Genomic Surveillance Strategy

For pathogens with epidemic or pandemic potential

8 December 2021
Genomic surveillance

COVID-19 demonstrated the critical role of genomic surveillance.

Genomic surveillance is used to monitor the evolution and circulation of pathogens and understand public health implications.

Sequencing and bioinformatics are rapidly evolving technologies: the next frontier in pathogen surveillance.

Countries can use genomic surveillance in their end-to-end systems for early pandemic & epidemic detection and response.
Gains made in 2021

Sharing SARS-CoV-2 genetic sequence data

- In September 2021, 124 Member States (64%) shared sequencing data through a public mechanism.

- Since December 2020, there has been an increase of 45 Member States, a 57% increase in 10 months.
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Constraints: timely geographically representative quality data

Data source: GISAID
Challenges exist

Access and equity
Capabilities
Analysis and technical fragmentation
Connectivity and information sharing
Sustainability and scalability
Global recommendations

IHR Emergency Committee for COVID-19 (2021)
- January
- July
- October
   called for State Parties to strengthen genomic surveillance strategies, including timely and representative genomic surveillance data.

Independent Panel for Pandemic Preparedness and Response report to the 74th World Health Assembly (May 2021)
- Recommended regular funding for the delivery of specific global public goods including genomic sequencing as part of pandemic preparedness.

World Health Assembly Resolution 74.7 (May 2021)
- “Urges Member States to increase their capacity to detect new threats, including through laboratory techniques, such as genomic sequencing.”
Global genomic surveillance strategy for pathogens with pandemic and epidemic potential

Countries have different objectives, capacities, capabilities and use cases for genomics.

WHO is developing the strategy recognizing the landscape and to ensure interoperability for global surveillance objectives.

Unifying high-level framework
Country-focused
Pathogen agnostic
Builds on partnerships & existing capacities
Fills gaps and addresses barriers
Embeds in broader surveillance architecture
Provides ‘intelligence’ for public health action
WHO Consultation on the Global Genomic Surveillance Strategy for Pathogens with Pandemic and Epidemic Potential

8 December 2021 13:00 – 16:30 CET

Member States, national health authorities, donors and partners including international organizations, academia, industry and civil society are invited to join a consultation on the development of the global genomic surveillance strategy for pathogens with pandemic and epidemic potential.

In May 2021 WHO Member States adopted Resolution 74.7 urging countries to increase their capacity to detect new threats including through laboratory techniques, such as genomic sequencing. As waves of COVID-19 disease transmission continue, there is global impetus to strengthen genomic surveillance and real-time tracking of pathogens with pandemic and epidemic potential as a key component of public health intelligence for decision making and action.

Recognizing the global momentum and clear need for stronger cross-cutting pathogen sequencing and bioinformatics, WHO is coordinating the development of the global strategy. The strategy aims to provide a high-level vision to strengthen and scale genomic surveillance for quality, timely and appropriate public health actions in local to global systems.
Strategy outline

Introduction

Target audience

Results hierarchy
  • Goal
  • Objectives
  • Strategic actions

Implementation approach
  • Principles
  • Enabling factors for implementation

References

Annexes
  • Annex 1: Key WHO assets for the strategy
Global strategy results hierarchy

Goal

Genomic surveillance is strengthened and scaled for quality, timely and appropriate public health actions within local to global surveillance systems

Objectives

Objective 1
Improve access to tools for better geographic representation

Objective 2
Strengthen the workforce to deliver at speed, scale and quality

Objective 3
Enhance data utility for streamlined local to global public health decision-making and action

Objective 4
Maximize connectivity for timely value-add in the broader surveillance architecture

Objective 5
Maintain a readiness posture for emergencies

Strategic actions

- Map and monitor capacity landscape
- Deliver contextualized technology and innovation solutions
- Stimulate innovation and research to address local to global needs
- Shape a sustainable and quality market to maximize access

- Training packages in genomics and bioinformatics
- Promote community of practice to disseminate & share good practices
- External quality assurance programs for genomics and analytics
- Knowledge exchange to build or strengthen capacity

- Meta data standards
- Data sharing principles
- Data sharing agreements
- Harmonized protocols, norms, standards and reference materials

- Facilitated data, specimen and information sharing
- Increase network linkages at local, regional and global levels
- Targeted collaboration with One Health partners

- Surge exercises to test systems
- Joint projects for maintaining capabilities and capacities
- After action reviews following events to assess & address lessons learnt
From strategy to implementation

Actions
- Country
- Regional
- Global

Principles
- Country-centered
- Value for money
- Sustainability
- Joint responsibility
- Local to global thinking

Enablers
- Building on existing assets
- Leadership
- Partnerships and networks
- Financing
- Monitoring and evaluation
Cross-cutting approach

Strategy encourages countries to strengthen cross-cutting genomic surveillance capacities to support all vertical priority disease ‘use cases.’
Request for engagement

1. Encourage stakeholder participation in global strategy development:
   • Submit online feedback on the draft strategy by 15 Dec

2. Consider role of genomic surveillance in country preparedness & response:
   • Review within national strategies
   • Work plan with WHO Country Office (e.g. GPW13 Output 2.2.1)

3. Support global and other country efforts using existing strengths:
   • Address acute SARS-CoV-2 needs for timely geographically representative data availability
   • Engage in strategy roll out
Thank you

For more information or to engage in the strategy development, contact country or regional offices, or email pathogengenomics@who.int

To see the consultation webinar: click here