GIHSN 9TH ANNUAL MEETING, 25-26 OCTOBER 2021

WELCOME & OPENING OF THE MEETING

Catherine COMMAILLE-CHAPUS, GIHSN Coordination
WELCOME TO THE GIHSN COMMUNITY!

9th ANNUAL MEETING
2020-2021 SEASON
25-26 October 2021
ORGANISATION OF THE MEETING

❖ 25 OCTOBER 2pm-4pm CET – PLENARY SESSION
  ▪ GIHSN update & perspectives
  ▪ External speeches from WHO, GISAID and the Global Virus Network
  ▪ 2020-2021 season results

❖ 26 OCTOBER 9am-12am & 2pm-5pm CET – 2 REGION SPECIFIC SESSIONS
  ▪ 2020-2021 season results by site
  ▪ Implementation challenges for the coming season
  ▪ Publication update
# Plenary Session 25 October 2pm-4pm CET Agenda

**Monday 25th Oct 2pm - 4pm CET: Plenary Session (All)**

<table>
<thead>
<tr>
<th>Time</th>
<th>Session Title</th>
<th>Presenter(s)</th>
</tr>
</thead>
<tbody>
<tr>
<td>2:00 - 2:05</td>
<td>Welcome &amp; Opening of the Meeting</td>
<td>C Commaille-Chapus</td>
</tr>
<tr>
<td>2:05 - 2:15</td>
<td>GIHSN Update &amp; Perspectives</td>
<td>C Mahé</td>
</tr>
</tbody>
</table>
| 2:15 - 2:30 | The Global Virus Network  
Presentation and Q&A                                                                  | Dr C Bréchet                         |
| 2:30 - 2:45 | GISAID: Update on Covid-19  
Presentation and Q&A                                                                 | S Maurer-Stroh                       |
| 2:45 - 3:00 | GISRS and Covid-19 Impact  
Presentation and Q&A                                                                | Dr V Cozza                           |
| 3:00 - 3:15 | Lyon center of excellence on respiratory pathogens  
Presentation and Q&A                                                              | Pr B Lina                           |
| 3:15 - 3:35 | GIHSN 2020-2021: Descriptive Analysis & Results  
Sequencing Update                                                                  | C Commaille-Chapus                  |
| 3:35 - 3:55 | GIHSN 2021-2022: Participating sites  
Protocol Highlights                                                                   | L Torcel-Pagnon  
S Chaves                           |
| 3:55 - 4:00 | Closing of the Plenary Session                                                 |                                     |
WEBINAR RULES

Please do not forget to switch off your microphone when you are not speaking.

Questions will be discussed after the presentations. Please raise your hand or use the chat/discussion button.

A dedicated on-boarding meeting will be proposed to new sites to answer all their questions.

Speakers are kindly asked to stick to the speaking time allotted!

Please note that the session will be recorded.

Thank you all for your cooperation.
GIHSN 9TH ANNUAL MEETING, 25-26 OCTOBER 2021

GIHSN UPDATE & PERSPECTIVES 2021-2022

Cédric MAHE, President, Foundation for Influenza Epidemiology

Foundation for Influenza Epidemiology
ASSETS OF THE NETWORK

- Network of **sentinel hospitals** identifying **acute respiratory infection** cases according to a **similar protocol**
- 100+ hospitals in 20+ sites worldwide collecting **clinical data**, **virological data** and **virus genome sequencing**.
- **Co-funded** by local authorities and by the Foundation for Epidemiology which provides **private sector catalytic funding** under the format of grants

**Assets of the network**
- Empowered community of motivated sites owning their data
- Use of existing infrastructures combined with capacity building
- Severe respiratory disease surveillance (potentially multi-pathogens)
- Link between clinical outcomes and virus genome sequencing

More information on [www.gihsn.org](http://www.gihsn.org)
COVID-19 pandemic has stressed the weakness of the current systems
- Disruption of existing systems > need for a targeted genetic sequencing scale up and resilient surveillance system
- Alternative tools involving both public and private sector have emerged (COVAX, GISAID, CEPI) > need for a multi-stakeholders approach. Private sector could play an important role

The uncertainly about other respiratory virus circulation timing and impact post SARS-CoV-2 (including potential pandemic threats) make such surveillance even more important

The GISHN offers a capable instrument and a community which have shown resilience over 9 years including during the pandemic – it relies on existing national assets

This sentinel platform can be scaled-up and leverage to be part of a larger pandemic preparedness system

A governance system is already place to allow for private sector catalytic funding, minimizing risk of conflicts of interest (no earmarking, independent scientific committee, grant format/data access)
GIHSN 9TH ANNUAL MEETING, 25-26 OCTOBER 2021

THE GLOBAL VIRUS NETWORK

Dr Christian BRECHOT, MD, PhD, President of the Global Virus Network

Foundation for Influenza Epidemiology
GIHSN Annual Meeting 2021
Overview of Global Virus Network

Christian Brechot, MD, PhD
President, Global Virus Network
Senior Associate Dean for Research in Global Affairs
Associate Vice President for International Partnerships and Innovation
Professor in the Division of Infectious Disease, Department of Internal Medicine
Morsani College of Medicine, University of South Florida, USA
What went wrong?

➢ Lack of coordination: national vs international strategies  
   Global cooperation; interconnection of every personal health  
   Ex: COVAX

➢ Health care system organizations

➢ Science/Medicine/Public Health-driven political decisions: EXPERTIZE  
   ex: Virus sequenced on Jan 5th in China. Immediately made public  
   Masks  
   Diagnostics

➢ Communication: fake news/social networks
Global Virus Network

• The GVN was co-founded in 2011
• A non-profit global organization based in Baltimore, Maryland, USA

• A coalition comprised of leading virologists working to:
  • Advance discovery and knowledge on how viruses cause disease
  • Develop drugs and vaccines to prevent illness and death
• 65 Centers of Excellence
• 12 Affiliated Institutions
• In 35 Countries

The Global Virus Network

EXPERTIZE

Research

Reactivity

Education/Training

Academic-Industrial Partnerships

Advocacy

Communication

Regional GVN's
Vision

“A world prepared to prevent, contain and control viral epidemic threats, through the collaboration of a global network of expert virus laboratories.”

Mission

“To strengthen medical research and response to current viral cases of human disease and to prepare for new viral pandemic threats.”
Regional GVN Meetings

- Latin America & Caribbean in March, June, Sep, and Dec 2021
- Africa Regional Meeting in July and Oct 2021
- Southeast Asia in 2021 or 2022

Past:
- Africa in 2019
# Programs & Initiatives Overview

## RESEARCH

- Hepatitis B Database
- Joint Grant Applications
- Annual Meetings
- Regional Meetings
- Zika Serum Bank
- Chikungunya Task Force
- Anticipation & Preparedness Task Force & Virus Watch Group
- HTLV-1 Task Force
- Zika Task Force
- SARS-CoV-2 Task Force
- SARS-CoV-2 Biobank

## TRAINING AND EDUCATION

- GVN Short Course
- Hepatitis C Provider Training
- GVN Regional Chapters
- GVN Academy
- GVN Postdoctoral Fellowship
- GVN Online Medical Virology Class
- GVN Microbiome & Viral Infection Online Course

## ADVOCACY, PUBLIC EDUCATION AND COMMUNICATIONS

- Ebola FAQs
- GVN Intranet
- Forefront COVID-19 Online Seminars
- GVN Viral Infection Preparedness Education and Resilience (VIPER) Advisory Group
- GVN Perspectives
- Weekly GVN Newsletter
- Press releases and Op-eds
GVN SARS-CoV-2 Activities Highlights

SARS-CoV-2 Task Force

- Biobanking Project
- Research & Clinical Trials
- Dr. Brechot’s Health and Care Blog

GVN SARS-CoV-2 Perspectives

- GVN Center and Member Spotlights
- GVN: Forefront of Virology COVID-19 Webinar Series

Dr. Brechot's Health and Care Blog

GVN SARS-CoV-2 Task Force Webinar Series

GVN Center of Excellence Spotlight: Dr. Christian Brechot, President, Global Virus Network, Professor, University of South Florida

GVN: Forefront of Virology COVID-19 Webinar Series

GVN Center Spotlight: Dr. Christian Brechot, President, Global Virus Network, Professor, University of South Florida

 GVN Center Spotlight: Pontiano Kaleka

GVN Center Spotlight: View All GVN Center Spotlights

GVN: Forefront of Virology COVID-19 Webinar Series

GVN: Dr. Christian Brechot’s Weekly Blog: June 24, 2020

GVN Forefront of Virology COVID-19 Webinar Series

GVN SARS-CoV-2 Response Effort Highlights
SARS-CoV-2 Task Force

- Representatives from 32 GVN centers in 13 countries.
- Meet virtually biweekly-monthly to share the most recent and advanced research findings, and to discuss developments in diagnostic, serological tests, and vaccines.

To date: Hosted **24** meetings in total

### TASK FORCE MEMBERS

- Larry Blatt (GVN, USA)
- Christian Brotho (GVN, USA)
- Franco Buonsignore (Istituto Tumori, Italy)
- Mike Catton (Doherty/VIDRL, Australia)
- Konstantin Chumakov (FIO AVIR, USA)
- Christian Drosten (Charité U of Berlin, Germany)
- Julian Druce (Doherty/Melbourne Hospital, Australia)
- Heinz Ellerbricks (Robert Koch Institute, Germany)
- Rebecca Elliott (Doherty Institute, Australia)
- Matthew Frieman (University of Maryland School of Medicine, USA)
- Robert Gallo (UMD, USA)
- Robert Garry (Tulane, USA)
- Howard Gendelman (University of Nebraska Medical Center, USA)
- Elodee Ghezdi (NYU Global Public Health, USA)
- Dale Godfrey (University of Melbourne, Australia)
- Tony Goldberg (University of Wisconsin, USA)
- Brendha Gupta (Nepal Independent, Nepal)
- William Hall (University College Dublin, Ireland)
- Giuseppe Ippolito (National Institute for Infectious Diseases Lazzaro Spallanzani, Italy)
- Alexander Kehrmayr (University of Queensland (AIIRC), Australia)
- Marion Koopmans (Erasmus MC, Netherlands)
- Shyam Kotttil (UMD, USA)
- Florian Krammer (Icahn School of Medicine at Mount Sinai, USA)
- Chris Kratzschl (University of Nebraska Medical Center, USA)
- Benhur Lee (Icahn School of Medicine at Mount Sinai, USA)
- Sharon Lewin (Doherty Institute, Australia)
- Natalia Majo (IBTA-CRESA, Spain)
- Roscoe Moore (GVN, USA)
- Gene Morde (University at Buffalo, USA)
- Mihai Neacsu (Kadieuniversity, Netherlands)
- Johan Neyts (KU Leuven, Belgium)
- Ab-Derehmane (THI Hannover, Germany)
- David Ostrow (University of Florida, USA)
- Peter Palese (Sara School of Medicine at Mount Sinai, USA)
- Damian Purcell (Doherty Institute, Australia)
- Igor Puzonos (Rosewell Park Cancer Institute, USA)
- Pardis Sabeti (Broad Institute, USA)
- Amadou Sall (Institut Pasteur, Senegal, Senegal)
- Erica Ollmann Saphire (La Jolla Institute, USA)
- Syed Sattar (University of Ottawa, Canada)
- Richard Schuemann (J. Craig Venter Institute, USA)
- Ray Schneid (GVN Board/Emory University, USA)
- Joaquin Segales (ITBA-CRESA, Spain)
- Yiming Shao (China CDC, China)
- Robert Silverman (Lerner Research Institute – Cleveland Clinic, USA)
- Christine Stabell Bell (Southern Denmark University, Denmark)
- Andreas Suhre (QIMR Berghofer (AIIRC), Australia)
- David Topham (University of Rochester, USA)
- Linfa Wang (NUS-Duke, USA)
- Scott Weaver (University of Texas Medical Branch, USA)
- Paul Young (University of Queensland (AIIRC), Australia)
GVN: Forefront of Virology COVID-19 Webinar Series

- COVID-19 related science sharing, featuring expert virologists from GVN centers around the world.
- Previous seminars are posted on our YouTube channel:

Please join us and subscribe our YouTube channel
GVN Biobank Program

- Global collaboration efforts to assist with the development of diagnostics, vaccines, and therapeutics
- Efficient control of epidemics/pandemics by sharing clinical samples and data
  - **GVN**: providing oversight and coordination; platforms and protocols for research projects
  - **Centers**: conducting clinical sample collection; analyses and data collection
  - **Outcomes**: establishment of a database system by storing analytical and clinical data; evaluation of therapeutical and diagnostic protocols
GVN International Meetings

2011
Washington DC, USA & Dublin, Ireland

2012
Naples, Italy & Baltimore, USA

2013
Munich, Germany & Moscow, Russia

2015
Beijing, China

2016
Sapporo, Japan

2017
Melbourne, Australia

2018
Annecy, France

2019
Barcelona, Spain

2020
Virtual Special Annual Meeting

10th International Global Virus Network Meeting

2020 Global Virus Network
Special Annual Meeting

2020 Global Virus Network Special Annual Meeting
Epidemics and Pandemics in the Modern Era
GVN Academy Program

• GVN Postdoctoral Fellowship Training Program
• GVN Rising Star Mentorship Program
• GVN Short Course: Emerging Leaders in Virology
• GVN Online Short Course
• GVN Alumni Networking Series
GVN Postdoctoral Fellowship Training Program

Goal
• Fostering global collaborations and increasing capacity building of junior virologists globally

Program Details
• To recruit and train three postdoctoral trainees for a 2-year term
• Rotate at two GVN Centers of Excellence during their 2-year program
• Mentors-Mentee match based on the research interests
• Participate in GVN annual/regional meetings
• Establish contact with industrial partners for further collaborations
• Meet and network with senior GVN scientists

Upcoming trainees:
• 3 trainees are supported
Overview

• The GVN rising star initiative is an investment in a small group of outstanding junior virologists/scientists to help promote their careers and increase the capacity building in their regions.

Program Details

• To recruit 5 junior scientists for Year 1 and 10 for Year 2
• Mentor-mentee match and interactions
• Participate in GVN annual/regional meetings
• Networking opportunities

Who Can Apply

• Ranking from Post-doctoral Research Associate to Associate Professors in the GVN Academic Centers
• Conducting research in a basic, medical or veterinary virology targeting vaccine, therapy, and diagnostics
• Research experience with a good track record of publications

Benefits of being a Rising Star

• Financial support to attend a GVN meetings and workshops
• Opportunity to get trained for grantsmanship
• Opportunity to identify research collaborators and strengthen research program and publications
GVN & USF Online Course: Microbiomes and their Impact on Viral Infections

- World-renowned Speakers
- 2 certificated noncredit courses
  - Introduction on the Microbiomes, 11 modules
  - Symbiotic Evolutions in the Microbiome World, 9 modules
- Self-paced, Online format
- GVN awarded four competitive scholarships to Africa based virologists working on the frontlines of the pandemic.
Online Short-Course for Emerging Leaders in Virology Part 1:

• Partner with University of South Florida, we are assembling an online version of the short-course to benefit more emerging leaders in virology, especially in middle- and low-income counties.

• Estimated Completion Date: Late 2021
Online Short-Course for Emerging Leaders in Virology Part 2: Oncology

• Sub course of the online short-course will focus on cancer virology - an increasingly important topic.

• Estimated Completion Date: Early 2022
GVN Corporate Partnership Program (GCCP)

• A platform for partnerships to strengthen international viral preparedness and response between business community and leading medical virologists

• To support research, training activities and increased awareness of medical virology issues, and address the risks and impacts of human viral diseases, including SARS-CoV-2.
Corporate Partnerships Activities Highlights

• Biobanking
• Emerging Pathogens Discovery Network Working Group
• Postdoctoral Fellowship Training Program
• Testing Product Effectiveness against SARS-CoV-2
• Developing Product Testing Protocols
• Clinical and Genome Sequencing
• Validation of Diagnostic Testing Kits
• Getting accurate and timely information to our members and the general public is our primary goal during this pandemic.

• Since August 2020: 70,000 + pageviews of GVN website from around the world.

• IN 2020: GVN has been featured in
  • 25 Press Releases
  • 3 Op-eds & LTE: USA Today, WSJ, NYT
  • 1 International Press Conference
  • 116 News Articles
  • 30 TV Appearances
  • 10 Radio Appearances
GVN Public Education

GVN: AN information hub for the dissemination and sharing of COVID-19 updates for scientists and the general public

• GVN Weekly Brief
  • Distribute the new insights of COVID-19 to the GVN scientists and the general public
  • To date: 33 issues

• GVN SARS-CoV-2 Perspectives
  • GVN scientific column about the latest scientific progress surrounding SARS-CoV-2.
  • To date, 24 posts

• Dr. Brechot’s Health and Care Blog
  • Continuously updated resource by Dr. Brechot for novel insights into the current pandemic. To date: 26 posts

• Global Health Conversation Series with USF Health International
GVN to Become a Worldwide Information Resource for COVID-19 Vaccines and Variants

GVN COVID-19 Variants and Vaccines Resource Portal

gvn.org
GIHSN 9TH ANNUAL MEETING, 25-26 OCTOBER 2021

GISAID: UPDATE ON COVID-19

Sebastian MAURER-STROH, GISAID
GISAID: Update on Covid-19

Sebastian Maurer-Stroh
Real-time data sharing during the COVID-19 Pandemic => Trust

Submitters’ choice: GISAID's transparent sharing mechanism vs. anonymous access public-domain

- Data Providers do not forfeit their Rights to the Data
- Access is free-of-charge and open to everyone provided they identify themselves
- Users need to foster collaboration and acknowledge the contribution of Data Providers
GISAID submission modes and rich meta-data => Quality

- Team across time zones to ensure 24/7 curation of data and active dialogue with submitters
- Average ~280 daily email exchanges with EpiCoV users and submitters since start of pandemic
GISAID EpiCoV tools => Insights

- Submission/Curation
  - New fields: sampling strategy

- Tools on the outside:
  - Submission tracker map
  - Genomic epidemiology
  - Variant tracking

- Tools on the inside:
  - Reporting:
    - Analysis reports and downloads
    - Audacity
    - PrimerChecker
    - EpiCoV search
  - New variants:
    - CoVsurver
    - Spike mutation surveillance
    - Emerging Variants
    - CoVizu
  - Contact Tracing:
    - Audacity Instant
    - BLAST

Supported by BII/GIS, A*STAR, Singapore
Insights: Value of real-time genomic surveillance

• Can you detect it?
  Check if mutations affect diagnostic kits

• How is it spreading?
  Global clade trends, Contact tracing

• Do vaccines work?
  Variants with changes affecting receptor or antibody binding

Supported by BII/GIS, A*STAR Singapore
We gratefully acknowledge the Authors from Originating and Submitting laboratories of sequence data on which the analysis is based.
Regional distribution of variants in sequences collected from 2021-09-24 to 2021-10-22

Change in proportions of variants compared to the four weeks before 2021-09-24

See https://www.who.int/en/activities/tracking-SARS-CoV-2-variants/ for variant information and definitions
Timecourse of Delta variant sublineage distribution in all submitted sequences 2021-10-22

We gratefully acknowledge the Authors from Originating and Submitting laboratories of sequence data on which the analysis is based.

See https://www.who.int/en/activities/tracking-SARS-CoV-2-variants/ for variant information and definitions.
CoVsurver real-time surveillance for mutations that can affect vaccines

1,680 variant phenotype annotations from literature plus 3,826 3D interactions

Supported by BII/GIS, A*STAR Singapore
Variation within Delta: AY.4.2

- A222V has been part of “summer variant” (clade GV) in 2020 and might have slight fitness effect through stability changes.
- Y145H is partially exposed to antibody binding sites in the NTD and might contribute mildly to vaccine efficacy changes. Y145H is sometimes missed through sequencing with the older Arctic 3 protocol.
Trust, Quality and Insights enable the value of real-time virus genomic surveillance

- Trusted sharing platform
- Global 24/7 quality checks
- The right analysis tools

Thank You!
GIHSN 9TH ANNUAL MEETING, 25-26 OCTOBER 2021

GISRS AND COVID-19 IMPACT

Dr Vanessa COZZA, Global Influenza Program, WHO
GISRS and COVID-19 impact

Global Influenza Programme

GIHSN Annual Meeting 2021
25 October 2021 • Virtual meeting
COVID-19 pandemic impacted on GISRS

Reporting flu data to FluNET

Virus shipments to WHO CCs – SFP
Integrated surveillance of influenza and SARS-CoV-2

- **Diagnostic support**
  - Flu – SARS-CoV-2 multiplex from WHO CC (US CDC) via influenza surveillance reagent resource channel – free of charge

- **Experience sharing webinars and trainings**
  - Bioinformatics, Multiplex, Reporting to FluMart

- **Demonstration project (27 countries: 23LMICs)**
  - To develop best practice models for the E2E integration of influenza and SARS-CoV-2 virologic and genomic surveillance

- **WHO EQA – 2021**
  - 20th WHO EQAP for influenza
  - 2nd WHO EQAP for SARS-CoV-2
Integrated sentinel surveillance of influenza & SARS-CoV-2
- a country example

Every week:

- **COVID-19 trends** from sentinel surveillance and universal testing **match** well
- Testing **~1500 times LESS** specimens in sentinel surveillance
- Testing an average of **142 specimens per week** from sentinel surveillance monitors both influenza and SARS-CoV-2 at the same time.

<table>
<thead>
<tr>
<th>Average number of sentinel samples tested for <strong>COVID-19</strong> and <strong>influenza</strong></th>
<th>142</th>
</tr>
</thead>
<tbody>
<tr>
<td>Average number of specimens in <strong>COVID-19</strong> universal testing</td>
<td>209,794</td>
</tr>
</tbody>
</table>
GISRS sentinel surveillance of influenza & SARS-CoV-2
- GISRS capacity for SARS-CoV-2 as of 19 Sep 2021

- At least 79% GISRS labs submitted WGS to GISAID
  - 123 labs from 104 countries
  - 68 GISRS labs support sequencing for other GISRS and non-GISRS labs
Influenza – SARS-CoV-2 outputs

Dashboard: Influenza-SARS-CoV-2 dashboard

Influenza Update N° 403
27 September 2021, based on data up to 12 September 2021.

In this update, information on SARS-CoV-2 virus detections from sentinel and non-sentinel surveillance performed by GISRS and GISRS-associated influenza surveillance systems and reported to FluNet is included in addition to the routine influenza surveillance information.

Summary
- The current influenza surveillance data should be interpreted with caution as the ongoing COVID-19 pandemic has influenced to varying extents health seeking behaviours, staffing/ routines in sentinel sites, as well as testing priorities and capacities in Member States.

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

- WHO Global Influenza Programme
- WHO Regional Offices

- WHO GISRS (Global Influenza Surveillance and Response System)
- GISRS associated national/sub-national surveillance systems
- Countries hosting GISRS institutions
- GISAID
Thank You
GIHSN 9TH ANNUAL MEETING, 25-26 OCTOBER 2021
LYON CENTER OF EXCELLENCE ON RESPIRATORY PATHOGENS (CERP)

Pr Bruno LINA, Lyon University

Foundation for Influenza Epidemiology
CENTRE OF EXCELLENCE ON RESPIRATORY PATHOGENS (LYON)

- Public – Private partnership between the Hospices Civils de Lyon (HCL) and SANOFI

- Build on existing competencies and collaborations
  - National reference centre for respiratory viruses (Incl. Influenza and emerging viruses)
  - GENEPII sequencing platform hosted by HCL
  - GIHSN sequencing facility (Staff and equipment)
  - DRIVE and CoviDRIVE european projects
THE VISION AND AMBITIONS

- **Vision:** To set up a global center of excellence in Lyon generating evidence to support decision making related to respiratory pathogens.

- **Mission**
  - To create excellence in **multi-disciplinary research** combining virology, epidemiology, analytics, biocomputing and modeling.
  - To ensure a continuum from data collection (**surveillance** & capacity building) to **data use for policy making** (analytic, modeling and external engagement).
  - To be a **convener for the major stakeholders working on this thematic** and to develop public-private instruments to ensure synergies of the global investments.
NEXT STEPS

❖ Co-construction of a roadmap with the various local and global actors (by end 2021)

❖ Identification of an Industrial Chair to lead the center
  - Expertise in respiratory infectious diseases
  - Strong background in at least one of the following fields (epidemiology, virology, modeling, public health) and a strong entrepreneurship mindset. A clear appreciation for the other aspects and modern data science techniques are expected
  - Mid-level professional - associate professor experience including supervision of students and multi-functional research programs
  - International credibility and strong publication record
  - Leadership, good communication skills
  - Fluent in English and good command of French
  - Willing to relocate to Lyon
  - Previous experience working in collaboration with private sector/industry a plus
GIHSN 9TH ANNUAL MEETING, 25-26 OCTOBER 2021

GIHSN 2020-2021: DESCRIPTIVE ANALYSIS & RESULTS

Catherine COMMAILLE-CHAPUS, GIHSN Coordination
18 SITES (+1) HAVE BEEN PARTICIPATING IN THE GIHSN FOR THE 2020/21 SEASON

North America
Canada
Mexico

South America
Brazil
Peru

Eurasia
France
Romania
Russia-Moscow
Russia-St Pet
Spain
Ukraine

Africa
Kenya
Morocco
South Africa
Ivory Coast

Middle East
Lebanon
Turkey

Asia/Pacific
China-Fudan
India
Nepal

Data collection still on-going
Clinical data were to be collected for all respiratory hospitalizations meeting case definition, irrespective of lab test results.

PCR test were to be done for flu (Priority). If multiplex PCR and/or wet assay for COVID-19 (and RSV and other respiratory viruses) could be performed in addition, it was a strong added value.

All COVID-19 data and SARS-CoV2 testing results were to be entered in GIHSN database.

All swab samples taken from participating patients were to be stored to allow for further testing if needed after the season.

WGS was to be done in all flu+ samples at local level or sent to Lyon. If volume was low, sites were encouraged to complete if possible the shipment with SARS-CoV2 positive samples/RNA for sequencing at Lyon lab. The total number of 50-100 WGS per site was expected to be observed.

Sites were encouraged to upload WGS for SARS-CoV2 identified in GIHSN participating patients in GISAID (when done locally) with the unique identifier (GIHSN tag).
GIHSN 2020-2021: OVERVIEW
(DATA COLLECTION STILL ON-GOING)

#included = 15 533

#LCI = 132

#SARS-CoV2+ = 2 858
(out of 10 029 tested - 28.5%)

#RSV+ = 597
(out of 7513 tested - 7.9%)

#ORV+ = 2 470
(out of 7908 tested - 31.2%)

#WGS (incl 2 flu+) = 273
GIHSN 2020-2021:
PATIENT DISTRIBUTION BY AGE GROUP

Patient distribution by Age Group

- <5 yo: 5749
- 5 - 18: 1272
- 18 - 45: 1773
- 45 - 65: 3124
- 65 - 80: 2838
- 80+: 1722

N = 15,533
GIHSN 2020-2021: PATIENT DISTRIBUTION BY SITE (ALL INCLUDED)

21 October 2021

N= 15 533
GIHSN 2020-2021:
PATIENT DISTRIBUTION BY SITE (+ CASES ONLY)

21 October 2021

N= 6,057
GIHSN 2020-2021: VIRUS DISTRIBUTION BY SITE

21 October 2021

Virus distribution by site (20_21)
ORV+ and Influenza+ (#)

#LCI+ = 132
#RSV = 597
#SARS-CoV2+ = 2858
#ORV+ = 2470

Site

Adenovirus
Bocavirus
Metapneumovirus
Parainfluenza Virus
Rhinovirus
Respiratory Syncytial Virus
SARS-CoV-2
Others
Influenza
Human Corona

N = 6057
GIHSN 2020-2021:
VIRUS DISTRIBUTION BY AGE

21 October 2021

Virus distribution by age (20_21)
ORV+ and Influenza+ (#)

N= 6057

Age group

< 6m 6-11m 12-23m 2-4y 5-9y 10-14y 15-49y 50-64y 65-80y + 80y

# patients

1,25K 1,00K 750K 500K 250K 0

Adenovirus Bocavirus Metapneumovirus Parainfluenza Virus Rhinovirus
Respiratory Syncytial Virus SARS-CoV-2 Others Influenza Human Corona Virus

Global Influenza Hospital Surveillance Network
Copyright GIHSN 2021
GIHSN 2020-2021:
6 SITES HAVE SUBMITTED WGS RESULTS TO DATE

❖ Additional WGS results are expected from the following sites:
  - Spain
  - Kenya (all flu specimens with strong ct values will be sequenced, results expected by end of October)
  - Canada (expected)
  - Lebanon (samples sent to Lyon)
GIHSN (ALL SEASONS):
PATIENT DISTRIBUTION BY SEASON

Patient distribution by season

N= 105,406

Season

12_13 13_14 14_15 15_16 16_17 17_18 18_19 19_20 20_21

Patient distribution

INCLUDED LCI+ ORV+ SARS-CoV-2+ SEQUENCED
GIHSN 9TH ANNUAL MEETING, 25-26 OCTOBER 2021

GIHSN 2020-2021: SEQUENCING UPDATE

Pr Bruno LINA, University of Lyon
## SEQUENCING UPDATE 2020-2021 – LYON LAB

<table>
<thead>
<tr>
<th>Country/site</th>
<th>date reception</th>
<th>Nb specimen received (RNA)</th>
<th>Nb specimen pending (RNA)</th>
<th>nb sequences validated by CNR</th>
<th>nb sequences failed</th>
<th>GISAID upload</th>
<th>pending up-load</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ukraine 1</td>
<td>24/06/2021</td>
<td>43</td>
<td></td>
<td>40</td>
<td>3</td>
<td>40</td>
<td></td>
</tr>
<tr>
<td>India</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Brazil</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>France</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Kenya</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Liban</td>
<td>24/06/2021</td>
<td>200</td>
<td></td>
<td></td>
<td></td>
<td>200</td>
<td></td>
</tr>
<tr>
<td>Peru</td>
<td>07/09/2020</td>
<td>64</td>
<td>35</td>
<td>64</td>
<td></td>
<td></td>
<td>64</td>
</tr>
<tr>
<td>total sample</td>
<td></td>
<td>307</td>
<td>38</td>
<td></td>
<td></td>
<td>104</td>
<td>264</td>
</tr>
<tr>
<td>total sequences OK</td>
<td></td>
<td>104</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>total sequenced failed</td>
<td></td>
<td>3</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>40</td>
</tr>
<tr>
<td>total GISAID upload</td>
<td></td>
<td>40</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>264</td>
</tr>
<tr>
<td>total up-load pending</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
GIHSN 9TH ANNUAL MEETING, 25-26 OCTOBER 2021

PARTICIPATING SITES FOR THE 2021-2022 SEASON

Laurence TORCEL-PAGNON, Executive Officer, Foundation for Influenza Epidemiology
SITES SELECTION PROCESS

- The yearly Call for Proposals was published in May 2021 on the GIHSN website.

- Sites applied on-line following a GIHSN application template.

- All proposals have been reviewed and quoted by the experts from the Independent Scientific Committee according to the evaluation criteria:
  - Experts did not quote proposals coming from their own country

- Grant allocations decision has been made by the Executive Committee of the Foundation based on experts grading, sites past contribution in the GIHSN, geographical representativeness and budget availability.

- 20 sites have been selected.
20 SITES IN 19 COUNTRIES WILL PARTICIPATE IN THE 2021/22 SEASON

North America
Canada
USA-NYC

South America
Brazil-Curitiba
Peru-Lima

Eurasia
France-Paris
Romania
Russia-Moscow
Russia-St Pet
Spain
Ukraine

Africa
Kenya
South Africa
Centre Afrique-Bangui
Ivory Coast
Senegal-Dakar

Middle East
Lebanon
Turkey

Asia/Pacific
China-Fudan
India-Pune
Nepal

2020-2021
New sites
GIHSN PROTOCOL 2021-2022: HIGHLIGHTS

Sandra CHAVES, MD, MSc, Foundation for Influenza Epidemiology
MAIN OBJECTIVES – REMINDER

• Expand international laboratory and surveillance capacity and data sharing

• Support the biannual WHO vaccine strain selection process

• Link clinical and virologic (including whole genome sequence) data from hospitalized patients with acute respiratory illness
SPECIFIC ASPECTS UNDERSCORED IN THE 2021-22 SEASON CALL FOR TENDER

• Screening and inclusion of hospitalized patients with respiratory illness meeting protocol case definition year-round (November 2021 to October 2022)

• Collection of epidemiologic and clinical data for all participating patients (i.e., those who meet case definition and consent to participate), with a standardized questionnaire administered at enrolment and a chart abstraction at patient discharge/death

• Enrolled patients would have respiratory specimen collected shortly after hospital admission and sent for testing at the local and/or reference laboratory or National Influenza Centre
**LABORATORY**

- PCR test for influenza a priority. If **multiplex PCR and/or wet assay for SARS-COV-2** (and RSV and other respiratory viruses) can be performed in addition, it would be a strong added value.

- Storage (-20C or -70C) of respiratory samples (swabs) from **all swabbed patients for a minimum of one year**. This can facilitate retrospective investigations on pathogen discovery, or evaluation of new diagnostic tools (ad hoc applications possible).

- WGS for a minimum of 50 to 100 influenza viruses will be expected. **If number of influenza positive cases are low, site is encouraged to complete WGS of SARS-COV-2**
  - WGS data uploaded to GISAID by site in a reasonable timeframe, so results are available for the WHO Vaccine Composition Meeting.
  - Link between WGS data uploaded in GISAID and clinical data in GIHSN required.
Sampling strategy suggestion for year-round surveillance:

- Depending on the local circumstances, if number of screened and enrolled participants are expected to overwhelm local hospital capacity, the site can develop a sampling strategy to keep the surveillance throughout the year (i.e., November 2021 – October 2022). We suggest that, in this situation, the site can define 3 days of the week for systematic screening and enrolment of patients. Respiratory samples would also be collected during these days of the week from all patients who meet the case definition and consent to participate in the surveillance. Clinical information would be collected from all enrolled patients (independently of laboratory results).

- It is important to avoid selecting patients for enrolment based on severity or vaccination status. This is because we want to be able to pool data for analysis. To be able to describe the cases based on disease presentation and distribution of epidemiologic and clinical characteristics, the selection of participants cannot be biased.
TOMORROW DISCUSSION

• Each site will present the data from previous season and highlight achievements and challenges

• Discuss surveillance implementation
  • Case ascertainment
  • Case definition
  • Sampling and testing strategies

• Suggestions for protocol and questionnaires based on previous experience

• Publication & Call for research updates
26 OCTOBER: 2 REGION SPECIFIC SESSIONS - DISCUSS SITE RESULTS & IMPLEMENTATION CHALLENGES

9am–12am CET

SITES SESSION 1

CHINA - FUDAN
INDIA - SRINAGAR
NEPAL
LEBANON
TURKEY
RUSSIA - ST PETERSBURG
RUSSIA - MOSCOW
UKRAINE
ROMANIA

2pm–5pm CET

SITES SESSION 2

CANADA
MEXICO
BRAZIL
PERU
SOUTH AFRICA
KENYA
SPAIN
FRANCE - PARIS
THANK YOU!