Global Influenza Hospital Surveillance Network

HOSPITAL INFLUENZA SURVEILLANCE IN ARGENTINA, 2018 – 2019 (EW34) SEASON

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Site presentation

The Respiratory Virus Laboratory, National Institute of Infectious Diseases, ANLIS "Dr. Carlos G. Malbrán" located in Buenos Aires has started its collaboration with GIHSN since 2018. The National Hospital "Profesor Alejandro Posadas" is part of this project. The Hospital area of influence covers a population of approximately 520.800 inhabitants. In this communication we present the results obtained between 2018-2019 (EW34). Argentina is located in the Southern Cone of America. The country has a temperate climate, with the 4 seasons defined. As of mid-May, the sustained circulation of influenza virus is generally described, for 10 to 15 more weeks, although this virus can be detected throughout the year. The influenza vaccination campaigns in Argentina were initiated in 1993, from that point, influenza immunization became a regular practice in Argentina including children between 6 months and 2 years of age.

Methods

Consecutive consenting admissions with symptoms possibly related to an acute viral respiratory infection presenting within seven days of symptoms onset were included. Up to now, the Argentine site studied a total of 1,156 (727 in 2018 and 429 until August 2019 (EW34) respiratory samples coming from patients less than 5 years of age. All samples received were tested for influenza (FLU) and other respiratory viruses (ORV): RSV, ADV, PI, HMPV and HRV in a subset of patients by real time RT-PCR (rtRT-PCR) following protocols provided by CDC, Atlanta, USA .

Results

From a total of 1,156 samples received, 603 in 2018 (83%) and 376 in 2019 (87,6%) were FLUORV positives. The percentages of the viruses detected in 2018 and 2019 seasons are shown in figures 1 and 2, respectively. The predominant viruses detected were HRV and RSV, followed by ADV, PI and HMPV. The distribution of FLU viruses, FLU A subtypes and FLU B lineages by EW is shown in figure 3. Unlike previous years, the 2018 FLU season had a 12 weeks delay, with an increment of activity starting in EW 29-30, being FLU A H1 the most prevalent, followed by FLU B and low detection of FLU A H3. In 2019 the increment of FLU activity was registered between EW 19-EW31 and FLU A H1 followed by FLU A H3 were detected.

With respect to RV, 46% (31% as the only agent and 15% in codetections) of the samples studied in 2018 and 40%(30% as the only agent and 10% in codetections) in 2019 were positive for this virus. The admission diagnosis of the total samples received according to virus detected is shown in table 1. The highest percentage of positivity in patient with FLU A diagnosis was observed for patients presenting pneumonia and OBS (obstructive bronchial syndrome), otherwise for FLU B was associated mainly with upper airways cold. The relationship between risk factor (RF) and viral etiology is shown in table 2.

The percentage of the vaccinated/unvaccinated patients by group of age shown that around 10% of the target patient group for vaccination documented having received the flu vaccine.
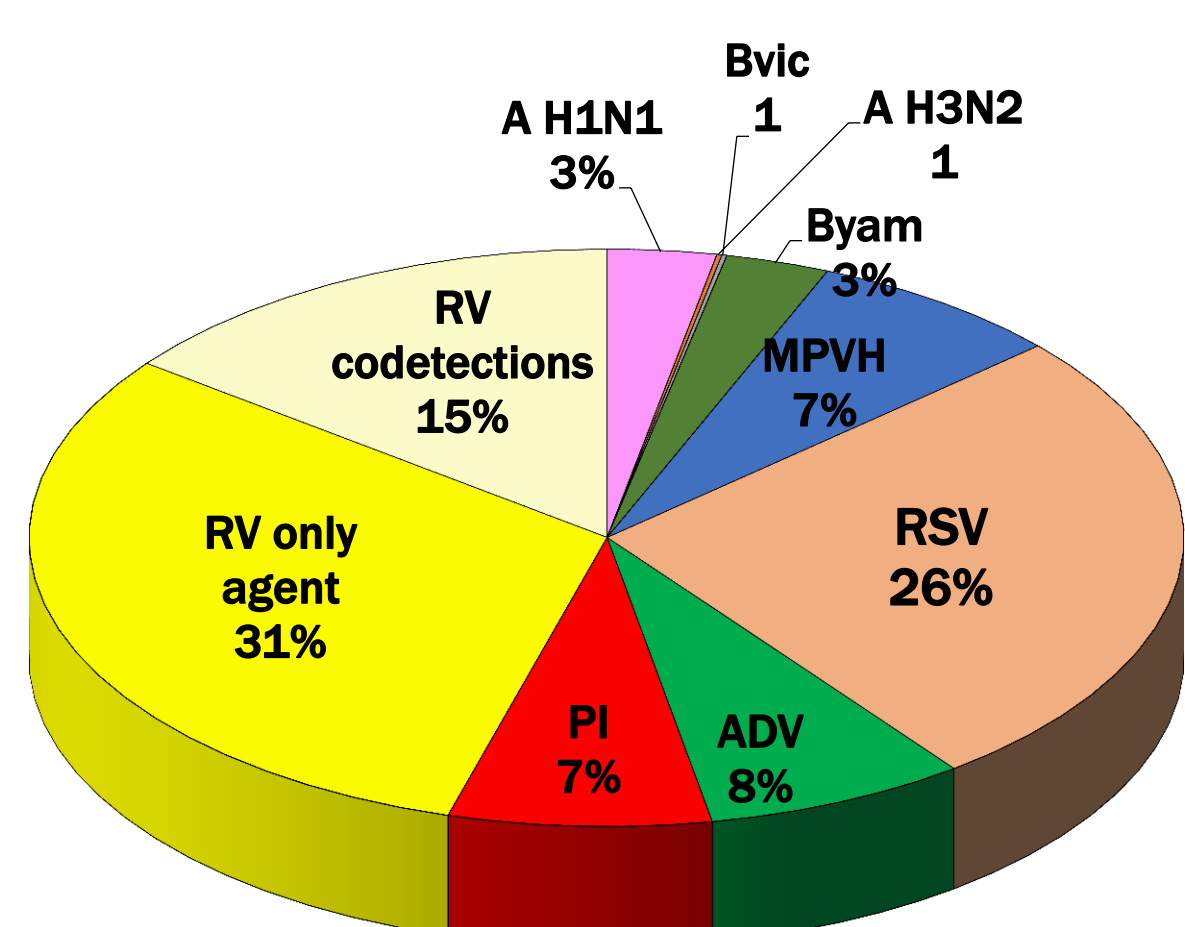

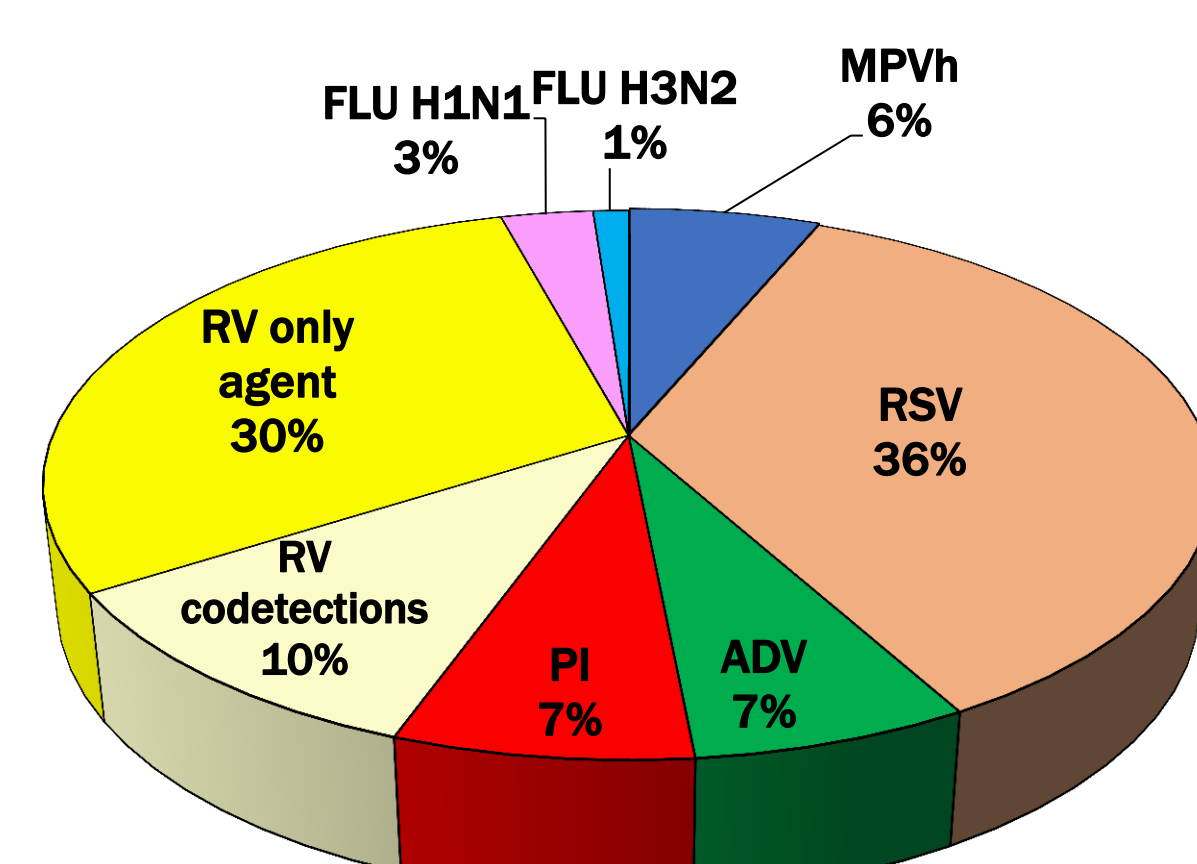**Figure 1. Viruses detected during 2018 (n° : 603)**

Figure 2. Viruses detected during 2019 (n° : 376)

Table 1 : Clinical diagnosis of admission according to virus detected

	FluA		FluB		RSV		HRV (only agent)		HMPV		ADV		PI	
	2018	2019	2018	2019	2018	2019	2018	2019	2018	2019	2018	2019	2018	2019
Pneumonia	34,8%	27,8%	27,3%	0	20,0%	18,3%	14,8%	9,4%	11,4%	11,2%	11,3%	17,8%	13,2%	13,3%
OBS*	43,5%	27,8%	22,7%	0	26,3%	30,0%	52,0%	56,3%	54,0%	29,6%	60,4%	67,9%	45,3%	36,7%
Bronchiolitis	8,7%	33,4%	9,0%	0	48,5%	49,8%	15,7%	21,9%	27,0%	55,5%	11,3%	0,0%	24,5%	36,7%
Upper Airways cold	8,7%	5,5%	41,0%	0	3,1%	1,3%	11,2%	8,6%	3,8%	3,7%	13,2%	10,7%	17,0%	13,3%
Others	4,3%	5,5%	0	0	2,1%	0,6%	6,3%	3,9%	3,8%	0	3,8%	3,6%	0	0

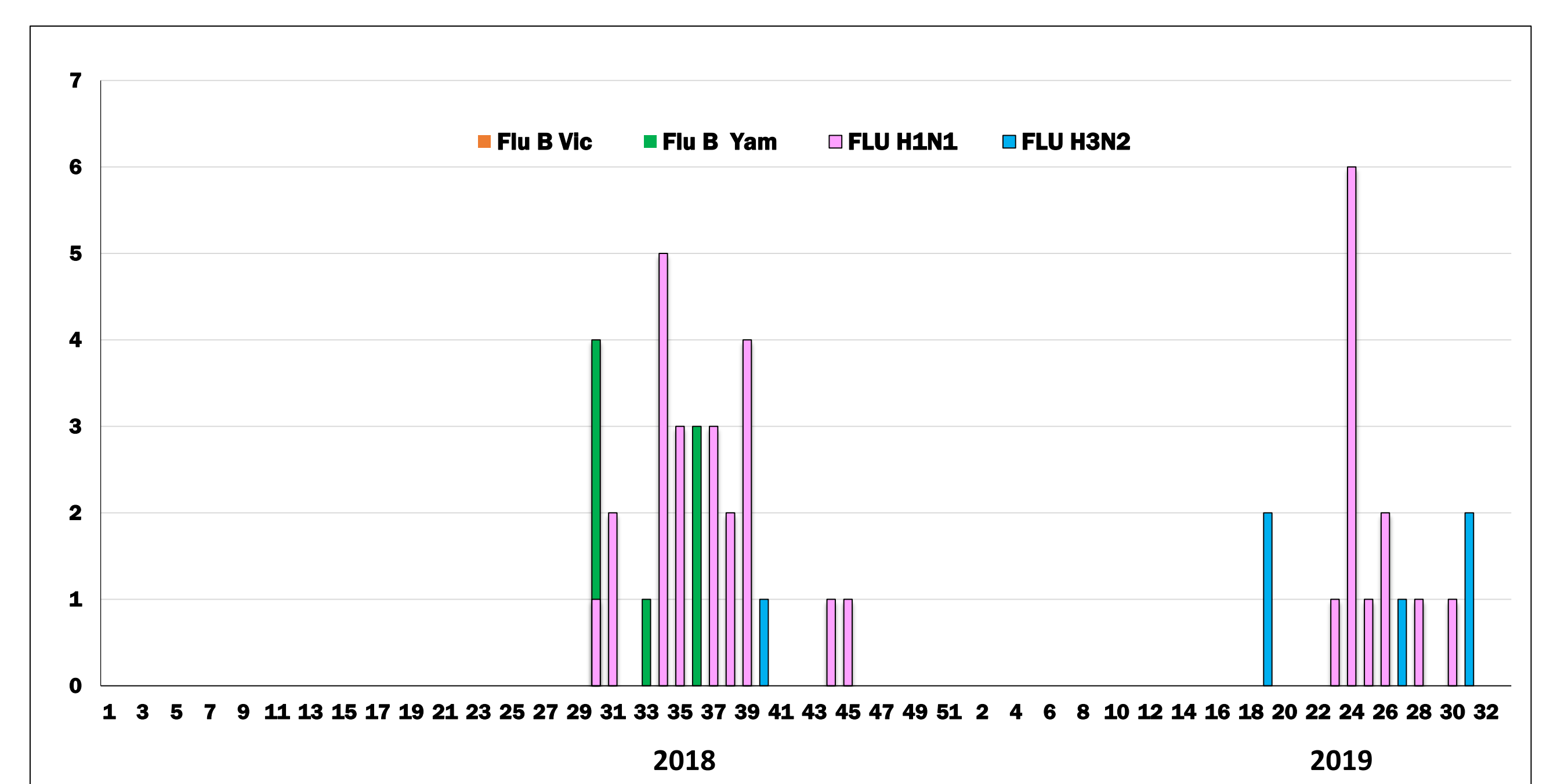* OBS: obstructive bronchial syndrome

Figure 3: Distribution of detected viruses by EW, 2018 -2019 (EW34)

Table 2 : Relationship between risk factor and viral etiology

	Respiratory Virus +		Respiratory Virus -	
	2018	**2019**	**2018**	**2019**
With RF	84%	85,7%	16%	14,3%
Without RF	82%	88%	18%	12%

Key aspects & challenges

- Flu activity during the study period was moderate compared to the 2016 and 2017 seasons and the start of the 2018 season was 12 weeks late. These observations are similar to the data reported by the National Surveillance for both years..

- The percentage of positivity in 2018 and 2019 was 83% and 87.6% respectively, for the respiratory viruses studied among the patients included. The detection of HRV as only agent was high, but assigning an etiological role is controversial since viral genome detection can be achieved for prolonged periods. As expected, taking into account the age of the population studied, RSV was highly detected, followed by ADV, PI and HMPV in both seasons.

- The detection of Flu A was associated with a high number of pneumonia (severity index) and Flu B with upper airways cold; this could because in young children B Yamagata is not associated with severe cases, as B Victoria. does.

- Although the influenza vaccine is recommended and free in Argentina for children under 2 years of age, around 10% of these patients were documented having received the flu vaccine.

- Among the challenges we have to face, we can mention the difficulty to include in the study the number of estimated samples that meet all the inclusion requirements and that also have all the data required by the project.

- This collaboration constitutes an initiative to integrate the GIHSN and contribute with information about the epidemiology and impact of influenza and other respiratory viruses in South America.

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