

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.



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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%	55%
15 years		40%		

Results

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

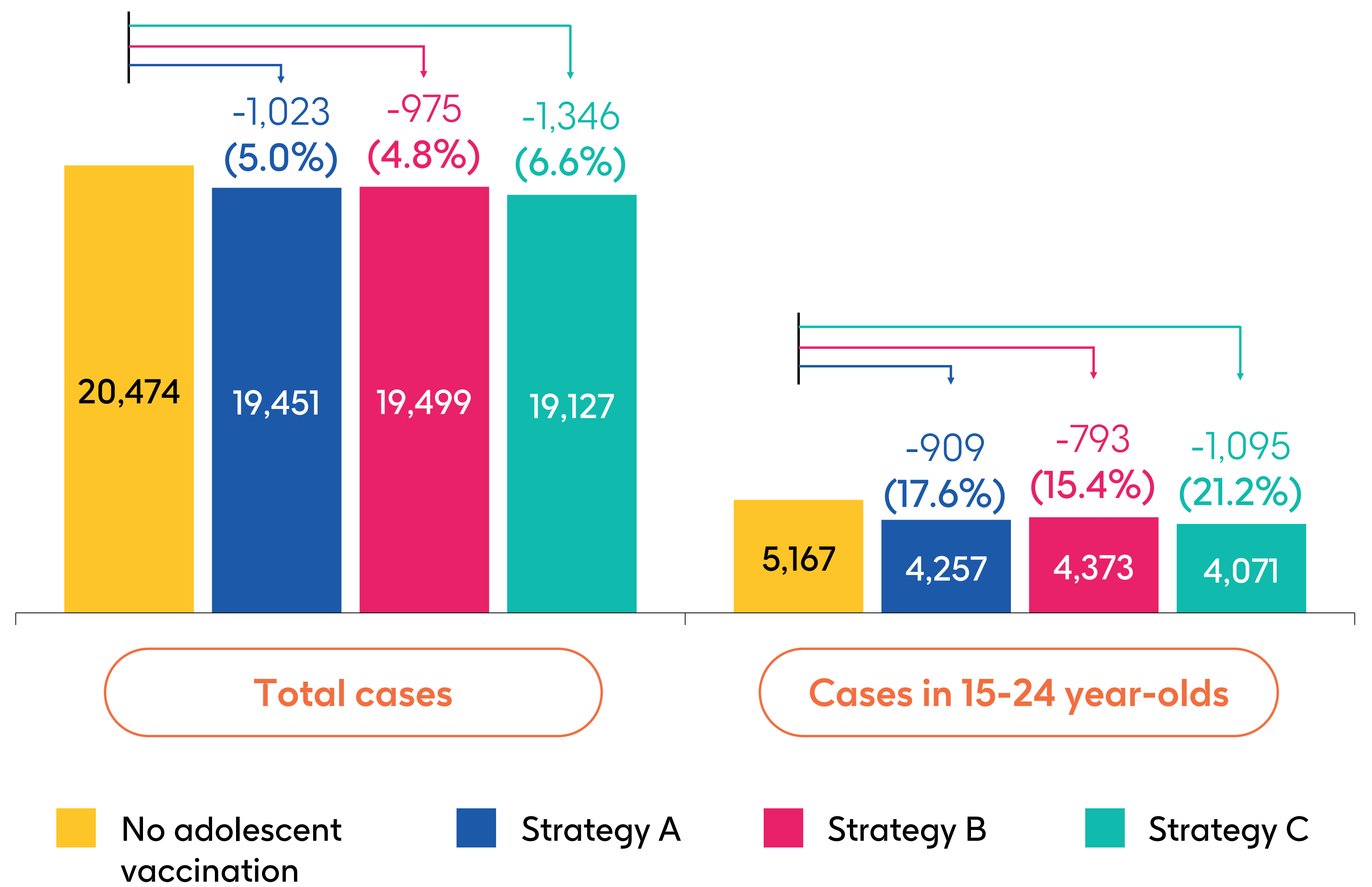
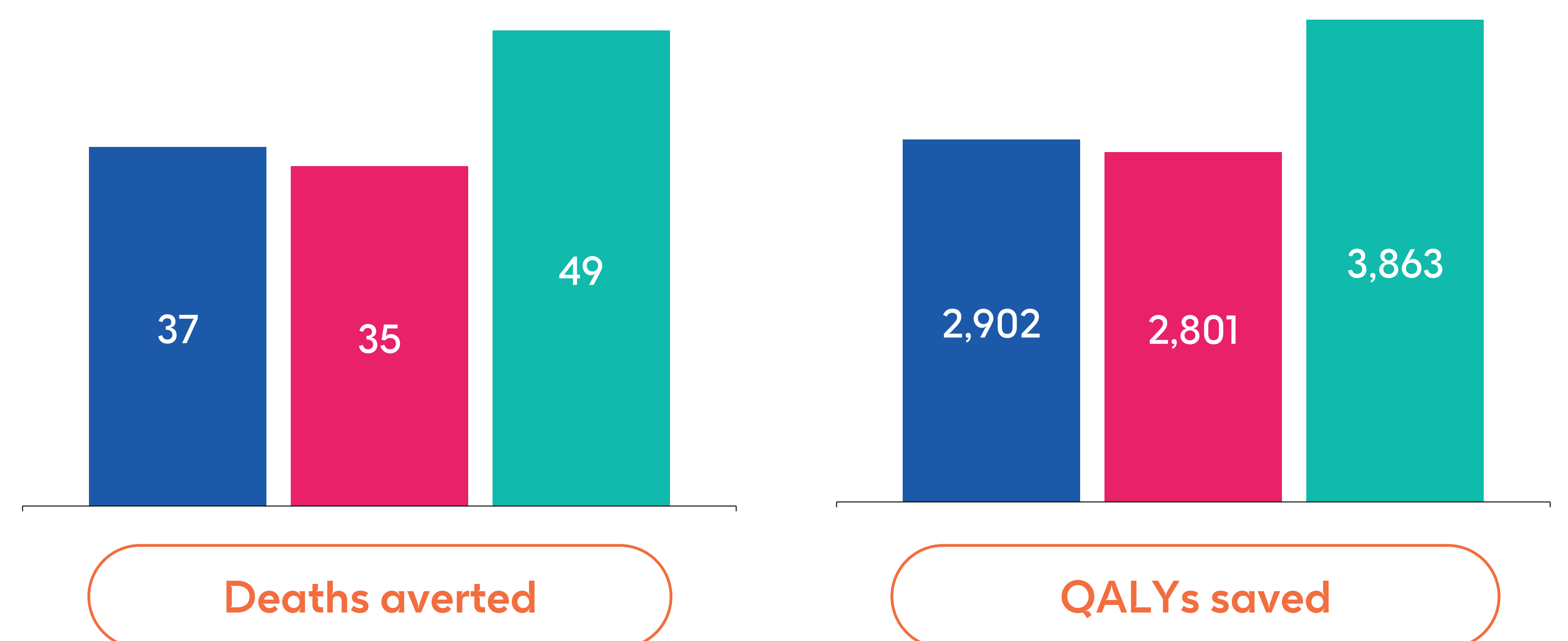


Figure 2: Estimated numbers of deaths averted and QALYs gained over 100 years compared to no MenB adolescent vaccination, in the overall population



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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