Annex 2 - C. WHO Eastern Mediterranean Region

EPIDEMIOLOGY

Population denominator used to compute incidence and mortality rate: 324 million

Parasites: *P. falciparum* and mixed (73%), *P. vivax* (27%) and other (<1%)

Vectors: *An. annularis, An. arabiensis, An. culicifacies s.l., An. d'thali, An. fluviatilis s.l., An. funestus s.l., An. gambiae s.s., An. maculipennis s.l., An. merus, An. pulcherrimus, An. sacharovi, An. sergentii, An. stephensi* and *An. superpictus s.l.*

FUNDING (US$), 2010–2019

130.1 million (2010), 160.2 million (2015), 128.9 million (2019); decrease 2010–2019: 1%

Proportion of domestic source[a,b] in 2019: 29%

Regional funding mechanisms: none

[a] Domestic source excludes patient service delivery costs and out-of-pocket expenditure.

[b] No domestic funding data reported for Afghanistan, Sudan and Yemen in 2019.

INTERVENTIONS, 2010–2019

Number of people protected by IRS:[a] 10.5 million (2010), 27.8 million (2015), 7.9 million (2019)

Total LLINs distributed:[a] 2.8 million (2010), 5.7 million (2015), 13.5 million (2019)

Number of RDTs distributed: 2.0 million (2010), 6.1 million (2015), 14.2 million (2019)

Number of ACT courses distributed: 2.6 million (2010), 3.2 million (2015), 4.7 million (2019)

Number of any first-line antimalarial treatment courses (incl. ACT) distributed: 2.6 million (2010), 4.0 million (2015), 5.4 million (2019)

[a] No data reported for Pakistan in 2010.

REPORTED CASES AND DEATHS IN PUBLIC SECTOR, 2010–2019

Total (presumed and confirmed) cases:[a] 6.4 million (2010), 5.4 million (2015), 4.5 million (2019)

Confirmed cases: 1.2 million (2010), 1.0 million (2015), 2.6 million (2019)

Percentage of total cases confirmed: 18.3% (2010), 18.5% (2015), 57.8% (2019)

Deaths:[b] 1140 (2010), 1020 (2015), 1690 (2019)

[a] Figures include imported cases. In 2019, 0 and 38 indigenous cases were reported in Iran (Islamic Republic of) and Saudi Arabia, respectively.

[b] In 2019, there was no report on malaria deaths in Pakistan.

ESTIMATED CASES AND DEATHS, 2010–2019

Cases: 5.0 million (2010), 4.1 million (2015), 5.2 million (2019): increase 2010–2019: 15%

Deaths: 8720 (2010), 7880 (2015), 10 130 (2019); increase 2010–2019: 16%

ACCELERATION TO ELIMINATION

Countries with nationwide elimination programme: Iran (Islamic Republic of) and Saudi Arabia

Zero indigenous cases in 2019: Iran (Islamic Republic of)

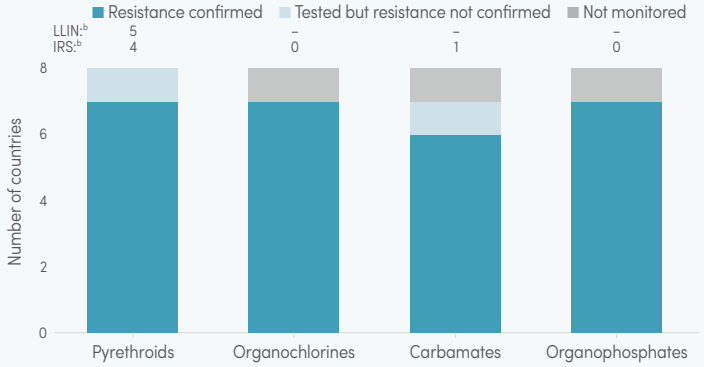
Certified as malaria free since 2010: Morocco (2010)

THERAPEUTIC EFFICACY STUDIES (CLINICAL AND PARASITOLOGICAL FAILURE AMONG PATIENTS WITH *P. FALCIPARUM* MALARIA, %)

Medicine	Study years	No. of studies	Min.	Median	Max.	Percentile 25	Percentile 75
AL	2010–2018	32	0.0	0.0	7.9	0.0	2.0
AS+SP	2010–2017	42	0.0	1.0	22.2	0.0	4.4
DHA-PPQ	2015–2017	8	0.0	0.0	2.5	0.0	1.4

AL: artemether-lumefantrine; AS+SP: artesunate+sulfadoxine-pyrimethamine; DHA-PPQ: dihydroartemisinin-piperaquine.

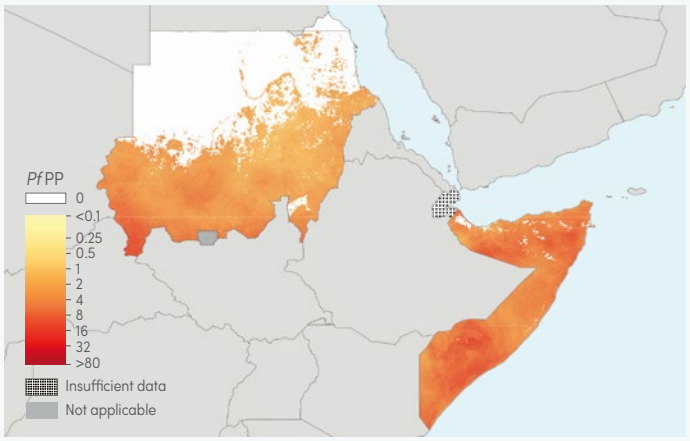
STATUS OF INSECTICIDE RESISTANCE[a] PER INSECTICIDE CLASS (2010–2019) AND USE OF EACH CLASS FOR MALARIA VECTOR CONTROL (2019)

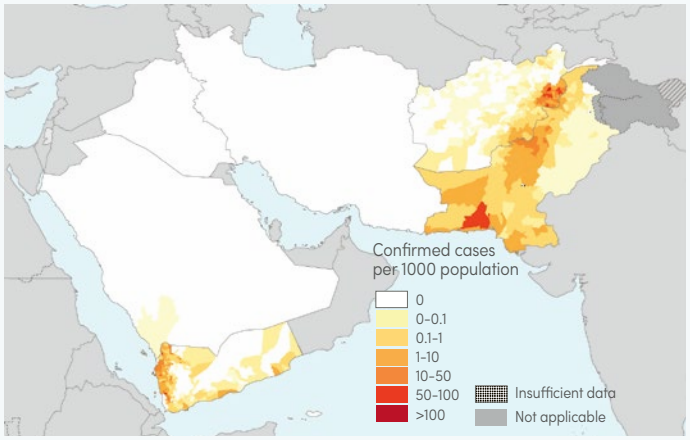


[a] Resistance is considered confirmed when it was detected to one insecticide in the class, in at least one malaria vector from one collection site.

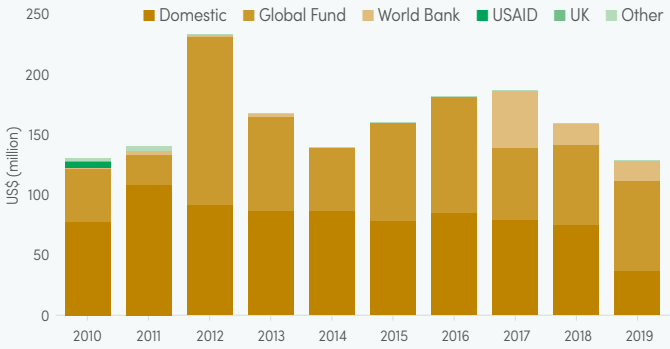
[b] Number of countries that reported using the insecticide class for malaria vector control (2019).

A. *P. falciparum* parasite prevalence (*Pf* PP)/confirmed malaria cases per 1000 population, 2019





B. Malaria funding[a,b] by source, 2010–2019

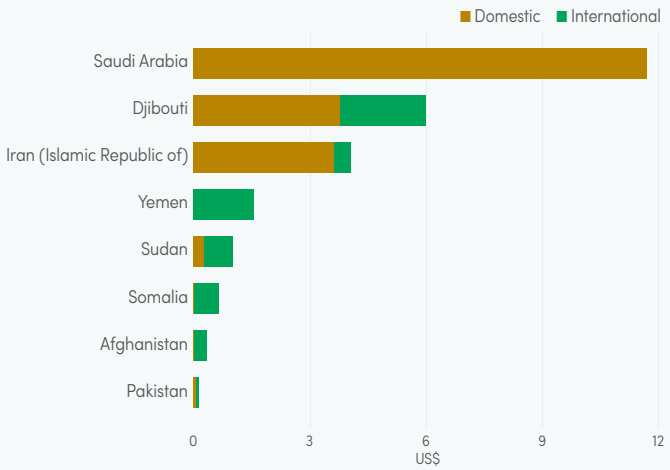


Global Fund: Global Fund to Fight AIDS, Tuberculosis and Malaria; UK: United Kingdom of Great Britain and Northern Ireland; USAID: United States Agency for International Development.

[a] Excludes patient service delivery costs and out-of-pocket expenditure.

[b] No domestic funding data reported for Afghanistan, Sudan and Yemen in 2019.

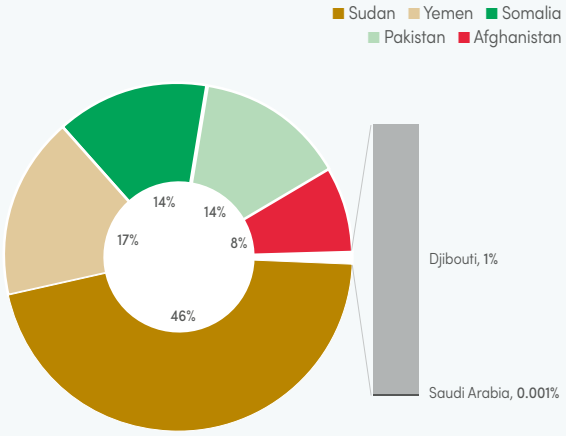
C. Malaria funding[a,b] per person at risk, average 2017–2019



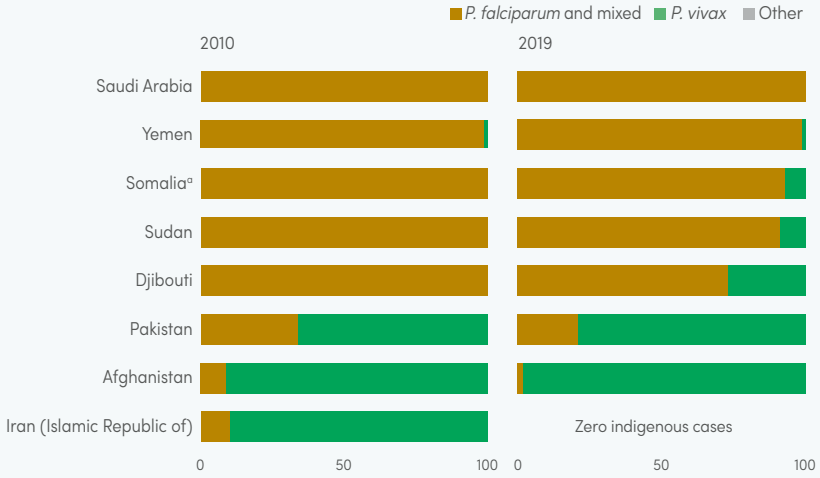
[a] Excludes costs related to health staff, costs at subnational level and out-of-pocket expenditure.

[b] No domestic funding data reported for Afghanistan, Sudan and Yemen in 2019.

D. Share of estimated malaria cases, 2019

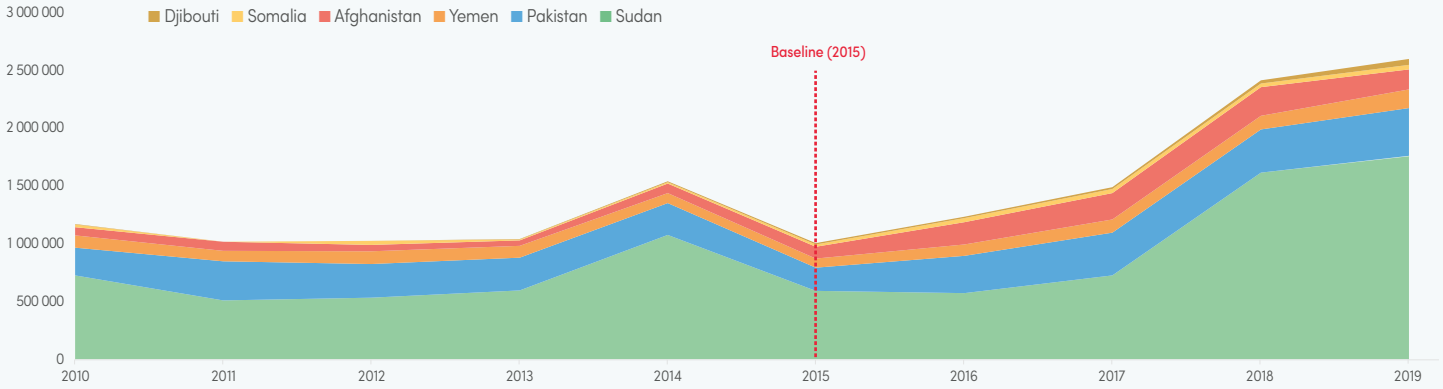


E. Percentage of *Plasmodium* species from indigenous cases, 2010 and 2019

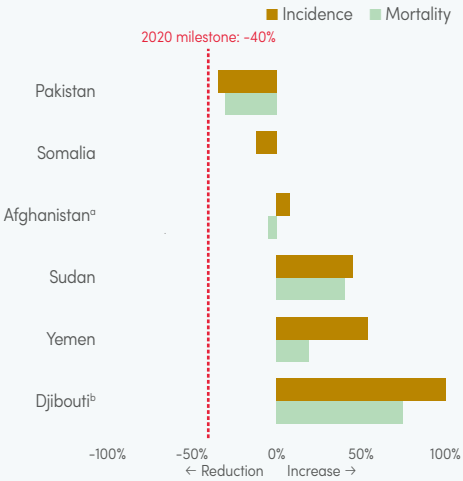


[a] Survey data were used for Somalia since no data on species were reported for 2018 and 2019.

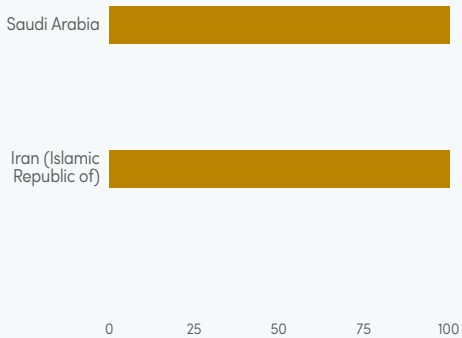
F. Countries with an increase in reported cases, 2015–2019



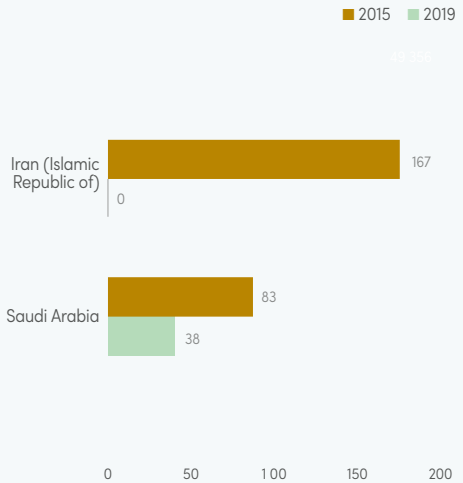
G. Change in estimated malaria incidence and mortality rates, 2015–2019



H. Percentage of total confirmed cases investigated, 2019



I. Reported indigenous cases in countries with national elimination activities, 2015 versus 2019



[a] Afghanistan experienced an increase in estimated incidence and mortality rate between 2015 and 2018, followed by a substantial reduction in 2019 (below the 2015 mortality rate, but still marginally above the estimated incidence rate in 2015).

[b] Reported incidence rate is used for Djibouti (as opposed to estimated incidence).

KEY MESSAGES

- Fourteen countries in the WHO Eastern Mediterranean Region are free of indigenous malaria and are at the stage of prevention of re-establishment. There are eight malaria endemic countries in the region, and *P. falciparum* is responsible for 73% of all detected infections. Estimated malaria incidence in the region declined between 2010 and 2015 but increased over the past 4 years, translating into a 15% increase between 2010 and 2019. The number of estimated malaria deaths also increased, in this case by 16% between 2010 and 2019.
- Sudan and Yemen accounted for about two thirds of the cases estimated for the region. In 2019, the region reported that about 2.6 million of the 4.5 million cases reported were confirmed (57.8%), which represented an increase from the 46% confirmation rate reported in 2018 and the 18% in 2010. The reported number of deaths increased from 1143 in 2010 to 1690 in 2019.
- The Islamic Republic of Iran and Saudi Arabia are both targeting elimination by 2020. The Islamic Republic of Iran reported zero indigenous cases for the past 2 years (and until October 2020). In Saudi Arabia, the number of indigenous malaria cases declined from 272 in 2016 to 38 in 2019. These countries undertake continued vigilance for malaria in the general health services, and provide diagnosis and treatment free of charge to all imported cases.
- Vector resistance to pyrethroids, organochlorines and organophosphates was confirmed in 76%, 66% and 46% of the sites tested, respectively, in all countries except for Saudi Arabia. Also, 25% of the sites in the region confirmed resistance to carbamates in all countries except for Saudi Arabia and Somalia. Seven countries have developed their insecticide resistance monitoring and management plans.
- Challenges include low coverage of essential interventions (below universal target) in most malaria endemic countries, inadequate funding and dependence on external resources, humanitarian emergencies, difficult operational environments and population displacements, a shortage of skilled technical staff (particularly at subnational level), and weak surveillance and health information systems. Frequent floods – particularly in Somalia, Sudan and Yemen – and the increasing presence of invasive *An. stephensi* in Djibouti, Somalia and Sudan have increased the risk of malaria, particularly in urban and suburban areas. The confirmed presence of HRP2/3 gene deletions in Djibouti and the high probability of the presence of this mutation in Somalia is another threat for the region. These challenges may have led to an overall increase in cases during the period 2015–2019 in some countries of the region.