ABSTRACTS

ISPOR 5TH ASIA-PACIFIC CONFERENCE RESEARCH ABSTRACTS

PODIUM SESSION I: COST-EFFECTIVENESS STUDIES

CE1
THE COST-EFFECTIVENESS ANALYSIS OF 13-VALENT PNEUMOCOCCAL CONJUGATE VACCINE (PCV13) AND 23-VALENT PNEUMOCOCCAL POLYSACCHARIDE VACCINE (PPV23) IN TAIWAN

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High rates of pneumococcal diseases occur despite the availability of 23-valent pneumococcal polysaccharide vaccine (PPV23) in the elderly aged above 65 in Taiwan. A 13-valent pneumococcal conjugate vaccine (PCV13) is developed for use in high-risk adults. OBJECTIVES: To examine the health and economic impact of PCV13 compared with PPV23 in Taiwan. METHODS: An age-stratified (18-49, 50-64, 65-74, 75-84, 85-99) micro-simulation Markov model was developed and populated with local data inputs to simulate the potential public health and economic outcomes of PCV13 versus PPV23 against invasive pneumococcal diseases (meningitis and bacteremia) and all-cause pneumonia when used as routine vaccination of infants in Taiwan over a life-time horizon. Costs include direct medical cost such as hospitalization, medical outpatient visits, medications and indirect cost. Both epidemiological and cost data inputs were derived retrospectively from National Health Insurance Reimbursement Database and public sources where available. The study was performed from both payer and societal perspectives using 3% discount rate for both costs and life years. Sensitivity analyses were conducted to test the robustness of model outcomes. RESULTS: Model projected that PCV13 vaccination compared with PPV23 can prevent 96,459,1,110,253 and 1,548,947 cases of meningitis, bacteremia, outpatient pneumonia, and inpatient pneumonia respectively while saving 167,065 deaths, equivalent to 201,166 life years. PCV13 vaccination is estimated to save an direct (indirect) cost of NT$113,952/M (NTD17,382/M) over 82 years. Given market price assumption of one dose of PCV13 and PPV23 (NTD3,000 vs. NTD7,000), PCV13 vaccination on adults is expected to lead to NTDS7,334 (NTD36,476) per life year saved in 50-64 age group and is cost-saving for all elder age groups from both payer (societal) perspective compared to PPV23. CONCLUSIONS: PCV13 adult vaccination in Taiwan was estimated to reduce the burden of pneumococcal diseases and expected to be cost-effective from both payer and societal perspectives.

CE2
THE COST-EFFECTIVENESS OF THE REAL-WORLD USE OF NUCLEIC ACID TEST SCREENING TO DONATED BLOOD FOR HEPATITIS B, HEPATITIS C, AND HUMAN IMMUNODEFICIENCY VIRUS: EXPERIENCE FROM TAIWAN, A COUNTRY WITH A HIGH PREVALENCE OF HEPATITIS B AND C INFECTIONS

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OBJECTIVES: To examine the cost-effectiveness of adding nucleic acid testing (NAT) to enzyme immunoassay (EIA) screening for hepatitis B (HBV), hepatitis C (HCV), and human immunodeficiency virus (HIV) in Taiwan based on the governmental perspective. METHODS: A Markov model depicting the natural history of HBV, HCV, and HIV infections and subsequent illnesses for blood recipients in Taiwan was developed to evaluate the cost-effectiveness of adding five different NAT screening strategies employing different test systems and pool sizes to EIA screening, including cobas TaqScreen multiplex in pools of 6 (EIA+Cobas6), Procleix Ultra in individual donations (EIA+Ultrio), or pools of 4 (EIA+Ultrio4), and Procleix Ultra Plus in individual donations (EIA+UPlus1), or pools of 8 (EIA+UPlus8). The population size and characteristics of the recipients were derived from the National Health Insurance (NHI) data. Transition probabilities and utilities were abstracted from published literature. Efficacy and screening costs were obtained from a nationwide NAT screening program launched in Taiwan. Medical costs incurred by infections and subsequent illnesses were obtained from the NHI and published literature based on Taiwanese data. Both costs and health outcomes were discounted at 3%. All costs were presented in 2012 USD. Probabilistic sensitivity analyses were performed. RESULTS: A 270,535-recipient cohort based on the annual number of recipients in Taiwan, was simulated. The model predicted that for various NAT screening strategies 120-140 infections were averted with additional 6-13.6 million NAT screening costs, corresponding to 34,200-72,400 USD per infection averted, and the lifetime incremental costs per quality-adjusted life-year (QALY) gained were 48,600-72,400 USD/QALY. Wide variation, however, was seen and the probability that NAT being cost-effective was 18-30%. CONCLUSIONS: EIA+Cobas and EIA+UPlus8 are the two strategies of better cost-effectiveness. At the threshold of three-fold GDF per capita (55,800 USD/QALY), EIA+Cobas and EIA+UPlus8 may be considered as cost-effective in Taiwan but with high uncertainty.

CE3
HYPERBARIC OXYGEN THERAPY FOR THE TREATMENT OF NON-NEUROLOGICAL SOFT TISSUE RADIATION INJURIES: A COST EFFECTIVENESS ANALYSIS

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OBJECTIVES: To investigate the cost effectiveness of Hyperbaric oxygen therapy (HBOT) for the treatment of non-neurological soft tissue radiation injuries. METHODS: The economic evaluation adopted a decision analytic framework comparing HBOT to usual care for the treatment of non-neurological soft tissue radiation injuries. The incremental costs per patient wound healed/improved were presented. Estimates of cost-effectiveness were obtained from a published RCT (Clarke et al., 2008). Resource use was determined from HIC data (Medicare and Pharmaceutical Benefits Schemes), the Australian Department of Health and Ageing and expert opinion. RESULTS: For the base case analysis, significant/moderate improvement or complete wound healing was demonstrated in 88.9% per cent of patients who received HBOT for soft tissue radiation injuries, and the comparable figure for usual care was 65.9% per cent of patients. Therefore providing HBOT would result in an additional 26.4 per cent of patients being successfully treated. The average cost accrued in the HBOT-treated group was $11,753 per patient compared to $12,482 in the usual care group. This represents a cost savings of $728 per patient, meaning that HBOT dominates usual care (i.e. HBOT is less expensive and is more effective). CONCLUSIONS: The results indicate that HBOT is a cost-effective alternative to usual care for the treatment of soft tissue radiation injuries. There is considerable uncertainty around the estimates of usual care due to the complexity of the treatment pathway.

CE4
THE COST-EFFECTIVENESS OF DABIGATRAN COMPARED TO GENOTYPE-GUIDED WARFARIN DOSING FOR STROKE PROPHYLAXIS IN ATRIAL FIBRILLATION PATIENTS

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OBJECTIVES: To evaluate the cost-effectiveness of high-dose dabigatran (150 mg twice daily) against genotype-guided warfarin dosing in nonvalvular atrial fibrillation (AF) patients requiring anticoagulation for stroke prevention from the US payer’s perspective. Conventional dose-adjusted warfarin has been the main anticoagulation strategy for decades. Newer treatment strategies such as oral direct thrombin inhibitor dabigatran and genotype-guided warfarin dosing offer several advantages over warfarin. To the best of our knowledge, there is no head-to-head study evaluating the cost-effectiveness of dabigatran and genotype-guided warfarin dosing versus conventional warfarin. METHODS: A Markov decision model was constructed to derive the incremental cost effectiveness ratios (ICERs) in USD per QALY of dabigatran and genotype-guided warfarin dosing versus conventional warfarin in a hypothetical cohort of 70-year-old patients with newly-diagnosed AF and moderate stroke risk (CHADS2 score=1). The time horizon is 20 years. Costs, utilities and adverse event rates were derived from published studies. One-way and two-way sensitivity analyses were performed. RESULTS: At an ICER of $US$27,260 per QALY, high-dose dabigatran provided an additional 0.30 QALYs over genotype-guided warfarin dosing in the base-case. The model was only sensitive to drug costs. Among patients with a moderate to high intracranial hemorrhage (ICH) risk, at the current retail price of USD84 a day, high-dose dabigatran was the most cost-effective option for all stroke risk groups. Conventional warfarin dosing remains most cost-effective for patients with a low ICH risk. CONCLUSIONS: In 70-year-old patients with nonvalvular AF and moderate stroke risk (CHADS2 score=1), high-dose dabigatran was cost-effective compared to genotype-guided warfarin dosing, at National Institute for Health and Clinical Excellence’s willingness-to-pay thresholds of US$30,000 to US$45,000 (£20,000 to £30,000) per QALY gained. By using a common Markov model to compare three treatments, we overcome the limitations of the conventional league table approach (limited comparability due to differences in models used across studies).