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Evaluating The Public Health Impact of Adolescent Meningococcal B (MenB) Vaccination in France: A Modelling Approach

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Routine adolescent MenB vaccination in France would have a **positive public health impact**, epidemiological factors and implementation opportunities need to be considered.

Aims

To assess the **public health impact of routine MenB vaccination for adolescents** in France.

Methods

A dynamic transmission model¹ was adapted to the French epidemiological context to estimate the impact of different MenB vaccination strategies on IMD incidence and related deaths and QALY losses.

We assumed an **initial effectiveness of 33.5%** (assumed for adolescents after the first dose) and **83.5%** (complete schedule in adolescent).^{2,3} We assumed **exponential waning** with an **average duration of protection of 76.1 months** following each dose based on an extrapolation⁴ of real-world effectiveness data previously reported.^{3,5}

We compared a vaccination strategy including mandatory MenB vaccination in infants only (No adolescent vaccination) to a strategy which adds a 2-dose MenB vaccination series in adolescents at either 15 (Strategy A) or 14 years (Strategy B). A scenario with a **higher vaccine coverage (55%, Strategy C)** was also tested to account for improved uptake as adolescents are already involved in vaccination campaigns at schools.

Table 1: MenB vaccination strategies and coverage rates (%) assumptions used in this study

	No adolescent vaccination	Strategy A	Strategy B	Strategy C
3 months		95%		
5 months		95%		
13 months		90%		
14 years		40%	40%	55%
15 years	40%			

Results

Figure 1: Estimated numbers of MenB IMD cases over 100 years

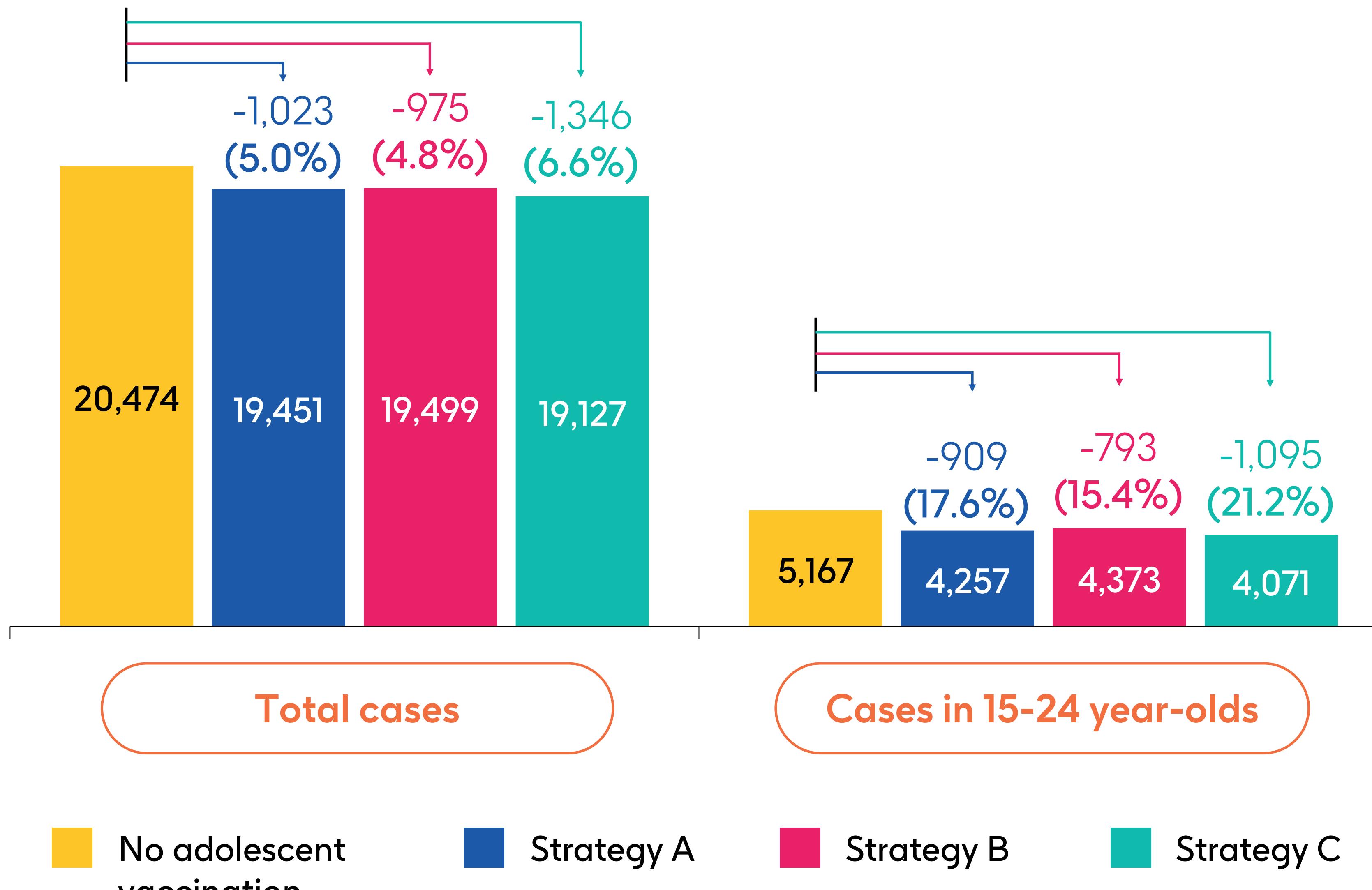
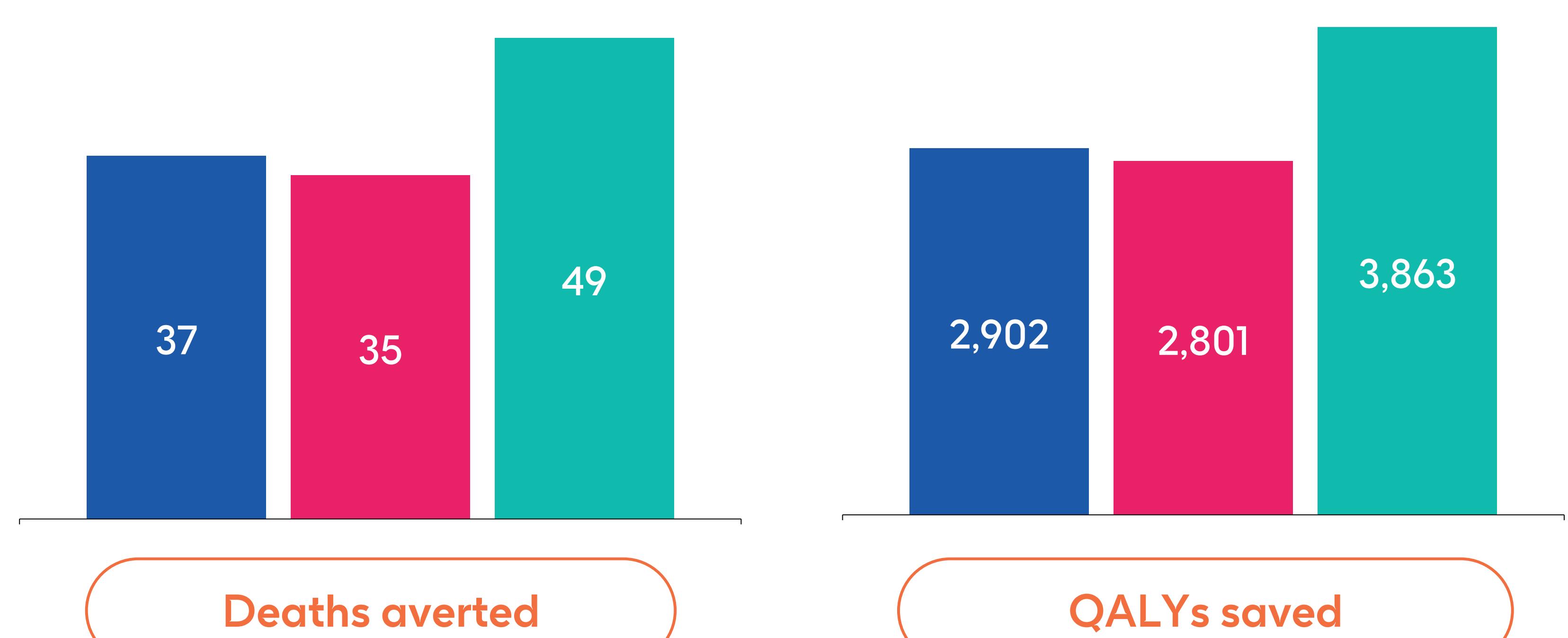


Figure 2: Estimated numbers of deaths averted and QALYs gained over 100 years compared to no MenB adolescent vaccination, in the overall population



A Quality-Adjusted Life Year (QALY) is a measure that combines the length of life and quality of life into a single value, reflecting the health benefits of an intervention in terms of years lived adjusted for the patient's health state.

Background

- Invasive meningococcal disease (IMD) is a relatively uncommon, but severe disease, with a high case fatality rate and important long-term sequelae.⁶
- IMD incidence is high in infants, with a second peak in adolescents and young adults (15-24 years).⁷
- In France, the majority of IMD cases is due to meningococcal serogroup B (MenB), with a recent increase in cases recorded among 15-24 years.⁸
- Vaccination against MenB is mandatory for infants in France, MenB vaccination for adolescents aged 15-24 may be offered and is reimbursed since April 2025.⁹

Conclusions



Based on current real-world evidence regarding vaccine effectiveness and duration of protection, introducing **routine MenB vaccination for adolescents** could notably **reduce the burden of IMD** in France.



Vaccination in schools **at 14 years** may increase coverage and **facilitate access**, potentially leading to **improved public health impact**.



As **IMD continues to threaten adolescents and older adults** in France, **epidemiological factors and implementation opportunities should be considered**.

Abbreviations

MenB: meningococcal serogroup B;
IMD: invasive meningococcal meningococcal serogroup B;
QALY: quality-adjusted life year

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