

PERÚ: NETWORK FOR INFLUENZA AND OTHER RESPIRATORY VIRUSES HOSPITAL SURVEILLANCE

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Site presentation

Population: This study included participants of all age groups from Clínica Internacional at Lima; Ministry of Health Hospital Santa Rosa in the northern city of Piura and EsSalud Hospital HNCASE in the southern city of Arequipa.

Catchment area. Clínica Internacional (Private System) covers the whole city of Lima and has 103 beds. Patients are covered by insurance companies; on the other hand Santa Rosa is owned by the Ministry of Health, and treats low income people. On the other hand, HNCASE Hospital works under the social security system (EsSalud)

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. In Lima and southern highland cities, influenza cases occur more often during wintertime (April-August).

Results

Between January and September 2019 a total of 383 screened participants were enrolled. Consent forms and respiratory swabs were obtained from 237 participants out of the initial 383. At sites, 94% of the population did not received influenza vaccine. Asthma (38) and CV diseases (31) were the more prevalent chronic conditions. 26 samples were positive for Influenza, of those 07 were FLUA H1N1, 07 H3N2 and 12 influenza B. Table 1.

Table 1: Characteristics of the screened population. Peru 2019

Variable	Participants	Lima	(%)	Piura	%	Arequipa	%
Elegible patients	383	213	55.6	150	39.2	20	5.2
Samples taken	237	141	59.5	76	32.1	20	8.4
	146						
Gender							
Male	196	106	54.1	77	39.3	13	6.6
Age Group							
Media	21	24		13		33	
Median (range)	3[0-5]	5 [0-5]		1 [0-5]		6 [5-18]	
0-5	234	108	46.2	117	50.0	9	3.8
5-18	40	32	80.0	6	15.0	2	5.0
18-45	22	17	77.3	5	22.7	0	0.0
45-65	18	14	77.8	1	5.6	3	16.7
65-80	34	16	47.1	14	41.2	4	11.8
80+	35	26	74.3	7	20.0	2	5.7
Positive result							
FLUA	14	9	6.4	5	6.6	0	0.0
H1N1	7	6	4.3	1	1.3	0	0.0
H3N2	7	3	2.1	4	5.3	0	0.0
FLUB	12	7	5.0	5	6.6	0	0.0
RSV	73	47	33.3	22	28.9	4	20.0
Adenovirus	53	36	25.5	16	21.1	1	5.0
Metapneumovirus	8	7	5.0	1	1.3	0	0.0
Bordetella	9	6	4.3	3	3.9	0	0.0
Negative result							
Coinfecciones	30	22	15.6	7	9.2	1	5.0
Flu coinfecciones	15	10	7.1	5	6.6	0	0.0
OVR coinfecciones	18	14	9.9	3	3.9	1	5.0

Methods

A site coordinator and a field worker performed daily research for records to identify eligible participants. 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) or a nasal sample for children (less than 14 years old) were obtained from each patient in case they comply with inclusion criteria and give consent. Swabs were placed in transport media and stored at -20°C and then performed for rT-PCR at Molecular laboratory of the Instituto de Investigación Nutricional at Lima Perú.

Figure 6: Viral distribution by PCR in 3 peruvian hospitals. Lima, Piura and Arequipa.

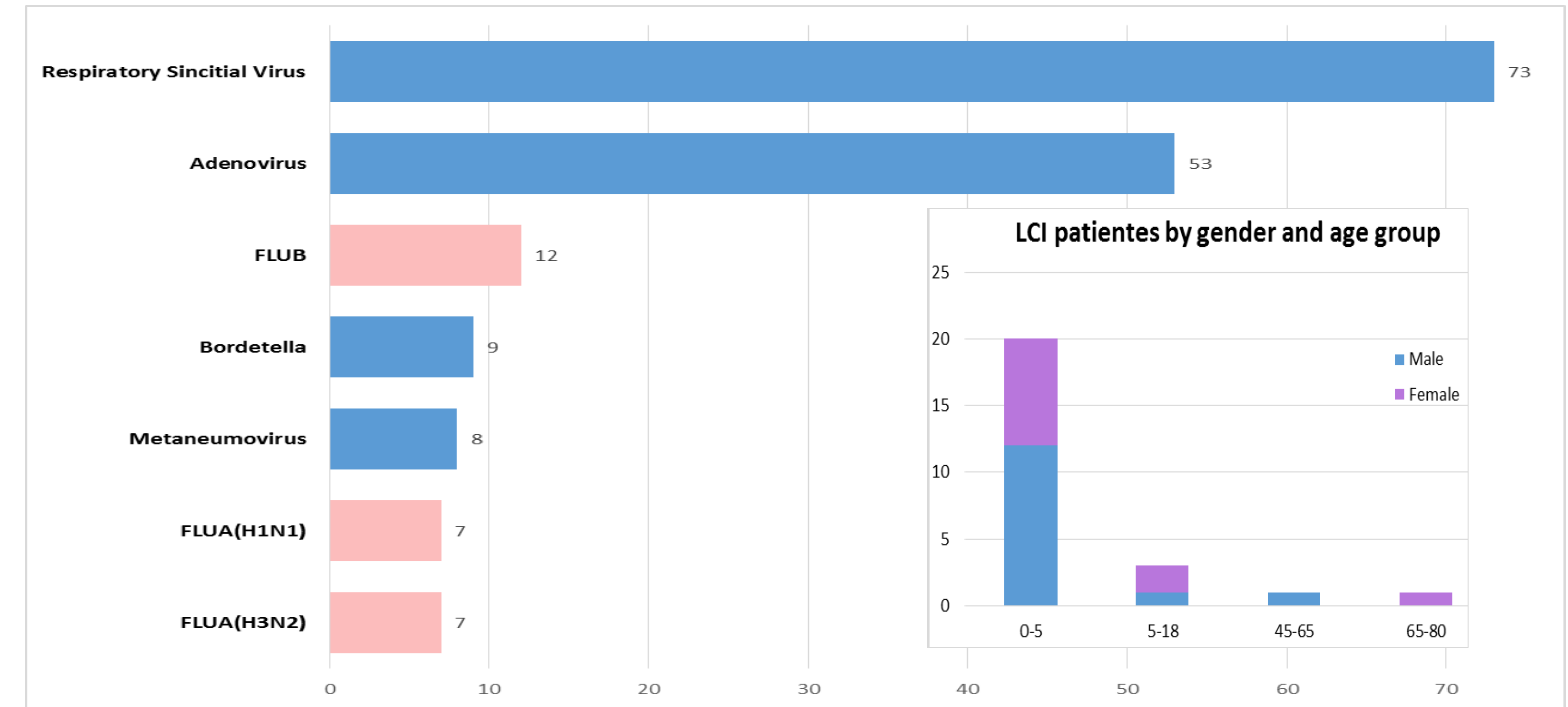


Figure 6. Respiratory syncytial virus (43%) and adenoviruses (31%) were the most frequent. Influenza was found in 26 (15%) patients of those, 12 got influenza B(7%). The highest Viral circulation of influenza occurred in men under 5 years (48%).

Figure 7: Monthly viral distribution by PCR in 3 peruvian hospitals. 2018-2019. Perú

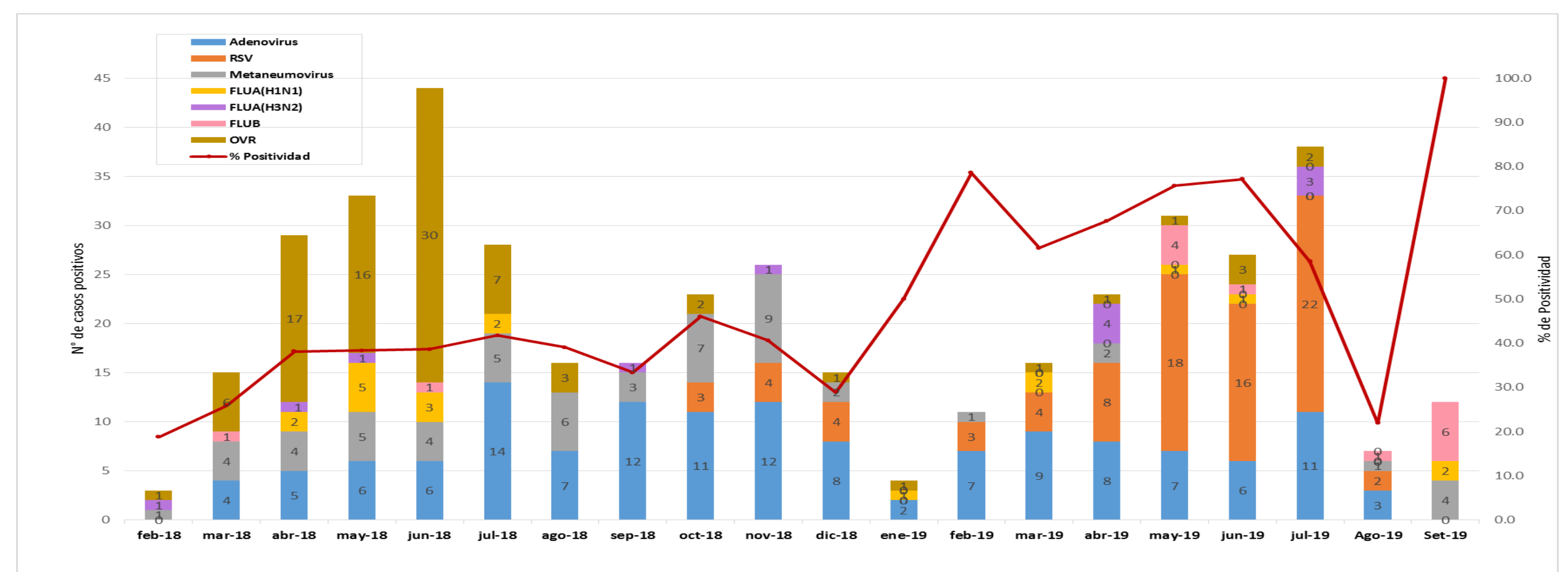


Figure 8: Lima and Piura positive patients by month and local temperature. 2018-2019

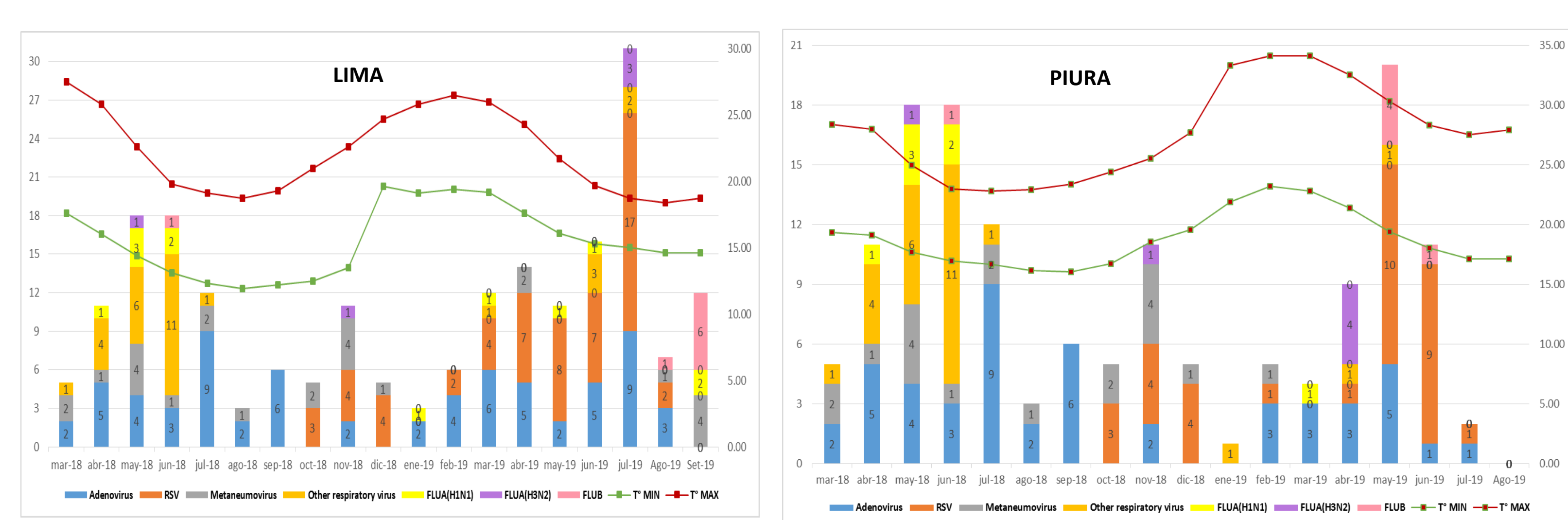


Figure 9: Viral distribution and positivity index by chronic disease, Perú. 2019

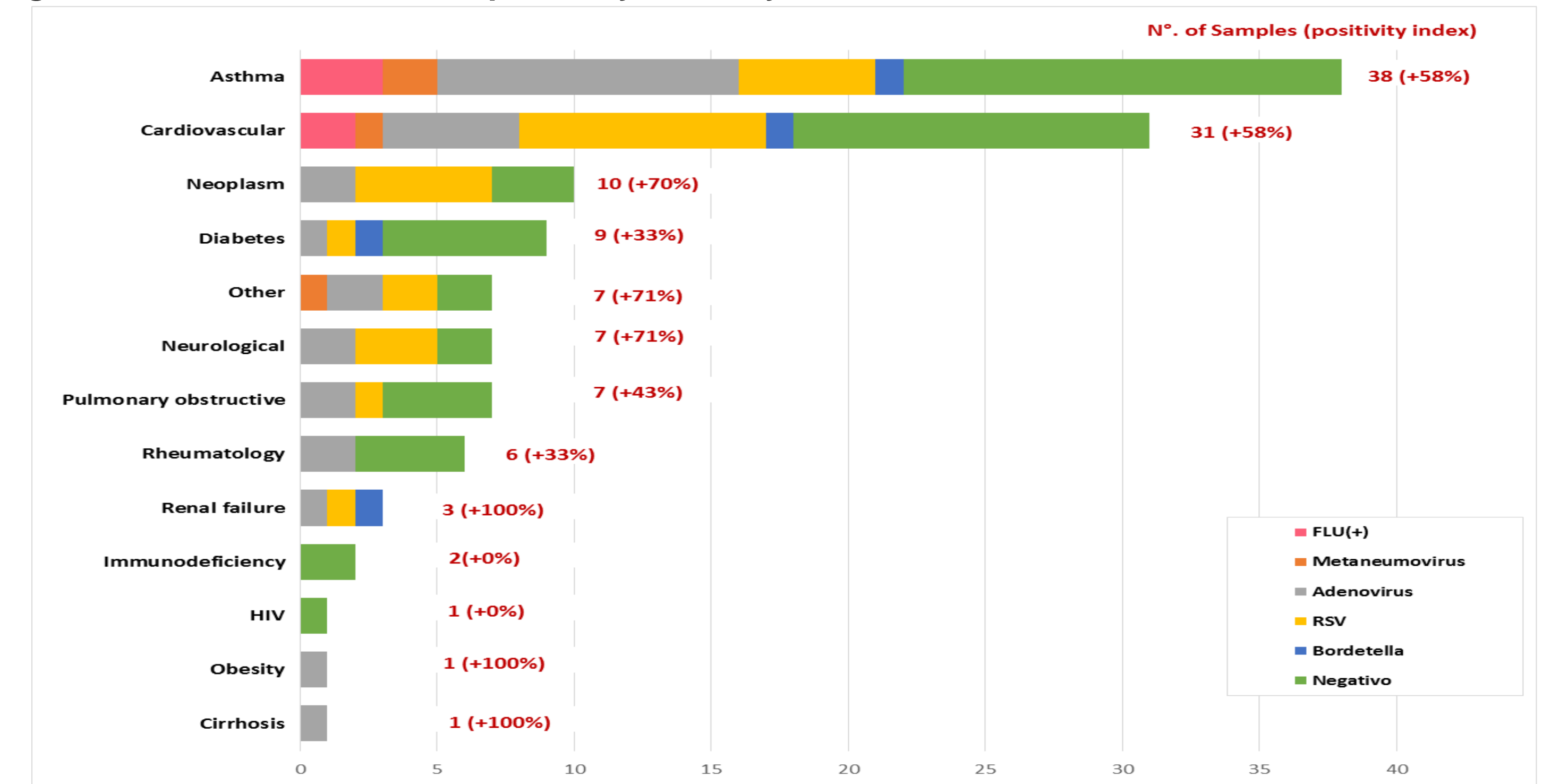


Figure 9. Asthma (38) and cardiovascular diseases (31) were the most frequent co-morbidities and 58% of those patients were positive for Influenza and / or other respiratory viruses.

Key aspects & challenges

1. Viral circulation was more frequent in patients under 5 y. of age specially in those under 6 months (Figure 4)
2. Not able to show seasonality, in our sites, yet. Current surveillance period shows low influenza circulation (Figures 3 & 7)
3. Piura and Lima viral circulation was not related with temperature. Positive cases showed up with high or low temperature. (Figure 8)
4. Over 50% of the patients with co-morbidities such as asthma, CVs diseases or COPD were positive for at least one virus (RSV, adenovirus) (Figure 9)
5. Vaccination rates were extremely low. In Perú influenza vaccine is available in April provided by PAHO. However people usually do not accept vaccination (Figure 2)
6. Positive influenza patients were not related to severity risk factors like: ICU, mechanical ventilation or death (Figure 5)

Figure 1: Excluded patients by reason, Perú 2019

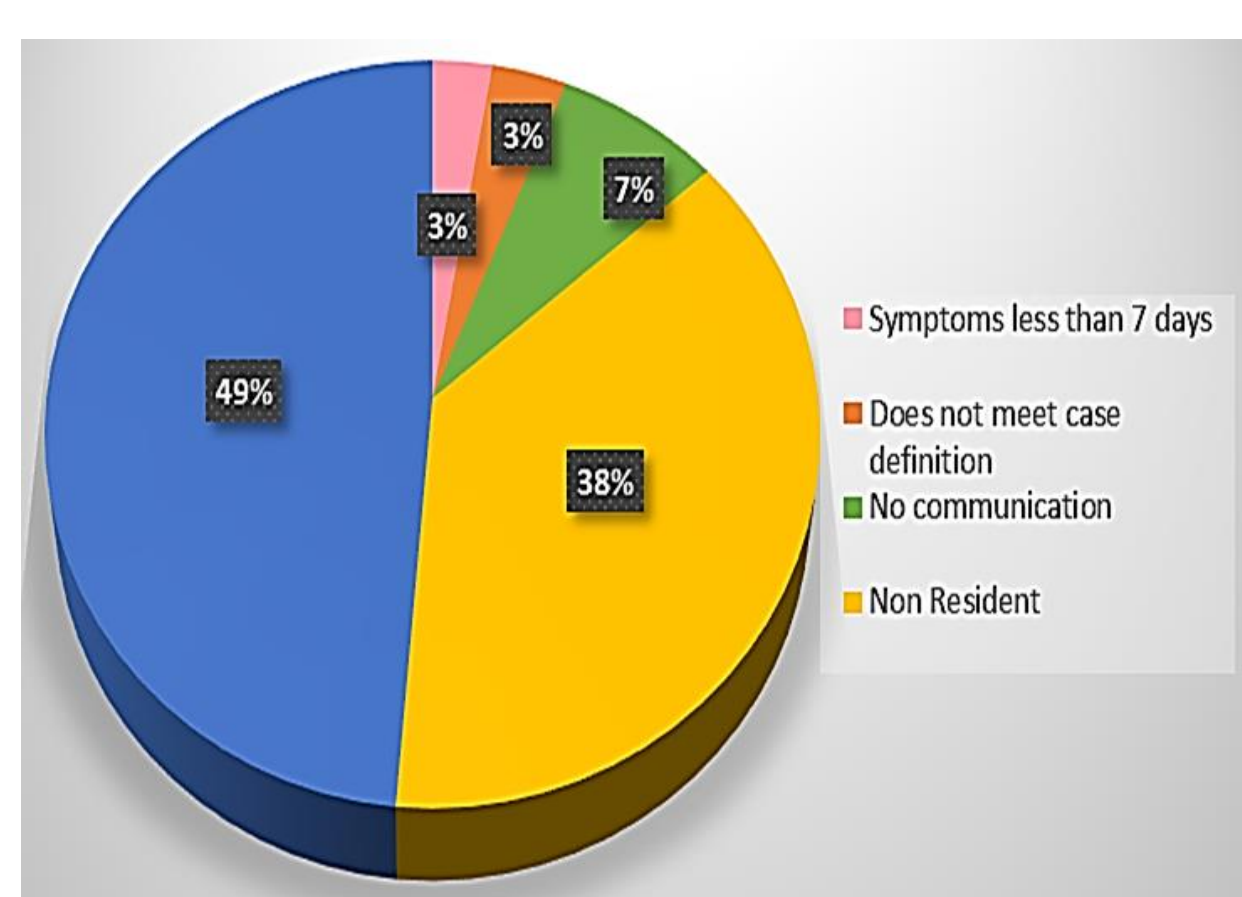


Figure 1: A total of 146 screened patients were not eligible due to not signing the consent form (49%) or due to not being residents in the catchment area (38%). Of those, samples were not taken.

Figure 2: Vaccination rate, Perú 2019

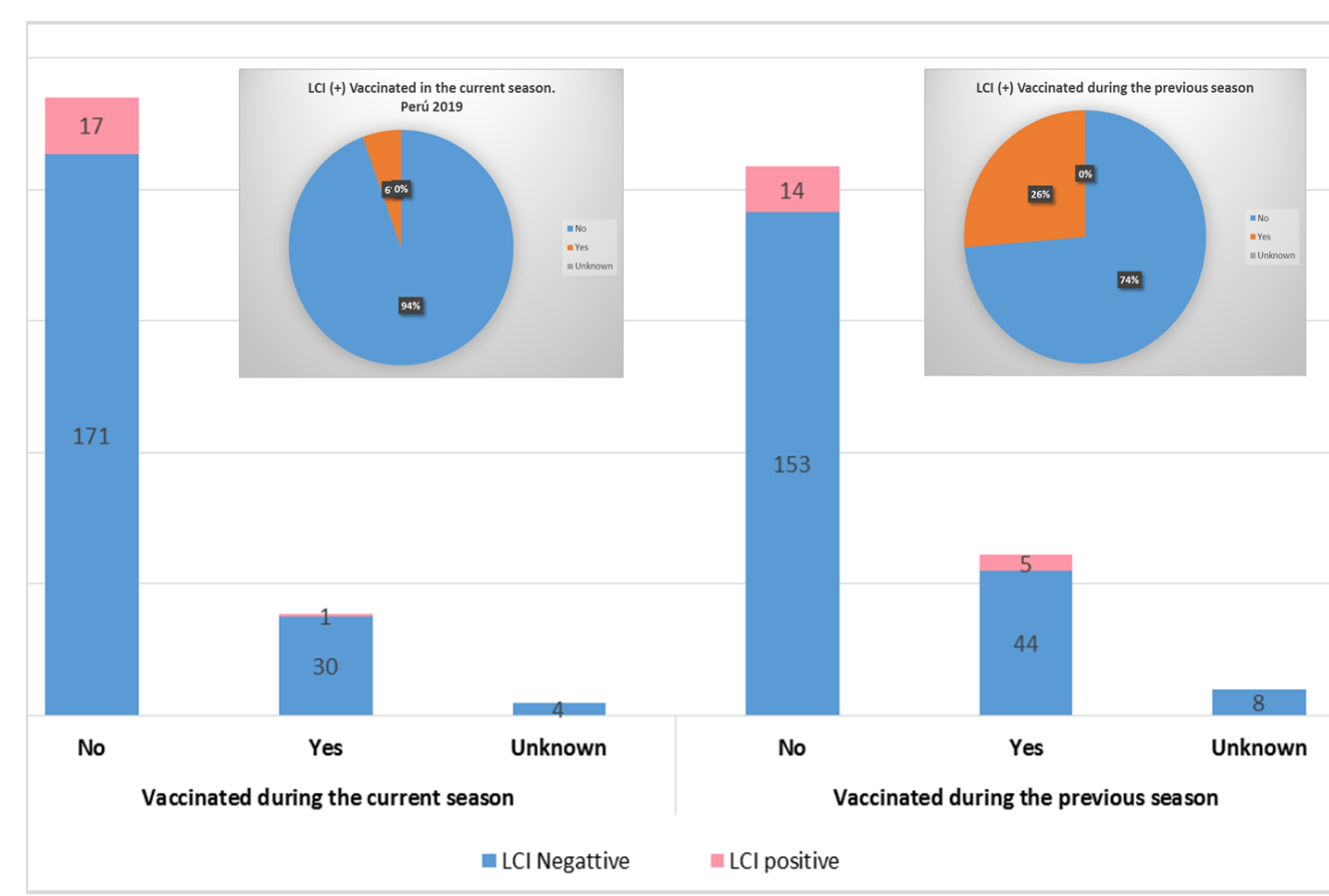


Figure 2: Only 6% received the flu vaccine in the current season, while 26% received the vaccine during the previous season. Figure 3 May, June and July were the months with more positive samples but influenza circulation was infrequent.

Figure 3 Monthly positive participant distribution by site and gender, Perú 2018-2019

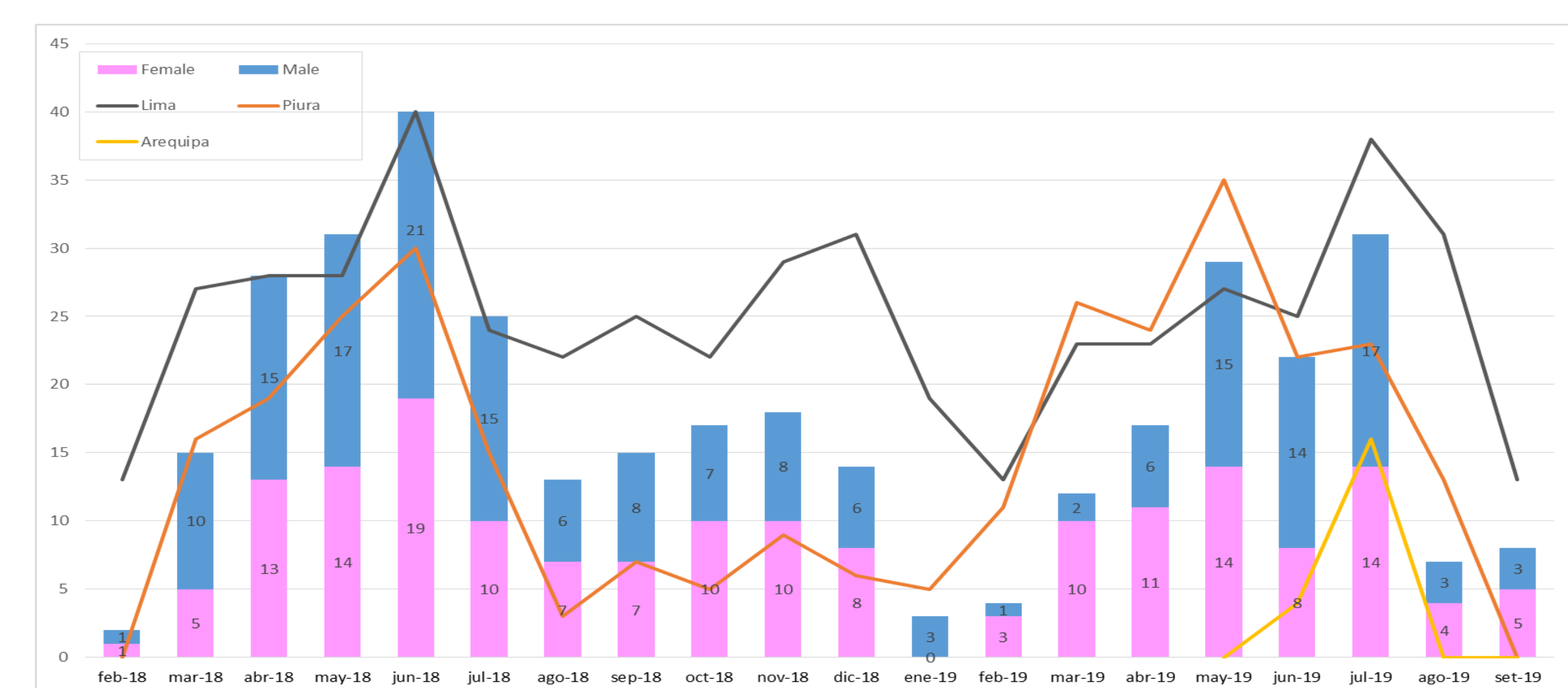


Figure 4: Viral distribution on under 5 years of age patients. Perú 2019

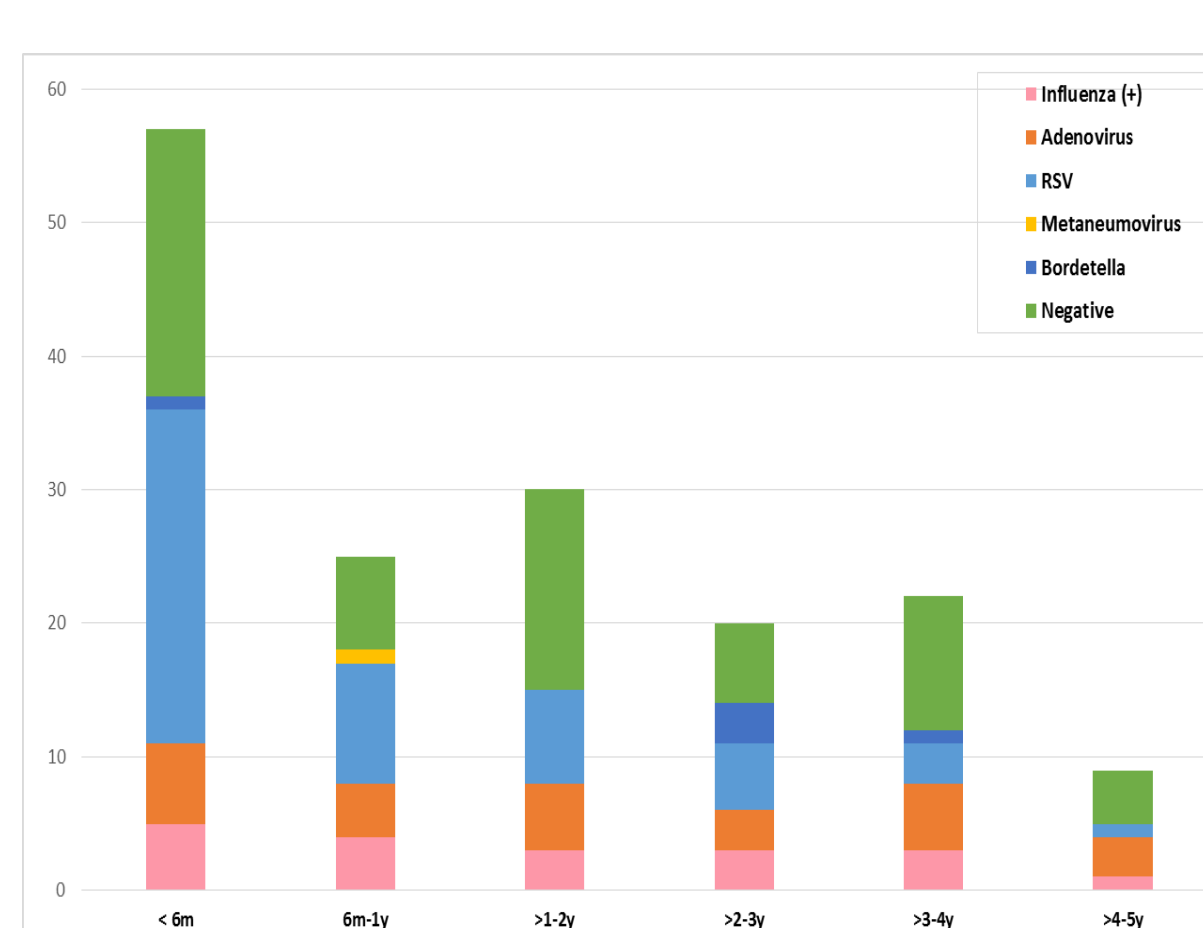


Figure 5: Participant distribution by age-group and severity

