



## HOSPITAL SURVEILLANCE NETWORK OF THE INFLUENZA VIRUS AND OTHER RESPIRATORY VIRUSES IN THE CITY OF CARTAGENA.

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### Site presentation

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### Methods

An epidemiological surveillance study prospective was made. Two hundred patients admitted to specialized internment or Intensive Care Units at Napoleón Franco Pareja and Universitario Del Caribe hospitals in Cartagena de Indias, Colombia, were included. Patients with different diagnoses that could be related to Severe Acute Respiratory Infection (SARI) were enrolled from May to October 2019. Samples were obtained by nasal and pharyngeal swabbing, transferred to a viral transport medium and stored at -80°. PCR Multiplex (film-array®) was made in order to detect viral RNA, including influenza A, B, their subtypes and some other viruses and bacteria that are related to Acute Respiratory Infection.



### Results

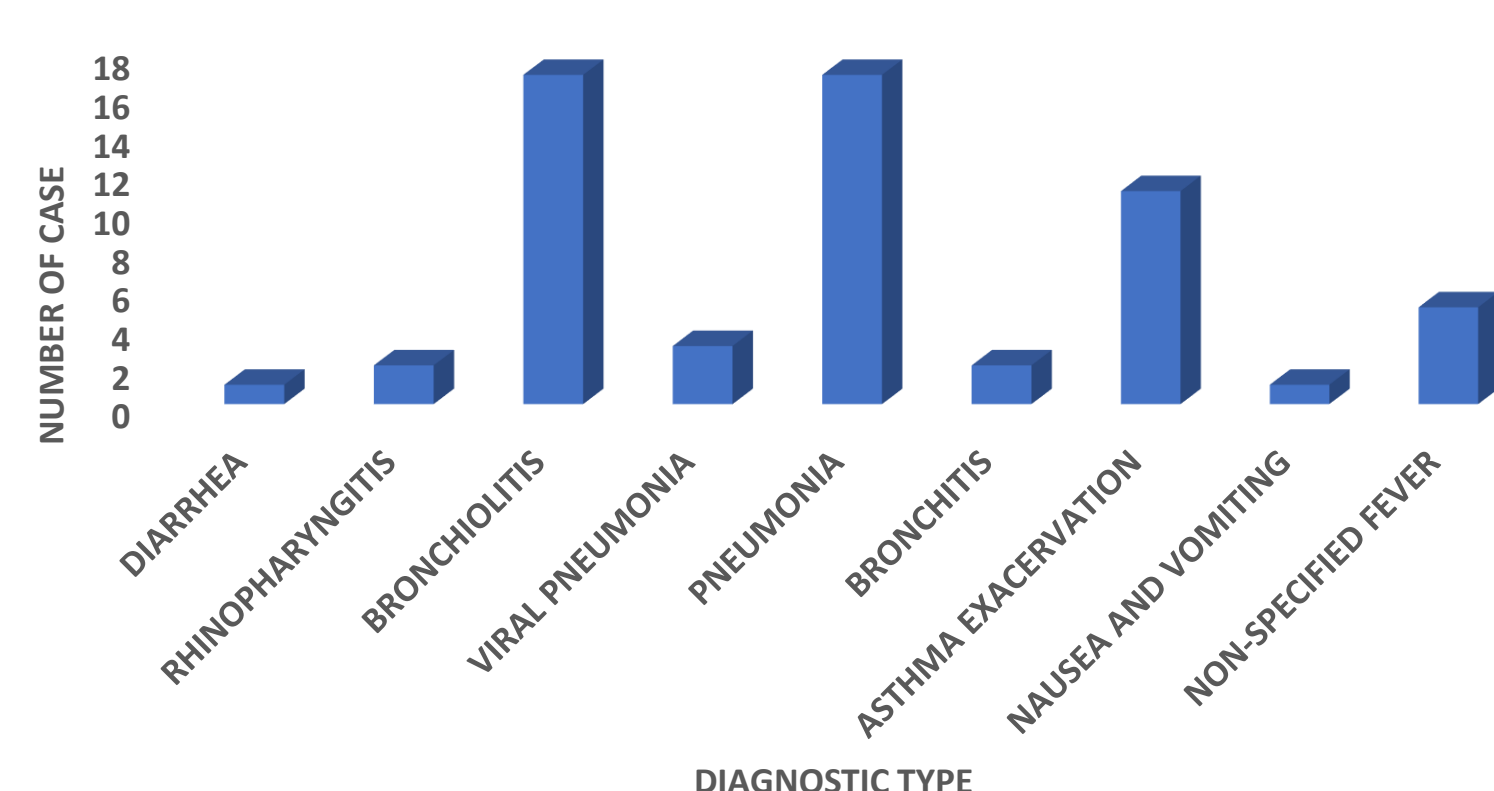
#### PATIENTS UNDER 5 YEARS OLD

A total population of 134 patients was obtained from those under 5 years of age, 83 of whom met eligibility criteria, and a sample was taken. 59 patients obtained a positive result, 4 of them with more than one associated virus or bacterium for a total of 64 pathogens detected. **Respiratory syncytial** virus is the main pathogen isolated with 51.56% of the entire population sampled, followed by **Rhino virus** and **Influenza subtype H3N2**. (see table 1).

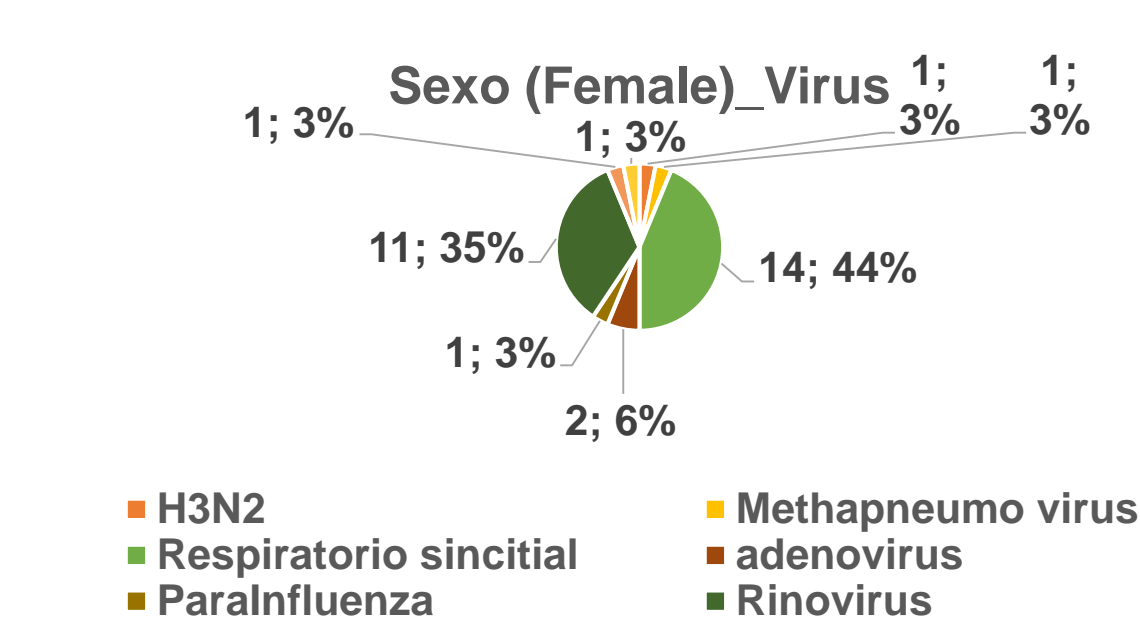
The median age was 8 months, with a very heterogeneous distribution and interquartile range between 4 and 16 months. The most frequent diagnoses were pneumonia acquired in the community (PAC) and bronchiolitis with 28.81% each, followed by asthma exacerbations with 18.54%. (figure 1). The distribution of the viruses varied according to the sexes, had a higher **Respiratory Syncytial** frequency in boys and **Rhinovirus** in girls. (Figure 2 and 3).

**Table 1.** Frequency relative and percentage of virus types detected in patients under 5 years old

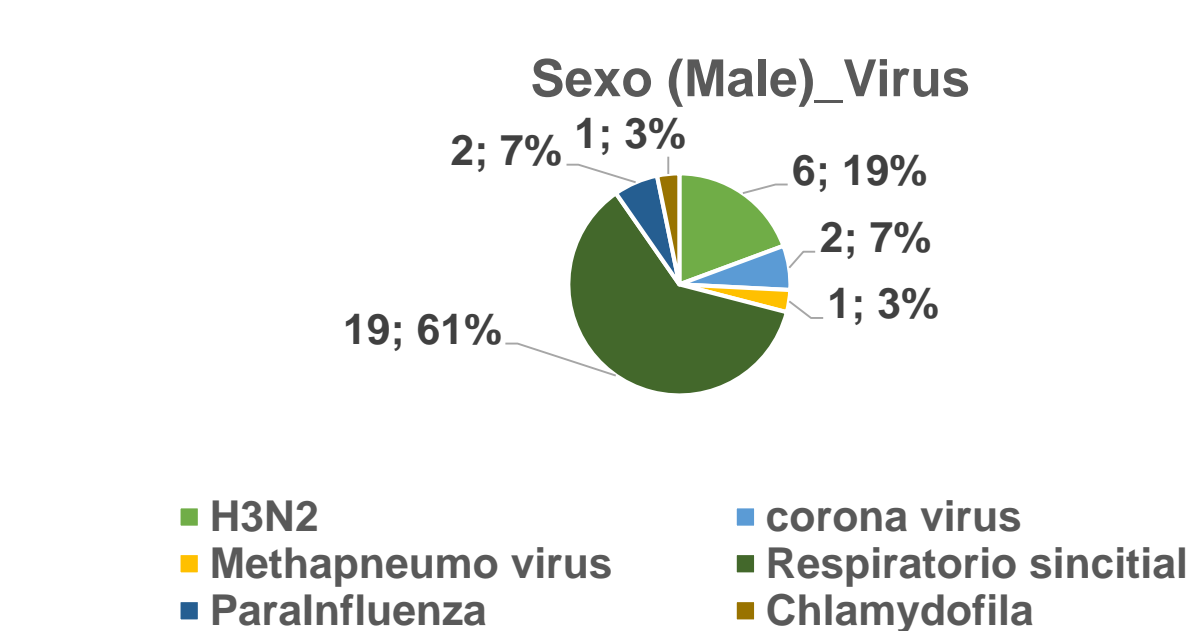
TYPE OF VIRUSES	n	FREQUENCY
RESPIRATORY SYNCYTIAL VIRUS	33	51,56%
RHINOVIRUS	15	23,44%
H3N2	6	9,38%
CORONA VIRUS	2	3,13%
METANEUMOVIRUS	2	3,13%
PARAINFLUENZA VIRUS	1	1,56%
ADENOVIRUS	1	1,56%
B/ VICTORIA	1	1,56%
BORDETHELA P.	1	1,56%
CHLAMYDOPHILA	2	3,13%
TOTAL POSITIVE RESULTS	64	100%



**Figure 1.** Number of diagnostic of admission. Patients under 5 years old.



**Figure 2.**



**Figure 3.**

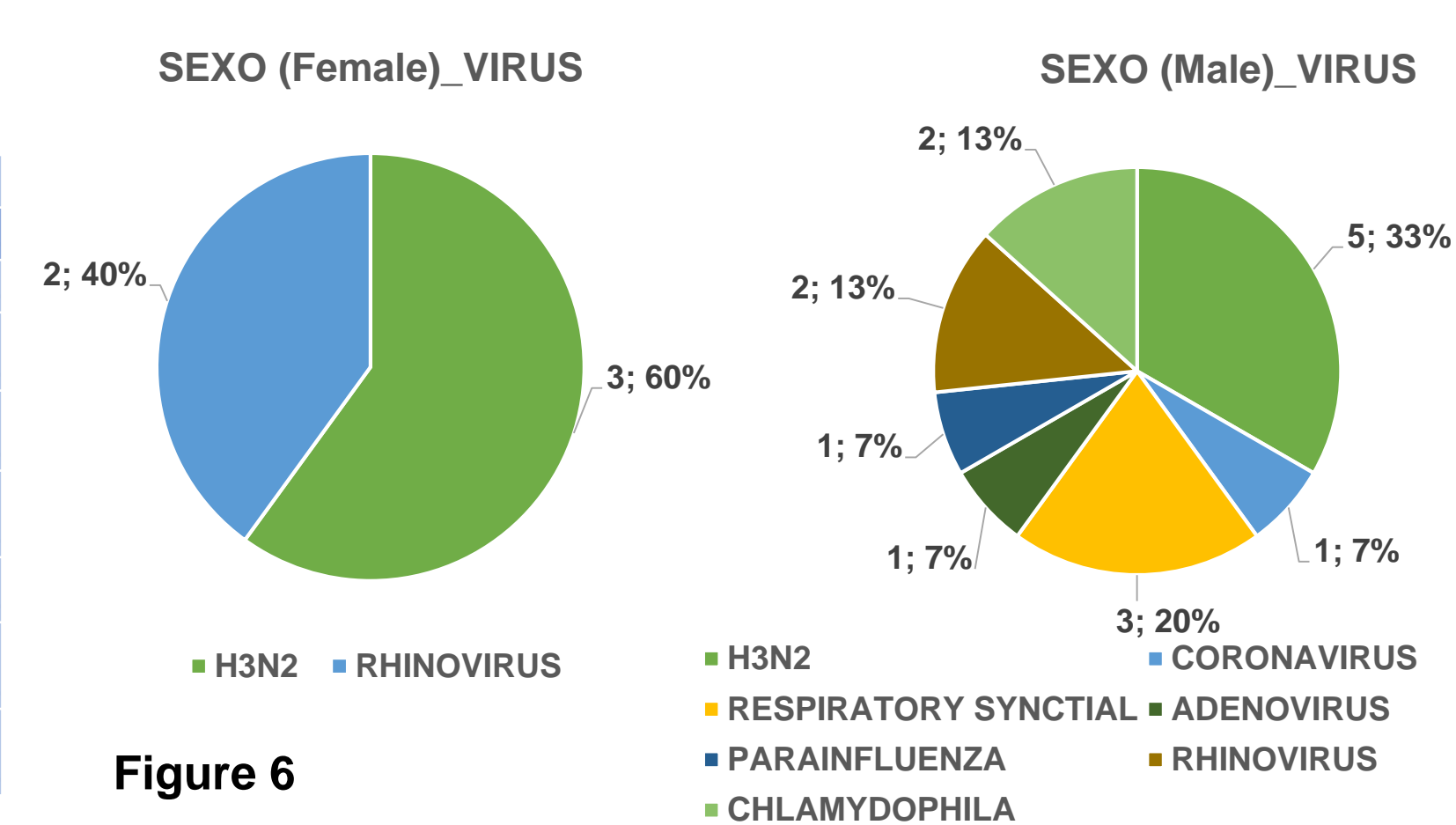
#### PATIENTS MORE THAN 5 YEARS OLD

with respect to the population older than 5 years old, 66 patients were included and of them, 49 with eligibility criteria. 18 patient patients obtained a positive result with a greater prevalence of **influenza virus subtype H3N2**, followed by **Rhinovirus** and **Respiratory Syncytial**. (Table 2).

Of the patients chosen, the most common admission diagnosis was community-acquired pneumonia (38.89%) followed by exacerbations of chronic obstructive pulmonary disease (COPD) with 27.78%. (Figure 5). In relation to sex, the **Influenza virus H3N2** maintains a heterogeneous distribution, while remaining the most frequent for both; followed by **Rhinovirus** in women and **Respiratory Syncytial** in men. (figure 6 and 7). Those patients who had at least one positive result for any etiologic agent **all** had at least one chronic condition, with COPD and high blood pressure being the most frequent. (table 3).

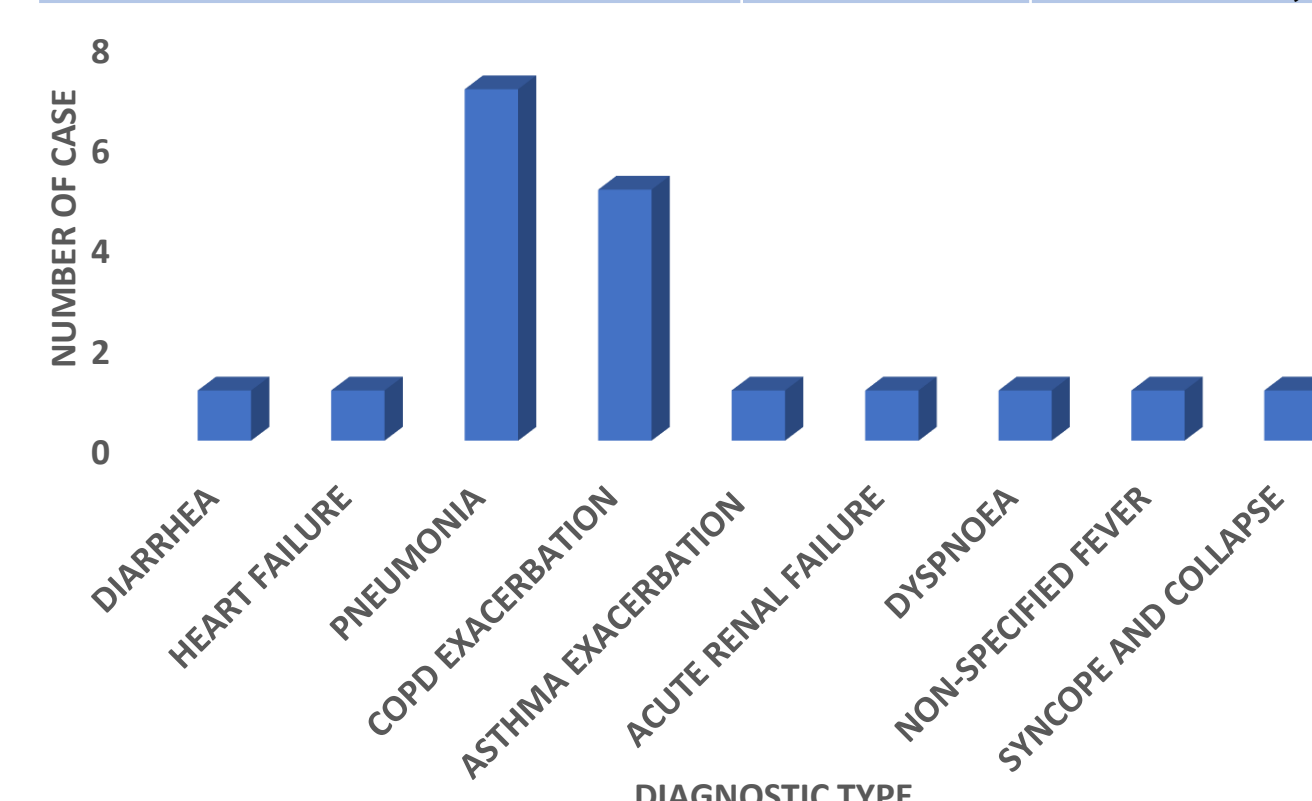
**Table 2.** Frequency relative and percentage of virus types detected in patients more than 5 years old

VIRUS TYPE	n	FREQUENCY
H3N2	7	38,89%
RHINO	4	22,22%
RESPIRATORY SINCITAL	3	16,67%
INFLUENZA B VICTORIA	2	11,11%
CORONAVIRUS	1	5,56%
ADENOVIRUS	1	5,56%
PARAINFLUENZA	1	5,56%
TOTAL POSITIVE RESULT	18	100,00%



**Figure 6**

**Figure 7**



**Figure 5.** Number of diagnostic of admissions.

**Table 3.** congruent underlying diseases with positive results for at least one virus.

CHRONIC CONDITION	n (%)		Total
	Male	Female	
CARDIOVASCULAR DISEASE / HYPERTENSION	5 (10)	1 (2)	6 (12)
CHRONIC PULMONARY DISEASE (COPD)	5 (10)	1 (2)	6 (12)
ASTHMA	1 (2)	1 (2)	2 (4)
DIABETES	1 (2)	1 (2)	2 (4)
CHRONIC RENAL DISEASE	1 (2)	1 (2)	2 (4)
NEURONAL DISEASE	0 (0)	1 (2)	1 (2)
NEOPLASIA / CANCER	1 (2)	0	1 (2)
OTHER	1 (29)	2 (4)	3 (3)

### Key aspects & challenges

Influenza virus continues to be an important viral etiologic agent in SARI with a higher prevalence in the population older than 5 years, associated with chronic conditions or basic pathologies of the person. The respiratory syncytial virus is the main viral etiologic agent isolated in children under 5 years with a much higher proportion compared to the rest of the viruses.

The high number of negative results for the respiratory viral panel filmArray®, suggests that the main etiological agent of SARI in adults is not of the viral type, however, influenza disease has serious consequences exacerbating chronic diseases such as COPD and therefore congesting services out.

In this moment, the study continues to process samples that were initially performed using RT-PCR, and those that gave negative results with this technique were made FilmArray® to avoid under-diagnosis, so future statistics could change.



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