Newsletter #2

25 March 2026 (reports on 2025 activities)

Created in 2023, the WHO Coronavirus Network (CoViNet) aims to bring together surveillance programs and reference laboratories to strengthen countries' testing capacities and support enhanced epidemiological monitoring and laboratory assessment of SARS-CoV-2, MERS-CoV, and novel coronaviruses of public health importance.

CoViNet's objectives are to:

(i) Support and ensure **early and accurate detection** of SARS-CoV-2, MERS-CoV and novel coronaviruses of public health importance;

(ii) Support **surveillance and monitoring** of the global circulation and evolution of known and novel coronaviruses of public health importance

(iii) Provide **timely risk assessment** for SARS-CoV-2, MERS-CoV, and novel coronaviruses of public health importance,

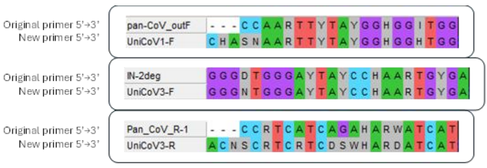
(iv) Support **capacity strengthening** of laboratories and epidemiologic investigations relevant to the needs of WHO

Development and validation of a universal RT-PCR assay for detecting all coronavirus genera in humans, animals and wastewater

Objective:
Ensure that molecular diagnostic tools can efficiently detect known and emerging coronaviruses (CoVs).

Summary:
Improved capacity for the early detection of novel coronaviruses in both animal and human populations is required at the country level. This requires a highly sensitive, specific, reliable, and universally adaptable PCR assay.
To achieve this goal, collaboration was established with Ohio State University, USA and the University of Hong Kong, Hong Kong SAR, China, and existing primer sets were analyzed. An updated primer set and PCR assay were designed to detect human and animal coronaviruses across all four genera with high sensitivity and specificity.

The final products comprise three distinct PCR protocols with enhanced sensitivity, useful for the surveillance of known and the discovery of new CoVs not previously detected in human populations. Two of these protocols also produce amplicons large enough for initial CoV identification through sequencing. These protocols have been distributed to CoViNet laboratories, and details about their publication will be included in the upcoming newsletter.



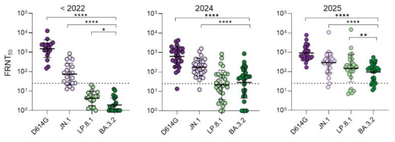
Acknowledgments: Vlasova A.N., Saif, L.J. et al. Ohio State University, Columbus, USA
Poon L.L.M. et al. LKS Faculty of Medicine, Hong Kong University Hong Kong, PDR China

Data to support TAG-CO-VAC COVID-19 vaccine antigen composition decision-making, December 2025

CoViNet labs generated clinical immunogenicity data on immune responses to SARS-CoV-2 variants This included measurements of neutralizing antibody responses and cross-reactivity against previous and currently circulating SARS-CoV-2 variants. These data contributed to the evidence reviewed by the Technical Advisory Group on COVID-19 Vaccine Composition (TAG-CO-VAC) to inform its latest recommendation on COVID-19 vaccine antigen composition during its most recent meeting in December 2025.

Based on the evidence reviewed, the TAG-CO-VAC advised vaccine manufacturers that monovalent LP.8.1 is the recommended vaccine antigen. The previously recommended JN.1 lineage (JN.1 or KP.2) antigens remain suitable alternatives and vaccination should not be delayed in anticipation of access to vaccines with the LP.8.1 composition. Other approaches that demonstrate broad and robust neutralizing antibody responses or efficacy against currently circulating SARS-CoV-2 variants could also be considered.

Full TAG-CO-VAC statement and data annex: https://www.who.int/news/item/18-12-2025-statement-on-the-antigen-composition-of-covid-19-vaccines



doi: https://doi.org/10.1101/2025.10.28.25338622

Acknowledgment: Alex Sigal, Kadjia Khan *et al.*, Africa Health Research Institute, Durban, South Africa; Hideki Hasegawa, National Institute for Infectious Diseases, Tokyo, Japan ; Bart Haagmans, Erasmus Medical Centre, Rotterdam, Kingdom of the Netherlands; Nicola Lewis, Francis Crick Institute, London, UK

Defining optimal turnaround times and sequencing volume for early detection in genomic surveillance (GS)

Objective:

To offer the most recent findings on the scale and speed of GS needed to advance early detection of variants, and be relevant to pandemic preparedness

Summary:

During the interpandemic phase, genomic surveillance (GS) goals have broadened from tracking SARS-CoV-2 variants to also include the early detection of new and emerging viruses. To support pandemic preparedness, this work estimated the required sequencing volume and turnaround times (TATs) for effective early-warning systems. Findings show that longer TATs considerably delay detection and lead to earlier variant identification at higher prevalence levels. TATs of 28 days or more greatly hinder detection of variants with low prevalence (≤10%), while TATs under 12 days are essential for promptly identifying rapidly spreading variants with doubling times (defined as the time required for the number of infections in an outbreak to double) as short as 3.5 days.

Shorter TATs decrease the amount of sequencing needed to meet early detection goals. Overall, **TAT** and the **growth rate of variants** are **key factors** in **effective genomic surveillance** and should be prioritized when developing and funding early-warning systems.

Doubling time	Number of genome sequences (per week) to detect at 10% prevalence		Fold change (TAT 14 / TAT 7)
	TAT 7	TAT 14	
3.5	378	Not possible*	-
7	56	151	2.7
14	17	26	1.5
28	7	9	1.3

Kathryn Edenborough et al. Under revision in Nature Communications; Doherty Institute of Infection and Immunity, Melbourne, Victoria, Australia

CoViNet facilitates the external quality assessment programme (EQAP) for zoonotic Coronaviruses

Objective:

Provide EQA panels to participating laboratories in order to maintain the highest standards of accuracy in detecting coronaviruses.

Summary:

CoViNet facilitated the preparation, packaging, and distribution of zoonotic coronavirus panels by the Hong Kong University Centre for Health Protection.

The scheme was targeted at CoViNet reference laboratories as well as at countries in the Eastern Mediterranean region, that are at higher risk of MERS-CoV. Of the 44 invited labs, 30 received the PT panels, and 23 submitted results within the designated four-week period. The panel included seven inactivated virus samples, including MERS-CoV and three SARS-CoV-2 lineages, plus a negative control.

Overall, 81.0% of labs correctly identified all samples; SARS-CoV-2 detection was 90.9%, MERS-CoV 81.8%, and all labs correctly identified the negative sample. False negatives primarily resulted from low viral loads, primer mismatches, unvalidated protocols, and a single transcription error.

Performance of participants

Samples (number)	On-time submissions included in analysis
	No. (%) of all correct/reported results
MERS-CoV positive (4)	18/22 (81.8)
SARS-CoV-2 positive (3)	20/22 (90.9)
All samples in panel (8)	17/21 (81.0)

The outcome of this EQA highlights that reviewing primers and probes, validating modified protocols, and strengthening quality systems are key to achieving quality-assured results. The EQAP will continue in 2026 to enhance global surveillance for zoonotic coronaviruses with pandemic potential.

The zoonotic Coronavirus EQA programme was possible thanks to the logistics provided by the Global Influenza Programme (GIP) through the Global Influenza Surveillance and Response System (GISRS) EQA programme.

Sustaining testing capacity for MERS-CoV

Objective 1:

Sustain capacity to test and confirm cases with molecular diagnostics tests in endemic regions.

Summary:

MERS-CoV continues to pose a threat to global health, with sporadic cases still being reported. Sustained capacity for molecular testing is essential for surveillance and the diagnosis of suspected cases. To enhance testing capacity in resource-limited laboratories in endemic areas, CoViNet supported the procurement and distribution of RT-PCR kits for MERS-CoV to 11 high-risk countries where the virus is more likely to emerge.
The countries in the Eastern Mediterranean region, including Yemen (Aden and Sana'a), Libya, Pakistan, Somalia, Lebanon, Afghanistan, Morocco, Iran, Syria, and Sudan, which are classified as high risk for MERS-CoV, have benefited from this support

Objective 2

Support establishment of MERS-CoV neutralization capacity at ICMR-NIV, India

Summary:

No MERS-CoV sequence data are currently available from Central Asia, despite the presence of camel populations in the region. By supplying MERS-CoV reference materials, CoVINet enabled the establishment of MERS-CoV neutralization capacity at ICMR-NIV, allowing enhanced surveillance in camel populations to begin and helping to identify which MERS-CoV strains are circulating there.

Strength in numbers: CoViNet expands

In 2023, when CoViNet was launched, 35 laboratories across 28 countries were included in the network. To achieve worldwide coverage, a new expression of interest was published in June 2025, and an additional 21 facilities qualified, bringing the total number of laboratories in the network to 58 across 35 countries, as shown on the map.
Through this expansion, additional facilities for human, animal, and environmental surveillance have been incorporated, thereby strengthening the One Health approach—a fundamental principle of CoViNet's mission. Some of these laboratories also serve as FAO and/or WOAH reference laboratories, fostering collaboration with partner organizations working towards the same goal.

A meeting to introduce these new laboratories is planned for the first quarter of 2026, and a joint work plan will be developed to support the achievement of CoViNet's goals.