

## EDITORIAL

## Malaria Resurgence in Lahore – An Urgent Public Health Alarm

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Malaria, once considered a predominantly rural disease in Pakistan, has increasingly become a growing concern for urban centers, including Lahore. While Punjab historically reported lower malaria incidence than other provinces, recent climatic changes, rapid urbanization, and migration patterns have created favorable conditions for *Plasmodium vivax* and, to a lesser extent, *Plasmodium falciparum* transmission within the city<sup>1</sup>. The resurgence of malaria in Lahore signals a worrying shift in disease epidemiology and highlights significant gaps in surveillance, prevention, and vector-control measures.

The urban environment of Lahore has undergone rapid expansion, with large settlements developing around stagnant water bodies, poorly maintained drainage systems, and construction sites ideal breeding grounds for *Anopheles* mosquitoes<sup>2</sup>. Increased rainfall variability, prolonged warm seasons, and high humidity have further strengthened mosquito survival and transmission cycles. Informal settlements, peri-urban villages, and low-income neighborhoods remain disproportionately affected due to inadequate sanitation, poor housing structures, and limited access to preventive tools such as insecticide-treated nets (ITNs)<sup>3</sup>.

Another emerging challenge is the influx of individuals traveling from high-burden regions such as Baluchistan, Khyber Pakhtunkhwa, and Afghanistan<sup>4</sup>. These population movements often introduce new malaria strains and increase the risk of local transmission in Lahore, particularly when screening and surveillance measures are insufficient. Seasonal agricultural labor and internal migration amplify this risk, especially in areas where healthcare access is limited<sup>5</sup>.

Clinically, Lahore's hospitals have reported a noticeable rise in *P. vivax* cases during monsoon and post-monsoon periods. Although *P. vivax* generally causes less severe disease than *P. falciparum*, its relapsing nature places a recurrent burden on healthcare facilities<sup>6</sup>. Missed radical cure with primaquine due to concerns about G6PD deficiency further complicates treatment outcomes. Delayed diagnosis, misuse of antimalarials, and limited awareness among households contribute to prolonged illness and the potential for complications<sup>7</sup>.

Public health efforts, while present, remain insufficiently coordinated. Vector-control activities, such as fogging and larviciding, often begin only after cases sharply rise. These reactive strategies provide short-term relief but fail to address the underlying environmental conditions that support mosquito proliferation<sup>8</sup>. Lahore requires sustained and integrated vector-management programs

that prioritize environmental cleanup, proper drainage, solid waste management, and year-round surveillance.

Community awareness is another critical pillar. Many residents remain unaware of symptoms, available preventive tools, or the importance of early diagnosis. Schools, local councils, community health workers, and digital media must be mobilized to deliver consistent health education campaigns<sup>9</sup>. Emphasis on household-level interventions such as removing stagnant water, using bed nets, and installing window screens can significantly reduce transmission.

Strengthening laboratory capacity and rapid diagnostic testing across public and private facilities is essential. Timely case reporting can support early identification of outbreaks and guide targeted vector-control responses. Lahore's healthcare system must also address the irrational use of antimalarials, ensuring

adherence to national treatment guidelines to prevent drug resistance<sup>10</sup>.

Malaria in Lahore is no longer a peripheral concern it is a rising urban health challenge that demands focused, sustainable, and collaborative interventions. With climate change intensifying transmission patterns, the city must adopt long-term strategies that prioritize environmental management, community engagement, timely diagnosis, and evidence-based treatment. Only through integrated and proactive action can Lahore reduce the burden of malaria and protect vulnerable populations from future outbreaks.

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