



PERÚ: NETWORK FOR INFLUENZA AND OTHER RESPIRATORY VIRUSES HOSPITAL SURVEILLANCE

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Site presentation

Population: This study included participants from all age groups at Clínica Internacional, who were residents in the city of Lima, Perú. **Catchment area.** Clínica Internacional, a health private system, which covers the city and has 103 bed; 10 of those correspond to adult's ICU, 07 to pediatric and 03 to neonatal ICU beds. Patients are covered mainly by the major Insurance Company of the country. In Piura, Santa Rosa Hospital (Ministry of Health) was unable to enroll participants due to the dengue outbreak as a consequence of the Fenomeno el Niño. **Seasonality:** In Perú, surveillance system has shown that in the country's northern coastal area (Piura), influenza virus can be isolated throughout the whole year. On the other hand, in Lima and southern highland cities, influenza cases occur more often during wintertime (April- August).

Methods

Daily records were intensively explored to identify eligible participants from the whole building. No electronic case reports were used. Enrollment was based on the main diagnosis at the admission. Patients with clinical symptoms of Influenza like-illness during the seven days before admission and hospitalized during the previous 24 hrs with any of the eligible diagnosis were included. **Sample Collection:** A nasopharyngeal swab for all patients and a pharyngeal swab for adults (14 years of age or older) and a nasal sample for children (less than 14 years old) was obtained from each patient in case they comply with inclusion criteria and give consent. Swabs were placed in UTM viral transport media and stored at -20°C until its processing for nucleic acid isolation. **Molecular diagnostics.** A multiplex Real-Time PCR for 21 respiratory viruses detection was performed at Molecular Epidemiology and Genetics laboratory (CITBM, Lima Peru). Results were analyzed and the software output was sent to data management.

Results

Between May 2nd and October 2nd, 2017 a total of 159 participants were enrolled. Out of those, respiratory swabs were obtained in 130 participants. Clinical epidemiological characteristics of the population included are shown in table 1.

Table 1. Population studied. Lima-Perú, 2017

Study variables	Number	(%)
Total patients enrolled	159	100
Patients with sample	130	81.8
Positive by rt PCR	57	43.8
Coinfeccion	14	10.8
Negative	59	45.4
Age	N:159	
0-4	82	51.6
5-14	24	15.1
15-24	2	1.3
25-34	6	3.8
35-44	5	3.1
45-59	7	4.4
60+	33	20.8
Mean	23	
Median [range]	4 [0.4]	
Gender		
Male	89	56.0
Participants/Parents smoking habits	N:130	
Never smoked	80	61.5
Old smoker	32	24.6
Currently smoker	18	13.8
Occupation / social class of parents		
Management professionals	75	57.7
Media technicians, small business owners	21	16.2
Non-manual administrative	21	16.2
Not qualified / do not know	8	6.2
Skilled manual workers	4	3.1
Semi-skilled manual workers	1	0.8
Vaccination against influenza		
Quadrivalent (Fluquadril-Private)	13	10.0
Trivalent by MoH	12	9.2
Positive by rt PCR	N:57	
Rhinovirus	27	47.4
Parainfluenza virus	11	19.3
Respiratory syncytial virus	8	14.0
Coronavirus	3	5.3
Metaneumovirus	4	7.0
Adenovirus	3	5.3
Influenza A	1	1.8
Coinfeccion	N:14	
Parainfluenza virus + Rhinovirus	3	21.4
Respiratory syncytial virus + Rhinovirus	2	14.3
Bocavirus + Rhinovirus	2	14.3
Coronavirus + Respiratory syncytial virus	1	7.1
Influenza A + Metaneumovirus	1	7.1
Metaneumovirus + Parainfluenza virus	1	7.1
Adenovirus + Rhinovirus	1	7.1
Metaneumovirus + Rhinovirus	1	7.1
Coronavirus + Metaneumovirus	1	7.1
Coronavirus + Rhinovirus	1	7.1

Description of the results.

A total of 130 participants signed the consent form and data were included in the research. (Table 1). In addition, 71 PCR tests came out positive for one (57) or two (14) viruses. Main viral circulation was found under 5 years of age and rhinovirus was the more prevalent (47.4%). Less than 20% of the population was vaccinated and 80% of the participants or their parents had never smoked.

Inclusion criteria

Patients 5 years old and older will be included in the study if they refer to a seven days or less antecedent of a community onset influenza like-illness. Combination of:

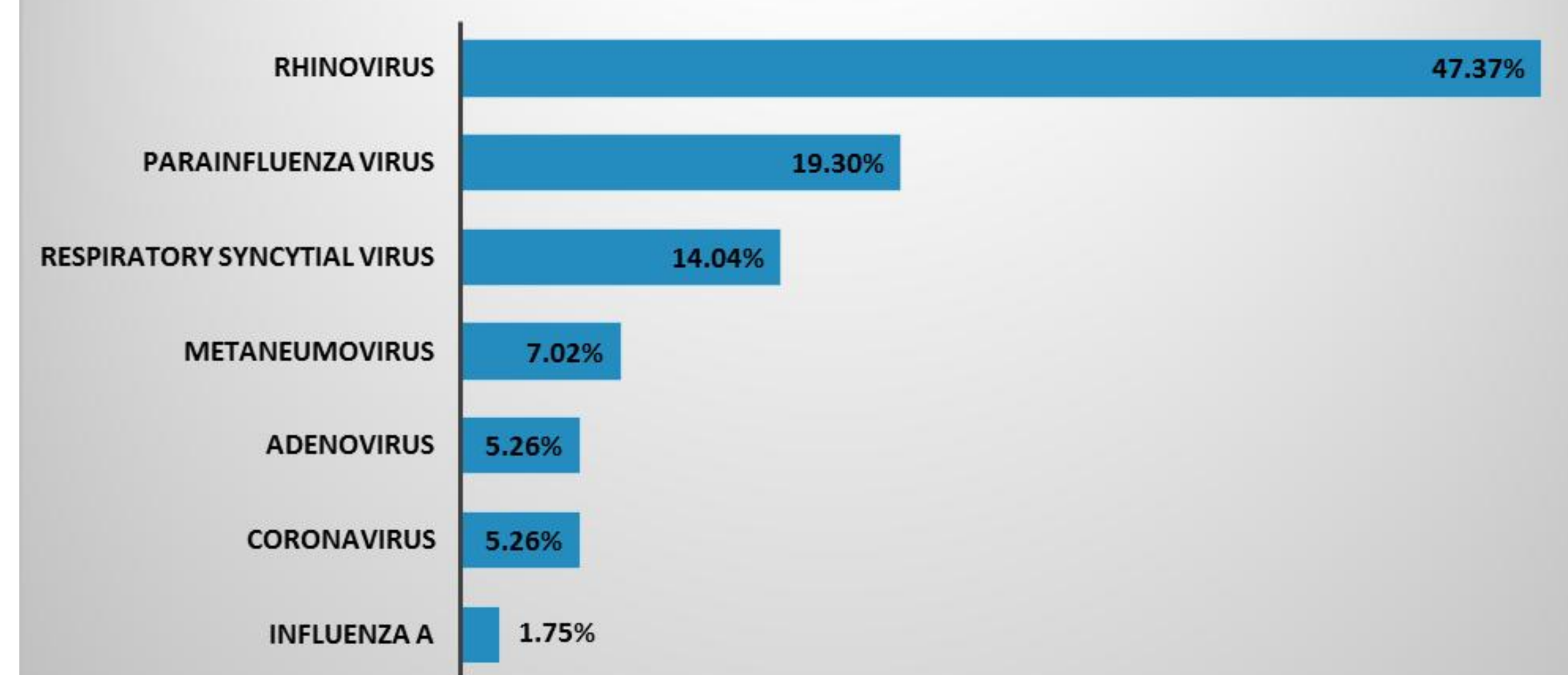
- At least one of the following four systemic symptoms: Fever , headache, myalgia, or malaise;
- At least one of the following three respiratory symptoms: b)Cough, sore throat or shortness of breath.

Patients less than 5 years were included if indications for admission occurred within seven days or less between the beginning of symptoms and admission to hospital

Exclusion criteria

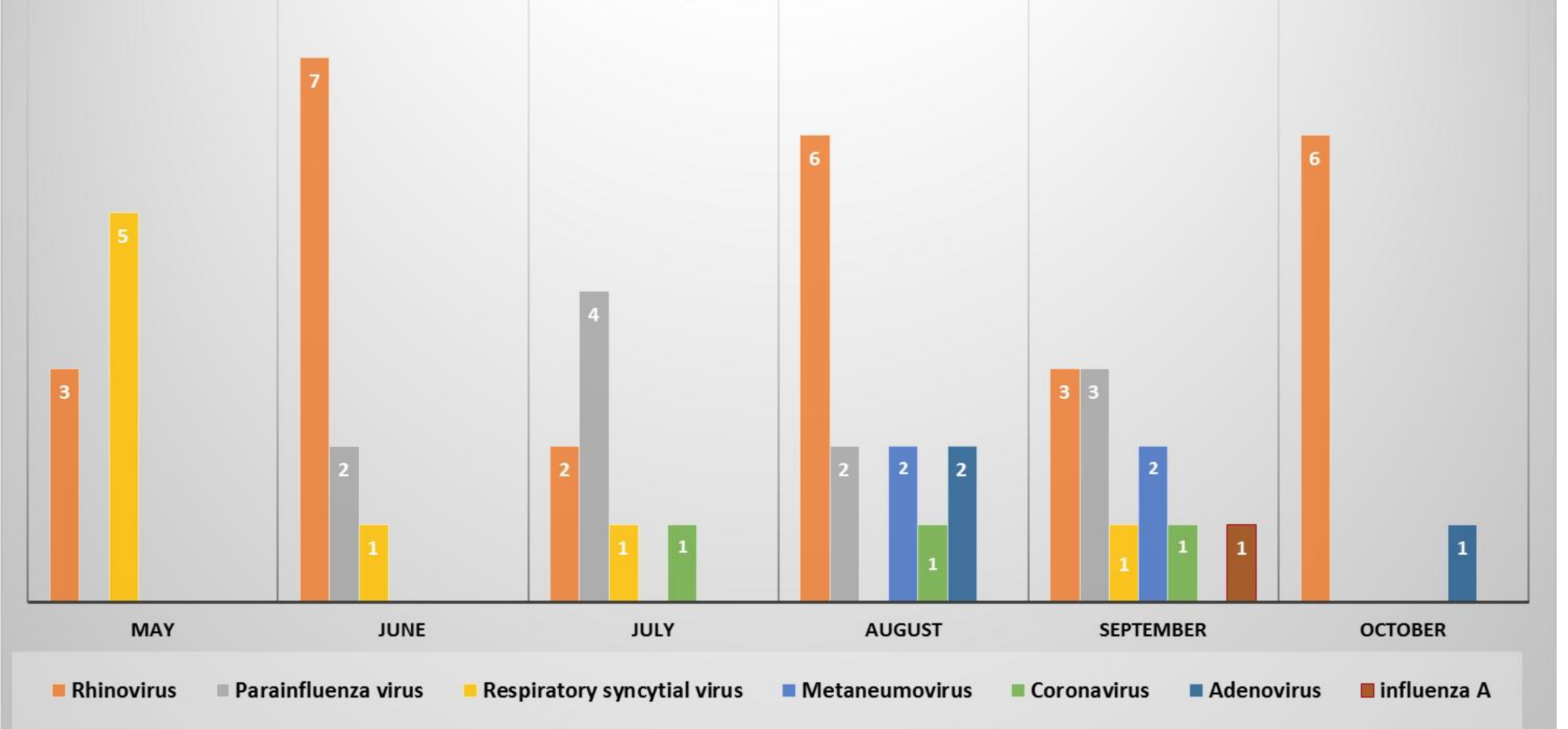
- Institutionalized.
- Non-resident in Lima city
- Hospitalized in the previous 30 days

Graphic N°1: Viral circulation by rt PCR May-October 2017. Hospital 1. Lima Peru



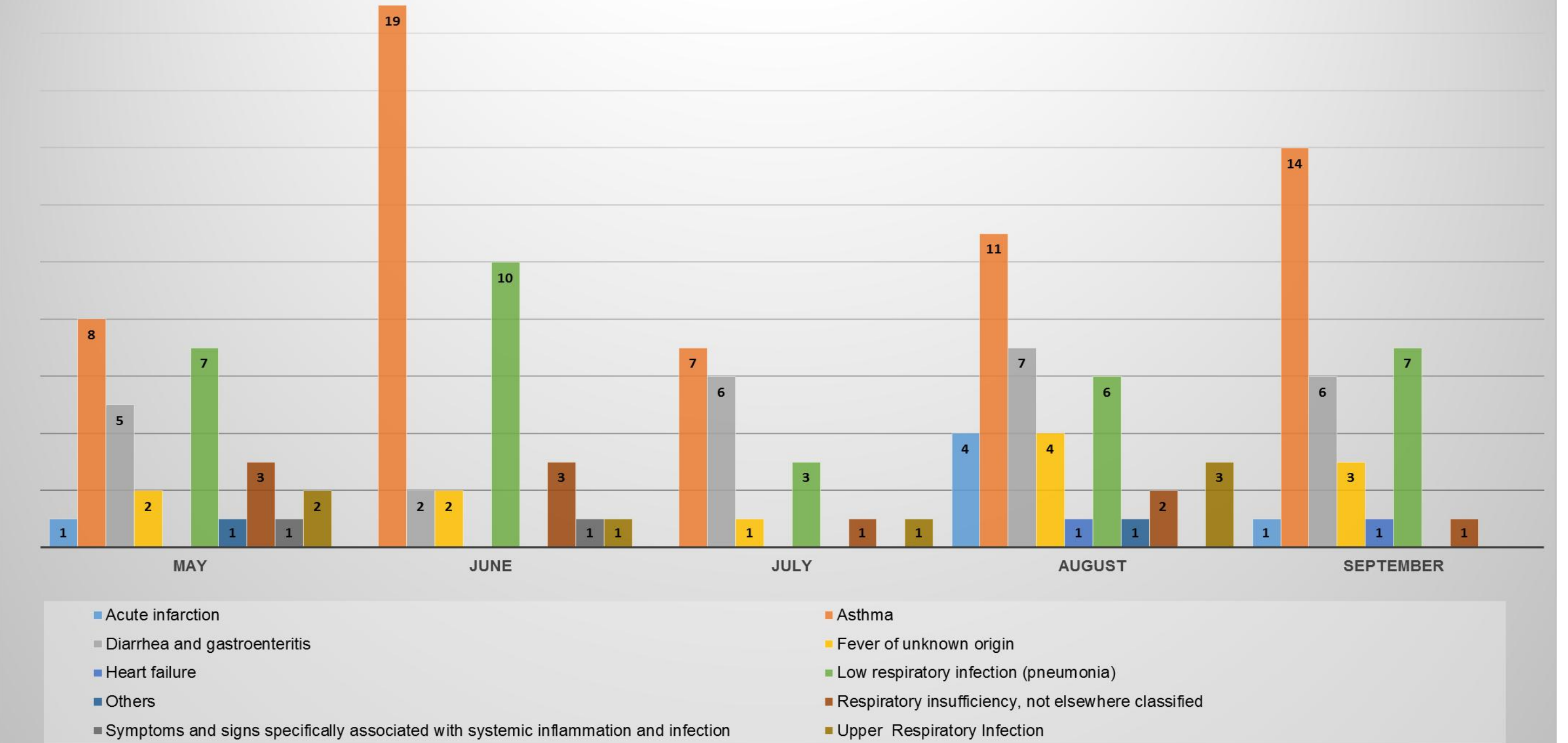
Rhinovirus was the main one present in participants specially under the age of 5.

Graphic N°2: Viral circulation by month. May-October 2017. Hospital 1. Lima Peru



During June and August viral circulation were more frequent . The main admission diagnose was acute asthma or exacerbation

Graphic N° 3: Diagnosis of admission per month. May-October 2017. Hospital 1. Lima Peru.



Key aspects & challenges

This year, climate changes affected to our country, significantly. Our network was established a month after the beginning of winter time (which is expected to have high rates of influenza respiratory infection); however, we did not find influenza Additionally, the big dengue outbreak in the northern area, did not allow us to enroll patients in Piura. Furthermore, the influenza viral circulation has been decreased in comparison with 2016. The main challenge will be to include more hospitals and analyze next years' epidemiological situation.

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