ANNUAL MEETING, 19-20 OCTOBER 2020

GIHSN 2019-2020: RESULTS BY SITE

All Sites
CANADA
Melissa K Andrew, MD, PhD, MSc(PH)
Shelly A McNeil, MD, FRCPC
CANADA

Serious Outcomes Surveillance Network

#included = **1528**
(Age range 18-106)

#LCI = **812**

#sequenced = ongoing

Site description

- 11 adult academic and community hospital sites in 5 Canadian Provinces (Nova Scotia, Ontario, Quebec, Alberta, British Columbia) representing ~6000 acute care beds
- Population enrolled is 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

2019/20 Sites
CANADA

Serious Outcomes Surveillance Network

Results

<table>
<thead>
<tr>
<th></th>
<th>CFS 1-3 non-frail</th>
<th>CFS 4 pre-frail</th>
<th>CFS 5 mild frailty</th>
<th>CFS 6 mod frailty</th>
<th>CFS 7-9 severe frailty</th>
<th>P value</th>
</tr>
</thead>
<tbody>
<tr>
<td>age</td>
<td>57.5 (19.6)</td>
<td>72.4 (12.5)</td>
<td>77.6 (12.0)</td>
<td>80.1 (13.1)</td>
<td>75.5 (17.0)</td>
<td></td>
</tr>
<tr>
<td>vaccination</td>
<td>201 (38.7%)</td>
<td>161 (53.3%)</td>
<td>136 (56.7%)</td>
<td>153 (62.2%)</td>
<td>59 (57.3%)</td>
<td>&lt;0.001</td>
</tr>
<tr>
<td>ICU</td>
<td>66 (12.7%)</td>
<td>43 (14.2%)</td>
<td>18 (7.5%)</td>
<td>26 (10.6%)</td>
<td>11 (10.7%)</td>
<td>0.2</td>
</tr>
<tr>
<td>death</td>
<td>12 (2.3%)</td>
<td>11 (3.6%)</td>
<td>13 (5.4%)</td>
<td>22 (8.9%)</td>
<td>19 (18.4%)</td>
<td>&lt;0.001</td>
</tr>
<tr>
<td>Influenza A</td>
<td>205 (74.8%)</td>
<td>127 (80.9%)</td>
<td>98 (86.0%)</td>
<td>85 (79.4%)</td>
<td>54 (79.4%)</td>
<td></td>
</tr>
<tr>
<td>Influenza B</td>
<td>69 (25.2%)</td>
<td>30 (19.1%)</td>
<td>16 (14.0%)</td>
<td>22 (20.6%)</td>
<td>14 (20.6%)</td>
<td></td>
</tr>
</tbody>
</table>

Key messages

- Older and frailer patients were more likely to have been vaccinated.
- Detection of influenza A and B was similar across grades of frailty.
- Overall 12.1% of influenza patients were admitted to ICU and 5.5% died.
- Death increased with frailty, but ICU admission did not.
- Death was higher in the influenza group.
- The experience of severe outcomes was similar for influenza A and B.
CONCLUSIONS:
• Frailty was associated with increased vaccination and with increased mortality
• Influenza A and B co-circulated, and both were associated with similar morbidity and mortality

CHALLENGES:
• Getting sequencing established locally has been a challenge – delayed by COVID-19 but now on track to complete last season’s sequences and be ready for 2020/21
• Influenza screening has been impacted by COVID-19; reduced influenza circulation with the COVID control measures, and study personnel issues at busy COVID-19 sites
• For context, we describe COVID control measures in Canada: many non-essential businesses and shops closed, people working remotely where possible, restaurants and bars were closed, schools closed March 13-end of the school year (June), government support for individuals and businesses. Not a full “lock down”, no curfew. Grocery and essential stores remained open with operating restrictions.
MEXICO

Guillermo M. Ruiz-Palacios, MD, FIDSA
on behalf of the Global Influenza Hospital Surveillance Network-Mexico
Total included = 847
Laboratory confirmed influenza = 171
Total sequenced = 79

2019-2020 Influenza Season

Study conducted in 11 hospitals in four provinces of Mexico

Geographical location of study sites

Influenza A(H1N1)pdm09, A(H3N2), and Influenza B circulated during this season

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Sequencing of influenza A(H1N1)pdm09 and A(H3N2)

Influenza A(H1N1)pdm09 strains

Influenza A(H3N2) strains
Conclusions:

• The 2019-2020 influenza season started in October 2019 and ended the last week of April 2020.
• Rhinovirus (24%), Respiratory Syncytial Virus (22%) and Influenza (18%) were the most commonly detected virus among hospitalized patients with acute respiratory infection during the 2019-2020 season in Mexico.
• Influenza A(H1N1)pdm09 was the predominant subtype during this season followed by influenza A(H3N2) and influenza B. There was a small fraction of A viruses that could not be subtyped.
• A total of 79/171 influenza stains were sequenced for the hemaglutinin and neuraminidase aminoacids.
• Simultaneous circulation of genetically and antigenically diverse A(H1N1)pdm09 and A(H3N2) virus was observed and represent a challenge for vaccine adequate protection.
• Common coronavirus subtypes circulated during the 2019-2020 season with coronavirus NL63 and coronavirus HKU1 being the more prevalent subtypes.

Challenges and Future Directions:

• Improvement of data entry with an improved electronic remote data entry system.
• Improvement of monitoring of study data within the electronic remote data entry system.
Hospital Pequeno Principe, quarternary pediatric hospital, Curitiba, South Brazil. It is a sentinela hospital for Severe Acute Respiratory Infection (SARI).

370 beds
2,655 employees
21,242 surgeries
22,929 hospitalizations/year
305,005 outpatients medical consultations

Site Presentation

CURITIBA - BRAZIL

Universidade Federal do Parana (UFPR) Hospital Pequeno Principe (HPP)

#included = 315
#LCI = 7
#sequenced = 7 INFLUENZA
2 SARS-COV-2
Gráfico 3 – Casos de SRAG por Influenza segundo a semana de início dos sintomas, residentes no Paraná, 2013 a 2020.

Tabela 7 - Casos e óbitos de SRAG por Influenza segundo subtipo viral, residentes no Paraná, 2013 a 2020.

<table>
<thead>
<tr>
<th></th>
<th></th>
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<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Casos</td>
<td>Óbitos</td>
<td>Casos</td>
<td>Óbitos</td>
<td>Casos</td>
<td>Óbitos</td>
<td>Casos</td>
<td>Óbitos</td>
<td>Casos</td>
</tr>
<tr>
<td>Influenza A/1-H1N1/pdm09</td>
<td>364</td>
<td>47</td>
<td>48</td>
<td>8</td>
<td>37</td>
<td>4</td>
<td>1.387</td>
<td>219</td>
</tr>
<tr>
<td>Influenza A/1-H1</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>4</td>
<td>1</td>
<td>1</td>
<td>1</td>
</tr>
<tr>
<td>Influenza A/2-Social*</td>
<td>114</td>
<td>6</td>
<td>165</td>
<td>6</td>
<td>124</td>
<td>11</td>
<td>4</td>
<td>1</td>
</tr>
<tr>
<td>Influenza A/2-Social</td>
<td>3</td>
<td>0</td>
<td>1</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>55</td>
<td>14</td>
</tr>
<tr>
<td>Influenza B</td>
<td>45</td>
<td>1</td>
<td>13</td>
<td>4</td>
<td>14</td>
<td>0</td>
<td>65</td>
<td>6</td>
</tr>
<tr>
<td>TOTAL</td>
<td>806</td>
<td>66</td>
<td>226</td>
<td>16</td>
<td>228</td>
<td>25</td>
<td>1.223</td>
<td>240</td>
</tr>
</tbody>
</table>

*OBS: Resultados provenientes de laboratórios particulares, prováveis Influenza A/1-H1N1/pdm09.


80% reduction in influenza circulation

Universidade Federal do Paraná (UFPR)
Hospital Pequeno Príncipe (HPP)
**Results**

**Indicator**
- Screening: 559
- Included: 315
- Included with validated collection: 279
- LCI: 7
- Others virus: 48
- Negatives: 224

**Sex Distribution**
- Male: 57%
- Female: 43%

**Age by Gender**
- Median: Male 2.0, Female 2.0
- AVG: Male 4.3, Female 4.0

**Virus Distribution per Time Period**
- Influenza+ Oth.
- Other Respiratory Virus
- Sample inadequate

**Universidade Federal do Parana (UFPR)**
**Hospital Pequeno Principe (HPP)**
CURITIBA - BRAZIL

Universidade Federal do Parana (UFPR) Hospital Pequeno Principe (HPP)

RESULTS

Respiratory viruses distribution in hospitalized patients -January to September/2020 HPP

SARI SURVEILLANCE

STUDY PERIOD
Conclusions

• Recruitment period for 2019-2020 season – from March 15 to September 09, 2020
• We detected 7 cases of influenza, 5 influenza A and 2 influenza B
• The low circulation of influenza occurred both in the state of Parana and in the city of Curitiba
• This was a very atypical epidemiological year

Challenges and Future Directions

• With the SARS-CoV-2 prevention measures, there has been a significant reduction in the circulation of all respiratory viruses, including influenza.
• Try to start the collection earlier, February / 2021, to increase the monitoring period, and increase the chance of capturing more samples of influenza
• Improve the standardization of nucleotide sequencing on our site
PERU

Víctor Alberto Laguna Torres
**Table 1 Characteristics of the screened population. Peru Sept 2019 - June 2020**

<table>
<thead>
<tr>
<th>Variable</th>
<th>Participants</th>
<th>Lima (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Eligible patients</td>
<td>168</td>
<td>100.0</td>
</tr>
<tr>
<td>Samples taken</td>
<td>151</td>
<td>100.0</td>
</tr>
<tr>
<td>Gender</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Male</td>
<td>69</td>
<td>100.0</td>
</tr>
<tr>
<td>Age Group</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Media</td>
<td>2</td>
<td>100.0</td>
</tr>
<tr>
<td>Median (range)</td>
<td>1[0-5]</td>
<td>100.0</td>
</tr>
<tr>
<td>0-5</td>
<td>84</td>
<td>100.0</td>
</tr>
<tr>
<td>5-18</td>
<td>16</td>
<td>100.0</td>
</tr>
<tr>
<td>18-45</td>
<td>3</td>
<td>100.0</td>
</tr>
<tr>
<td>45-65</td>
<td>2</td>
<td>100.0</td>
</tr>
<tr>
<td>65-80</td>
<td>3</td>
<td>100.0</td>
</tr>
<tr>
<td>80+</td>
<td>4</td>
<td>100.0</td>
</tr>
<tr>
<td>Positive result</td>
<td>78</td>
<td>51.7</td>
</tr>
<tr>
<td>FLUA</td>
<td>3</td>
<td>2.0</td>
</tr>
<tr>
<td>H1N1</td>
<td>0</td>
<td>0.0</td>
</tr>
<tr>
<td>H3N2</td>
<td>3</td>
<td>2.0</td>
</tr>
<tr>
<td>FLUB</td>
<td>12</td>
<td>7.9</td>
</tr>
<tr>
<td>RSV</td>
<td>25</td>
<td>16.6</td>
</tr>
<tr>
<td>Adenovirus</td>
<td>14</td>
<td>9.3</td>
</tr>
<tr>
<td>Metapneumovirus</td>
<td>35</td>
<td>23.2</td>
</tr>
<tr>
<td>Bordetella</td>
<td>2</td>
<td>1.3</td>
</tr>
<tr>
<td>Negative result</td>
<td>73</td>
<td>48.3</td>
</tr>
<tr>
<td>Coinfections</td>
<td>13</td>
<td>8.6</td>
</tr>
<tr>
<td>Flu coinfections</td>
<td>7</td>
<td>4.6</td>
</tr>
<tr>
<td>OVR coinfections</td>
<td>6</td>
<td>4.0</td>
</tr>
</tbody>
</table>

A total of 151 samples were taken, of those 84 (55%) were under 5 years of age and 78 (52%) were positive for any respiratory virus. Influenza was positive in 14 samples, of those 03 were FLUA H1N1, none H3N2 and 12 influenza B. (Flu A and B one sample)

Asthma and CV diseases were the more prevalent chronic conditions. Only 24 (14%) participants received influenza vaccine.
Between Sept 2019 and June 2020, metapneumovirus (23%) and respiratory sincitial virus (16%) were the most frequent viruses found in Influenza like illness hospitalized participants.

The current COVID-19 pandemic period did not allow us to show an accurate viral distribution. We only sent 14 influenza samples for genotyping to Lyon Laboratory.
Conclusion & Challenges/

1. Viral circulation was more frequent in patients under 5 years of age specially in those under 6 months
2. The influenza period in the country starts in January-February in the north and in Lima goes from April until August-September.
3. This year the COVID-19 pandemic started in Lima in March, 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.
4. Over 50% of the patients with co-morbidities such as asthma, CVs diseases or COPD were positive for at least one virus (metapneumovirus, RSV, adenovirus )
5. Vaccination rates were extremely low. In Perú influenza vaccine is available in April provided by PAHO. People usually does not accept vaccination
6. Viral positive people was not related to ICU, mechanical ventilation or death.

Challenges/Future direction

1) Next period we will focus our resources in Lima and Piura to get influenza samples according to seasonality
2) Our laboratory is requesting Ministry of Health permission to perform rtPCR for COVID-19 because in the new epidemiologic scenario, sites and volunteers would also request those results.
SOUTH AFRICA
Marta Nunes

Foundation for Influenza Epidemiology
Two hospitals in Soweto (total population 1.3 million people) are part of our network:

- Chris Hani Baragwanath Academic Hospital (CHBAH): 3,400 beds
- Bheki Mlangeni District Hospital (BMDH): 300 beds

Viral detection testing is not part of the standard of care and all enrolled participants were tested under the study protocol at the Respiratory and Meningeal Pathogens Research Unit laboratory. The HIV prevalence among pregnant women in Soweto is approximately 29%.
# Results

Patients tested up until 15\textsuperscript{th} September

<table>
<thead>
<tr>
<th></th>
<th>&lt;5 years old</th>
<th>≥5 years old</th>
</tr>
</thead>
<tbody>
<tr>
<td>N. screened and tested for influenza</td>
<td>1263</td>
<td>5010</td>
</tr>
<tr>
<td>Included population\textsuperscript{1}</td>
<td>1041\textsuperscript{1}</td>
<td>1084\textsuperscript{2}</td>
</tr>
<tr>
<td>Influenza+</td>
<td>0</td>
<td>0</td>
</tr>
</tbody>
</table>

\textsuperscript{1}Admitted in the previous 72 hours and stayed in hospital for at least 1 night. Admitted due to any acute condition possibly associated with an influenza infection (protocol admission diagnosis).

\textsuperscript{2}Admitted in the previous 72 hours and stayed in hospital for at least 1 night. Admitted due to any acute condition possibly associated with an influenza infection (protocol admission diagnosis). Compliant with protocol ILI definition.
Conclusion & Challenges

Despite exhaustive testing no influenza cases were detected under the current study. This mimics the results reported by the national surveillance program. The lack of an influenza season in South Africa (and in other countries of the Southern Hemisphere) probably reflects the hard lockdown measures, including the closure of regional and international boarders, implemented in the country from end of March.
KENYA
Nancy Otieno
Surveillance conducted in 7 sites
- Coast Provincial General Hospital (PGH)
- Nyeri PGH
- Kenyatta National Hospital
- Nakuru County Referral Hospital (CRH)
- Kakamega CRH
- Siaya CRH
- Marsabit CRH

Total of 4,100 bed capacity for adults and pediatrics
- Bed occupancy vary by site, range between 20-120%

Figure 1: Location of GIHSN sites in Kenya
Results

- At each of the hospitals surveillance officers identify patients hospitalized with acute onset of illness (<10 days-routine SARI, <7 days-GIHSN), with cough and reported fever or documented temp. ≥38°C

- Enrolled 640 patients of which 70 (10.9%) tested positive for influenza
  - The majority of the cases were children <5 years of age (525, 82.0%)
  - Very few elderly patients (13, 0.2%), none had influenza

- Influenza A(H1N1)pdm09 was predominant

- We detected no influenza from April – August 2020, coinciding with period when COVID-19 cases increased (Figure 3.)

- Patients with co-morbidities accounted for 265 (41.4%) of influenza-associated hospitalizations, 21 (7.9%) tested positive for influenza

- Malnutrition was most prevalent in 115/525 infants, 12 (10.4%) of the malnourished infants had influenza

- We recorded some influenza vaccination among 10 children

![Figure 3: Monthly no. of cases enrolled and % influenza positive](chart.png)
Conclusion & Challenges

Conclusions:
- We enrolled 640 patients of which 70 (10.9%) tested positive for influenza
  - The majority of the cases enrolled were young children less than 5 years of age (525, 82.0%)
  - Very few elderly patients (13, 0.2%) were enrolled, none had influenza
- Influenza A(H1N1)pdm09 was predominant
- We detected no influenza from April – August 2020, coinciding with period when COVID-19 cases increased
- Patients with co-morbidities accounted for 265 (41.4%) of influenza-associated hospitalizations, 21 (7.9%) tested positive for influenza
- Malnutrition was most prevalent in 115/525 infants, 12 (10.4%) of the malnourished infants had influenza
- We recorded some influenza vaccination among 10 children

Challenges and future directions:
- Late start for 2019-2020 season data collection, started in Dec. 2020 hence missed out on two months of data
- COVID-19 pandemic impacted on healthcare seeking, patients stayed away from health facilities for fear of SARS-CoV-2 testing and isolation when found positive
- Prioritization of SARS-CoV-2 testing by the NIC slowed down influenza testing and hence availability of virus data
- Plans to train KEMRI and NIC staff to generate genetic sequence data were put on hold since all laboratory efforts were directed towards SARS-CoV-2 testing
  - Trainings will be done in 2020-2021 season; having capacity to sequence locally will ease and improve our data uploading frequency
FRANCE-LYON
Hospices Civils de Lyon, France
Pr P. Vanhems, S. Amour, MSc, M. Saadathian-Elahi, PhD
Hospices Civils de Lyon (HCL) is the second largest university affiliated hospital in France. Of the 23,000 staff, 5,000 are physicians and more than 13,000 are nursing staff. HCL (around 6000 beds) includes 13 hospitals in Rhone-Alpes (Lyon) and one in the Var department in the south of France (see map below)¹.

GIHSN protocol is carried out in two hospitals:
- Edouard Herriot hospital (973 in-patient adult beds)
- Croix-Rousse hospital (716 in-patient adult beds)

¹[www.chu-lyon.fr](http://www.chu-lyon.fr)
Results

- **Increase in the rate of patients included** in the GIHSN network following the addition of Croix-Rousse hospital, despite the relatively mild influenza season and consequences of SARS-CoV2 pandemic on hospital consultation/admission.

![Figure 1 - Evolution of number of patients included (n=156) and patient with LCI (n=44) by weeks](image)

- **Co-circulation of influenza A and B** in the study population (63% and 37% respectively).

![Figure 4 - Influenza distribution by type and subtype status (n=44)](image)

**Other related research:**
- BIED study: Burden of Influenza in Emergency Dept. 2,500 patients including 125 confirmed influenza recruited (13/01/2020 - 09/03/2020)
- Nosocomial Coronavirus (NOSO-COR), 2,500 patients in France *(BMJ Open, in press)*
- Nosocomial Influenza (NOSOGRIPE), 2004-2020
Conclusion & Challenges

- Co-circulation of influenza A and B in the study population (67% and 33% respectively) was in agreement with what has been observed in hospitals at national level (62% and 38% respectively) during the 2019-2020 influenza season.

- At community level, co-circulation of influenza A and B was slightly different from what has been observed in hospitals (54% and 46% respectively).

- Vaccine coverage among influenza laboratory-confirmed cases was similar to what has been observed during the 2018-19 influenza season.

- Perspective: For the 2020-21 influenza season, we plan to integrate a third university-affiliated hospital in Lyon. Nosocomial influenza is under surveillance by the infection prevention and control team since 2018, allowing smooth running of the study in this hospital.
FRANCE-PARIS
Pr Odile LAUNAY
Epidemiological study prospective case-control multicenter in France

5 participating university hospitals:
- Paris (Cochin and Bichat hospitals)
- Lyon,
- Montpellier,
- Rennes.

Study focused on adults patients (≥ 18 years) hospitalized for at least 24 hours for severe acute respiratory infection (SARI)

Results

Influenza viruses

<table>
<thead>
<tr>
<th>Viruses</th>
<th>n</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>A</td>
<td>69</td>
<td>77.5</td>
</tr>
<tr>
<td>A(H1N1)</td>
<td>47</td>
<td>52.8</td>
</tr>
<tr>
<td>A(H3N2)</td>
<td>12</td>
<td>13.5</td>
</tr>
<tr>
<td>B</td>
<td>20</td>
<td>22.5</td>
</tr>
<tr>
<td>B/Victoria lineage</td>
<td>10</td>
<td>11.2</td>
</tr>
<tr>
<td>B/Yamagata lineage</td>
<td>1</td>
<td>1.1</td>
</tr>
</tbody>
</table>

Population (n=440) | Cases (n=89) | Controls (n=351)

<table>
<thead>
<tr>
<th></th>
<th>IVE (%)</th>
<th>95% IC</th>
<th>Pvalues</th>
</tr>
</thead>
<tbody>
<tr>
<td>Influenza</td>
<td>43.8</td>
<td>[1.4; 68.0]</td>
<td>0.044</td>
</tr>
<tr>
<td>Flu A</td>
<td>54.5</td>
<td>[15.0; 75.6]</td>
<td>0.014</td>
</tr>
<tr>
<td>Flu B</td>
<td>-6.5</td>
<td>[-227.5; 65.4]</td>
<td>0.913</td>
</tr>
<tr>
<td>&lt;65</td>
<td>26.4</td>
<td>[-84.2; 70.6]</td>
<td>0.513</td>
</tr>
<tr>
<td>65-74</td>
<td>72.8</td>
<td>[-7.6; 93.1]</td>
<td>0.064</td>
</tr>
<tr>
<td>&gt;=75</td>
<td>44.7</td>
<td>[-44.2; 78.8]</td>
<td>0.226</td>
</tr>
</tbody>
</table>

Conclusions:

- In France, during the 2019-20 season, we observed a majority of influenza A/H1N1
- Influenza vaccine coverage was moderate (58%) in the total population: 44.9% in cases, 60.7% in controls
- IVE against hospitalisation with influenza for the 2019-2020 season: 43.8%

Challenges:

Increase the number of patients the following season even if the COVID-19 virus is in circulation
Conclusions & challenges

Conclusions:

- In France, during the 2019-20 season, we observed a majority of influenza A/H1N1
- Influenza vaccine coverage was moderate (58%) in the total population: 44.9% in cases, 60.7% in controls
- IVE against hospitalisation with influenza for the 2019-2020 season: 43.8%

Challenges:
Increase the number of patients the following season even if the COVID-19 virus is in circulation
SPAIN

FISABIO-Public Health (Valencia, Spain)

Javier García-Rubio¹, Ainara Mira-Iglesias¹, F. Xavier López-Labrador¹,², Javier Díez-Domingo¹

1. Fundación para el Fomento de la Investigación Sanitaria y Biomédica de la Comunitat Valenciana (FISABIO-Public Health), Valencia, Spain
2. Consorcio de Investigación Biomédica de Epidemiología y Salud Pública (CIBERESP), Instituto de Salud Carlos III, Madrid, Spain
SPAIN

Included = 1,836

LCI = 125

Sequenced = 87

FISABIO – Public Health

Site presentation

4 hospitals

General Castellón 282,043
La Fe Valencia 287,348
Dr. Peset Valencia 279,027
General Alicante 277,193
Total catchment area 1,125,611
Results

Total influenza (125)
- Flu: 125
- RSV: 204
- HMPV: 29
- PIV: 13
- HRV/EV: 186
- AdV: 12
- BoV: 15
- CoV: 47

Flu: 125
- A(H1N1)pdm09: 9% (n=11)
- A(H3N2): 17% (n=21)
- A not subtyped: 10% (n=13)
- B: 64% (n=80)

RSV: 204
- 77% (n=157)
- 9% (n=20)
- 7% (n=15)
- 1% (n=2)

HMPV: 29
- 9% (n=3)
- 6% (n=2)
- 1% (n=1)

PIV: 13
- 9% (n=2)
- 17% (n=2)

HRV/EV: 186
- 64% (n=122)

AdV: 12
- 10% (n=1)

BoV: 15
- 7% (n=1)

CoV: 47
- 1% (n=1)

SARS-CoV-2: 1

Sequenced (87)
- A(H1N1)pdm09 clade 6B.1, representative A/Michigan/45/2015: 64% (n=56)
- A(H3N2) clade 3C.2a, representative A/Hong Kong/5738/2014: 17% (n=15)
- A(H3N2) clade 3C.3a, representative A/England/538/2018: 10% (n=13)
- B(Victoria) lineage clade A, representative B/Brisbane/60/2008: 77% (n=67)
- B(Yamagata) lineage clade 3, representative B/Stockholm/12/2011: 6% (n=5)
A(H1N1)pdm09 was the predominant influenza strain

The influenza peak was reached at weeks 2020-05/2020-06

Highest influenza hospitalization incidence rate was detected in <1 year old

All the A(H1N1)pdm09 viruses isolated corresponded to the vaccine virus recommendation

The lockdown did not prevent the VAHNSI network from collecting data during almost the entire flu wave