presented model provides an opportunity to simulate burden in specific age bands, population burden, change in burden due to vaccination, and the seasonal/long-term cost-effectiveness of vaccination with/without accounting for indirect protection effects. This study was sponsored by MedImmune.

**COMPARISON OF DIFFERENT STATIC AND DYNAMIC SIMULATION TECHNIQUES FOR THE INFLUENCE OF CHILDREN PNEUMOCOCCAL VACCINATION**

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OBJECTIVES: Estimating the possibility of preventing pneumococcal illnesses by vaccination of infants with the 7-valent serum is realized with decision tree based models as “State of the Art”. A new network of models introducing the possibility of 1) Comparing and validating the different approaches in a qualitative and quantitative way with each other, and 2) improving the capacity of simulation with dynamical behavior, structural insights and extended sensitivity analysis. METHODS: Based on a Markovian-Model from literature [1] the system was re-implemented and validated with the given data set. Starting with this model, results for Austrian data were computed. After this an ODE was implemented as a “transponder” model, validated with the Markovian-Model and extended by dynamical behavior. In parallel an Agent Based model was implemented, validated with the transponder model and extended by individual agent behavior to simulate herd immunity and serotype replacement. RESULTS: Models can be adapted comfortably to additional data or new structural information; the approach is complex due to the fact that dynamic behavior can be represented and still flexible for adapting to different scenarios; the model has modular structure, as population dynamics, illness and economical effects are modeled in different modules, which can be exchanged if necessary; and outcomes are comparable to each other in a qualitative and quantitative way. CONCLUSIONS: Results in the final version of the agent based simulation vary from the starting model significant. The reasons for the changes are described and can be followed step by step as all models are White-Box-Models and therefore can be re-simulated with given data. The Agent Based Model identified as more realistic simulation of real behavior. Reference: [1] Mcintosh, et al: The cost-burden of paediatric pneumococcal disease in the UK and the potential cost-effectiveness of prevention using 7-valent pneumococcal conjugate vaccine.

**HOW SHOULD HEALTH GAINS OF VACCINATION STRATEGIES BE DISCOUNTED?**

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OBJECTIVES: Recently the Dutch government started immunizing Dutch girls with the human papillomavirus (HPV)-vaccine. Implementation of HPV-vaccination was controversial because different health-economic studies have estimated that the incremental cost-effectiveness ratios (ICER) of HPV-vaccination were just below or above the informal Dutch cost-effectiveness threshold. In the Netherlands, there are no differences in pharmacoeconomic guidelines and acceptable ICERs for vaccines and pharmacotherapies. It has recently been proposed that vaccines might warrant a different approach in estimating, interpreting and valuing the ICER. One of the aspects considered relates to the discount rate. In this study, we estimated the impact of different discount rates and approaches for discounting the health benefits of HPV-vaccination. METHODS: A previously developed HPV Markov model was used to estimate the impact of discounting on the ICER of HPV-vaccination with the discount rate for health benefits ranging from 4% to 44%. Besides the discount rate, the impact of two different discounting methods was estimated. The first method has been specifically developed for infectious diseases, and proposes that health gains should be discounted from the moment of risk reduction (averted HPV infection). The second method uses proportional discounting, which implies that the discount rate decreases over time. RESULTS: When we estimated the ICER of HPV-vaccination according to the Dutch guidelines, we found an ICER of €18,400/QALY. Ranging the discount rate from 4% to 44% resulted in an estimated ICER of €680 and €84,260 per QALY, respectively. Applying both alternative models resulted in ICERs of €12,800 and €8,960 per QALY, respectively. CONCLUSIONS: As expected, the exact discount rate and the underlying model for discounting have a considerable impact on the ICER of HPV-vaccination. The use of different discounting methodologies for vaccination, in comparison with therapeutic interventions, might provide a more realistic estimation of future health benefits for vaccination strategies and result in more favorable ICER values.

**INDIRECT SOCIAL COST OF MULTIPLE SCLEROSIS: RESULTS FROM A REAL-WORLD OBSERVATIONAL STUDY**

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OBJECTIVES: To assess work productivity loss among multiple sclerosis (MS) patients and the resulting indirect social cost due to MS from a real-world observational study. METHODS: ROBUST is a 12-month, US prospective, observational, open-label, single-arm, multi-center outcomes study of Interferon β-1b given every other day for relapsing forms of MS. For this analysis, baseline data from the Work Productivity and Activity Impairment questionnaire specific for MS (WPAI) were used. Productivity outcomes including absenteeism (work time missed), presenteeism (reduced-on-the-job effectiveness) and overall work productivity loss were calculated from WPAI. Indirect social cost was estimated by modeling US national average wage