GENOMIC SEQUENCING ADVOCATES NETWORK

OPEN LETTER TO THE INTERGOVERNMENTAL NEGOTIATING BODY TO STRENGTHEN PANDEMIC PREVENTION, PREPAREDNESS AND RESPONSE

In the last decade, pathogen genomic sequencing technologies have assumed a fundamental role in infectious disease detection and response. Undoubtedly, advanced genomic sequencing techniques have provided valuable information on the biology and evolution of SARS-CoV-2, the causative agent of COVID-19.

Never before have scientists, public health experts, and policymakers considered so closely the nearly 30,000 nucleotides that make up the genetic material of a virus that has threatened humanity. Yet still, despite the known risks of an insufficient response to a rapidly evolving pandemic, the use and application of SARS-CoV-2 genomic surveillance has not been homogeneous around the world, with wide disparities among (and even within) countries.

Genomic sequencing enabled the world to rapidly identify SARS-CoV-2 and its variants of concern Alpha, Beta, Gamma, Delta, and Omicron, both of which proved vital for international COVID-19 preparedness and response. Properly analyzed genomic data can guide countries to make rapid, data-informed public health decisions from the onset of a pandemic, enabling prompt development of diagnostic tests, drugs, and vaccines, and better directing the health response to COVID-19 or future pandemics.

Radical cooperation within and between countries enabled us to promote genomic sequencing as one of the pivotal tools to contain and mitigate the effects of the pandemic. The exchange of know-how, technology transfer, and personnel training made possible the generation and open-access sharing of more than 9.6 million SARS-CoV-2 genomic sequences on the GISAID platform, which has become the most relevant global platform for sharing information quickly. Recognizing that pathogen genomic data are a global public good and a critical component in the fight against pandemics, GISAID provides cost-free access for all.

However, even with all of this progress, the world still needs to be better prepared for emerging pathogens and not simply reactive to their arrival. This open letter stresses 10 key points that we identified while leading national and/or regional genomic sequencing efforts. By issuing this statement, we are joining our voices as experts and advocates in the field to ask the world to be mindful to establish pathogen genomic surveillance as an invaluable asset in the context of the current and future pandemics.

We ask that global conventions, agreements, or other international instruments to prevent, prepare, and respond to future pandemics must:

1) establish global, regional, and national collaborative genomics networks/consortia dedicated exclusively to epidemiological genomic surveillance of emerging pathogens;
2) create inter- and transdisciplinary genomic networks comprising scientists, academics, funding institutions, regional and international agencies, public health experts, and decision-makers;
3) build a centralized network infrastructure into which regions and/or countries deposit metadata, contributing to the standardization of procedures and the availability of complete information on the evolution of pandemics;
4) increase the sustainability of genomic sequencing through representative, standardized, efficient, and effective sampling processes;
5) secure economic resources for genomic sequencing equipment, reagents, training, and the hiring of operational and qualified personnel, based at regional and national need, especially within developing countries;
6) eliminate trade barriers, such as tariffs and importation taxes, on all genomic sequencing equipment, reagents, and other supplies since they should be considered global public health goods and should therefore be universally accessible to all countries;
7) build strategic alliances with networks such as the Global Virus Network and the Africa Pathogen Genomics Initiative, which allow for the exchange of experiences and information on processes and best practices implemented worldwide;
8) eliminate punitive actions against countries reporting the emergence of new variants of concern, such as those to which several southern African countries were subjected after reporting the first Omicron cases;
9) urge the Global Fund to Fight AIDS, TB and Malaria to expand its mandate to include emergency funding for other infectious disease outbreaks and pandemics, especially investments in genomic sequencing, to achieve greater impact and reduction in collateral damage to the global economy by pandemics;
10) incorporate genomic sequencing as a fundamental element of the new international agreement for pandemic prevention, preparedness, and response.

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