



Risk factors associated with complications of Influenza A or B virus infection, southern Puerto Rico, 2016-2019

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Introduction

- Influenza is one of the most common viral respiratory diseases in the United States.
- The mortality rate for influenza in the United States for was 24,000-62,000 cases (2019-2020).
- In Puerto Rico, the tendency was more than 18,000 cases reported during the 2019/20 Influenza season.
- The Sentinel Enhanced Dengue Surveillance System (SEDSS) is an epidemiological platform established in a tertiary care hospital in the southern region of Puerto Rico, which conducts surveillance for acute febrile illness, including influenza.

Objectives

- Assess disease's severity in laboratory-confirmed influenza participants.
- Evaluate chronic disease history associated with the severity of the disease.

Methods

❖ Study Design

- Retrospective analysis of SEDSS confirmed Influenza A or Influenza B cases, during 2016-2019.

❖ Case Definition

- Severity was identified as Influenza A or B cases enrolled in SEDSS with pneumonia or bronchitis diagnosed by chest x-ray or clinical diagnosis.

❖ Statistical Analysis

- Frequency statistics for categorical variables and central tendency analysis and measures of dispersion for quantitative variables.

Results

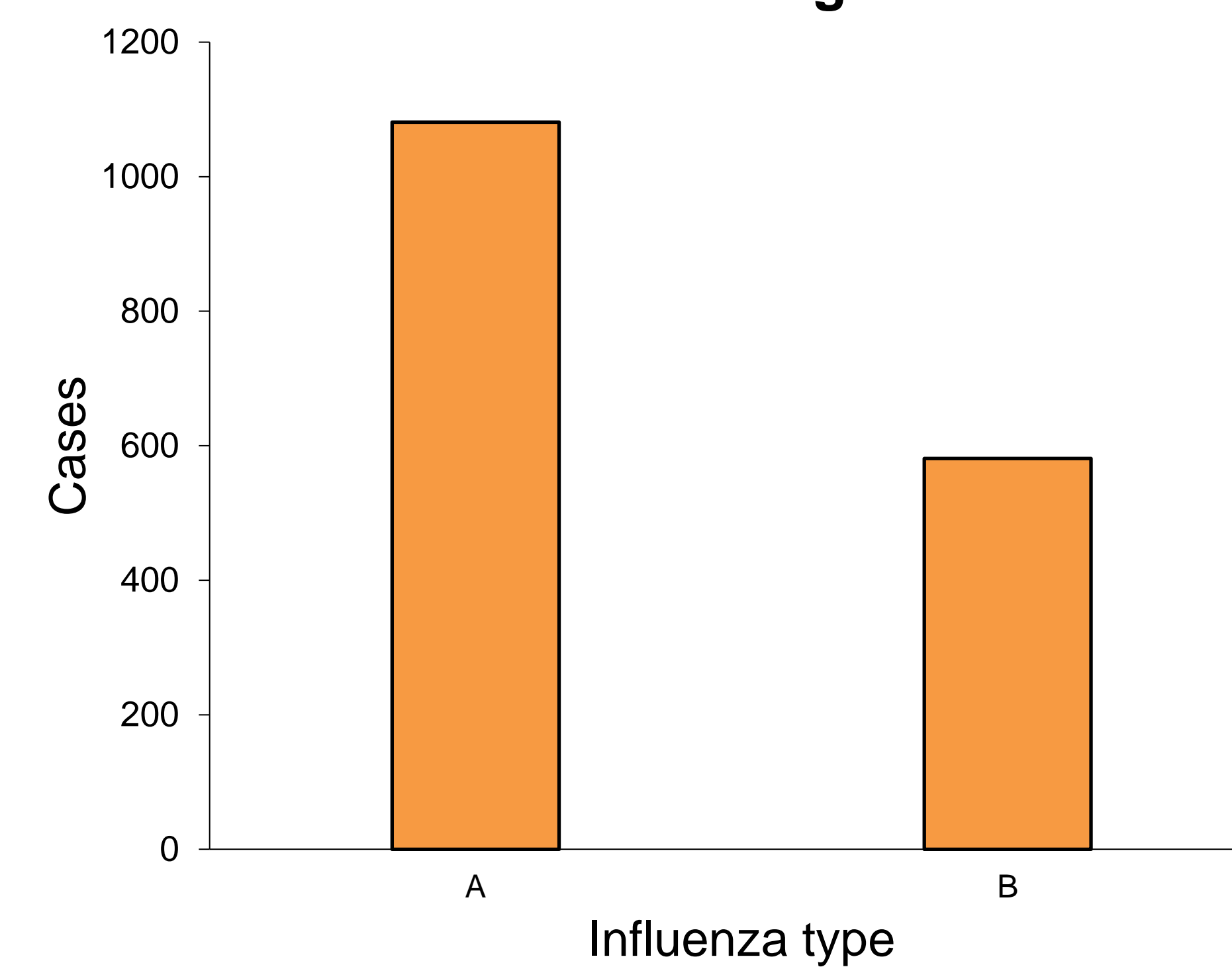
Table 1. Socio-demographic data of study participants (n=2,835)

Characteristics	N	%
Age		
< 21	1,662	58%
≥ 21	1,173	42%
Mean age		
Sex		
Female	1,447	51%
Male	1,388	49%
Influenza Type		
Influenza A	1,963	69%
Influenza B	872	31%
Medical History		
Asthma	507	18%
Hypertension	337	12%
High cholesterol	157	6%
Coronary heart disease	79	3%
Chronic liver disease	6	0.20%
Chronic kidney disease	10	0.40%
Immunodeficiency	11	0.40%
Medical Diagnosis		
Pneumonia	21	0.70%
Bronchitis	40	1%
X-ray		
Yes	714	25%

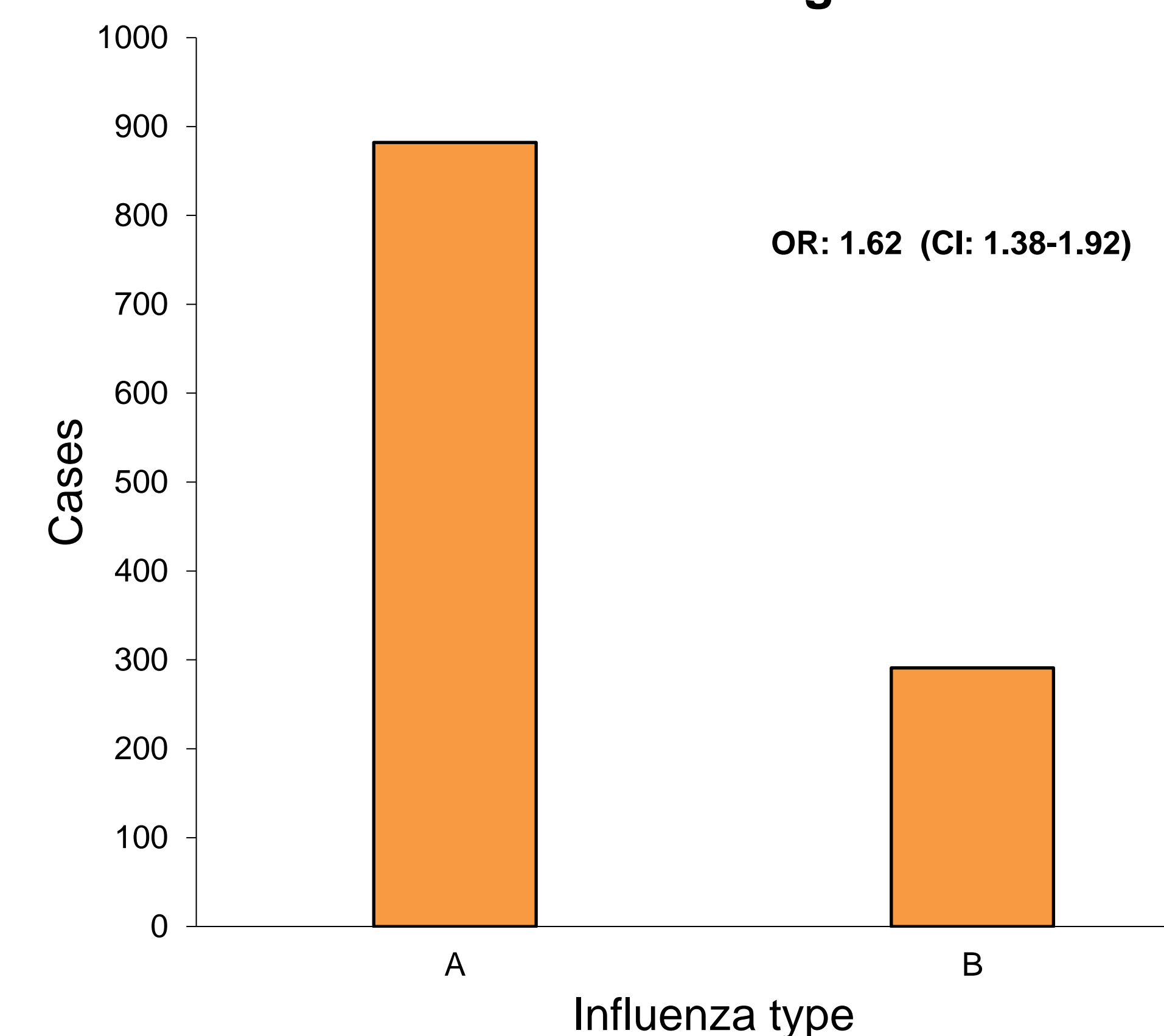
Table 2. Clinical Findings

Characteristics	Odds Ratio
Severe influenza was higher in patients with hypertension.	(OR= 3.8; 95% CI:2.0–7.1)
Influenza cases with asthma developed pneumonia or bronchitis	(OR=2.3; 95% CI: 1.3–4.0)

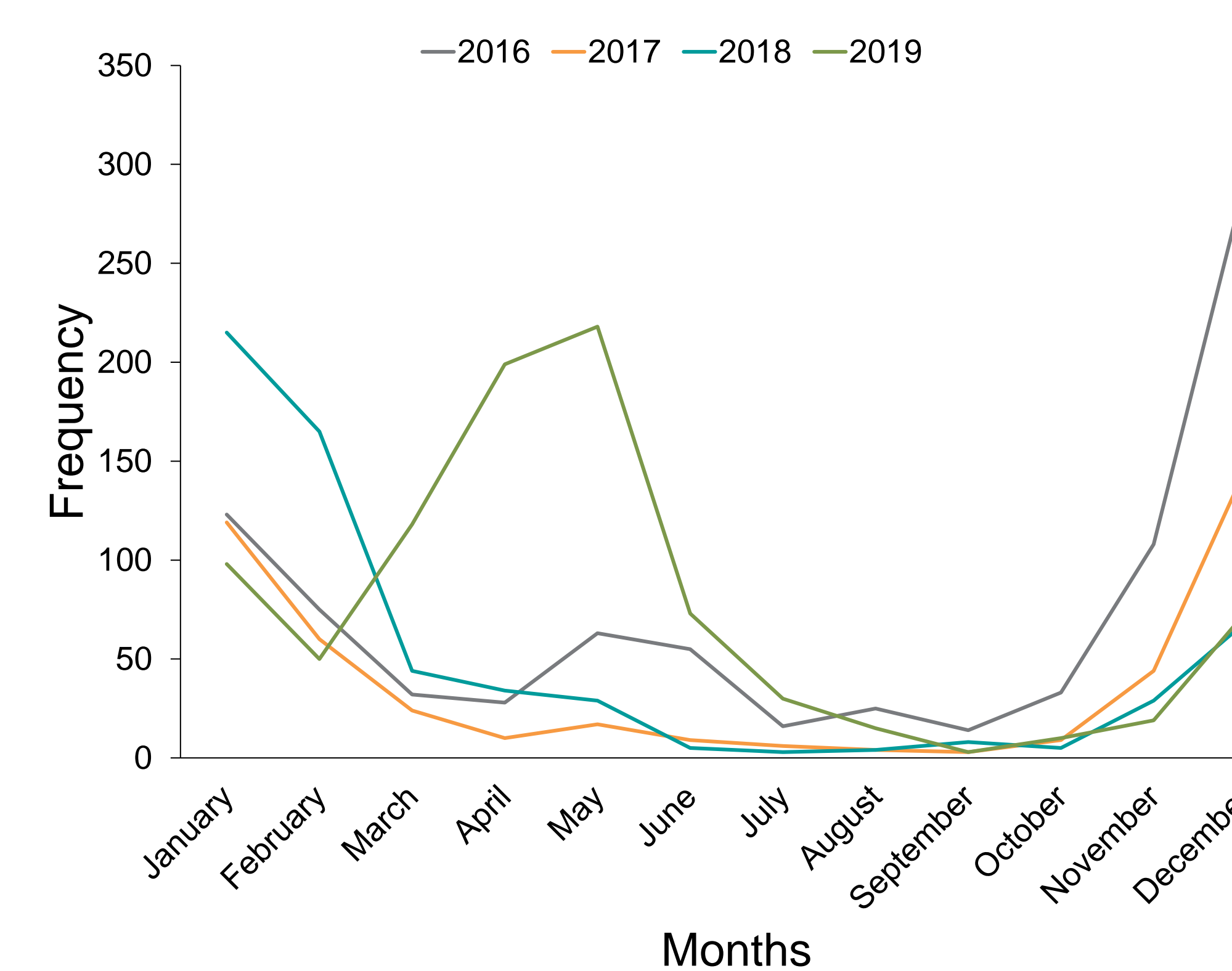
Influenza cases among children



Influenza cases among adults



Influenza Cases Reported in SEDSS 2016-2019



Summary

- Hypertension among Influenza A or B cases with pneumonia or bronchitis complications was a higher risk factor than other risk factors.
- Influenza A or B patients reported a higher percentage of clinical history with asthma followed by hypertension and hypercholesterolemia, among others.
- Overall, 61 (2%) influenza cases developed complications; 21 (34%) developed pneumonia, of which 18 (85%) had chest x-ray performed.
- One-third of influenza cases with pneumonia or bronchitis had preexisting conditions like asthma (33%) and hypertension (34%).
- While asthma is a recognized risk factor for influenza complications, isolated hypertension is not.

Future Directions

- Include influenza serotypes for further investigation to identify risk factors associated with clinical complications in patients.
- Update influenza statistics with 2020 cases.
- Assess how COVID-19 pandemic has affected influenza hospital visits on the southern Puerto Rico where SEDSS is established.

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