



Audio File

# Cost-Effectiveness of Meningococcal B Vaccination in the Netherlands

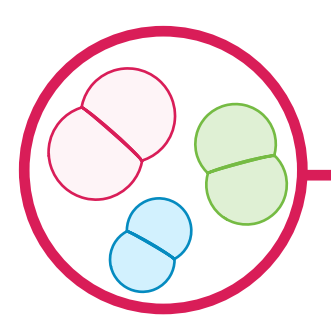


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## Background & Objectives



Invasive meningococcal disease (IMD) is a severe and unpredictable disease causing acute meningitis and sepsis which are associated with high mortality and long-term consequences.<sup>1</sup>

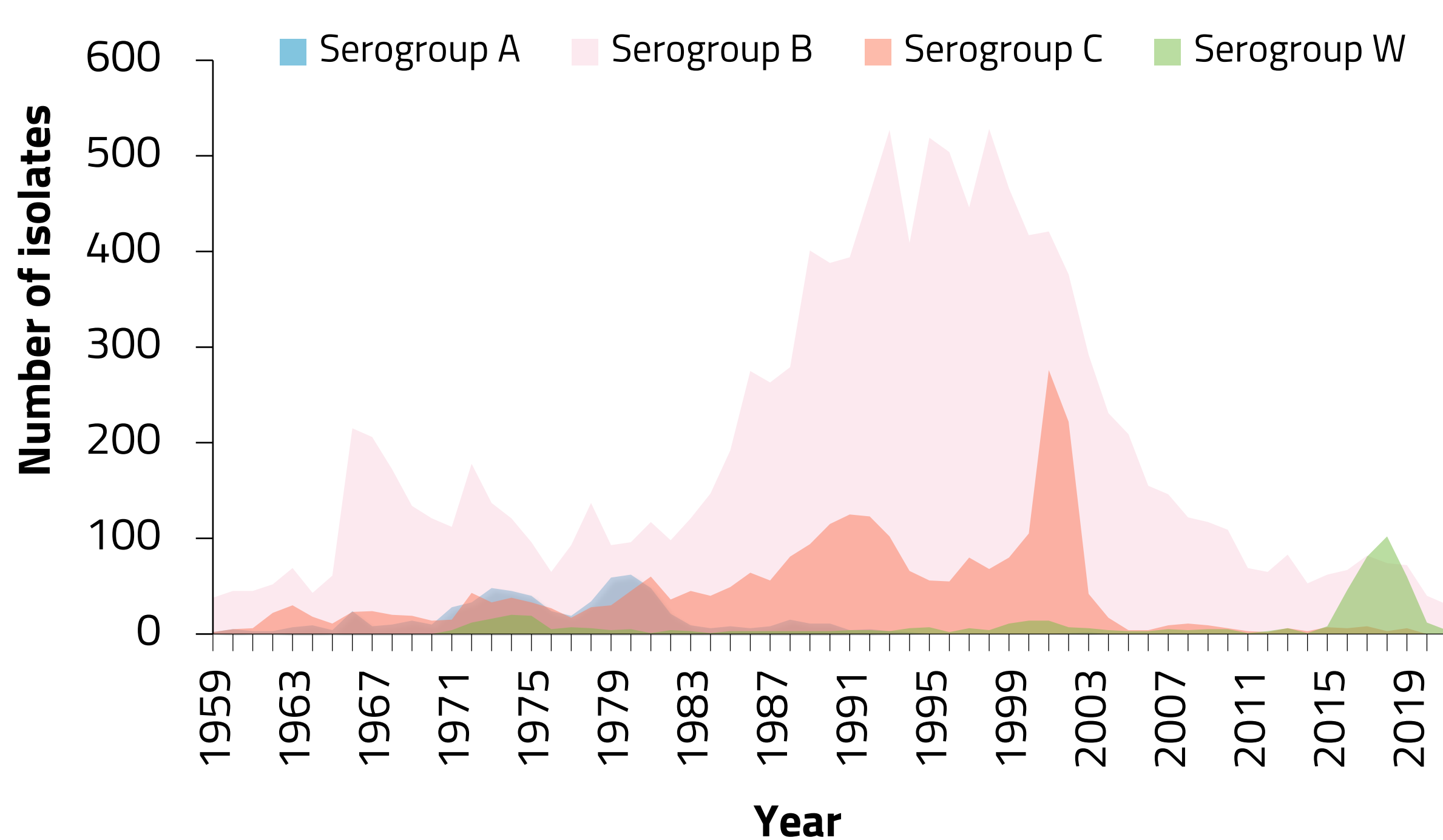


A national immunization program to prevent IMD caused by meningococcal serogroups (Men) A, C, W and Y has been introduced in the Netherlands in 2017.<sup>2</sup>



Currently, MenB is not included in the national immunization program in the Netherlands, partly due to assumed unfavorable cost-effectiveness.<sup>3</sup>

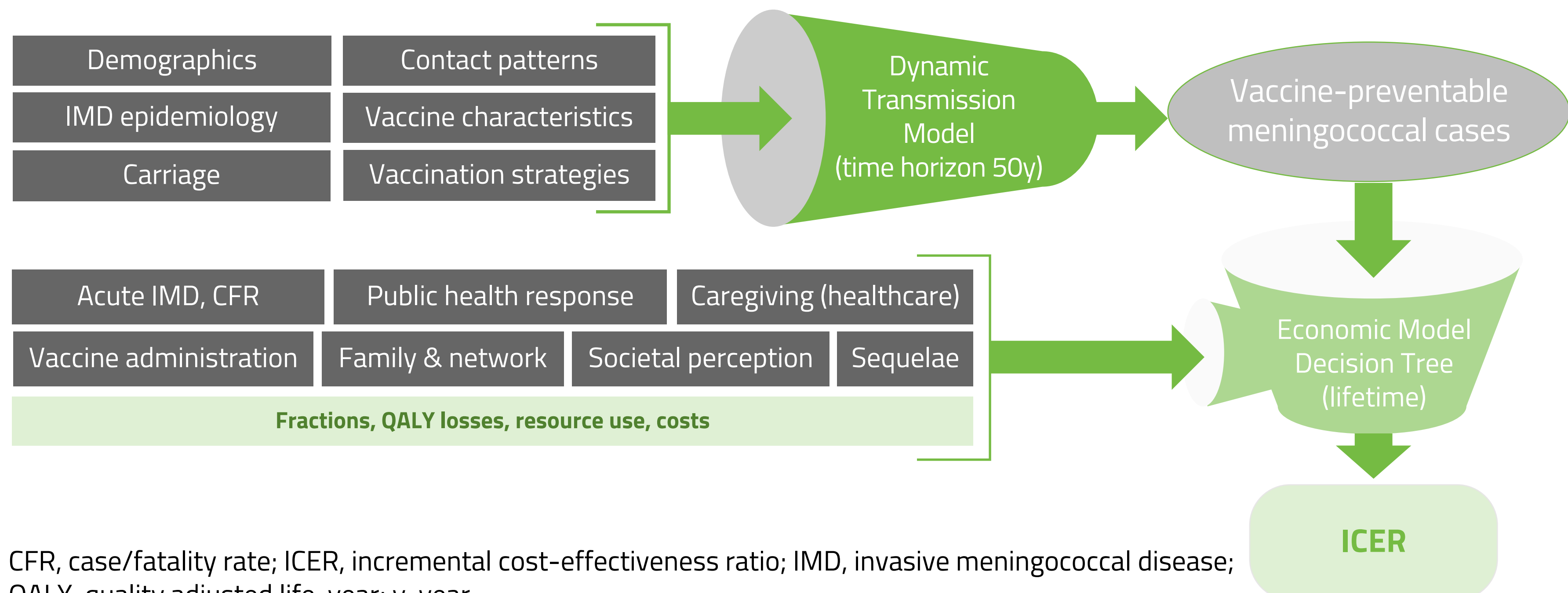
### IMD incidence in the Netherlands<sup>4</sup>



**Objectives:** To estimate the incremental cost-effectiveness ratio (ICER) of infant vaccination against MenB-IMD with the four-component meningococcal B vaccine (4CMenB), from a new analytical perspective using the Dynamic transmission-based Cost-Effectiveness (DyCE) model.

## Methods

### Overview of the DyCE model of 4CMenB infant vaccination<sup>5</sup>

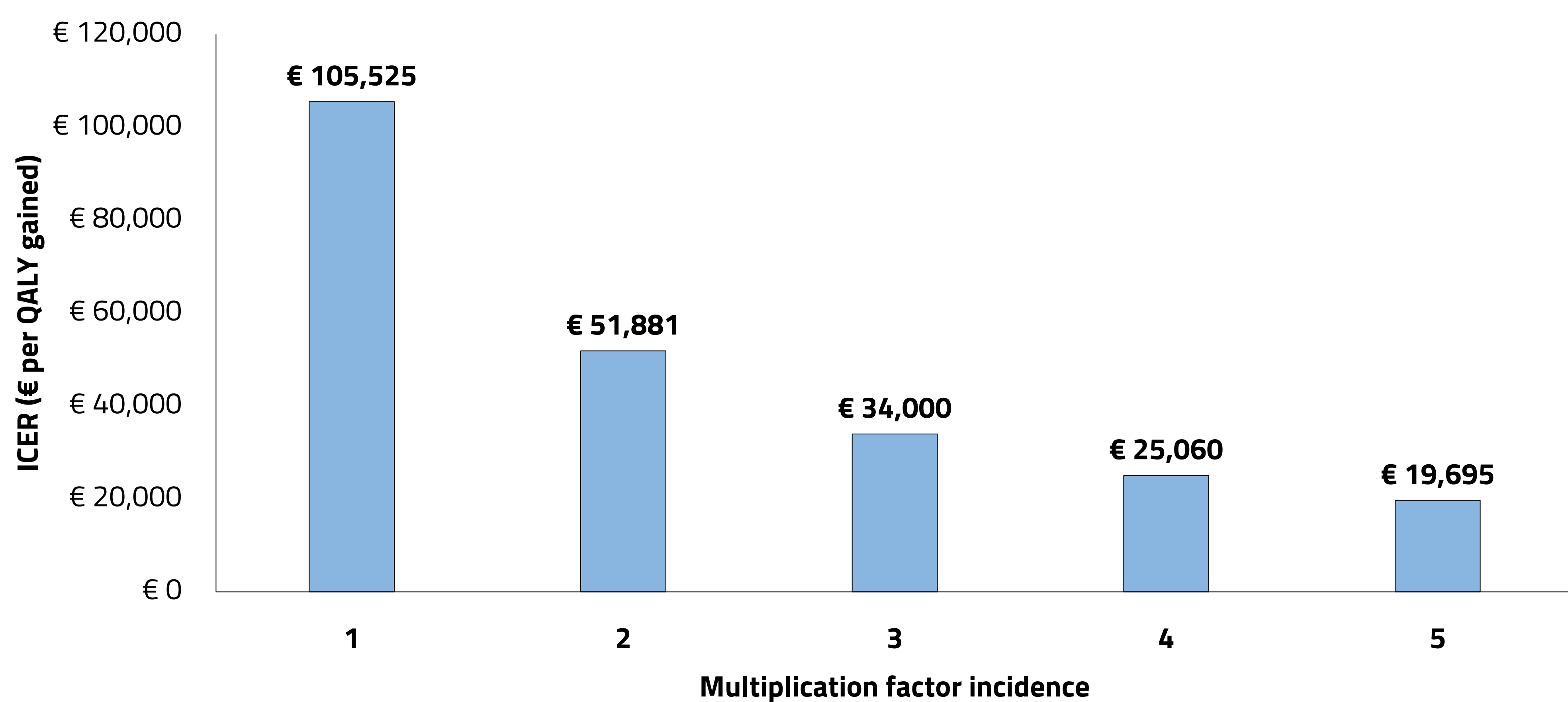


- Population model run over 50 years
- Incidence MenB 2010-2019
- List price 4CMenB: €78.50
- No carriage effect
- New (long-term) effectiveness and safety data from England, Portugal, and Italy.<sup>6, 7, 8</sup>
- More insight has been gained into the long-term burden and extended costs to patient and beyond of MenB IMD in the Netherlands<sup>9</sup>: A recent cost-of-illness study analyzed the economic burden of IMD, including acute infection and its associated sequelae (e.g., hearing loss, neurological disabilities, limb amputation, epilepsies, skin scarring, renal disease, blindness/severe visual impairment, and psychological impairments, mental health inclusion e.g. depression, anxiety, separation anxiety, attention deficit hyperactivity disorder [ADHD])
- Scenario analyses:
  - Mental health exclusion (depression, anxiety, separation anxiety, ADHD)
  - Number of dynamic transmission model (DTM) horizons: 1, 25, 100
  - Base-case incidence multiplied by 2, 3, 4 or 5: incidence rises to levels seen in 1990–1999 (×5) or 2000–2009 (×3)

## Results

Base case ICER: €105,525/QALY (around 80 cases per year).

4 out of the 5 incidence-scenarios assessed show an ICER lower than €80,000 per QALY gained



4CMenB, four-component meningococcal B vaccine; ICER, incremental cost-effectiveness ratio; IMD, invasive meningococcal disease; MenB, meningococcal serogroup B; QALY, quality adjusted life-year.

### Additional scenarios



Excluding mental health from base case:

€131,940/QALY



Number of cohorts (DTM):

1: €137,531/QALY

25: €129,525/QALY

50: €105,525/QALY

100: €80,185/QALY

## Conclusion

- In the base case with the current low incidence, the ICER was unfavorable. However, when the incidence would increase, the ICER became more favorable and potentially cost-effective against a willingness-to-pay threshold of €80,000 per QALY gained.
- It is important to assess the potential impact of an increasing incidence (or outbreak) of MenB IMD, like what happened in the past, especially with the recent COVID-19 counter measurements being lifted.

## References

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**Funding:** This research was funded by GlaxoSmithKline Biological SA (VEO-000211). This work was presented at the International Society for Pharmacoeconomics and Outcomes Research's Europe 2022 conference.