Vaccine 37 (2019) 7534

Contents lists available at ScienceDirect

Vaccine

journal homepage: www.elsevier.com/locate/vaccine

Reply to Letter to the Editor

Reply to letter: Retrospective cost-effectiveness of the 23-valent pneumococcal polysaccharide vaccination program in Australia

We agree with Van Buynder and Cripps [1] that the efficacy of 23-valent pneumococcal polysaccharide vaccine (PPV23) against non-invasive pneumococcal pneumonia in older adults is a key issue and highlighted this in our article on the cost-effectiveness of the PPV23 program in Australia [2].

There is widespread agreement in the literature that PPV23 provides protection against invasive pneumococcal disease, however the potential for protection against (non-invasive) pneumococcal pneumonia in older adults and the magnitude of any protection against this outcome is debated. The uncertainty is reflected in the differing results from meta-analyses dependent on study inclusion and exclusion [3,4].

Some studies have found PPV23 offers protection against pneumococcal pneumonia in older adults and we cited most of those Van Buynder and Cripps reference. It is for this reason that we explored how the cost-effectiveness of PPV23 changed when protection against vaccine-type pneumococcal pneumonia varied over the range of 0–40% and discussed how this could potentially lead (along with a low vaccine price) to the PPV23 program being cost-effective at the threshold applied [2].

We believe that the higher end of protection against pneumococcal pneumonia of any serotype cited in their letter of 64% (95%CI: 35–80%) [3] is unlikely to be plausible for older Australians. As a significant proportion of all pneumococcal pneumonia is likely to be due to non-PPV23 serotypes in older Australians, to achieve an efficacy of 64% against pneumococcal pneumonia of any serotype, the efficacy against PPV23 serotypes would need to approach 100%.

If PPV23 provides protection against pneumococcal pneumonia in older adults, it is likely that the *vaccine-type* efficacy would be below that offered by 13-valent pneumococcal conjugate vaccine (PCV13), which elicits a stronger immune response in adults but covers fewer serotypes [5]. A large randomised trial of PCV13 in community dwelling older adults found a modified intention-to-treat efficacy of 41.1% (95%CI: 12.7–60.7%) against non-invasive vaccine-type pneumococcal pneumonia [6].

Declaration of Competing Interest

The authors declare the following financial interests/personal relationships which may be considered as potential competing interests: Chen C, Wood J, McIntyre P and Newall AT have no potential conflicts to declare.

The University of Antwerp received compensation for P Beutels' attendance at two meetings of a Belgian advisory board on economic evaluations of vaccines convened by Pfizer in 2019. The clinical trials centre at the University of Antwerp conducts numerous vaccine trials and epidemiological studies for vaccine developers and other stakeholders in global public health, including in the period 2016–2019 a Belgian pneumococcal carriage study sponsored by Pfizer. A part-time university chair (occupied by Niel Hens) in the Centre for Health Economics Research and Modelling Infectious Diseases at the University of Antwerp was partially supported in 2009–2018 by a recurring gift from Pfizer, and this chair has also been partially supported by GSK in 2017.

References

[1] Van Buynder P et al. Retrospective cost-effectiveness of the 23-valent pneumococcal polysaccharide vaccination program in Australia. Vaccine 2019;37(24):3141.
[2] Chen C et al. Retrospective cost-effectiveness of the 23-valent pneumococcal polysaccharide vaccination program in Australia. Vaccine 2018;36(42):6307–13.
[3] Falkenhorst G et al. Effectiveness of the 23-valent pneumococcal polysaccharide vaccine (ppv23) against pneumococcal disease in the elderly: systematic review and meta-analysis. PLoS ONE 2017;12(1).
[4] Schiffner-Rohe J et al. Efficacy of PPV23 in preventing pneumococcal pneumonia in adults at increased risk - A systematic review and meta-analysis. PLoS ONE 2016;11(1).
[5] Vadlamudi NK et al. Immunogenicity and safety of the 13-valent pneumococcal conjugate vaccine compared to 23-valent pneumococcal polysaccharide in immunocompetent adults: A systematic review and meta-analysis. Vaccine 2019;37(8):1021–9.
[6] Bonten MJM et al. Polysaccharide conjugate vaccine against pneumococcal pneumonia in adults. N Engl J Med 2015;372(12):1114–25.

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[☆] DOI of original article: https://doi.org/10.1016/j.vaccine.2019.03.079

https://doi.org/10.1016/j.vaccine.2019.09.108