INCORPORATING OF HERD IMMUNITY INTO PHARMAECOENOMIC EVALUATION OF PNEUMOCOCCAL CONJUGATE VACCINE PnC-7

Claes C1, Reinert RR2, Schulenburg JM1
1University of Hanover, Hannover, Germany; 2Institute for Medical Microbiology, Aachen, Germany

OBJECTIVE: A general vaccination of newborns with PnC-7 reduces pneumococcal diseases and also the rate of pneumococcal diseases in unvaccinated adults (herd immunity). Usually cohort of patients followed subsequent cycles in a Markov model. In this study, age and class were computed cross sectionally. The objective of this study was to evaluate the annual health outcomes and cost-effectiveness of a general vaccination with PnC-7 in a hypothetical steady state German cohort across all age groups with base year 2003 focusing health care payer’s perspective. METHODS: The efficacies of PnC-7 and herd immunity were adjusted to serotype distribution according to two German panels. The model included incidences of pneumococcal diseases, fatality rates, rate of long-term sequelae, age specific German population structure, 3 + 1 application of PnC-7, and health care expenditures for treatment of pneumococcal diseases. Critical key data were varied in a sensitivity analysis. RESULTS: A vaccination rate PnC-7 of 68% is able to avoid 4256 invasive pneumococcal diseases, 57,727 pneumococcal pneumonias, 274,332 cases of otitis media, 99 longterm sequelae and 2257 deaths resulting in 34,237 life years gained in Germany every year. From health care payer’s view the cost savings outweighed the vaccination administration with factor 1.23 and costs of a life-year-saved are $878. The one-way sensitivity analysis showed the estimations were sensitive to reduction in incidence of otitis media and health care costs, but the vaccination with PnC-7 remained cost saving. On the other hand, the incorporation of an ageing German population, 2 + 1 application of PnC-7, herd immunity without serotype adjustments or non-discounting of life year gained resulted in conservative cost-effectiveness estimations. CONCLUSIONS: From the German health care payer view, a general vaccination with conjugate vaccine PnC-7 is cost saving.

THE COST-EFFECTIVENESS OF EXPANDING NEWBORN SCREENING FOR INHERITED METABOLIC DISORDERS USING TANDEM MASS SPECTROMETRY

Cipriano LE, Rupar CA, Zoric GS
University of Western Ontario, London, ON, Canada

OBJECTIVES: Currently, newborns in Ontario, Canada, are screened for phenylketonuria (PKU) using the Guthrie method. Tandem mass spectrometry (MS/MS) can allow several other metabolic diseases to be screened for at birth. We estimated the costs, health benefits, and cost-effectiveness of using MS/MS to expand the newborn screening program in Ontario to include 20 additional metabolic diseases. METHODS: We constructed a decision-analytic model to estimate the incremental costs and life years of survival gained associated with screening by MS/MS versus the status quo (either not screening or screening with a different technology). Disease prevalence, test characteristics, treatment effectiveness, disease progression rates, and mortality were estimated from secondary sources and expert opinion. Costs were estimated primarily from the London Health Sciences Center Case Costing Initiative, the Ontario Health Insurance Plan Schedule of Benefits, and the Ontario Drug Benefits Plan formulary. Costs and health benefits were estimated for a cohort of babies born in Ontario in one year. RESULTS: Using MS/MS to screen for PKU has an incremental cost of $2,800,000 per life year (LY) gained. When each additional disease was evaluated independently, the cost of screening with MS/MS ranged from cost-saving to $158,000/LY gained. Using MS/MS to screen for PKU and 16 additional diseases costs $17,100/LY gained. CONCLUSIONS: Newborn screening reduces morbidity, mortality, and the social burden of irreversible effects of disease on the population. The severity and onset of disease symptoms can be prevented through early diagnosis and treatment. Our analysis suggests that screening for PKU and 16 additional diseases has an incremental cost effectiveness ratio below $50,000/LY gained. However, it is not cost effective to screen for all diseases that can be tested for using MS/MS.

THE QUALITY OF COMMUNITY PEDIATRICIAN’S PRESCRIPTIONS

Triki N, Cohen R, Raz M
Maccabi Healthcare Services, Rishon Le Zion, Israel

There are several reasons why prescriptions for children’s medications may have more mistakes than those for adults’ medications: dosage is adjusted to weight rather than being constant,