and development of vaccines and therapeutics. The high degree of genetic diversity observed in Liberian Lassa virus strains included the target sites of most published assays to detect the presence of Lassa virus RNA, underscoring the need to match deployed diagnostic capabilities with available knowledge about the genetic diversity of locally circulating strains. Likewise, this novel information on Lassa virus genetic diversity should be taken into consideration for vaccine design and development of antiviral drugs. Lassa virus strains with novel unique genetic signatures should be incorporated into challenge studies to assess the protective efficacy of Lassa virus vaccine candidates, and into assays that test their susceptibility to antiviral drug candidates identified in screening campaigns.

*Manuela Sironi, *Juan C de la Torre*
Bioinformatics Unit, IRCCS Eugenio Medea, Bosisio Parini, Italy (MS); and Department of Immunology and Microbiology, Scripps Research Institute, La Jolla, CA, USA (JCdlT)
juanct@scripps.edu

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Strengthening diagnosis is key to eliminating malaria in India

The Indian Government has set the goal of eliminating malaria by 2030 in a systematic and progressive way. Although the commitment to a malaria-free India has met with considerable progress, evidenced by the 24% decline in malaria in 2018,[1] new diagnostic challenges are emerging. Early and accurate diagnosis is crucial to attaining the target of a malaria-free India, but malaria diagnosis in India is complicated by the varied distribution of both monoinfection and mixed infections. Microscopy and rapid diagnostic tests (RDTs) are appropriate tools for diagnosis in low-resource settings, and yet they fail to detect low-density and mixed malaria infections that are detected by molecular methods.[2] This poor performance is mainly because of the dominance of one species of malaria parasite over others in mixed infections, since microscopy usually misses the low-density parasitaemic species.[3]

Detection of malaria parasites with deleted *hrp*-2[4] and of afebrile malaria[5] are the most recent challenges for the malaria elimination programme in India. Most people with afebrile malaria do not seek diagnosis and treatment, and ultimately serve as a reservoir for malaria, unknowingly transmitting it to others. To identify mixed infections, low-density parasitaemia, and infections from *hrp*-2-deleted parasites, new diagnostic devices or devices with improved sensitivity are greatly needed.[6] Additionally, in remote areas, microscopists often do not manage to identify different stages of the malaria parasites in blood smears because of inadequate training and insufficient experience. Studies report that more than a quarter of malaria cases are missed by microscopy.[7] However, microscopy-based identification can be improved by the development and use of locally annotated databases of images of the malaria parasite, with platforms using machine learning algorithms such as ParaSight. Moreover, new point-of-care diagnostic devices should be validated to strengthen the diagnosis of malaria in remote or tribal areas, such as the recently developed, battery-operated magneto-optical device, and the DNA aptamer-based device. Using such devices will improve diagnosis and delay the development of drug resistance. Furthermore, RDTs are susceptible to high temperature and humidity. In India, the temperature can rise to 45°C or more in the malaria preparatory months (May–June) in endemic areas of the country. The transport, storage, and use of RDTs in high-temperature and high-humidity settings might affect their performance. The poor performance of RDTs is mainly due to damage to nitrocellulose membranes, bound monoclonal antibodies, and environmental temperatures.[8]

Most cases of malaria in India are reported from villages in rural and tribal regions, but awareness about malaria is inadequate among tribal communities. Villagers first approach traditional healers and informal health service providers for fever examination, which delays the correct diagnosis and treatment of malaria.[9] Around 40% of malaria cases are managed by the community health worker, known as the Accredited Social Health Activist (ASHA). However, the ASHAs are overburdened by other health-care tasks, and malaria is low on their list of priorities. Periodical training and assessment of ASHAs in every district could play a pivotal role in malaria elimination programmes. Moreover, to effectively contain the spread of malaria by increasing the penetration of diagnostic and treatment facilities in tribal communities, mobile malaria clinics should be established at weekly markets in India, where people with symptoms of malaria could undergo on-the-spot diagnosis and treatment.

The implementation of the test, treat, and track strategy has resulted in the capture of most cases of malaria by active and passive surveillance, but poor drug compliance has emerged as a new implementation problem. Poor drug quality and compliance could lead to the development of drug resistance, and awareness programmes about dose compliance might prove effective in delaying antimalarial drug resistance.[10] The medical community should not forget that India managed to come close to malaria eradication in the early 1960s, but malaria re-emerged as a major public health problem because of negligence and inadequate management. Therefore, malaria should be countered with full force to achieve the desired success this time. To identify, articulate, prioritise, and respond to the research needs of the country's goal to eliminate malaria, the Indian Council of Medical Research has formed Malaria Elimination Research Alliance India,[11] which uses unique cooperation between the public, private, and non-profit sectors to bring simple solutions to complex diagnostic challenges.

The attainment of malaria elimination will certainly depend on a strong political commitment and the integrated use of a combination of diagnostic tools to test and treat malaria patients; strengthening malaria diagnosis is key to the success of the malaria elimination programme.

*Shrikant Nema, Anil Kumar Verma, *Praveen Kumar Bharti*
Division of Vector Borne Diseases, Indian Council of Medical Research, National Institute of Research in Tribal Health, Jabalpur, 482003, India
saprapbs@yahoo.co.in

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Encouraging AWaRe-ness and discouraging inappropriate antibiotic use—the new 2019 Essential Medicines List becomes a global antibiotic stewardship tool

WHO's Essential Medicines List (EML) in 2017 provided guidance on antibiotic use for common clinical infections and classified the included antibiotics into Access, Watch, and Reserve (AWaRe) groups. Antibiotics in the Access and Watch groups were selected on the basis of their indication as first-choice or second-choice treatments, spectrum