Rwanda Biomedical Centre
Healthy People, Wealthy Nation

Rwanda Launches Integrated Malaria Genomics Surveillance Platform

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Today, the Rwanda Biomedical Centre (RBC) launched a national integrated malaria genomics surveillance platform, supported by a three-year grant from the Gates Foundation. Marking World Malaria Day 2026 under the theme *"Driven to End Malaria. Now we can. Now we must,"* this initiative reinforces Rwanda's leadership in precision public health by embedding advanced molecular surveillance into routine health systems, from the community to the national level.

The initiative aims to establish a routine, national malaria surveillance system, to enable early detection and continuous monitoring of diagnostic and drug resistance markers. This platform will generate high-quality evidence to inform national policies on malaria diagnostics, treatment, and control.

Building on more than three decades of Rwanda's community health program, the platform leverages a nationwide network of Community Health Workers (CHWs) to deliver real-time, high-resolution surveillance. Implementation is underway across all 30 districts, with 30 sentinel sites and 60 villages (two per sentinel), alongside planned expansion to 30 private health facilities in each district. This integrated model links community-level data collection with centralized genomic analysis, enabling rapid detection of transmission dynamics and emerging resistance patterns.

"The integration of genomic surveillance into Rwanda's routine health system represents a paradigm shift toward precision public health interventions. By linking community-level epidemiological intelligence with high-resolution molecular data, we are strengthening our capacity to detect and respond to evolving malaria threats in near real time. Importantly, this platform enables continuous monitoring of therapeutic efficacy, including emerging resistance to artemisinin combination therapies such as artemether-lumefantrine, driven by genomic changes in Plasmodium falciparum, and supports the optimization of Rwanda's multiple first-line therapy (MFT) strategy. This approach establishes a sustainable foundation for integrated, multi-pathogen surveillance in Rwanda and beyond." Said **Prof. Claude Mambo Muvunyi, Director General, RBC.**

The program also represents a major investment in national capacity. A total of 60 CHWs, 90 laboratory technicians, and 10 laboratory scientists at regional hubs alongside central level program staff will be trained and equipped with the necessary skills to implement integrated surveillance. Additionally, four Master's students, one PhD candidate, and one postdoctoral researcher will be supported to advance expertise in genomic epidemiology.

Beyond malaria, this initiative establishes a scalable model for integrated, multi-disease surveillance. The infrastructure, workforce, and digital systems developed will serve as a foundation for expanding genomic surveillance to other priority diseases, including emerging and re-emerging infectious disease. Rwanda's approach underscores the strategic value of resilient, data-driven health systems in strengthening national, regional, and global health security.

The RBC calls on development partners, research institutions, and private-sector stakeholders to collaborate in scaling this model across disease areas. By aligning investments with Rwanda's integrated surveillance vision, partners can accelerate innovation, strengthen preparedness, and expand equitable access to advanced public health tools.

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