



# 2017-2018 Seasonal Vaccine Effectiveness Against Influenza Vaccination in Hospitalized Adult in France

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For the Fluvac study group

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## Site presentation

I-REIVAC is the French network of clinical research in vaccinology whose the mission is to reinforce the visibility and the competitiveness of France in this field. To do this, I-REIVAC set up a scientific program with six axis of research including the studies on development of new vaccine anti-infective in preventive and therapeutic, the vaccination of particular population, vaccine effectiveness, immunomonitoring and immunological mechanisms, in human and social science to understand levers and breaks of vaccination and setting up of the biobank/tools with a collection of biological samples (sera, plasma, DNA and cells).

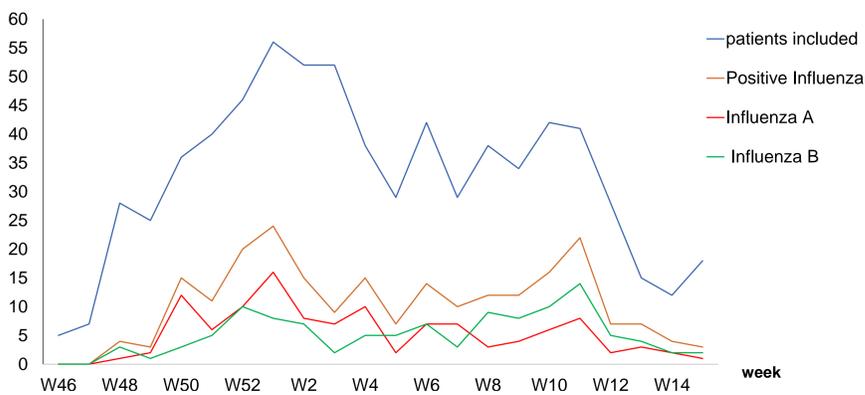
I-REIVAC participates to this study in 5 centers: Cochin and Bichat hospitals in Paris, Lyon, Montpellier and Rennes hospitals. These sites collaborate with all services of their hospital including virological laboratories.

## Methods

Patients hospitalized with an acute respiratory infection (ARI) within the 7 days before admission during the 2017/2018 influenza epidemic were screened; those swabbed less than 7 days after onset of symptoms were included and information on demographics, vaccination and underlying conditions were collected. Cases were patients with a positive influenza RT-PCR and controls, those negative for any influenza virus. Using logistic regression we calculated Influenza Vaccine effectiveness (IVE) against influenza A(H3N2) adjusted for potential confounders (onset month, age, gender, and chronic conditions).

## Results

Figure 1 : Influenza season 2017-2018: inclusions



- 1<sup>st</sup>patient's inclusion date : 14<sup>th</sup> november 2017 (W46)
- Last patient's inclusion date : 13<sup>th</sup> april 2018 (W15)
- Study period : W46 to w15 --- N= 713
- **Influenza season: S49 – S15 --- N= 663**
- **data of 648 patients were analyzed:**
  - **113 Influenza A ( 90 H1N1, 21 H3N2, 2 untyped)**
  - **108 Influenza B (96 Yamagata, 12 without lineage)**

Figure 2: Patients Characteristics

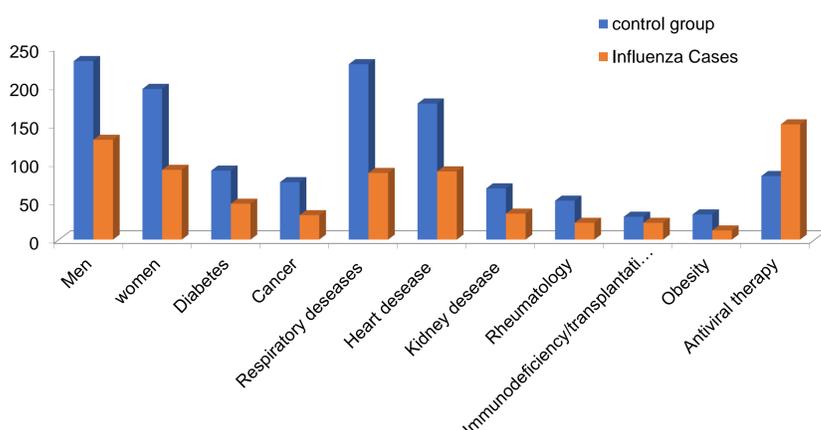


Table 1: influenza vaccine coverage in cases and controls

Population	Overall (n=648)		<65 years (n= 216)		≥65 years (n= 432)	
	Cases (n= 221)	Control (n= 427)	Cases (n =84 )	Control (n= 132)	Cases (n=137)	control (n=295)
vaccinated	90	211	20	31	70	180
Vaccination coverage	41%	49%	24%	23%	51%	61%

Table 2: Adjusted vaccine effectiveness in the overall population by age group

Population	VE univariate (%)	CI 95%	VE multivariate (%)	CI 95%
Global (n= 648)	29	1; 49	4	-61; 42
<65 years (n=216)	10	-75; 54	-2	-145 ; 57
65-74 years (n=149)	49	-1; 74	42	-59; 79
>=74 years (n=283)	7	-59; 46	-71	-315; 30

Adjusted for age, gender, membership of a target group for vaccination and chronic diseases.

Table 3: Adjusted vaccine effectiveness in cases (H1N1) in the general population by age group

Population	EV univariate (%)	CI 95%	EV multivariate (%)	CI 95%
Global (n=648)	29	1; 49	4	-61; 42
H1N1 Global (n= 509)	64	38; 79	53	0,8; 77
H1N1 <65 ans (n = 173)	60	-8; 85	62	-37; 89
H1N1 65-74 ans (n = 115)	53	-22; 82	47	-110; 87
H1N1 ≥74 ans (n=221)	61	-5; 86	67	-27; 92

## Key aspects & challenges

- Our results show:
  - Co circulation of A/H1N1 and B/ Yamagata influenza viruses
  - Low global effectiveness of the 2017/2018 seasonal influenza vaccine in the global population.
- However, the vaccine was effective against H1N1 and in the population aged 65 to 74,

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