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‘INDIA MUST SCALE SEQUENCING TO UNDERSTAND VIRUS VARIANTS’

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Collecting, analysing and sharing genomic data is essential to an evidence-based and science-driven response, says Manisha Bhinge, managing director, GNP, The Rockefeller Foundation

NEW DELHI : The threat of existing covid variants and the risk of emerging ones loom, reinforcing the need for robust genomic sequencing to boost pandemic management. As the country ramps up preparedness to investigate the role of variants and their symptomatology, Manisha Bhinge, global networks and partnerships, Pandemic Prevention Institute, Health Initiative, at The Rockefeller Foundation, spoke about the importance of genomic sequencing in combatting current and future health emergencies.

Edited excerpts from the interview:

How important is it for countries to continuously monitor variants and understand the emerging genomic epidemiology?

Genomic sequencing is a crucial part of every country’s approach for detecting and containing outbreaks of other pathogens. In India and around the world, the rapid spread of SARS-CoV-2 and the emergence of new variants made clear how important it is to be able to collect viral samples, sequence them and share that information nationally and regionally so that there is a clear, accurate real-time picture of how a pandemic is moving, how the pathogen is changing and the effectiveness of mitigation and countermeasure strategies that save lives.

Collecting, analyzing and sharing genomic data, is essential to an evidence-based and science-driven response. Genomic sequencing is also instrumental in developing vaccines, diagnostics, and therapeutics as it helps track and analyze circulating strains and informs research and development.

What are the gaps or limitations in the overall pathogen genomic sequencing ecosystem that India needs to address to strengthen pandemic preparedness and protect itself from future threats?

India has done a phenomenal job in strengthening its genomic ecosystem. Since its inception in December 2020, the Indian SARS-CoV-2 Consortium on Genomics (INSACOG) has grown rapidly from 10 labs to a network of 28 labs and 300 and more sentinel sites. Since December 2020, the collaborative has sequenced over 65,000 SARS Co-V2 genomes.

Much progress has been made—and there is still much work that needs to be done. The Indian government has shown the will and commitment to invest in infrastructure. Investments in skilled human resources—trained staff who can support collection, sequencing analysis and sharing of genomic and metadata—is also key. With its geographic and socio-economic heterogeneity, India needs to scale sequencing by volume and across geographies to understand exactly where and how the virus is changing.

For a well-informed pandemic response, translation of science to policy is important. What are some ways to ensure stakeholders can leverage genomic insights adequately to

inform public health and public policy measures?

To accelerate the discovery of variants and drive real-time decision-making around treatment, testing strategies, mitigation measures, there needs to be effective integration of genomic data/insights with clinical and epidemiological data as well as relevant metadata. In India, efforts enabling greater data integration will enhance and activate timely and actionable engagement channels between public institutions, resulting in science-driven and data-informed public health decision-making.

In addition to making the genomic data more meaningful, there is also a need to make it more accessible. Since the onset of the covid-19 pandemic, scientists in India, through an open letter to the Prime Minister, have highlighted the limited access to genomic data. Responsible data sharing through a structured and open data ecosystem could help address accessibility challenges.

How can India build sustainability and long-term capacity for genomic sequencing for public health outcomes in India?

Financing is one of the biggest challenges to the sustainability of any scientific endeavour. Building a clear and compelling investment case, identifying key donors and integrating operating costs to support genomic surveillance systems into national public health budgets is crucial to long term sustainability. This would help create core funding opportunities, and with adequate funding, we can hope that genomic sequencing becomes part of the mainstream public health ecosystem, not just during emergency periods.

Historical evidence also highlights that forging relevant and adequate partnerships across sectors, such as engagement with philanthropy or CSR to harness innovations or help address market failures can play a substantial role in unlocking a comprehensive response and preparedness strategy in the country. Lastly, integration of national disease surveillance platforms to global systems will ensure deep coordination with a broader ecosystem focused on accelerating detection and response of emerging infectious diseases and pathogens or pandemic potential.

How is The Rockefeller Foundation working towards complementing India's efforts in genomic sequencing? What does it hope to achieve vis a vis its work in India in the near future?

We recognize that reliable genomic surveillance capacities will be instrumental in accelerating timely analysis and inform response measures to keep countries one step ahead. Globally, the Foundation is working to help strengthen global capabilities to detect and respond to pandemic threats. For this, it is working alongside a coalition of organizations to build a pandemic prevention institute that aims to use data insights to help contain any potential pandemic threat within 100 days of an outbreak.

In India, we are supporting a coalition of organizations led by the CSIR-Centre for Cellular and Molecular Biology (CCMB), and part of the national INSACOG alliance. We are also keen to engage more closely with important stakeholders across government, industry, scientific and public health sectors to strengthen institutional capacities to genomic data and develop actionable insights against pathogen outbreaks in India.

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