

# BRAZIL

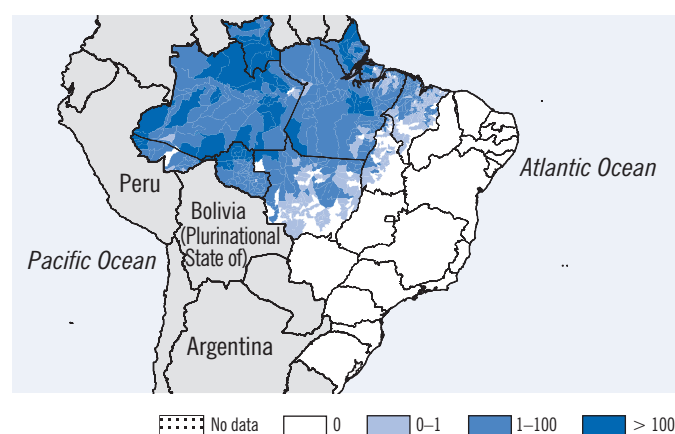
Transmission occurs mainly in the Amazon region, where 10–15% of the population is at risk, accounting for 60% of reported cases. Brazil accounts for over half the total estimated number of cases in the Region of the Americas. The number of reported cases rose from 388 303 in 2001 to 606 067 in 2005 but decreased to 315 642 in 2008. All reported malaria cases are laboratory confirmed, and approximately 15% of cases in 2008 were due to *P. falciparum*. Although IRS is the principal method of mosquito control, applied in high-risk areas, national data were not made available. Only a limited number of ITNs (10 000) were delivered in 2008. The supply of first-line antimalarial drugs is apparently sufficient to treat all reported cases, and 45 717 ACT doses were distributed in 2008, adequate to treat all *P. falciparum* cases. Funding for malaria control increased to more than US\$ 106 million in 2008, provided almost exclusively by the Government.

## I. EPIDEMIOLOGICAL PROFILE

### Population, endemicity and malaria burden

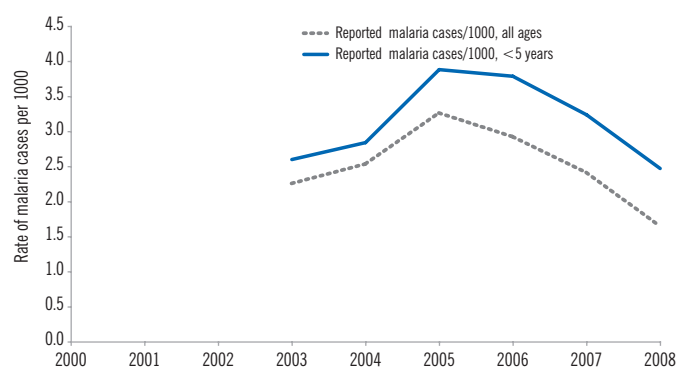
| Population (in thousands)                       | 2008  | %  |
|---|---|----|
| All age groups                                  | 191 972   |    |
| < 5 years                                       | 16 125  | 8  |
| ≥ 5 years                                       | 175 846   | 92 |
| Population by malaria endemicity (in thousands) | 2008  | %  |
| High transmission ≥ 1/1000                      | 9 262   | 5  |
| Low transmission (0–1/1000)                     | 7 577   | 4  |
| Malaria-free (0 cases)                          | 175 133   | 91 |
| Rural population                                | 27 475  | 14 |
| Vector and parasite profiles                    |   |    |
| Major <i>Anopheles</i> species                  | <i>albimanus</i> , <i>albitarsis</i> , <i>darlingi</i> , <i>nuneztovari</i> |    |
| <i>Plasmodium</i> species                       | <i>falciparum</i> , <i>vivax</i>  |    |

Stratification of burden (reported cases, per 1000)

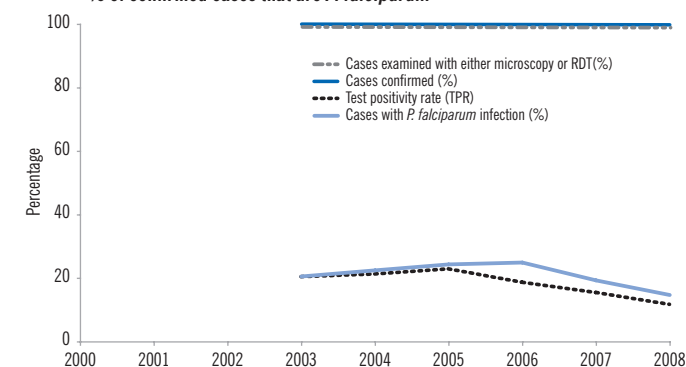


### Trends in malaria morbidity and mortality

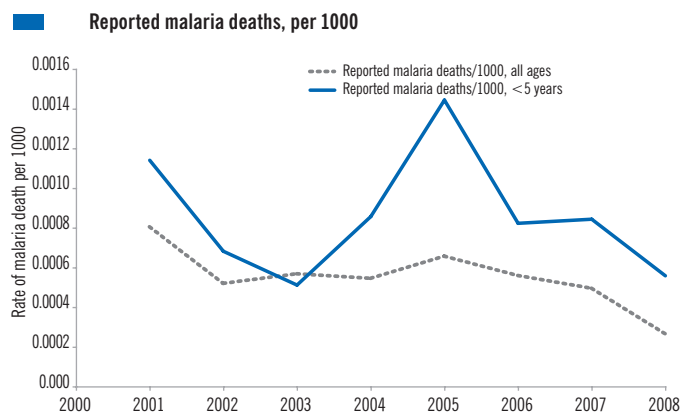
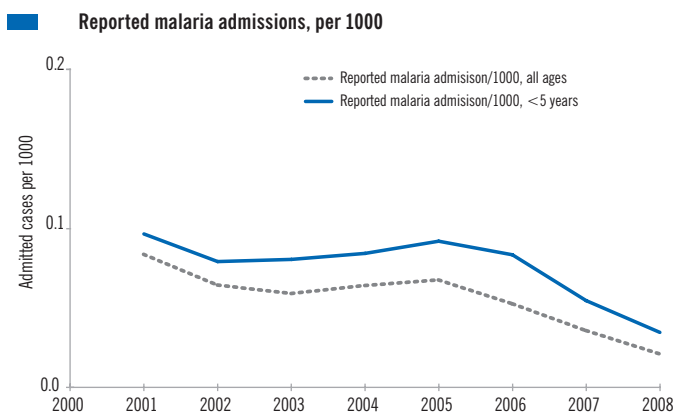
Reported malaria cases, per 1000



Rate of examination, case confirmation, malaria test positivity, % of confirmed cases that are *P. falciparum*



| 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 |                                  |                                   |  |   |           |          |                      |  |   |
| 2001 |                                  |                                   |  |   |           |          |                      |  |   |
| 2002 |                                  |                                   |  |   |           |          |                      |  |   |
| 2003 | 408 765                          | 45 704                            | 1969 314 789                                 |   | 2 008 764 | 408 765  | 83 765               |  |   |
| 2004 | 464 901                          | 49 688                            | 1997 751 427                                 |   | 2 194 780 | 464 901  | 104 376              |  |   |
| 2005 | 606 067                          | 67 180                            | 2192 807 385                                 |   | 2 660 539 | 606 067  | 147 150              |  |   |
| 2006 | 549 469                          | 64 358                            | 2404 857 167                                 |   | 2 959 489 | 549 469  | 136 868              |  |   |
| 2007 | 458 041                          | 53 718                            | 2699 038 287                                 |   | 2 983 553 | 458 041  | 88 249               |  |   |
| 2008 | 315 642                          | 39 826                            | 2935 995 890                                 |   | 2 721 017 | 315 642  | 46 289               |  |   |



| 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 |                                       |  |                                |                                 |                                   |                                    |                            |                             |   |   |
| 2001 | 14 751                                | 1 692                                  | 11 756 354                     | 1 677 166                       | 142                               | 20                                 | 961 492                    | 72 873                      |   |   |
| 2002 | 11 500                                | 1 393                                  | 11 713 749                     | 1 617 603                       | 93                                | 12                                 | 982 807                    | 69 093                      |   |   |
| 2003 | 10 690                                | 1 417                                  | 11 638 194                     | 1 596 365                       | 103                               | 9                                  | 1 002 340                  | 67 846                      |   |   |
| 2004 | 11 762                                | 1 475                                  | 11 492 883                     | 1 511 211                       | 100                               | 15                                 | 1 024 073                  | 63 651                      |   |   |
| 2005 | 12 542                                | 1 592                                  | 11 429 133                     | 1 466 098                       | 122                               | 25                                 | 1 006 827                  | 60 247                      |   |   |
| 2006 | 9 884                                 | 1 418                                  | 11 338 039                     | 1 427 675                       | 105                               | 14                                 | 1 031 691                  | 56 855                      |   |   |
| 2007 | 6 772                                 | 907                                    | 11 330 096                     | 1 360 752                       | 94                                | 14                                 | 1 040 416                  | 52 915                      |   |   |
| 2008 | 4 039                                 | 559                                    | 10 722 568                     | 1 258 796                       | 51                                | 9                                  | 903 573                    | 42 613                      |   |   |

## 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       | 2007         | Distribution – Antenatal care   | No –         |
|   | Targeting all age groups  | Yes       | 2007         | Distribution – EPI routine and campaign   | No –         |
|   |   |           |              | Targeting children < 5 years and pregnant women   | No –         |
|   |   |           |              | ITN distribution is subsidized  | No –         |
| Indoor residual spraying (IRS)          | IRS is a primary vector control intervention  | Yes       | 1958         | Insecticide-resistance management implemented   | Yes 2004     |
|   | DDT is used for IRS (public health) only  | No        | –            | Where IRS is conducted, other options are also implemented, e.g. ITN                        | Yes –        |
|   |   |           |              | IRS is used for prevention and control of epidemics   | Yes –        |
| Intermittent preventive treatment (IPT) | IPT used to prevent malaria during pregnancy  | No        | –            |   |              |
| Case management                         | Oral artemisinin monotherapies banned (prohibited from registration or removed from the system) | Yes       | 2007         | Parasitological confirmation for patients ≥ 5 years only                                    | No –         |
|   | Parasitological confirmation for patients of all ages   | Yes       | 1972         | Malaria diagnosis is free of charge in the public sector                                    | Yes 1972     |
|   | 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                     | Yes       | 1972         | ACT is delivered at community level through community agents (beyond the health facilities) | Yes 2006     |
|   | Pre-referral treatment with quinine or artemether IM or artesunate suppositories                | No        | –            | Uncomplicated malaria cases are admitted  | Yes –        |
|   | Oversight regulation of case management in the private sectors                                  | No        | –            |   |              |
|   | RDTs used at community level  | Yes       | 2007         |   |              |

| Antimalarial policy  | Type of medicine | Year adopted | Results of therapeutic efficacy tests |                |        |         |         |                      |
|--|------------------|--------------|---------------------------------------|----------------|--------|---------|---------|----------------------|
|  |                  |              | Study year                            | No. of studies | Median | Minimum | Maximum | Percentiles: 25% 75% |
| First-line treatment of <i>P. falciparum</i> (unconfirmed) | –                | –            |                                       |                |        |         |         |                      |
| First-line treatment of <i>P. falciparum</i> (confirmed)   | AL or AS + MQ    | 2006         |                                       |                |        |         |         |                      |
| Treatment failure of <i>P. falciparum</i>                  | –                | –            |                                       |                |        |         |         |                      |
| Treatment of severe malaria                                | QN, AM, AS       | 2006         |                                       |                |        |         |         |                      |
| Treatment of <i>P. vivax</i>                               | CQ + PQ(7d)      | 2006         |                                       |                |        |         |         |                      |

### III. IMPLEMENTING MALARIA CONTROL

Coverage of ITN: survey data

No data

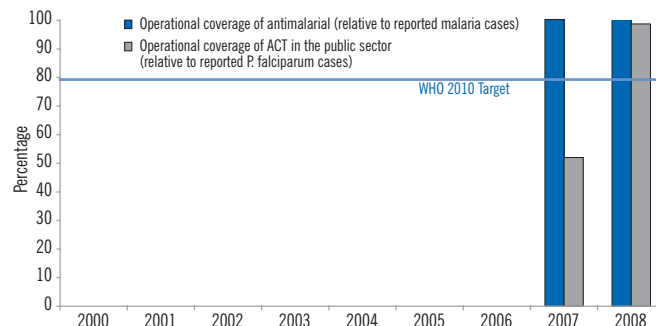
Coverage of IRS and ITN: programme data

No data

Access by febrile children to effective treatment: survey data

No data

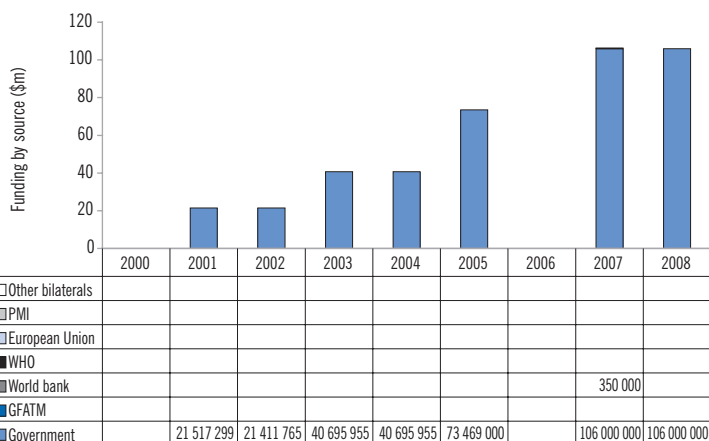
Access to effective treatment: programme data



| 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 |  |   |                                   |   |                                       |                                   |                             |   |  |
| 2002 |  |   |                                   |   |                                       |                                   |                             |   |  |
| 2003 |  |   |                                   |   |                                       |                                   |                             |   |  |
| 2004 |  |   |                                   |   |                                       |                                   |                             |   |  |
| 2005 |  |   |                                   |   |                                       |                                   |                             |   |  |
| 2006 |  |   |                                   |   |                                       |                                   |                             |   |  |
| 2007 |  |   |                                   |   |                                       |                                   | 10 000                      | 459 513                                       | 45 918                                   |
| 2008 |  |   |                                   |   |                                       |                                   |                             | 347 086                                       | 45 717                                   |

### IV. FINANCING MALARIA CONTROL

Governmental and external financing



Breakdown of expenditure by intervention in 2008

No data

### 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) | No surveys |
| Treatment                      | No surveys |
| Use of health services         | DHS 1996   |