

Early Estimates of the Public Health Impact of Norovirus Vaccination P4310 on Severe Outcomes for Older Adults in Germany

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BACKGROUND

- Norovirus is a leading cause of acute gastroenteritis (AGE) globally, with the greatest disease burden among older adults, those with underlying medical conditions, and young children.
- In Germany, norovirus infections are included in the mandatory reporting system,¹ though testing rates are unknown and underreporting is probable.²
- A substantial clinical and economic impact has been described for adults following development of norovirus AGE.^{3,4}
- No vaccines are currently available for adults providing protection against norovirus AGE, but vaccine candidates are in development.

OBJECTIVES

- We assessed the potential public health impact in Germany of norovirus vaccination in adults aged ≥60 years on severe health outcomes.

METHODS

Model structure and inputs

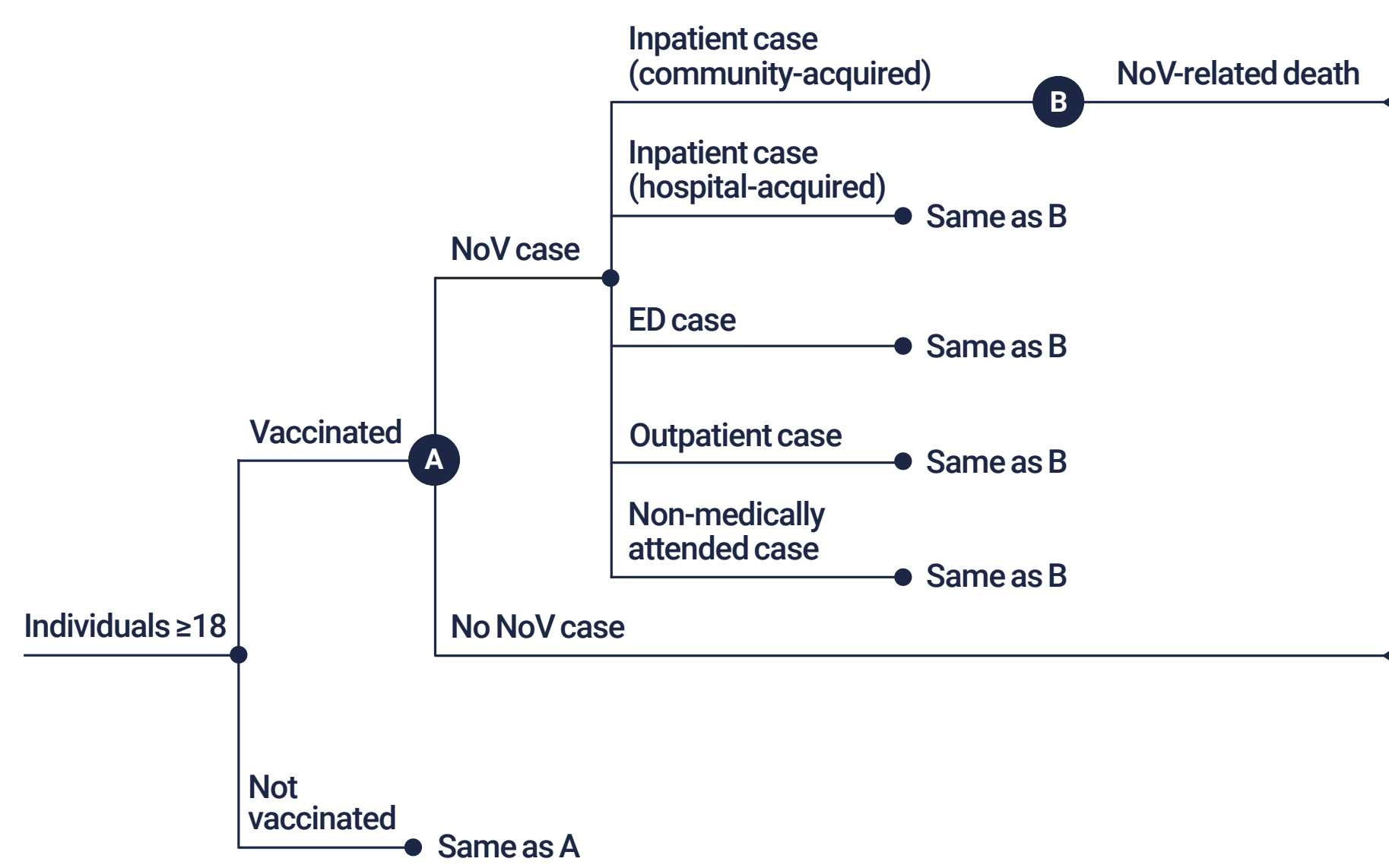
- A static health-outcomes model (Figure 1) with a decision-tree structure and a 1-year time horizon was developed for a hypothetical vaccine.
- The model compared hypothetical **vaccination** (assuming 65% efficacy against norovirus AGE of any severity) versus **no vaccination** in a German population aged ≥60 years (N = 26,090,900 adults; 64% aged 60-74 and 36% aged ≥75 years).⁵
- Age-stratified laboratory-confirmed incidence rates of norovirus AGE ranged from 59.5/100,000 (ages 60-74 years) to 225.3/100,000 (ages ≥75 years).
- Hospitalization rates for community-acquired norovirus infections ranged from 8% to 19%.^{3,4}
- Mortality rates for norovirus infections in older adults ranged from 0.1 to 1.1 per 100,000 population.³

Model outcomes

- Health outcomes calculated included community-acquired norovirus AGE hospitalizations and norovirus-associated deaths with and without vaccination.
- Number needed to vaccinate (NNV) to prevent one community-acquired norovirus AGE hospitalization was also calculated.
- Deterministic (one-way) sensitivity analyses were conducted using an incidence underreporting factor reported by Bernard et al. ranging from 1.7 to 3.2, as measured in prior German norovirus seasons.³

METHODS (continued)

Figure 1. Model structure

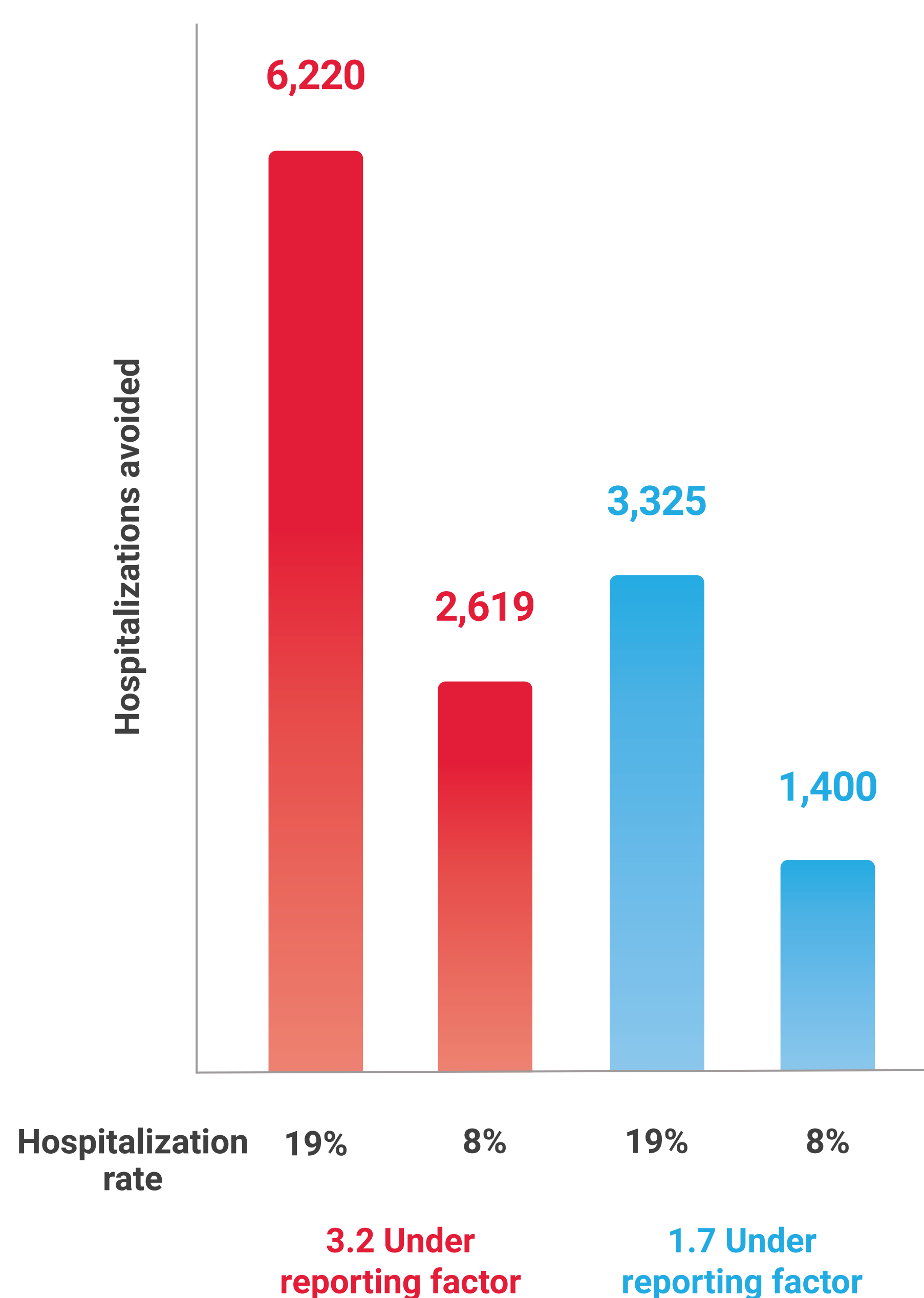


ED: Emergency department NoV: Norovirus AGE case

RESULTS

Norovirus vaccination was estimated to reduce hospital cases and deaths from community-acquired AGE in Germany

Figure 2. Community-acquired norovirus AGE hospitalizations prevented with vaccination



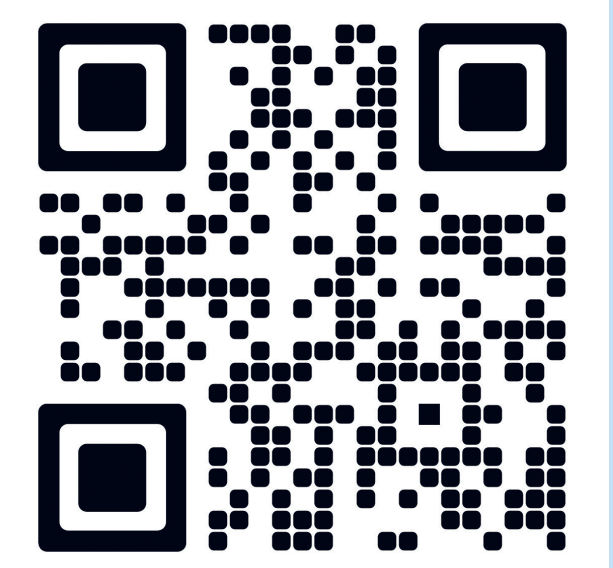
- This preliminary model of public health benefit demonstrates that in Germany, among adults aged ≥60 years, norovirus vaccination with 50% coverage may prevent 1,400-6,220 community-acquired norovirus AGE hospitalizations per year (Figure 2).
- The NNV was between 4,194 and 18,639 to prevent one community-acquired hospitalization.
- Additionally, 8 to 92 norovirus-associated deaths per year could be avoided.

CONCLUSIONS

- Norovirus vaccination may provide significant public health benefits for older adults in Germany.
- Uncertainty and lack of current epidemiological inputs pose challenges to accurately estimate a contemporary value of vaccination.
- Public health impact estimates should be updated with improved present-day surveillance and current epidemiological studies using national claims and indirect estimation methods, along with vaccine clinical data from randomized controlled trials.

PLAIN LANGUAGE SUMMARY

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Disclosures

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