

FEVER LANDSCAPE

QUALITY OF REPORTED DATA

METRICS	QUALITY	IDENTIFIED GAPS OR PROBLEMS
NUMBER OF MALARIA CASES AND DEATHS		<p>Cases of malaria appears to be significantly under-reported, with the WHO estimating that there are actually over ten times more cases and deaths than reported each year:</p> <ul style="list-style-type: none"> • Notification of cases is incomplete, in particular in the private sector; the surveillance authority estimates that at most between 50% and 90% of facilities participate in notification • Many patients, in particular the poorest and most exposed to malaria, seek treatment through pharmacies or dispensaries without a diagnosis, which is not included in reported figures • Guidelines suggest that malaria should only be suspected in cases of febrile illnesses in malaria-endemic areas and preferably detected by microscopy, both of which can lead to under-reporting. Under-reporting may be even greater where and when guidelines are not followed • The private sector is incentivized financially to treat for malaria even without a conclusive diagnosis or test, although positive tests are the criteria for inclusion in reported cases
BURDEN OF OTHER INFECTIOUS DISEASES CAUSING FEVER		<p>India is a relatively well-studied country regarding pathogen presence and endemicity. However, there is a lack of systematic surveillance for endemic or potentially endemic pathogens, meaning several known endemic pathogens (e.g. scrub typhus) lack data regarding prevalence or severity on a regional or national scale. Diseases that have a surveillance network however appear to suffer from similar difficulties in establishing an accurate number of cases and deaths as for malaria, amongst other things as points of care lack appropriate tests.</p>
ANTIMICROBIAL RESISTANCE		<p>With the establishment of the National AMR Programme, a surveillance system has been established through almost half of India's states, providing a good level of AMR data even if certain geographical gaps remain. Data regarding antibiotics consumption appears to be of sufficiently high quality, although potentially limited by self-reporting quality and data availability issues in the private sector.</p>

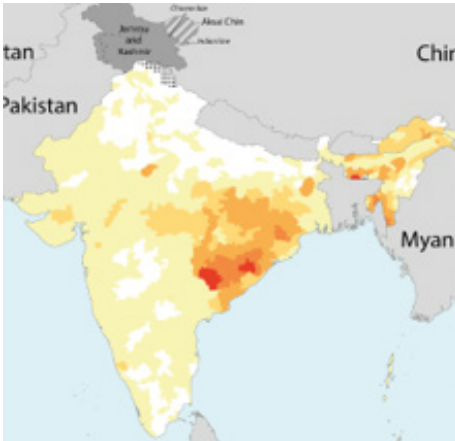
Quality of reported data remains a significant challenge in India, in particular for malaria where there is an estimated ten-fold under-reporting in cases

Sources: WHO, NVBDCP, Advention

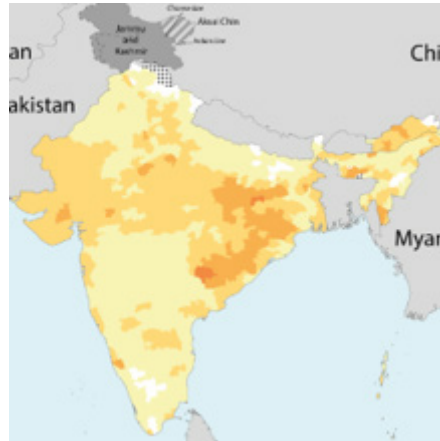


FOCUS ON MALARIA SITUATION

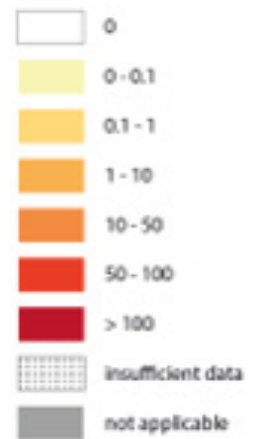
API* OF Pf (2017)



API* OF Pv (2017)



CONFIRMED CASES PER 1,000 POP



API: ANNUAL PARASITE INCIDENCE

SUSPECTED CASES TESTED AND TEST POSITIVITY IN PUBLIC HOSPITALS

Governmental data	2010	2015	2017
Share of suspected cases tested (RDT or microscopy)	100%	100%	100%
Test positivity (RDT or microscopy)	3%	2%	1%



GOVERNMENTAL DATA

REPORTED DATA MAY SUFFER FROM SYSTEMATIC BIASES IN COLLECTION OR REPORTING

MALARIA EPIDEMIOLOGICAL PROFILE (2017)

Parasite prevalence per 1,000	Malaria free	Low transmission (0-1 case per 1,000 pop)	High transmission (>1 case per 1,000 pop)
	Population in area:	87.9M (7%)	1,100M (81%)
Major <i>plasmodium</i> species	<i>P. falciparum</i> : 62% ; <i>P. vivax</i> : 37%		
HRP2 deletion >5%	No, confirmed at less than 5%		
Reported number of tests performed	125M		
Reported confirmed cases (health facility)	0.8M		
Estimated cases*	9.6M [7.0M-13.3M]		
Reported deaths	0.2K		
Estimated deaths*	16.7K [1.2K-31.9K]		

81% of the population live in low-transmission areas, with higher risk areas concentrated in the central-eastern part of the country with high *P. falciparum* prevalence

WHO estimates that the burden of malaria is significantly higher than reported

Note: (*) WHO estimate. Sources: WHO, Advention



NATIONAL MALARIA STRATEGY PLAN AND SURVEILLANCE

	DECISION-MAKERS	OTHER MALARIA INFLUENCERS (NATIONAL)	OTHER MALARIA INFLUENCERS (INTERNATIONAL)
NATIONAL FRAMEWORK FOR MALARIA ELIIMINATION 2016-2030	National Vector-Borne Disease Control Programme (NVBDCP) MoH&FW*	National Institute of Malaria Research State Ministries of Health	World Health Organization ASIA PACIFIC LEADERS MALARIA ALLIANCE caritas
	TARGET	<p>By 2020 – Reduce the number of malaria cases by 15%-20% compared to 2014</p> <p>By 2022 – Eliminate malaria from all 26 low- and moderate-transmission states and territories</p> <p>By 2024 – Reduce the incidence of malaria to less than 1 case per 1,000 population per year in all states and territory districts</p> <p>By 2027 – Eliminate malaria from India (zero indigenous cases)</p>	
	KEY DIAGNOSTIC-RELATED INTERVENTIONS TO ACHIEVE TARGET	<p>Providing 100% of population in high-risk areas with access to malaria preventive and curative services, including screening of all fever cases suspected for malaria</p> <p>Equipping all health institutions (primary healthcare level and above), especially in high-risk areas, with microscopy facilities and RDTs for emergency use and injectable artemisinin derivatives for treatment of severe malaria</p> <p>Notifying health authorities of cases of malaria in low- and medium-transmission areas, including from the private sector</p> <p>Malaria testing is free of charge in the public sector (microscopy or RDT in accordance with the guideline algorithm)</p>	
MALARIA SURVEILLANCE	HEALTH FACILITY REPORTING RATE**	MALARIA SURVEILLANCE SYSTEMS	
	<p>50% TO 90% NVBDCP ESTIMATIONS</p>	<p>The NVBDCP is responsible for coordinating the surveillance system for malaria, and provides monthly reports based on data provided by hospitals and state ministries of health (public and private facilities of all size and type of care)</p> <p>The NVBDCP includes 311 sentinel laboratories and 14 apex referent laboratories</p> <p>Although malaria cases must be notified in both public and private healthcare institutions, under-reporting is still significant, in particular in private institutions</p>	

India has an ongoing national malaria strategy aiming for elimination by 2027

India’s malaria surveillance system presents some weaknesses, in particular regarding the reporting of cases observed in the private sector

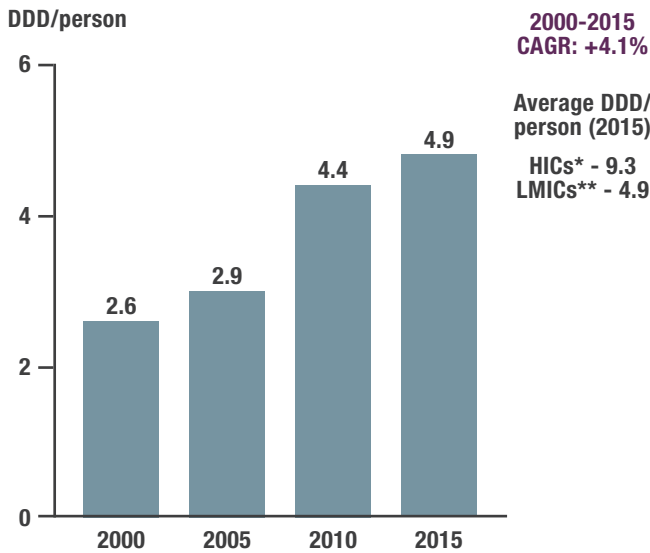
Notes: (*) Ministry of Health & Family Welfare; (**) Share of health facilities reporting cases.
 Sources: NVBDCP (National Vector Borne Disease Control Programme), Ministry of Health & Family Welfare, Advention



ANTIMICROBIAL RESISTANCE (AMR)

AWARENESS OF AMR AS A PROBLEM IS RISING...

Although per capita consumption of antibiotics remains moderate, AMR is rising:



Therapeutic use of antibiotics remains poorly managed, with many behavioral risk factors:

2015 WHO AMR SURVEY

In a representative survey of the population:

- 48% consumed antibiotics in the past month
- 37% stop medication when they feel better
- 52% buy the same antibiotic if symptoms return
- 75% believe antibiotics can cure colds or the flu
- 75% agree AMR is a significant public health concern

Awareness and desire to tackle AMR amongst policymakers has grown over the past decade, culminating in the launch of the National AMR Programme in 2017.

...BUT ACTIONS TO REDUCE THE RISK REMAIN LIMITED

2009	Joined the Global Antibiotic Resistance Partnership
2011	Signature of the Jaipur Declaration on AMR Restrictions on the use of antibiotics in aquaculture
2014	Restriction of the sales of certain 3 rd and 4 th generation antibiotics to persons with a prescription
2016	Guidelines for antimicrobial use in infectious diseases
2017	Launch of the National AMR Programme
2019	AMR surveillance laboratories in 10 of 36 states

Communication of AMR as a health risk remains limited.

Almost no regulatory changes to limit the consumption of antibiotics have been enacted, even for non-human use.

The National AMR Programme is focused mainly on establishing a surveillance network to limit the spread of resistant strains.

Private healthcare facilities and pharmacies have a strong financial incentive to encourage prescription of antibiotics, which is a key challenge for the National AMR Programme.

Awareness of AMR as a problem is increasing, but current actions are mainly oriented around supervision of resistance rather than changing prescription behavior

Notes: (*) High-Income Countries; (**) Low- and Middle-Income Countries. Sources: National Center for Disease Control, IQVIA, Advention



MALARIA EPIDEMIOLOGY AND AMR LANDSCAPE IN PRIORITY COUNTRIES

PRIORITY COUNTRIES*



VIET NAM CAMBODIA S. AFRICA INDIA PAKISTAN MYANMAR THAILAND

	VIET NAM	CAMBODIA	S. AFRICA	INDIA	PAKISTAN	MYANMAR	THAILAND
MALARIA EPIDEMIOLOGICAL PROFILE	Parasite prevalence per 1,000 population	<1	–	<1	<1	1.7	<1
	Population living in malaria free area	25.1M (26%)	4.7M (29%)	51M (90%)	87.9M (7%)	3.3M (2%)	21.8M (40%)
	Population living in low transmission area	63.9M (67%)	3.6M (23%)	3.4M (6%)	1,100M (81%)	136.7M (69%)	23.6M (44%)
	Population living in high transmission area	25.1M (7%)	7.7M (48%)	2.3M (4%)	162.5M (12%)	57M (29%)	8.5M (16%)
	Proportion of <i>P. falciparum</i>	64%	58%	90%	62%	21%	66%
	Proportion of <i>P. vivax</i>	35%	41%	5%	37%	78%	34%
		58%	–	–	–	–	–
MALARIA CASES AND DEATH	Country's reported tested cases	2.6M	168K	56K	125M	6.5M	664K
	Country's reported confirmed cases	4.5K	36K	22K	0.8M	351K	78K
	WHO's estimated cases	5.5K	208K	22.5K	9.6M	956K	240K
	Country's reported deaths	6	1	301	0.2K	113	37
	WHO's estimated deaths	9	345	274	16.7K	805	490
AMR LANDSCAPE	Average DDD**/person in 2015 (Avg in LMICs is 4.9)	11.5	–	9.2	4.9	7.1	–
	Endorsement of the AMR National Plan	2013	2014	2014	2017	2017	2017

Notes: (*) Last available year; (**) Defined Daily Dose allowing for cross-country comparison. Sources: WHO, World Bank, GF, interviews, Advention