

Overview of malaria control activities and programme progress

Malaria is one of the major public health problems in Myanmar and is reported as the leading cause of morbidity and mortality. A major risk group is non-immune adult migrants in forests who work in gem mining, logging, agriculture, plantations and construction. In addition to their lack of immunity against clinical malaria, migrant workers are also vulnerable to poor access to laboratory and treatment services and language barriers. As a result, about 70% of reported malaria cases in Myanmar are older than 15 years of age, and about 60% of cases are related to forestry work. Myanmar experienced 56 malaria outbreaks between 1991 and 2000, with international migration being the most important factor of those outbreaks. Given poor access to health care in remote areas where most cases originate, the total malaria burden is likely to be much higher than reported. Moreover, self-treatment is common, and malaria reporting does not include cases treated in the private sector or through traditional medicine practices.

Malaria control is integrated into the general health services and is part of the National Health Plan. At national level, malaria control is part of the Vector Borne Disease Control Programme, which is responsible for technical guidance planning and monitoring and evaluation. The national strategies are in accordance with the Global Malaria Control Strategy.

The focus in improving malaria control is on increasing access to diagnostic and treatment services in remote rural areas, improving the use of effective drugs as the result of the increasing prevalence of multidrug-resistant *P. falciparum* malaria and the availability of counterfeit drugs, and vector control using effective insecticides. Drug and insecticide efficacy monitoring occurs in selected sentinel sites.

The changing behaviour of mosquitoes threatens the effectiveness of vector control measures. *A. dirus* has adapted to certain village environments by breeding in village domestic wells. Although *A. minimus* does bite humans outdoors and early in the evening, indoor biting remains more frequent; thus, IRS and ITNs should continue to be effective in preventing malaria. The local vectors *A. annularis* and *A. culicifacies* are resistant to DDT.

Since 1999, reported malaria mortality has declined, but the number of reported cases has increased. The latter is probably explained by improved availability and use of malaria treatment services, although most increases in malaria case rates are seen in some development project areas relating to the movement of non-immune migrant workers.

Myanmar reported over US\$ 23 million of government financing for malaria control in 2003; an additional US\$ 0.6 million was supplied by external sources, which represents an increase since the mid-1990s. The GFATM will provide an additional US\$ 9.4 million for malaria control activities.

National malaria policy and strategy environment

National malaria strategy overview for 2003

	Strategy
Treatment and Diagnosis Guidelines	Yes
Published/updated in	2002
Monitoring antimalarial drug resistance	Yes
Number of sites currently active	6
Home management of malaria	NA
Vector control using insecticides	Yes
Monitoring insecticide resistance	Yes
Number of sites currently active	1
Insecticide-treated mosquito nets (ITNs)	Yes
Intermittent preventive treatment (IPT)	NA
Epidemic preparedness	Yes

Current antimalarial drug policy

	Current policy
Uncomplicated malaria	
<i>P. falciparum</i> (unconfirmed)	CQ+SP or ASU(3d)+MQ
<i>P. falciparum</i> (lab confirmed)	ATM-LUM or ASU+MQ
<i>P. vivax</i>	CQ+PQ
Treatment failure	Q(7d)+D(7) or ASU(7d)+D(7)
Severe malaria	Q(7d)+D(7) or ASU(7d)+D(7)
Pregnancy	
Prevention	not recommended
Treatment	Q(1st tri)+CD; ASU+C/D (2-3 tri)+C/D

EPIDEMIOLOGICAL DATA

Following WHO recommendations, malaria case reporting is carried out in most countries. The data presented below reflect aggregated malaria cases at the national level and are presented by gender, age and subnational level as submitted to WHO. Malaria reporting from national surveillance systems varies in quality and reporting completeness and may have limited value in understanding the actual malaria burden, but may be useful for understanding trends in the relative burden of malaria in the public health sector.

Reported malaria cases (annual)

1990	1991	1992	1993	1994	1995	1996	1997	1998	1999
989 042	939 257	789 672	702 239	701 043	656 547	664 507	568 262	548 066	591 826
2000	2001	2002	2003	Date of last report: 7 October 2004					
592 354	661 463	721 739	716 100						

Reported malaria by type and quality

For most recent year

Reported malaria cases	716 100
Reported malaria deaths	2 476

Probable or clinically diagnosed

Malaria cases	539 929
Severe (inpatient or hospitalized) cases	
Malaria deaths	
Slides taken	473 267
Rapid diagnostic tests (RDTs) taken	188 125

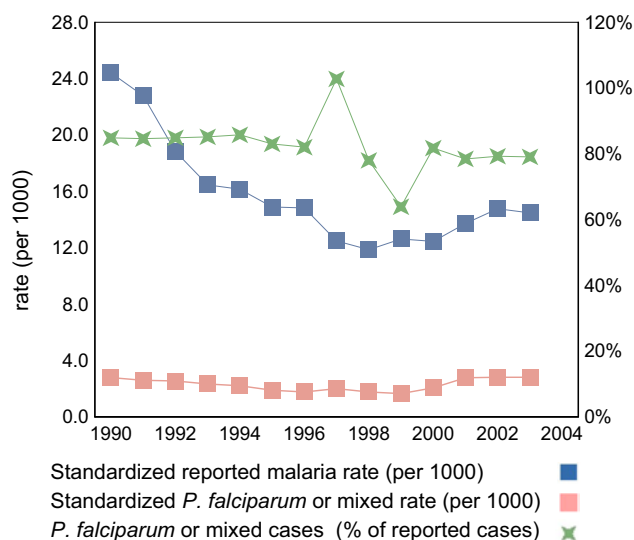
Laboratory confirmed

Malaria cases	176 171
<i>P. falciparum</i> or mixed	139 315
<i>P. vivax</i>	35 995
Severe (inpatient or hospitalized) cases	12 962
Malaria deaths	2 476

Investigations

Imported cases

Estimated reporting completeness (%)



Reported malaria cases by age and gender

Group	Subgroup	2000	2001	2002	2003	%
Age	Total	592 354	661 463	721 739	716 100	100
	PW	5 580	5 075	5 558		1
	<1 year	2 152	20 262	18 086		3
	1-4 years	7 094	3 820	4 026		1
	5-9 years	10 943	24 750	21 696		3
	10-14 years	16 508	25 132	22 522		3
	15+ years	83 332	96 538	106 767		15

Reported malaria cases by selected subnational area

14 areas	2000	2001	2002	2003	%
Rakhine	26 096	62 611	77 315	91 754	13
Sagaing	19 308	20 077	19 921	13 681	2
Kachin	6 550	9 256	13 299	12 981	2
Shan	21 478	16 821	16 363	11 302	2
Chin	7 392	10 813	11 874	9 951	1
Mandalay	8 273	8 328	7 877	7 392	1
Magway	3 365	4 675	2 863	6 240	1
Tanintharyi	7 058	19 327	5 950	6 009	1
Mon	5 346	4 586	5 573	5 674	1
Ayeyarwaddy	4 123	3 798	3 877	3 577	<1
Bago	4 948	4 999	3 852	3 575	<1
Kayin	3 015	2 664	2 693	2 046	<1
Kayah	1 912	1 318	799	1 574	<1
Yangon	1 165	1 229	840	415	<1

COVERAGE OF ROLL BACK MALARIA INTERVENTIONS

Information related to the coverage of RBM key interventions is presented here. This includes coverage of antimalarial treatment, possession and use of insecticide-treated nets (ITNs), and use of intermittent preventive treatment (IPT) among pregnant women (PW) where national policy indicates.

Insecticide-treated nets

ITNs are one of the key interventions promoted by RBM. Coverage of ITNs is best assessed through household (HH) surveys which ask questions on possession and use of nets, as well as insecticide treatment status, among the target populations of children under 5 years of age (U5) and pregnant women. Data below represent available household survey results in which household possession and use of nets and ITNs have been assessed.

Available sub-national surveys

PSI 2001

Sample size (HHs or U5s): 273

Supporting Organization: Population Services International

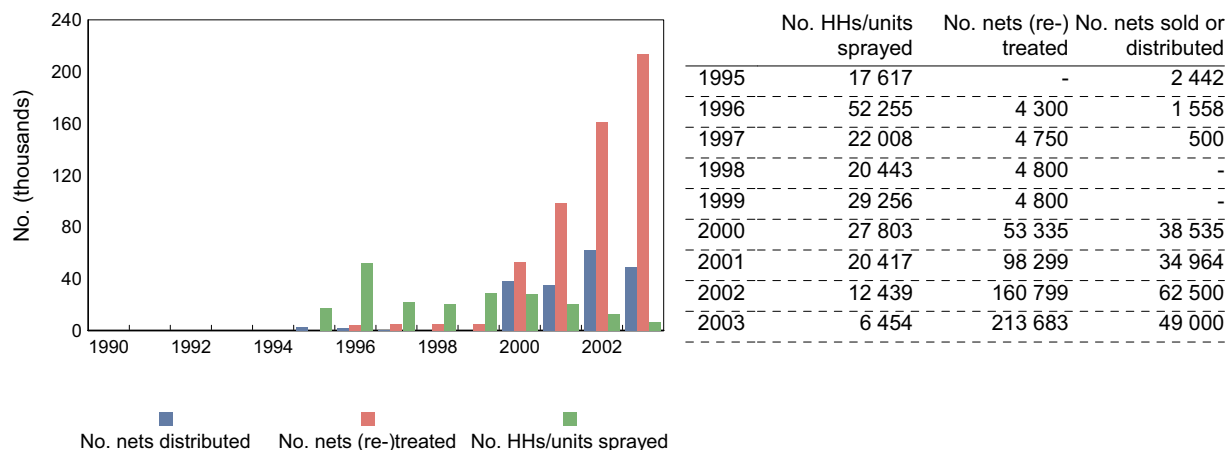
Field work:

Scale: 1 state: Southern Shan State

SERVICE DELIVERY AND MALARIA-RELATED COMMODITIES

General malaria-related services delivered

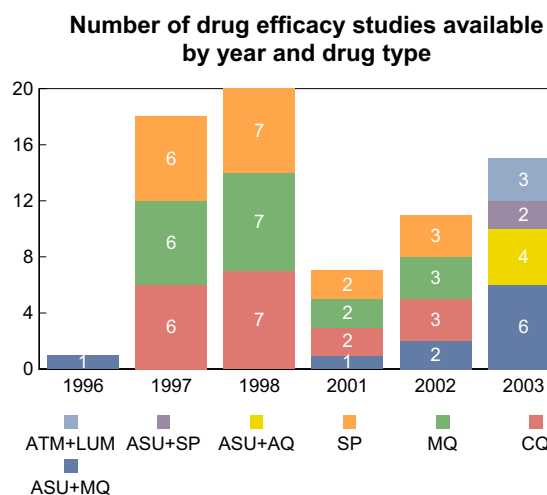
Services delivered for malaria control include numbers of nets and insecticides delivered or sold, numbers of nets (re-)treated with insecticide and numbers of households (HHs)/units sprayed during IRS campaigns. These services and service-related commodities mostly reflect core malaria control activities of national malaria control programmes. The information reflects annual, country-reported data.



MONITORING ANTIMALARIAL DRUG EFFICACY

Monitoring antimalarial drug efficacy is important for understanding the impact of antimalarial treatment being delivered and the need for drug policy change, essential for ensuring prompt access to effective treatment. Median, range and quartiles are based on percentage clinical failure for uncomplicated *P. falciparum* malaria for countries in Africa south of the Sahara, and percentage total failure for all other areas. Included are studies that used WHO protocol among selected drugs.

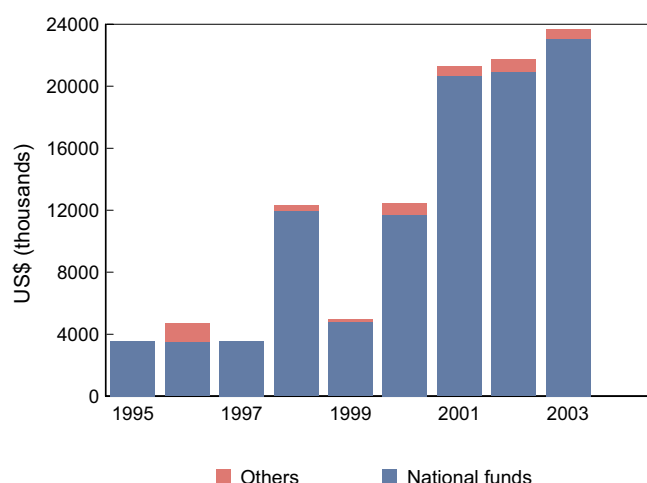
Study years	Number of studies	Median	Range		Percentile	
			Low	High	25th	75th
CQ						
1997-2002	18	24.7	6.0	76.0	12.5	34.7
SP						
1997-2002	18	27.8	0.0	100.0	7.9	37.7
MQ						
1997-2002	18	6.0	0.0	44.4	0.0	16.4
ATM+LUM						
2003	3	2.0	0.0	2.0	0.0	2.0
ASU+AQ						
2003	4	4.0	3.0	7.0	3.5	5.5
ASU+SP						
2003	2	0.0	0.0	0.0	0.0	0.0
ASU+MQ						
1996-2003	10	1.5	0.0	8.0	0.0	5.1



FINANCING FOR MALARIA

Annual funding for malaria control

This information represents country-reported national and other resources budgeted or spent for national malaria control programme efforts. If information was reported in a different currency than US\$, the annual average of the official exchange rate from the World Development Index was used for conversion. Currency is presented in US\$ (thousands).



	National funds	Others
1995	3 577	-
1996	3 551	1 159
1997	3 561	-
1998	11 986	371
1999	4 837	163
2000	11 703	753
2001	20 698	585
2002	20 945	800
2003	23 041	622
2004	-	-

Malaria funds from the Global Fund to Fight HIV, Tuberculosis, and Malaria

Information on additional resources provided to countries through GFATM from 2-year committed funds for malaria from successful proposals through the first four rounds is presented. The details on approved proposals, grant agreements and disbursements to date are provided. Figures are presented in US\$. These data are maintained and updated by GFATM.

Approved proposals			Grant agreements and disbursements (as of 13 January 2005)						
Source	Round	Total year 1-2 budgets	Principal recipient	Signed	Signature date	Grant amount	No. of disbursements	Total disbursed	% disbursed
CCM	3	9 462 062		No			-		

General notes and remarks

See explanatory notes at the beginning of the section.

Confirmed severe malaria cases and deaths for 2003 include those from probable and confirmed malaria cases. Age and subnational reported malaria for 2000-2003 are for confirmed malaria cases only. Reported malaria for pregnant women are estimated.