

New research finds 200 thousand avoidable deaths each year from malaria in India

NEW DELHI, INDIA – The number of premature deaths from malaria in India has been vastly underestimated, according to a new study by researchers from India, Canada and the UK.

Because malaria is so easily and cheaply curable, surveys of properly diagnosed malaria patients see misleadingly few deaths. Most malaria deaths occur among people in rural areas with a sudden severe fever that is never seen by any healthcare worker.

The new study is of a nationally representative sample of all deaths from any cause in India, asking family members to describe the fatal illness. Its results show that malaria accounts for about 200 thousand (2 lakh) premature deaths before age 70 in India (including 80 thousand children below age 15 and 120 thousand adults). Previous estimates of malaria deaths were less than 10% of this new figure.

“What is striking about these numbers is that, unlike AIDS or cancer, malaria is curable if treated promptly,” said Dr VM Katoch, Secretary, Department of Health Research and Director-General, Indian Council of Medical Research. “We have safe, effective and inexpensive drugs that can quickly cure malaria patients. What we need is rapid access to healthcare facilities.”

The findings are from the first nationally representative sample of the causes of all deaths in India. The research, led by teams from the office of the Registrar-General of India and from the Centre for Global Health Research (CGHR) at St. Michael's Hospital and University of Toronto, Canada, is published online today (21 October 2010) in *The Lancet*, a leading UK medical journal.

“This is the first nationwide study that has collected information on causes of death directly from communities all over India. It shows that malaria kills far more people than previously supposed. Most of these deaths are in the few Indian states where the most dangerous type of malaria parasite is common,” said co-lead author Prof. Prabhat Jha, Director of the CGHR.

The Indian state of Orissa had more malaria deaths than any other state, 50 thousand each year. The other large “high-malaria” states, also in eastern India, were Chhattisgarh, Jharkhand and Assam.

The study covered 6671 areas, each with about 200 households. These areas had been randomly chosen to be representative of the whole of India. In them, 800 field workers interviewed 122 thousand families of people who had died in 2001-2003, asking them to describe the symptoms and circumstances surrounding the deaths. The written reports of these household narratives were then each coded independently by at least two physicians to attribute a probable cause to each death.

The coders eventually agreed that malaria was the probable cause of about 4% of all deaths at ages 1 month to 70 years. This proportion varied with age (0% in the first month of life, 6% later in childhood and 3% in adults). Within each age range, the annual number of deaths from any cause in the whole of India is known from national statistics, the percentage attributed to malaria is known from this study, and combining these gives the national number of deaths from malaria.

Overall, malaria was found to cause a total of about 200 thousand (2 lakh) premature deaths each year. Of the deaths attributed to malaria, 90% were in rural areas and 86% occurred at home without any sort of medical attention.

In an accompanying editorial, Dr. Simon Hay of Oxford University, UK, co-founder of the Malaria Atlas Project, explains how the estimate of only 15 thousand malaria deaths a year previously accepted by the World Health Organization (WHO) could have missed most of the malaria deaths where illness came on quickly and was never seen by any healthcare worker.

He adds that, since most malaria deaths in India occur far from any healthcare facilities, “deaths from malaria are predominantly invisible to the health reporting system.”

The study authors conclude: “If WHO estimates of malaria deaths in India, or among adults worldwide, are likely to be serious underestimates, this could substantially change disease control strategies, particularly in the rural parts of states with a high malaria burden.” They further suggest that better estimates of malaria incidence and mortality in India, Africa and elsewhere could provide a more rational foundation for affordable access to community treatments for both children and adults.

Kenneth J. Arrow, Professor of Economics at Stanford University and 1972 Nobel Prize Laureate in Economics added that “Artemisinin combination therapies are strongly efficacious and can be available at low cost through the Affordable Medicines Facility for Malaria. The treatment should be made easily accessible to both children and adults through public and/or private distribution channels.”

Key points:

- First nationally representative study of the causes of all deaths in India;
- Of 75 342 study deaths at ages 1 month to 70 years, 2681 (3.6%) were attributed to malarial fever;
- Hence, malaria must cause about 200 thousand (2 lakh) deaths per year before age 70 in India as a whole, far more than the WHO estimate of only 15 thousand at all ages;
- Of these malaria-attributed deaths, 55 thousand were in early childhood, 30 thousand were in children 5-14 years old, and 120 thousand (1.2 lakh) were in adults 15-69 years old;
- There were high mortality rates in early childhood and in later middle age;
- 90% of malaria-attributed deaths were in rural areas and 86% were not in any health facility;
- Half the malaria-attributed deaths were in a few high-malaria states in eastern India (Orissa, Chhattisgarh, Jharkhand, Assam and its smaller neighbours);
- At current malaria death rates, an average Indian baby would (in the hypothetical absence of any other causes of death) have a 2% chance of dying from malaria before age 70, but this risk is much greater in the high-malaria states;
- Malaria deaths occurred in the states where the Indian malaria control program finds a high prevalence of the most dangerous type (*Plasmodium falciparum*) of malaria parasite, but these are not states with a particularly high prevalence of other diseases that could have been mistaken for malaria.

Note on Indian and western numbers: 1 lakh=100 thousand

Adult and child malaria mortality in India: a nationally representative mortality survey. *The Lancet*, 21 October 2010, DOI: S0140-6736(10)60831-8 (www.thelancet.com)

Further information

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The research paper, press releases in regional Indian languages, a video news release (including versions in regional Indian languages), quotes from noted scientists, Frequently Asked Questions, and PowerPoint slides of the key results will be available 21 October 2010 at www.cghr.org/malaria

Press conference in New Delhi on Thursday, 21st October 2010 from 11.30-13.30 hrs at the Taj Mahal Hotel, 1 Mansingh Road: for invitation, contact Ms. Prabha Sati at (+91) 971 196 4550.

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