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Hospital Pequeno Príncipe (Little Prince Hospital) is a quaternary pediatric hospital, located at Curitiba, Southern Brazil. It has a total of 362 beds, being 61 UCI- and 150 medical-beds. The hospital is a reference for pediatric patients from Curitiba and Metropolitan region and assists patients from SUS (Public Health Service, 70%), as well as from the private health network. It is the largest pediatric hospital in Brazil, with an emphasis on medium and high complexity. It is also one of the sentinel hospitals for influenza and Severe Acute Respiratory Infection (SARI) surveillance in the region. On average 2000 patients / month are hospitalized and during the seasonality period, an average of 700 cases / year of Acute Respiratory Infections are reported. Curitiba is located at 25° 25' S, 49° 15' W, 924 m (3031 ft), southern Brazil, and has a mild marine west coast climate, with no dry season and warm summers. Seasonality is moderate, with heavy precipitation during mild winters and a mean temperature of 16.5°C. The city and metropolitan population numbered approximately 1,917,185 and 3,615,017 people in 2018, respectively.

A Cross-sectional study was designed to provide information on active surveillance of influenza A in hospitalized patients. Patient recruitment and data collection occurred from April to September 2019, coinciding with the period of influenza seasonality in Southern Brazil. ICD-10 code (listed at GIHSN core protocol) of the hospitalized patient was identified by the hospital electronic medical record, then a group of nursery, doctor or biomedical contacted patient's parents/tutors to invite to participate in the study. Patients were included after they signed consent and the questionnaire was applied. Samples were collected using flocculated nylon swabs. It was collected one nasopharyngeal and one pharyngeal or nasal (<14 years) swab, added to a flask containing 3 mL of viral transport medium and stored at -80°C until tested.

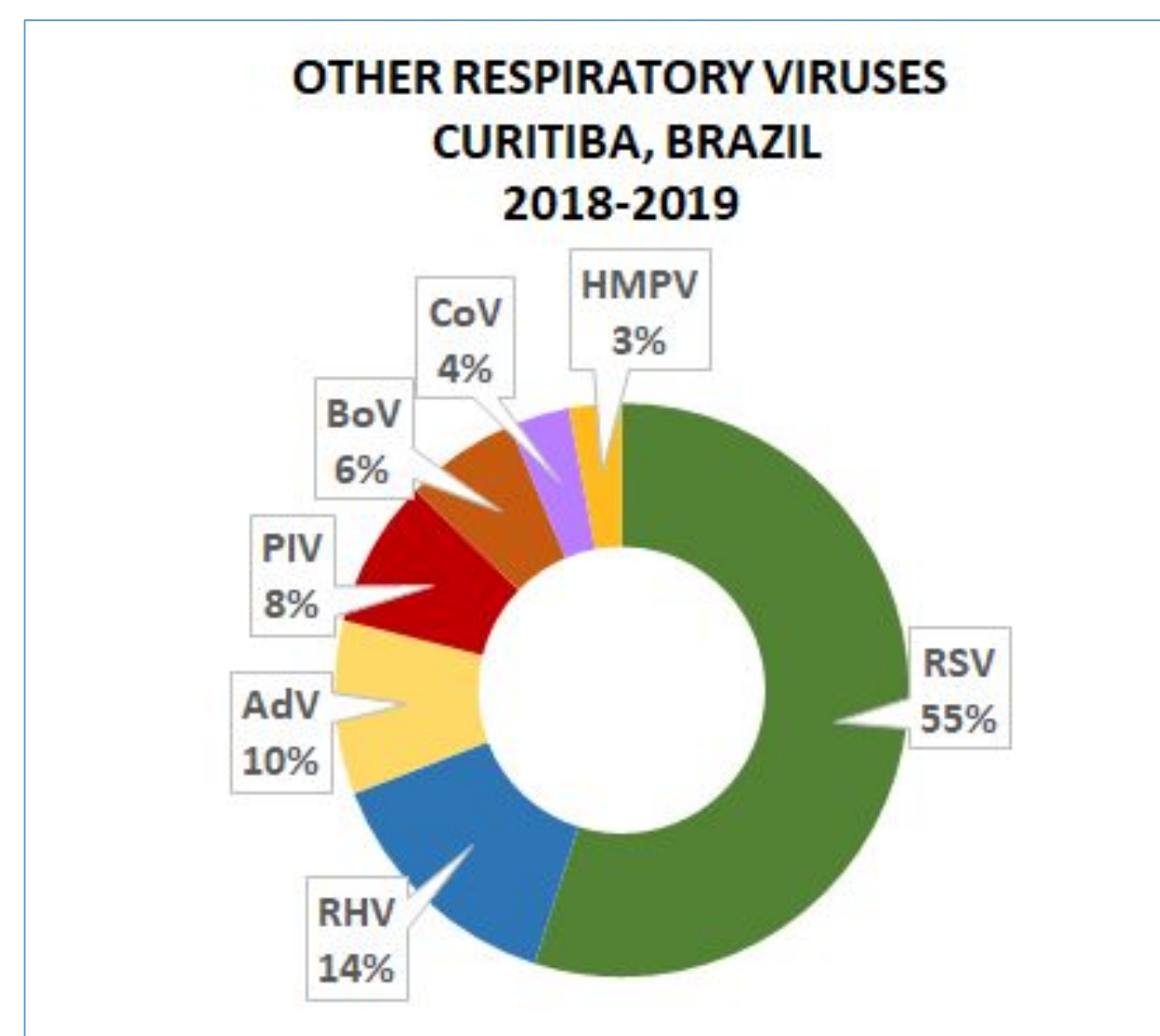
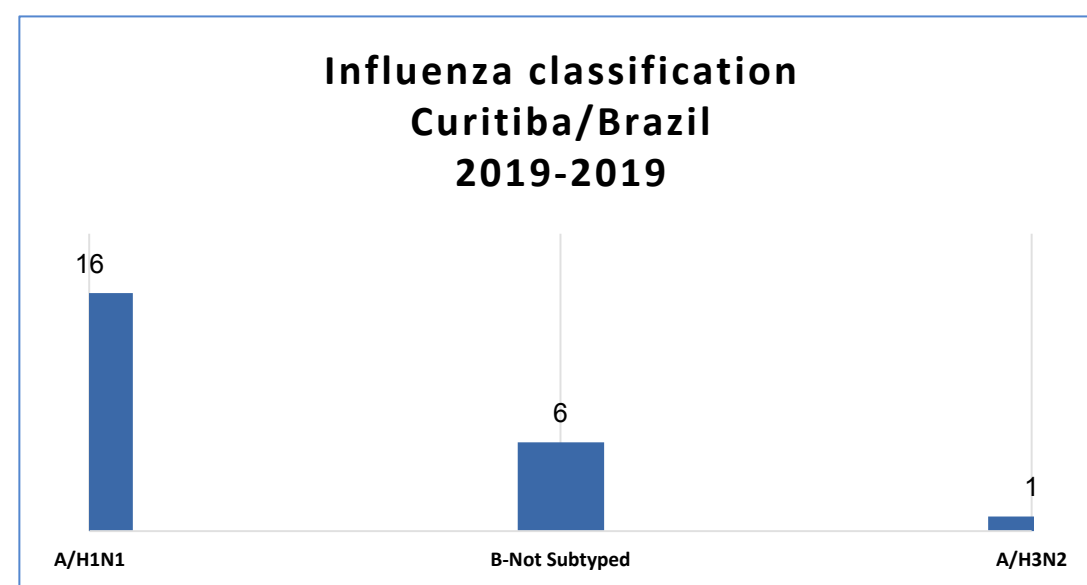
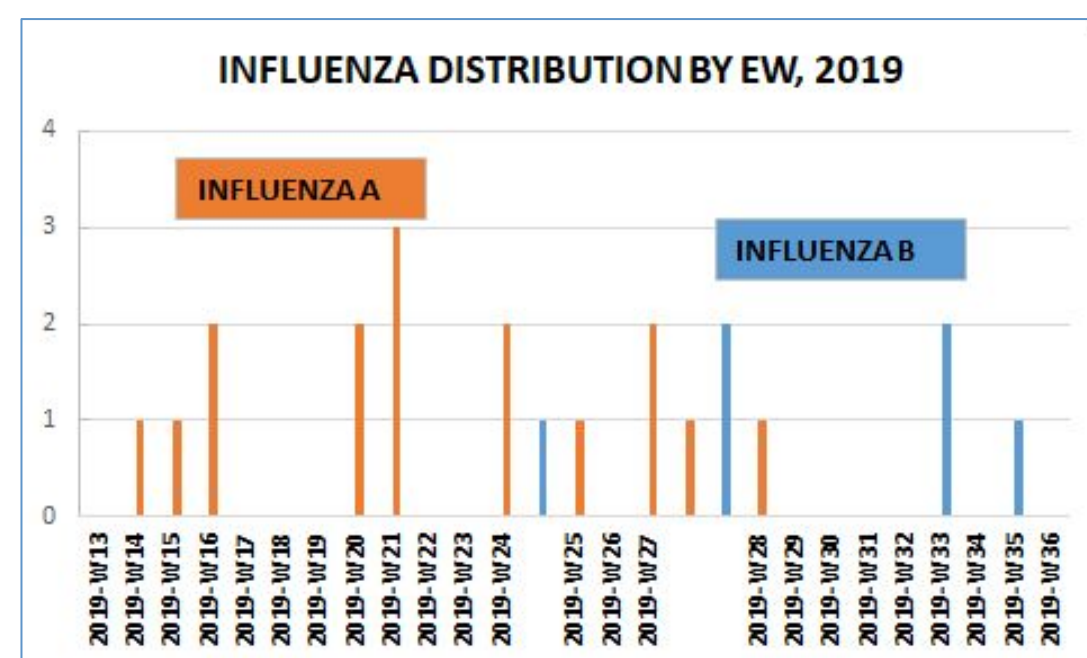
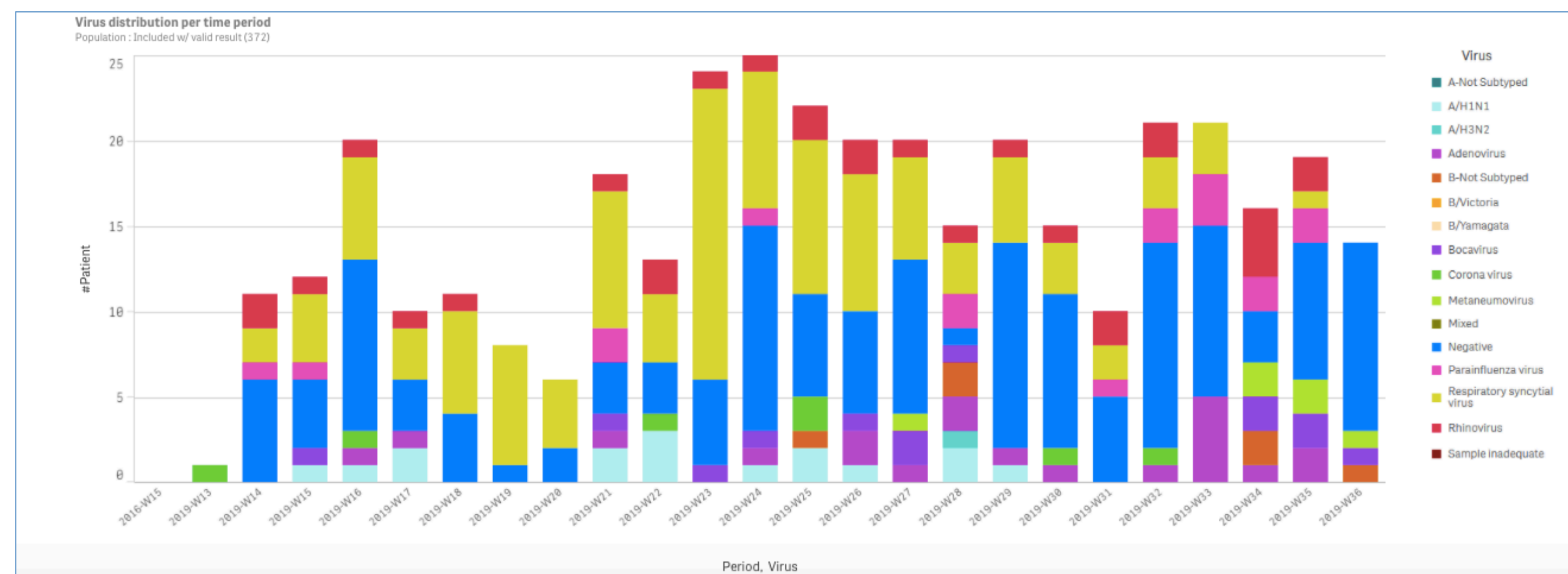
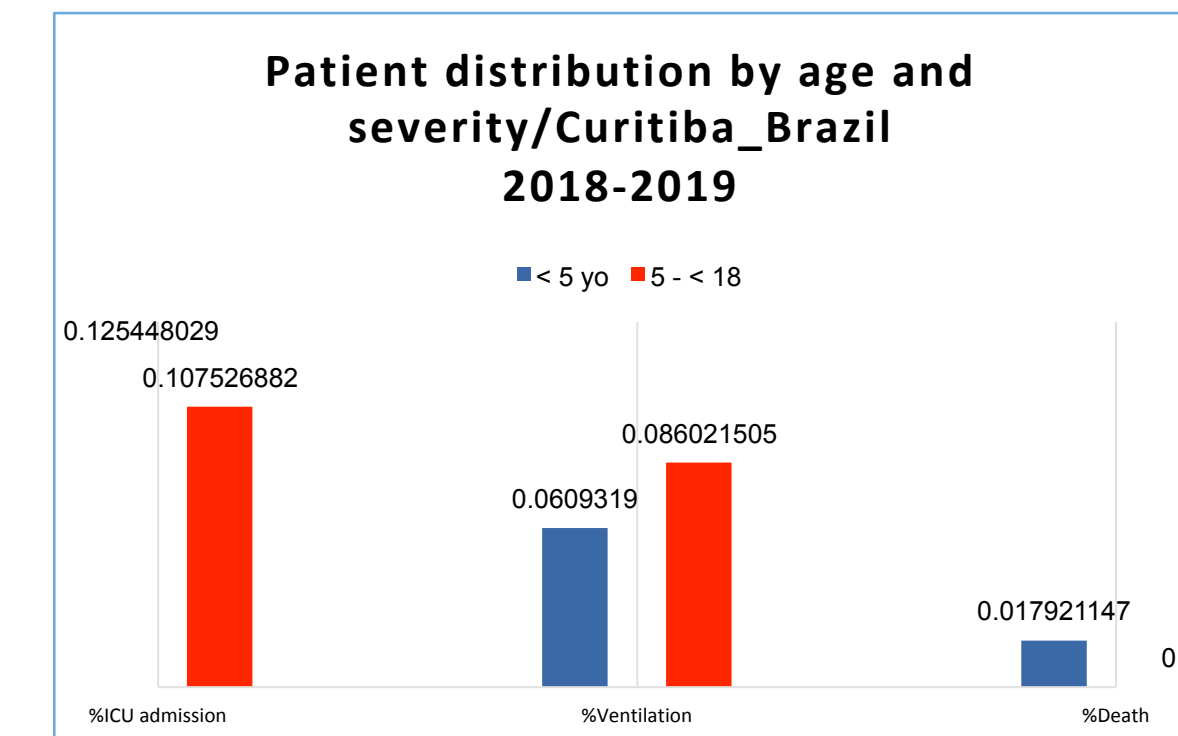
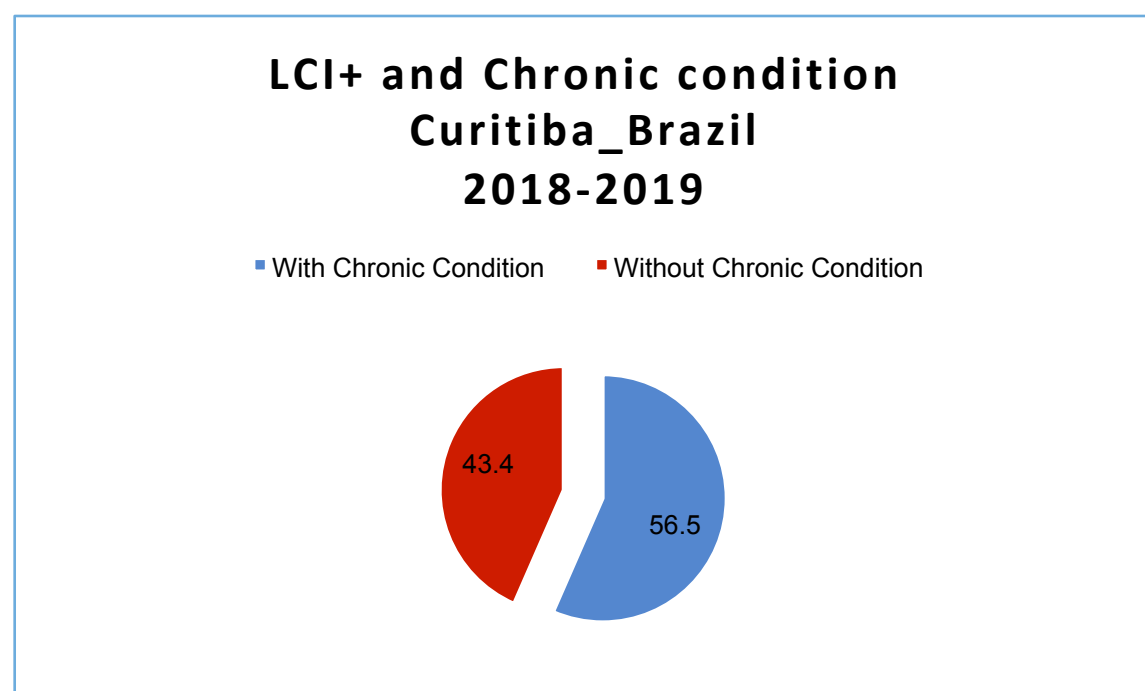
All samples were submitted to nucleic acid extraction using a QIAmp Viral RNA Mini Kit (Qiagen, USA). Then, the presence of pathogens was assessed using the Seeplex® RV15 ACE detection kit (Seegene Inc., Korea), a multiplex PCR-based assay allowing the simultaneous detection of multiple viruses such as ADV; HMPV; PIV types 1, 2, 3, and 4; FLUA; FLUB; RSV types A and B; rhinovirus (HRV) types A, B, and C; ENV; BOV; and COV types 229E/NL63 and OC43/HKU1. The test was performed following the manufacturer's protocol. Samples influenza A or influenza B positive were analyzed by reverse transcription-real time PCR (rtRT-PCR) to be subtyped in A/H1N1pdm or A/H3N2 or B/Yamagata or Victoria lineages (CDC protocol 2009; Biere et al, 2010).

SEASONAL INFLUENZA, BRAZIL AND PARANÁ STATE, 2019

Unidade Federada	Criança	Trab Saude	Gestantes	Puérperas	Indigenas	Idosos	Professores	Total
Paraná	77,7	94,8	80,0	104,5	104,4	101,6	99,6	93,0
Brasil	77,8	95,5	80,8	105,6	96,8	97,2	108,9	90,9



Hospital Pequeno Principe	Total		1	
Patient status	Num.	%	Num.	%
Screened	779	100,0%	779	100,0%
Included	372	47,8%	372	47,8%
Included with valid result	372	47,8%	372	47,8%
LCI	23	3,0%	23	3,0%
Other respiratory viruses	208	26,7%	208	26,7%



- A total of 372 patients were included, 62% were positive, and 5% of viral co-infections were detected.
- Influenza virus was identified in 6% of included cases, of these, most without chronic conditions
- Inclusion of patients for 6 months:
 - Prevents annual case distribution, and does not detect the burden of influenza B circulation.
 - Change in Research team components leads to new training needs.
- A high number of hospital discharges was observed in less than 72 hours, which impacted in the number of included patients
- High influenza vaccination coverage in patients under 5 years, decreased case detection in this age group

