GIHSN Annual report Year 2025

Foreword

At a time when multilateralism is under intense pressure and global respiratory surveillance is more fragmented than ever, directly affecting pandemic preparedness and timely vaccine strain update, the GIHSN stands out as a robust, agile, and indispensable global asset. It shows that, even amid political uncertainty, an empowered civil society (public and private) can close critical institutional gaps.

In just 13 years, the GIHSN community has grown into the world's largest hospital-based respiratory surveillance network. What began with influenza surveillance has evolved into a comprehensive, year-round monitoring system covering a wide range of respiratory viruses. Its distinguishing strength lies in the consistent use of a harmonized core protocol across all sites, enabling the systematic collection of linked demographics, clinical, virological, and sequencing data.

This year, the expansion of virus sequencing capacity allowed the GIHSN to provide more data than ever to the WHO vaccine composition consultations. At the same time, we are exploring the use of artificial intelligence to unlock the full value of this rich dataset. Understanding the determinants of vaccine performance (across host, vaccine, and viral factors) is also emerging as a key area of innovation for the network.

Looking ahead, the challenges are significant, but so are the opportunities. Strengthening this community, sustaining innovation, and continuing to broaden the network's reach will be essential to support global preparedness in an increasingly complex and unpredictable environment.

The GIHSN remains committed to contributing high-quality evidence to inform public health action. Together, we can continue to build on this solid foundation and ensure that respiratory surveillance remains a global public good, built on collaboration, scientific rigor, and shared purpose.

Dr Cedric Mahe

President, Foundation for Influenza Epidemiology

March 2026

I. THE GLOBAL INFLUENZA HOSPITAL SURVEILLANCE NETWORK (GIHSN)

The Global Influenza Hospital Surveillance Network is a platform that collects standardized data from hospitalized patients with Severe Acute Respiratory Illnesses (SARI) across countries, including low-, middle-, and high-income countries from both hemispheres. The GIHSN focuses on linking epidemiologic and clinical data with virus Whole Genome Sequencing (WGS) information to facilitate exploring viral phenotypes as they relate to severity or vaccine breakthrough cases. This information is shared with local public health authorities, the World Health Organization (WHO) and the scientific community at large.

Objectives of the GIHSN

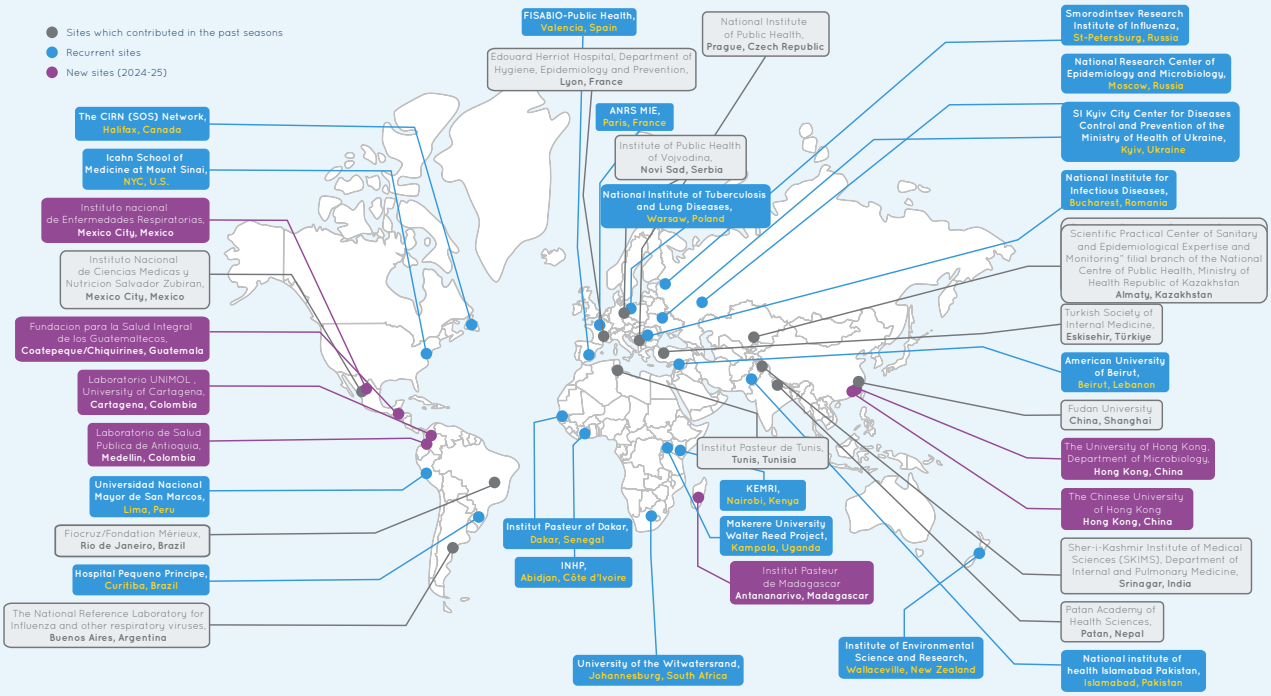
1. Generate strong epidemiological and medical evidence on hospitalized patients with respiratory virus infection to better understand virus circulation, related severity, and risk factors.
2. Support vaccine strain selection improvement through timely sharing of clinical and laboratory data (including whole genome sequencing data) from patients hospitalized with influenza from both Northern and Southern hemispheres.
3. Contribute as an alert system in case of emerging of novel influenza viruses and other pandemic-prone respiratory viruses that may trigger the need for public health response and/or R&D initiatives.

1. A community of experienced investigators worldwide

The GIHSN started its activity in 2012 and has been collecting data over the seasons. It has contributed to global surveillance of influenza and other respiratory viruses for 13 years now, with over 100 hospitals involved over the seasons in 26 countries worldwide.

Figure 1 shows the geographic distribution of sites which have collaborated in the GIHSN over the seasons (2012 to 2025)

Figure 1: Geographic distribution of sites which have collaborated in the GIHSN over the seasons (2012 to 2025)



2. A global database of almost 250,000 SARI[1] hospitalized patients

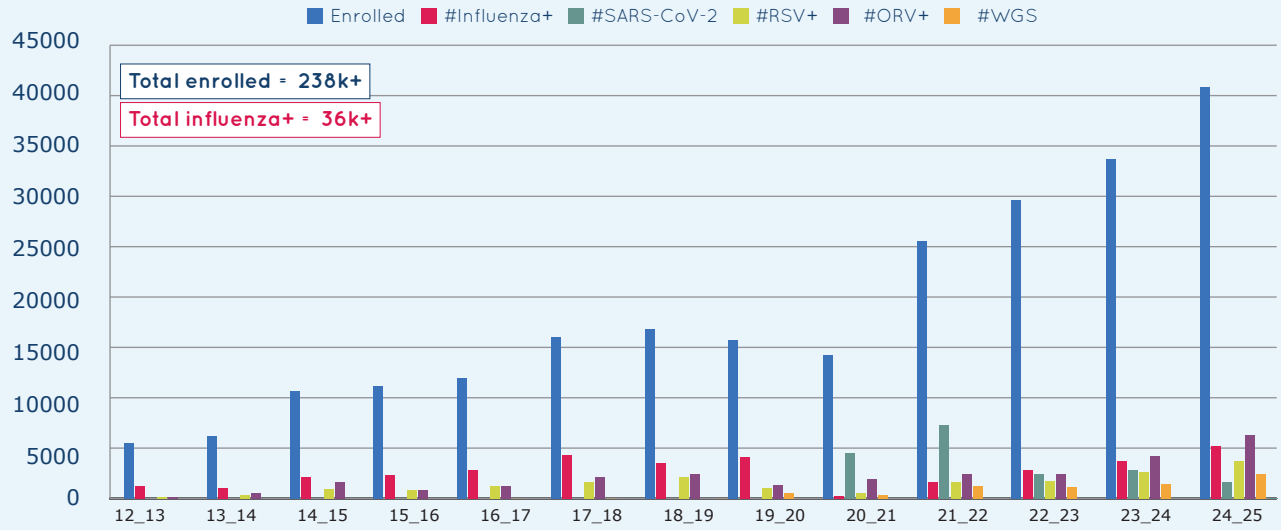
All GIHSN sites use a common protocol: demographic and clinical information are collected from patients admitted with respiratory illnesses. Respiratory specimens are collected to test for influenza and other respiratory viruses, including SARS-CoV-2 and RSV. RT-PCR tests and whole genome sequencing (on a subset of samples) are performed to provide virological information

Over the past 13 years, a total of **238,378 patients hospitalized with respiratory illness** have been enrolled, including laboratory confirmation of **36,159 Influenza cases** and **61,983 patients with other respiratory viruses**.

Figure 2 shows the number of patients enrolled and number of patients who tested positive to a virus over the seasons since 2012.

1 SARI : Severe Acute Respiratory Infections

Figure 2: Number of patients enrolled and number of patients who tested positive to a virus over the seasons since 2012



Progressive scale-up over the last 10 years with limited disruption during the pandemic

3. Sharing of results and analyses

Global meetings of the GIHSN are organized regularly, with all site investigators and stakeholders of the network (epidemiologists, virologists, clinicians and international public health experts, including representatives from the World Health Organization, GISRS and GISAID) to share results of the year-round surveillance and discuss protocol and analyses.

Seasonal results are shared publicly on the GIHSN website. In 13 years, the network has contributed to more than 30 published manuscripts and numerous local and international meetings and conferences.

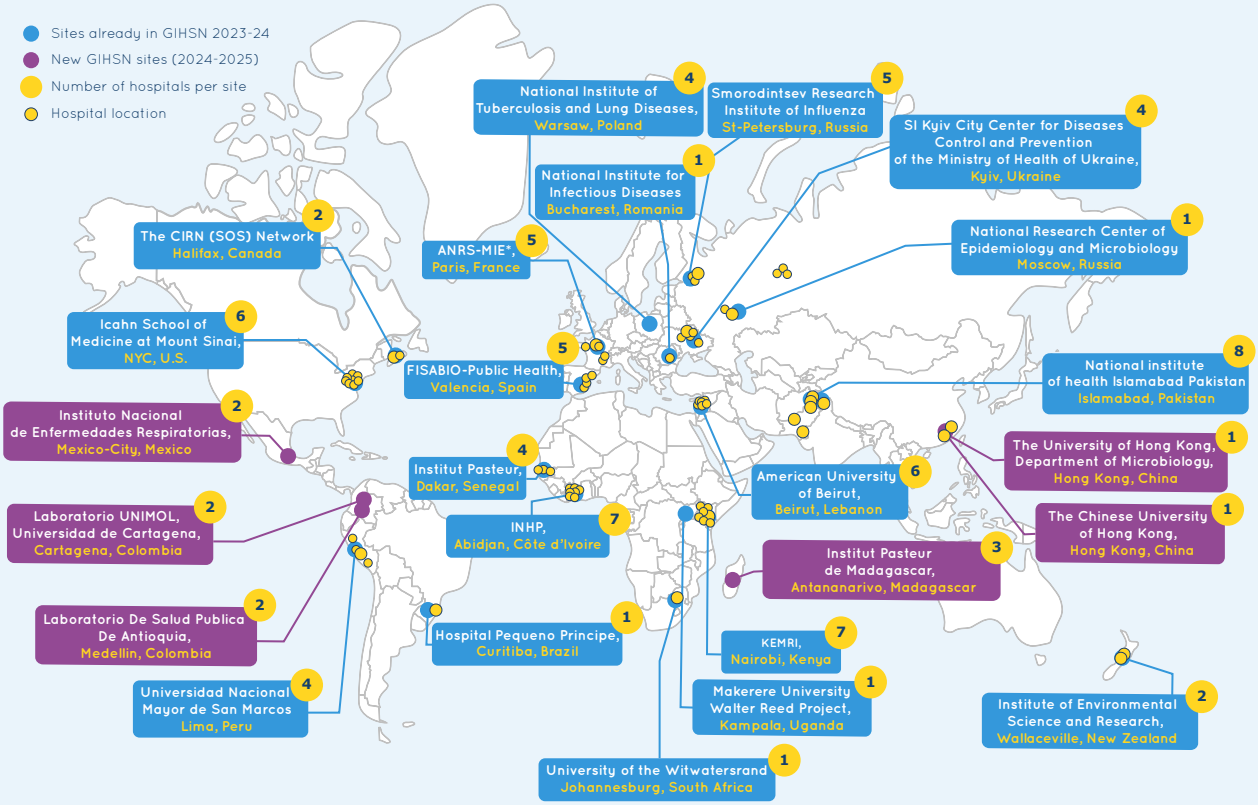
II. YEAR 2025: HIGHLIGHTS

1. Participating sites

In 2025, the GIHSN sentinel platform included 95 hospitals from 23 countries, doing surveillance from November 2024 through October 2025.

Figure 3 presents the sites which contributed data in the GIHSN in the year 2025 (data closed end of January 2026).

Figure 3: Geographic distribution of sites which contributed data in the GIHSN in the year 2025



Surveillance population and settings by site can vary significantly from one site to another, depending notably on the number and type of hospitals involved, site case finding approach, laboratory and (WGS) capacities, site experience in influenza surveillance and within the GIHSN. These specificities by site must be carefully considered when analyzing the data.

→ **Access the map and description of site specificities**

2. Virus tested

The range of viruses tested beyond influenza can also vary from one site to another. Although influenza virus surveillance is a key priority for the GIHSN, the network indeed encourages sites to include other respiratory viruses as part of their surveillance, if laboratory capacity exists locally. In the year2025, all sites tested and shared data on SARS-CoV-2 and RSV.

Other respiratory viruses were also tested, including human coronaviruses, metapneumovirus, adenovirus, bocavirus, enterovirus, parainfluenza viruses, rhinovirus ... Viruses tested by sites are presented in **Table 1** below.

Table 1: Viruses tested by sites (year 2025)
Based on data reported by sites over the season

Country	Site/Institution	Influenza	SARS-CoV-2*	RSV*	AdV*	HBoV*	HCoV*	EV*	EV-D68*	MERS-CoV*	HMPV*	HPIV*	PV*	RhV*	EV/RhV*	SARS-CoV*	ORV*
Africa																	
Côte d'Ivoire	Institut National d'Hygiène Publique (INHP), Abidjan																
Kenya	Kenya Medical Research Institute (KEMRI), Nairobi																
Madagascar	Institut Pasteur de Madagascar, Antananarivo																
Senegal	Institut Pasteur of Dakar (IPD), Dakar																
South Africa	University of the Witwatersrand, Johannesburg																
Uganda	University of the Witwatersrand, Johannesburg																
Asia/Pacific																	
Hong Kong - CUHK	The Chinese University of Hong Kong																
Hong Kong - HKU	The University of Hong Kong, Department of Microbiology, Hong Kong																
New Zealand	Institute of Environmental Science and Research, Wallaceville																
Pakistan	National institute of health Islamabad Pakistan																
Middle East																	
Lebanon	American University of Beirut, Beirut																
Eurasia																	
France	ANRS-MIE, Paris																
Poland	The National Institute of Tuberculosis and Lung Diseases, Warsaw																
Romania	National Institute for Infectious Diseases "Prof. Dr. Matei Balș", Bucharest																
Russia - Moscow	FSBI "N.F. Gamaleya NRCEM" Ministry of Health, Moscow																
Russia - St. Petersburg	Smorodintsev Research Institute of Influenza, St Petersburg, Russia																
Spain	FISABIO, Valencia																
Ukraine	SI Kyiv City Center for Diseases Control and Prevention of the Ministry of Health of Ukraine, Kyiv																
North America																	
Canada	The CIRN Serious Outcomes Surveillance (SOS) Network, Halifax																
USA	Icahn School of Medicine at Mount Sinai, NYC																
South America																	
Brazil	Hospital Pequeno Principe, Curitiba																
Colombia - Antioquia	Laboratorio de Salud Publica de Antioquia, Medellin																
Colombia - Cartagena	Laboratorio UNIMOL, Universidad de Cartagena, Cartagena de Indias																
Guatemala	Fundacion para la Salud Integral de los Guatemaltecos, Coatepeque/Chiquirines																
Mexico	Instituto Nacional de Enfermedades Respiratorias, Mexico City																
Peru	Instituto de Medicina Tropical, Lima																

**RSV: Respiratory Syncitial Virus; HCoV: Human Coronaviruses; HMPV: Metapneumovirus; AdV: Adenovirus; HBoV: Bocavirus; HPIV: Parainfluenza viruses; RhV: Rhinovirus; ORV : Other Respiratory Viruses.*

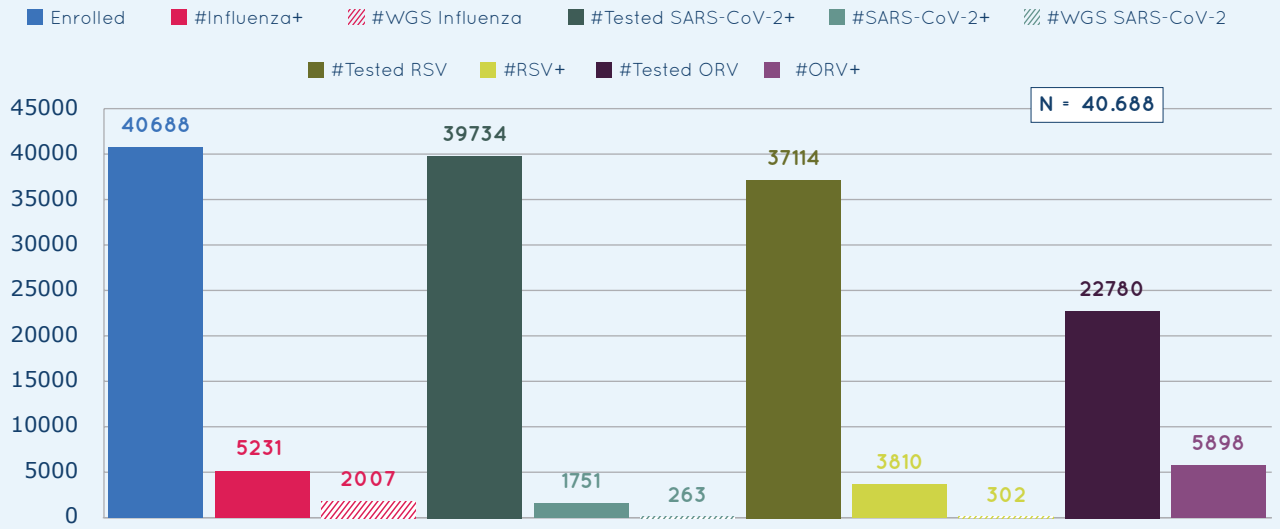
3. Overview of the GIHSN 2025 SARI cases

Overall, 40 688 patients were enrolled from November 1st, 2024 – to October 31st, 2025. All 40 688 cases were documented following the GIHSN questionnaire.

As per the GIHSN protocol, all patients enrolled are to be tested by RT-PCR for influenza. In all, 5 231 influenza positives were detected during the year 2025. When possible (e.g., available multiplex PCR), specimens collected were also tested for SARS-CoV-2, RSV and other respiratory viruses.

Figure 4 presents the total number of cases tested and positive cases for influenza, SARS-CoV2, RSV and Other respiratory viruses in the year 2025 (data closed end of January 2026).

Figure 4: Total number of cases tested and positive cases for influenza, SARS-CoV2, RSV and Other respiratory viruses in the year 2025 (data closed end of January 2026)



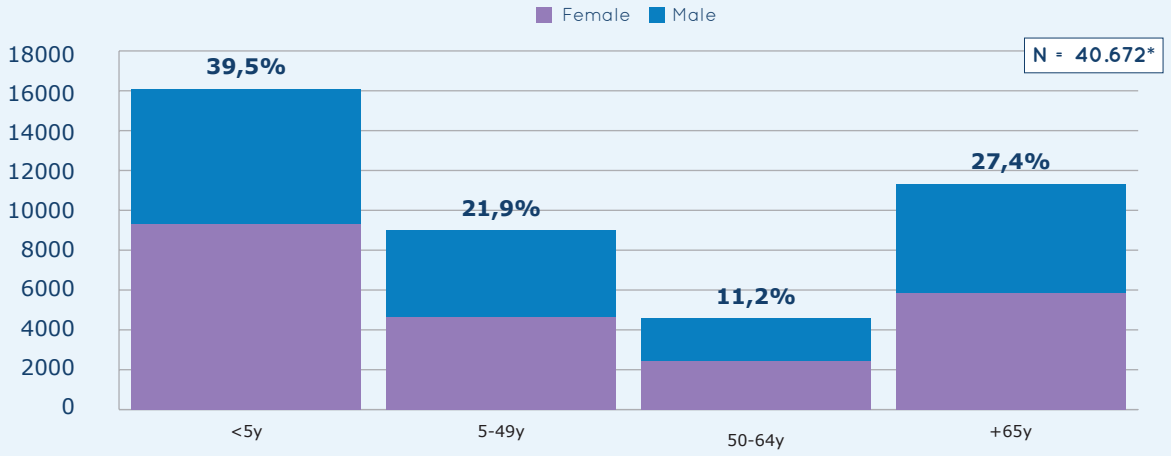
→ Access detailed presentation by site

4. Patient distribution by age group

The GIHSN patients enrolled during the season comprise 39,5% of children <5 years old, as shown on Figure 5. The pediatric population mainly comes from the following sites: Kenya, Côte d'Ivoire, Senegal, South Africa, Lebanon, Russia-St Petersburg, Romania, Brazil and Peru. Some of these sites enroll patients in pediatric hospitals.

Figure 5 presents the distribution of patients enrolled during the year 2025 season by age group and sex.

Figure 5: Distribution of patients enrolled during the year 2025 season by age group and sex



*No age and sex completed for 16 patients

→ Access detailed presentation by site

5. Whole Genome Sequencing (WGS) - Analysis of Influenza viruses

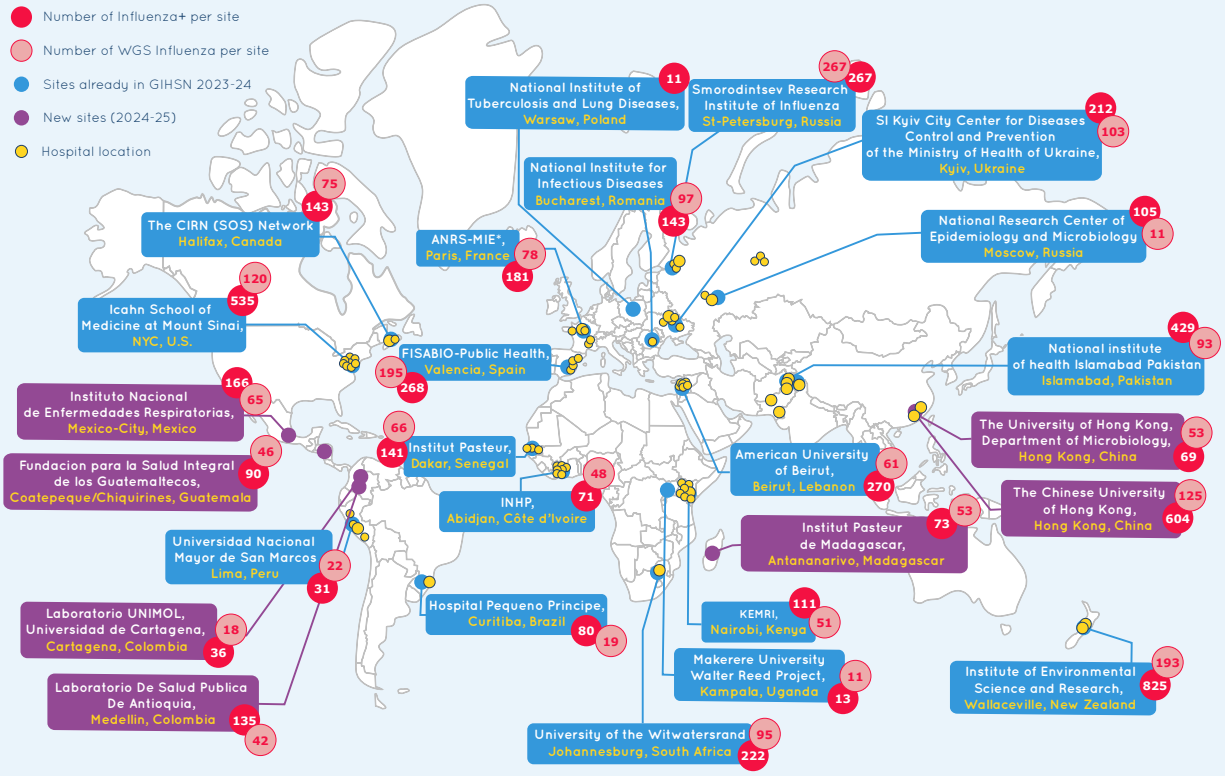
For the 2025 surveillance in the GIHSN, influenza A(H1N1) pdm09, A(H3N2) and influenza B viruses circulated. In total, 2007 influenza positive samples were fully sequenced, either locally by sites, or through the GIHSN sequencing platform at the National Influenza Centre in Lyon, France (Figure 6).

→ **Access the GIHSN activity reports to WHO**

Figure 6 shows the geographic distribution of influenza WGS results during the year 2025.

Based on WGS analysis, a GIHSN activity report was shared with WHO in February and September 2025, prior to the WHO Consultation on the Composition of Influenza Virus Vaccines

Figure 6: Geographic distribution of influenza WGS results during the year 2025



III. ABOUT US: THE FOUNDATION FOR INFLUENZA EPIDEMIOLOGY

The GIHSN is supported by a dedicated fund, the Foundation for Influenza Epidemiology (FIE), which was created in September 2015 by Sanofi under the auspices of Fondation de France, a leading philanthropic institution in France, to formalize several years of commitment to epidemiological research on severe influenza.

The Foundation for Influenza Epidemiology provides catalytic funding to sites, complementary to national and other sources of funding.

As of February 2026, donors of the Foundation for Influenza Epidemiology included Sanofi, Seqirus, Abbott, Pfizer. Illumina and IFPMA contributed in previous years. All donations collected through this Foundation are dedicated to epidemiological research in the field of severe influenza and other respiratory viral diseases.

Data is published yearly. Donors do not have access to the data and there is no commercial use of the data.

1. Governance

Governance of the Foundation for Influenza Epidemiology relies on the following bodies and organizations:

- **The Executive Committee**, in charge of strategic directions and site selection for funding allocation. The Executive Committee is composed of donors to GIHSN and independent experts.
- **The Independent Scientific Committee**, ensuring scientific oversight. The Scientific Committee comprises some of the world's top flu epidemiology/virology/policy experts, including a representative from WHO.

→ **Learn more on the governance of the Foundation**

- **Coordination of the network and operational implementation**, including data collection & hosting, is supported by an independent organization: Impact Healthcare. The National Influenza Center Lyon is coordinating laboratory activities with sites.
- **Administrative, legal and financial diligence** is supported by Fondation de France.

2. Site selection process

All investigating sites participating in the GIHSN are selected on a yearly basis, through an annual Call for Proposal published in May.

Applications from institutions meeting the eligibility criteria are reviewed and evaluated by the Independent Scientific Committee of the Foundation according to predefined quality criteria. These include scientific and technical criteria, such as the robustness of study settings, case ascertainment strategy/sampling strategy, lab capacities, commitment to timeliness sharing of data besides considerations regarding geographic representativeness. Final decision is made by the Executive Committee of the Foundation.

3. Data management and ethics

To comply with regulations of data access and privacy, the Foundation set up a data warehouse and a data access framework.

The GIHSN database is hosted in a secure environment (certified secured hosting for health personal data). Data is processed in full accordance with the European General Data Protection Regulation (GDPR) and French data protection regulations.

Data collected by sites receiving funding remains the proprietary of the site. There is no commercial use of the data. Donors of the Foundation for Influenza Epidemiology do not have access to the data.

A data sharing agreement is signed by each site before field implementation starts.

Sites implementing the GIHSN protocol should be compliant with their ethical and national regulations for the conducting of the surveillance.

→ **Learn more on Data collection, Data analysis and Ethics**

4. Publications and research activities 2025

Analyses of GIHSN season data and results are performed on a yearly basis. All analyses results are submitted for publication to a peer reviewed journal, under the supervision of a member of the Independent Scientific Committee.

Beyond yearly analysis, researchers are offered the possibility to submit research projects to the Foundation. If the project is accepted, they can access GIHSN datasets (anonymized and/or aggregated data only). Sites are informed upfront of any analysis, and they have the possibility to opt out.

All publications and oral presentations are publicly available on the GIHSN web site.

→ **See publications and research projects**

5. Cooperation with the World Health Organization (WHO)

In October 2023, the Foundation signed a Memorandum of Understanding with the World Health Organization making if a WHO Non State Actor. Three key priority areas of collaboration have been highlighted:

- Virus co-circulation and alert mechanisms
- Combination of severity and WGS for strain selection
- Burden of disease estimation and other research activities

→ **Learn more on Cooperation with WHO**

6. Financial report

To date, the Foundation for Influenza Epidemiology has invested more than 22 M€ to set up and scale up the GIHSN platform over the past 13 years.

The yearly budget allocation is endorsed by the Executive Committee in October. Each year the Foundation invests part of its budget in new sites to continue building worldwide surveillance capacity and expands its network for a better representativeness. Geographical repartition of the sites translates also grants allocation by country income level (high, upper middle, lower middle). The Foundation covers each year around 25% of the overall cost of the GIHSN platform which relies on existing national capacity and infrastructure (co-funding from sites or other sources).

Foundation budget spent for the year 2025:

- 1,654 M€ was committed for sites implementation of the year-round surveillance from November 1st, 2024 to October 31st, 2025. 370 K€, around 22% of this budget was dedicated to piloting GIHSN implementation in new sites.
- 243 K€ was spent to ensure the coordination and data infrastructure of the GIHSN platform; 93 K€ was used for centralized laboratory activities and sequencing.

Acknowledgements

Investigating sites (year 2025):

- Brazil: Hospital Pequeno Principe, Curitiba (Sonia Mara Raboni, MD, PhD; Heloisa Isle Giamberardino, MD, PhD)
- Canada: The CIRN Serious Outcomes Surveillance (SOS) Network, Halifax (Shelly A. McNeil, MD and Melissa K Andrew)
- Colombia-Antioquia: Laboratorio de Salud Publica de Antioquia, Medellin (Idabely Betancur Ortiz)
- Colombia-Cartagena: Laboratorio UNIMOL, Universidad de Cartagena, Cartagena de Indias (Dacia Isabel Malambo Garcia)
- Côte d'Ivoire: Institut National d'Hygiène Publique (INHP), Abidjan (Daouda Coulibaly, MD)
- France: Respivac, ANRS-MIE, Paris (Liem Luong)
- Guatemala: Fundacion para la Salud Integral de los Guatemaltecos, Coatepeque/Chiquirines (Daniel Olson)
- Hong Kong : The Chinese University of Hong Kong (Lai Koon Chi Christopher)
- Hong Kong: The University of Hong Kong, Department of Microbiology, Hong Kong (Kelvin To)
- Kenya: Kenya Medical Research Institute (KEMRI), Nairobi (Nancy A. Otieno, PhD)
- Lebanon: American University of Beirut, Beirut (Dr Ghassan Dbaibo, MD; Celina Boutros)
- Madagascar: Institut Pasteur de Madagascar, Antananarivo (Jean-Michel Heraud, Norosoa Razanazatovo)
- Mexico : Instituto Nacional de Enfermedades Respiratorias, Mexico City (Joel Armando Vazquez Perez)
- New Zealand: New Zealand Institute for Public Health and Forensic Science Limited - PHF Science (Sue Hang; Ruth Seeds)
- Pakistan: National Institute of Health, Islamabad (Dr Muhammad Salman; Nazish Badar)
- Peru: Instituto de Medicina Tropical Universidad Nacional Mayor de San Marcos, Lima (Victor Alberto Laguna-Torres, MD)
- Poland: National Institute of Tuberculosis and Lung Diseases (Joanna Chorostowska-Wynimko)
- Romania: National Institute for Infectious Diseases "Prof. Dr. Matei Bals", Bucharest (Anca Cristina Draganescu, MD, PhD; Oana Sandulescu)
- Russian Federation - Moscow: Federal Research Budgetary Institute "National Research Center of Epidemiology and Microbiology named after honorary academician N.F. Gamaleya, Moscow (Elena Burtseva, MD, PhD)
- Russian Federation - St-Petersburg: Smorodintsev Research Institute of Influenza, St Petersburg (Anna Sominina; Daria Baibus)
- Senegal: Institut Pasteur of Dakar (IPD), Dakar (Ndongo Dia, MD)
- South Africa: Vaccines and Infectious Diseases Analytics Research Unit, Faculty of Health Sciences, University of the Witwatersrand, Johannesburg (Vicky Baillie)
- Spain - Valencia: Fisabio-Public Health, Valencia (Alejandro Orrico Sanchez; Ainara Mira Iglesias)
- Ukraine: SI Kyiv City Center for Diseases Control and Prevention of the Ministry of Health of Ukraine, Kyiv (Alla Mironenko; Nataliia Teteriiuk)
- Uganda: Makerere University Walter Reed Project (Denis Karuhize Byarugaba, BVM, PhD)
- USA: Icahn School of Medicine at Mount Sinai, NYC (Viviana Simon, MD)

Members of the Independent Scientific Committee, Members of the Executive Committee.

Fondation de France (Aurélie Mercier).

Foundation for Influenza Epidemiology (Cedric Mahe; Laurence Torcel-Pagnon; Sandra Chaves).

National Influenza Center, Lyon, France: Bruno Lina; Laurence Josset; Antonin Bal; Nathalie Bergaud; Gwendolyne Burfin; Gregory Queromes; Hadrien Regue; Quentin Semanas.

Impact Healthcare: Catherine Commaille-Chapus; Camille Hunsinger; Guillaume Bruno; Jean-Yves Robin.

Global Influenza Hospital Surveillance Network

Website
www.gihsn.org

Email
contact@gihsn.org

Follow us
www.linkedin.com/company/gihsn/