

Overview of malaria control activities and programme progress

Malaria is one of the most serious health problems in Yemen. Approximately 60% of the population live in areas with malaria transmission. *P. falciparum* accounts for more than 90% of malaria cases. Social unrest during the 1990s brought about almost a complete halt to malaria control activities in the country, resulting in a serious deterioration of the malaria situation. The instability, in addition to climatic changes and heavy rainfalls, contributed to malaria epidemics in 1996 and 1998.

In 2001, the WHO Regional Office for the Eastern Mediterranean assisted the Government of Yemen to establish the NMCP with a 5-year plan of action for malaria control with the broader RBM Partnership. The plan of action consists of: (i) strategic directions aimed at human resource development; (ii) early diagnosis and prompt treatment of cases; (iii) selective vector control by larviciding and IRS; (iv) prevention of malaria in pregnancy; (v) epidemic preparedness and response; (vi) strengthening malaria surveillance; and (vii) community involvement in operational research.

The RBM Partnership in Yemen includes many stakeholders. WHO is a major partner of the government and provides a long-term medical officer and a short-term entomologist. There is also a strong partnership with Saudi Arabia, with periodic border coordination meetings and joint vector control campaigns conducted at the Yemeni–Saudi border. Other partners include the GFATM, the governments of Italy, Japan and Oman, various NGOs, the private sector, local health offices and the Supreme National Malaria Control Committee. Intersectoral collaboration involves various ministries and departments, including the Ministry of Finance and the Ministry of Agriculture and Irrigation.

The RBM control programme initially focused on high-risk areas including the Tihama coastal belt, selected districts in foothill and mountainous areas and Socotra Island. Key strategies are training in case management, improving laboratory diagnostic capacity and ensuring the availability of antimalarial drugs in all health institutions, particularly at the peripheral centres. Monitoring of insecticide and drug resistance has begun in selected areas, and malaria surveillance benefits from a newly introduced reporting system. As a result of these activities, the number of reported malaria cases has fallen considerably in areas under RBM support, notably in Socotra Island where elimination might now be possible. However, challenges remain: (i) the capacity of the NMCP is still limited; (ii) the diagnosis of malaria is still based primarily on clinical signs; and (iii) surveillance needs to be strengthened. National treatment guidelines are available, but need updating in view of resistance to CQ, and should be actively promoted to improve compliance by physicians.

The Government of Yemen has provided around US\$ 2 million for the past few years for malaria control efforts. Funding from the GFATM will provide over US\$ 4 million over 2 years.

National malaria policy and strategy environment

National malaria strategy overview for 2003

	Strategy
Treatment and Diagnosis Guidelines	Yes
Published/updated in	
Monitoring antimalarial drug resistance	Yes
Number of sites currently active	4
Home management of malaria	Yes
Vector control using insecticides	Yes
Monitoring insecticide resistance	Yes
Number of sites currently active	2
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
<i>P. falciparum</i> (lab confirmed)	CQ
<i>P. vivax</i>	CQ+PQ(14d)
Treatment failure	SP+PQ(1d)
Severe malaria	Q+PQ(1d)
Pregnancy	
Prevention	
Treatment	CQ

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
11 384	12 717	29 320	31 262	37 201	500 000	416 246	1 394 495		2 781 640
2000	2001	2002	2003	Date of last report: 15 December 2004					
1 394 495		187 159	265 023						

Reported malaria by type and quality

For most recent year

Reported malaria cases	265 023
Reported malaria deaths	29

Probable or clinically diagnosed

Malaria cases	214 212
Severe (inpatient or hospitalized) cases	
Malaria deaths	

Slides taken	414 919
Rapid diagnostic tests (RDTs) taken	0

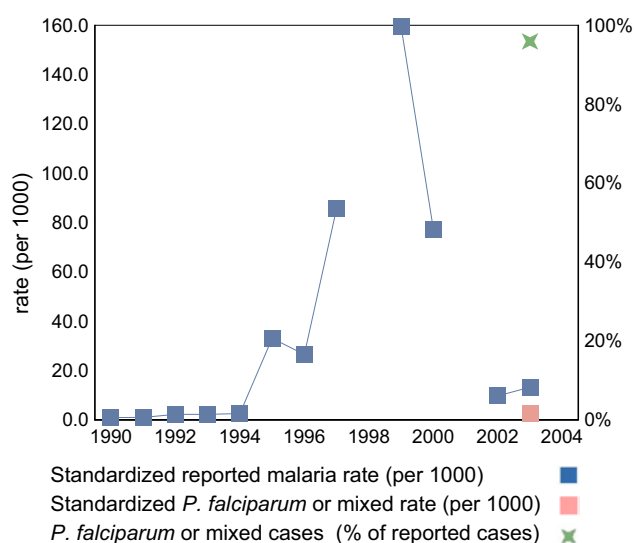
Laboratory confirmed

Malaria cases	50 811
<i>P. falciparum</i> or mixed	48 741
<i>P. vivax</i>	
Severe (inpatient or hospitalized) cases	
Malaria deaths	29

Investigations

Imported cases

Estimated reporting completeness (%)



Reported malaria cases by age and gender

Group	Subgroup	2000	2001	2002	2003	%
	Total	1 394 495	187 159	265 023	100	

Reported malaria cases by selected subnational area

15 of 22 areas	2000	2001	2002	2003	%
Taiz			35 439		19
Sanaa			31 985		17
Dhamar			19 861		11
Hejja			16 875		9
Omran			14 406		8
Ebb			12 658		7
Al Hodieda			8 282		4
M'arib			7 231		4
El mehwit			6 730		4
Shebwa			4 636		2
Aden			3 178		2
Al Amana			2 531		1
Al dalea			2 512		1
El makla			2 314		1
Lahj			2 018		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

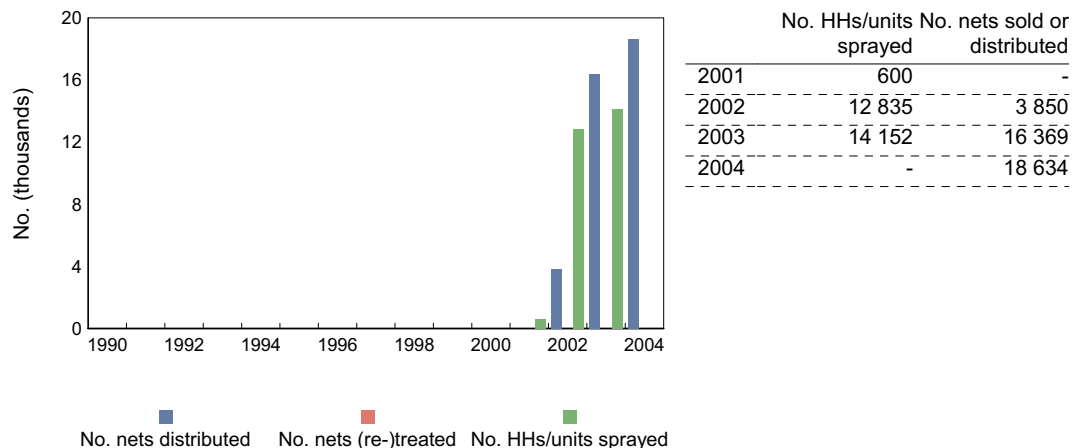
ITNs are one of the key interventions promoted by RBM. Coverage of ITNs is best assessed through household (HH) surveys which ask questions on possession and use of nets, as well as insecticide treatment status, among the target populations of children under 5 years of age (U5) and pregnant women. Data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

No survey-based estimates of mosquito net or ITN coverage are currently available.

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.



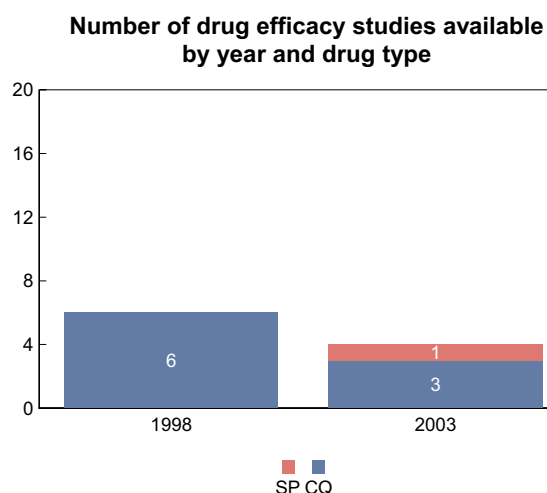
The programme also noted that the planned number of households to be sprayed in 2003 was 36 766, but this was not achieved due to a delay in the local purchase of insecticides.

The number of staff for spraying in the programme went from 397 in 2002 to 426 in 2004 in addition to 91 field supervisors. Larviciding operations in wells, tanks and stagnant water collections was estimated to cover about 2 130 kilometers weekly.

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.

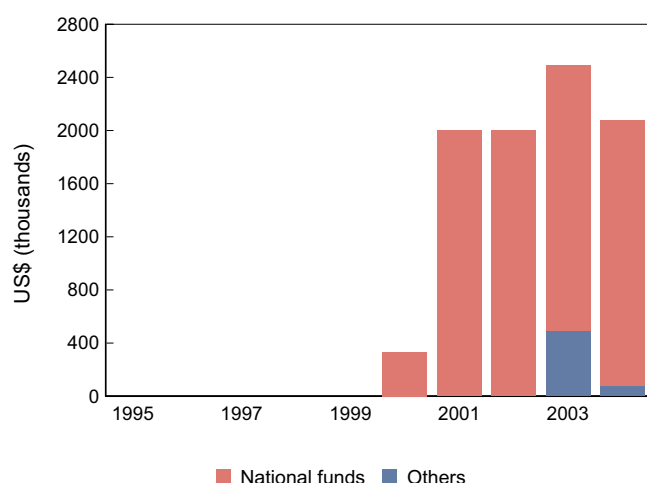
Study years	Number of studies	Median	Range		Percentile	
			Low	High	25th	75th
CQ						
1998-2003	9	42.4	9.0	57.0	23.3	44.9
SP						
2003	1	0.0				



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	-	-
1996	-	-
1997	-	-
1998	-	-
1999	-	-
2000	333	-
2001	2 000	-
2002	2 000	-
2003	2 000	490
2004	2 000	80

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	2	4 159 632	MoH	Yes	30-Sep-03	4 159 632	2	1 661 532	39.9%

General notes and remarks

See explanatory notes at the beginning of the section.

Home management is conducted in Socotra Island.

A change in antimalarial drug policy based on the results of nine efficacy studies is planned for the second quarter 2005.

SP during pregnancy is used for special populations with limited access to health care.

Reported malaria at the national level does not include age or gender.