PCV13 whereas it was associated with an incremental cost of approximately £9 million vs. NoVac. PPV23 dominated PCV13 from both the third-party payer (TPP) and the societal perspectives. When compared to NoVac, the incremental CE ratio (ICER) was estimated at £14,813 and £13,497/QALY gained, from the TPP and the societal perspective, respectively. **CONCLUSIONS:** The model suggests that vaccinating with PPV23 is cost-effective when compared to both PCV13 and NoVac. As PPV23 covers 80%-90% of all serotypes causing IPD, it is still cost-effective despite the recent reduction in IPD incidence in adults. The assumptions around the efficacy of PCV13 are a substantial source of uncertainty.

PIN65

COST-EFFECTIVENESS OF FIRST-LINE ANTIRETROVIRAL REGIMENS FOR HUMAN IMMUNODEFICIENCY VIRUS (HIV) IN COLOMBIA: AN ANALYSIS OF LOPINAVIR/RITONAVIR (LPV/R) AND DARUNAVIR PLUS RITONAVIR (DRV+RTV) IN TREATMENT-NAÏVE PATIENTS

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OBJECTIVES: Current antiretroviral (ARV) therapy has transformed HIV from an acute to a chronic disease. Consequently, there are more patients living with HIV and the cost burden to societies that provide lifetime health care, such as Colombia, is increasing. The value assessment of ARV regimens, therefore, requires a lifetime horizon to accommodate implications of failure, resistance, switching and survival. The objective was to perform a cost-effectiveness analysis of two first-line protease inhibitor-based regimens for HIV-infected, ARV-naïve patients in Colombia: LPV/r versus DRV+RTV. **METHODS:** A previously published discrete event simulation model of first-line LPV/r and DRV+RTV was adapted to comprehensively represent HIV management in Colombia. The impact of initial treatment on CD4 cell count, viral load, adherence, virologic suppression/failure/rebound, acquired resistance, and ensuing treatment changes were based on ARTEMIS trial data and the clinical literature. Up to 3 regimen changes were permitted over the model's lifetime horizon. Cardiovascular risk was based on the Framingham risk score. Clinical measures included AIDS related and non-AIDS related events, AEs, time on sequential therapies, and cardiovascular events. Outcomes included lifetime costs and quality adjusted life years (QALYs), discounted at 3% per annum. Perspective was the Colombian national health care system. Costs for ARVs and medical management were referenced to Colombia pesos (COP). **RESULTS:** Initiating LPV/r over DRV+RTV saved COP7,845,894 per patient over a lifetime with similar life expectancy (+0.02 years; -0.03 QALYs). Similar rates of death, AIDS events, cancer, and lipoatrophy/lipodystrophy were predicted for both groups. Lifetime cost of cardiovascular events were COP70,020 per patient less in the LPV/r arm. LPV/r was cost saving at 5 years (COP11,311,677) and was cost-effective across multiple sensitivity analyses. **CONCLUSIONS:** Initiating HIV infected, ARV-naïve patients on a LPV/r-based regimen compared to a DRV+RTV-based regimen is cost saving and provides similar life expectancy. Sensitivity analyses provided confidence around these point estimates.

PIN66

COST EFFECTIVENESS ANALYSIS OF VACCINATION WITH 13-VALENT (PCV13) AND 23-VALENT (PPV23) PNEUMOCOCCAL VACCINES FOR SENIOR ADULTS IN SÃO PAULO STATE, BRAZIL – PUBLIC PERSPECTIVE

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OBJECTIVES: To evaluate the cost effectiveness of vaccinating the Brazilian state of São Paulo's population 60 years of age and older with the 13-valent pneumococcal conjugate vaccine (PCV13) in comparison to the 23-valent pneumococcal polysaccharide vaccine (PPV23), each as a single dose, from the public payer perspective. **METHODS:** In order to estimate the pneumococcal disease costs and impact over a 40-year time horizon period, including acute meningitis (AM), invasive pneumococcal disease (IPD), hospitalized pneumonia (HP) and non-complicated pneumonia (NCP), a patient-level microsimulation model simulating vaccination and outcomes of one cohort of 4.768.202 individuals 60 years of age and older was adapted. The probabilities and direct medical costs were extracted from literature review and national databases, with costs presented in US$2011. The effectiveness measures were expressed as cases of pneumococcal diseases avoided, overall deaths avoided, and life years (LYs) saved. Effectiveness of PCV13 was derived from studies in children and adjusted for age and immune status in the elderly; PPV23 was assumed not to impact pneumonia based on published meta-analyses. Probabilistic sensitivity analyses were conducted considering key variables. Discount rate of 5% was applied. **RESULTS:** Vaccinating with PCV13 prevents 281 AM, 3.615 IPD, 56.284 HP, 31.553 NCP and 15.742 deaths, saving 90.596 LYs compared to PPV23. Total costs including vaccination and medical costs resulted in US$14.449.125 less for PCV13 compared to PCV23 (US$786.747.906 vs. US$772.298.781). The model showed robustness through sensitivity analyses. **CONCLUSIONS:** The analysis suggests that vaccinating adults with PCV13 in Brazil is cost-saving compared to PPV23. The results in economic and disease burden are substantial and they support the decision making in favor of PCV13 for its high impact in public health.

PIN67

COST MINIMIZATION COMPARISON OF A VACCINATION WITH CAMPAIGN PROGRAM FOR CORPORATIONS USING PCV13 VESUS FREE PCV10 WITH PAID CAMPAIGN

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OBJECTIVES: The Brazilian National Immunization Program currently offers 10-valent Pneumococcal Conjugated Vaccine (PCV10) to all children less than 5 years of age for free. The current study was developed to compare the costs of PCV13 vaccination plus campaign for corporations, versus a hypothetical scenario where the corporation would incur in the expenditures to do the campaign as proposed for PCV13 while vaccinating with free PCV10 under the corporative payer perspective. **METHODS:** A cost minimization analysis was developed considering vaccination costs, campaign and health management costs, wage and productivity loss from employee absence due to child disease and the vaccinations. Clinical events were retrieved from Pepe et al 2009, absence days due to health events were retrieved from the average hospitalization days from DATASUS 2012 and ambulatory use was limited to 1 absence day. Total employee absence days were halved assuming a partner outside the company to take care of the sick child and to take it to the vaccinations. Average wage was retrieved from the Brazilian Institute for Geography and Statistics 2011 data (IBGE) and production was estimated from the indicator 'revenue generated by the employee', from a market research developed by Exame magazine in 2011 using IBGE and the Brazilian Central Bank data. The base case considered a real scenario from a large corporation in Brazil. Values were expressed in 2011USD. **RESULTS:** Independent campaign with zero cost PCV10 and PCV13 vaccination plus campaign totaled 67,90USD and 114,65USD per employee respectively. Productivity loss was estimated to be 879,07USD and 667,89USD per employee for PCV10 and PCV13 respectively. Considering all evaluated costs, PCV10 and PCV13 totaled 946,97USD and 782,54USD per employee respectively. **CONCLUSIONS:** The PCV13 vaccination plus campaign initiative is estimated to save costs (164,42USD/employee), when compared to developing an independent campaign, mainly driven by productivity loss at the corporative payer perspective.

PIN68

COST-MINIMIZATION ANALYSIS OF CASPOFUNGIN VERSUS LIPOSOMAL AMPHOTERICIN B FOR THE TREATMENT OF FEBRILE, NEUTROPENIC PATIENTS WITH A PRESUMED FUNGAL INFECTION IN THE NETHERLANDS

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OBJECTIVES: To provide an estimate of the treatment related costs of caspofungin versus liposomal amphotericin B (L-AmB) in febrile, neutropenic patients with a presumed fungal infection in the Netherlands. **METHODS:** : A cost-minimization analysis (CMA) was conducted based on the results of a head-to-head randomized clinical trial, in which caspofungin (70mg on day 1, 50mg daily thereafter) was compared to liposomal amphotericin B (3-5mg/kg daily). The trial showed no significant difference in success rates (adults: 33.9% for caspofungin and 33.7% for L-AmB); therefore, the two drugs can be considered equally efficacious. Main assumptions in the CMA were that no drug was spilled and that the difference in drug administration costs was negligible and could therefore be ignored. The robustness of the predicted cost-estimates was tested within several scenario analyses, including an analysis in a paediatric population. **RESULTS:** In the base case analysis, treatment with caspofungin resulted in cost savings of €6,564 per infected adult patient; mainly due to lower drug acquisition costs. These savings increased to €8,024 in a scenario analysis assuming that partly emptied vials will not be stored and used for another administration (ie. spillage of drugs). An additional scenario revealed that only at extreme average treatment durations of one drug, a cost neutral result would be obtained. Comparing both drugs in a paediatric population, incremental costs of caspofungin over L-AmB ranged from -€2,319 to +€1,291 for an average Dutch child aged 16 (weight 62kg; body surface area 1.725m^2) and 2 (weight 12.5kg; body surface area 0.555m^2) years old respectively. **CONCLUSIONS:** The present analysis shows that treatment with caspofungin results in considerable cost savings compared to L-AmB for the treatment of febrile, neutropenic adult patients with a presumed fungal infection in the Netherlands. In pediatric patients cost consequences are depending on body surface area.

PIN69

COST UTILITY ANALYSIS OF 13-VALENT PNEUMOCOCCAL CONJUGATE VACCINE IN MALAYSIA

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OBJECTIVES: *Streptococcus pneumonia* causes invasive pneumococcal diseases (IPD), meningitis and bacteremia, and non-invasive diseases such as pneumonia and acute otitis media (AOM), leading to high morbidity and mortality in infants and elderly in Malaysia. To examine the health and economic impacts of routinely vaccinating infants with 13-valent pneumococcal vaccine (PCV13) compared to 10-valent pneumococcal conjugate vaccine (PCV10) or no vaccine in Malaysia. **METHODS:** A Markov model was adapted with local data to evaluate the potential public health and economic impact of routine vaccination of infants with PCV10 or PCV13 over a 10-year time horizon, assuming a 3-dose regimen at 2, 4, 12 months of age and coverage of 90%. Direct effectiveness of PCV13 and PCV10 was estimated from clinical trial data while indirect (herd) effectiveness was estimated from U.S. surveillance data. Epidemiology, serotype coverage, and costs were from published studies and government websites. One-way and multivariate probabilistic sensitivity analyses were performed to test the robustness of model assumptions. **RESULTS:** Compared to no vaccination, universal infant PCV13 vaccination would avoid 19,833 cases of IPD, 832,687 and 1,705,984 cases of hospitalized and non-hospitalized pneumonia respectively, and 135,675 cases of AOM with the preven-

tion of 4,531 deaths from IPD and 34,648 deaths from hospitalized pneumonia over 10 years. Compared to no vaccination, PCV13 vaccination would be cost-effective at RM21,998 per QALY gained from the societal perspective. Compared to PCV10, PCV13 vaccination would avoid an additional 9,651 cases of IPD, 392,684 and 980,434 cases of hospitalized and non-hospitalized pneumonia respectively, and 81,118 cases of AOM with the prevention of 18,736 deaths. Compared to PCV10, PCV13 vaccination would be cost-effective at RM6,315 per QALY gained. **CONCLUSIONS:** Universal pediatric PCV13 vaccination in Malaysia was estimated to reduce the burden of pneumococcal diseases and is expected to be cost-effective compared with both no vaccination and PCV10.

PIN70

COST-EFFECTIVENESS OF AN INDIVIDUALIZED APPROACH IN THE TREATMENT OF HBEAG-NEGATIVE CHB PATIENTS WITH PEGINTERFERON ALFA-2A IN ITALY

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OBJECTIVES: Pharmacological approaches available in chronic hepatitis B (CHB) are based on 48-weeks finite course of peg-interferon (PEG) or continuous administration of nucleoside analogues. Recent studies gave way to early identification of responders to PEG with a stopping rule based on virologic and serologic markers at week 12. Objective of this study is the cost-effectiveness analysis of HBeAg-negative CHB treatment with PEG with stopping rule and switch to current most effective analogues, entecavir (ETV) or tenofovir (TDF) in Italy. **METHODS:** A Markov model was developed in the states: CHB, virologic response, relapse, HBsAg clearance, compensated and decompensated cirrhosis, hepatocarcinoma, liver transplant, post-liver transplant and death. A systematic review of the clinical and economic literature was performed to find appropriate information. The simulated strategies were: 1) No treatment; 2) PEG first-line followed by switch to ETV/TDF for patients either meeting w-12 stopping rule or not responding/relapsing after the complete course; 3) First-line ETV/TDF in CHB before progression to compensated cirrhosis (CC); 4) ETV/TDF treatment delayed until CC. ETV and TDF were considered alternatively for a total of 8 strategies. Outcomes were quality-adjusted life years (QALY) and costs, calculated from the Italian NHS perspective. **RESULTS:** The strategies provided 10.4, 15.3, 15.0, 12.0 QALYs, for no-treatment, PEG+ETV/TDF, ETV/TDF-in-CHB and ETV/TDF-in-CC. No meaningful difference in outcomes was found when ETV or TDF were considered. The average per-patient lifetime cost was €27,090, €59,270, €69,050, €33,520 with no-treatment, PEG+TDF, TDF-in-CHB and TDF-in-CC. Costs using ETV were 19%-48% higher. PEG+TDF was dominant with respect to TDF-in-CHB and with an ICER of €6,590/QALY and € 7,750/QALY when compared to no-treatment and TDF-in-CC. **CONCLUSIONS:** Non treatment or treatment delayed until cirrhosis yielded the poorest outcomes. The strategy of a PEG first-line with the stopping rule showed a convenient cost-effectiveness profile, providing the optimal trade-off between clinical efficacy and costs.

PIN71

THE POTENTIAL PUBLIC HEALTH BENEFIT OF PNEUMOCOCCAL CONJUGATE VACCINES IN KAZAKHSTAN

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OBJECTIVES: To evaluate cost–effectiveness of pneumococcal vaccination with 10-valent pneumococcal non-typeable *Haemophilus influenzae* protein-D conjugate vaccine (PHiD-CV) compared with 13-valent pneumococcal conjugate vaccine (PCV-13) and no vaccination in Kazakhstan. **METHODS:** A steady state model with a one-year time horizon was developed to project the impact of vaccination on the incidence of pneumococcal and non-typeable *Haemophilus influenzae* infections in children aged 0-10 years. Disease incidence rates for meningitis, bacteremia, pneumonia and acute otitis media (AOM) were based on data from the Ministry of Health, benchmarked with other countries and validated by a group of local experts. Pneumococcal serotypes distribution is based on 4,752 samples reported by GAVI for Asian region. Serotypes coverage rates of 65.67% and 69.5% for PHiD-CV and PCV-13, payer perspective, 3+1 schedule, no herd protection were assumed. **RESULTS:** PHiD-CV and PCV-13 are projected to prevent more cases of invasive disease (278; 294 respectively), and pneumonia hospitalizations (12270; 12270 respectively) compared to no vaccination. PHiD-CV and PCV-13 are projected to prevent additional myringotomies (1920; 949 respectively) and GP visits due to AOM (70,057; 34,639 respectively) compared to no vaccination strategy. No difference in absolute number of death was projected when PHiD-CV is compared with PCV-13. Vaccinating a birth cohort with PHiD-CV or PCV-13 is expected to generate 4,541 and 4,388, respectively, more QALYs compared to no vaccination. At vaccine steady state PHiD-CV is projected to generate KZT 1.2M in direct medical cost-savings compared with PCV-13. Sensitivity analyses indicate that incidence rate of meningitis and bacteremia are the most sensitive parameters in the model. **CONCLUSIONS:** Pneumococcal conjugate vaccines would be cost effective interventions for Kazakhstan. However, PHiD-CV dominates PCV-13 because it has a larger potential QALY gain and higher cost offset related to the additional benefits due to AOM reduction.

PIN72

COST-EFFECTIVENESS ANALYSIS OF PALIVIZUMAB WITH RISK FACTORS FOR RESPIRATORY SYNCYTIAL VIRUS PREVENTION

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OBJECTIVES: To evaluate the cost-effectiveness of palivizumab as respiratory syncytial virus prophylaxis in preterm infants born at 35 weeks' gestation or earlier, and to determine how the cost-effectiveness of prophylaxis differs among subgroups according to risk factors for RSV-related hospitalization. **METHODS:** A decision analytic model was designed to assess the cost-effectiveness of prophylaxis with palivizumab for preterm infants born at ≤ 35 weeks' gestational age and ≤ 6 months of age compared with no prophylaxis. And by using this model, subgroup analyses were conducted to evaluate cost-effectiveness for children with different risk factors related to RSV hospitalization (gestational age, age at the start of the RSV season, with chronic lung disease, having siblings at school, discharge through RSV season). **RESULTS:** The expected costs and QALYs for preterm infants with palivizumab prophylaxis were higher than those with no prophylaxis. The incremental cost-effectiveness ratio (ICER) for the preterm infants was 19,928,984 KRW per QALY. The cost-effectiveness of palivizumab varied among the subgroups with different risk factors. The prophylaxis with palivizumab may be cost-effective (based on a threshold of 20,000,000 KRW per QALY) for preterm infants with one or more risk factors according to the age at the start of the RSV season. The prophylaxis with palivizumab for preterm infants was cost-effective for infants under 3 months old with 1 risk factor, infants under 9 months old with 2 risk factors, and infants under 15 months old with 3 risk factors. **CONCLUSIONS:** This study found that prophylaxis with palivizumab is a cost-effective strategy for preterm children compared with no prophylaxis and has different cost-effectiveness according to the risk factors because of the influence on the risk of RSV hospitalization. Therefore, it is reasonable to recommend the use of palivizumab for preterm infants in subgroup with cost-effectiveness considering the risk factors.

PIN73

DIRECT MEDICAL COSTS AND HEALTH CARE RESOURCE USE ASSOCIATED WITH HEPATIS C INFECTION IN PORTUGAL

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OBJECTIVES: To calculate the direct medical costs associated with HCV health states by eliciting expert opinion. **METHODS:** Portuguese-specific annual direct medical costs of HCV health states were estimated based on a national expert panel with 8 clinicians experienced in HCV treatment at the national level. We adopted a two-stage modified Delphi technique: First, experts independently answered questions concerning the resource use associated with each HCV-related health state. Secondly, a consensus meeting was held where experts were encouraged to revise their earlier answers after the panel discussion. The annual cost for each health state of HCV disease was thereafter obtained by multiplying unit costs with the consensus scores for each resource use. Unitary costs were obtained through national official sources. Fibrosis (F0-F3), compensated cirrhosis (CC), decompensated cirrhosis (DC), hepatocellular carcinoma (HCC) and liver transplantation were set as the different HCV health states with relevance for clinical and economic research. **RESULTS:** Estimated annual costs per HCV health state were the following: fibrosis (F0-F3) was €580, in advanced liver disease, CC was €1,156, whereas DC was €8,222 for the first year and €9,085 for subsequent years. For HCC first year, the annual cost was €20,749, whilst €19,088 for subsequent years. For liver transplant, first year cost was €112,072, while for subsequent years it was €7,558. The considerable difference between the costs associated with the first and subsequent years is due to the transplant procedure being the cost driver for this health state. **CONCLUSIONS:** Overall Cost of illness associated with HCV infection is substantial in Portugal and increases throughout the liver disease health states. Strategies aiming to treat HCV infection have the potential to decrease the disease progression and subsequent total costs associated with HCV-related liver disease. The results from our research highlight this point and may support cost-effectiveness analysis in the evaluation of those strategies.

PIN74

COST SAVINGS DUE TO ANTIBIOTIC PRESCRIPTION RELATED TO QUICK C-REACTIVE PROTEIN TESTING

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OBJECTIVES: The excessive and often unnecessary prescription of antibiotics and the resulting increase in antibiotic resistance poses a serious medical problem. The analysis provides data for assessing a health insurance company's strategies aiming to optimize antibiotic prescribing due to a quick C-reactive protein testing. **METHODS:** Within a period of 22 months (January 2009 – October 2010), in a population sample of 365 690 insured persons from Slovakia, a connection was studied between availability of a quick C-reactive protein testing as a service furnished by medical care providers and a final cost of antibiotic treatment. A health insurance fund provided data for this analysis. **RESULTS:** Higher consumption of antibiotics can be linked to higher resistance to antibiotics. On the other hand this linkage is not linear. In the analysis, the average expenditure per 1 patient at the level of 1.12 € can be seen within GPs, where a quick C-reactive protein testing is available. On the other hand, the average expenditure per 1 patient at the level of 1.35 € can be seen within GPs, where a quick C-reactive protein testing is not available. The average expenditure per 1 pediatric patient at the level of 1.64 € can be seen within pediatric medicine, where a quick C-reactive protein testing is available. However, the average expenditure per 1 pediatric patient at the level of 2.33 € can be seen within pediatric medicine, where a quick C-reactive protein testing is not available. Based on the analysis, we can finalised that in the case of an appropriate use of C-reactive protein testing with the monitored sample of 365 690 insured persons within the above mentioned period of 22 months, financial resources in a total