and dominant in patients with a severe CDI recurrence from a Swedish health care perspective.

PIN58

AN ECONOMIC MODEL TO COMPARE THE DIFFERENT EMPIRIC AND FIRST/SECOND LINE TREATMENT REGIMENS FOR SUSPECTED METHICILLIN-RESISTANT STAPHYLOCOCCUS AUREUS NOSOCOMIAL PNEUMONIA

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OBJECTIVES: Appropriate and timely empiric treatment is very essential for methicillin-resistant *Staphylococcus aureus* (MRSA) -related infections. Inadequate empiric treatment is associated with increased mortality and longer hospital stay. This study compares economic impact of initial empiric linezolid (Emp-LIN) vs. vancomycin (Emp-VAN) vs. no empiric MRSA coverage (NE-MRSA) before culture-confirmed treatment, for suspected MRSA nosocomial pneumonia (NP). **METHODS:** A 4 week decision model was developed capturing empiric, 1st and 2nd line therapy. Published literature and expert opinion provided clinical and resource use data, including efficacy, incremental mortality for NE-MRSA, adverse events, and length of hospital/ICU stay. Cost and health utilities data were obtained from published literature. Base-case analysis used 2-day empiric, 10-day 1st/2nd-line treatment duration, 30% MRSA rate, and 1st line linezolid for NE-MRSA after culture confirmation. Patients with a negative culture for MRSA exited the model after empiric treatment, and were assigned a fixed cost for remaining treatment. Univariate and probabilistic sensitivity analyses were conducted. Costs were reported in 2014 USD. **RESULTS:** Emp-LIN was associated with lower total costs ($41,975 vs. $42,288), and marginally greater QALY gain and overall treatment success compared to Emp-VAN, resulting in Emp-LIN 'dominating' Emp-VAN. Compared to NE-MRSA, Emp-LIN was more costly by $1,626, but had greater QALY gain (+0.836) and incremental treatment success (+5.9%), resulting in an incremental cost effectiveness ratio (ICER) of $1,946 per QALY gain, and $27,750 per successfully treated patient. Days in ICU stay, clinical efficacy, and MRSA rate had the greatest impact on ICER. Probability of Emp-LIN being cost-effective was 61% (vs. Emp-VAN) and 99% (vs. NE-MRSA) assuming a willingness-to-pay (WTP) of $50,000 per successfully treated patients and QALY gain respectively. **CONCLUSIONS:** Early treatment with Emp-LIN is a cost-effective alternative to Emp-VAN and NE-MRSA at reasonable WTP threshold, and should be considered a preferred treatment choice, especially at hospitals with high MRSA rate.

PIN59

THE EFFECT OF HERD IMMUNITY IN DIFFERENT HUMAN PAPILLOMAVIRUS VACCINATION STRATEGIES: AN ECONOMIC EVALUATION OF THE BEST II STUDY

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OBJECTIVES: Italian recommendations for human papillomavirus (HPV) immunization programmes currently target females only. However, males can be vectors in virus transmission and are at risk of disease infection. The BEST II study was designed to evaluate the cost-effectiveness (CE) of different interventions targeting females as well as males, and the economic impact of vaccination on a wide range of HPV-induced diseases. **METHODS:** A dynamic Bayesian Markov model was developed to investigate HPV transmission between sexual partners and the cost-effectiveness of several HPV vaccination strategies. Both sexes were included in a universal vaccination programme which was compared to screening-only and female-only vaccination. A range of HPV-induced diseases was considered (cervical, vaginal, vulvar, anal, head/neck and penile cancer, the associated precancerous stages as well as anogenital warts). The process of sexual mixing was estimated based on age-, gender- and sexual behavioural-specific factors to estimate the force of infection dynamically. The degree of susceptibility to the virus, associated with early sexual debut, high number of partners, smoking and previous STIs, was also included. We considered several scenarios; the baseline assumes universal vaccination to be implemented for 12-year-old females and males. The follow-up period was 55 years. **RESULTS:** According to our preliminary analysis, universal vaccination resulted as a cost-effective alternative when compared to screening-only (with an incremental CE ratio, ICER, of €1,200) and to female-only vaccination (ICER = €6,900). We performed extensive sensitivity analyses to parametric assumptions, which confirmed the good CE profile of universal vaccination in Italy. **CONCLUSIONS:** Universal HPV vaccination of male and female cohorts is cost-effective compared to cervical screening and female-only vaccination, when accounting for a great variety of HPV-related diseases. This is mainly due to the fact that universal vaccination increases the effects of herd immunity and provides indirect protection against HPV.

PIN60

ECONOMIC EVALUATION OF FIDAXOMICIN FOR THE TREATMENT OF CLOSTRIDIUM DIFFICILE INFECTIONS (CDI) ALSO KNOWN AS CLOSTRIDIUM DIFFICILE-ASSOCIATED DIARRHOEA (CDAD) IN SPAIN

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OBJECTIVES: Fidaxomicin is the first in a new class of macrocylic antibiotics, indicated in adults for the treatment of Clostridium difficile infections (CDI). The objective was to analyse the cost-utility of fidaxomicin compared to oral vancomycin in the treatment of adult CDI patients. The analysis focused on three CDI patient subgroups: cancer, concomitant antimicrobials, and renal impaired patients. **METHODS:** A Markov model was developed with a cycle length of 10 days and a one year time horizon. The patient enters the model in the CDI health state and is treated with fidaxomicin, or vancomycin for 10 days. Health state utilities were derived from the literature. The model perspective was the Spanish health care provider. Deterministic and probabilistic sensitivity analyses were performed. **RESULTS:** In all three CDI patient subgroups, fidaxomicin was dominant compared to vancomycin. For cancer fidaxomicin resulted in cost savings of €2,397 with an incremental QALY gain of 0.016. For concomitant antibiotics fidaxomicin resulted in cost savings of €1,452 with an incremental QALY gain of 0.014. For renally impaired, fidaxomicin resulted in cost savings of €1,432 and an incremental QALY gain of 0.013. The main cost-effectiveness drivers were the recurrence rate and length of hospital stay. The probability of fidaxomicin being cost effective at the €30,000 threshold was 96%, 94% and 96% respectively for cancer, concomitant antimicrobials and renal impairment, respectively. **CONCLUSIONS:** Fidaxomicin was dominant compared to vancomycin for these adult CDI patient subgroups.

PIN61

PUBLIC HEALTH AND ECONOMIC IMPACT OF VACCINATING CHILDREN WITH A QUADRIVALENT LIVE ATTENUATED INFLUENZA VACCINE IN FRANCE USING A DYNAMIC TRANSMISSION MODEL

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OBJECTIVES: We aimed at estimating the impact of extending the French influenza vaccination programme from at-risk/elderly (≥65 years) only, to additionally include children (2-17 years). **METHODS:** A deterministic, age-structured, dynamic transmission model was used to simulate the transmission of influenza in the French population, under the current coverage with the trivalent inactivated vaccine (TIV) in at-risk/elderly individuals (=reference strategy) or after extending the coverage to healthy 2-17 years-old children with an intranasal, quadrivalent live-attenuated influenza vaccine (QLAIV) (=evaluated strategy). The transmission probabilities were determined using between-individuals contact patterns ("Polymod" matrix). Epidemiological, medical resources and costs data were issued by crossing data from literature and French resource-based value scales. The basic reproduction number (R0) of the model was calibrated to the observed numbers of influenza-like illness visits/year and deaths/year. The 10-year, undiscounted, number of symptomatic cases of confirmed influenza and direct medical costs (All-payer) were calculated for the 0-17 (direct effect) and ≥18 years-old (indirect effect). The incremental cost-effectiveness ratio (ICER) was calculated for the total population, using a 4% discount/year. Univariate and probabilistic sensitivity analyses were performed. **RESULTS:** Model calibration yielded R0=1.27 (assuming 2.3 million visits/year and 1,960 deaths/year). In the 0-17 years-old with 50% QLAIV coverage, the average number of confirmed influenza cases dropped by 865,000/year, averting 58.4% of the cases occurring in the reference strategy and leading to 10-year savings of €374 million. In the ≥18 years-old with unchanged TIV coverage, 1.2 million cases/year of confirmed influenza were averted (-27.6%), yielding additional 10-year savings of €457 million. On average, 613 flu-related deaths were avoided annually. The ICER was €18,000/life-year gained. The evaluated strategy was 98% cost-effective at a €30,000/life-year gained threshold. **CONCLUSIONS:** The model demonstrated the direct and indirect benefits of protecting healthy children against influenza with QLAIV, on public health and economic outcomes in France.

PIN62

COSTS AND EFFECTIVENESS OF COMBINATION THERAPY WITH BEDAQUILINE AND OTHER ANTI-TUBERCULOSIS DRUGS IN PATIENTS WITH MULTI- AND EXTENSIVELY DRUG-RESISTANT TUBERCULOSIS IN GERMANY

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OBJECTIVES: Multidrug-resistant tuberculosis (MDR-TB) is designated an orphan disease in Germany, where about ~65 patients are infected with multidrug-resistant tuberculosis (MDR-TB). Regimens consisting of several drugs for up to 24 months are the current standard of care (SoC) for treatment of MDR-TB. The aim of this analysis is to evaluate the costs and effectiveness of adding bedaquiline (BDQ) to a background regimen (BR) of the SoC in a German health care context. **METHODS:** A cohort based Markov model was used to estimate cost-effectiveness of bedaquiline plus background regimen (BDQ+BR) vs. BR alone for treatment of MDR- and XDR-TB (extensively drug resistant). The effectiveness of treatment was evaluated in QALYs, DALYs and life year gained (LYG). Inputs into the model were derived from a bedaquiline randomised, placebo controlled trial and from published literature. Drug costs (in 2014 euros) were taken from the German drug directory; a yearly discount rate of 3% was applied and a time horizon of 10 years was assumed. Sensitivity analyses were performed to evaluate the impact of model parameters. **RESULTS:** For a base-case analysis with a cohort of 65 MDR-TB patients, adding bedaquiline to BR results in higher costs compared to BR alone (4,5 vs. 2,4 MM €), but yields better outcomes (66 QALYs gained). The incremental cost per QALY gained (ICER) was calculated as 33.357 €. For a cohort exclusively of XDR-TB patients, the ICER was calculated as 17.915 €. To evaluate the impact of model parameters, further sensitivity analyses were performed. **CONCLUSIONS:** Adding bedaquiline to a background regimen of anti-TB drugs is cost-effective, probably even cost saving for patients with MDR- and XDR-TB, when compared to BR alone under different cost scenarios. Over a ten year period, cost savings were mostly achieved by lesser time of hospitalisation, although BDQ+BR drug costs are higher than BR alone.