Abstracts

PIN24

ADDING A QUADRIVALENT (6, 11, 16 & 18 TYPES) HUMAN PAPILLOMAVIRUS VACCINE TO THE EXISTING UK CERVICAL SCREENING PROGRAMME IS POTENTIALLY COST-EFFECTIVE

Shalini Kulasingam, PhD1; Stève Bénard, Pharm.D2; Ruanne Barnabas, MD, MSc3; Evan Myers, MD, MPH1
1Duke University, Durham, USA; 2Sanofi Pasteur MSD, Lyon, France; 3Cancer Research UK, Oxford, UK

OBJECTIVES: A vaccine to prevent infection with human papillomavirus (HPV) types 6, 11, 16 and 18 may soon become available. The current strategy to prevent cervical cancer in the UK is screening every 3 years, beginning at age 25 and then every 5 years for women aged 50+. The current screening coverage rate is 81.2%. The objectives are to assess the health and economic impact of HPV vaccination in association with current screening in the UK compared to screening alone. METHODS: A Markov model of the natural history of HPV infection incorporating screening and vaccination was developed for the UK. A vaccine that would prevent 90% of HPV 6, 11, 16 and 18-associated disease, with 20 years duration and 87% coverage, given to girls at age 12 in conjunction with current screening was compared to screening alone using cost per life-year (LY) and quality-adjusted life-year (QALY). Sensitivity analyses included varying the vaccination cost from £165 to £220. If a lifetime duration of vaccine efficacy is assumed, the cost-effectiveness ratio (ICER) that varies from £16,000/QALY (£20,600/LY) to £22,000/QALY (£28,200/LY) compared to screening alone using cost per life-year (LY) and quality-adjusted life-year (QALY). Sensitivity analyses included varying the vaccination cost from £165 to £220 and assuming a lifetime duration for vaccine efficacy. RESULTS: The model predicts the reduction in lifetime risk of cervical cancer attributable to screening in line with already published UK data. Introduction of vaccination, and maintaining the screening programme unchanged, would be expected to reduce the lifetime risk to 0.66%. Vaccination with current screening is associated with an incremental cost-effectiveness ratio (ICER) that varies from £16,000/QALY (£20,600/LY) to £22,000/QALY (£28,200/LY) compared to screening alone, when the vaccination cost is varied from £165 to £220. If a lifetime duration of vaccine efficacy is assumed, the ranges for the ICERs decrease to £12,750/QALY (£16,250/LY) and £17,570/QALY (£22,400/LY) respectively. CONCLUSION: These analyses suggest that adding a quadrivalent HPV vaccine to current screening in the UK may be a cost-effective method for further reducing the burden of cervical cancer.

PIN25

PRELIMINARY COST-EFFECTIVENESS ANALYSIS OF A POTENTIAL PROPHYLACTIC STAPHYLOCOCCUS AUREUS VACCINE (STAPHVAX) IN HEMODIALYSIS PATIENTS IN GERMANY

Staginnus U1, Russell S2
1Premor Associates, New York, NY, USA; 2Premor Associates, Madrid, Spain

OBJECTIVE: Increasing antibiotic resistant staphylococcus aureus strains in hospital- and chronic disease patients causing a high burden of illness and consume enormous health care resources in Germany. A new vaccine (StapVax) preventing S.aureus infections is in clinical development and currently seeking market authorization in the EU. The objective of this analysis is to project the potential economic value of vaccinating hemodialysis patients with StapVax against mecillin resistant staphylococcus aureus infections. METHODS: A literature-based decision analysis model was developed to assess the annual number of potential infections and death avoided as well as to calculate cost-effectiveness, break-even price and budget impact of the candidate vaccine. Baseline efficacy rate was assumed to be 57% with a 90% coverage rate. The model compared projected cost per infection avoided and cost per life-year gained for patients receiving the vaccine versus unvaccinated patients undergoing hemodialysis. RESULTS: Vaccinating the about 60,000 hemodialysis patients in Germany could prevent 650 S.aureus infections and 105 associated deaths per year. Assuming annual per patient vaccination cost of €500 (vaccine plus administration) the cost per infection avoided was estimated at €27,000, with a cost per life-year gained of €17,000, respectively. The net-budget impact in this scenario results in about €18 million. Vaccination cost of €170 would make the vaccine a budget neutral preventive strategy. Monte Carlo simulations on vaccine efficacy, mortality rate after S.aureus infection, treatment and vaccination cost resulted in cost per life-year gained ranging from €3000 to €22,000 in 95% of the runs, and from €7000 to €14,000 in 50% of trial runs. The model is most sensitive to vaccine program cost and predicted preventive efficacy. CONCLUSION: Vaccinating hemodialysis patients with StaphVax is a highly cost-effective measure to prevent serious morbidity and mortality in this patient population at substantial risk of bacterial contamination.

PIN26

COST-EFFECTIVENESS OF PREVENTING OF RECURRENT UPPER RESPIRATORY TRACT INFECTIONS WITH NON-SPECIFIC IMMUNOSTIMULATING BACTERIAL EXTRACT

Zaniolo O1, Pradelli L1, Eandi M2
1Advanced Research Srl, Torino, Italy; 2University of Turin, Turin, Italy

OBJECTIVES: To estimate the pharmacoeconomic impact of preventing recurrent upper respiratory tract infections (URTIs) with OM-85, a non-specific immunostimulating agent, in at-risk children. METHODS: Implementation of a decisional model. The evaluation of effectiveness (number of prevented URTIs/therapeutic cycle) was based on weighted average of the results of four randomized, double-blind, placebo-controlled trials identified by literature reviewing. The clinical events considered in the model were natural resolution of the infection, onset of complications (acute otitis media, sinusitis, others) and their evolution. Baseline event probabilities were derived by reviewing published data in the literature. URTI-related direct and indirect costs supported by patients, by Italian health system and by community were structured according with the principal guidelines and implemented with current Italian prices and tariffs. The cost-effectiveness of OM-85 was calculated for five scenarios, differing in the number of therapeutic cycles, grade of patient co-payment and other secondary assumptions. Sensibility analyses were performed to evaluate the model robustness. RESULTS: Immunostimulation with one cycle of OM-85 prevented on average 1.60 URTI/patient in 6 months (RR = 0.515). In the basic scenario, this preventive action induced savings for €107.42/patient in the perspective of the patient's family, for €48.52/patient in the perspective of Italian health system and for €231.26 in the community perspective. Sensibility analyses confirmed the robustness of basic scenario results. Threshold analyses showed that OM-85 prophylaxis is economically convenient as long as more than 7% of infections are prevented or global cost of one episode of URTI is greater than €10.00. CONCLUSIONS: Non-specific immunotherapy with OM-85 induces a reduction in the incidence of URTIs in at-risk children with a concurrent saving for patients and health system.

PIN27

COST-MINIMIZATION ANALYSIS OF VORICONAZOLE AND LIPOSOMAL AMPHOTERICIN B FOR THE TREATMENT OF INVASIVE CANDIDA AND ASPERGILLOSIS INFECTIONS IN SPAIN

Aguado JM1, Díaz C1, González P1, Fernández I1, Viudes A2
1Hospital Universitario 12 de Octubre, Madrid, Spain; 2Pfizer S.A., Spain, Alcobendas, Madrid, Spain

OBJECTIVE: To determine the cost-effectiveness of voriconazole versus liposomal amphotericin B in the treatment of invasive candidiasis and aspergillosis infections in Spain. METHODS: A literature-based decision analysis model was developed to assess the annual number of infections and death avoided as well as to calculate cost-effectiveness, break-even price and budget impact of the candidate drugs. Baseline efficacy rate was assumed to be 97% with a 90% coverage rate. The model compared projected cost per infection avoided and cost per life-year gained for patients receiving the drug versus unvaccinated patients undergoing hemodialysis. RESULTS: Vaccinating the about 60,000 hemodialysis patients in Germany could prevent 650 S.aureus infections and 105 associated deaths per year. Assuming annual per patient vaccination cost of €500 (vaccine plus administration) the cost per infection avoided was estimated at €27,000, with a cost per life-year gained of €17,000, respectively. The net-budget impact in this scenario results in about €18 million. Vaccination cost of €170 would make the vaccine a budget neutral preventive strategy. Monte Carlo simulations on vaccine efficacy, mortality rate after S.aureus infection, treatment and vaccination cost resulted in cost per life-year gained ranging from €3000 to €22,000 in 95% of the runs, and from €7000 to €14,000 in 50% of trial runs. The model is most sensitive to vaccine program cost and predicted preventive efficacy. CONCLUSION: Vaccinating hemodialysis patients with StaphVax is a highly cost-effective measure to prevent serious morbidity and mortality in this patient population at substantial risk of bacterial contamination.