Genomic Surveillance Strategy

For pathogens with epidemic or pandemic potential

25 November 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.
SARS-CoV-2 Genomic Surveillance ‘Use Case’

Track virus evolution and circulation

Assess for public health risks ‘VOI/VOC’
- Increased transmissibility
- More severe clinical course
- Failed diagnostic detection
- Escape to natural/vaccine-derived immunity
- Decreased susceptibility to therapeutics

Update countermeasures when needed
- Vaccine composition
- Diagnostic assays
- Therapeutics
- Public health & social measures
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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Dotted and dashed lines on maps represent approximate border lines for which there may not yet be full agreement.


Data Source: World Health Organization

Map Production: WHO Health Emergencies Programme

Request ID: COVID19_45
Monitoring SARS-CoV-2 virus circulation in last 60 days: timely geographically representative data remain limited.
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, the need for global coherence to best support countries in their surveillance objectives, 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
Global strategy: goal and objectives

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

**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

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

**Objective 5**
Maintain a readiness posture for emergencies
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.’
Strategy development – 2021/22

6th IHR Emergency Committee

Scoping consultations (ROs, HQ programmes global partners)

Landscape mapping & drafting

Mission briefing (25 Nov)

Review and finalization

9th IHR Emergency Committee

Next Global consultation & public comment on strategy (8 Dec)

Strategy launch (1st week Mar)

19th March Global workshop on enhancing sequencing for SARS-CoV-2
Providing quality molecular epidemiology intelligence for use by country, regional and global stakeholders

1. Encourage stakeholder participation in global strategy development:
   - Join global consultation (8 Dec)
   - Submit online feedback on consultation draft of the strategy (1 - 15 Dec)

2. Consider role of genomic surveillance in country preparedness & response:
   - Review within national strategies
   - Strengthen capacities: 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