

Abstracts

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gained. Sensitivity analyses show that vaccine efficacy and whether vaccine is life-long protective are the most influential parameters impacting model outcomes. ICER changed to 71.11% if the efficacy is down to 70%, -32.60% if the efficacy is 100%; and 200.04% if the vaccine provides only 10 year protection. **CONCLUSIONS:** These results show that HPV vaccine is cost-effective compared to screening alone. Further studies should be done to establish more precise model parameters, such as vaccine efficacy, duration, adverse event rates and cost for adverse events.

PIN18

THE ESTABLISHMENT OF A COST-EFFECTIVE ANTIBIOTIC TREATMENT OF INFECTIVE ENDOCARDITIS AND MRSA BACTEREMIA IN MEXICAN PUBLIC HEALTH CARE SYSTEM

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OBJECTIVES: To determine whether the use of i.v. Daptomycin or i.v. Vancomycin is the most cost-effective alternative for the treatment of infective endocarditis in public health care institutions in Mexico **METHODS:** A cost-effectiveness study was performed considering an institutional perspective and comparing the use of the evaluated alternatives as first-line antibiotic therapy. A systematic review was performed in order to collect data about clinical success, length of stay at hospital services and adverse events due to the use of either i.v. Daptomycin or i.v. Vancomycin. The use of resources matrix considered the selected antibiotic therapy, concomitant medication, length of stay at hospital services, and a second-line antibiotic therapy in case of failure. A decision tree with Bayesian approach was designed to simulate the use of resources. Patient's outcomes were supposed to be clinical success (in either short hospital stay or long hospital stay) and therapeutic failure which can be caused by death or lack of efficacy of the antibiotic. Results were evaluated with incremental analysis and one-way sensitivity analysis of the most uncertain variables were also conducted. **RESULTS:** The use of i.v. Daptomycin results in the lowest total cost (DAP: \$7,847.00 USD; VAN:\$7,990.00 USD) and the lowest cost per clinical success (CS) (DAP: \$17,754.00 USD/CS; VAN:\$23,083.00 USD/CS) compared with i.v. Vancomycin. The sensitivity analysis varying clinical success rates of every evaluated alternative showed robustness of base study. **CONCLUSIONS:** Daptomycin is the most cost-effective alternative in the treatment of Infective Endocarditis and MRSA Bacteremia when used as first-line antibiotic therapy, since its use reduces the length of hospital stay reducing expenses of public health system budget in Mexico. The use of Daptomycin can be considered as safer when compared to use Vancomycin, because it has been reported less frequently event adverse in long term treatments.

PIN19

CLINICAL EFFECTIVENESS AND COST-EFFECTIVENESS OF A POLYMYXIN B-IMMOBILIZED HEMOPERFUSION CARTAGE FOR THE TREATMENT OF SEVERE SEPSIS: A SYSTEMIC REVIEW AND ECONOMIC EVALUATION

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OBJECTIVES: Polymyxin B-immobilized hemoperfusion cartage (PMX) is a medical device for the treatment of severe sepsis by adsorbing and eliminating plasma endotoxin. The objective of this study is to assess the clinical effectiveness and cost-effectiveness of PMX vs. conventional therapy in treating patients with severe sepsis. **METHODS:** For a systematic review, we searched OVID, EMBASE and Cochrane central register of controlled trial (CENTRAL). Inclusion criteria of clinical trials were RCTs on 'sepsis', 'severe sepsis' and 'septic shock' patients. We included those studies that reported at least one of the four specified outcomes: mortality, plasma endotoxin level, days of ICU stay and blood pressure. Relevant outcomes were synthesized using RevMan 5.0. The average medical cost of sepsis was estimated from a national health insurance (NHI) claims database and the PMX related cost was calculated from the fee schedule of NHI. For economic evaluation, we assessed incremental cost effectiveness ratio (ICER) of PMX compared with conventional therapy. The assessment was performed from a purchaser's perspective. **RESULTS:** A total of 11 RCTs were identified with pooled sample size of 802; 477 in PMX and 325 in conventional therapy group. Meta-analysis results showed that PMX therapy had significantly lower mortality risk. The 28-day mortality rate of PMX group and conventional therapy group were 35.4% and 70.4% respectively with risk ratio of 0.51 (95% CI, 0.43-0.59). The medical cost for sepsis turned out 3,536,000 KRW per patient, which is common in PMX and conventional treatment. The additional cost related to PMX treatment was estimated to be KRW5,496,984 KRW per patient. Applying this mortality outcome and cost data, we produced an ICER of KRW15,705,669 per life gained. **CONCLUSIONS:** Compared with conventional therapy alone, PMX therapy with conventional therapy for the treatment of severe sepsis was found clinically superior and cost-effective as well.

PIN20

COST-EFFECTIVENESS OF PNEUMOCOCCAL POLYSACCHARIDE VACCINATION IN ADULTS: A SYSTEMATIC REVIEW OF CONCLUSIONS AND ASSUMPTIONS

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OBJECTIVES: Streptococcus pneumoniae infections in adults are associated with substantial morbidity, mortality, and costs. The objective of this study was to provide an analysis of the conclusions and assumptions of published studies on the cost-effectiveness of pneumococcal polysaccharide vaccination (PPV-23 (23 serotypes)) in adults. **METHODS:** A search of recent literature (1997-2008) was conducted to identify cost-effectiveness studies pertaining to the use of PPV for the prevention of invasive pneumococcal disease (IPD) in adults. A structured review of the impact of model assumptions on cost-effectiveness ratios was undertaken. Cost per life year gained (LYG) or quality adjusted life year (QALY) were reported in 2007 US dollars. **RESULTS:** The literature search identified 31 studies, 19 of which reported some cost data but did not include cost-effectiveness data for PPV-23 vaccination. All but one of the remaining twelve studies compared PPV-23 vaccination with no vaccination, and these were included in this analysis. Vaccination of over 65 year olds with PPV-23 for the prevention of IPD was found to be cost-effective with incremental cost effectiveness ratios ranging from 2007 \$9,810 to \$26,160 per LYG and from \$9.08 (cost-saving) to \$53,955 per QALY. Review of model parameters revealed that the results of these studies have to be considered in the light of limitations of available data on vaccine effectiveness, disease incidence, and case-fatality ratios. **CONCLUSIONS:** All the reviewed studies reported that PPV-23 is a cost-effective, and in some cases a cost-saving, vaccination strategy for the prevention of IPD in the elderly. Further economic evaluation of PPV-23 may be warranted based on the availability of new data on vaccine efficacy, IPD incidence and case fatality in the adult population in the post-PCV-7 era.

PIN21

VARIATION IN EFFICIENCY FRONTIERS FOR HIV/AIDS PREVENTION AND TREATMENT

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OBJECTIVES: To investigate how the cost-effectiveness of preventing or treating HIV/AIDS varies by a series of potentially relevant external factors. **METHODS:** We reviewed the cost-effectiveness evidence for HIV/AIDS prevention and treatment in the Cost-Effectiveness (CEA) Analysis Registry at Tufts Medical Center (www.cearegistry.org) from 2002-06, and then constructed efficient frontier curves (EF curve) in terms of incremental cost per QALY ratios based on extracted evidence using methods introduced by Institute for Quality and Efficiency in Health Care (IQWiG), Germany. All articles that report cost-effectiveness as USD/QALYs were selected, including information on the following factors: payer perspective; prevention stage; intervention type, and country of study. We excluded articles with time horizon <30 years and those without discounting. **RESULTS:** Of 237 eligible articles in the CEA Registry, we extracted 11 HIV/AIDS-related articles, which included 84 individual cost-effectiveness (CE) ratios. Plotted EF curves were visually distinct, depending on the prevention type, with primary prevention interventions being most efficient. With respect to country, the EF curve for the U.S. and South Africa were separate, with the curve for South Africa lying near the vertical axis, reflecting low cost per QALY ratios for interventions studied. Subgrouping by payer perspective (societal or health care payer) and intervention type (pharmaceutical, education, and screening) did not affect the separation of the lines. **CONCLUSIONS:** The CE ratio clustering in HIV/AIDS was found on the C-E plane, which suggested separate EF curves should be considered by stratifying by prevention stage and country. These results may differ for other diseases, but this analysis shows that stratified EF analysis could help to develop a deeper appreciation of cost-effectiveness beyond crude cost per QALY ratios without stratification.

PIN22

COST OF PNEUMOCOCCAL INFECTIONS AND COST-EFFECTIVENESS ANALYSIS OF PNEUMOCOCCAL VACCINATION IN TURKEY

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OBJECTIVES: Vaccination of elderly and at-risk population against Streptococcus pneumoniae is recommended and partially reimbursed in Turkey due to the substantial medical and economic burden. However, only ~2% of these populations were vaccinated in 2007. A three-step economic analysis was designed to measure the burden of pneumococcal infections (pneumonia and bacteremia) from a public payer perspective in elderly (>60 years) and at-risk adults (18-59 years), and to evaluate the benefits of implementing a vaccination program. **METHODS:** Firstly, we evaluated the cost of pneumonia and bacteremia in retrospective and prospective studies in public hospital services in Ankara. Secondly, a static model was used to evaluate cost-effectiveness of vaccination in the two targeted populations using demographic and epidemiological data obtained from Turkish sources or, when unavailable, from international literature. A stochastic Monte Carlo simulation estimated the incremental cost-effectiveness ratio in Euros (€) per life year gained (LYG), assuming that vaccination protected for 5 years with 50-70% effectiveness against pneumococcal bacteremia