The public health and economic effects of various RSV vaccination strategies with RSVpreF among adults in France

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BACKGROUND AND OBJECTIVE

- Respiratory syncytial virus (RSV) is a significant cause of **lower respiratory tract illness (LRTI)** in adults, particularly **the elderly and those with comorbidities.**
- The bivalent stabilized prefusion F subunit vaccine (**RSVpreF**) was authorized by **the EMA in 2023 and recommended in France in 2024 for patients aged 65-74 years old (yo) with cardiorespiratory risk and those aged 75yo and over (1).**
- This study evaluates the potential impact of RSVpreF vaccination on **hospitalization and healthcare costs in adults in France in the current recommendations and the impact of extending vaccination to different groups (comorbidity-extended and age-extended)**.

METHODS

- A **four-state Markov model** – Susceptible, RSV-related hospitalization, RSV-related outpatient consultations, Death – was developed to assess the clinical and economic outcomes of adult vaccination over 5 years (Fig. 1).
- **Three scenarios** were tested: **individuals ≥ 75yo and those 65-74yo with cardiorespiratory comorbidities (current recommendation)**, **individuals ≥ 75yo and those 50-74yo at risk (comorbidity-extended like US recommendations)** and **individuals ≥ 65yo and those 50-64yo at risk (age-extended, aligned with COVID19/influenza recommendations for older adults)**.
- **Vaccine efficacy** against hospitalization was based on **medically-attended LRTI with ≥ 3 symptoms** from the RENOIR trial data (VE – 84,6%), wanning to 72,0% at 16,4 months and declining to 0% at 43 months (2).
- **Vaccination coverage** was assumed at 47,4% for individuals ≥ 75 and 38,1% for those aged 60-74 with comorbidities based on US real-life data (3) .
- **Hospitalizations rates and costs** by age were derived from French medical databases (RESVYR study(4)). To account for the increased hospitalization risk associated with comorbidities, data from Polkowska-Kramek et al. (5) were incorporated into our model.
- A healthcare payer perspective was adopted for the analysis. In absence of prices in France, vaccination costs were not included in the analysis.
- The results were presented **exclusively** in terms of the **impact of vaccination on hospitalizations** and related costs, both over a 5 years and during the first year, depending on the vaccination scenario.

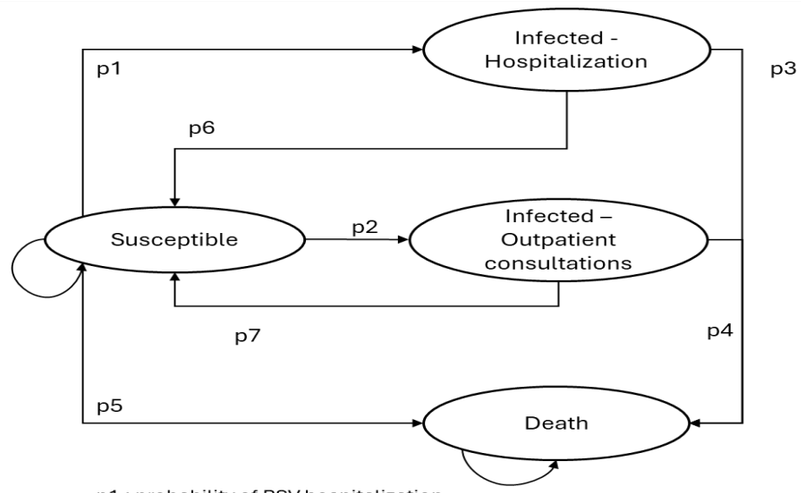

Fig1. Representation of the Four-State Markov Model

	No risk			At risk*		
50-64 yo	0.0%	0.0%	0.0%	0.0%	38.5%	38.5%
65-74 yo	0.0%	0.0%	47.4%	38.5%	38.5%	47.4%
75+ yo	47.4%	47.4%	47.4%	47.4%	47.4%	47.4%

Tab1. Vaccination coverage by vaccination scenario

*the comorbidities considered include are chronic respiratory diseases, valvular disease, diabetes, chronic kidney disease, chronic liver disease, and immunodeficiency.

RESULTS

Number of adults vaccinated

- With the vaccination of **65–74yo at risk and ≥75yo** approximately 3.8 million individuals would be vaccinated over 5 years (Fig. 2).
- Expanding to **50–74yo at risk and ≥75yo** would increase coverage to 5.9 million individuals, an increase of 55% (+2.1 million) compared to the current recommendation (Fig. 2).
- Further extending to **50–64yo at risk and ≥65yo** would result in 8.2 million individuals vaccinated, representing an increase of 115% (+4.4 million) compared to the current recommendation (Fig. 2).

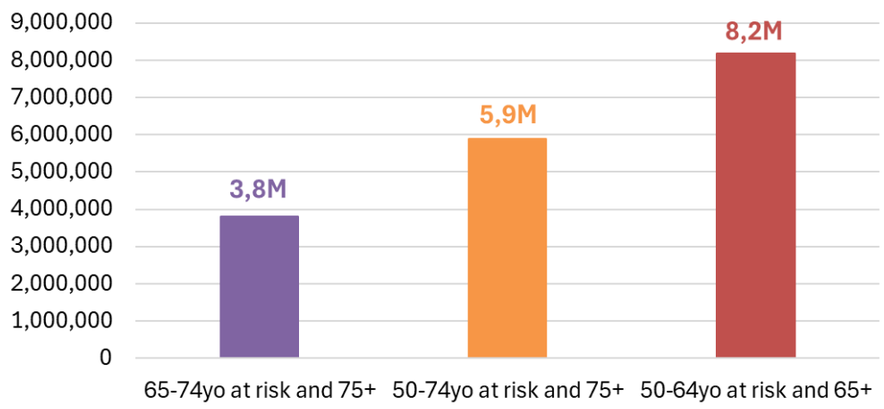

Fig2. Number of individuals vaccinated per scenario

Impact of vaccination on hospitalizations

- Compared to no vaccination, vaccination of the **65-74yo at risk and ≥75yo** prevents **17,786 hospitalizations over 5 years,** with 36% of these prevented in the first year (Fig. 3).
- Vaccination of the **50-74yo at risk and ≥75yo** goes further, preventing **5,600 additional hospitalizations (+31.5%)** over 5 years (with 34% of these prevented in the first year) compared to the current recommendation (Fig. 3).
- Vaccination of the **50–64yo at risk and ≥65yo** prevents **9,234 additional hospitalizations (+51.9%)** over 5 years (with 33% of these prevented in the first year) compared to the current recommendation (Fig. 3).

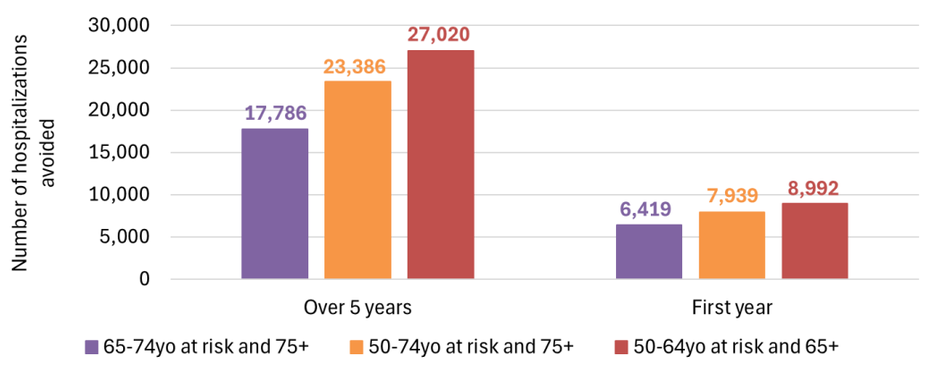

Fig3. Number of hospitalizations avoided per scenario

Economic impact of vaccination

- **For the 65–74yo at risk and ≥75yo recommendation, savings from RSV-related hospitalizations cost** are estimated at **€84,60 million** over 5 years, with 37% of these savings achieved in the first year (Tab. 2).
- **For the 50–74yo at risk and ≥75yo recommendation**, despite higher overall costs, the strategy increases savings by **an additional €32,61 million (+38%)** over 5 years (35% of which in the in the first year) compared to the current recommendation (Tab. 2).
- **The 50–64yo at risk and ≥65yo recommendation** delivers the highest cost savings with **an additional €53,01 millions (+63%)** over 5 year **(**34% of which in the first year) compared to the current recommendation (Tab. 2).

Tab2. Hospital savings per scenario

Versus no vaccination	65–74yo at risk and 75+	50–74yo at risk and 75+	50–64yo at risk and 65+
Number of patients to vaccinated	3,8M	5,9M	8,2M
Hospital savings (€)	84,60 M€	117,21 M€	137,61 M€

CONCLUSIONS

- This analysis shows that implementing an RSVpreF-vaccination strategy for adults aged 65-74 with cardiorespiratory risk factors and those aged 75 and over in France should significantly reduce the number of RSV-related hospitalizations to 17,786 over five years. This corresponds to savings for hospitals of €84.60 million over 5 years.
- Broader vaccination recommendations lead to more people vaccinated, more hospitalizations avoided, and greater cost savings. The most substantial gains are achieved by expanding from the current recommendation (65–74 at risk and 75+) to recommendations for 50–74yo at risk and 75+.

REFERENCES

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DISCLOSURES

YF, SF, WG, EB: employees of Pfizer France. **EC, RE, RM:** employees of stève consultants – a Cytel company, under research contract with Pfizer France. **SR:** employee of Pfizer Inc.

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