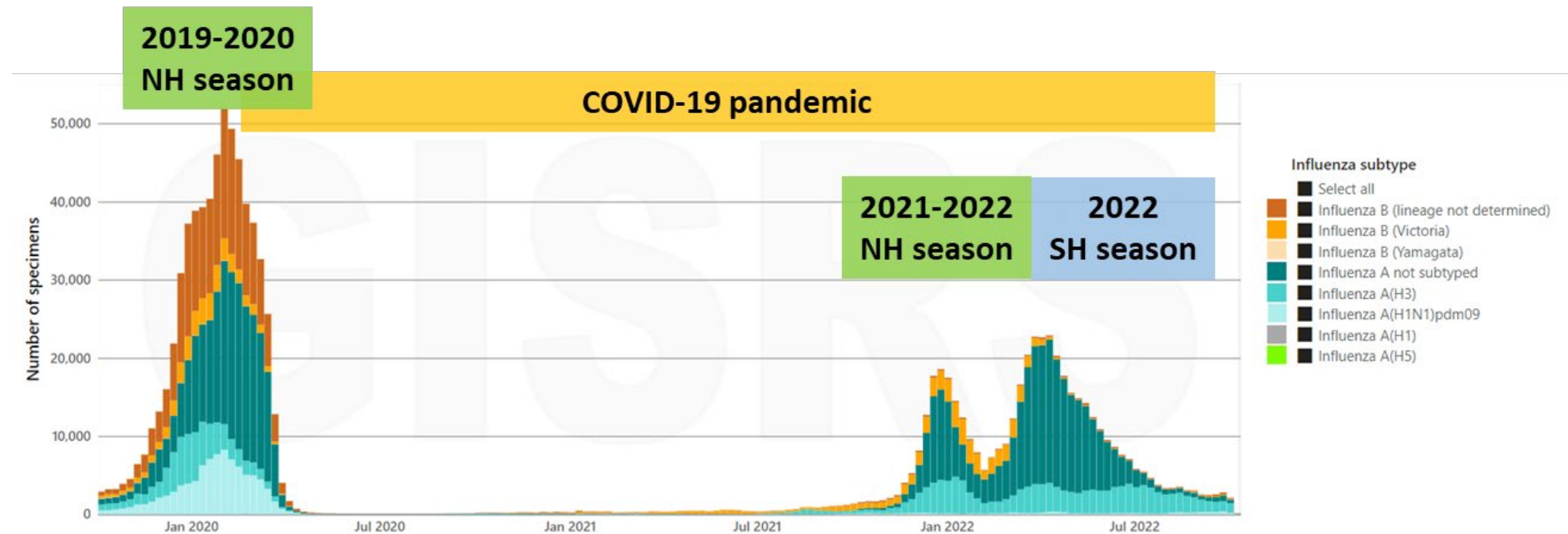


Preparing for the Upcoming Influenza Season & Expanding the Global Influenza Surveillance and Response System (GISRS)

Dr Wenqing Zhang

Global Influenza Programme, WHO
27th October 2022

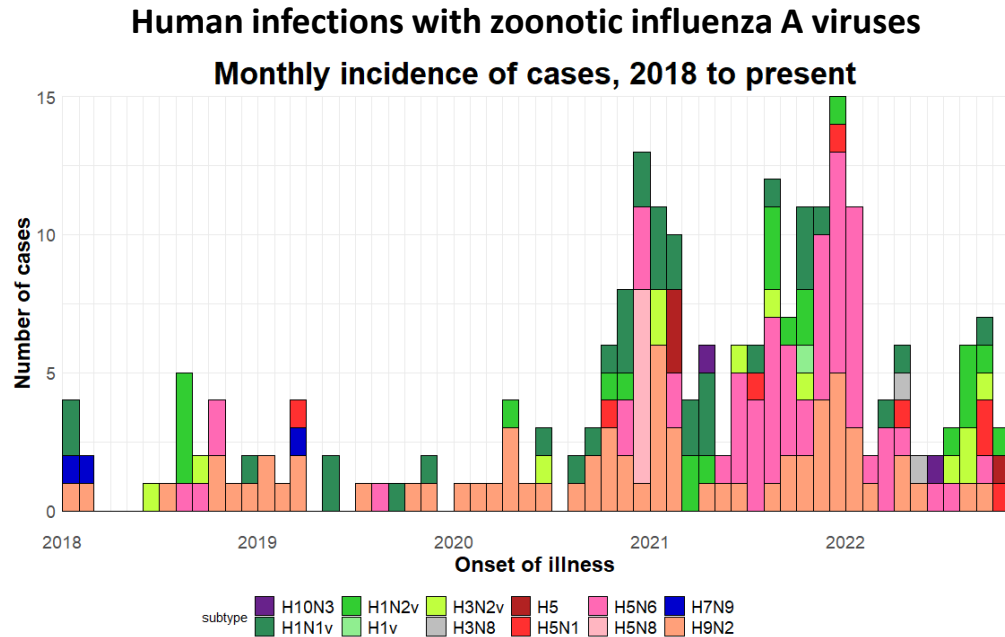
Seasonal influenza - epidemics coming back



Observations from the Southern Hemisphere 2022 season:

- Influenza epidemics varied in timing and severity among countries, also in comparison with previous seasons
- Overall influenza activity picked up again often to levels of pre-COVID pandemic (or even higher)

Avian influenza – continuous human infections



Throughout the COVID-19 pandemic:

- Zoonotic influenza infections **continue to be detected**
- Avian influenza viruses evolved and spread
 - China, **first human infections** with A(H3N8) and A(H10N3) subtypes
 - Russian Federation, **first human infections** with A(H5N8) subtype
 - UK and USA, human infections of A(H5N1) subtype **reported for the first-time**

Signals of the threat of an influenza pandemic persisting throughout the COVID-19 pandemic. Countries should never let down alert to such threat and **strengthen preparedness** for an influenza pandemic

Protecting from influenza: *Influenza vaccines*

- Influenza viruses **constantly evolving**, the composition of vaccines needs to be updated periodically in order for the vaccines to be effective
- **WHO issued recommendations*** on the composition of influenza vaccine for use in the 2023 Southern Hemisphere season on 23rd September 2022
- **Safe and effective** vaccines are available and have been used for more than 60 years
- Immunity from vaccination wanes over time so **annual vaccination** is recommended**
 - **High risk groups** for vaccination (not in priority order): healthcare workers, people with underlying medical conditions, older adults, pregnant women and children
 - Inactivated influenza vaccine can be **coadministered** with any dose of COVID-19 vaccine using the contralateral limb for injection

Healthcare workers



Individuals with comorbidities



Pregnant women



Older adults



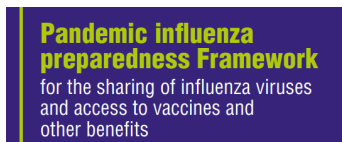
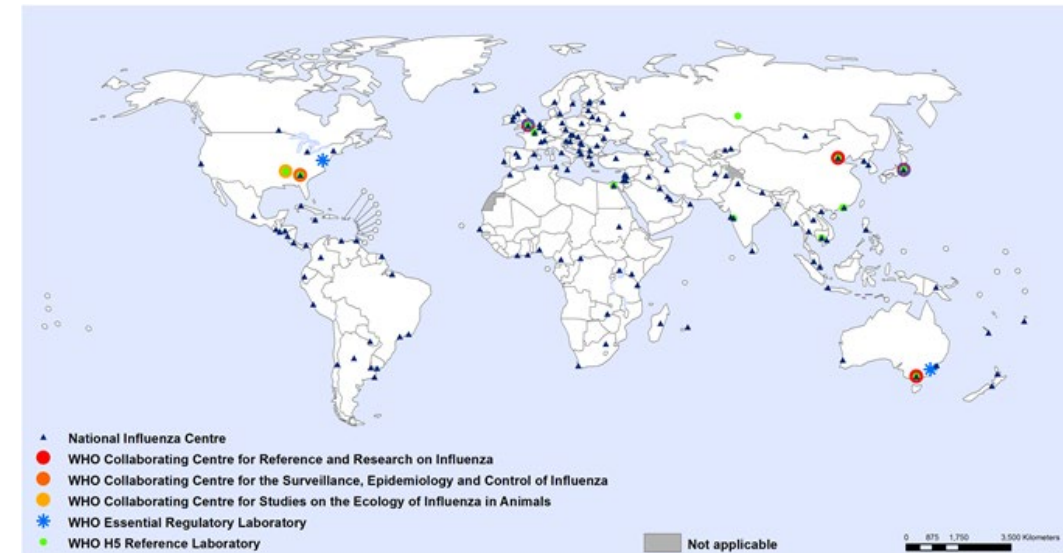
* https://cdn.who.int/media/docs/default-source/influenza/who-influenza-recommendations/vcm-southern-hemisphere-recommendation-2023/202209_recommendation.pdf

** <https://www.who.int/news/item/01-06-2022-who-issues-updated-influenza-vaccines-position-paper>

GISRS: a global network to protect the world against influenza threats

Global Influenza Surveillance and Response System (GISRS)

- The global **foundation** for influenza surveillance, preparedness and response
- Global **public health model** for **70 years**
- Currently 158 institutions in 124 Member States
- **Institutionalized & functioning capacity** in countries
 - Laboratory & disease surveillance integrated
 - Response mechanisms exercised very season in epidemics
 - Enormous commitment from *Member States* and support from international *agencies & partners*



GISRS scope is **systematically** expanding

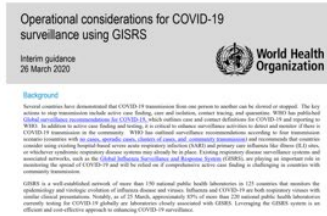
- Since 1952: seasonal influenza
- Since 1997: **+** avian influenza, **variant/swine** influenza, **pandemic** influenza



New subtypes, new genetic & antigenic variants

- Since 2015: **++** RSV
- Since 2020: **+++** SARS-CoV-2

115 countries so far



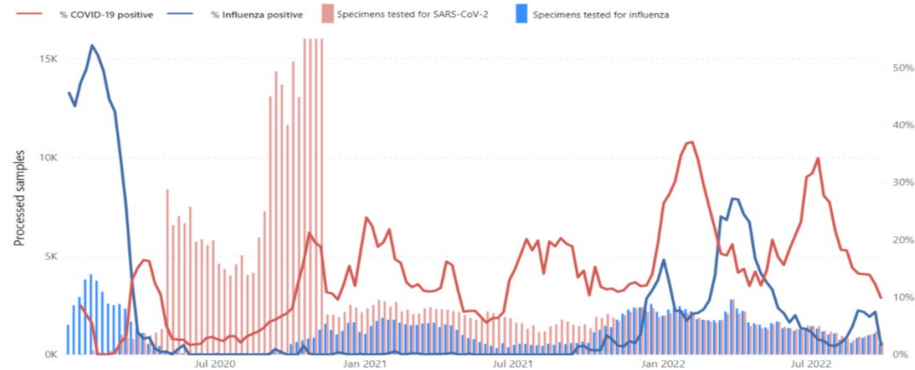
- Standardized algorithm
- Quantitative guidance
- Standardized tools

GISRS integrated surveillance of Influenza & SARS-CoV-2

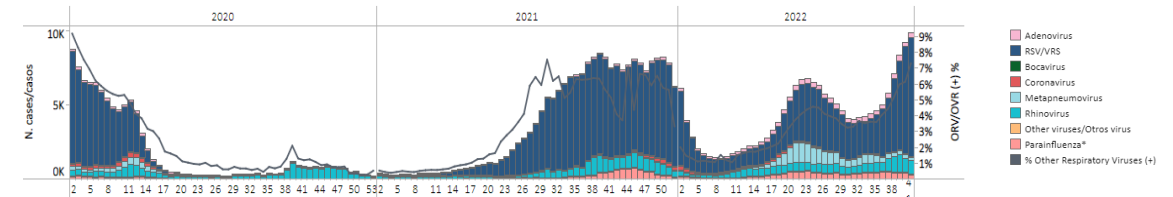
GISRS integrated surveillance*

- monitoring **co-circulations** of respiratory viruses

- Monitor **relative (co-)circulations** of types/subtypes, lineages/sub-lineages of viruses locally and their relationship to global and regional patterns



<https://www.who.int/teams/global-influenza-programme/influenza-covid19>



http://ais.paho.org/phil/viz/ed_flu.asp

- Describe the **epidemic seasonality** of influenza and SARS-CoV-2 where relevant
- Monitor **evolution** of the viruses and their **prevalence globally**
- Establish **baseline** levels of activity for illness and severe disease to evaluate the **relative impact & severity**
- Detect **signals** of **unusual activity** associated with known or novel viruses

Early detection of cases for isolation, clinical diagnostics, contact tracing, quarantine and rapid control of clusters and outbreaks are not the primary objectives of sentinel surveillance systems

Complexities arising from COVID-19 pandemic

- Increasing global interest in **pan-respiratory or all hazards** preparedness and response
 - Multiple actors are looking into **integrated approaches** to epidemic /pandemic threat of respiratory viruses
- The development of *parallel systems* for surveillance compete for country focus and finances with GISRS, **can undermine** the GISRS effectiveness
- Countries need coordinated and sustainable approaches to surveil respiratory viruses of public health significance



Broad engagement to inform the GISRS enhancement

- Scoping exercise for an expanded & enhanced GISRS
 - GISRS questionnaire to National Influenza Centres, WHO Collaborating Centres, and epidemiologic focal points (Jul - August 2021)
 - Decision WHA73(14) questionnaire to Member States, industry, Civil Societies Organizations (Jul - Sept 2021)
 - Discussions with Directors of WHO Collaborating Centres and Essential Regulatory Laboratories (Aug 2021, Feb & Sept 2022)
 - Discussions with GISRS (Oct 2021, Sept 2022)
- Member State feedback during EB150 (Jan 2022) and WHA75 (May 2022)
 - Secretariat report on influenza preparedness

Member States feedback

- Broad support for **GISRS Plus** from MS across all six WHO regions
 - **Integrated surveillance** should be further explored
 - Influenza surveillance and collaborations should **not be negatively impacted**
 - Influenza surveillance can **benefit from** capacities built during **COVID-19**
 - Inclusion of ORVs should have **clear public health objectives**
- **Access and benefit** of *non-influenza virus* sharing must be thought through transparently
- Specific request for additional information on **technical, financial and administrative** implications of GISRS Plus

Goal of GISRS Plus

- An **efficient global** system of **integrated** surveillance and response to influenza and other priority respiratory viruses with epidemic or pandemic potential.
 - *Priority respiratory viruses are defined as those that:*
 - *are a known **pandemic threat** or are an emerging novel threat of pandemic potential, **Or***
 - *are a known **epidemic threat** where surveillance can directly inform prevention & control*
- And**
- *can be integrated effectively and seamlessly into the existing GISRS operation*

Primary focus: capacity-building at national and regional/global levels for the integrated surveillance of influenza and other respiratory viruses through the existing GISRS system (**infrastructure, workforce, trust and confidence**)

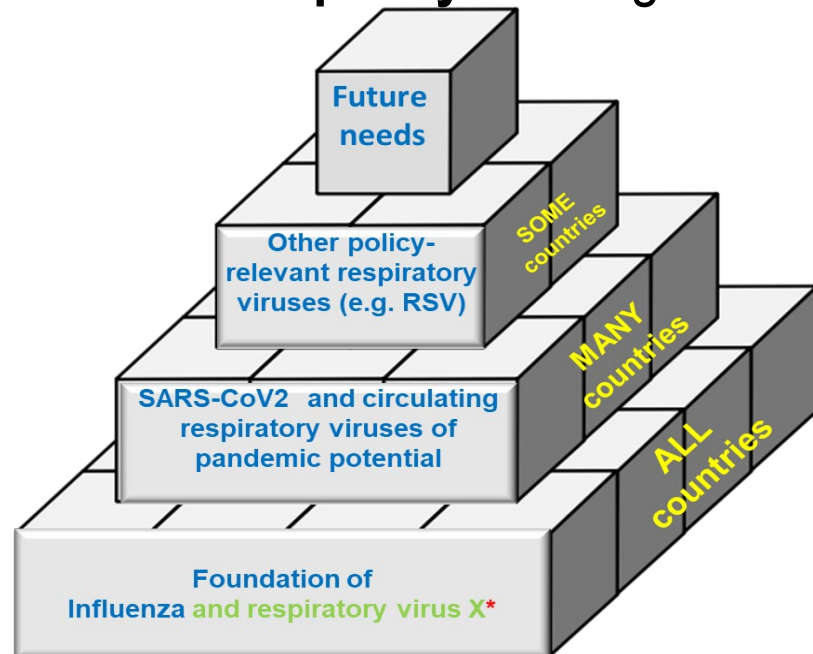
Objectives of GISRS Plus

1. **Integrate sentinel surveillance & monitoring** of influenza, SARS-CoV-2, and other priority respiratory viruses as defined at national, regional, and global levels
2. Build, expand, and enhance **national capacities & capabilities** of end-to-end integrated surveillance
3. Build, expand, and enhance *relevant* **regional & global expertise and capacities**
4. Ensure an effective *global* **coordination mechanism** to support, facilitate and strengthen integrated surveillance and risk assessment; and
5. Strengthen policy, strategy, advocacy and communications efforts to further engage GISRS in the WHO **long-term programmatic goals** to the fullest extent

Modular approach & Operation model

- **Modular approach:**

- Maintain the **influenza foundation**
- **Country priorities** inform actions
- **Quality** over Quantity
- **Broad capacity** building



- **GISRS Operation Model**

- **Broad connections & engagement** with specialized entities



Initial feedback on administrative and financial implications

- Survey conducted on 27 Sept 2022 among National Influenza Centres (NICs) attending a global GISRS meeting
- 22 NICs representing AFRO (7), AMRO/PAHO (1), EMRO (3), EURO (6), SEARO (2), and WPRO (3)
 - Sources of funding: ~ 60% **internal**, 40% **external**
 - Status of integrated surveillance:
 - 22/22 (100%) incorporated **SARS-CoV-2** into GISRS sentinel surveillance
 - 20/22 (91%) incorporated **RSV** into GISRS sentinel surveillance
- New costs related to integrated surveillance

Cost category	No increase	0-25% increase	26-50% increase	50-75% increase	>75% increase
Human resources in the lab	9	3	7	1	1
Lab equipment & supplies	1	8	6	2	4
Shipping	8	9	1	2	1

Two Task Forces to guide consultative process

- **Define formal consultative process**
- **Identify and address key technical and policy questions**
- **Guide development of strategic action plan and country pilots**

	Technical Task Force	Policy Task Force
Sample questions	<ul style="list-style-type: none"> • What is the current landscape of GISRS capacities & capabilities? • How does GISRS Plus formally integrate epi aspects of the network? • How can countries strategically select additional respiratory viruses? • How should we update case definitions? 	<ul style="list-style-type: none"> • How to ensure influenza foundation of GISRS not impacted negatively? • What additional advisory functions are needed for GISRS Plus? • What tools are needed for NICs to monitor administrative and financial impacts of integrated surveillance?
Potential sub-task forces	<ul style="list-style-type: none"> • Pathogen selection & prioritization • Laboratory considerations • Epidemiological considerations 	<ul style="list-style-type: none"> • Coordination and operation structure • Finance & sustainability • Monitoring & evaluation

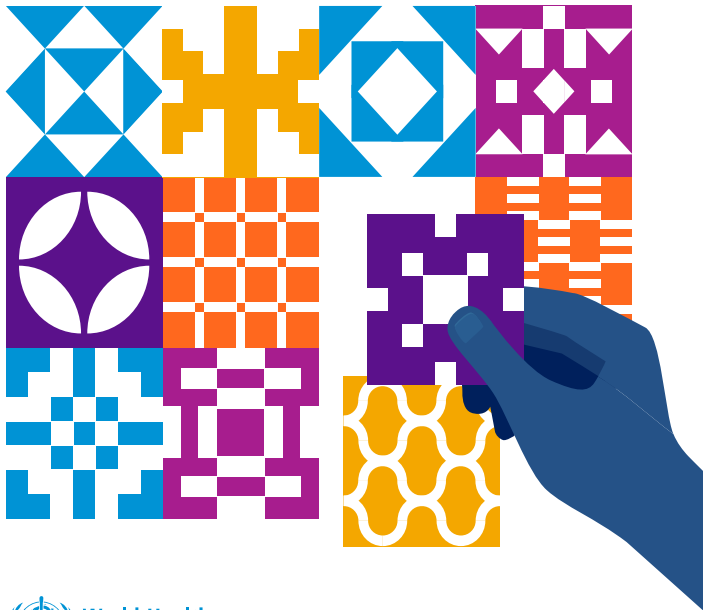
GISRS Plus development plan

Milestones	Target Date
Recruit policy and technical task forces	Q4 2022/Q1 2023
First draft of strategic action plan developed	Q1 2023
Global and regional consultations held to inform development of strategic action plan	Q2 2023
Member State briefing	Q2 2023
Public comment period	Q3 2023
Strategic action plan piloted in countries	Q3 2023
Finalize strategic action plan based on pilots	Q4 2023

Meanwhile continue ongoing GISRS end-to-end integrated surveillance of influenza and SARS-CoV-2, as well as RSV, and associated capacity building

“Crafting the mosaic”:

A framework for resilient
surveillance for respiratory
viruses of pandemic potential



A framework for resilient surveillance for respiratory viruses of pandemic potential

Dr Joshua Mott

SENTINEL SYSTEMS



Circulation trends

Trends in HC burden

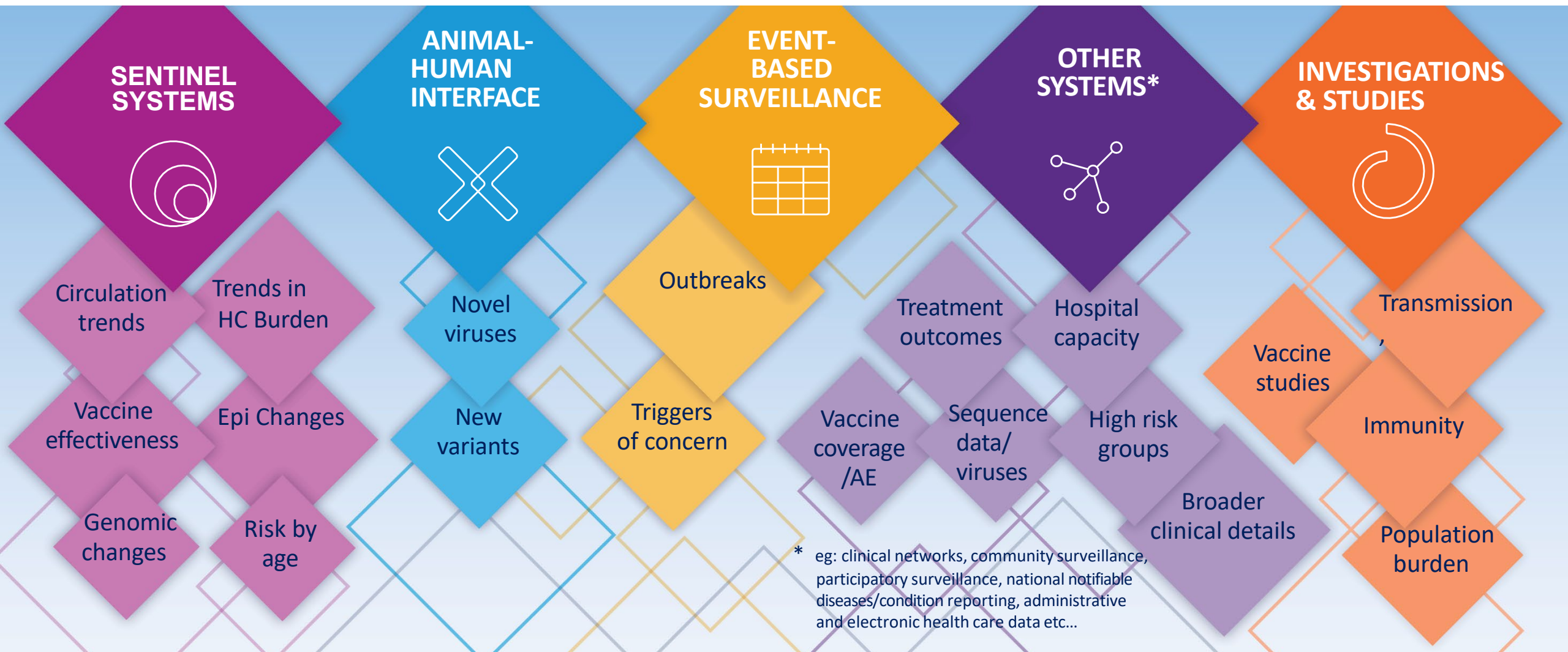
Vaccine effectiveness

Epi Changes

Genomic changes

Risk by age

- **Sentinel systems are one component of many essential surveillance systems.**
- **Global need for a **strategic framework** to guide countries on how respiratory viruses of pandemic potential should be resiliently detected and monitored using coordinated surveillance systems**
- **No surveillance system can be “everything to everyone”**



Data ≠ Knowledge

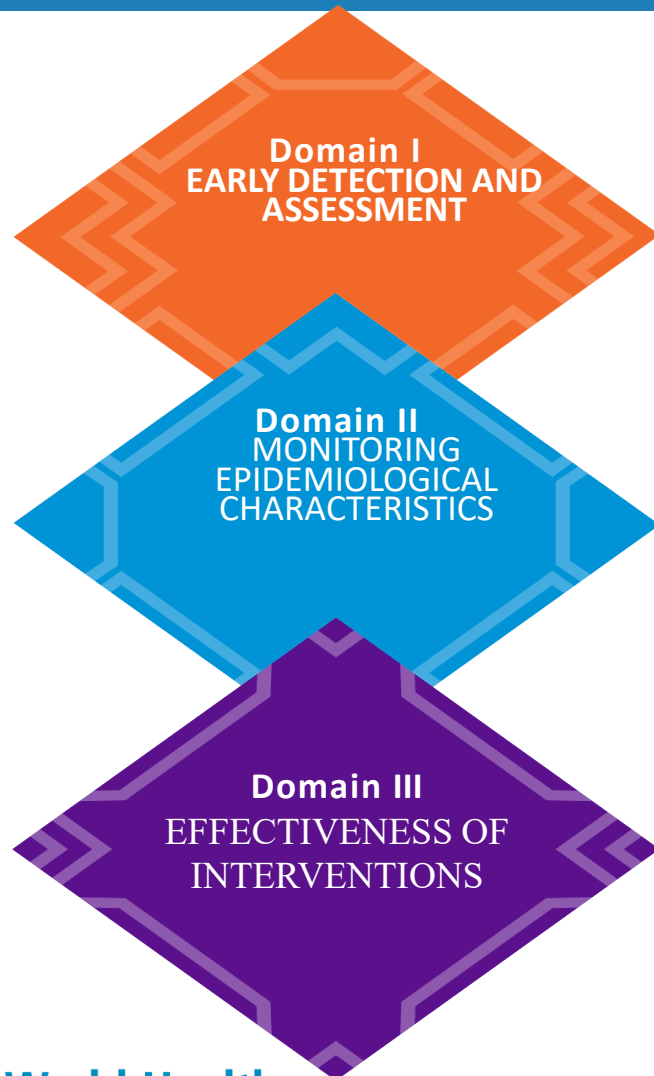
→ each system must be targeted to high priority local objectives /decisions , and, fit-for-purpose to be resilient






Engaging countries and regions: flexible approach

- ✓ Alignment with other surveillance guidance, strategies and frameworks
- ✓ Country inputs gathered using regional surveys, online country-level surveys, focused country discussions, regional country consultations
- ✓ Consolidated results then served as the foundation for a WHO global consultation in May 2022, with attendees from countries, WHO, and external partner and donor organizations
- ✓ Inputs on draft documents
- ✓ Public comments period on WHO web

	WHO REGIONS					
	AFR	EMR	EUR	AMR	SEAR	WPR
Country-level survey	X		X		X	X
Regional office survey	X	X	X	X	X	X
Country focused discussions	X		X			
Country consultations		X	X	X	X	

A framework for resilient surveillance for respiratory viruses of pandemic potential: “CRAFTING THE MOSAIC”

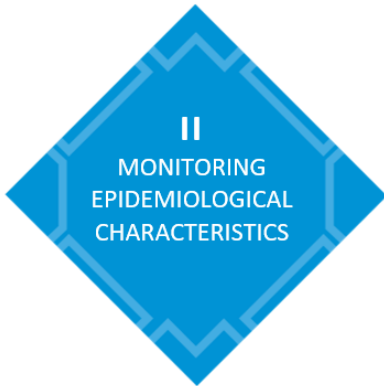


- **Aim 1**
Identify priority unmet surveillance objectives, and the systems that may be used to meet those objectives in a resilient manner over time
- **Aim 2**
Prioritize needed surveillance enhancements drawing on lessons from the COVID-19 pandemic
- **Aim 3**
Develop implementation plans to enhance surveillance according to their context and needs
- **Aim 4**
Strengthen synergies between surveillance systems to meet different objectives and enhance response
- **Aim 5**
Prioritize local and international partner technical assistance and financial investments



Domain I:
EARLY
DETECTION AND
ASSESSMENT OF
AN EMERGING
RESPIRATORY
VIRUS NOT YET
WIDELY IN
CIRCULATION
AMONG HUMANS

- Detect and investigate emerging respiratory disease outbreaks of pandemic potential
- Assess transmission, risk factors for transmission, and the extent of infection from an emerging virus
- Describe clinical presentation and risk factors for severe outcomes associated with an emerging virus



Domain II:
MONITOR
EPIDEMIOLOGICAL
CHARACTERISTICS
OF RESPIRATORY
VIRUSES WITH
SUSTAINED
CIRCULATION IN
HUMAN
POPULATIONS

- Monitor trends in illness, severe illness, and the relative circulation of viruses
- Monitor virologic characteristics of circulating viruses (including phenotypic and genomic characteristics)
- Monitor virus transmissibility and associated risk factors
- Monitor clinical characteristics and management, and associated risk factors
- Monitor high-risk settings and vulnerable populations groups
- Monitor health care system coping abilities



Domain III:
MONITOR THE
EFFECTIVENES OF
HUMAN HEALTH
INTERVENTIONS

- Monitor the impact of non-medical interventions in the population, including public health and social measures (PHSM)
- Provide candidate vaccine viruses for vaccine composition, production, and risk assessment
- Monitor vaccine coverage, effectiveness, impact, cost-effectiveness
- Monitor the effectiveness of current antivirals
- Monitor adverse events to vaccines and therapeutics
- Monitor effectiveness of clinical care pathways

- **Is there an emerging respiratory of virus of pandemic potential in my country?**
- **Does this emerging virus spread easily in humans?**
- **How severe is the clinical presentation of this emerging virus?**
- **Who are the high-risk groups for infection and severe complications?**

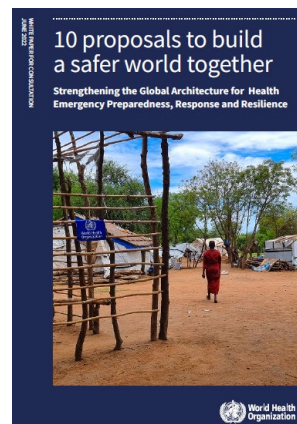
- **Are we moving into an epidemic period or season for virus circulation?**
- **Is this season or a “bad season” compared to others?**
- **Are my health care systems coping?**
What are the genotypic and phenotypic characteristics of circulating viruses?
- **What are the clinical and epidemiologic characteristics associated with infection? Have they changed?**
- **What is the impact in high-risk groups and settings?**

- **Are current vaccines and medications effective?**
- **How can we improve our clinical care?**
- **Is the vaccine well-matched to viruses in our country?**
- **Have PHSM affected the transmission of viruses in our country?**
- **What is the uptake of current interventions and are there adverse events?**

Mosaic framework: build on existing systems- enhance connections

- does not supersede other guidance, but provides context for their use

Regional Guidance

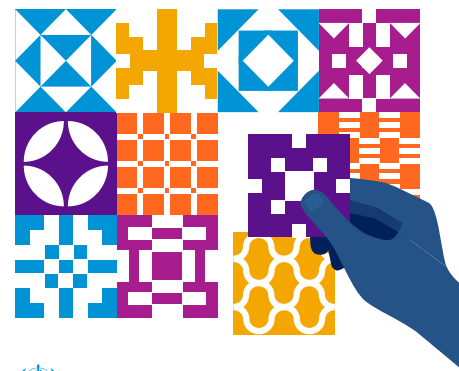


Global architecture: HEPR “Collaborative Surveillance”

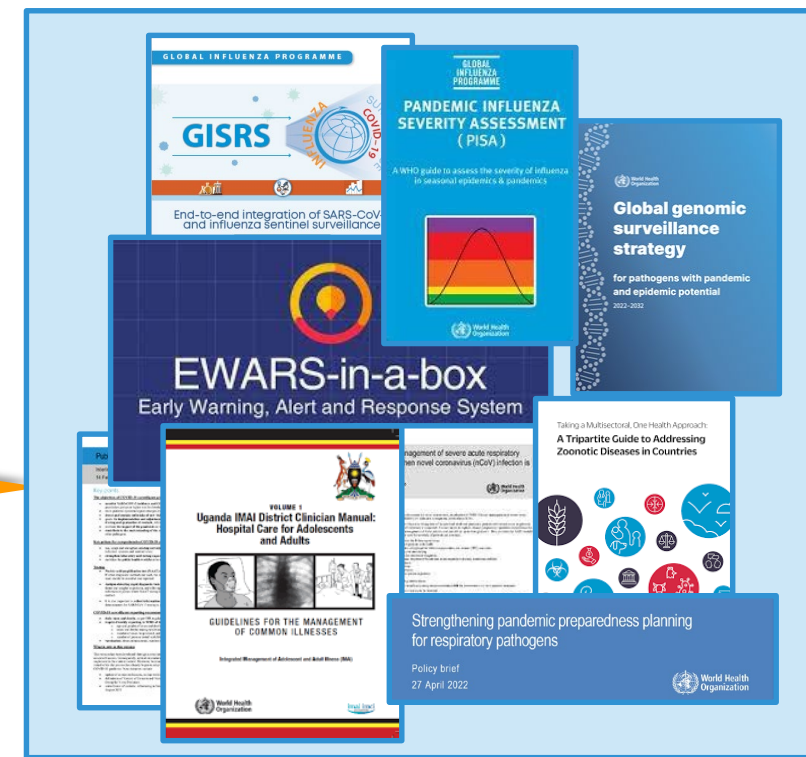


“Crafting the mosaic”:

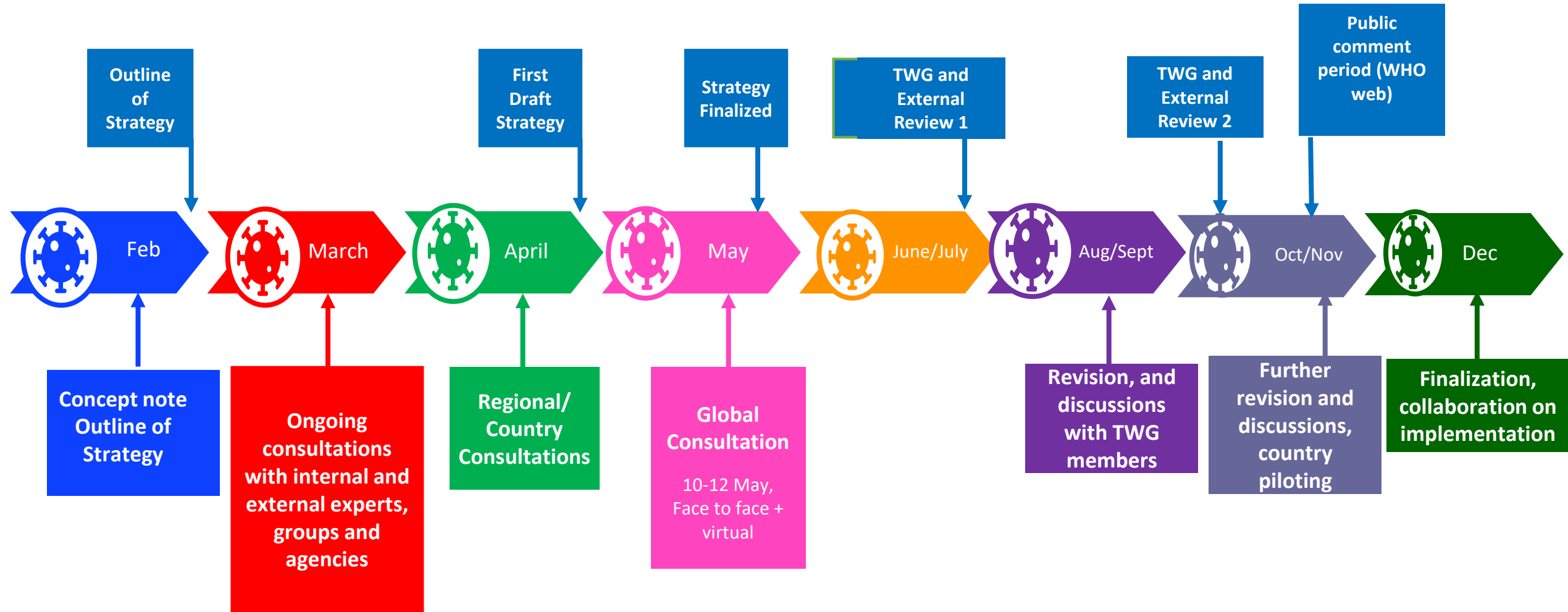
A framework for resilient surveillance for respiratory viruses of pandemic potential



Global Guidance



Timeline for framework development



Thank You



World Health
Organization