

Regional data and trends briefing kit

World malaria report 2022

8 December 2022



World malaria report 2022

Briefing kit | Regional data and trends

☰

Contents
Page

1

African
Region

2

South-East
Asia Region

3

Eastern
Mediterranean
Region

4

Region of the
Americas

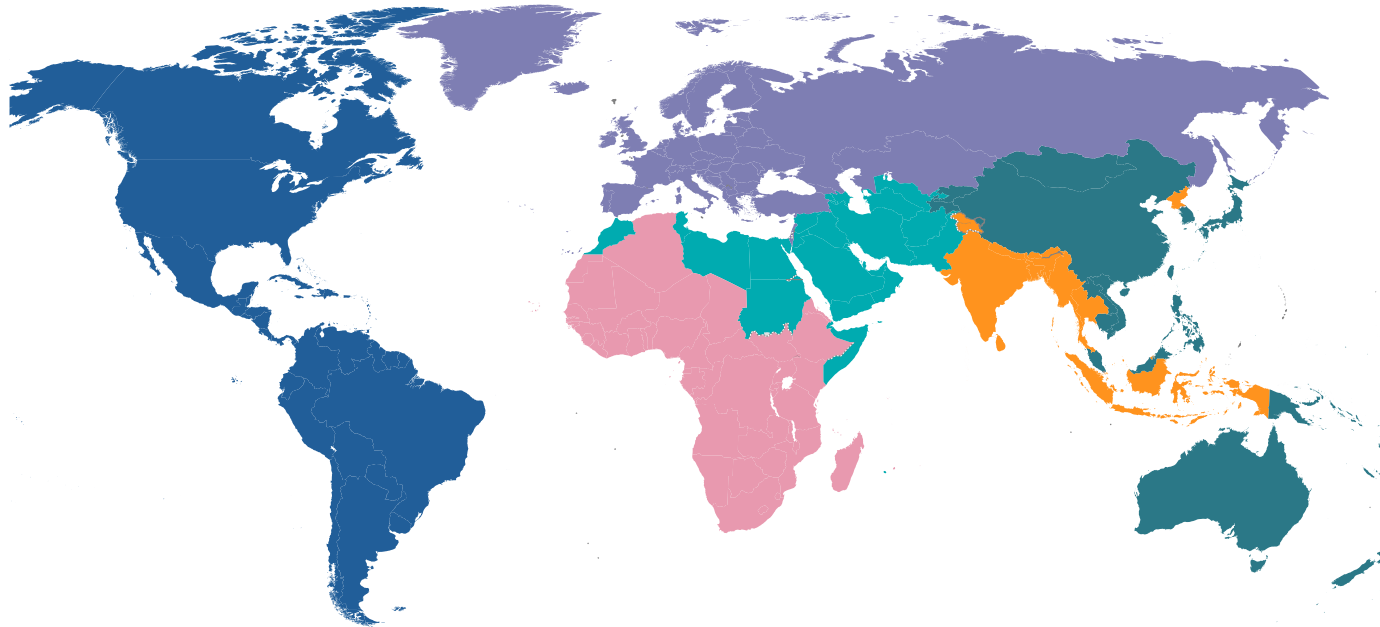
5

Western Pacific
Region

6

European
Region

Click to view messaging by region:



1 African
Region

2 South-East
Asia Region

3 Eastern
Mediterranean
Region

4 Region
of the
Americas

5 Western
Pacific
Region

6 European
Region



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World malaria report 2022

Briefing kit | Regional data and trends

| | | | | | | |
|---------------|----------------|------------------------|------------------------------|------------------------|------------------------|-----------------|
| | 1 | 2 | 3 | 4 | 5 | 6 |
| Contents Page | African Region | South-East Asia Region | Eastern Mediterranean Region | Region of the Americas | Western Pacific Region | European Region |

1 African Region

The African Region continues to shoulder the heaviest burden of malaria. Globally in 2021, the Region accounted for:

- 95% of all malaria cases (234 million cases);
- 96% of all malaria deaths (593 000 deaths);
- nearly 80% of all malaria deaths were among children under the age of 5.

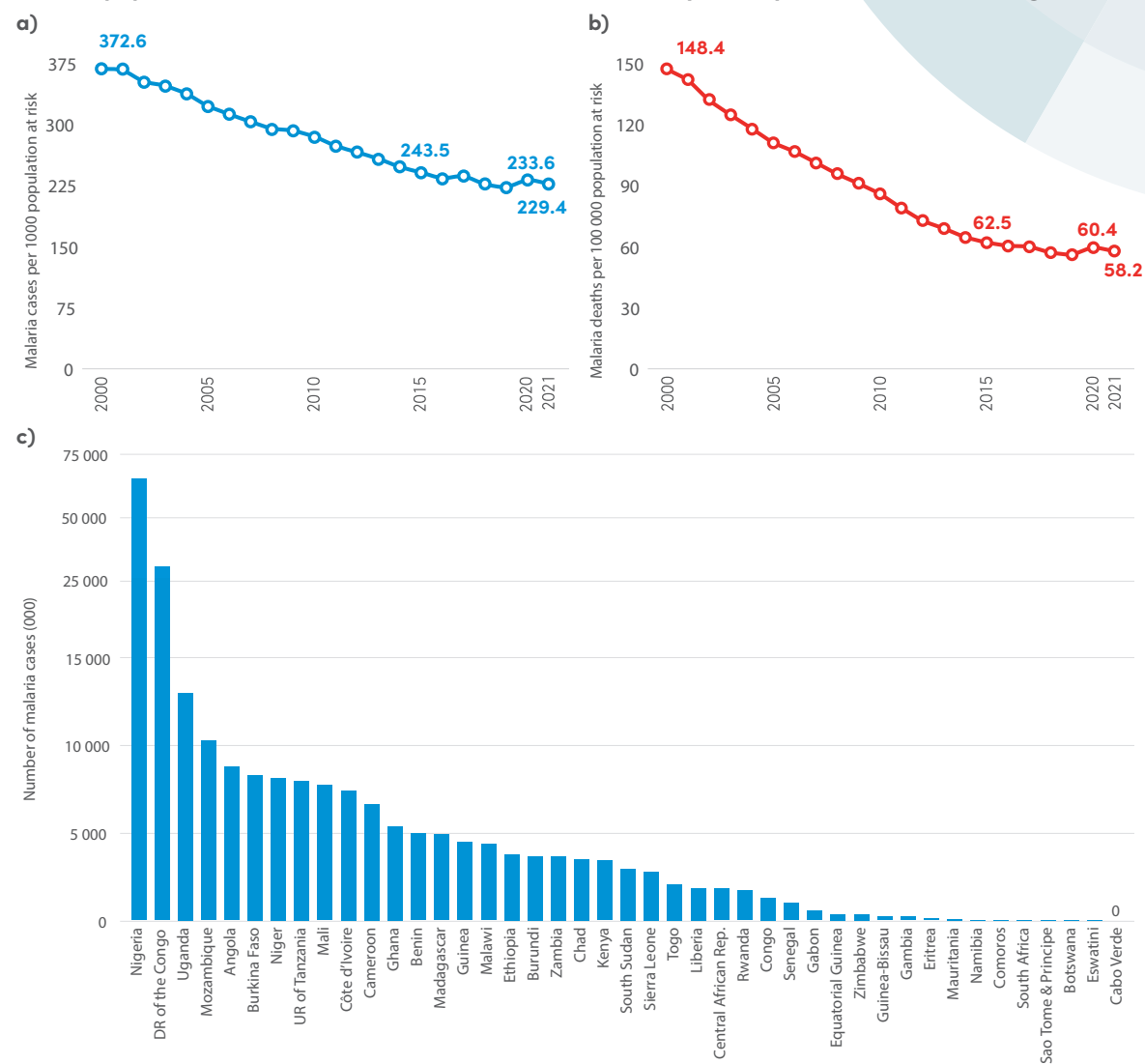
The case incidence and mortality rates in the Region increased in the first year of the pandemic, between 2019 and 2020, and then declined from 2020 to 2021.

- case incidence (cases per 1000 population at risk) increased from 225.5 in 2019 to 233.6 in 2020, and then fell to 229.4 in 2021 (**Fig 3.3a**);
- the mortality rate (deaths per 100 000 population at risk) increased from 56.3 in 2019 to 60.4 in 2020, and then declined to 58.2 in 2021 (**Fig 3.3b**).

In 2021, four countries in the African Region – Nigeria (26.6%), the Democratic Republic of the Congo (12.3%), Uganda (5.1%) and Mozambique (4.1%) – accounted for nearly half of all malaria cases globally (**Fig 3.3c and Fig 3.2c**).

FIG. 3.3.

Trends in a) malaria case incidence (cases per 1000 population at risk) and b) mortality rate (deaths per 100 000 population at risk), 2000–2021; and c) malaria cases by country in the WHO African Region, 2021



World malaria report 2022

Briefing kit | Regional data and trends



Contents
Page



African
Region



South-East
Asia Region



Eastern
Mediterranean
Region



Region of the
Americas



Western Pacific
Region



European
Region

Four countries also accounted for just over half of all malaria deaths globally: Nigeria (31.3%), the Democratic Republic of the Congo (12.6%), the United Republic of Tanzania (4.1%) and Niger (3.9%) (**Fig. 3.2d**). Nigeria accounted for an estimated 38.4% of global malaria deaths in children aged under 5 years.

The African Region as a whole missed the GTS 2020 milestones for reductions¹ in case incidence and mortality and, in 2021, remained off track by 45% and 47%, respectively (**Fig. 8.4**).
Between **2015 and 2021**:

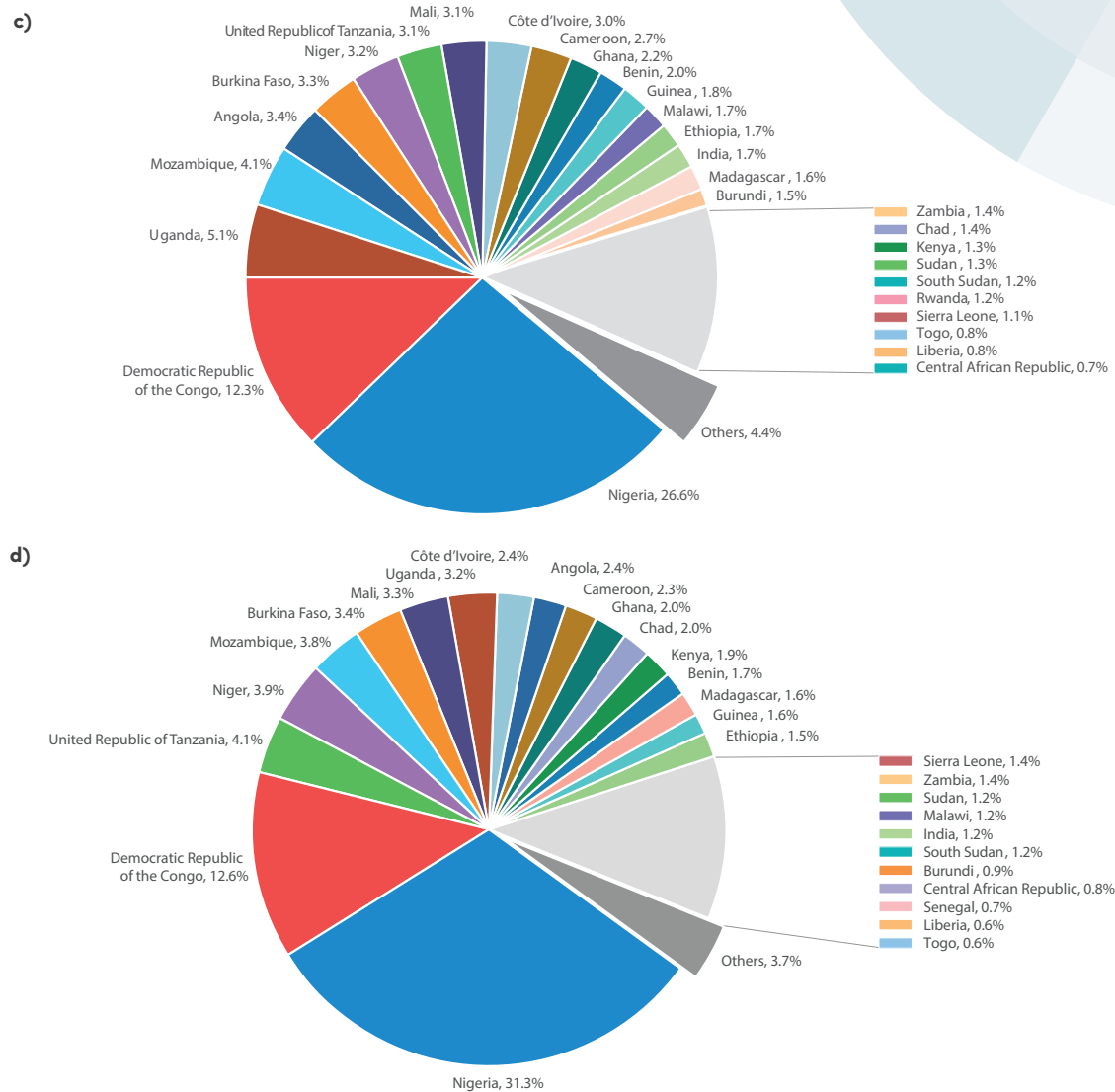
- case incidence increased by 25–40% in Eritrea and Namibia and by 40% or more in Angola, Botswana, Burundi, the Comoros and Madagascar;
- the mortality rate increased by 5% to 25% in four countries (Angola, the Democratic Republic of the Congo, Guinea-Bissau and South Sudan); 25% to 40% in Namibia; and 40% or more in Botswana, the Comoros, Eritrea, Madagascar and Sao Tome and Principe.

Progress varied, however, and some individual countries beat the overall regional trend. Between **2015 and 2021**:

- Cabo Verde, Ethiopia, the Gambia, Ghana, Mauritania, Rwanda, South Africa and Zimbabwe met the target of a reduction in malaria case incidence of 40% or more.

¹ The *Global technical strategy for malaria 2016–2030* (GTS) called for reductions in malaria case incidence and mortality of at least 40% by 2020 compared to a 2015 baseline.

FIG. 3.2.
Global trends in distribution of malaria cases and deaths by country, 2021



World malaria report 2022

Briefing kit | Regional data and trends



Contents
Page



African
Region



South-East
Asia Region



Eastern
Mediterranean
Region



Region of the
Americas



Western Pacific
Region

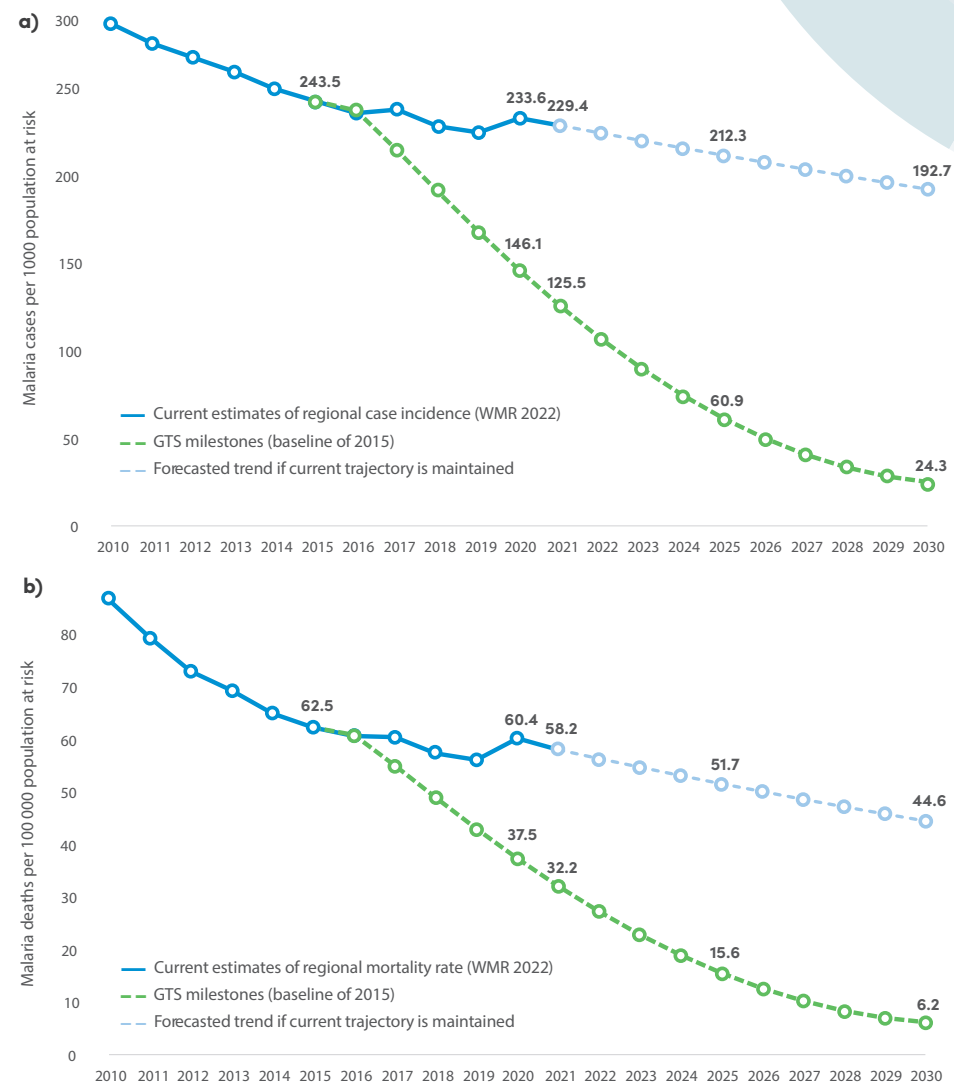


European
Region

- Although not on track to reach the GTS milestones, 15 countries achieved reductions in malaria case incidence: Burkina Faso, Cameroon, Equatorial Guinea, Eswatini, Guinea, Kenya, Malawi, Mali, Mozambique, Niger, Senegal, Sierra Leone, Togo, the United Republic of Tanzania and Zambia.
- Cabo Verde and Eswatini had zero estimated malaria deaths in 2021, while Ethiopia, South Africa and Zimbabwe achieved reductions in their mortality rates of 40% or more.
- Algeria was certified malaria-free by WHO in 2019.

FIG. 8.4.

Comparison of progress in malaria a) case incidence and b) mortality rate in the WHO African Region considering two scenarios: current trajectory maintained (blue) and GTS targets achieved (green)



World malaria report 2022

Briefing kit | Regional data and trends



Contents
Page

African
Region

South-East
Asia Region

Eastern
Mediterranean
Region

Region of the
Americas

Western Pacific
Region

European
Region

2 South-East Asia Region

In 2021, the South-East Asia Region had nine malaria-endemic countries that contributed to about 2% of the burden of the malaria globally. Most cases in the Region were concentrated in India (79%).

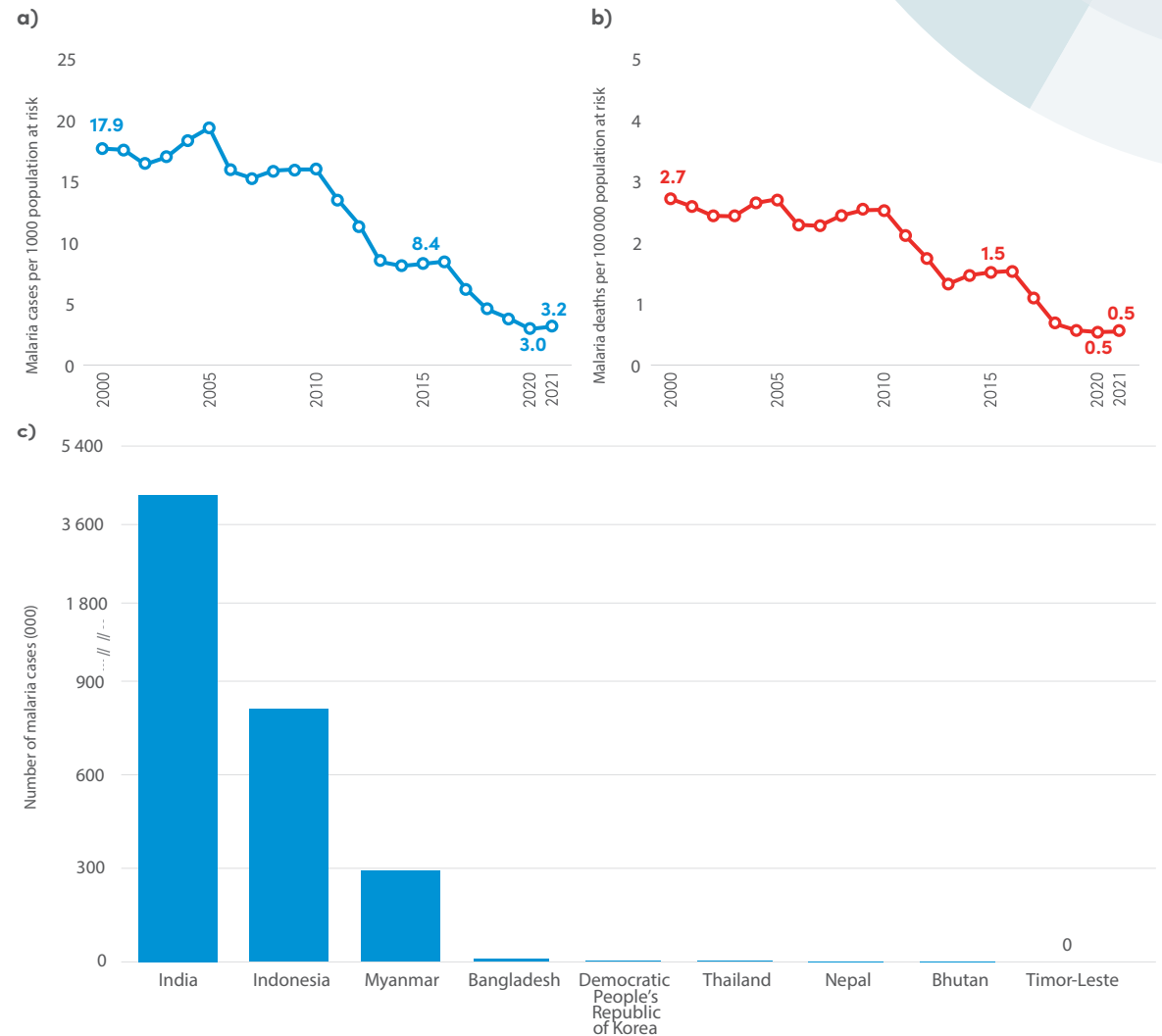
Over the past 20 years, the Region achieved excellent progress in reducing its malaria burden. Between 2000 and 2021:

- case incidence fell from 17.9 to 3.2 cases per 1000 population at risk (**Fig 3.4a**);
- total malaria cases were reduced by 76%, from 22.8 million to 5.4 million;
- the mortality rate fell from 2.7 to 0.5 deaths per 100 000 population at risk (**Fig 3.4b**);
- total malaria deaths were reduced by 74%, from 35 000 to 9000.

Between 2020 and 2021, there was an increase of approximately 400 000 cases in the Region; over half of these cases were in Myanmar. Case increases were also seen in Bangladesh, the Democratic People's Republic of Korea, India and Indonesia.

FIG. 3.4.

Trends in a) malaria case incidence (cases per 1000 population at risk) and b) mortality rate (deaths per 100 000 population at risk), 2000–2021; and c) malaria cases by country in the WHO South-East Asia Region, 2021



World malaria report 2022

Briefing kit | Regional data and trends



Contents
Page



African
Region



South-East
Asia Region



Eastern
Mediterranean
Region



Region of the
Americas



Western Pacific
Region



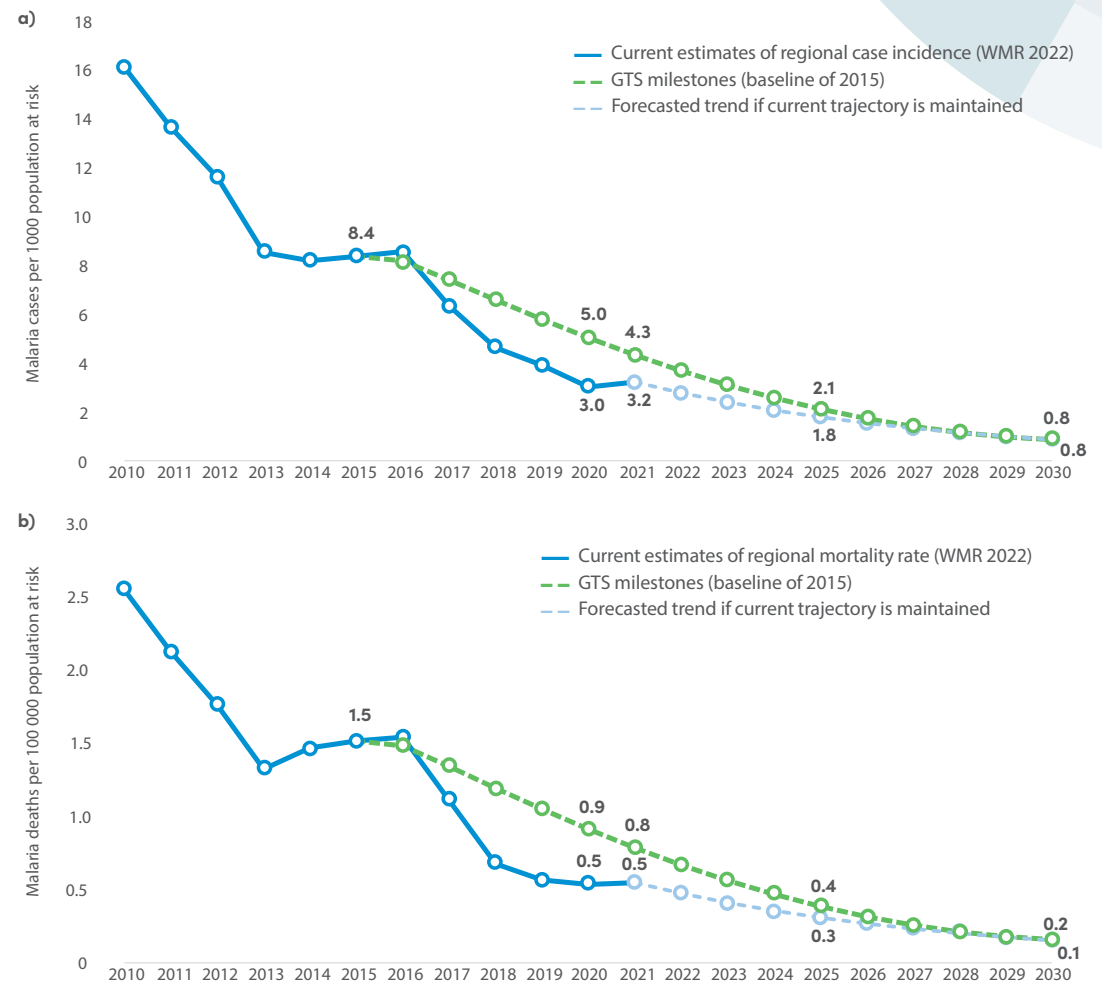
European
Region

South-East Asia is the only WHO Region that reached the GTS 2020 milestones of a 40% reduction in malaria case incidence and mortality, compared to a 2015 baseline (**Fig. 8.7 a + b**).

- By 2021, seven of the nine endemic countries in the region remained on track, with reductions in case incidence of 40% or more compared to a 2015 baseline: Bangladesh, Bhutan, the Democratic People's Republic of Korea, India, Nepal, Thailand and Timor-Leste.
- In 2021, Timor-Leste reported zero malaria cases. Zero malaria deaths were reported in Bhutan, the Democratic People's Republic of Korea, Thailand and Timor-Leste. All other countries in the region had mortality rate reductions of 40% or more – except for Indonesia, where the reduction was less than 25%.
- Sri Lanka was certified malaria free by WHO in 2015.

FIG. 8.7.

Comparison of progress in malaria a) case incidence and b) mortality rate in the WHO South-East Asia Region considering two scenarios: current trajectory maintained (blue) and GTS targets achieved (green)



World malaria report 2022

Briefing kit | Regional data and trends



Contents
Page



African
Region



South-East
Asia Region



Eastern
Mediterranean
Region



Region of the
Americas



Western Pacific
Region



European
Region

3 Eastern Mediterranean Region

In 2021, the Eastern Mediterranean Region's seven malaria-endemic countries accounted for 2.5% of global malaria cases. Sudan carried the heaviest malaria burden in the Region, accounting for 54% of cases, followed by Somalia, Yemen, Pakistan, Afghanistan and Djibouti.

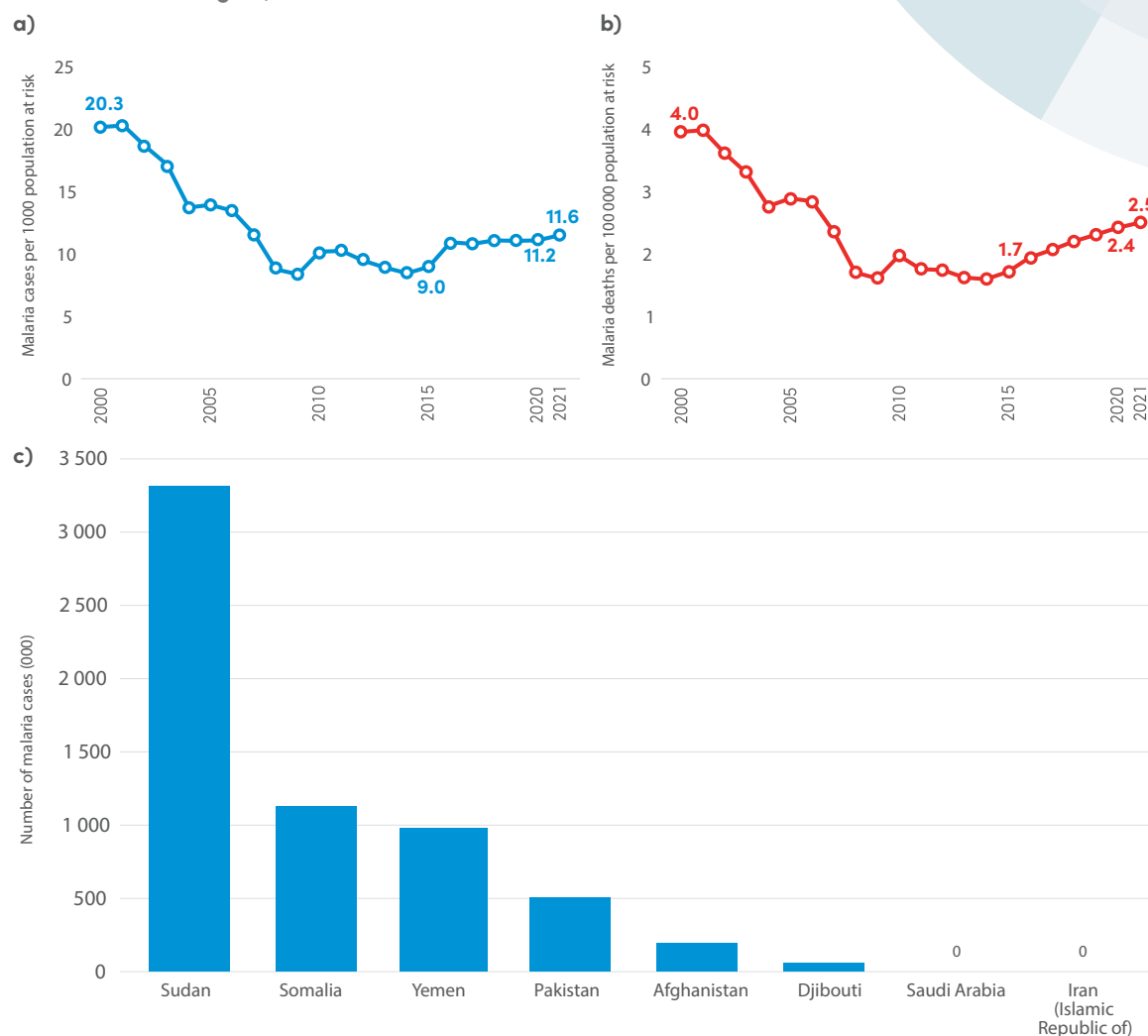
Over the last two decades, the Region achieved a reduction in its overall malaria burden. However, most of the progress was seen between 2000 and 2009. There has been little change in the Region's case incidence rate over the last decade, and the mortality rate has gradually increased since 2016.

Between 2000 and 2021:

- case incidence fell from 20.3 to 11.6 per 1000 population at risk (**Fig 3.5a**);
- total malaria cases were reduced from an estimated 6.9 million to 6.2 million;
- mortality incidence: fell from 4.0 to 2.5 per 100 000 population at risk (**Fig 3.5b**);
- total malaria deaths were reduced by about 45%, from 13 600 in 2000 to 7500 in 2014, and then increased by 79%, reaching 13 400 in 2021. Most of these deaths were observed in Sudan, although increases were also seen in Djibouti and Somalia.

FIG. 3.5.

Trends in a) malaria case incidence (cases per 1000 population at risk) and b) mortality rate (deaths per 100 000 population at risk), 2000–2021; and c) malaria cases by country in the WHO Eastern Mediterranean Region, 2021



World malaria report 2022

Briefing kit | Regional data and trends



Contents
Page



African
Region



South-East
Asia Region



Eastern
Mediterranean
Region



Region of the
Americas



Western Pacific
Region



European
Region

Between 2020 and 2021, increases in estimated malaria cases were seen in Somalia, the Sudan and Yemen, with an additional 205 000, 64 000 and 180 000 cases, respectively. The number of cases in Afghanistan, Djibouti and Pakistan appears to have been reduced in this same time period; however, these estimates should be interpreted with caution.²

Saudi Arabia reported zero indigenous malaria cases for the first time in 2021, while the Islamic Republic of Iran achieved zero indigenous cases for the fourth consecutive year. Iraq, Morocco, Oman and the Syrian Arab Republic last reported indigenous malaria cases in 2008, 2004, 2007 and 2004, respectively. In 2021, all countries in the region reported zero malaria deaths apart from Djibouti, the Sudan and Yemen.

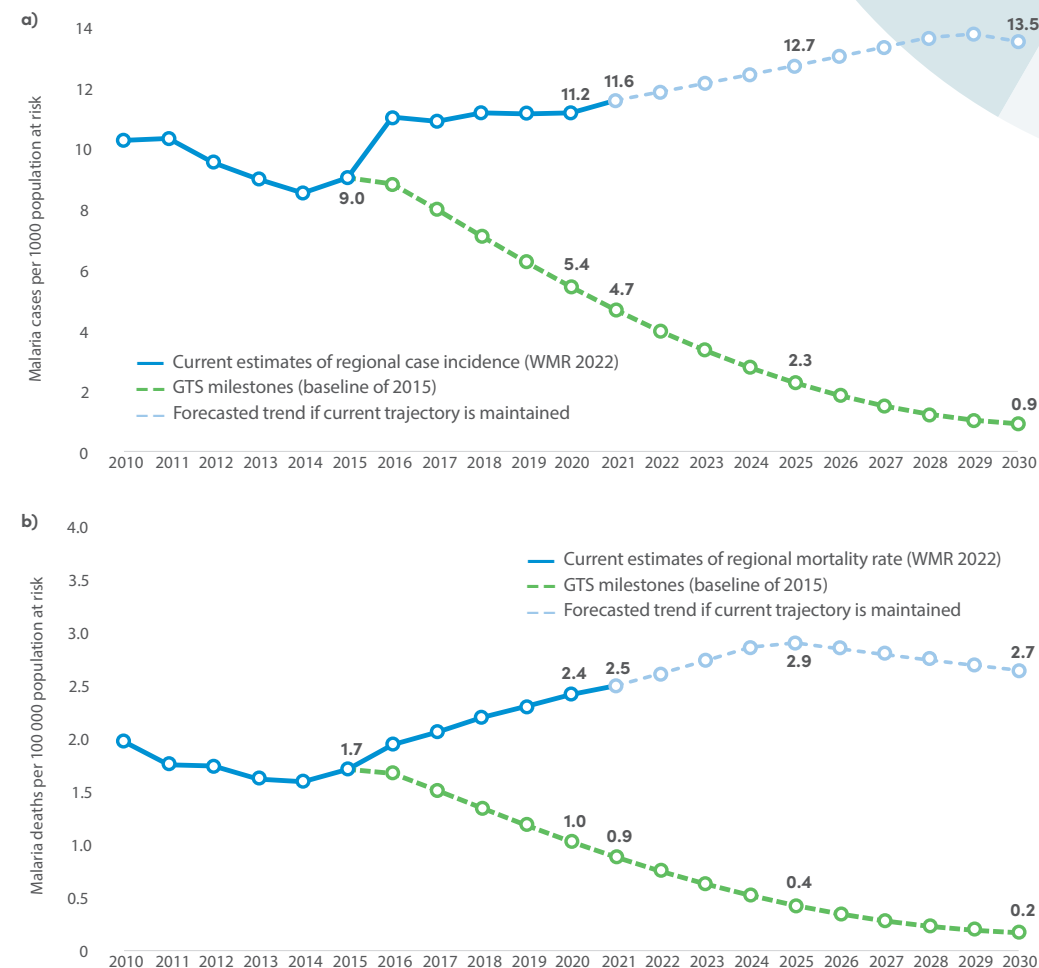
The Eastern Mediterranean region missed the GTS 2020 milestones for reductions in malaria case incidence and mortality of at least 40%. In 2021, progress remained off track by 60% and 65%, respectively (**Fig. 8.6**).

- In Djibouti, the Sudan and Yemen, malaria case incidence increased by 40% or more in 2021 compared to a 2015 baseline. Case incidence also increased in Somalia but by less than 25%.
- Malaria mortality rates increased by 40% or more in Djibouti, Sudan and Yemen.

² Instabilities in Afghanistan, Yemen, Somalia and Sudan have led to the closure of health facilities and other disruptions, making it difficult to obtain sufficiently reliable data to estimate the recent malaria burden trends in these countries. As such, current estimates should be interpreted with caution. Furthermore, recent floods in Pakistan suggest a malaria upsurge which will likely lead to a considerably higher estimate in 2022.

FIG. 8.6.

Comparison of progress in malaria a) case incidence and b) mortality rate in the WHO Eastern Mediterranean Region considering two scenarios: current trajectory maintained (blue) and GTS targets achieved (green)



World malaria report 2022

Briefing kit | Regional data and trends



Contents
Page



African
Region



South-East
Asia Region



Eastern
Mediterranean
Region



Region of the
Americas



Western Pacific
Region



European
Region



4 Region of the Americas

In 2021, 17 malaria-endemic countries and one territory in the Region of the Americas accounted for an estimated 0.2% of global malaria cases. Three countries in the region – Brazil, Colombia and the Bolivarian Republic of Venezuela – accounted for an estimated 79% of all cases region-wide.

Between 2000 and 2021, the Region made strong progress in reducing its malaria burden:

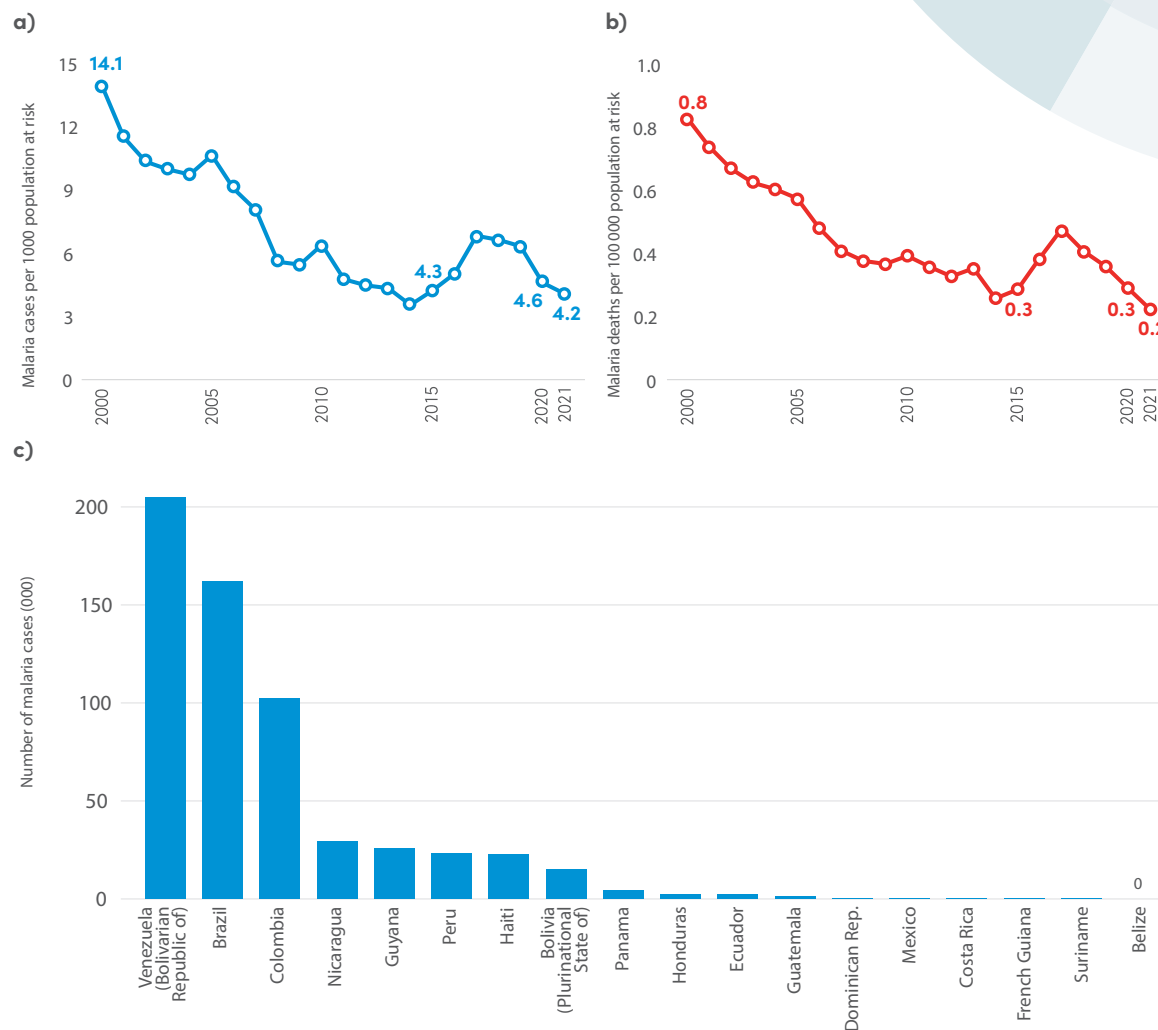
- case incidence fell from 14.1 to 4.2 cases per 1000 population at risk (**Fig 3.7a**);
- total malaria cases were reduced by 60%, from 1.5 million to 0.60 million;
- mortality incidence fell from 0.8 to 0.2 deaths per 100 000 population at risk (**Fig 3.7b**);
- total malaria deaths were reduced by 64%, from 919 to 334.

In recent years, the regional trend in cases has been heavily impacted by the malaria epidemic in Venezuela, where cases increased from 35 500 in 2000 to over 482 000 in 2017.

Between 2019 and 2020, however, cases in Venezuela fell by more than half compared to 2019, from 467 000 to 223 000, due in part to restrictions on movement during the COVID-19 pandemic and a shortage of fuel which affected the mining

FIG. 3.7.

Trends in a) malaria case incidence (cases per 1000 population at risk) and b) mortality rate (deaths per 100 000 population at risk), 2000–2021; and c) malaria cases by country in the WHO Region of the Americas, 2021



World malaria report 2022

Briefing kit | Regional data and trends



Contents
Page



African
Region



South-East
Asia Region



Eastern
Mediterranean
Region



Region of the
Americas



Western Pacific
Region



European
Region

industry.³ Between 2020 and 2021, cases fell even further, to 205 000.

Between 2019 and 2021, countries that saw a substantial reduction in their malaria case burden included Venezuela (-263 000), Brazil (-17 000), Colombia (-17 000) and Peru (-22 000). More modest reductions were seen in the Dominican Republic, French Guiana, Guatemala, Guyana and Mexico in this same time period.

Two countries, however, saw a more than doubling in malaria cases between 2019 and 2021: Honduras (444 to 2290) and Panama (1849 to 4585). The estimated number of cases increased slightly in Ecuador and in the Plurinational State of Bolivia in this same period.

Following an increase in estimated cases between 2019 and 2020, Haiti achieved a considerable reduction in cases between 2020 and 2021, by about 18 000. Smaller reductions in cases were also seen in Nicaragua and Suriname.

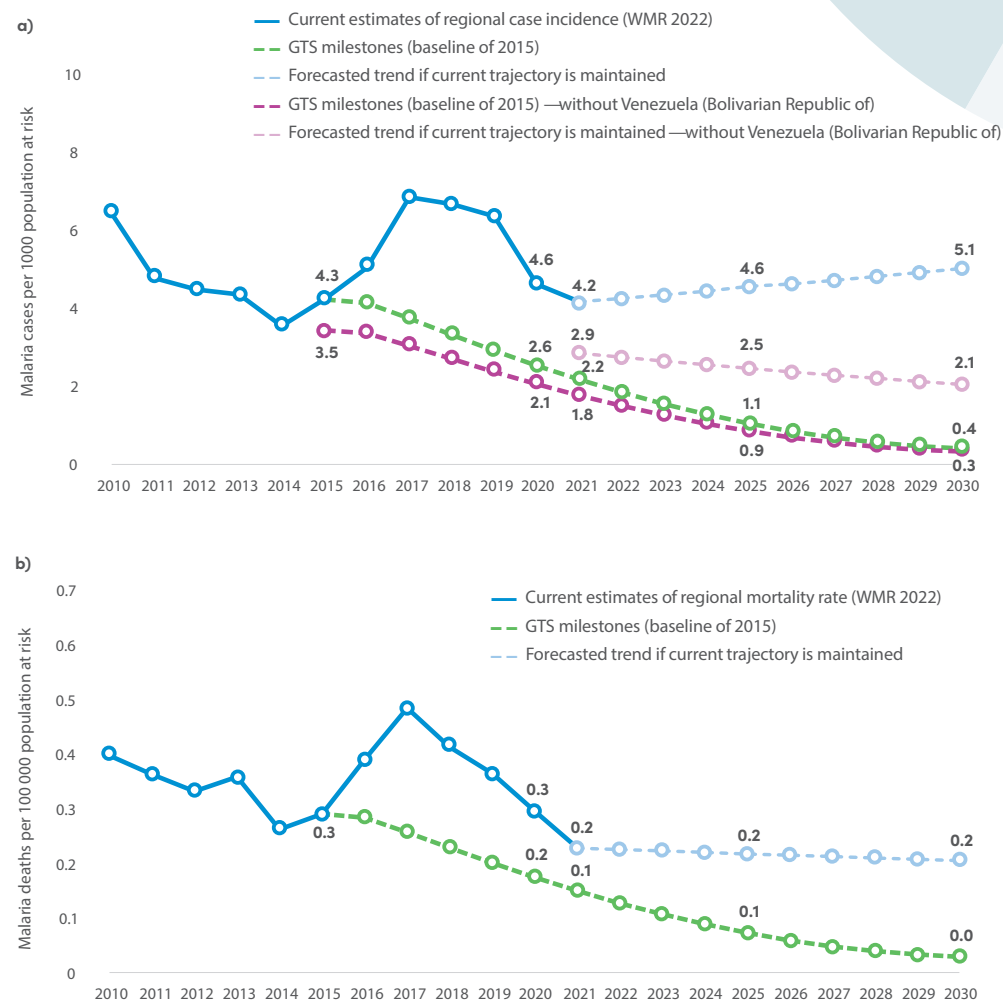
Three countries in the region – Argentina, El Salvador and Paraguay – were certified by WHO as malaria free in 2019, 2021 and 2018, respectively. In 2021, Belize reported zero indigenous malaria cases for the third consecutive year.

In view of recent trends, the Region of the Americas did not achieve the GTS 2020 milestones for reductions in malaria case incidence and mortality of at least 40%. In 2021, progress towards these milestones remained off track by 48% and 35%, respectively (**Fig 8.5 a + b**).

³ The fuel shortage reduced the risk of exposure to malaria that people working in mines normally face.

FIG. 8.5.

Comparison of progress in malaria a) case incidence and b) mortality rate in the WHO Region of the Americas considering two scenarios: current trajectory maintained (blue) and GTS targets achieved (green)



World malaria report 2022

Briefing kit | Regional data and trends



Contents
Page



African
Region



South-East
Asia Region



Eastern
Mediterranean
Region



Region of the
Americas



Western Pacific
Region



European
Region

Between 2015 and 2021:

- Estimated increases in case incidence in Venezuela and Guyana were between 25% and 40%. In Costa Rica, Ecuador, Nicaragua, Panama and the Plurinational State of Bolivia, case incidence increased by 40% or more.
- The case incidence trend in this region is heavily impacted by the epidemic in Venezuela. When estimated cases from Venezuela are excluded from the analysis, the regional trend is reversed, resulting in a decline in case incidence of 28%.

Progress varied across the region, and some countries bucked the overall regional trend.

- The Dominican Republic, French Guiana, Guatemala, Honduras, Mexico, Peru, and Suriname all achieved a reduction of at least 40% in case incidence between 2015 and 2021.

World malaria report 2022

Briefing kit | Regional data and trends



Contents
Page



African
Region



South-East
Asia Region



Eastern
Mediterranean
Region



Region of the
Americas



Western Pacific
Region



European
Region



5 Western Pacific Region

In 2021, the Western Pacific Region's eight malaria-endemic countries accounted for 0.6% of global malaria cases. Papua New Guinea shouldered 87% of all cases in the Region in 2021, followed by Solomon Islands, Cambodia and the Philippines.

Between 2000 and 2021, the Western Pacific Region reduced its malaria burden substantially:

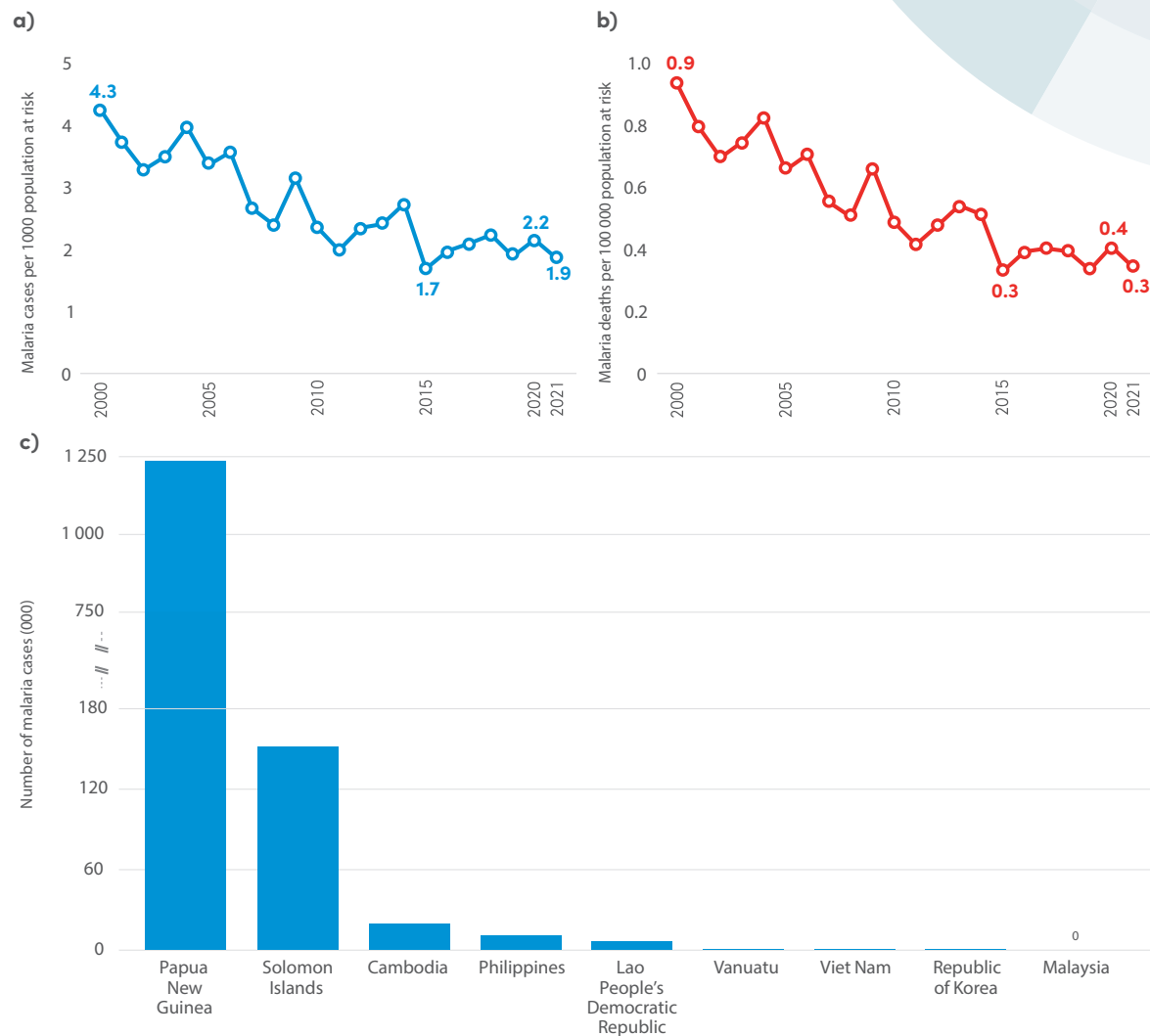
- case incidence fell from 4.3 to 1.9 cases per 1000 population at risk (**Fig 3.6a**);
- total malaria cases were reduced by 49%, from 2.8 million to 1.4 million;
- mortality incidence fell from 0.9 to 0.3 deaths per 100 000 population at risk (**Fig 3.6b**);
- Total malaria deaths were reduced by 58%, from 6200 to 2600.

After a 15% increase in cases during the first year of the pandemic, cases fell by 14% between 2020 and 2021.

The case increases between 2019 and 2020 were largely seen in Papua New Guinea (**Fig 3.6c**). In the period 2020 to 2021, case increases were observed in Lao People's Democratic Republic and Solomon Islands.

FIG. 3.6.

Trends in a) malaria case incidence (cases per 1000 population at risk) and b) mortality rate (deaths per 100 000 population at risk), 2000–2021; and c) malaria cases by country in the WHO Western Pacific Region, 2021



World malaria report 2022

Briefing kit | Regional data and trends



Contents
Page



African
Region



South-East
Asia Region



Eastern
Mediterranean
Region



Region of the
Americas



Western Pacific
Region



European
Region

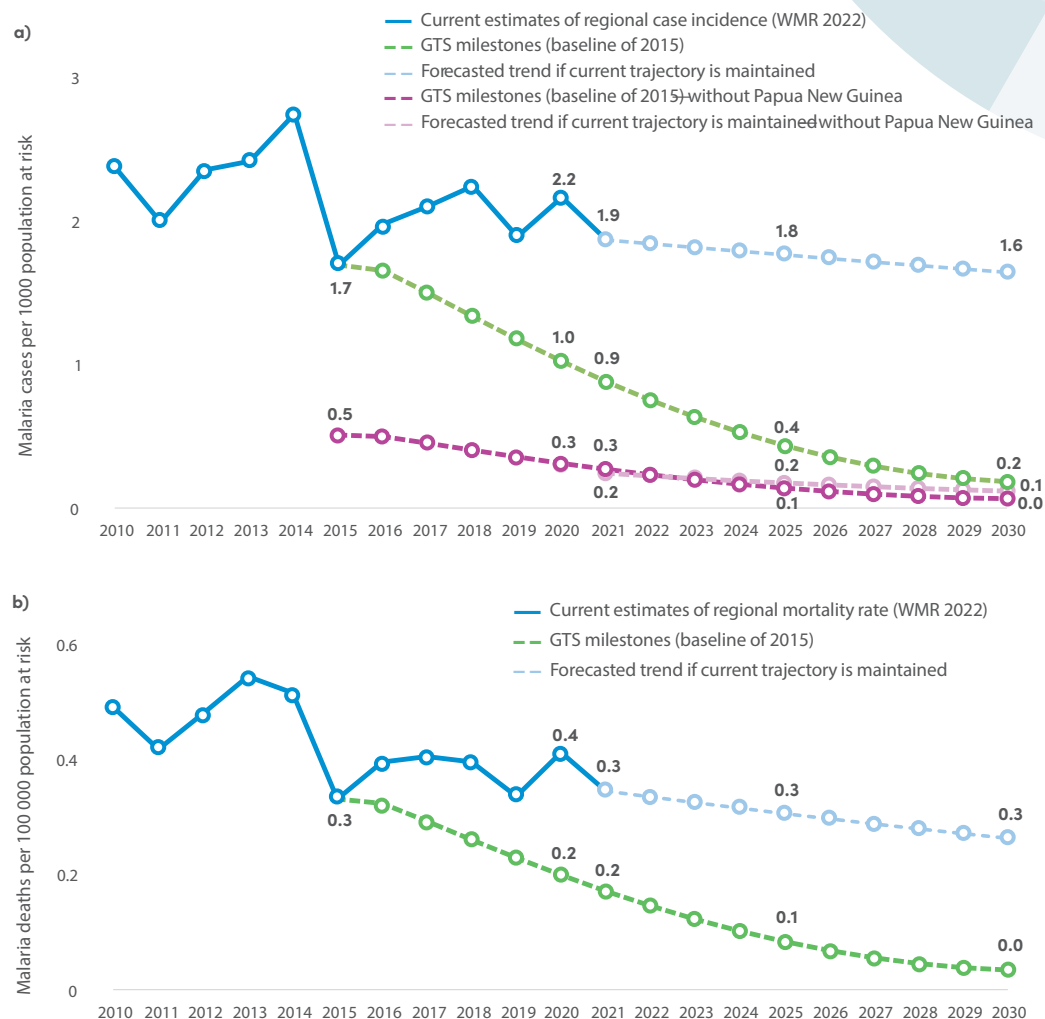
In 2021, China was certified malaria-free by WHO and Malaysia achieved zero cases of human malaria for the fourth year in a row. However, in recent years, Malaysia has reported an increase in the number of zoonotic *P. knowlesi* malaria cases.

Four countries in the region reported fewer than 10 000 malaria cases in 2021: Lao People's Democratic Republic (6403), the Republic of Korea (274), Vanuatu (576) and Viet Nam (453). Meanwhile, there have been zero reported malaria deaths in the Republic of Korea and Vanuatu since 2012, Cambodia since 2018 and Viet Nam since 2019.

The Western Pacific Region did not achieve the GTS 2020 morbidity and mortality milestones. In 2021, progress towards these milestones remained off target by 53% and 51%, respectively (Fig 8.8a + b).

FIG. 8.8.

Comparison of progress in malaria a) case incidence and b) mortality rate in the WHO Western Pacific Region considering two scenarios: current trajectory maintained (blue) and GTS targets achieved (green)



World malaria report 2022

Briefing kit | Regional data and trends



Contents
Page



African
Region



South-East
Asia Region



Eastern
Mediterranean
Region



Region of the
Americas



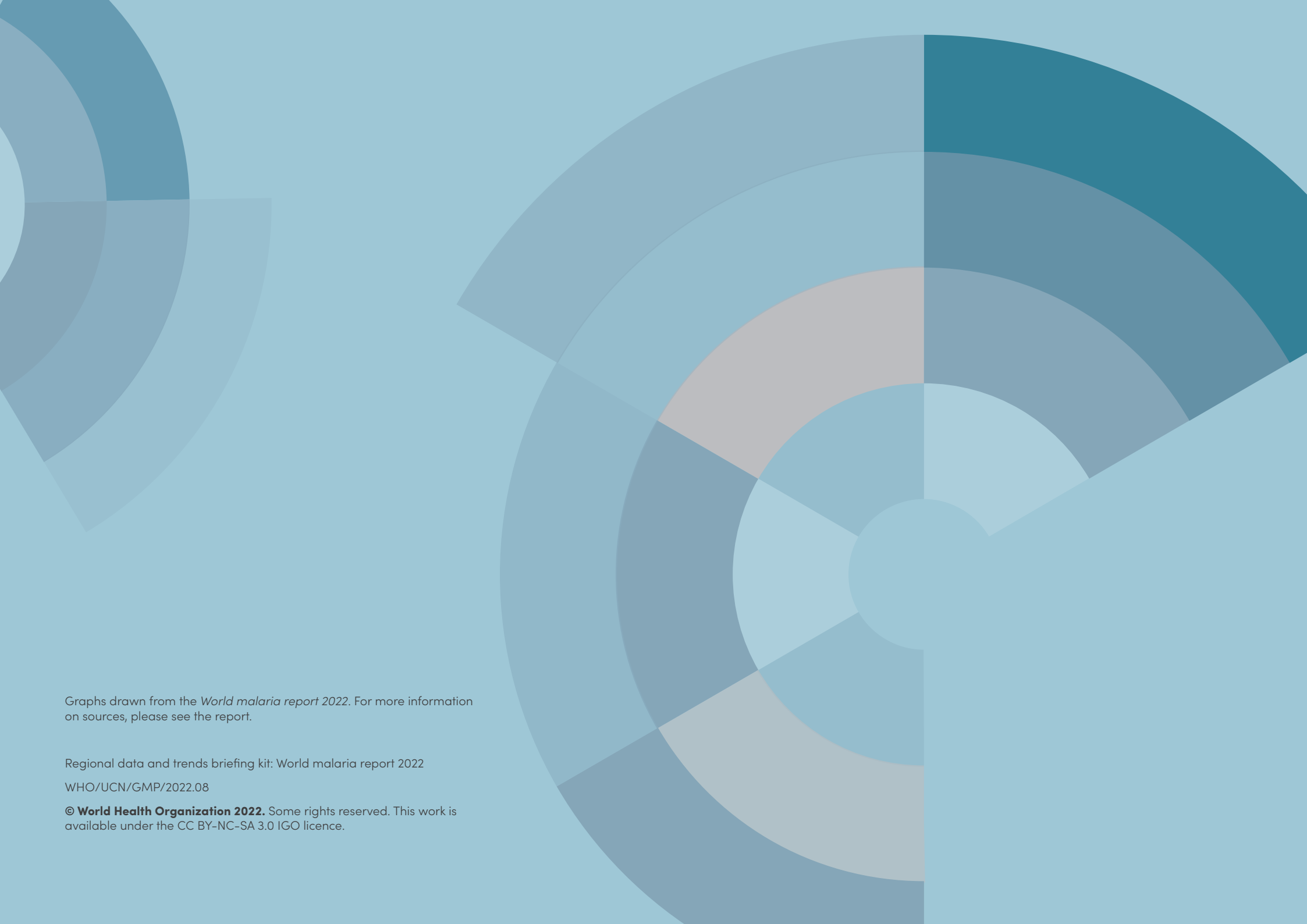
Western Pacific
Region



European
Region



European Region



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Regional data and trends briefing kit: World malaria report 2022

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