



Age groups, vaccine effectiveness, and circulation patterns of Influenza and RSV cases from Severe Acute Respiratory Infections admitted in 5 hospitals of the Influenza surveillance Network of Cote d'Ivoire in 2017

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Site presentation

In Cote d'Ivoire, the Global Influenza Hospital Surveillance Network involves 5 hospitals: The Pediatric clinic of the University Teaching Hospital of Treichville, the General Hospital of Yopougon Attie and the General Hospital of Attecoube are located in Abidjan. The University Teaching Hospital of Bouake and the regional hospital of Man are located in the middle and the west parts of the country. All the hospitals receive both adults and children from districts covered except the Pediatric clinic. The transmission of influenza is continuous throughout the year with peaks during the rainy season (April to July and October to November).

Methods

Enrolment was based on case definition of ILI. Also the eligibility of patient was based on their resident, belonging to the source population base. For each case enrolled, the physician correctly filled the case form and realizes a nasopharyngeal swab for all patients in case they give consent. Multiplex real-time RT-PCR was performed on the samples to detect the presence of influenza or other respiratory viruses (coronavirus, metapneumovirus, respiratory syncytial viruses, adenovirus, parainfluenza viruses, rhinovirus). We analyzed severe acute respiratory cases of Influenza by age groups. A vaccine effectiveness of influenza seasonal vaccines on children under 5 years is evaluated. With graphs we plotted the circulation pattern of Influenza and other respiratory strains.

Results

Table I: Distribution of patients included in the study by age groups, from January to September 2017, Cote d'Ivoire

Age groups (years)	n (%)
0 to <1	110 (20.8)
1 to <2	65 (12.3)
2 to <4	61 (11.5)
4 to <5	11 (2.1)
5 to <18	107 (20.3)
18 to <50	100 (19.0)
50 to <65	28 (5.3)
65 to <75	21 (4.0)
75 to <85	6 (1.1)
85 yrs or more	1 (0.2)
Missing	18 (3.4)
Total	528 (100)

Based on 528 patients hospitalized for severe acute respiratory infections:

- 20.8% were under one year
- 20.3% were between 5 and 18 years, and
- More than half (67%) were under 18 years.

Table II: Severe acute respiratory cases of Influenza and RSV by age group, from January to September 2017, Cote d'Ivoire

Age groups (years)	Influenza Types and Other Respiratory Viruses			
	pH1N1 n(%)	H3N2 n(%)	B Victoria n(%)	RSV n(%)
0 to <1	0 (0,0)	2 (7,7)	1 (20,0)	11 (57,9)
1 to <2	0 (0,0)	7 (26,9)	1 (20,0)	3 (15,8)
2 to <4	0 (0,0)	5 (19,2)	1 (20,0)	2 (10,5)
4 to <5	0 (0,0)	1 (3,8)	0 (0,0)	0 (0,0)
5 to <18	5 (71,4)	8 (30,8)	1 (20,0)	2 (10,5)
18 to <50	1 (14,3)	2 (7,7)	1 (20,0)	0 (0,0)
50 to <65	0 (0,0)	0 (0,0)	0 (0,0)	1 (5,3)
65 to <75	1 (14,3)	1 (3,8)	0 (0,0)	0 (0,0)
75 to <85	0 (0,0)	0 (0,0)	0 (0,0)	0 (0,0)
85 yrs or more	0 (0,0)	0 (0,0)	0 (0,0)	0 (0,0)
Total	7 (100,0)	26 (100)	5 (100)	19 (100)

- Strains identified included pH1N1 (7; 12.3%), H3N2 (26; 45.6%), B Victoria (5; 8.8%), and RSV (19; 33.3%).
- 71.4% of pH1N1 were isolated from patients aged 5-18 years
- 26.9% and 30.8% of H3N2 were isolated from patients aged 1-2 years and 5-18 years.
- 80% of B Victoria were isolated from patients under 18 years of age
- 94.7% of RSV were isolated from patients under 18 years but over the majority (57.9%) came from those under one year.

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Funding: Fondation de France; Sanofi Pasteur

Table III: Influenza vaccines uptaken by patients by age group, from January to September 2017, Cote d'Ivoire

Age groups (years)	Influenza Vaccine uptaken (2017-2016)		
	Yes	No	Total
0 to <1	2	108	110
1 to <2	1	64	65
2 to <4	1	60	61
4 to <5	0	11	11
5 to <18	0	100	100
18 to <50	0	28	28
50 to <65	1	106	107
65 to <75	0	21	21
75 to <85	0	6	6
85 yrs or more	0	1	1
Missing	0	18	18
Total	5	523	528

From 528 patients, 5 (0.9%) had uptaken vaccination against influenza during this season or the last season.

Influenza vaccine effectiveness on children under 5 years, 2017-2016 season, Cote d'Ivoire

- 4 patients are vaccinated against influenza
- No influenza cases have been reported in the vaccinated group
- 18 influenza cases in non vaccinated group
- Vaccine effectiveness could not be estimated given to the very low number of vaccinated patients

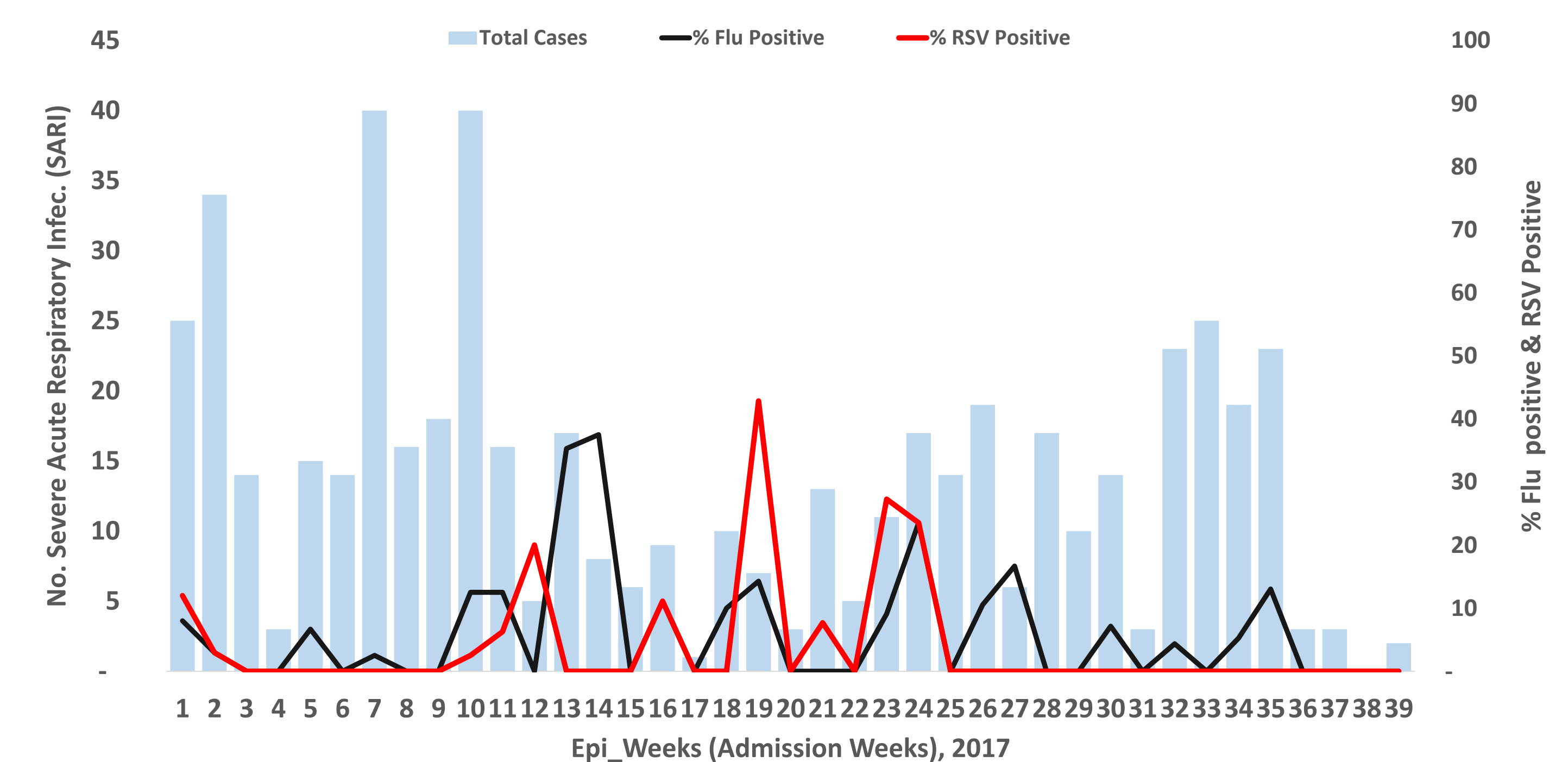


Fig. 1: SARI circulation pattern and Influenza and RSV proportion of positives, from week 1 to 39, 2017 Cote d'Ivoire

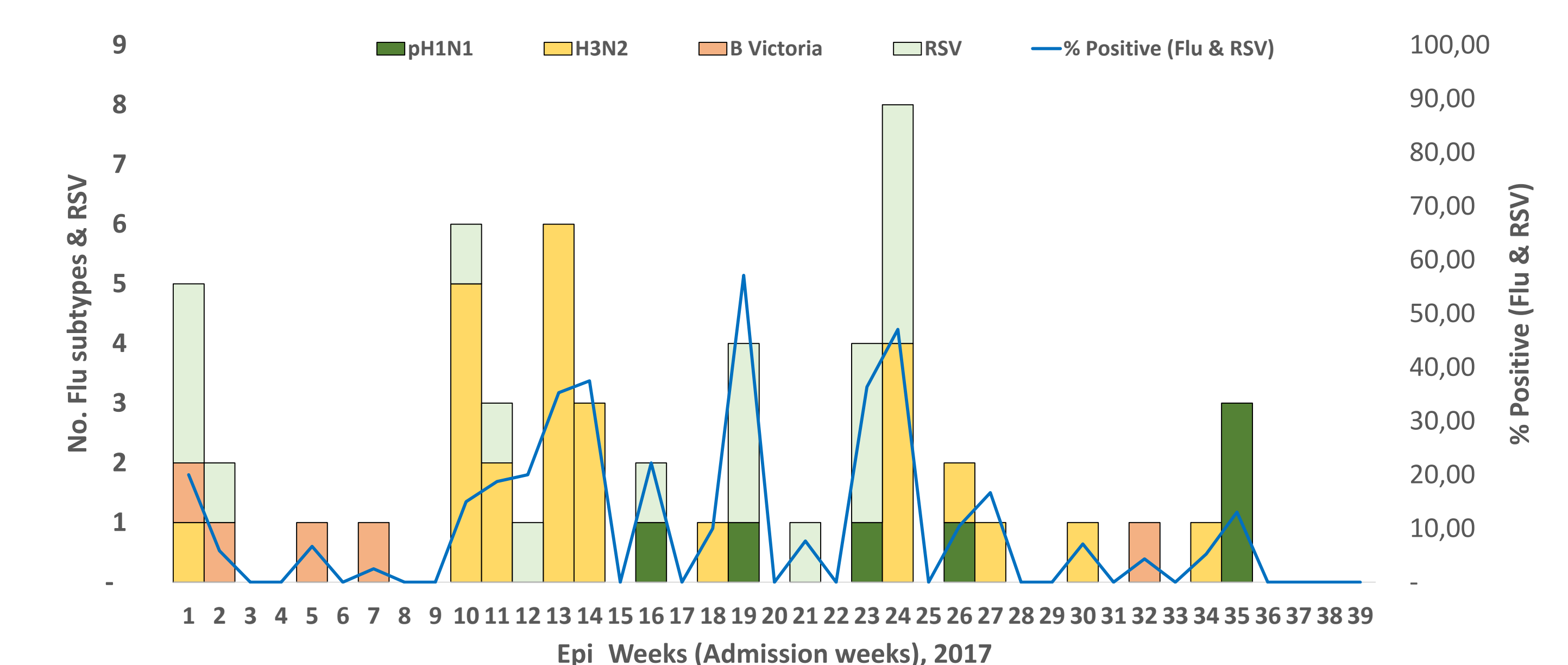


Fig. 2: Influenza and RSV circulation pattern and proportion of positives, from week 1 to 39, 2017 Cote d'Ivoire

Key aspects & challenges

An important part of patients included in the study aged under 18 years. All influenza viruses isolated infected children in the group 5 - 18 years. Mainly H3N2, B Victoria and RSV viruses infected young children under 4 years. RSV peaks were observed from week 12 to 24, while influenza was observed from week 10 to 27.

Collect weekly admission from all cases in hospitals included remain the main challenge to estimate hospitalization rate.