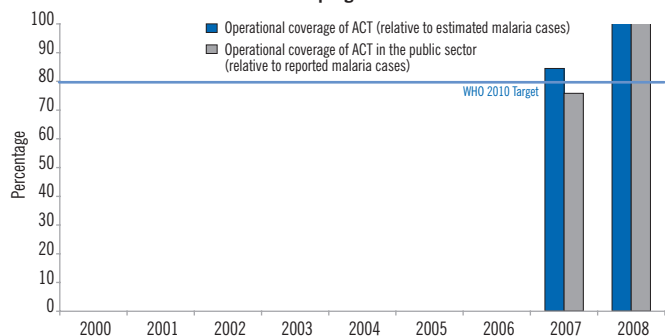
**Coverage of IRS and ITN: programme data**



**Access by febrile children to effective treatment: survey data**



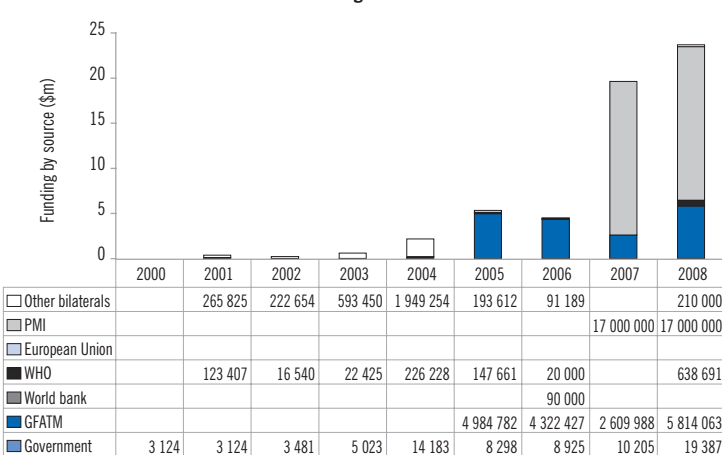
**Access to effective treatment: programme data**



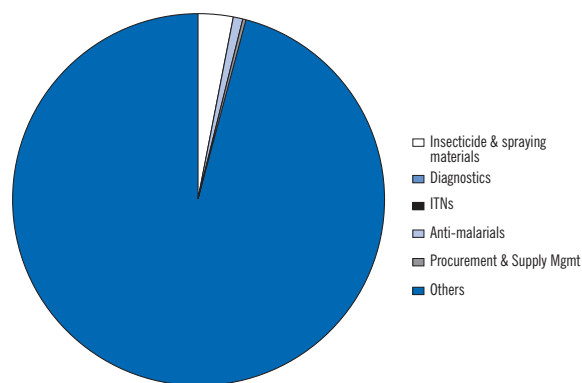
Year	Pregnant women who slept under any net (%)	Pregnant women who slept under an ITN (%)	Children < 5 years with fever (%)	Febrile children < 5 years who sought treatment in HF (%)	Number of households protected by IRS	Number of people protected by IRS	Number of ITNs and/or LLINs	Number of 1st-line treatment courses received	Number of ACT treatment courses received
2000			-	-					
2001							41 060		
2002							77 139		
2003			-	-	143 617	736 145	115 051		
2004					100 907	485 395	488 700		
2005					84 030	409 155	869 450		
2006					251 100	1 250 000	1 614 187		
2007					248 269	1 241 344	3 359 244		
2008			-	-	1 312 811	6 564 056	907 739		

### IV. FINANCING MALARIA CONTROL

**Governmental and external financing**



**Breakdown of expenditure by intervention in 2008**



### V. SOURCE OF INFORMATION

**PROGRAMME DATA**

Reported cases	Surveillance data
Operational coverage of ITNs, IRS and access to medicines	Programme report
Financial data	Programme report

**SURVEY AND OTHER DATA**

Insecticide-treated nets (ITN)	MICS 2000, DHS 2003-04, Other Nat.
Treatment	MICS 2000, DHS 2003-04
Use of health services	DHS 2003