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Abstract (oral session)

Cost-effectiveness of adult vaccination with 13-valent pneumococcal conjugate vaccine in the United Kingdom

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Objectives: Pneumococcal disease (PD) burden remains high among the elderly and, in particular, among those considered to be at high-risk of pneumococcal infection. It is anticipated that indirect protection from paediatric vaccination with Pneumococcal Conjugate Vaccine (PCV13) will reduce the burden of PD in adults over time, however at-risk groups aged ≥ 18 yrs and individuals aged ≥ 65 yrs who are at high risk of PD will benefit from direct protection. The study objective was to assess the cost-effectiveness of PCV13 versus the 23-valent pneumococcal polysaccharide vaccine (PPSV23) adult vaccination in the United Kingdom (UK). **Methods:** A dynamic cohort model was developed depicting the lifetime risks and associated costs of PD. The model used time-dependent serotype specific PD incidence rates to account for the indirect effects from infant vaccination with PCV13 and to estimate only the incremental benefits of adult vaccination. Disease cases were estimated using 2009/10 UK incidence, vaccine effectiveness, and indirect effects. Vaccine effectiveness for PCV13 was based on data for PCV7 in children adjusted for age and risk profile, assuming similar levels of effectiveness against the additional 6 serotypes. PPSV23 effectiveness was based on an analysis by the Health Protection Agency. The analysis uses a UK NHS payer perspective, therefore only direct costs and outcomes were included. Health outcomes were measured in terms of quality-adjusted life year (QALY). Cost and outcomes were discounted at a 3.5% annual rate. Assumptions and parameter uncertainty were tested in sensitivity analyses. **Results:** It is estimated that adult vaccination with PCV13 instead of PPSV23 is cost-effective at the current NHS list price. Despite uncertainty around individual parameters, sensitivity analyses suggest that results were robust and PCV13 adult vaccination would be cost-effective due to the high risk of pneumococcal infection among these groups. **Conclusion:** Under reasonable assumptions, direct protection from adult vaccination with PCV13 is expected to be cost-effective even when considering the potential herd impact from PCV13 use in infants. Prompt introduction of PCV13 adult vaccination is likely to be a more efficient use of NHS resources as direct adult vaccination will reduce the remaining PD burden more rapidly.

Incremental cost per QALY gained by age and risk profile

Age group	Risk profile		
	All individuals	Immunocompetent	Immunocompromised
18-64	-	£17,680	£3,847
65+	£10,689	£6,682	£2,594