

# Economic evaluation of hepatitis B vaccination programme in Finland: An example of a country with low hepatitis B endemicity

## CONCLUSIONS

Due to small disease and economic burden, a low additional cost per vaccine dose is required for the infant hepatitis B vaccination programme in Finland. At present, sustaining targeted programme and antenatal screening are more efficient use of scarce health care resources. In addition, preventive efforts in countries with high hepatitis B disease burden should diminish the number of hepatitis B carriers immigrating to Finland and the related hepatitis B transmission.

## RESULTS

- The estimated disease burden in a birth cohort of 58,000 children comprised 41 acute cases of which 20% were symptomatic, four chronic cases, and three deaths related to hepatitis B.
- The corresponding discounted total health care costs and quality-adjusted life year (QALY) losses were €33,000 and 14.3, respectively.
- The incremental cost-effectiveness ratio (ICER, €/QALY gained) was €24,300–€37,600 with a 2–3 euros additional cost per vaccine dose.
- The results were sensitive to hepatitis B incidence, vaccine cost, and discount rate.



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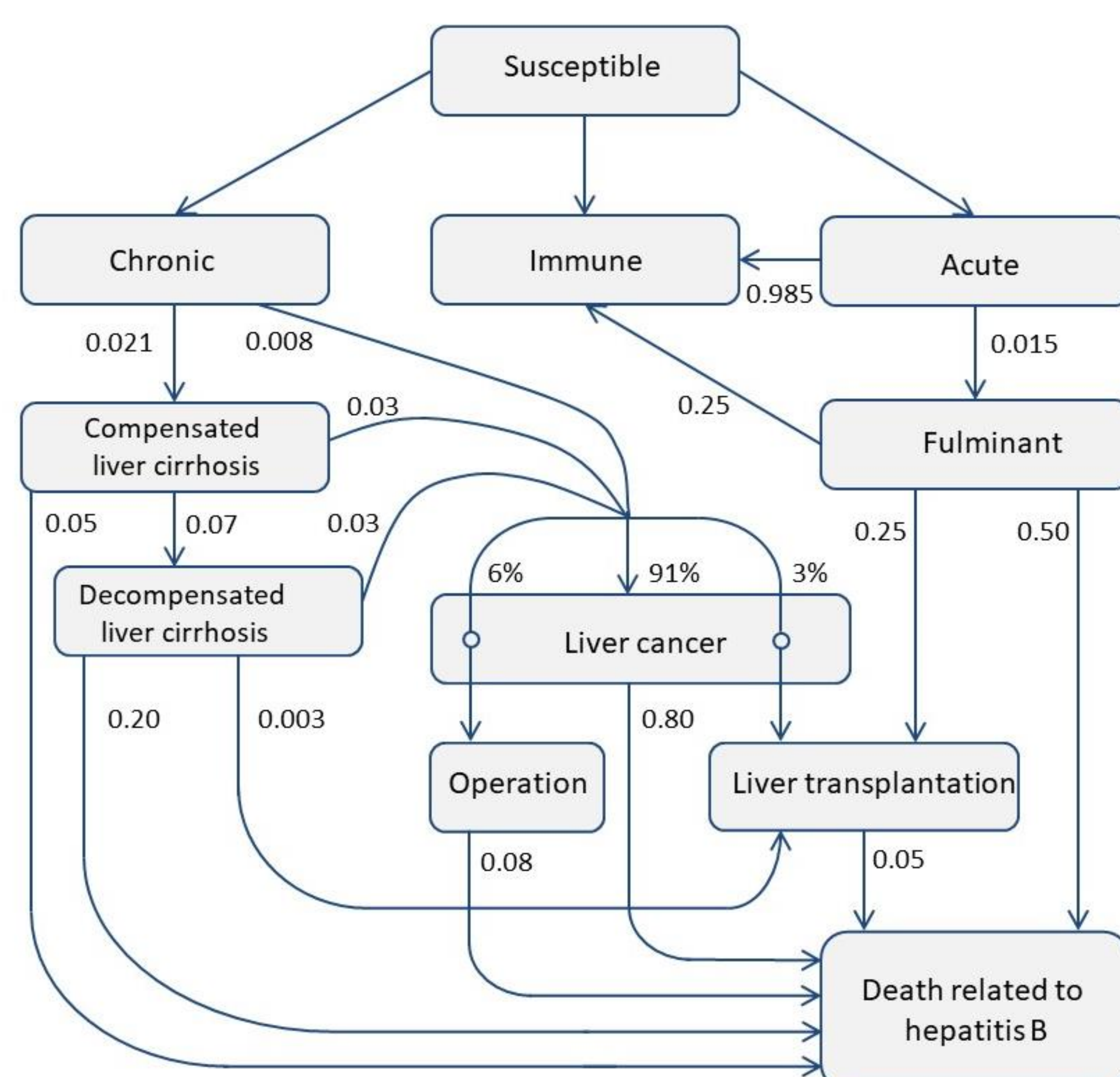


Figure 1. Markov model of hepatitis B progression and annual transition probabilities.

## METHODS

World Health Organisation (WHO) recommends hepatitis B vaccination into children's immunisation programmes irrespective of hepatitis B prevalence. We aimed to evaluate the cost-effectiveness of infant hepatitis B vaccination programme in Finland compared to the targeted programme.

We used a Markov model (Figure 1) to compare health care costs and health effects (QALYs) of infant hepatitis B vaccination programme to the targeted programme.

- Hepatitis B incidence was adjusted for acute asymptomatic infections<sup>1,2,3</sup>
- Transition probabilities were based on literature and when possible, on national register data<sup>3,4</sup>
- Health care costs were primarily based on a previously published study<sup>4</sup>

## References

- <sup>1</sup>Edmunds et al., 1996, "Vaccination against hepatitis B virus in highly endemic areas: waning vaccine-induced immunity and the need for booster doses", *Trans R Soc Trop Med Hyg*, 90(4): 436-440.  
<sup>2</sup>Hahne et al., 2004, "Incidence and routes of transmission of hepatitis B virus in England and Wales, 1995-2000: implications for immunisation policy", *J Clin Virol*, 29 (4): 211-220.  
<sup>3</sup>Karvonen et al., 2017, "Epidemiology of hepatitis B infection in Finland: Implications for immunisation policy", *Vaccine*, 35(3):412-418.  
<sup>4</sup>Nieminen et al., 2022, "Health care costs related to hepatitis B in Finland are mostly due to chronic infections: a register-based study", *Infect. Dis.(Lond)*, 54(10): 722-730.

