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Genomic Surveillance Strategy

For pathogens with epidemic or pandemic potential

8 December 2021

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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.

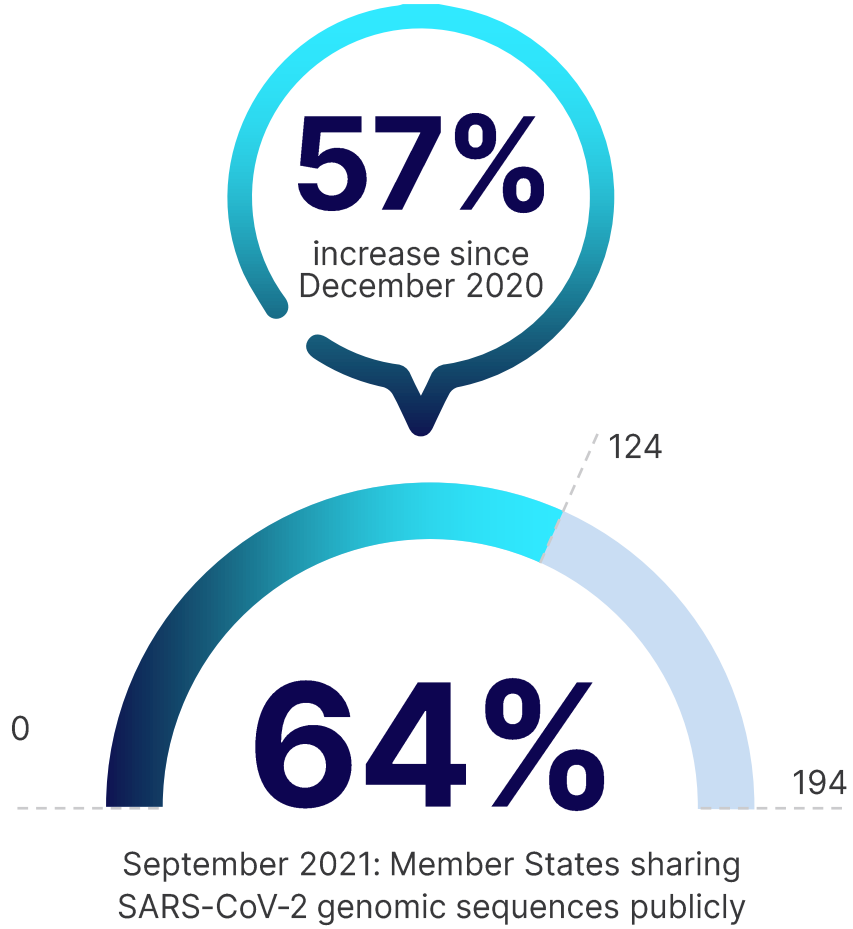
Sequencing and bioinformatics are rapidly evolving technologies: the next frontier in pathogen surveillance.

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.**



September 2021: Member States sharing SARS-CoV-2 genomic sequences publicly

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SARS-CoV-2 sequencing capability

11%
increase in March to October 2021

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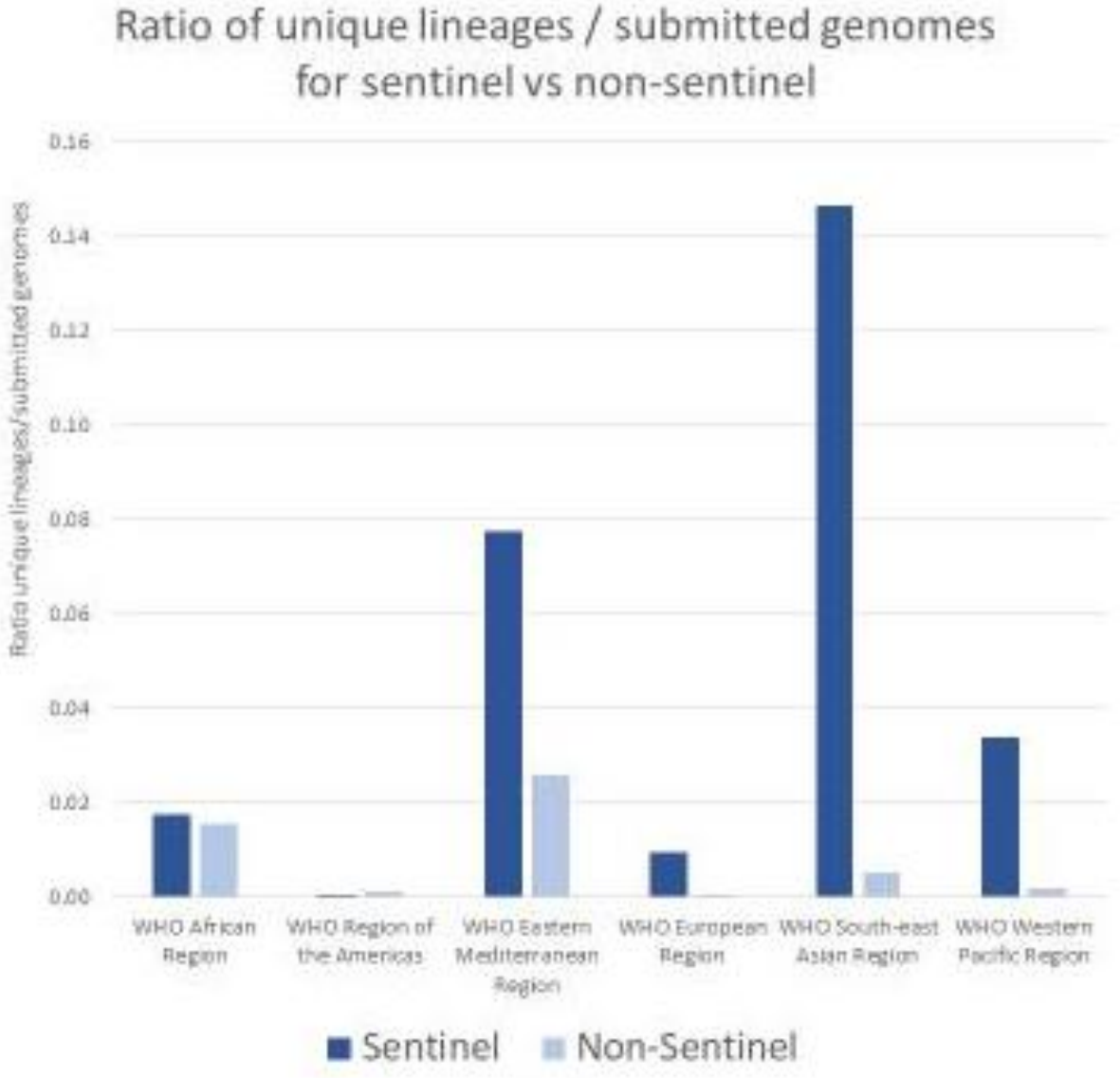
[1] All references to Kosovo in this document should be understood to be in the context of the United Nations Security Council resolution 1244 (1999).

Data Source: World Health Organization
Map Production: WHO Health Emergencies Programme
Request ID: COVID19_45

Constraints: timely geographically representative quality data

Countries with submissions marked sentinel surveillance
(From 2021-07-01)



Data source: GISAID

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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.”

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Way forward

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

Strategy: consultation and feedback (online form till 15 December)

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.

Related

Draft Strategy for Consultation:
Download here

Provide feedback on the draft strategy:
Online form

WHO Consultation on the Global Genomic Surveillance Strategy for Pathogens with Pandemic and Epidemic Potential

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	Strategic actions
Objective 1 Improve access to tools for better geographic representation	• **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 acces**
Objective 2 Strengthen the workforce to deliver at speed, scale and quality	• 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
Objective 3 Enhance data utility for streamlined local to global public health decision-making and action	• **Meta data** standards • **Data sharing** principles • **Data sharing** agreements • **Harmonized** protocols, norms, standards and reference materials
Objective 4 Maximize connectivity for timely value-add in the broader surveillance architecture	• **Facilitated data, specimen and information sharing** • **Increase network linkages** at local, regional and global levels • Targeted collaboration with **One Health partners**
Objective 5 Maintain a readiness posture for emergencies	• **Surge exercises** to test systems • **Joint projects** for maintaining capabilities and capacities • **After action reviews** following events to assess & address lessons learnt

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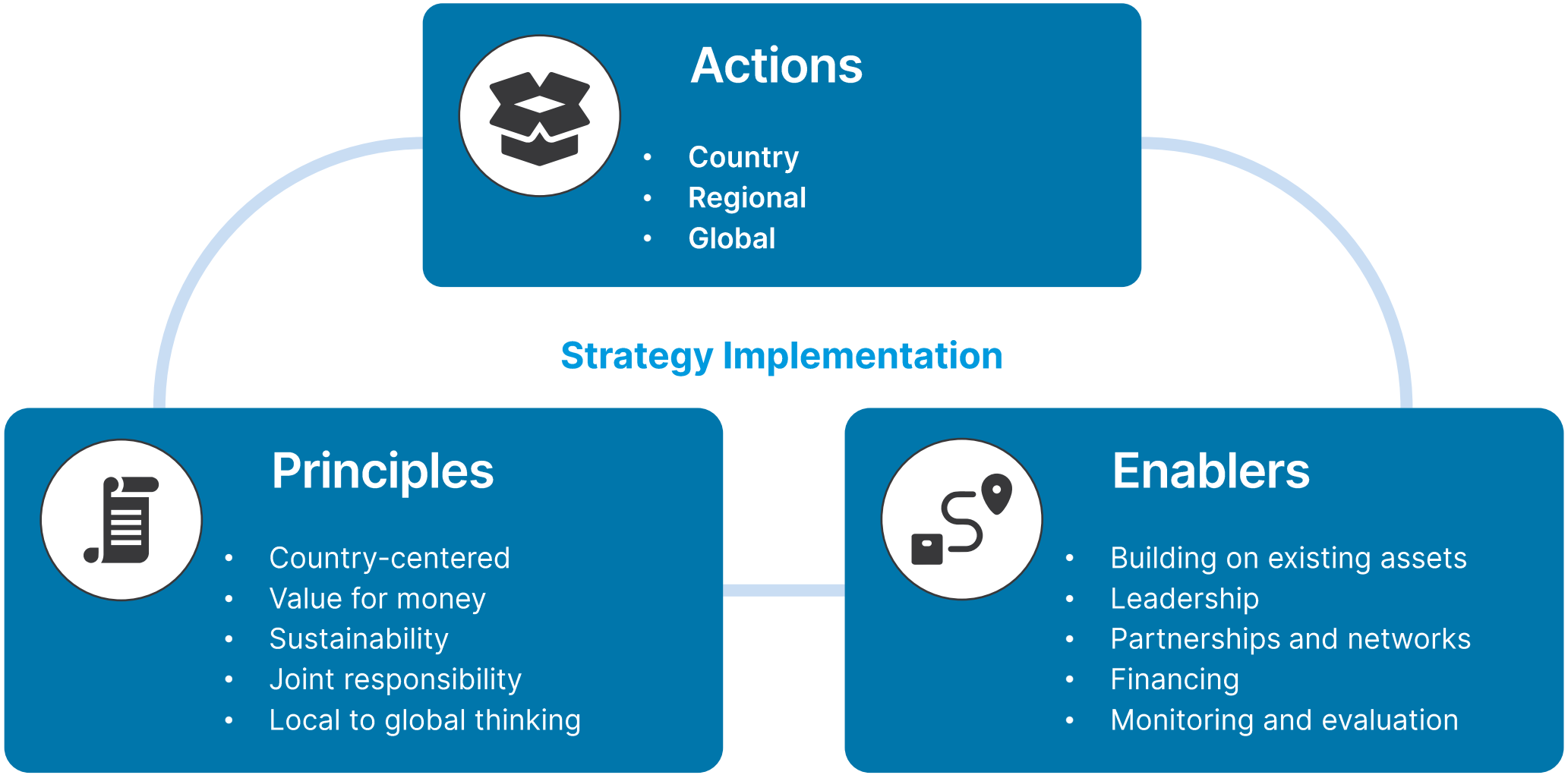
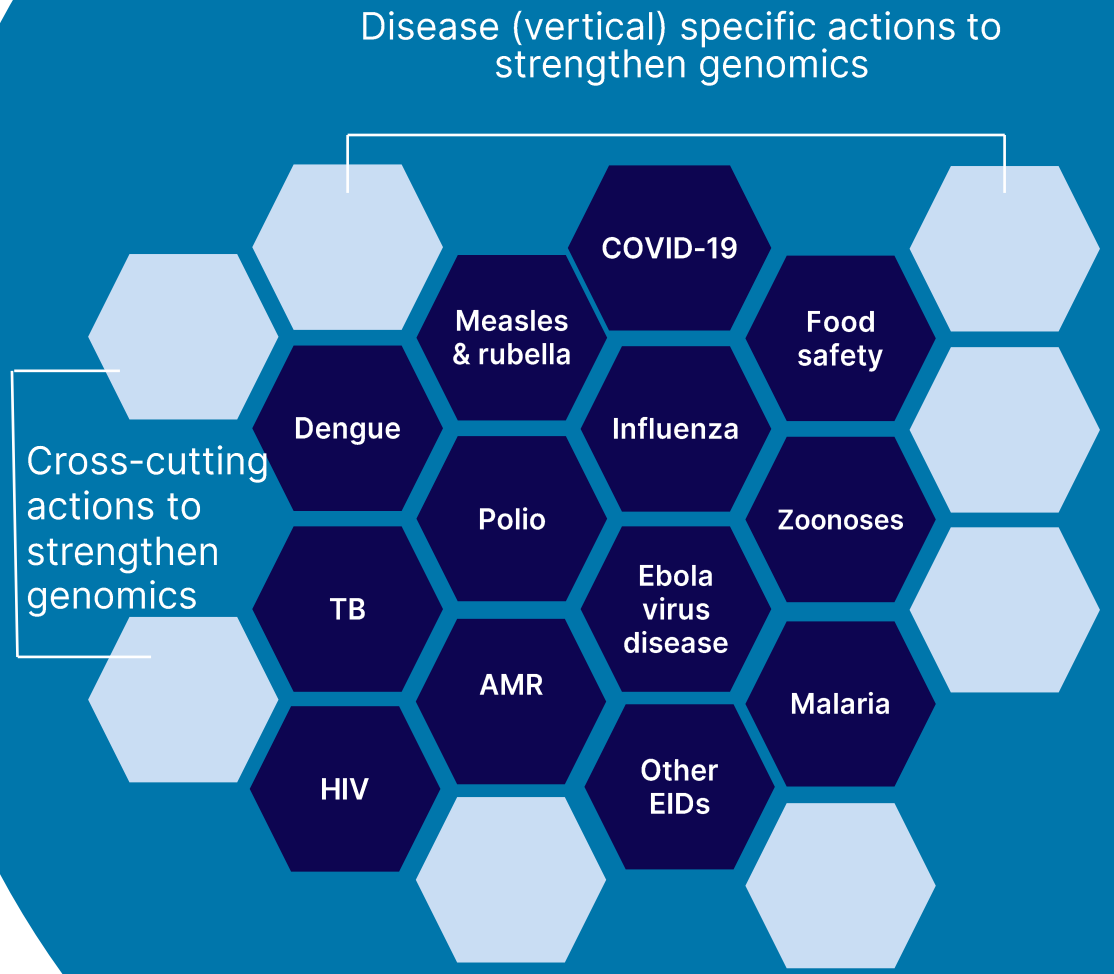
From strategy to implementation

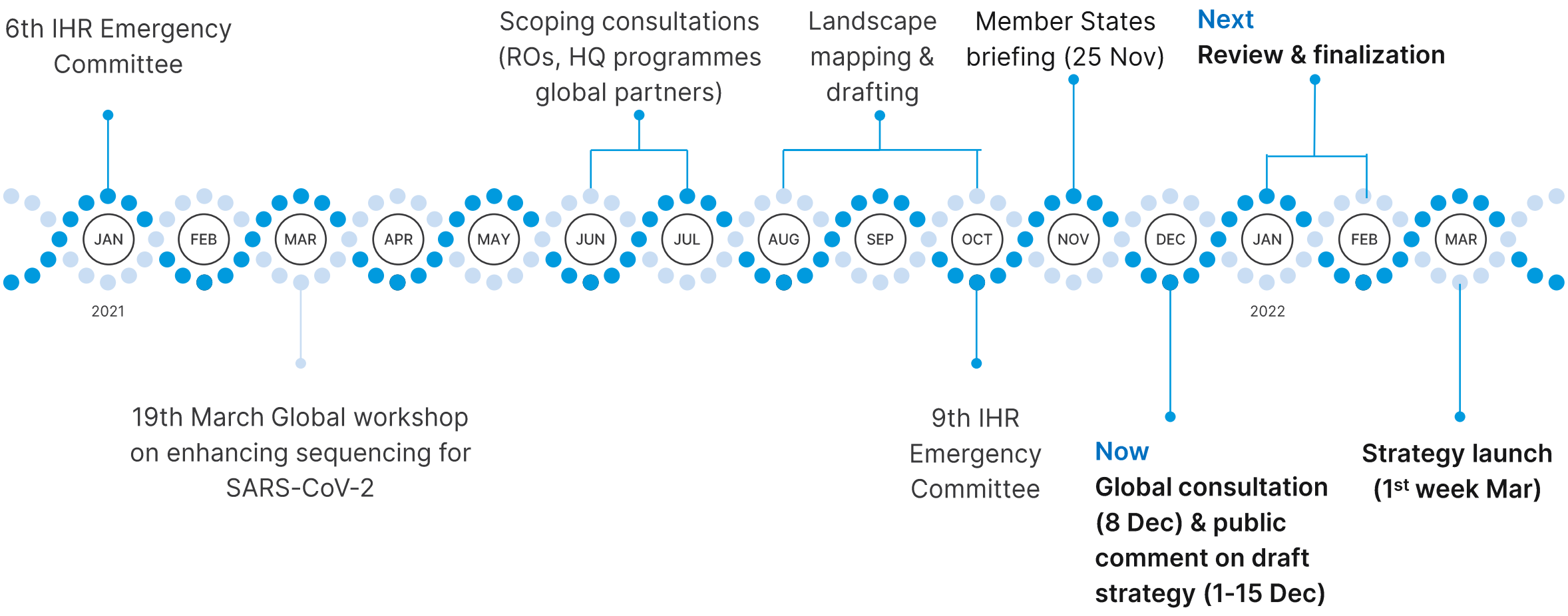


Cross-cutting approach

Strategy encourages countries to strengthen cross-cutting genomic surveillance capacities to support all vertical priority disease 'use cases.'



Strategy development – 2021/22



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

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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