



**Global Influenza
Hospital Surveillance
Network**



GIHSN 9TH ANNUAL MEETING

26 October 2021 - Regional Session 2



**Foundation for
Influenza
Epidemiology**

Sous l'égide de

**Fondation
de
France**



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www.gihsn.org



ANNUAL MEETING, 25-26 OCTOBER 2021

WELCOME & INTRODUCTION TO THE SESSION

Catherine COMMAILLE-CHAPUS, GIHSN Coordination



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26 OCTOBER: REGION SPECIFIC SESSION 2 - AGENDA

TUESDAY 26th OCT **2pm - 5pm CET: REGION SPECIFIC SESSION 2**** **(WESTERN COUNTRIES)**

2:00 - 2:05 **Welcome & Introduction to the Session** C Commaille-Chapus

2:05 - 3:20 **GIHSN Past Season: Results by site** Site investigators
Presentation by each site and discussion

Moderated by Bruno Lina

3:20 - 3:30 **Coffee break**

3:30 - 4:40 **Implementation 2021-2022** S Chaves
Year-round surveillance, Case definition, Sampling &
testing strategy ...
Presentation & discussion

4:40 - 4:55 **Publication Update** Pr B Lina
Call for Research Projects L Torcel-Pagnon
Presentation & discussion






4:55 - 5:00 **Closing**

SITES SESSION 2

Canada
Mexico
Brazil
Peru
South Africa
Kenya
Spain
France



WEBINAR RULES

-  All attendees are encouraged to participate in the discussion.
-  Please ask your questions directly or use the chat/discussion button
-  Do not forget to mute when you don't speak.
-  Site speakers are kindly asked to stick to the speaking time allotted!
-  Please note that the session will be recorded.

Thank you for your cooperation!



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ANNUAL MEETING, 25-26 OCTOBER 2021

GIHSN 2020-2021: RESULTS BY SITE

All Sites - Moderated by Bruno LINA



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GIHSN 2020-2021: RESULTS BY SITE

CANADA

Melissa K. Andrew



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CANADA



Serious Outcomes Surveillance Network

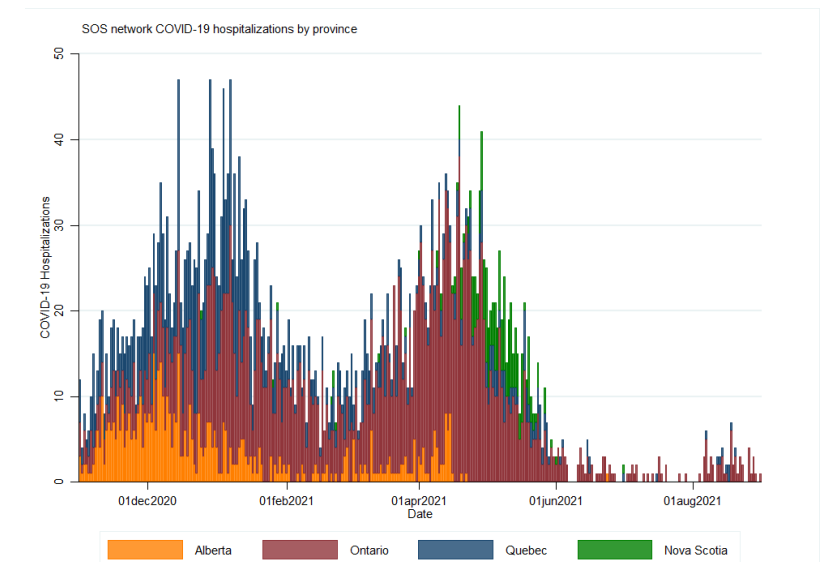


Site description

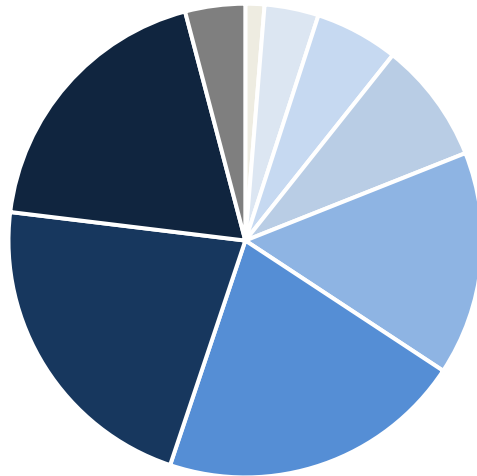
- 11 adult academic and community hospital sites in 5 Canadian Provinces (Nova Scotia, Ontario, Quebec, Alberta) representing ~6000 acute care beds
- Population enrolled is usually approximately 2/3 older adults ≥ 65 years of age, admitted to hospitals with an acute respiratory illness
- Influenza seasons in Canada typically begin with early influenza A activity, followed by a later influenza B peak; usually November through March
- Canada is currently in 4th wave COVID-19; varies by jurisdiction across the country (this year's GIHSN cases represent approximately waves 2-3)



★ 2020/21 Sites

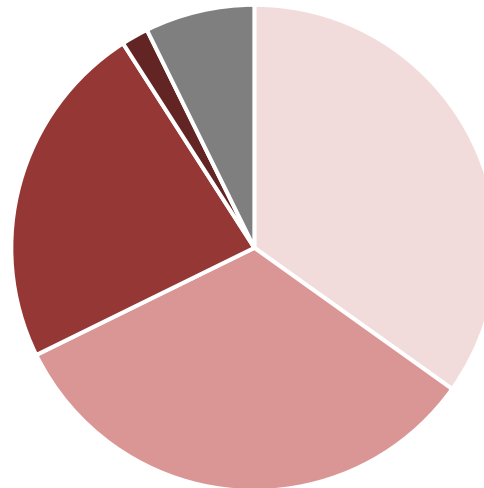


Age



■ <25
 ■ 25-34
 ■ 35-44
 ■ 45-54
 ■ 55-64
■ 65-74
 ■ 75-84
 ■ 85+
 ■ m

Frailty



■ 1,2,3
 ■ 4,5
 ■ 6,7
 ■ 8,9
 ■ m

Results *(all COVID+)*

	N = 1525
Age, mean (SD)	68.7 (17.5)
Sex, n (%) female	654 (42.9 %)
Tested ORV, n (%)	259 (17.0 %)
Clinical Frailty Scale, mean (SD)	4.3 (1.7)
Admitted to ICU, n (%)	346 (22.7 %)
Mechanical ventilation, n (%)	216 (14.2 %)
Died during admission, n (%)	306 (20.1 %)

Key messages

- Age range 19-105; 61.7% of enrolled patients >65
- Full spectrum of frailty: 34.9% not frail, only 25% >=moderately frail
- Evolution with waves of COVID-19 toward younger and less frail patients being admitted
- Vaccination data being finalized
- WGS being retrieved where possible from National Microbiology Laboratory

Conclusion & Challenges

CONCLUSIONS (findings from full SOS Network):

- In COVID waves 1 & 2, most patients were older and frail; frailty decreased in wave 3
- Mortality was higher in W1(20.8%) and W2(22.8%) compared with W3(10.6%). Patients who died were older and frailer than the mean in each wave, though in W3 the mean CFS of those who died (4.8) was < mildly frail.

CHALLENGES:

- Influenza has not been circulating since March 2020
- Getting sequencing established locally has been a challenge – now on track for influenza
- COVID testing usually done pre-hospital so samples not generally available to our research laboratory
- COVID-19 sequencing is done by the National Microbiology Laboratory and linkage to hospitalized cases can be possible in some cases but challenging – we will provide what we can to GIHSN
- Study personnel issues at busy COVID-19 sites, and data entry is sometimes delayed
- COVID control measures have varied between provinces in Canada as COVID waves rise and fall. Vaccine coverage is high yet controversial with a vocal minority. Vaccine mandates in place for many government and health care workers; mask wearing varies but is required in many places. There have been government supports for individuals and businesses; some businesses have operating restrictions. Some jurisdictions have models to provide acute care in place for Long Term Care Facilities, others transfer to hospital.



BACKUP SLIDES FOR GIHSN WEBSITE












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Methods

- Active surveillance for COVID-19 and influenza infection in adults (≥ 16 years of age) now conducted year-round
 - NP swab obtained from all patients with an admitting diagnosis of CAP, exacerbation of COPD/asthma, unexplained sepsis, any respiratory diagnosis or symptom
 - NP swabs tested for COVID-19, influenza A & B by PCR; some sites use a multiplex for RSV+
 - Influenza typing and B lineage characterization performed locally or at Canadian Immunization Research Network's (CIRN) SOS Network Central Laboratory at the Canadian Center for Vaccinology in Halifax, NS
 - Other clinical and demographic information was also collected, including information about comorbidities, medications, and frailty (*see clinical frailty scale)
 - Weekly reporting to Public Health Agency of Canada to inform national COVID-19 and influenza surveillance and management efforts
- Vaccine Effectiveness: Influenza positive cases matched to influenza-test negative controls on Admission date (within 14d of DOA of case), age stratum ($\geq 65y$ or $<65y$) and site of enrolment to calculate influenza vaccine effectiveness (VE) using multivariable logistic regression. VE calculation is also planned for COVID-19.

Clinical Frailty Scale*

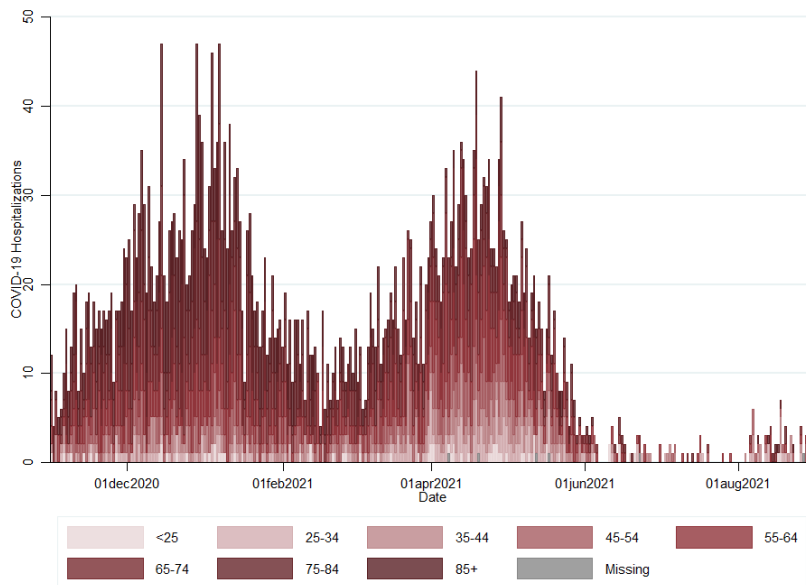
- | | |
|--|--|
| <p> 1 Very Fit – People who are robust, active, energetic and motivated. These people commonly exercise regularly. They are among the fittest for their age.</p> <p> 2 Well – People who have no active disease symptoms but are less fit than category 1. Often, they exercise or are very active occasionally, e.g. seasonally.</p> <p> 3 Managing Well – People whose medical problems are well controlled, but are not regularly active beyond routine walking.</p> <p> 4 Vulnerable – While not dependent on others for daily help, often symptoms limit activities. A common complaint is being “slowed up”, and/or being tired during the day.</p> <p> 5 Mildly Frail – These people often have more evident slowing, and need help in high order IADLs (finances, transportation, heavy housework, medications). Typically, mild frailty progressively impairs shopping and walking outside alone, meal preparation and housework.</p> <p> 6 Moderately Frail – People need help with all outside activities and with keeping house. Inside, they often have problems with stairs and need help with bathing and might need minimal assistance (cuing, standby) with dressing.</p> | <p> 7 Severely Frail – Completely dependent for personal care, from whatever cause (physical or cognitive). Even so, they seem stable and not at high risk of dying (within ~ 6 months).</p> <p> 8 Very Severely Frail – Completely dependent, approaching the end of life. Typically, they could not recover even from a minor illness.</p> <p> 9 Terminally Ill - Approaching the end of life. This category applies to people with a life expectancy <6 months, who are not otherwise evidently frail.</p> |
|--|--|
- Scoring frailty in people with dementia**
The degree of frailty corresponds to the degree of dementia. Common symptoms in mild dementia include forgetting the details of a recent event, though still remembering the event itself, repeating the same question/story and social withdrawal. In moderate dementia, recent memory is very impaired, even though they seemingly can remember their past life events well. They can do personal care with prompting. In severe dementia, they cannot do personal care without help.
- * 1. Canadian Study on Health & Aging, Revised 2008.
2. K. Rockwood et al. A global clinical measure of fitness and frailty in elderly people. CMAJ 2005;173:889-895.

CANADA

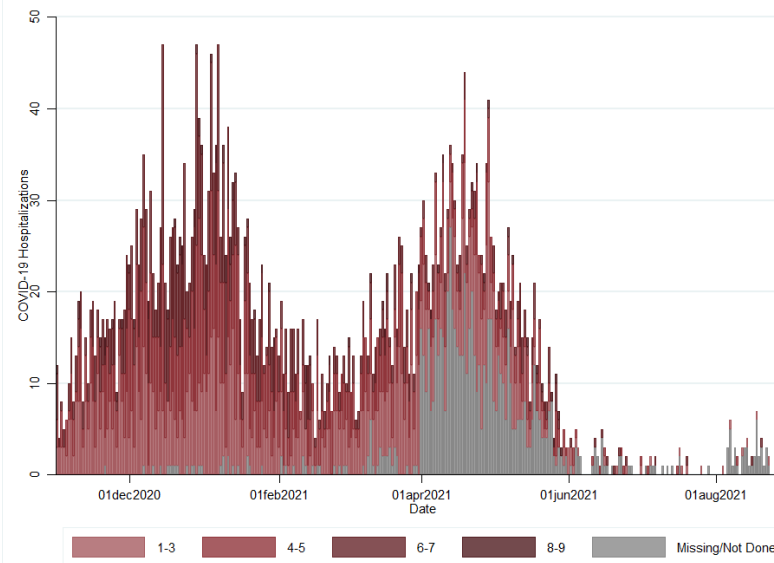
Detailed results



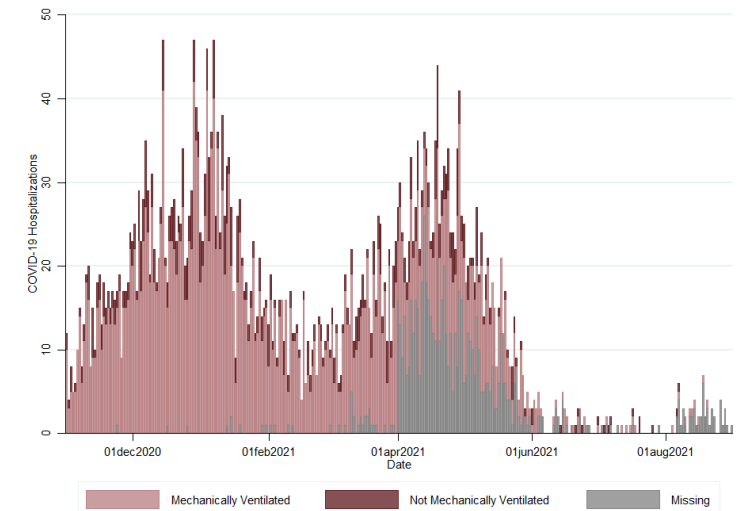
SOS network COVID-19 hospitalizations by age



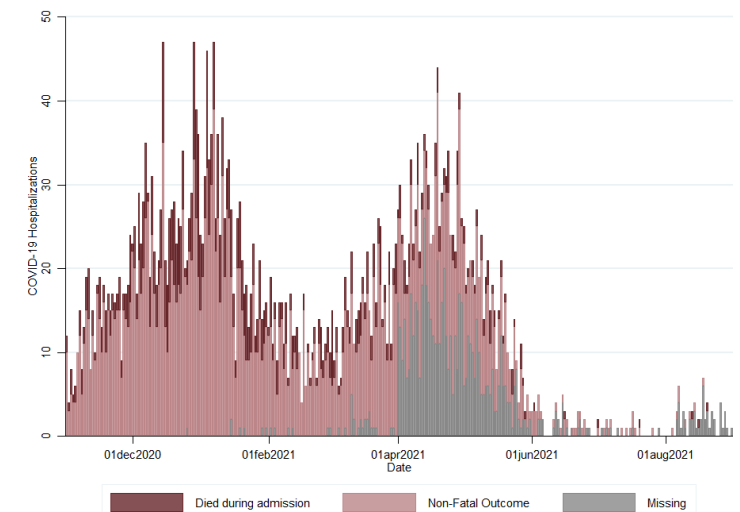
SOS network COVID-19 hospitalizations by level of frailty



SOS network COVID-19 hospitalizations by need for mechanical ventilation



SOS network COVID-19 hospitalizations by admission outcome



As the pandemic has evolved, age and frailty are tending to decrease as more patients who are younger and less frail are being admitted to hospital. ICU admission and mechanical ventilation rates have remained approximately stable. Mortality remains important, though rates are trending down slightly.





GIHSN 2020-2021: RESULTS BY SITE

MEXICO

Guillermo M. Ruiz-Palacios, MD, FIDSA

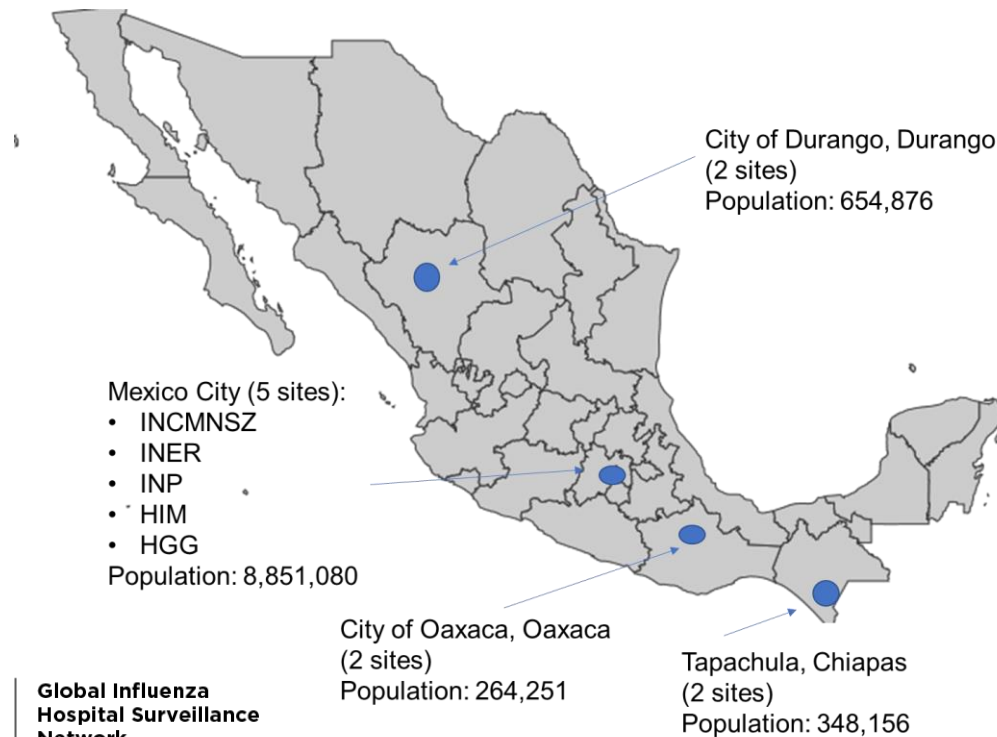


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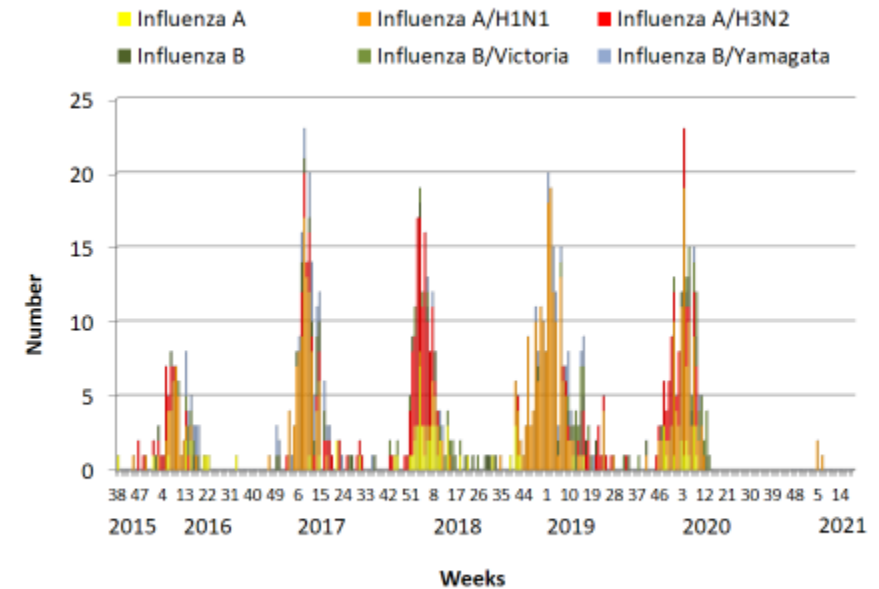
Site description: Hospitals participating in the GIHSN-Mexico

Study conducted in 11 hospitals in four provinces of Mexico

Geographical location of study sites



In Mexico, influenza season is considered to occur from week 40 (October) to week 20 (May) of the following year.

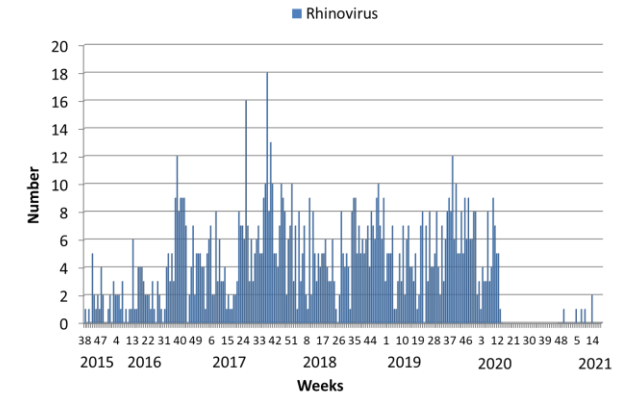
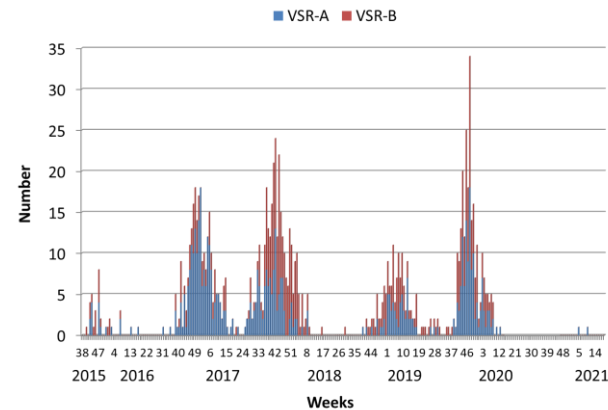
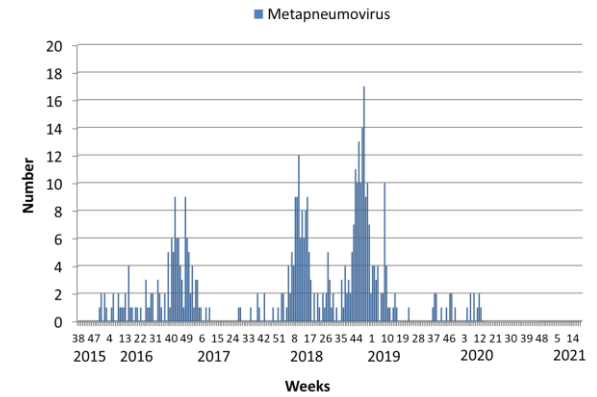
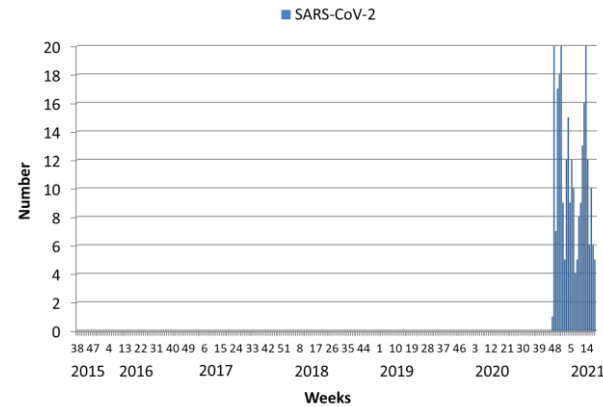


GIHSN-MEXICO
During the 2020-2021 season, only 3 cases of influenza A(H1N1)pdm09 were detected.

MEXICO

INSTITUTO NACIONAL DE CIENCIAS MEDICAS Y NUTRICION SALVADOR ZUBIRAN Coordinating Center

Pathogen	04/2015-04/2020 season N (%)	10/2020-05/2021 season N (%)
Adenovirus	174 (3.79)	0
Bocavirus	136 (2.96)	0
<i>B. Pertussis</i>	142 (3.09)	0
<i>C pneumonia</i>	2 (0.04)	0
Coronavirus	323 (7.03)	0
SARS-CoV-2	-	272 (96)
Influenza	846 (18.41)	3 (1)
<i>Legionella</i>	2 (0.04)	0
Metapneumovirus	444 (9.66)	0
<i>M pneumoniae</i>	36 (0.78)	0
Parainfluenza	377 (8.20)	0
VSR	1004 (21.85)	2 (1)
Rhinovirus	1110 (24.25)	6 (2)



SARS-CoV-2 predominated during the 2020-2021 season.

Only 3 cases of A(H1N1)pdm03, 2 cases of RSV-A in children and 6 rhinovirus were detected during the season.

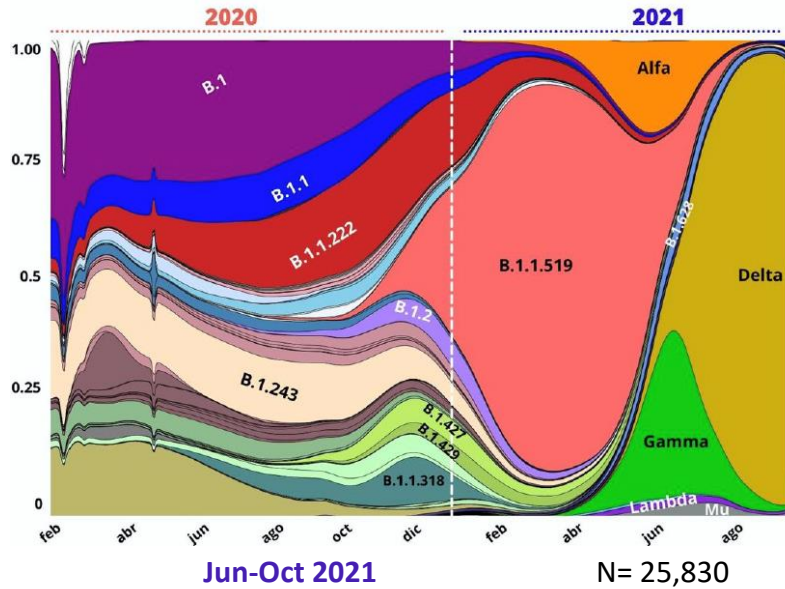


Variants of SARS-CoV-2 in Mexico throughout the pandemic

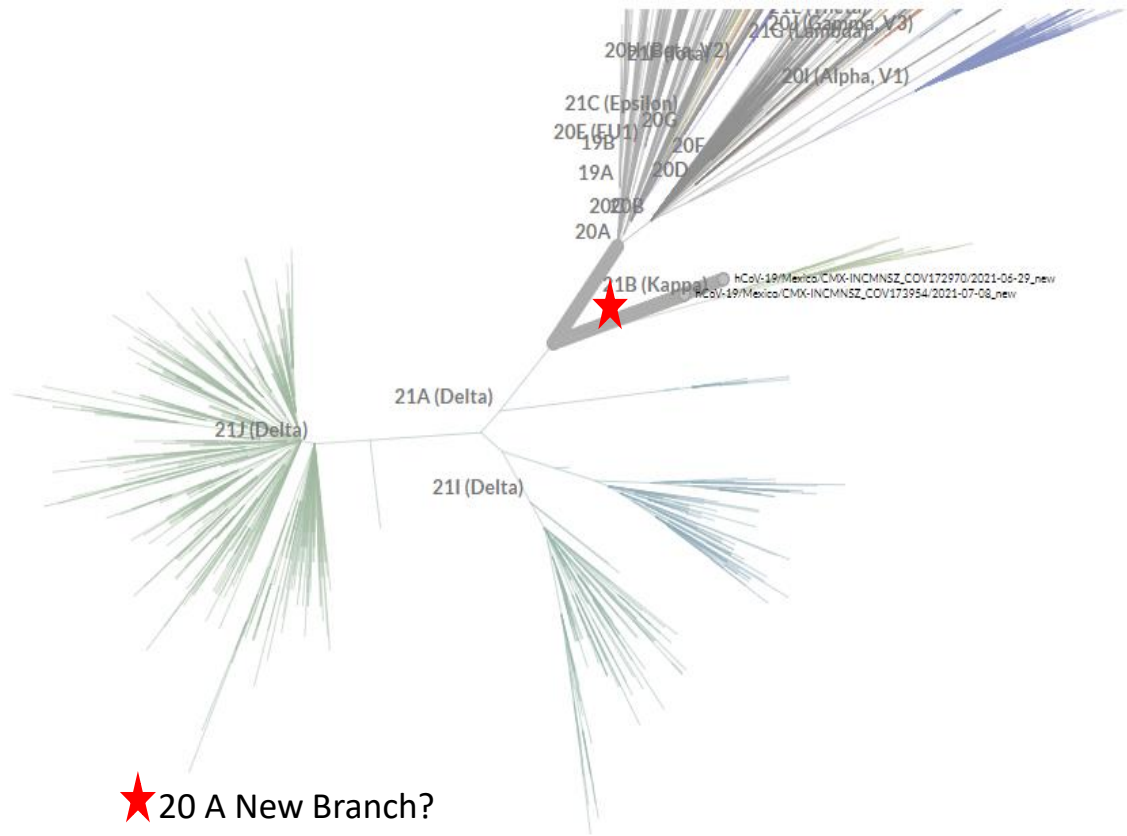
Jun-Aug 2021

New variants identified in breakthrough COVID-19 infections after vaccination

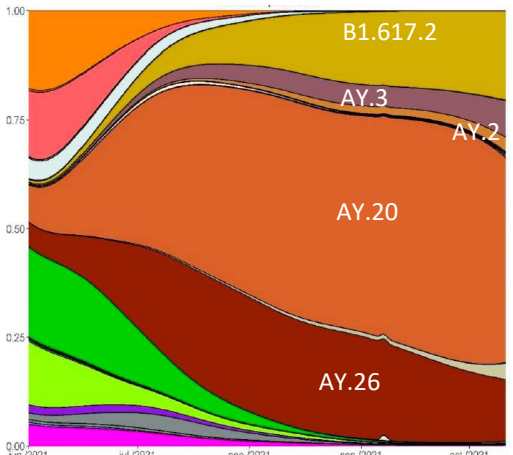
Relative Abundance



Clade ^
■ 20A



★ 20 A New Branch?



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Conclusion & Challenges

Conclusions:

- There was not a formal influenza season during 2020-2021.
- SARS-CoV-2 virus infection has predominated in Mexico since March 2020.
- None of the common coronavirus subtypes circulated during the 2020-2021 season.
- The number of Metapneumovirus drastically decreased even before the COVID-19 pandemic started.
- A total of 80 /272 SARS-Cov-2 virus stains were sequenced. Variant B1.1.519 predominated in the wave 2 of the pandemic (Dec-Mar). Delta variants (AY.20, AY.26 and B1.617.2) predominated in wave 3 (June –Oct).
- New variants have been identified in breakthrough COVID-19 infections after vaccination.

Challenges

The protection of the health of study personnel and the long busy hours dedicated to the care of COVID-19 patients impacted our regular GIHSN activities.

Currently, there is no certainty on the re-emergency of influenza and other viruses and their impact on human populations.

Future directions

Surveillance for SARS-Cov-2, influenza, and other viruses at the hospital setting is relevant, more than ever



BACKUP SLIDES FOR THE GIHSN-MEXICO
Guillermo M. Ruiz-Palacios, MD, FIDSA, et al.



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MEXICO**

MEXICO

New variants identified in breakthrough COVID-19 infections after vaccination

Nucleotide mutations (19)

G 210 T C 241 T A 2948 C C 3037 T C 7124 T C 14408 T T 19844 G C 20074 T
A 20075 C C 20095 T C 21707 T A 23403 G T 27638 C C 27874 T A 28461 G G 28881 T
G 28916 T G 29402 T G 29742 T

Aminoacid mutations (16)

S: H 49 Y S: D 614 G ORF1a: I 895 L
ORF1a: P 2287 S ORF1b: P 314 L ORF1b: L 2126 W
ORF1b: Q 2203 S ORF1b: G 2207 * ORF1b: P 2208 A
ORF7a: V 82 A ORF7b: T 40 I ORF9b: T 60 A
N: D 63 G N: R 203 M N: G 215 C

Aminoacid deletions (0)

PCR primer changes (1)

- in "ChinaCDC_N_F":
 - G 28881 T

hCoV-19/Mexico/CMX-INCMNSZ_COV172970/2021-06-29

hCoV-19/Mexico/CMX-INCMNSZ_COV173954/2021-06-29

Nucleotide mutations (18)

T 25 G G 210 T C 241 T T 2974 C C 3037 T C 7124 T A 11201 G C 14408 T
A 23403 G C 23758 T C 25469 T T 27638 C C 27752 T C 27874 T A 28461 G G 28881 T
G 29402 T G 29742 T

Aminoacid mutations (13)

S: R 158 G S: D 614 G ORF1a: P 2287 S
ORF1a: T 3646 A ORF1b: P 314 L ORF3a: S 26 L
ORF7a: V 82 A ORF7a: T 120 I ORF7b: T 40 I
ORF9b: T 60 A N: D 63 G N: R 203 M
N: D 377 Y

Aminoacid deletions (2)

S: E 156 -
S: F 157 -

PCR primer changes (1)

- in "ChinaCDC_N_F":
 - G 28881 T



Methods: Study flow

Informed consent



- Recruitment period: All year around
- Screening of daily admissions with acute respiratory symptoms
- Information about the study to potential candidates according to selection criteria
- Voluntary approval by signing written informed consent
- Enrollment/data collection including vaccination history/data entry
- Nasopharyngeal swabs obtained (two swabs, one from each nostril)
- NPS samples sent to the lab in transport media in cold containers (2-8°C)
- Laboratory processing by real time-qPCR for influenza diagnosis and subtyping
- Sequencing of influenza A and SARS-CoV-2
- Laboratory results
- Data analysis

Physical exam and data collection



Laboratory testing



Data analysis





GIHSN 2020-2021: RESULTS BY SITE

BRAZIL - Pequeno Principe Hospital, Southern Brazil

Sonia Mara Raboni, MD, PhD



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BRAZIL



Serious Outcomes Surveillance Network


PEQUENO PRÍNCIPE HOSPITAL, BRAZIL

- Pediatric referral hospital, Curitiba, Southern Brazil
- Sentinel hospital for Severe Acute Respiratory Infection (SARI)

 **378** Beds

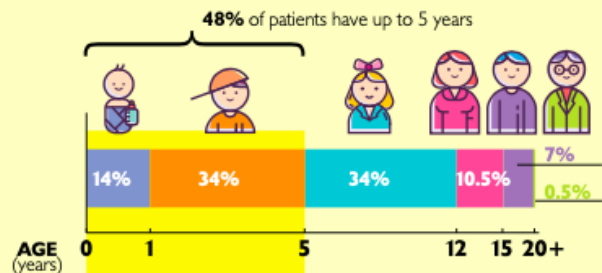
 **68** ICU Beds

 **10** Bone marrow transplant Beds

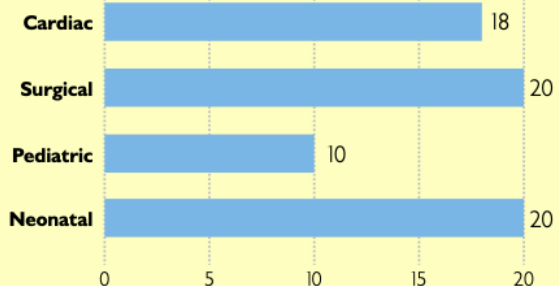
 **61%**
Public Health System

 **22.000** hospitalizations/year

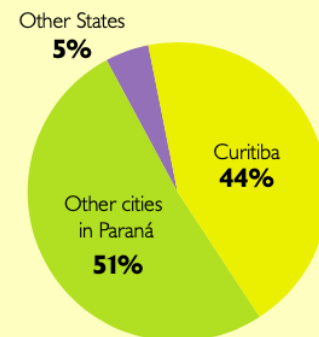
AVERAGE AGE OF PEQUENO PRÍNCIPE HOSPITAL PATIENTS



ICU BEDS DIVISION



ORIGIN OF PATIENTS



Season: Dec 2020- Aug/2021



Methods

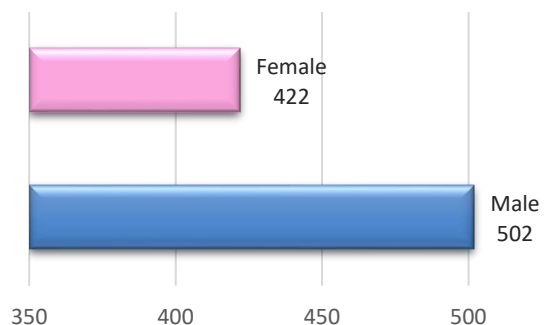
- Active surveillance for influenza infection in children < 18 years of age was conducted from December 1st, 2020 to August 31th, 2021
 - NP swab obtained from all patients with an admitting diagnosis of SARI, bronchiolitis, asthma exacerbation, unexplained sepsis, any respiratory diagnosis or symptom
 - Other information was also collected, about Flu vaccines and clinical symptom



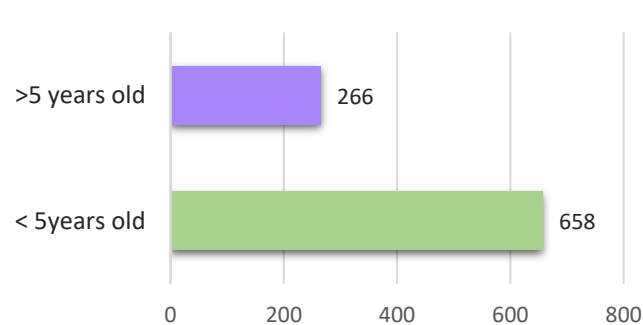
Results

	#included	#LCI	#tested for RSV	#RSV+	#tested for Covid	SARS-CoV+	#tested for ORV	#ORV+	#WGS LCI	#WGS SARS-Cov2
Patients < 5 yrs	658	0	658	249 (29%)	623	34 (4.4%)	658	94 (11%)	0	0
Patients 5+ yrs	266	0	194	14 (2%)	182	29 (3.6%)	194	42 (5%)	0	0
Total	924	0	852	263 (31%)	805	63 (8%)	852	136 (16%)	0	0

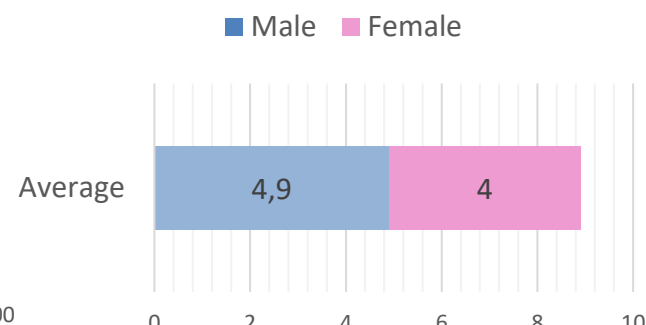
Sex



Age



Male Female

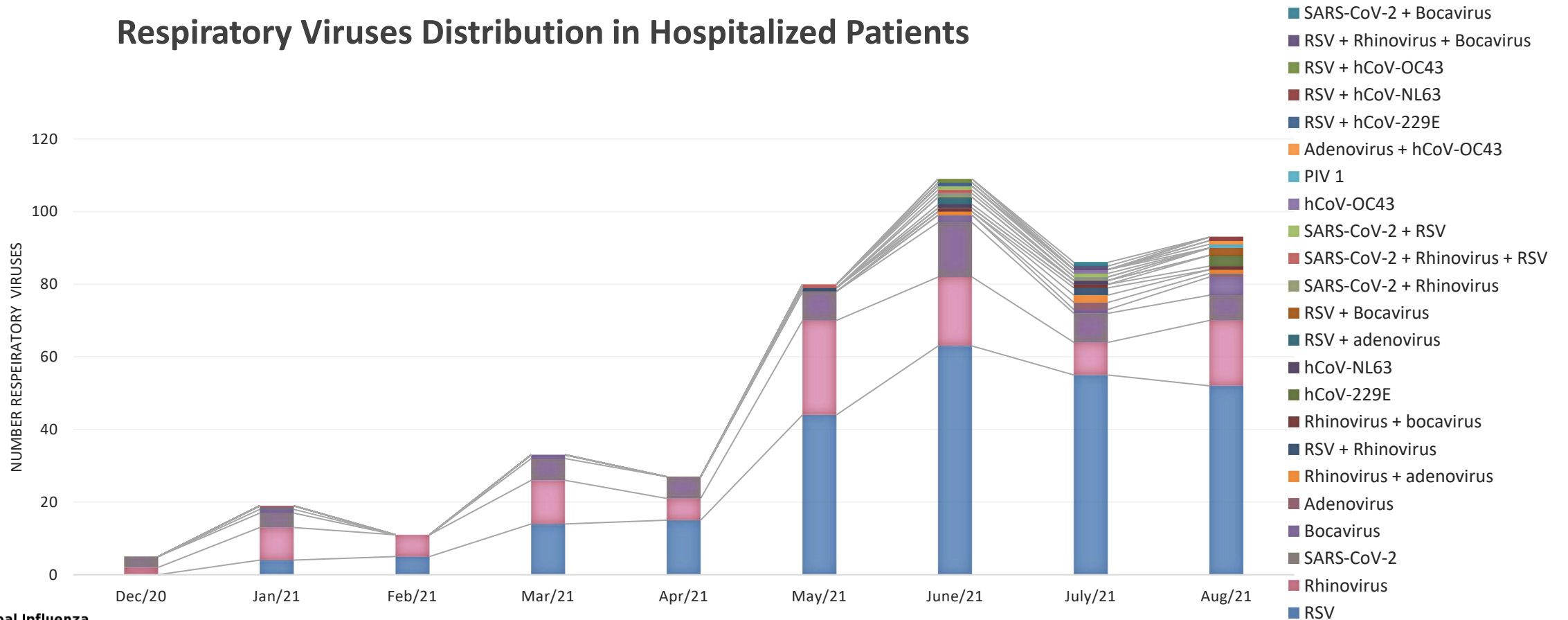


Indicator	N
Screened	1607
Eligible	1481
Included	924
Included with validated sample collection	852
LCI	0
SARS-Cov-2 and SARS-CoV-2 + other RV	64
Other respiratory viruses	399
Negatives	389



Results

Respiratory Viruses Distribution in Hospitalized Patients



Conclusion & Challenges

CONCLUSIONS:

- Recruitment period from 1st December 1st /2020 to 31st August 31th, 2021
- None Influenza virus was detected in 9 months of active surveillance
- Similar results (no circulation of influenza) were found by national influenza surveillance in the region
- Children - RSV was the most prevalent
- Adults – SARS-CoV -2 was the most prevalent

CHALLENGES:

- Getting sequencing established locally has been a challenge
 - Delayed by COVID-19 but now on track to complete last season's sequences
 - It will be ready for 2020/21
- Influenza circulation has been impacted by COVID-19
 - Control measures

Study personnel issues at busy COVID-19 sites

PEQUENO PRINCIPE HOSPITAL, BRAZIL





GIHSN 2020-2021: RESULTS BY SITE

PERU

Ingrid More, MD



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V. Alberto Laguna^{1,2}, Juana del Valle³, Ingrid More², Estela Ramirez³, J. Martins³, Nora Reyes¹

1) Tropical Medicine Institute Universidad Nacional M. de San Marcos (UNMSM) 2) Clínica Internacional, Lima 3) Instituto de Investigación Nutricional. Lima

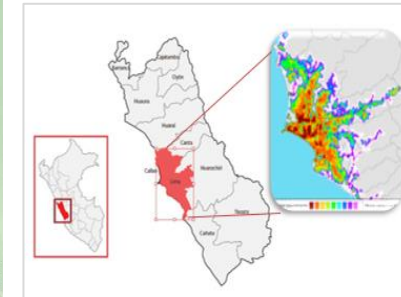
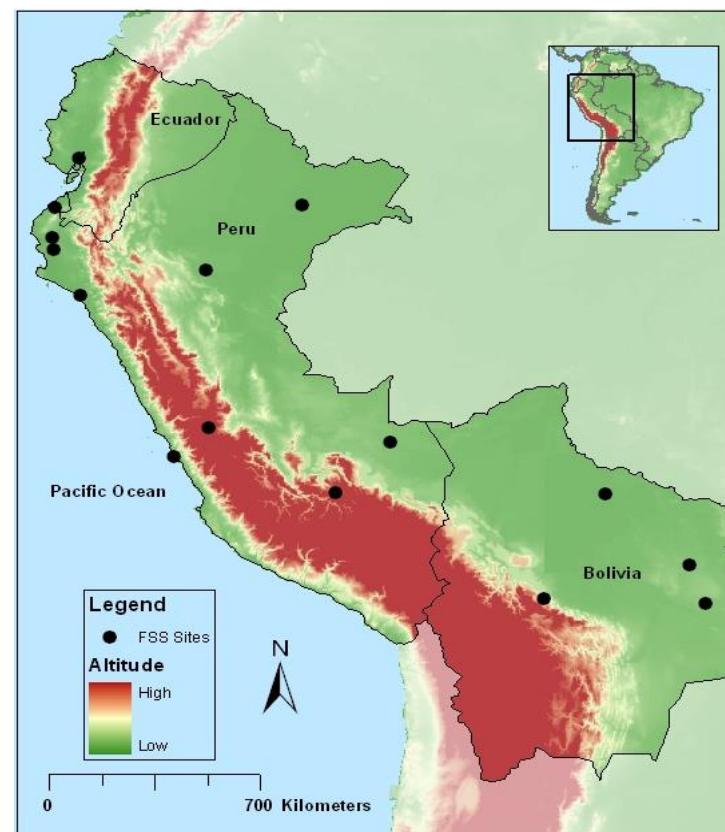
Site description

Population: People of all age groups from three Peruvian hospitals: at Lima (main peruvian city), Piura (northern coast) and Arequipa (southern highland área), looking for geographical representativeness of the network for the GIHSN mission.

Since April 2020, during coronavirus pandemic, the MoH of Peru, established mandatory measures of social isolation. This made it difficult to travel and even enter hospitals to carry out research work. Health personnel received the first dose of vaccine in the last week of February 2021, shortly after the second pandemic wave began, which has ended approximately at the end of August 2021. On May 2021, our team was able to enroll participants but only in Lima, due to travel restrictions.

Catchment area. Lima it is the main city of the country with 8.5 million people. Our site was located at Private Clínica Internacional and covered the whole city of Lima. Has 203 bed and three ICUs, of those, one pediatric.

Seasonality. In Lima and southern highland sites (Arequipa), influenza cases occur more often in wintertime (April- August).

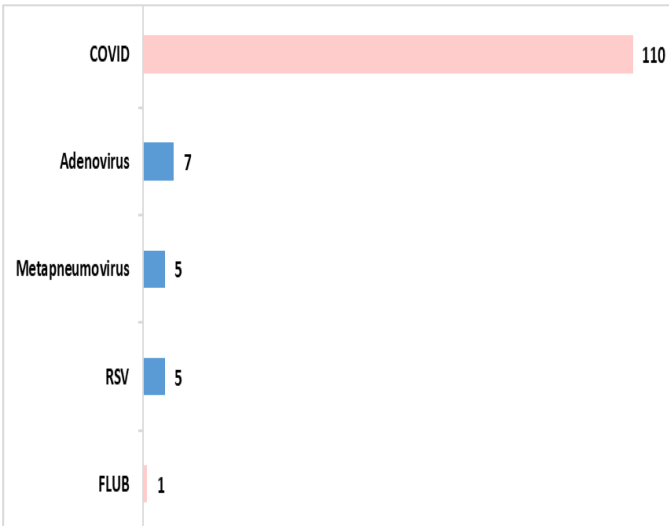


Results

Characteristics of eligible population. May-October 2021

Variable	Participants	Lima	(%)
Eligible patients	188	188	100.0
Samples taken	188	188	100.0
Gender			
Male	119	119	63.3
Age Group			
Media	41		
Median (range)	39[18-45]		
0-5	29	29	15.4
5-18	10	10	5.3
18-45	85	85	45.2
45-65	44	44	23.4
65-80	13	13	6.9
80+	7	7	3.7
Positive result			
FLUB	1	1	0.5
COVID	110	110	58.5
RSV	5	5	2.7
Adenovirus	7	7	3.7
Metapneumovirus	5	5	2.7
Negative result			
Coinfeccions	8	8	4.3
COVID/ Adenovirus	5	5	2.7
COVID/ Metapneumovirus	3	3	1.6

Viral circulation by RT PCR. May -October 2021

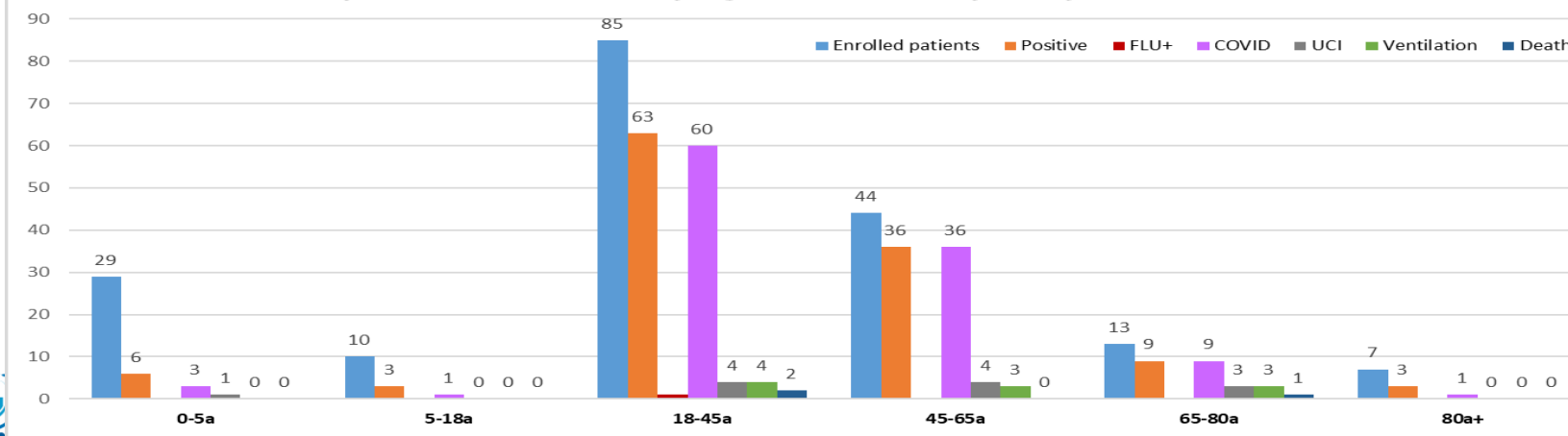


	#included	#LCI positive	# tested for RSV	# RSV +	# tested for Covid	Covid +	# tested for para ORV	# ORV +
Patients <5 years	29	0	29	3	29	3	29	0
Patients 5+ years	159	1	159	2	159	107	159	12
Total	188	1	188	5	188	110	188	12

A total of 120 (64%) were positive for any respiratory virus. More prevalent chronic condition were: Cardiovascular diseases (14%), Asthma (13%) Diabetes (13%) and Obesity (11%). Only 21% of the participants got influenza vaccine in the previous season and 7% in the current season. Co-infections were found in 8 samples

A total or 9.1% participants were hospitalized at Intensive Care Unit (ICU) of those, 8.2% needed mechanical ventilation. Enrolling patients at ICU was not easy (consent form/relatives)

Participant distribution by age and severity, May - Oct 2021



Viral circulation was predominantly SARS COV 2 virus specially in adults of 18-45 years of age. Only one simple was influenza B +.

Conclusion & Challenges

Conclusion :

- During the current period, viral circulation was predominantly SARS COV 2 virus specially in adults of 18-45 years of age.
- Only one sample was positive for influenza B. Social isolation have been successful in reducing other respiratory viral infections such as influenza.
- Patients with co-morbidities such as asthma, CVs diseases or COPD were positive for at least one virus. A total of 9.1% participants were hospitalized at Intensive Care Unit (ICU) of those, 8.2% needed mechanical ventilation.
- Influenza vaccination rates were extremely low. In Perú that vaccine is available in April provided by PAHO. People usually does not accept vaccination.
- This period the SARS COV 2 pandemic started in Lima in March 2021, since then all the efforts/resources were allocated in that event. Sample-taking was hindered in our hospitals as a result of this. Starting a sample collection process meant putting teamates-health at risk due to increased exposure to a coronavirus contagion.

Challenges

- Next period we will focus our resources in re-establish the network in Lima, Piura and Arequipa to get influenza samples according to seasonality



BACKUP SLIDES FOR GIHSN WEBSITE



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Epidemiology**

Methods

1. Screening of daily admissions



A site coordinator and a field worker searched records every day to identify eligible participants in the seven-story building. Electronic case reports were not used. Enrollment was based on primary diagnosis at admission. Looking for geographical representativeness, our network was established in Lima, Arequipa y Piura.

2. Enrollment/data collection



Patients with clinical symptoms of influenza-like illness during the seven days before admission and hospitalized within the previous 24 hours with any of the eligible diagnoses were included.

Recruitment period for 2020-2021 season:

May 2021- October 2021

Since April 2020, during coronavirus pandemic, was difficult to travel and even enter hospitals to carry out research work.

3. Swabbing



5. Data Analysis



Quality control of each patient file, review of compliance with inclusion criteria according to protocol and observations on the main research. Validation and matching of laboratory results, according to the criterion of positivity / periodic report of patients enrolled to the principal investigator. Consolidation of records, database standardization and analysis

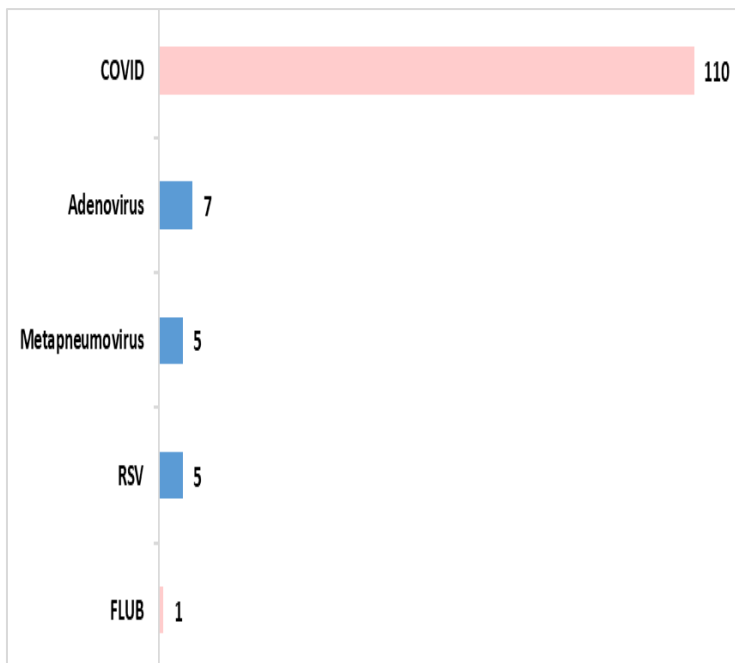
4. Sample Processing



Genotyping process: Lyon (France) 50-100 influenza positive samples (annual)
Monthly report to GIHSN
Reporting to INS-MoH

Detailed results

Viral circulation by RT PCR. May -October 2021



A total of 120 (64%) were positive for any respiratory virus. More prevalent chronic condition were: Cardiovascular diseases (14%), Asthma (13%) Diabetes (13%) and Obesity (11%). Only 21% of the participants got influenza vaccine in the previous season and 7% in the current season. Co-infections were found in 8 samples

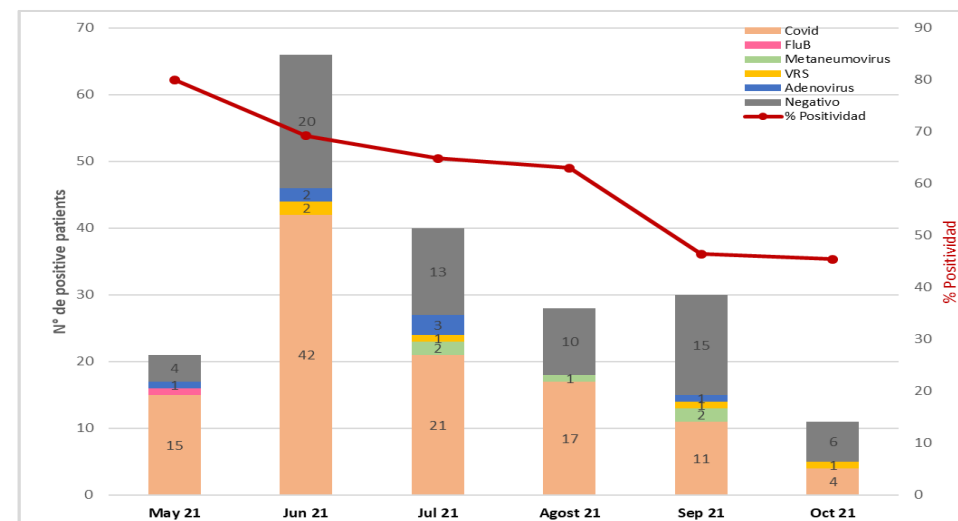
A total of 9.1% participants were hospitalized at Intensive Care Unit (ICU) of those, 8.2% needed mechanical ventilation.

Characteristics of eligible population. May-October 2021

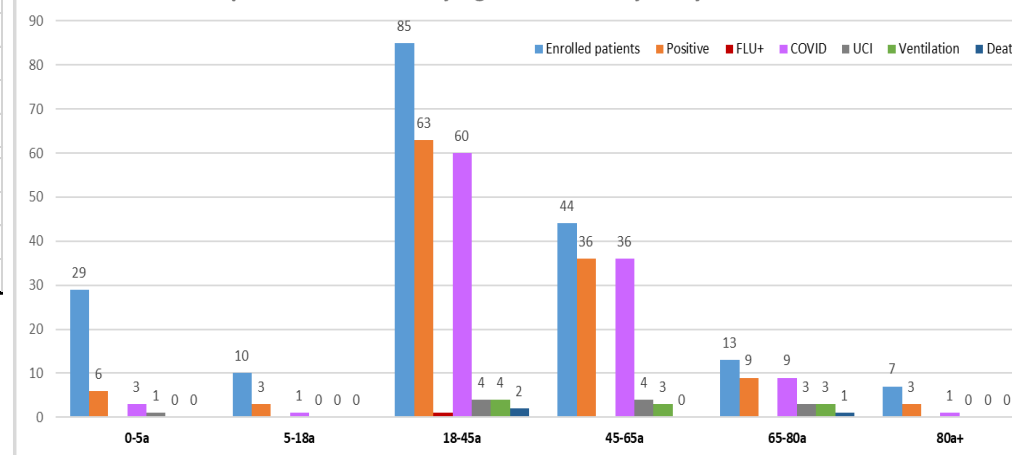
Variable	Participants	Lima	(%)
Elegible patients	188	188	100.0
Samples taken	188	188	100.0
Gender			
Male	119	119	63.3
Age Group			
Media	41		
Median (range)	39[18-45]		
0-5	29	29	15.4
5-18	10	10	5.3
18-45	85	85	45.2
45-65	44	44	23.4
65-80	13	13	6.9
80+	7	7	3.7
Positive result			
FLUB	1	1	0.5
COVID	110	110	58.5
RSV	5	5	2.7
Adenovirus	7	7	3.7
Metapneumovirus	5	5	2.7
Negative result			
Coinfecciones	8	8	4.3
COVID/ Adenovirus	5	5	2.7
COVID/ Metapneumovirus	3	3	1.6

Viral circulation was predominantly SARS COV 2 virus specially in adults of 18-45 years of age. Only one sample was influenza B +.

Monthly viral distribution by PCR . May-October 2021



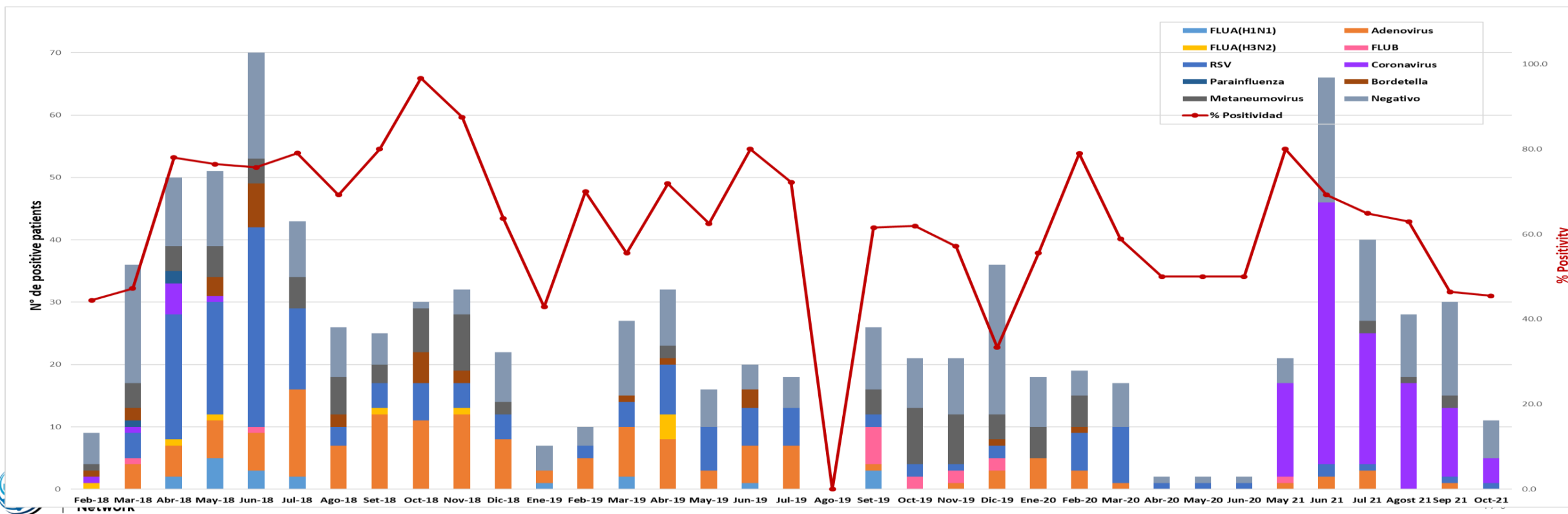
Participant distribution by age and severity, May - Oct 2021



RESULTS

PERU- Monthly viral distribution by PCR. 2018-2021

2020-2021 shows results from only one hospital in Lima





GIHSN 2020-2021: RESULTS BY SITE

SOUTH AFRICA - WITZ VIDA - University of the Witwatersrand

Marta NUNES



**Foundation for
Influenza
Epidemiology**



Site description

- The largest hospital in Africa, in Soweto (total population 1.3 million people) is part of our network. Chris Hani Baragwanath Academic Hospital (CHBAH): 3,400 beds.
- Viral testing is not part of the standard of care and all enrolled participants were tested under our surveillance study at the Wits Vaccines & Infectious Diseases Analytics Research Unit laboratory. The HIV prevalence among pregnant women in Soweto is approximately 29%.
- For 2021 only paediatric admissions were included.
- Influenza season in South Africa normally peaks between June and August. During 2020 influenza circulation was minimal.





Results

	#included	#LCI	#tested for RSV	#RSV+	#tested for Covid	Covid+	#tested for ORV	#ORV+	#WGS LCI	#WGS SARS-Cov2
Patients < 5 yrs	155	7	155	115	155	13	155	3	0	0
Patients < 5 yrs current	475	39	475	163	475	18	475	7	10	0

N (%)	LCI	RSV	SARS-CoV-2	No virus detected	Total
Mean age in days	13	6.2	6.3	13.3	8.1
Female	3 (43)	42 (37)	8 (62)	10 (42)	61 (39)
Death	0	0	1 (8)	0	1 (1)
Any comorbidity	2 (29)	49 (43)	7 (54)	7 (29)	65 (42)
HIV-exposed	0	22 (19)	5 (38)	6 (25)	33 (21)

- Flu-B Victoria was detected earlier in the season (June to mid-August). From mid-August only Flu-A detected (mix of H1N1 and H3N2.)
- In 40% of SARS-CoV-2 infections RSV was also detected.
- No co-infections in LCI cases.
- One death recorded of a 27-days old girl HIV-exposed and SARS-CoV-2 infected.



Conclusion & Challenges

CONCLUSIONS:

- Sporadic cases of LCI have been detected from week 24 (June 7th) to week 35 (August 23rd). Detection rate has been at ~10% in September and October.
- Influenza B circulated earlier, and now only influenza A is being detected.

CHALLENGES:

- Due to COVID-19 restrictions, study-staff has not been allowed consistently in the pediatric wards. Attending pediatrician collected samples and data in paper CRFs.
- Due to COVID-19 restrictions, parents / care-givers have not been allowed to accompany the children once these are admitted, creating challenges for the consenting process. The ethics committee has, however, allowed us to collect retrospective consent.
- Influenza sequencing protocols have just been implemented in collaboration with Prof B. Lina's laboratory. Nonetheless >50% of the PCR confirmed influenza cases have Ct-values >30, making sequencing challenging in these samples.



BACKUP SLIDES FOR GIHSN WEBSITE



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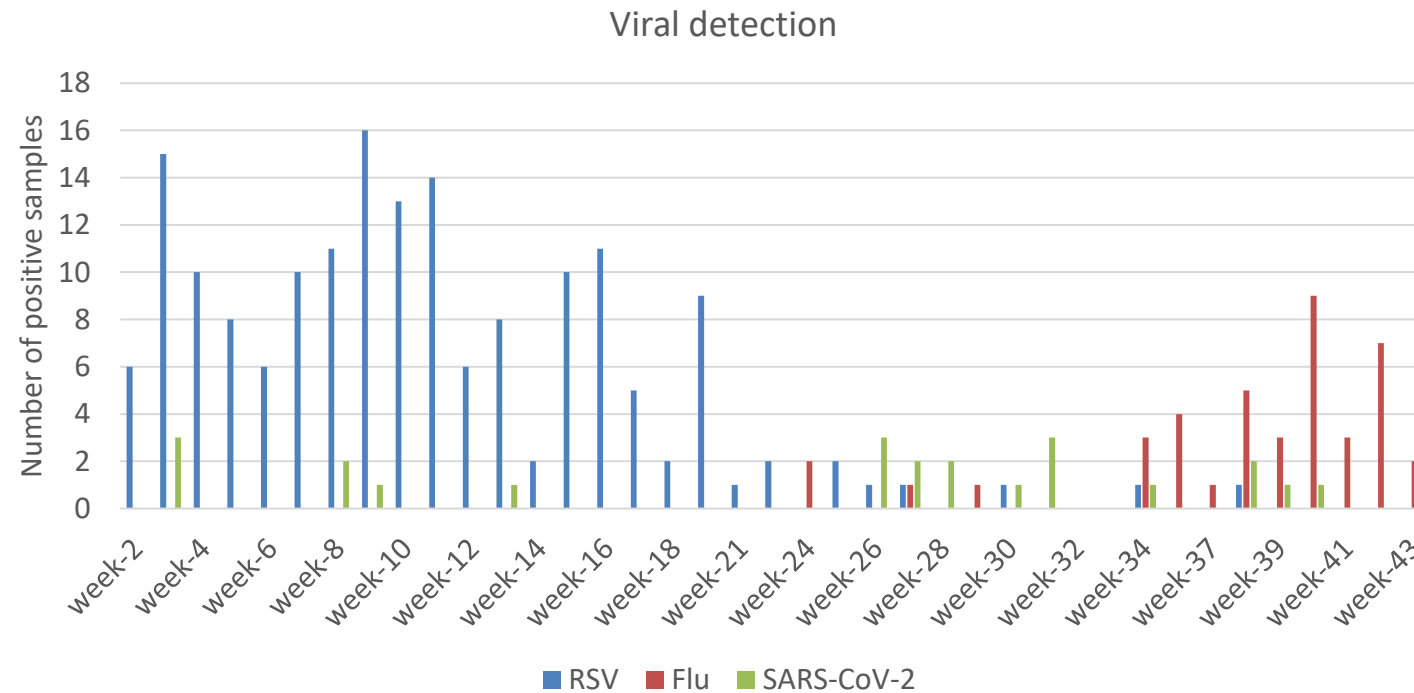


Methods

- Due to the COVID-19 pandemic, the hospital attending doctors screened and collected samples from admitted patients 7-days a week. Study-staff completes study logs of all eligible children. Nasopharyngeal flocculated swabs were collected.
- Nucleic acids were extracted using a NucliSENS easyMAG platform and testing for influenza virus was undertaken by an in-house qualitative real-time PCR assay that has been established and validated at our Unit. Samples were also tested by an in-house PCR assay for metapneumovirus and RSV-A and RSV-B, and for SARS-CoV-2 using the CDC protocol.
- A hospital generic informed consent was signed by all parents / care-givers at the time of presentation to hospital; this process allows our research Unit to abstract clinical and demographic data from the hospitalized patients. We have requested the ethics committee to allow us to share patients' information with our collaborators from patients who signed only this consent.
- Our study-staff tried to collect as many as possible retrospective study-specific signed informed consent (at the time of discharge or by visiting the patients' homes). Only patients with study-specific signed informed consent have been included in the GIHSN study.



Results



Sequencing results will be available 1st week of November.



GIHSN 2020-2021: RESULTS BY SITE

KENYA

Nancy A. Otieno



**Foundation for
Influenza
Epidemiology**

Site description

- Surveillance conducted in 7 sites in diverse geographical locations. Surveillance hospitals include; Coast General Teaching and Referral Hospital, Nyeri County Referral Hospital (CRH), Kenyatta National Hospital, Nakuru CRH, Kakamega CRH, Siaya CRH and Marsabit CRH
- Total of 4,100 bed capacity for adults and pediatrics
 - Bed occupancy vary by site, range between 20-120%
- Surveillance enrolls patients of all ages with Severe Acute Respiratory Illness
 - Children <5 years make up approximately 80% of the surveillance population



Figure 1: Location of GIHSN sites in Kenya for 2020-2021 season.

Results

	#included	#LCI	#tested for RSV	#RSV+	#tested for Covid	Covid+	#tested for ORV	#ORV+	#WGS LCI	#WGS SARS-Cov2
Patients < 5 yrs	1038	93	0	0	1033	98	0	0	0	0
Patients 5+ yrs	225	16	0	0	225	53	0	0	0	0
Total	1263	109	0	0	1258	151	0	0	0	0

Key messages

- 82% of patients enrolled <5 years of age; elderly (≤ 65 years) only 4%
- 45% were male
- 36% had underlying co-morbidities
 - 37% among influenza cases and 36% among COVID-19 cases
- 1% had received influenza vaccine in the past, none had received COVID-19 vaccine

Conclusion & Challenges

CONCLUSIONS:

- Detected influenza throughout the year from January 2021, an improvement from 2019-2020 season; Influenza A (H3N2) and B co-circulated
- No influenza was detected among patients ≥ 50 years while SARS-CoV-2 was detected in 82% of this population
- About 36% of patients with influenza or COVID-19 had underlying medical conditions
- Vaccine uptake for influenza and COVID-19 low

CHALLENGES:

- Established sequencing capacity locally, however getting laboratory supplies has been a challenge – delayed by long government clearance procedures but now on track to complete last season's sequences and be ready for 2020/21
- Getting government clearance to share SARS-CoV-2 sequence data has been challenging.



BACKUP SLIDES FOR GIHSN WEBSITE



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Methods

1. Screening of admitted patients

- Daily screening for newly admitted patients (Mon-Fri); weekend admissions screened on Mondays
- Criteria for cases
 - hospitalized with acute onset of illness (< 10 days – routine SARI, <7 days – GIHSN)
 - with cough
 - reported fever or documented temp. $\geq 38^{\circ}\text{C}$



2. Data collection

- Electronic data collection
 - Demographics, Clinical presentation, Risk factor, Underlying medical condition, Outcome data
- Daily uploading to KEMRI server



3. Specimen collection

- Nasopharyngeal and oropharyngeal swabs collected from all patients
 - Stored at 2-8°C at the site
 - Transported 2 times a week to the National Influenza Center in Nairobi



4. Specimen processing

- Aliquoting and storage at -70°C
- Tested for by real-time RT-PCR within 72 hours
 - Influenza and SARS-CoV-2



5. Data processing and analysis

- Clinical data linked with lab testing data once a week
- Weekly reports generated and shared with stakeholders

Figure 2: Study Flow Diagram

Recruitment period for 2020-2021 season:

December 1, 2020 – September 31, 2021

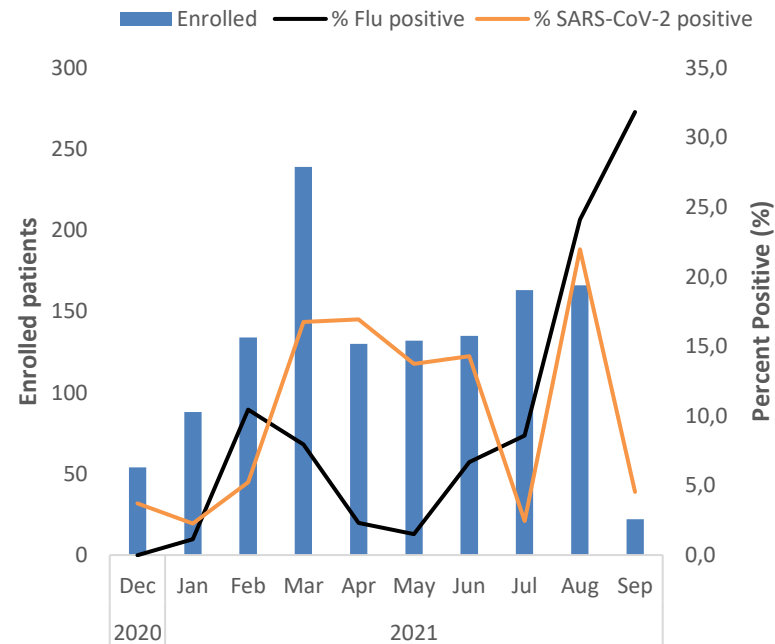
Detailed results

Table 1: Distribution of the cases enrolled by site and age

Variable	Enrolled	Influenza positive n (%)	SARS-CoV-2 positive n (%)
All	1263	109(8.6)	151(12.0)
Site			
Coast PGH	131	8(6.1)	8(6.2)
Nyeri PGH	187	5(2.7)	34(18.2)
Kenyatta NH	177	21(11.9)	8(4.6)
Nakuru CRH	371	59(15.9)	62(16.7)
Kakamega CRH	62	5(8.1)	2(3.2)
Siaya CRH	251	9(3.6)	29(11.7)
Marsabit CRH	84	2(2.4)	8(9.5)
Age			
<2 years	813	66(8.1)	76(9.4)
2-4 years	225	27(12.0)	22(9.9)
5-17 years	75	12(16.0)	8(10.7)
18-49 years	69	4(5.8)	11(15.9)
50-64 years	31	0(0)	11(35.5)
≥65 years	50	0(0)	23(46.0)
<5 years	1038	93(9.0)	98(9.5)
≥5 years	225	16(7.1)	53(23.6)
Underlying condition			
Any	457	40(8.8)	55(12.1)

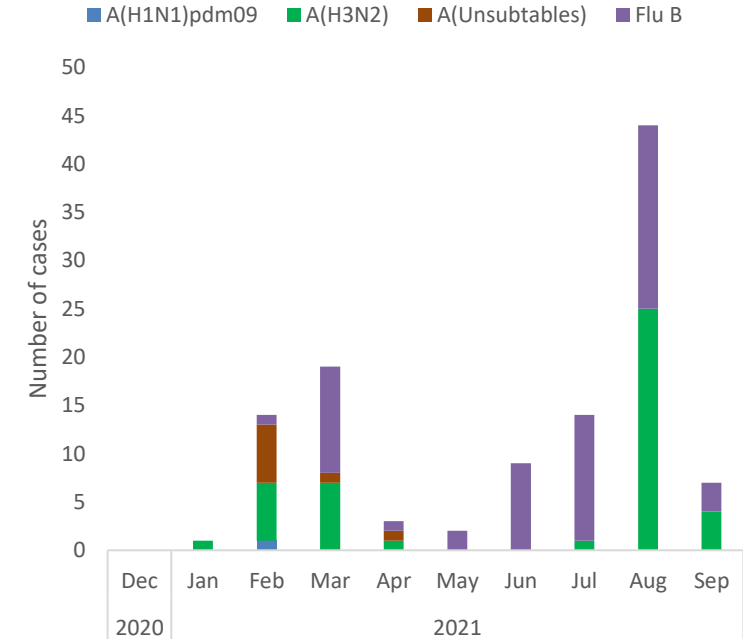
- The majority of cases enrolled were children <5 years
- Very few cases among elderly ≥50; no flu detected but more SARS-CoV-2 cases detected

Figure 3: Monthly no. of cases enrolled and % influenza and SARS-CoV-2 positive



- Influenza detected throughout the year from January 2021

Figure 4: Circulating influenza types and subtypes by month



- Influenza B (54.1%) and Influenza A(H3N2) 41.3% predominant



GIHSN 2020-2021: RESULTS BY SITE

SPAIN – FISABIO Public Health

Ainara Mira-Iglesias



**Foundation for
Influenza
Epidemiology**

SPAIN



Site description

HOSPITALS	CATCHMENT POPULATION	NUMBER OF BEDS
General Universitario de Castellón	282,000	509
Universitario y Politécnico La Fe	287,000	975
Universitario Doctor Peset	279,000	539
TOTAL	848,000	2,023



SPAIN



GENERALITAT
VALENCIANA



Área de
Investigación
en Vacunas

Results*

	#included	#LCI	#tested for RSV	#RSV+	#tested for Covid	Covid+	#tested for ORV	#ORV+	#WGS LCI	#WGS SARS-CoV-2
Patients < 5 yrs	13	1	13	0	13	1 SARS-CoV-2	13	7 (1 BoV + 6 RhV)	0	1 (GISAID)
Patients 5+ yrs	216	0	216	0	216	134 SARS-CoV-2 + 17 CoV	216	9 (2 BoV + 7 RhV)	0	132 (73 GISAID)
Total	229	1	229	0	229	135 SARS-CoV-2 + 17 CoV	229	16 (3 BoV + 13 RhV)	0	133 (74 GISAID)

*Patients with signed written informed consent. Total numbers (verbal consent): Screened 1,786; included 870; tested 515; pending written informed consent 286.

Key messages

1 influenza and 0 RSV cases detected

3 out of 5 hospitalizations had **SARS-CoV-2** infection

72% of 65+ were **vaccinated against flu** vs. 59% in the past season

4 deaths, all of them had **comorbidities** and were **SARS-CoV-2** positives



Conclusion & Challenges

CONCLUSIONS:

- No influenza circulation or RSV.
- 60% of hospitalizations had COVID-19.
- Influenza vaccine coverage increased from 59% in 2019/2020 to 72% in 2020/2021 in 65+.

CHALLENGES:

- No access to hospital wards. By phone interview and oral consent. Written informed consent by post. Enormous delay. → 2021/2022 access rooms and IC immediately
- Available samples from hospital were used. Although all patients were sampled, we could not obtain some of them as they were sent to Public Health Administration. → 2021/2022 we will take our own samples.
- 1 hospital closed during the study since there were no available samples → 2021/2022 the Hospital General de Alicante has been replaced by the Hospital de La Marina Baixa (Alicante)
- Delay in starting the study due to extra bureaucracy. → Approval until 2023 (non-stop study).



GIHSN 2020-2021: RESULTS BY SITE

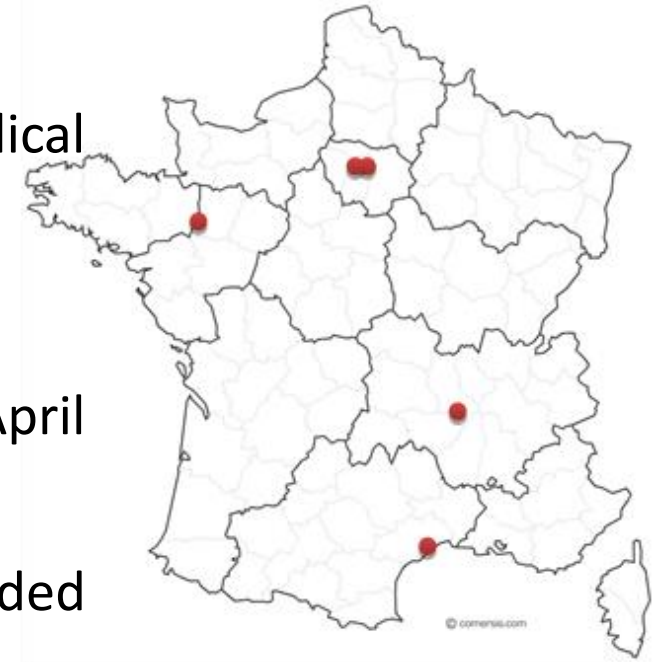
FRANCE – I-REIVAC



**Foundation for
Influenza
Epidemiology**

France (I-REIVAC)

- 5 participating university hospitals (part of I-REIVAC network) : Paris (Cochin and Bichat hospitals), Lyon, Montpellier and Rennes
- Patients are screened by research staff and data extracted from medical records
- Population: Adults hospitalized with an Influenza like illness (ILI).
- Influenza seasons in France generally start from November to April (according to Influenza surveillance system and Santé Publique France).
- In 2021 : no influenza detected. Analysis is focused in patients included between December 2020 and august 2021



	#included	#LCI	#tested for RSV	#RSV+	#tested for Covid	Covid+	#WGS LCI	#WGS SARS-Cov2
Patients	1071	0	222	1	1068	618	0	Ongoing

Population characteristics	Flu unvaccinated (n= 650)	Flu vaccinated (n=377)
female (%)	297(46%)	171 (45%)
Age (median [IQR])	61 [50;74]	78 [68;85]
Comorbidities (%)	518 (80%)	359 (95%)
COPD	63 (10%)	56 (15%)
Asthma	39 (6%)	29 (8%)
Cardiac disease	131 (20%)	165 (44%)
Diabetes	127 (20%)	116 (31%)
Obesity	110 (17%)	57 (15%)
Cancer	64 (10%)	65 (17%)
Renal	70 (11%)	77 (21%)
Rheumatologic	95 (15%)	78 (21%)

Severe outcomes	Flu unvaccinated (n= 650)	Flu vaccinated (n=377)
COVID +	434 (67%)	165 (44%)
Full COVID vaccination (%)	63 (10%)	79 (21%)
Admitted in ICU (%)	165 (26%)	56 (15%)
Death at hospital (%)	26 (4%)	27 (7%)

Flu and covid vaccination: age dependent

Flu vaccinated (N = 377): patients vaccinated against influenza more than 14 days before the onset of symptoms

Flu unvaccinated (N = 650): patients not vaccinated against influenza or vaccinated less than 14 days before the onset of symptoms

Unknown flu vaccinated status (N = 44)

Conclusion & Challenges

- **Conclusions :**

- In France, during the 2020-21 season, we did not have an influenza epidemic :
 - Social distancing measures, wearing masks and hand washing have a great impact on influenza circulation.
 - The SARS-CoV-2 epidemic has overtaken influenza circulation
- Data were collected to evaluate SARS-CoV-2 Vaccine effectiveness

- **Challenges :**

- Data transfer procedures
- Maintain exhaustive screening of all respiratory viruses
- Sustain research throughout the year on Influenza + COVID-19 (+ ORV)



BACKUP SLIDES FOR GIHSN WEBSITE



**Foundation for
Influenza
Epidemiology**

Highlight our value

- National network of French hospitals, covering a large range of departments : Internal medicine, emergency department, ICU, Infectious diseases, geriatrics
- Careful medical records data review to collect medical data
- Linkage between clinical and virologic data
- Data monitoring.

Methods

Screening of patients based on lab results
+ patients admitted directly in **participating services**



Identification of inclusion criteria* / Selecting patients with
inclusion and non-inclusion criteria**



if consent signed
Interview and swabbing



Lab hospital / central laboratories (CNR of Lyon/Institut Pasteur)
RT-PCR analysis/Sequencing

*At least one systemic symptom or sign: fever or feverishness, malaise, headache or myalgia **or** deterioration of general condition (asthenia or loss of weight or anorexia or confusion or dizziness) **AND** at least one respiratory symptom or sign (cough, sore throat or shortness of breath) at admission or within 48 hours after admission.

**The symptoms should not have started more than 7 days before swabbing

COFFEE BREAK





Global Influenza
Hospital Surveillance
Network

www.gihsn.org



ANNUAL MEETING, 25-26 OCTOBER 2021

GIHSN PROTOCOL IMPLEMENTATION 2021/22

Sandra CHAVES, MD, MSc, Scientific Officer Foundation for Influenza Epidemiology

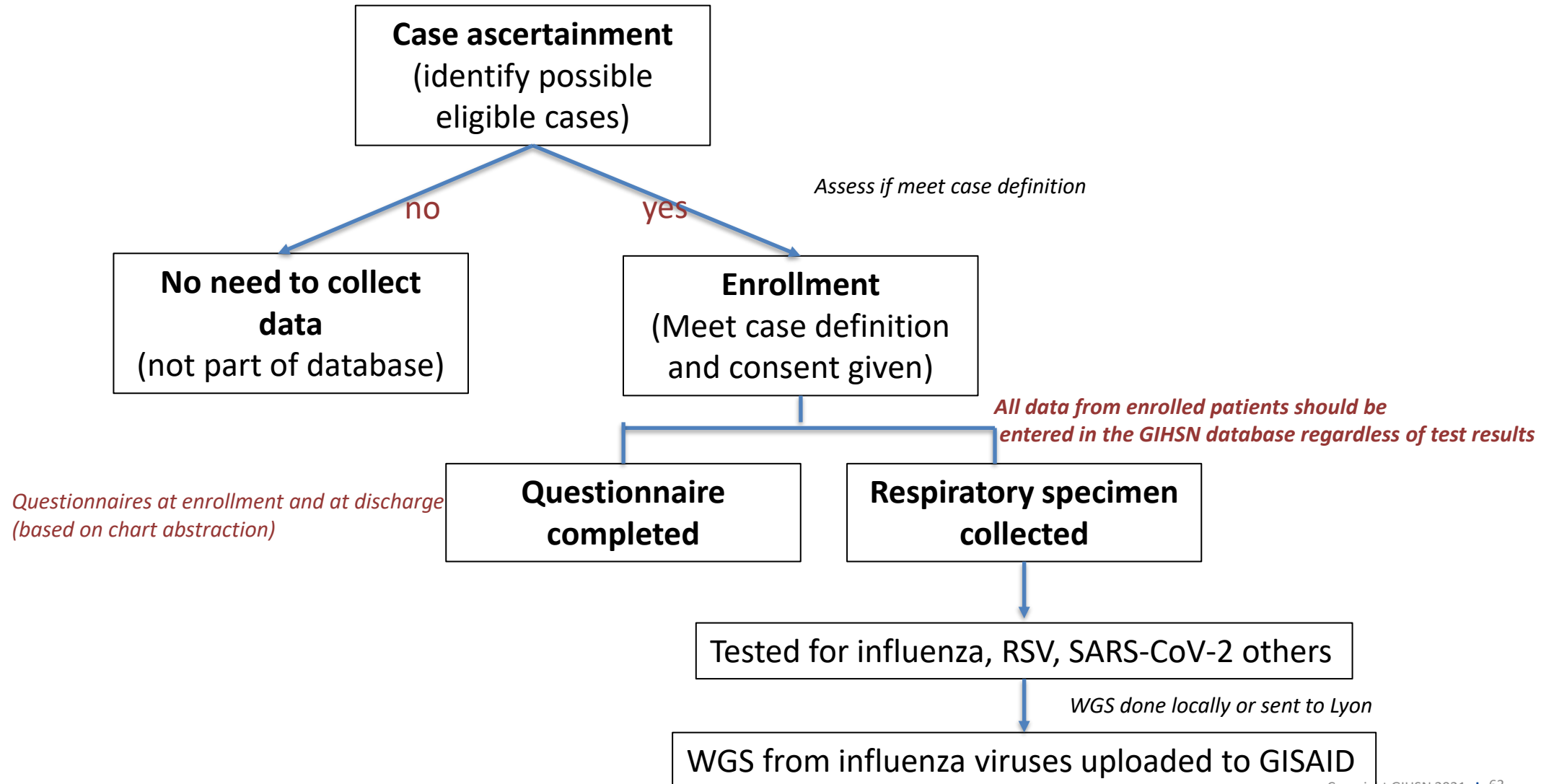


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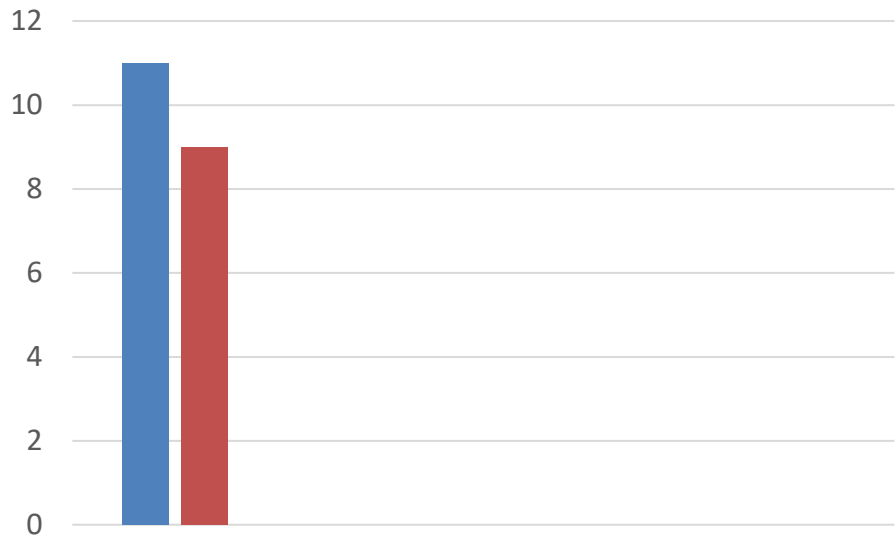
Fondation
de
France

PROCESS FOR IDENTIFICATION OF CASES AND DATA COLLECTION - GIHSN



CASE ASCERTAINMENT VARIES BY SITE – COULD THAT BE HARMONIZED?

Case ascertainment



- Expanded list of acute disease events (based on broad ICD-10 list)
- Hospital admission logs or electronic boards for acute respiratory illness

Proposal: to identify cases that are hospitalized due to respiratory illness (this can be indicated in the admission logs, infection control logs or in electronic boards in the emergency rooms.

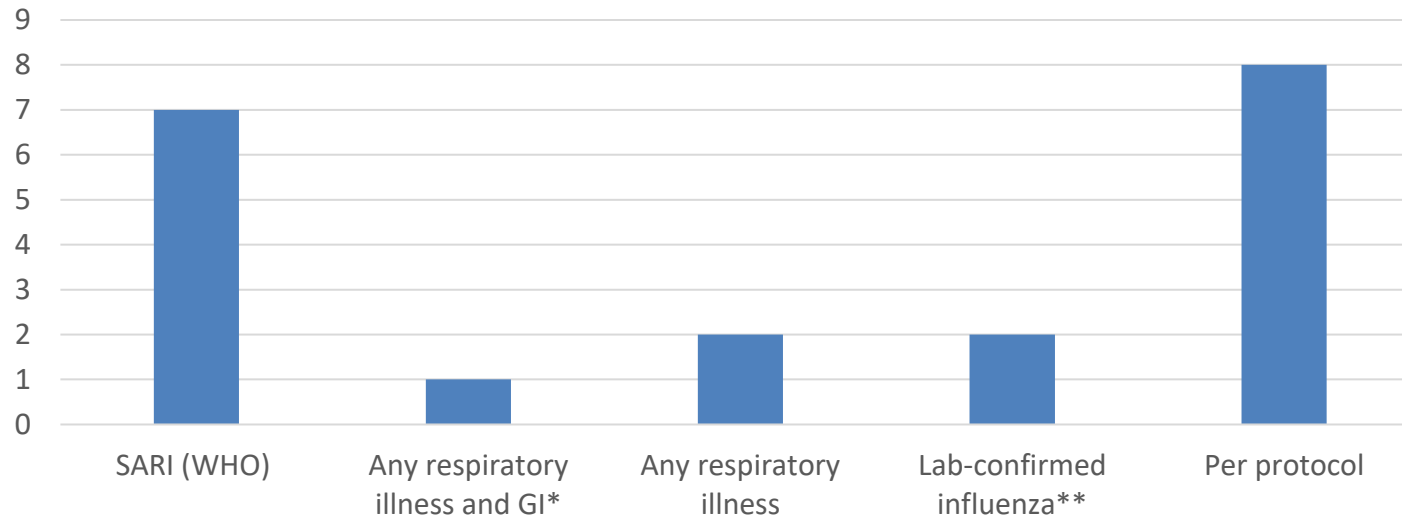
The case finding strategy will vary by hospital setting, but the cases to be approached will all relate to respiratory illnesses

For patients less than 5 years	ICD 9 Codes	ICD 10 Codes	For patients 5 years and older	ICD 9 Codes	ICD 10 Codes
Acute upper or lower respiratory disease	382.9; 460 to 466	J00	Acute upper or lower respiratory disease	382.9; 460-466	J00-J06, J20-J22, H66.90
Dyspnea, breathing anomaly, shortness of breath, tachypnea (polypnea)	786.0; 786.00; 786.05-786.07; 786.09; 786.9	R00 R01 R02 R03	Acute myocardial infarction or acute coronary syndrome	410-411 and 413-414	I20-I25.9
Acute asthma or exacerbation	493.92	J44	Acute asthma or exacerbation	493.92	J45.901
Pneumonia and influenza	480 to 488	J01	Acute heart failure	428-429.0	I50-I50.9; I51.4
Acute respiratory failure	518.82	J96	Pneumonia and influenza	480-488	J09-J18
Acute heart failure	428-429.0	I51	Bronchitis and exacerbations of Chronic Pulmonary Obstructive disease	490, 491.21 and 491.22	J40; J44.0; J44.1
Myalgia	729.1	M79	Acute respiratory failure	518.82	J96
Altered consciousness, convulsions, febrile convulsions	780.01-780.02; 780.09; 780.31-780.32	R40 R41 R42	Myalgia	729.1	M79.1
Fever or fever unknown origin or non specified	780.6-780.60	R50	Acute metabolic failure (diabetic coma, renal dysfunction, acid-base disturbances, alterations to the water balance)	250.1- 250.3; 584-586; 276-277	E11.9, E10.9, E11.65, E10.65, E10.11, E11.01, E10.641, E11.641, E10.69, E11.00, E10.10, E11.69, N17.0, N17.1, N17.2, N17.8, N17.9, N18.1, N18.2, N18.3, N18.4, N18.5, N18.6M, N18.9, N19, E87.0, E87.1, E87.2, E87.3, E87.4, E87.5, E87.6, E87.70, E87.71, E87.79, E86.0, E86.1
Cough	786.2	R05	Altered consciousness, convulsions, febrile convulsions, syncope and collapse	780.01-780.02; 780.09; 780.2; 780.14-780.2	R40.20, R40.4, R40.0, R40.1, R55, R56
Gastrointestinal manifestations	009.0; 009.3	A00			
Sepsis, Systemic inflammatory response syndrome, not otherwise specified	995.90-995.94	R60 R61			
Nausea and vomiting	078.82; 787.0; 787.01-787.03	R11 - R			



CASE DEFINITION

Case definitions for enrollment



*South Africa
**Paris and New York

SARI case definition (WHO)

An acute respiratory infection with:

- history of fever or measured fever of $\geq 38^{\circ}\text{C}$
- and cough;
- with onset within the **last 10 days**.
- and requires hospitalization

Per protocol - Modified ECDC definition of influenza like-illness (ILI) in **last 7 days**

Combination of:

- at least **one of the following four** systemic symptoms: fever or feverishness, headache, myalgia, or malaise;
- at least **one of the following three** respiratory symptoms: cough, sore throat or shortness of breath

CASE DEFINITION IN QUESTIONNAIRE

If the answers to questions 1 and 8 are Yes and the conditions for inclusion described at the top of the page are fulfilled, please proceed with swabbing and laboratory testing by RT-PCR followed by sequencing of selected positive specimens and continue filling in the questionnaire. If no capacities to generate genetic sequence data (GSD) are available onsite, the site may ship its specimens to the GIHSN sequencing platform in Lyon.

If No. to these two questions, then please consider this questionnaire closed.

- Current questionnaire “forces” sites to use protocol case definition
- We should consider changing the questionnaire – allow capturing more clinical information and onset of illness but allow to continue the questionnaire

Screening

- 1) Does the patient comply with any of the admission diagnosis listed in Annex 1? Yes No
- a. Admission diagnosis (letter/code.subcode) [][][][] | [][][][]
- b. ICD used ICD-9 ICD-10
- 2) Date of admission (yyyy-mm-dd) [][][][] - [][][] - [][][]
- 3) What is the hospital ID? [][][][][][][][]
- 4) Patient study identification number [][][][][][][][][][][][]
- 5) Sex Female Male
- 6) Age (Years) [][][]

- 7) Has the patient had one of these symptoms in the last 7 days prior to admission?
- a) ILI systemic symptoms
- ✓ Fever Yes No
 - ✓ Malaise/fatigue Yes No
 - ✓ Headache Yes No
 - ✓ Myalgia/muscle ache Yes No
- b) ILI respiratory symptoms
- ✓ Cough Yes No
 - ✓ Sore throat Yes No
 - ✓ Shortness of breath/difficult breathing Yes No
 - ✓ Nasal congestion Yes No

GIHSN Core questionnaire (Patients 5 years of age or more)

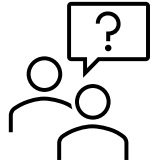
Page 1

- 8) Does the patient comply with the GIHSN ILI case definition* and the timing of symptom onset criteria? Yes No

*GIHSN ILI case definition: at least one of the symptoms listed in question 7a AND one of the symptoms listed in question 7b.



WHAT CAN WE DO TO HARMONIZE CASE ASCERTAINMENT AND DEFINITION?



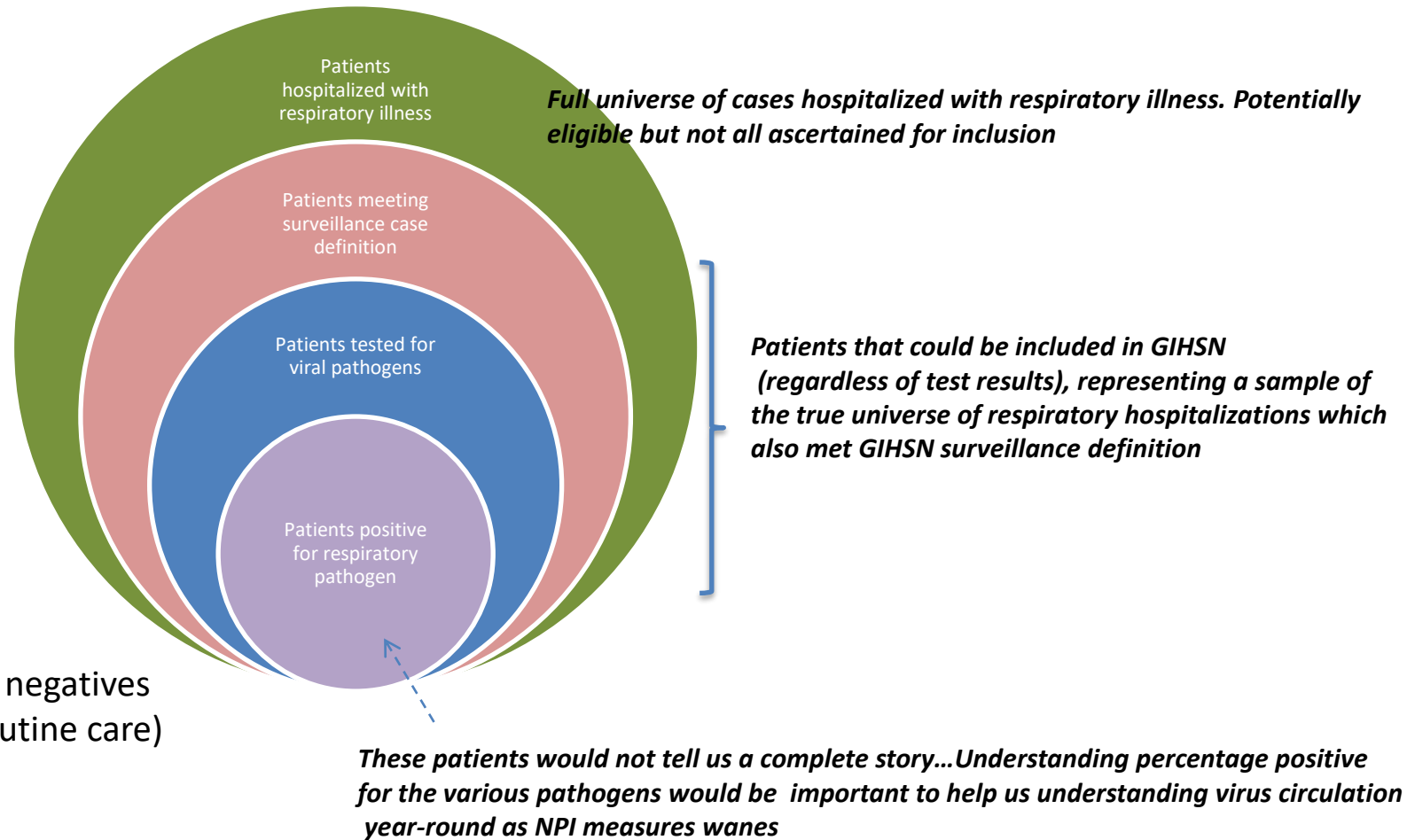
Sites' feedback on case ascertainment and case definition

- Shall we focus on identifying respiratory cases?
(instead of list of acute events)
- Would be possible to systematically collect signs and symptoms at presentation for children and adults? And days of onset?
- Shall we stop restricting data entry to protocol case definition?
- Can we combine questionnaires (kids+adults)?

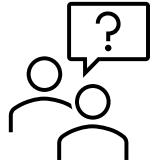
SAMPLING STRATEGY

Sites' feedback:

- Weeklong case finding, enrollment and sample collection – 8 sites
- Pre-defined numbers of samples
 - 10/week – India
 - 30/week – Ukraine
 - First 20/week – Romania
- Defined day for case finding, enrollment and sample collection
 - 3 days/week – Moscow and Turkey
 - 2 days/week – Brazil
- Unclear proposal: China, Paris and Spain
- Need further clarifications
 - Canada – all positives and matched sample of negatives
 - USA – all positives (from residual swabs for routine care)



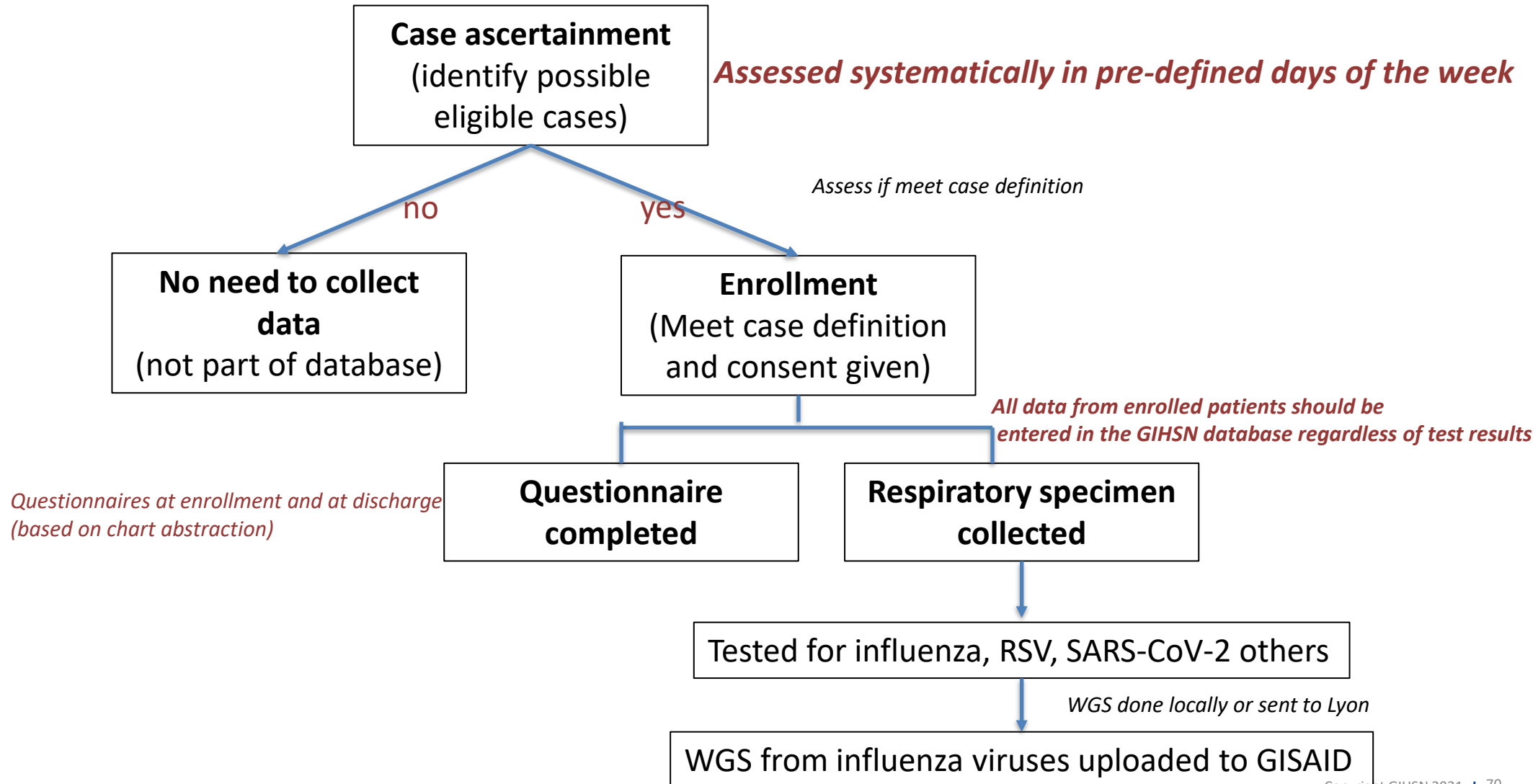
WHAT CAN BE DONE TO MAKE SURE WE HAVE SYSTEMATIC ENROLLMENT, MINIMIZING BIASES?



Sites' feedback on sampling strategy

- Could sites using a sampling approach be able to implement case ascertainment, enrollment and specimen collection in Pre-defined 2-3days/week?
- What should be our time for year-round enrollment?
 - ✓ Nov-Oct?
 - ✓ Sept-Sept? (allowing retrospective data upload)
 - ✓ Dec-Nov?

PROCESS FOR IDENTIFICATION OF CASES AND DATA COLLECTION WHEN USING SAMPLING STRATEGY



RESPIRATORY VIRAL TESTING PLANS FOR YEAR-ROUND SURVEILLANCE NOVEMBER 2021 THROUGH OCTOBER 2022

Site reference			Tested virus			
Worldwide regions	Zone	Country	Flu	Sars-cov-2	RSV	ORV
Africa	Southern Hemisphere	Kenya	Yes	Yes	No	No
Africa	Southern Hemisphere	Ivory Coast	Yes	Yes	Yes	Yes
Africa	Southern Hemisphere	Senegal	Yes	Yes	Yes	Yes
Africa	Southern Hemisphere	Central African Republic	Yes	Yes	Yes	Yes
Africa	Southern Hemisphere	South Africa	Yes	Yes	Yes	Yes
Asia	Northern Hemisphere	China - Shanghai	Yes	Yes	Yes	No
Asia	Intertropical	India	Yes	Yes	Yes	Yes
Asia	Intertropical	Nepal	Yes	Yes	Yes	No
Europe	Northern Hemisphere	Russia - Saint Petersburg	Yes	Yes	Yes	Yes
Europe	Northern Hemisphere	Russia - Moscow	Yes	Yes	Yes	Yes
Europe	Northern Hemisphere	Ukraine	Yes	Yes	No	No
Europe	Northern Hemisphere	Spain	Yes	Yes	Yes	Yes
Europe	Northern Hemisphere	Romania	Yes	Yes	Yes	Yes
Europe	Northern Hemisphere	France - Paris	Yes	Yes	Yes	Yes
Latin America	Southern Hemisphere	Brazil - Curitiba	Yes	Yes	Yes	Yes
Latin America	Intertropical	Peru	Yes	Yes	Yes	Yes
Middle East	Northern Hemisphere	Turkey - Ankara	Yes	Yes	Yes	Yes
Middle East	Northern Hemisphere	Lebanon	Yes	Yes	Yes	Yes
North America	Northern Hemisphere	Canada	Yes	Yes	Yes	Yes
North America	Northern Hemisphere	USA	Yes	Yes	Yes	No

QUESTIONNAIRES – WHAT WAS NEW IN 2020? HOW COMPLETE ARE THE QUESTIONNAIRES?

- Two questionnaires available (children <5 years vs. those ≥5 years) in previous years
- Capture information on testing for specific pathogens (including SARS-COV-2)
- **In the ≥5 years questionnaire**
 - ✓ Added few extra variables to assess clinical presentation (nausea and vomiting, diarrhea, new loss of taste or smell, chest pain)
 - ✓ COVID-19 vaccination
 - ✓ Clarify severity questions to be captured at admission and frailty score to be done in all patients 50 years and older
- **In the <5 years questionnaire**
 - ✓ Added signs and symptoms for acute episode (not collected before), accommodating also those associated with COVID-19

OVERALL MISSING VARIABLES

Questionnaire for those >5 years

Date of swabbing	38,15%	
Does the patient have a positive result?	15,44%	
Did you test for other respiratory viruses ?	15,21%	
Vaccination status COVID-19: at least first dose COVID-19 vaccine received	20,03%	Added 19 March (% post variable added is 12,80%)
Fully vaccinated (2 doses or 1 dose depending on product) more than 14 days before onset of the ILI symptoms	29,89%	Added 19 March (% post variable added is 27,12%)
If known, indicate which COVID-19 vaccine the patient received	96,25%	Added 19 March (% post variable added is 91,93%)
Respiratory rate at admission (<i>breaths per minute</i>)	11,92%	
Supplemental oxygen without mechanical ventilation	34,63%	Spain and Paris do not collect this variable in their study
Vasopressor support	17,69%	Paris does not collect this variable in its study
What is the baseline frailty score of the patient (for all patients 50 years and older), prior to onset of the current illness?	36,74%	Spain does not collect this variable in its study, and Paris uses another index
Discharge/death date	24,14%	
Main diagnose at discharge/death (letter/code.subcode)	19,76%	Kenya and Paris do not collect this variable in the GIHSN format and therefore leave the cell empty
What is the frailty score of the patient at discharge (for all patients 50 years and older) ?	44,16%	Spain does not collect this variable in its study, and Paris uses another index

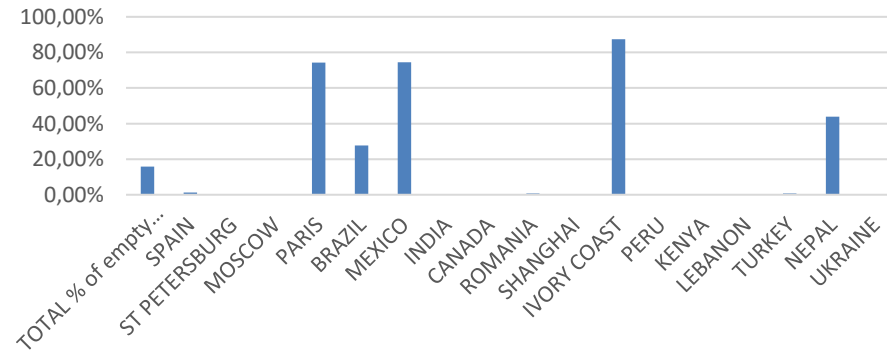
Questionnaire for those ≤5 years

Does the patient have a positive result? If yes, which virus(es)	11,46%	
Did you test for other respiratory viruses ?	11,46%	
Height (Round up to the nearest integer)	15,42%	
Weight (Round up to the nearest integer)	21,69%	
Respiratory rate at admission (<i>breaths per minute</i>)	11,82%	
Main diagnose at discharge/death (letter/code.subcode)	19,22%	Kenya and Paris do not collect this variable in the GIHSN format and therefore leave the cell empty

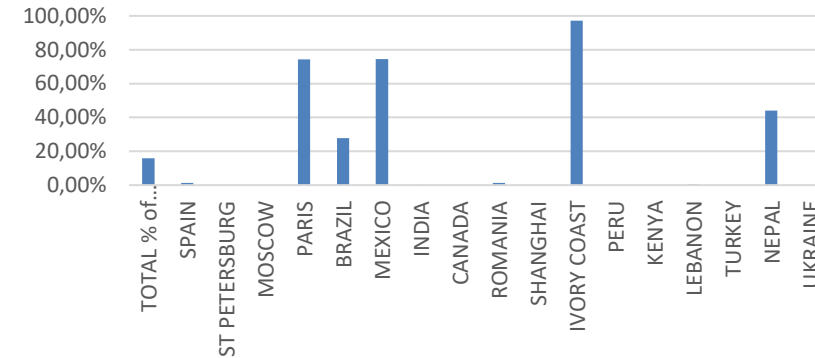
Key to assess severity

COVID-19 RELATED QUESTIONS ADDED LAST YEAR: MISSING DATA

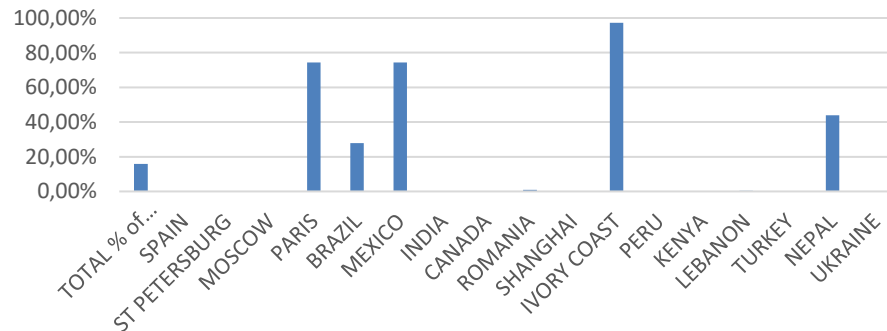
Has the patient had one of these symptoms in the last 7 days prior to admission? **Nausea or vomiting**



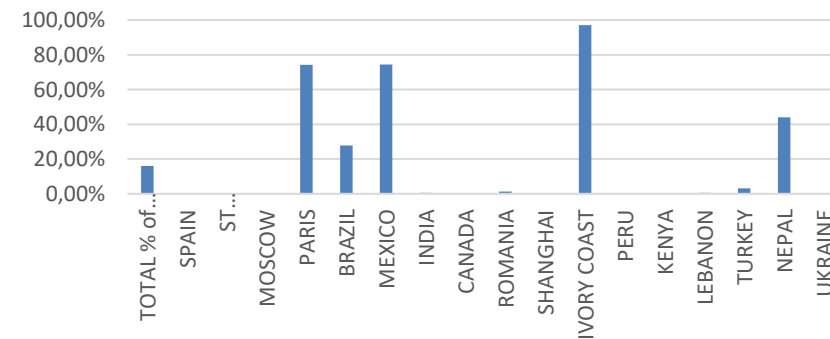
Has the patient had one of these symptoms in the last 7 days prior to admission? **Diarrhea**



Has the patient had one of these symptoms in the last 7 days prior to admission? **Loss or change to sense of smell or taste**

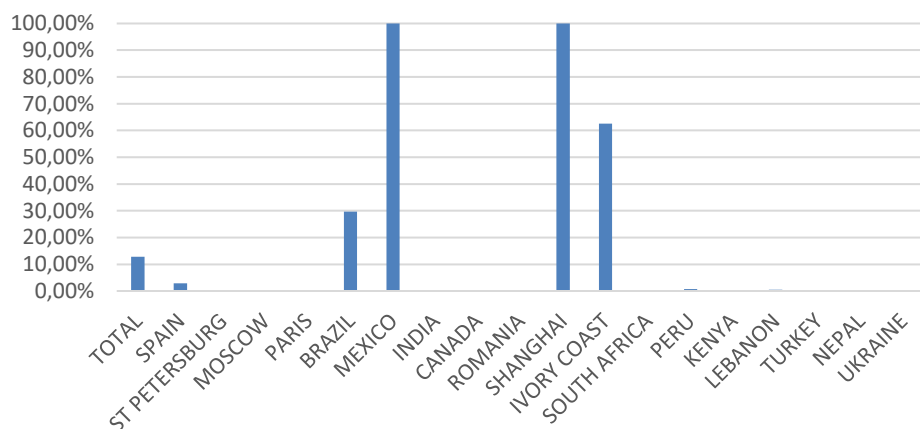


Has the patient had one of these symptoms in the last 7 days prior to admission? **Chest pain**

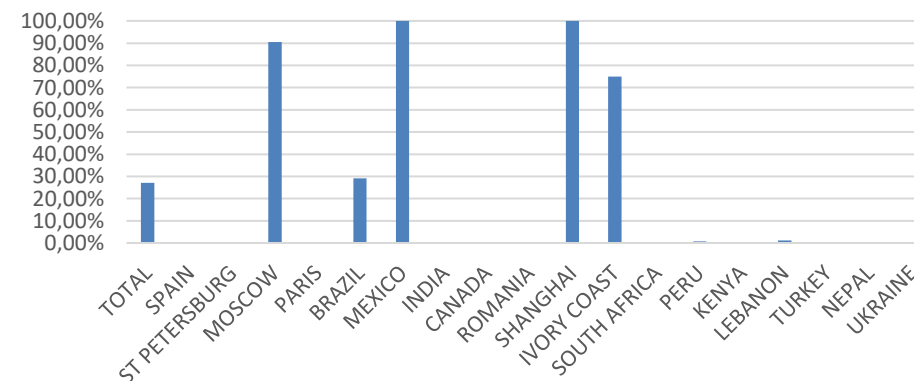


COVID-19 VACCINATION QUESTIONS ADDED LAST YEAR: MISSING DATA

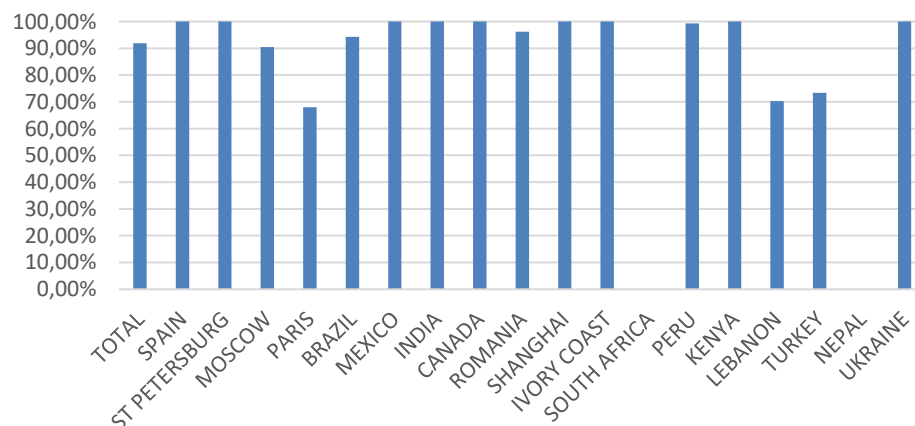
Vaccination status COVID-19: at least first dose COVID-19 vaccine received



Fully vaccinated (2 doses or 1 dose depending on product) more than 14 days before onset of the ILI symptoms

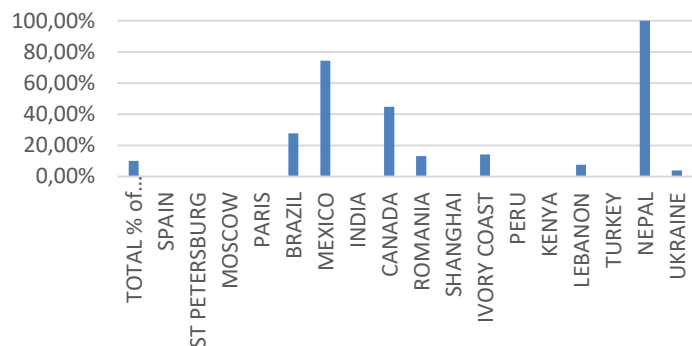


If known, indicate which COVID-19 vaccine the patient received

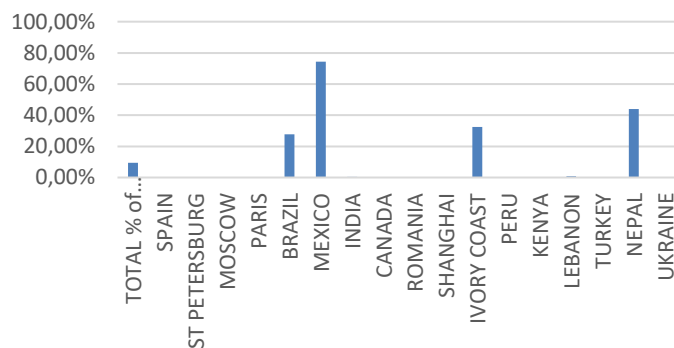


SELECTED SEVERITY VARIABLES WITH HIGH % MISSING DATA

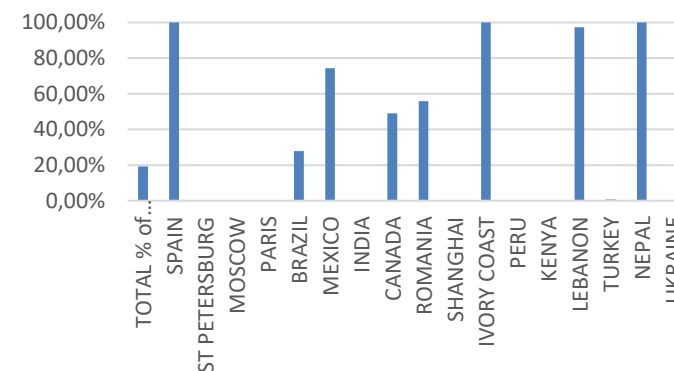
Respiratory rate at admission
(breaths per minute)



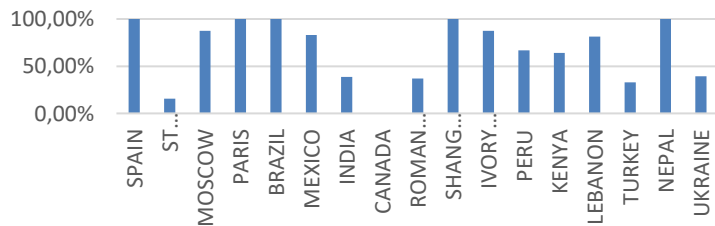
Supplemental oxygen without
mechanical ventilation



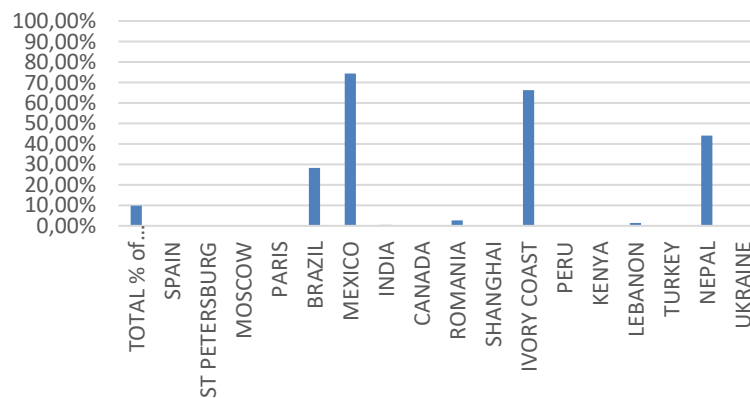
Oxygen saturation value on ambient
air (%)



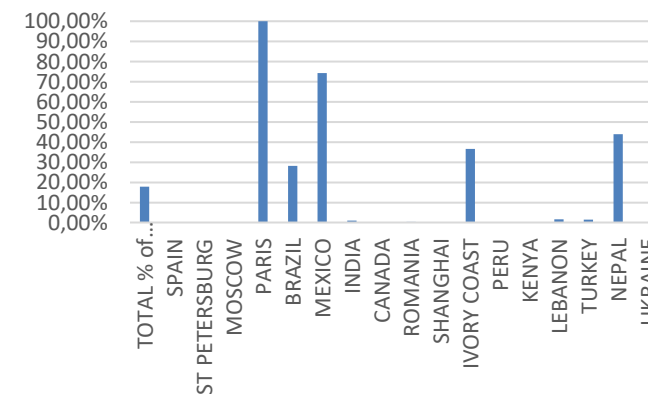
What is the baseline frailty score of
the patient (for all patients 50 years
and older), prior to onset of the
current illness?



ICU admission

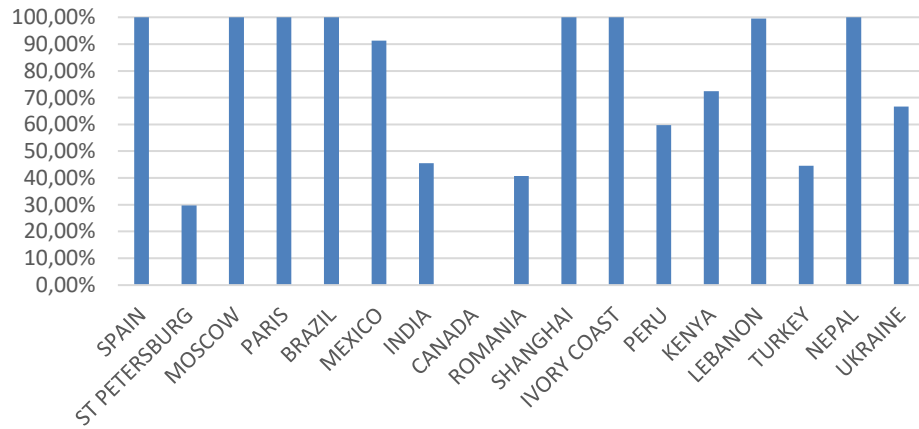


Vasopressor support

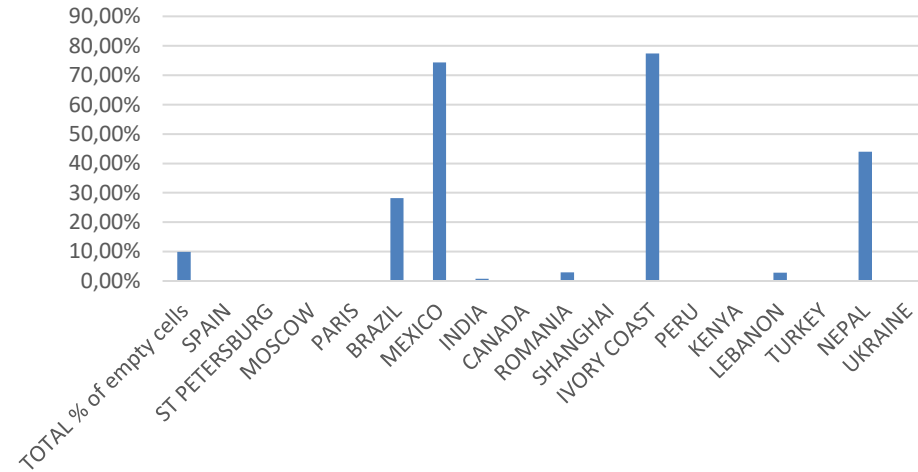


SELECTED SEVERITY VARIABLES WITH HIGH % MISSING DATA (CONT.)

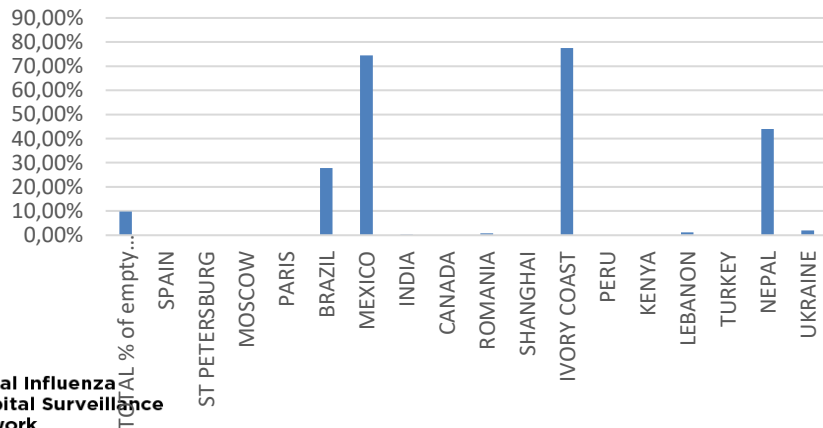
What is the frailty score of the patient at discharge (for all patients 50 years and older) ?



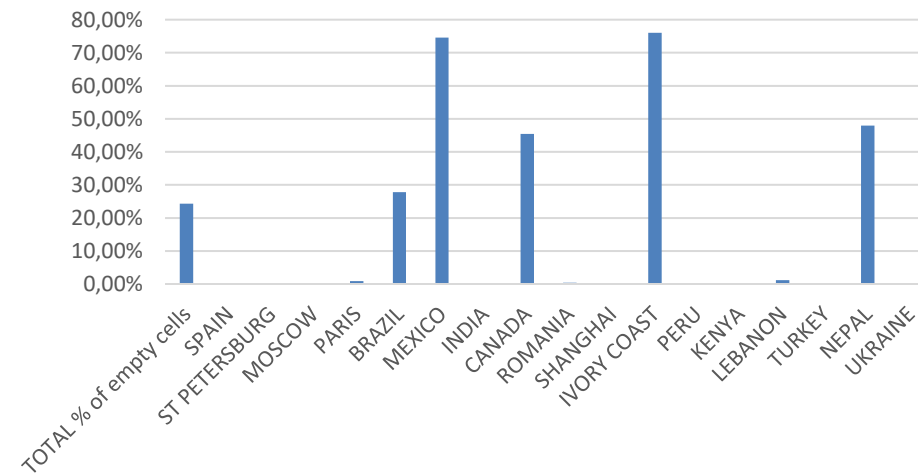
Mechanical ventilation



Death while hospitalized

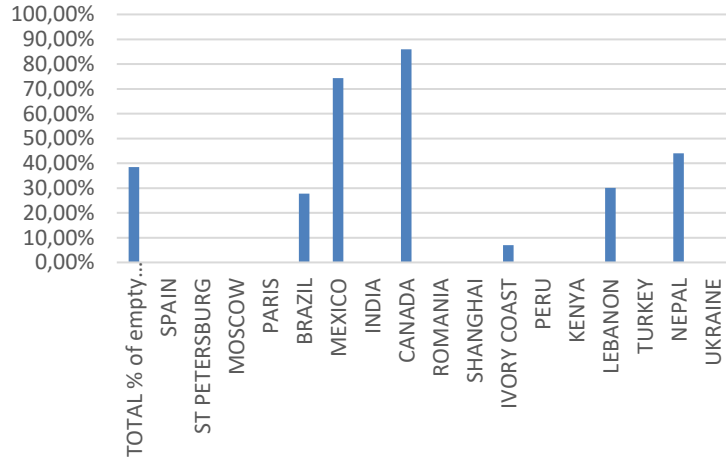


Discharge/death date

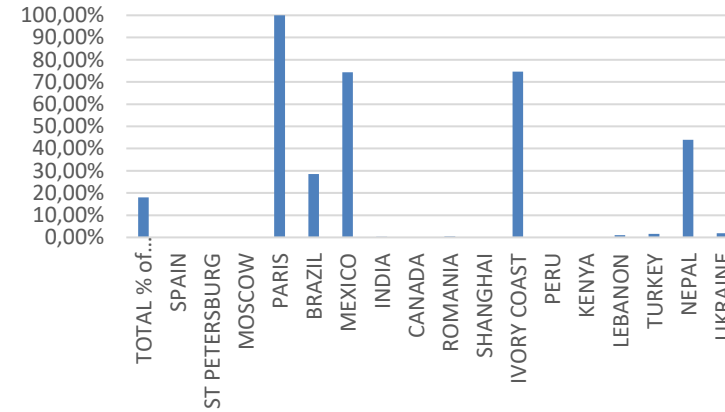


OTHER KEY VARIABLES WITH MISSING DATA

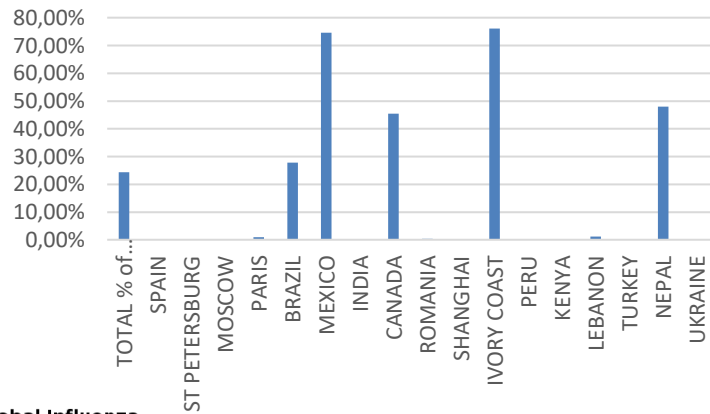
Date of swabbing



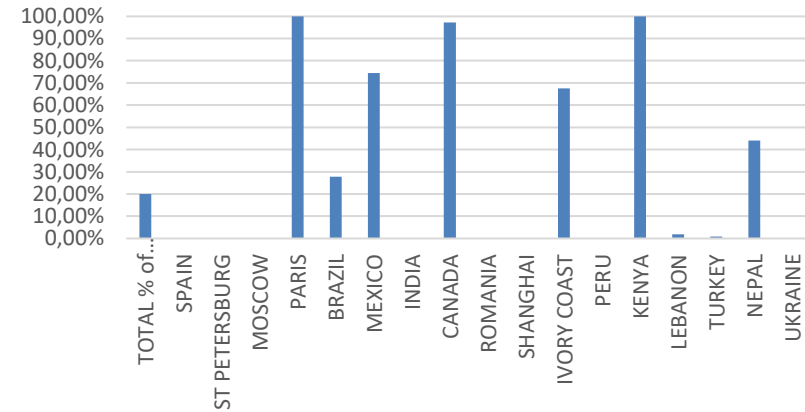
ICD used



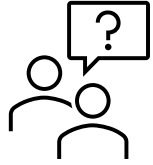
Discharge/death date



Main diagnose at discharge/death



WHAT CAN BE DONE TO IMPROVE COMPLETENESS OF DATA?



Sites' feedback on questionnaire

- Completeness – what to do to improve it?
- Shall we revisit required variables? Shorten the questionnaire
- What are key information we would like to gather?

NEXT STEPS

- Revised protocol and questionnaire(s) for next season with site's input (within next 2 weeks?)
- Get feedback from ISC and sites simultaneously to speed the process
- Adjust database to reflect new questionnaire
- Thoughts?



THANK YOU!



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ANNUAL MEETING, 25-26 OCTOBER 2021

MANUSCRIPT ON GIHSN ACTIVITIES 2019-2020

Prof Bruno LINA, University of Lyon



Foundation for
Influenza
Epidemiology

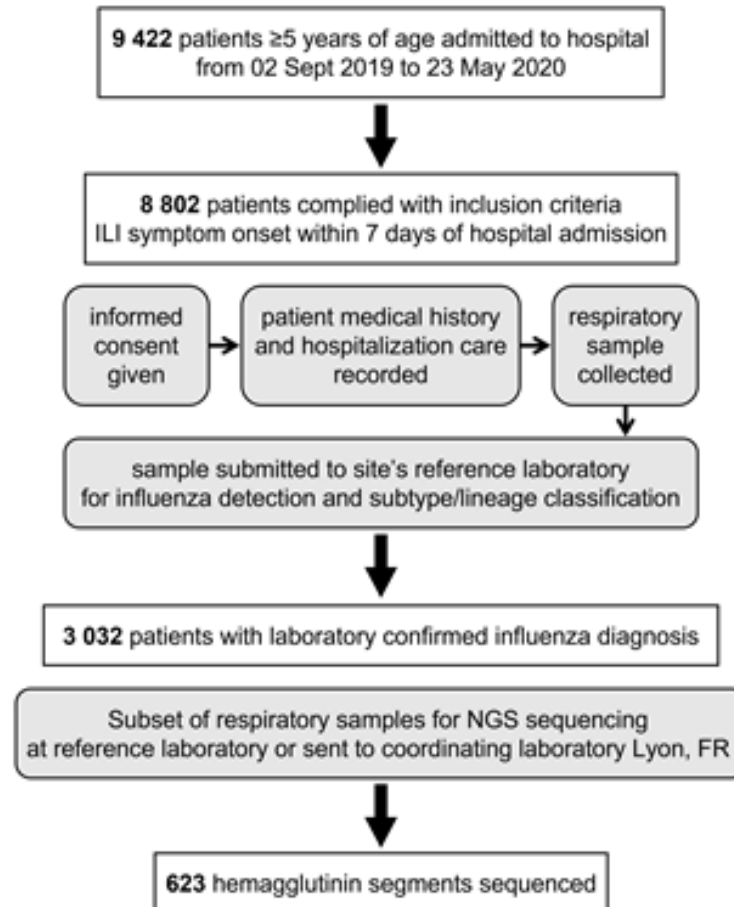
Sous l'égide de

Fondation
de
France

2019-2020 GIHSN PUBLICATION

TITLE: CLINICAL AND PHYLOGENETIC INFLUENZA DYNAMICS FOR THE 2019-20 SEASON IN THE GLOBAL INFLUENZA HOSPITAL SURVEILLANCE NETWORK (GIHSN)

Inclusions



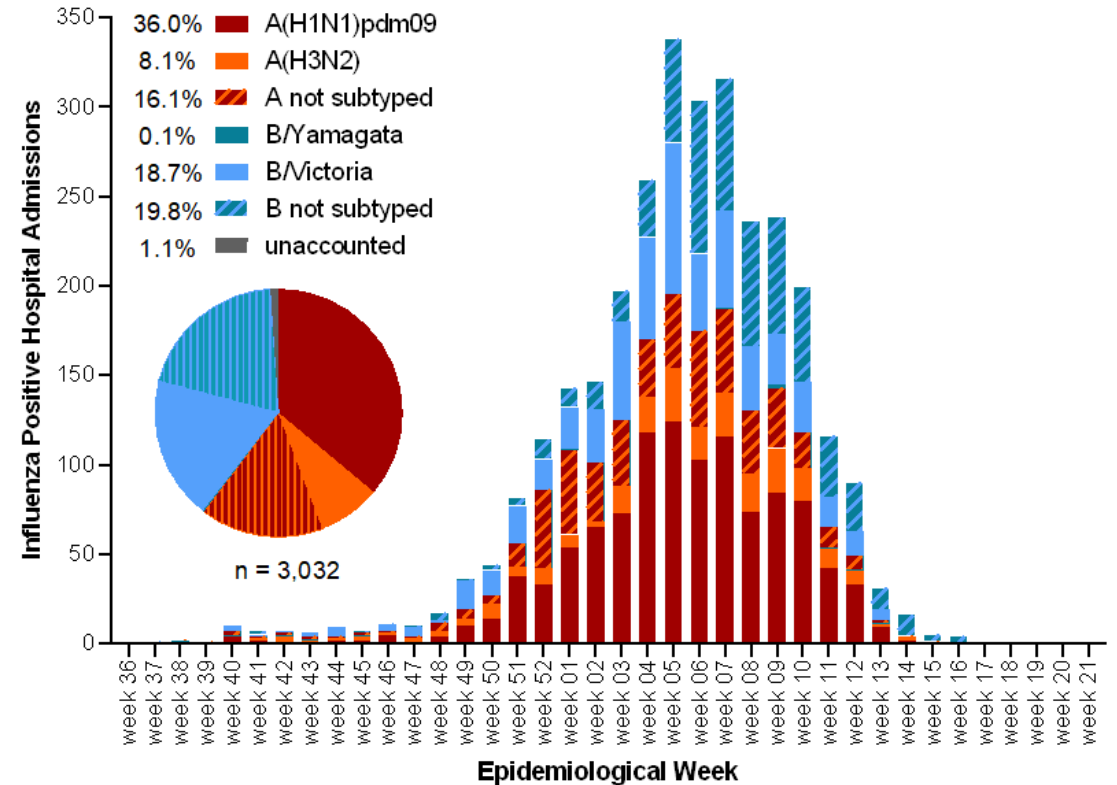
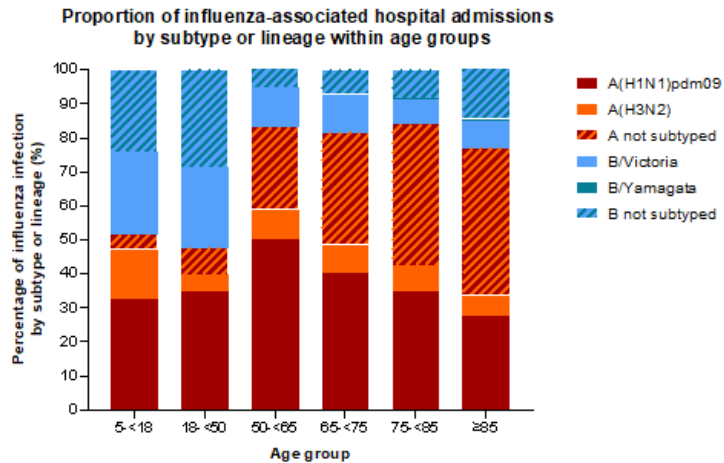
2019-2020 GIHSN PUBLICATION

CLINICAL AND PHYLOGENETIC INFLUENZA DYNAMICS FOR THE 2019-20 SEASON IN THE GLOBAL INFLUENZA HOSPITAL SURVEILLANCE NETWORK (GIHSN)

Results (1)

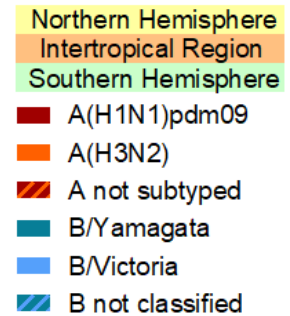
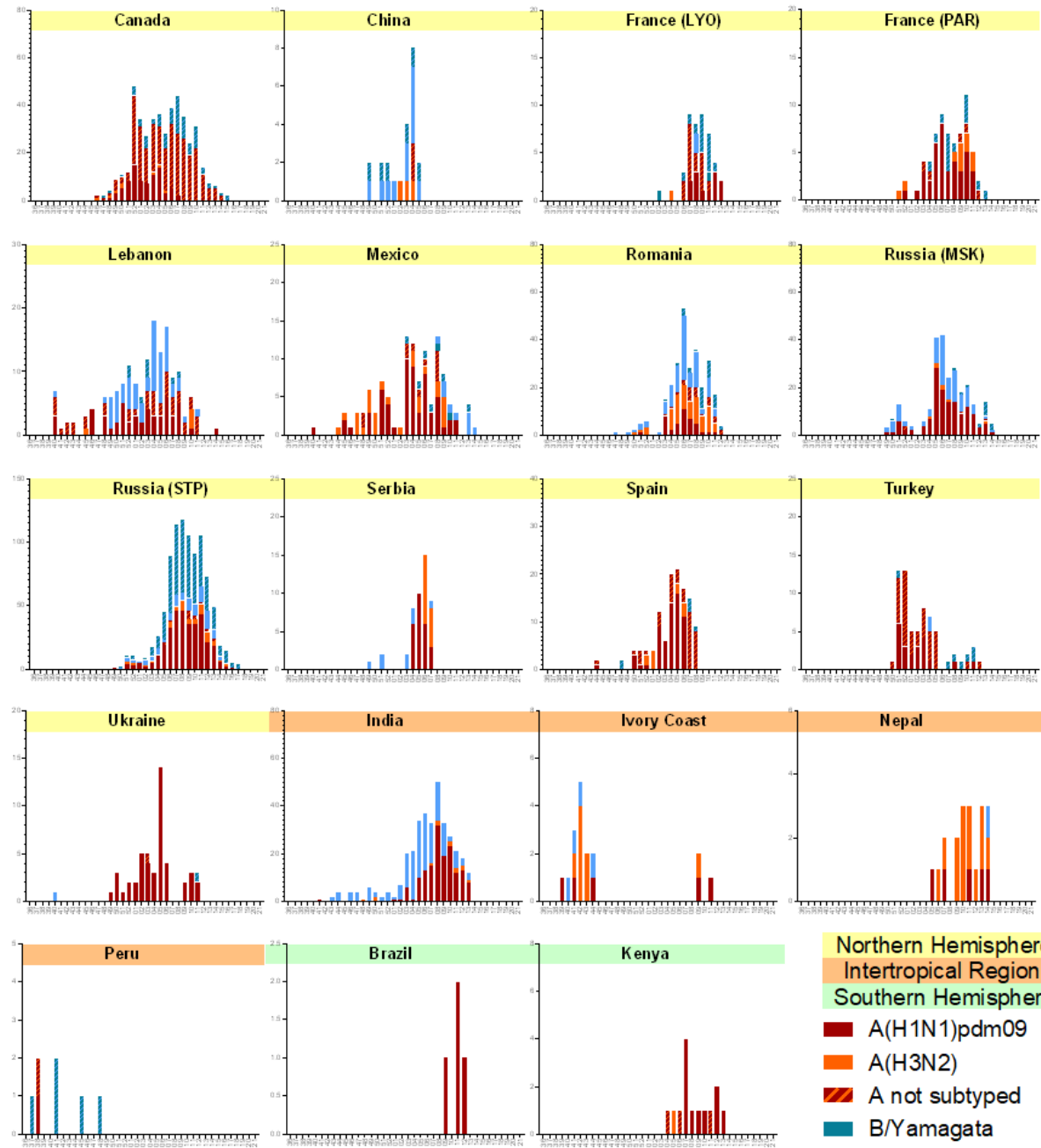
- 14,221 patients were screened across 19 participating sites, for which 8,844 complied with the study inclusion criteria.

- 3,302 has a laboratory-confirmed influenza diagnosis. Influenza A dominated the season for all age groups, while B/Victoria accounted for over half of the younger patients aged 5 to 50 years.



DATA SET from the sites
Positive detection

Influenza Positive Hospital Admissions



Epidemiological Week

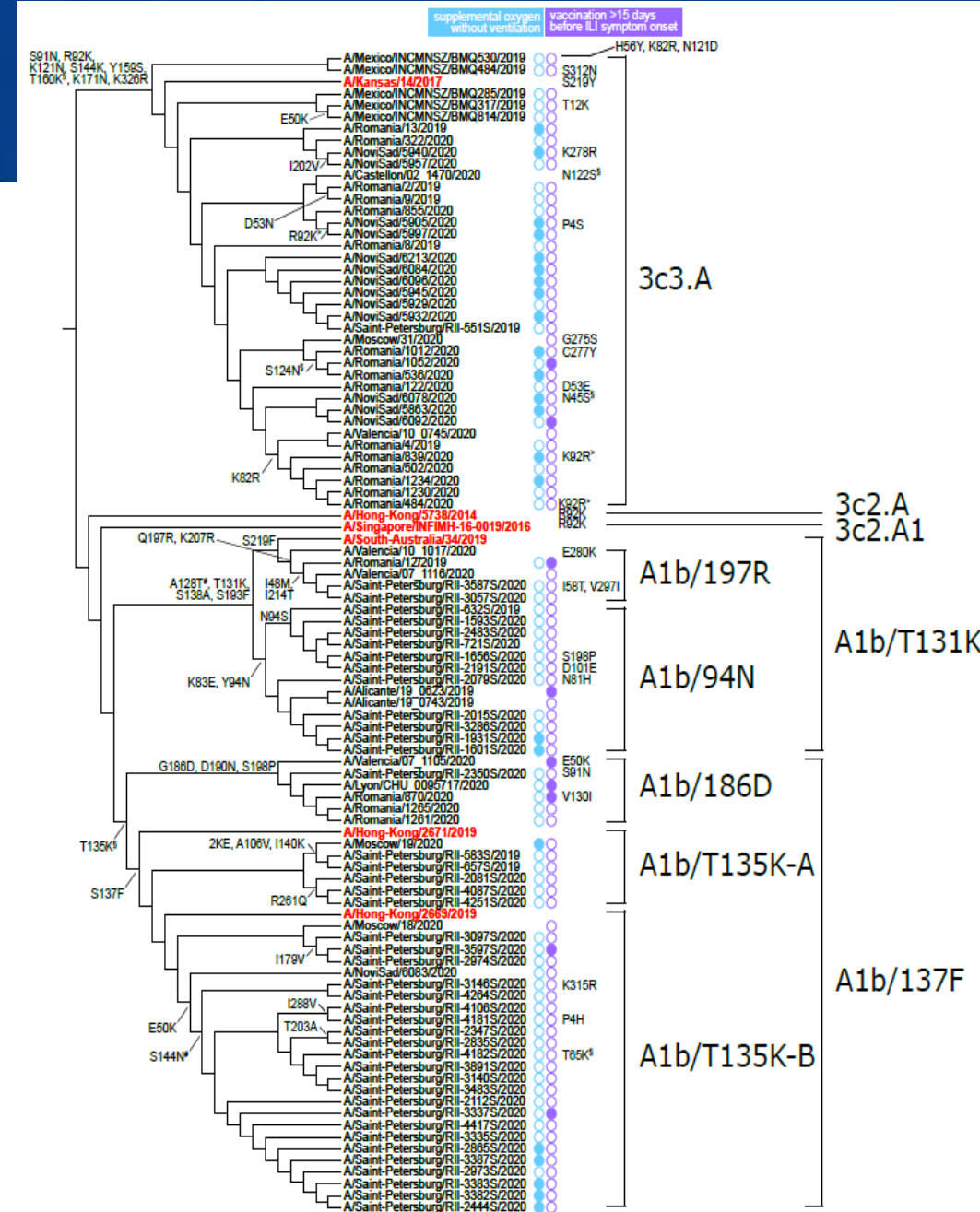


2019-2020 GIHSN PUBLICATION

CLINICAL AND PHYLOGENETIC INFLUENZA DYNAMICS FOR THE 2019-20 SEASON IN THE GLOBAL INFLUENZA HOSPITAL SURVEILLANCE NETWORK (GIHSN)

Results (2)

- HA segment was sequenced for 624 patient samples showing similar influenza clade frequency among severe influenza hospitalizations and community infections.
- No phylogenetic clustering was observed between hemagglutinin substitutions and the primary clinical parameter of supplemental oxygen requirement or with vaccine failure (ie A(H1N1)pdm09).



2019-2020 GIHSN PUBLICATION

CLINICAL AND PHYLOGENETIC INFLUENZA DYNAMICS FOR THE 2019-20 SEASON IN THE GLOBAL INFLUENZA HOSPITAL SURVEILLANCE NETWORK (GIHSN)

Pending :

- 1 – complete finalization of the manuscript by Gregory QUEROMES (1st week Nov)
- 2 – agreement on the author's list (2nd week Nov)
- 3 – submission to Clinical Microbiology and Infections (2020 IF 8.067)

10/28/2021





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ANNUAL MEETING, 25-26 OCTOBER 2021

CALL FOR RESEARCH PROJECTS PROCESS

Laurence TORCEL-PAGNON, Foundation for Influenza Epidemiology



Foundation for
Influenza
Epidemiology

Sous l'égide de

Fondation
de
France

BACKGROUND AND RATIONALE

- ❖ The Foundation wishes to support **research projects and analytical proposals focused on influenza and others respiratory virus that leverage on the GIHSN platform.**
- ❖ Projects and proposals could include **novel analysis of existing data, the use of respiratory samples (from selected participating sites) for pathogen discovery or other relevant studies, or study proposals that engage site specific investigators (one or more sites)** to further improve our understanding of influenza and other respiratory viruses (which could involve collection of new data), among other initiatives.



ELIGIBILITY CRITERIA (1)

- ❖ **Any GIHSN site investigators, not for profit stakeholders/institutions would be eligible for the call for research projects.** Applicant should submit a proposal which presents the idea for the research project or analytical proposal in detail, including:
 - requester capacity and experience and affiliation
 - research question, rationale, objectives and expected outcomes,
 - define whether the request is for having access to dataset (if analytical proposal), use of specimen bank, or for collection of new data in collaboration with site investigators to complement already existent information
 - description of the planned analysis,
 - expected impact of the research /public disclosure-publication,
 - timelines and status of the project preparation (e.g. full protocol, IRB, funding, training,)
 - *The Foundation for Influenza Epidemiology may be able to provide grants to partially supplement the research project proposal funding. The applicant needs to provide a detail budget, indicating other sources of support.*

ELIGIBILITY CRITERIA (2)

- ❖ The **GIHSN data catalogue** aims to provide a high-level fingerprinting of the GIHSN database including:
 - references to the generic protocols and related patient questionnaires developed along the 9 influenza seasons
 - an excel sheet summarising the sites characteristics, case finding specificities, samples selection and testing procedures, tested virus, and cumulative number across seasons of severe acute respiratory illness (SARI) and laboratory confirmed influenza (LCI) and other respiratory viruses (ORV) cases in the GIHSN database per site.
 - the list of variables/database codes
- ❖ The applicants should use this data catalogue to make a **first assessment of the feasibility of their proposal before its submission to the Foundation.**

Site reference						Characteristics of the site								Case finding			Respiratory sample type
Worldwide regions	Zone	Country	Site name	Number - Seasons participating in GIHSN (data transmitted)	Detail - Seasons participating in GIHSN	Population	No. Hospitals	Hospital characteristics	Details hospitals	Theoretical total site capacity	Usual study period	Influenza vaccination program	Catchment area for hospital demand	Case ascertainment	Case definition for Stry	Case definition for Cfy	
Africa	Southern Hemisphere	Kenya	Kenya Medical Research Institute (KEFPI) NAIROBI	4	[2017-18]; [2018-19]; [2019-20]; [2020-21]	All ages	7	7 hospitals - regional hospitals: 3, District hospitals: 4, Private hospitals: 2, Referral hospitals: 2, Specialized hospitals: 2, Total: 14 beds			December - April						Combined RMP/CF
Africa	Northern Hemisphere	Morocco	Direction of Epidemiology and Disease Control, Ministry of Health, Rabat	1	[2020-21]		0				October - ?		No				
Africa	Southern Hemisphere	South Africa	University of the Witwatersrand, JOHANNESBURG	4	[2006-07]; [2007-08]; [2008-09]; [2009-10]	All ages	2	2 hospitals in Soweto - 11 million people, Chris Hani Baragwanath Academic Hospital, 2,400 beds, Ikapa Hospital, 300 beds			All year						Nasal

SELECTION PROCESS

- ❖ Applications meeting the eligibility criteria will be reviewed and evaluated by the **Independent Scientific Committee of the Foundation who will assess the scientific value and ethical aspect of the research projects proposals.**
- ❖ If needed a feasibility evaluation will be conducted by Impact Healthcare who is the company mandated by the Foundation to coordinate the network and host the database.
- ❖ The **Executive committee of the Foundation will then select the research projects proposals based on strategic relevance and eventually budget availability and authorise for dataset access** (through a secured GDPR compliant IT system).
- ❖ Sites remain owners of their data and they will be informed of the selected proposals and invited to contribute. Sites will also weigh in the final approval.
- ❖ Applications that involve request for access to respiratory samples or need new data collected should preferably engage with specific sites in advance and involve the local investigators and/or have their support letter included in the submission package.

The yearly maximum envelop for optional grant support across all projects is **200,000 euros.**

HOW TO APPLY

- ❖ **Applications to this call are welcomed all year long.** All applications must be submitted on-line on the GIHSN website via the application template. **The formal review outcome will be communicated twice a year (April and October).** It is advised to submit proposals 1 month before the review months to be considered:
 - ❖ 4 applications have been received so far, to be submitted to the ISC
 - 1/ Influenza rebound after COVID-19 and shifts in subtype dominance ; Cécile Viboud, Fogarty International Center, National Institutes of Health*
 - 2/ GIHSN Severity Scale (GIHSN SevScale), aims to develop a scientifically-developed severity scale for influenza cases reported to GIHSN ; John Paget, Saverio Caini, Peter Spreeuwenberg, Nivel, Utrecht, the Netherlands*
 - 3/ Epidemiology, clinical characteristics and outcomes of ARVI in hospitalized pregnant women and postponed effect in their babies during 2018-2022 (4 seasons) ; Elena Burtseva & Svetlana Trushakova (Moscow site)*
 - 4/ Experience of older adults hospitalized with influenza and acute respiratory illness in relation to function in Activities of Daily Living: a report from the GIHSN ; Melissa Andrew and Shelly McNeil (Canada site)*
- ❖ A formal letter from the Foundation describing research modalities and optional grant payment milestones will be sent to the selected applicants.

Launched in July and considered as a pilot year

Questions & feedbacks from sites are welcomed





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ANNUAL MEETING, 25-26 OCTOBER 2021

CLOSING



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