

The Socioeconomic Value of Adult Respiratory Immunisation Programmes in France: Can Improved Coverage Unlock Missed Gains?

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M. NAPIER<sup>1</sup>, S. SUBRAMANIYAN<sup>1</sup>, E. TUNNICLIFFE<sup>1</sup>, S. YEN<sup>1</sup>, C. THEAKSTON<sup>1</sup>, S. FIEVEZ<sup>2</sup>, S. BRASSEL<sup>1</sup>, Y. FAHFOUHI<sup>2</sup>, A. BOUKHLAL<sup>2</sup>, J. YANG<sup>3</sup>, J. VIETRI<sup>4</sup>, D. MENDES<sup>5</sup>, T. HU<sup>3</sup>, and L. STEUTEN<sup>1</sup>

<sup>1</sup>Office of Health Economics, London, UK <sup>2</sup>Pfizer, France <sup>3</sup>Pfizer, New York, NY, USA <sup>4</sup>Pfizer, Collegeville, PA, USA <sup>5</sup>Pfizer, Tadworth, UK



INTRODUCTION

- Morbidity and mortality associated with respiratory infections in adults place a significant socioeconomic burden in France (Loubet et al., 2024; Bailey et al., 2025; Santé publique France, 2025).
- Immunisation against pneumococcal disease (PD), influenza and COVID-19, is recommended for at-risk adults and individuals 65 and over. Respiratory syncytial virus (RSV) immunisation is recommended for at-risk individuals 65-74 and individuals 75 and over.
- Despite these national recommendations, uptake remains below targets. In 2024/25, influenza vaccination uptake reached 68.5% in adults 65 and over, while for COVID-19 this was less than 30% across all recommended populations, and for PD fewer than 1 in 5 adults in at-risk groups were vaccinated (Sant   publique France, 2025; Wyplosz et al., 2025). RSV is not yet reimbursed, but we assume coverage rates based on US CDC data (CDC, 2025).
- This study estimates the socioeconomic benefits of France’s adult respiratory vaccination programmes based on the current recommendations and uptake. Then, the potential value gain if the uptake for all four programmes increases to 75% is quantified.

METHODS

- Four static life-table-based closed cohort disease models estimate all averted cases, hospitalisations, outpatient visits, and deaths compared to a no-vaccination scenario.
- A Benefit–Cost Analysis (BCA) was conducted based on an established framework (Robinson et al. 2019), capturing mortality risk reduction, morbidity risk reduction, and averted productivity loss.
- Mortality risk reduction was monetised using two approaches (1) either age-agnostic by multiplying the Value of a Statistical Life (VSL) by the number of fatal events averted, or (2) age-adjusted, multiplying the Value of a Statistical Life Year (VSLY) by the averted expected life years lost.
- A VSL value of €3 million was used, as proposed by the French General Commission for Strategy and Prediction in 2013. To derive the VSLY, we identified the age at which the average individual has lived half of their expected lifespan at birth and calculated the remaining discounted life years at that age using the French life tables. The VSL was divided by the remaining discounted life years.
- Morbidity was monetised using a cost-of-illness approach, and productivity was quantified based on absenteeism from a societal perspective.
- Benefit-cost ratios (BCRs) and net benefits (NBs) across all immunisation programmes are reported across 1-, 5-, 10-year and lifetime horizons. The lifetime horizon represents the costs and benefits realized during the full model runtime. In the base case, this is 35 years, while in scenarios 1 and 2, the youngest risk group is followed for 82 years. A discount rate of 2.5% was applied to costs and benefits (HAS, 2020).
- Outcomes are compared for three scenarios: (1) The base case includes only the age-based recommendations at current levels of uptake, (2) an expanded base case includes age- and risk-based eligible groups at current levels of uptake, and (3) an aspirational 75% coverage in all adults recommended for vaccination. Eligibility and coverage are outlined in **Table 1**.

TABLE 1: AGE- AND RISK-BASED RECOMMENDATIONS AND COVERAGE RATES\*

	Eligibility		Coverage		
	Age-based (Base case)	Risk groups (Expanded)	Age-based	Risk-based	Aspirational
PD (single-age cohort)	65-year-olds	18-64**	40%	10.8%	75%
RSV (multi-age cohort)	75+	65-74	47.4%	38.5%	75%
Flu (multi-age cohort)	65+	18-64	68.5%	33.2%	75%
COVID-19 (multi-age cohort)	65+	18-64	27.5%	20.5%	75%

\*A single-dose schedule was modelled for PCV and RSV, while annual dose schedule was modelled for flu and COVID-19 vaccines  
\*\*For the PD risk-group, we model a single representative age cohort and aggregate outcomes across the entire at-risk population

RESULTS

- The aggregated lifetime benefits associated with the current age-based adult respiratory immunisation in France outweigh its costs 17 times when mortality is valued using the VSL, and 3.6 times when mortality is valued using the VSLY approach. This corresponds to €183 billion in societal net benefits accruing across the health system, the economy, and society overall (**Figure 1**).
- Aggregated net benefits rise by over 40% when risk groups are included and by over 230% if both risk groups are included and an aspirational coverage of 75% could be achieved (**Figure 2**).
- Today’s age-based and risk-based recommendations avert almost 612 thousand hospitalisations and almost 1.5 million outpatient visits over the lifetime, saving €4.16 billion in medical costs (**Figure 3**).
- Achieving aspirational uptake, and including all risk groups, generates significant additional value for the health system, freeing up 8.32 million hospital bed days and 2.47 million outpatient appointments, reflecting a monetary lifetime value of over \$9.76 billion (**Figure 3**).

FIGURE 1: BCR, NBs, AND SUB-OUTCOMES FOR BASE CASE SCENARIO OVER THE LIFETIME

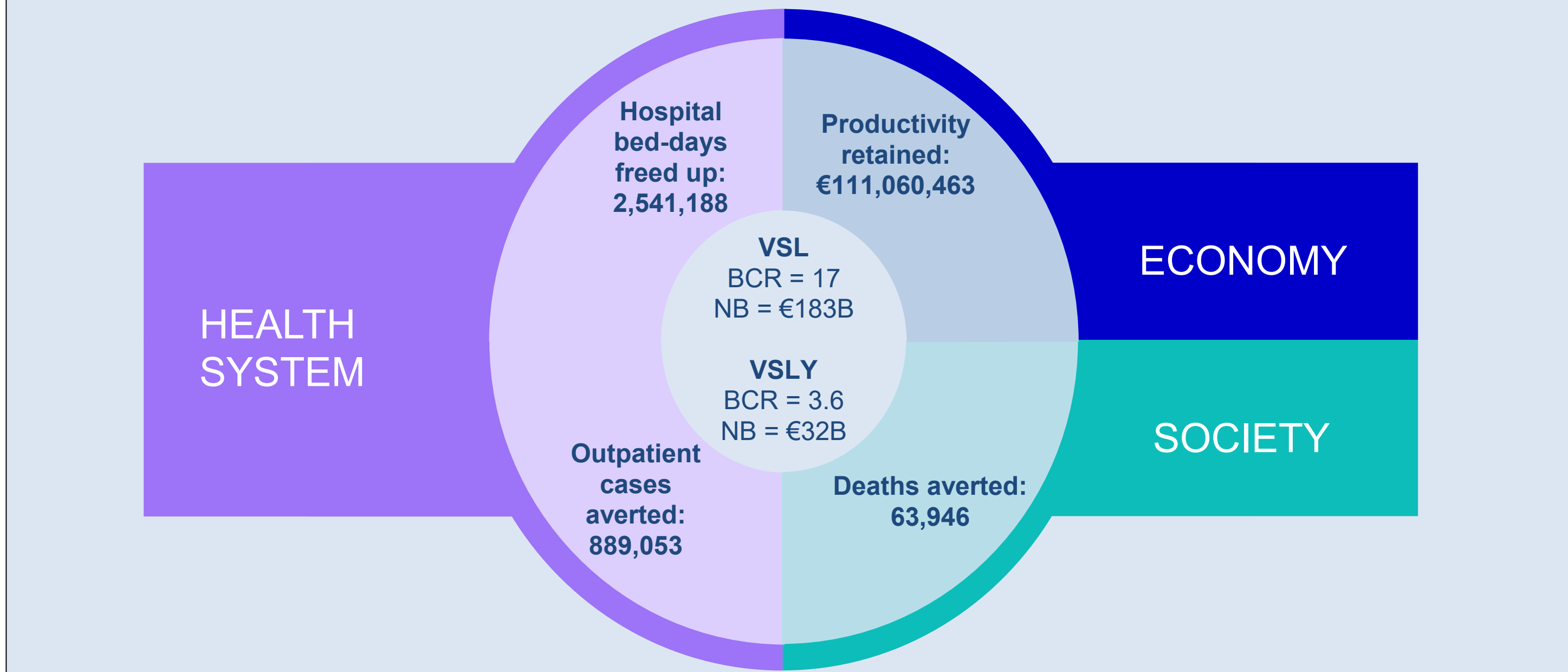


FIGURE 2: NBS AND BCRS BASED ON THE AGE- AND RISK-BASED RECOMMENDATIONS (VSL valuation only)

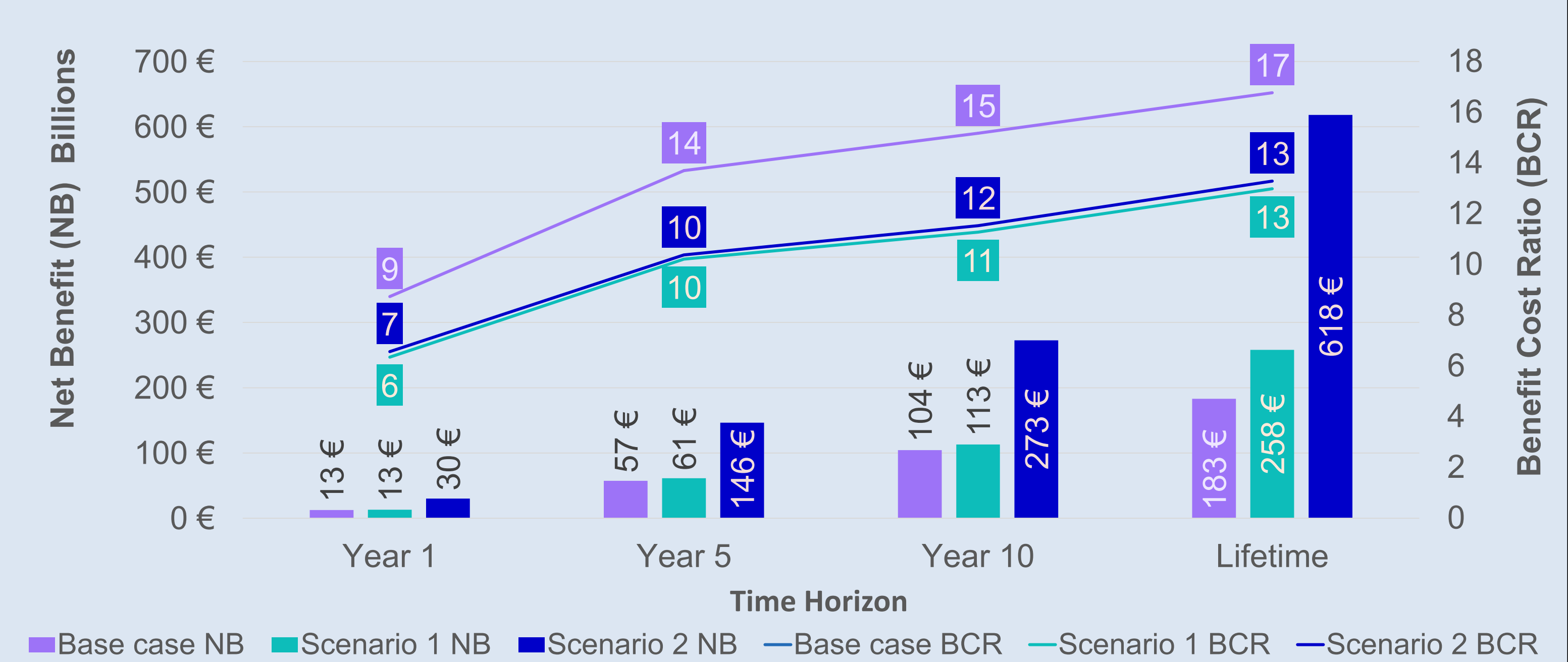
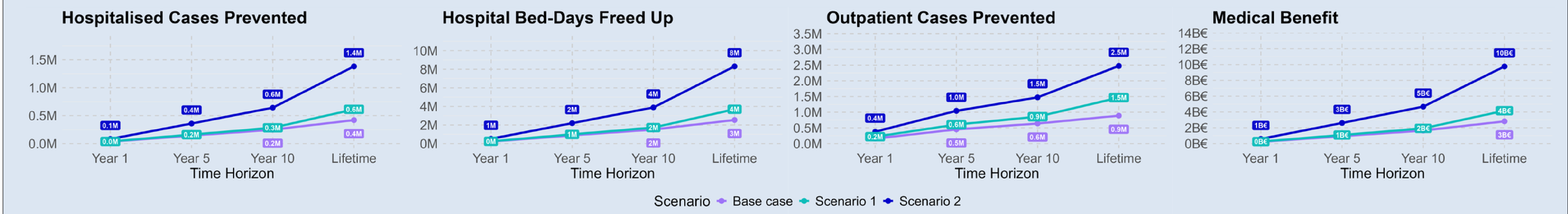


FIGURE 3: SUB-OUTCOMES PER SCENARIOS OVER TIME



CONCLUSION

- Current age-based adult respiratory immunisation programmes in France deliver €183 billion in societal value over the lifetime, corresponding to €17 generated for each €1 invested into the programmes. The results are robust when the value of mortality risk reduction is adjusted for the age of the targeted population.
- Implementing both age- and risk-based recommendations and coverage to aspirational targets could produce an additional €17 billion in the first year alone, growing up to additional €435 billion over the lifetime. This is also associated with a greater reduction in the healthcare system burden, averted work productivity loss and averted deaths.
- These results emphasize the importance of increasing uptake in eligible populations as this could help to capture significant unrealised value while alleviating pressure on the healthcare systems.
- This study provides evidence for sustaining the adult respiratory vaccine recommendation and funding and further improving uptake, as the programs generate substantial socioeconomic value to the healthcare system, economy and society.

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DISCLOSURES

This study was sponsored by Pfizer Inc.  
Thanks for helpful comments and/or assistance with the data collection: Chirila I., Kefalogianni R., and Dawson E.