

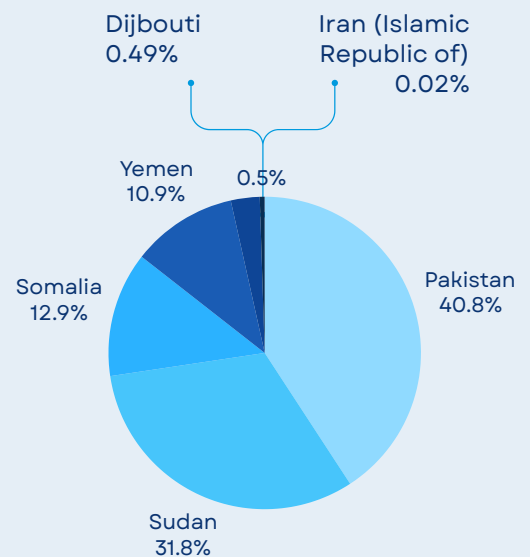
ANTIMICROBIAL RESISTANCE AND MALARIA

The WHO Eastern Mediterranean Region had an estimated 8.3 million malaria cases in 2022, a 92% increase from 4.3 million in 2015. In 2022, a small number of countries accounted for most cases.

RISK FACTORS FOR DRUG-RESISTANT MALARIA

- **Insufficient awareness** that any course of antimalarial treatment must be completed.
- **Weak access to quality malaria care and antimalarial medicines**, particularly for underprivileged and marginalized populations.
- **Significant population movement from African countries** with increasing evidence of risk of antimalarial drug resistance.
- **Using antimalarials** in fever cases in high burden countries **without confirmation of malaria**.
- **Irrational use of injections** for non-severe malaria cases.
- **Use of a single antimalarial medicine**, artemether-lumefantrine, as a first-line treatment in majority of endemic countries, increasing the risk of resistance to the companion antimalarial medicine and to artesunate.
- **Insufficient resources for vector control** that increases the risk of transmission of malaria and resistance.
- Use of **low quality or non-prequalified antimalarial medicines**.
- **Non-adherence** to national malaria treatment policies and guidelines.

SHARE OF MALARIA CASES ACROSS COUNTRIES OF THE EASTERN MEDITERRANEAN REGION



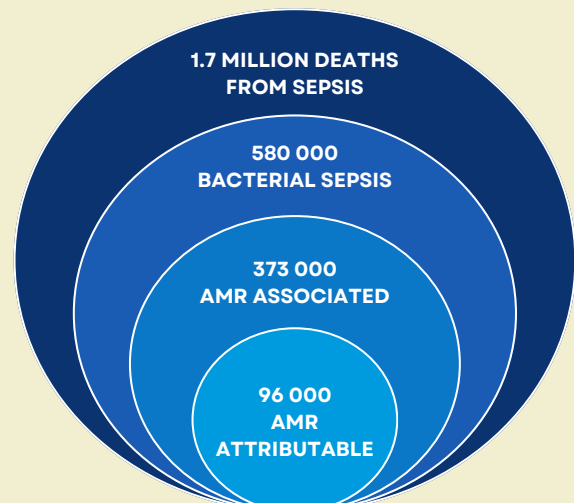
Note: Saudi Arabia has had zero indigenous cases since 2021.

Source: World malaria report. Geneva: World Health Organization; 2023.

DRUG RESISTANCE IS INCREASING IN THE WHO EASTERN MEDITERRANEAN REGION

In 2021, there were **1.7 million deaths** from sepsis in the Eastern Mediterranean Region. Of these **373 000 were associated with bacterial antimicrobial resistance (AMR)**.

The Eastern Mediterranean Region consumes more antibiotics than any other WHO region. In 2018, the Eastern Mediterranean Region consumed antibiotics at a higher rate per capita (21.8 defined daily doses per 1000 inhabitants per day) than the global average (14.3) and than any other WHO region. Consumption is greatest in high-income countries, while middle-income countries reported the greatest increase in consumption between 2000 and 2018.



Burden of sepsis and bacterial AMR in the Eastern Mediterranean Region, 2021

Source: Based on data from: GBD 2021 Antimicrobial Resistance Collaborators. Global burden of bacterial antimicrobial resistance 1990–2021: a systematic analysis with forecasts to 2050. Lancet. 2024 Sep 28;404(10459):1199–226.

CHALLENGES IN DIAGNOSING AND MANAGING DRUG-RESISTANT MALARIA



Limited sustainable resources for quality surveillance for malaria drug resistance.



Insufficient trained human resources due to lack of funding, rapid turnover and brain drain.



Poor capacity for molecular surveillance in the Region.



Biological threats (vector insecticide resistance, PFHRP2/3 gene deletions, antimalarial drug resistance, the emergence of invasive vector species) making **proper surveillance and intervention measures costly and challenging**.

MEASURES TO REDUCE THE DEVELOPMENT AND SPREAD OF DRUG-RESISTANT MALARIA

- **Enhancing regional and cross-border collaboration and information-sharing** to monitor the efficacy of antimalarial medicines through networks such as the Horn of Africa Network for Monitoring Antimalarial Treatment (HANMAT) and Pakistan–Islamic Republic of Iran–Afghanistan Malaria Network (PIAM-Net)
- **Working with major donors to increase resources** for strengthening surveillance of drug resistance through regular therapeutic efficacy studies that monitor antimalarial drug resistance to inform national treatment policies.
- **Designating at least one of the qualified laboratories in the Region a WHO collaborating centre** for molecular surveillance.
- **Raising awareness in the community** about their right to access quality health care and treatment.
- **Improving health care provider adherence to malaria treatment guidelines.**
- **Enforcing national treatment policies** for the private sector.
- **Supporting countries to move to multiple first-line treatment options.**
- **Supporting malaria elimination strategies.**

COLLABORATION BETWEEN MALARIA AND AMR PROGRAMMES



Shared advocacy for increased investment in research.



Advocacy and awareness-raising among the public and health care providers for malaria case management only after confirmation of diagnosis and rational use of antimalarials and antibiotics.



Ensuring the availability and accessibility of quality medicines.



Supporting joint surveillance activities, including molecular surveillance, to monitor antimalarial drug resistance and AMR patterns.



Enhancing coordination and cross-border collaboration.

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