Methods

The aim of this analysis is to evaluate the cost-effectiveness of vaccinating adults in different age groups (over and under 65 years) and risk groups (i.e. moderate risk: immunocompetent with ≥1 chronic disease and high risk: immunocompromising conditions) with the 13-valent pneumococcal conjugate vaccine (PCV13) in comparison to the 23-valent pneumococcal polysaccharide vaccine (PPV23) and no vaccination from a health care and a societal perspective.

A Markov model, previously published, was adapted to the Swedish setting in order to estimate the pneumococcal disease cost-effectiveness of PCV13 with a lifetime horizon (3% annual discount rate). Comparators were PPV23 or no vaccination.

Vaccine efficacy and epidemiological data were based on the CAPITA study; national registries and literature review. PPV23 was assumed not to impact pneumonia based on published meta-analyses.

Direct medical costs (i.e. inpatient care for different types of pneumonia, outpatient care and indirect costs (i.e. productivity gains and losses) were extracted from national databases and published data.

Incremental cost-effectiveness ratios (ICER) of PCV13 vaccination in different age- and risk-groups for pneumococcal disease were evaluated and expressed as cost per quality-adjusted life-years (QALYs).

Results

Vaccinating with PCV13 compared to PPV23 or no vaccination yields different results for different risk groups and age groups.

Adults ≥65 years with high risk conditions yielded an ICER between dominant (cost saving) to 23 500 USD depending on comparator and perspective. Table 1.

Adults ≥65 years and older who are at moderate risk yielded an ICER of 23 500 to 35 250 USD in comparison with no vaccination and from dominant to 23 500 USD compared to PPV23. Table 1.

For the high risk group ≥65 years, the ICER varies between 7 050 to 23 500 USD depending on the perspective and comparator. Table 1.

There are diverse direct and indirect costs associated with different forms of pneumonia for inpatient and outpatient care as well as diverse productivity gains or losses for different age groups. Table 2.

Conclusions

PCV13 vaccination is cost-effective in the Swedish adult population for all ages with a high risk condition. For ≥65 years, PCV13 is also cost-effective for adults with a moderate risk condition.

5. Statistics Sweden, (Statistikdatabasen) (http://www.scb.se/sv_/Hitta-statistik/Statistikdatabasen) 2013