THE COST OF PREVENTING INFLUENZA PANDEMIC: MEXICAN ELDERLY POPULATION SCENARIO

**OBJECTIVES:** To compare the budget impact in the main Public Health Institution in Mexico due to the use of MF59-adjuvanted vaccine (MF59), split vaccine (SPL) and a No Vaccination Program Alternative (NOVA) in Mexican elderly population. **METHODS:** A budget impact analysis considering a public health institution perspective was performed. The expenses of the Mexican Health Care System due to a vaccination program, medicine (vaccines), influenza and influenza related complications, hospitalization and intensive care unit cost were simulated with MF59 or SPL versus NOVA in elderly population affected by an influenza pandemic. A case scenario of high incidence influenza (5% of population) with three sub-scenarios was designed: a) 20%, b) 30%, and c) 50% of patients developing complications related to influenza. A systematic literature review was designed in order to include the most recent information about vaccines effectiveness measured as the ability of provide herdprotection against Influenza A/H1N1 strain and pandemic historical influenza incidences recommended by World Health Organization. Use of resources and cost matrices were designed with the most recent data of main Public Health Institution in Mexico, which attends about fifty percent of the total population in Mexico. **RESULTS:** The cost of treatment of influenza and complications related to influenza were estimated in US$388.84 and US$5,052, respectively. Simulating prevention of influenza pandemic affecting 5% of Mexican elderly population results in less expenses for Public Health Institutions when MF59 is used in vaccination program compared to SPL and NOVA without varying the proportion of patients getting complications related to influenza (20%: MF59-US$51,831,636; SPL-US$84,922,366; NOVA-US$26,082,644; 30%: MF59-US$51,831,636; SPL-US$84,922,366; NOVA-US$26,082,644; 50%: MF59-US$51,831,636; SPL-US$84,922,366; NOVA-US$26,082,644). **CONCLUSIONS:** Using an MF59-adjuvanted vaccine as a preventive alternative in an Influenza Pandemic affecting elderly population in Mexico, represents important savings for Mexican Public Health Institutions compared to SPL and NOVA.

**BUDGET IMPACT MODEL TO ESTIMATE THE ECONOMIC IMPACT OF ITRACONAZOLE IN PROPHYLAXIS OF INVASIVE FUNGAL INFECTIONS IN PATIENTS WITH NEUTROPENIA IN SPAIN**

**OBJECTIVES:** A budget impact model (BIM) was developed to estimate the economic impact of itraconazole in prophylaxis of invasive fungal infections (IFIs) in patients with neutropenia in Spain. **METHODS:** A BIM was developed using published data for disease prevalence, population growth, pharmaceutical ex-factory prices, health care resource consumption and market shares forecasting for Spain. This study was developed under the perspective of the health care system and time horizon was considered was 5 years with an annual discount rate of 3%. According to a panel of clinical experts, drugs considered in this study were all different “azoles” currently used in prophylaxis in Spain regardless whether they have been authorized for this purpose or not. These are the following ones: itraconazole, posaconazole, fluconazole and voriconazole. A BIM model estimated the cost of this disease for the Spanish health care system with and without the partial replacement (from 5% to 15%) of posaconazale by itraconazole. All costs were referred to year 2009. **RESULTS:** According to official statistic, target population with hematologic cancers in prophylaxis of IFI in Spain would be around 70,000 patients in the first year, arriving at 75,000 in the 5th year. Direct medical costs for the next 5 years were estimated at €142,400 million before the replacement of posaconazole by itraconazole. Costs were estimated at €142,400 million whether this replacement would take place. **CONCLUSIONS:** The replacement of posaconazole by itraconazole in a very low percentage (from 5% to 15%) would represent a savings of €8,300,000 for the Spanish health care system in the next 5 years.

**BUDGET IMPACT ANALYSIS OF NEW ANTIRETROVIRAL MEDICINES FOR TREATMENT OF HIV PATIENTS IN BULGARIA**

**OBJECTIVES:** To analyze the budget impact of two newly registered for Bulgaria antiretroviral medicines tenofovir and emtricitabine for treatment of HIV infection. The point of view is that of health care system and time horizon is one year. **METHODS:** A budget impact model was created for antiretroviral medicinal therapies for first and second line treatment. Two scenarios were analyzed for highly active antiretroviral therapy (HAART) including 12 medicines combinations for first line and 7 combinations for second line therapy. Health care resources included in the model are drugs, hospitalization, laboratory consultation first and 12 clinical laboratory, 3 virology and 6 immunology tests. In the model was varied the cost of the medicines therapy and number of patients. **RESULTS:** Until June 2009 in Bulgaria are registered 991 HIV positive patients and near 230 of them are on highly active antiretroviral therapy (HAART) = first or second line depending on their virology status. Preliminary results from the budget impact model show that in the first scenario (first line therapy) the combination tenofovir—emtricitabine—lovastatin is cost saving to the health care system compared to three of the most effective HAART regimens: AZT/3TC/3LPV/r, 3TC/ABC/ SQV and TDF-3TC-EFV and saves 141 981,46 Euro, €346 13,3 and €2445.99, respectively for one year. The second scenario (second line therapy) is indicated only for certain patients according to their virology status. In this scenario the regimen TDF-3TC-EFV is cost saving to the health care system in comparison with TDF-3TC-EFV and saves 2445.99. **CONCLUSIONS:** TDF-3TC-EFV is cost saving for the health care system compared to three of the most effective regimens in Bulgaria. The combination is much appropriate as first line HAART.

**BUDGET IMPACT ANALYSIS OF THREE CANDIDS IN THE TREATMENT OF INVASIVE CANDIDIASIS IN ADULT NON-NEUTROPENIC PATIENTS IN SPAIN**

**OBJECTIVES:** Three candidias had been approved for the treatment of invasive candidias (IC). Different drugs are associated with different needs for dose adjustment which might affect the total cost. The aim of this study was to estimate the budget impact of caspofungin, micafungin and anidulafungin in the treatment of 100 patients with invasive candidiasis from the perspective of the Spanish hospital pharmacy setting. **METHODS:** Possible scenarios varying percentage of doses adjustment required were also considered to assess the global impact on costs. Prices for each presentation were obtained from the Spanish database “portafarma”, expressed in €2008. Only drug acquisition costs were considered into the analysis. Total cost for the three candidias was finally displayed. **RESULTS:** Cost per episode associated with the use of anidulafungin remained constant at €6000. When considering caspofungin, cost-per-episode varies from €4665 to €7991 depending on the patient’s weight and hepatic function. Finally micafungin varied from €632,998 to €637,084. **CONCLUSIONS:** Patients treated with Anidulafungin did not required dose adjustment unlike caspofungin and micafungin. The use of anidulafungin in the treatment of adult non-neutropenic patients with invasive candidiasis is a cost saving treatment option that allows a better control of antifungal budget based on a lower total cost per episode, from the pharmacy department perspective in Spain.

**BUDGET IMPACT MODEL: LEVOFLOXACIN VS STANDARD THERAPIES IN THE TREATMENT OF INPATIENT CAP**

**OBJECTIVES:** To develop a Budget Impact Model (BIM) to estimate the financial consequences of the use of levofloxacin for the treatment of community-acquired pneumonia (CAP) in Italian Hospitals to support health decision makers. **METHODS:** We developed a BIM for levofloxacin that compares current treatments for CAP with levofloxacin to determine efficacy and safety and the resource use and costs as apply to the population of interest. Several dimensions were considered: drug consumption, frequency and days of treatment, health care professional costs, disposable (material), hospitalization costs and indirect costs. **RESULTS:** When considering levofloxacin for the treatment of CAP, effectiveness and safety were higher than the current alternative. **CONCLUSIONS:** In Italy the annual incidence of hospitalization due to CAP is about 3 cases every 1000 habitants, with rather high mortality rates: from 15/100.000 cases of the national mean to 70/100.000 cases for subjects older than 65 years. More than 90% of CAP costs are associated to hospitalizations (500 million euro). The model we developed results in an interactive tool that allows users (payers) to understand the relation between the characteristics of their scenario and the possible budget consequences of the different treatment choices and informs them about the most affordable option among current treatments for CAP (including levofloxacin) according to the features of their own scenario. **CONCLUSIONS:** BIMs are primarily intended to inform health care decision makers, especially those who are responsible for national, regional, or local health care budgets. For this reason methodology and results were presented in an external engagement with payers to validate the model in a real scenario.
or not), and to estimate the impact of treatment cost. METHODS: We conducted a population-based observational cohort study of patients who presented for PEP in BC in 2007 and 2008. Data collected included details of HIV exposure, drug regimens and treatment cost. RESULTS: In 2008, 498 patients came in emergencies for a possible HIV exposure; 17% more than 2007. The majority were male (56.0%) and presented after sexual exposure (60.6%). Mean age was 31.4±0.4 years. Only in 47.6%, ARVs were prescribed (tri-therapy in all cases) according to guidelines. Median time to receive PEP after hospital admission was 1h07. On average, 19±1 days of treatment were dispensed per patient. For 2008, the total acquisition cost of PEP drugs was €13,858.0 (1.1% of the total HIV treatment budget, ±14.6% compared to 2007) equivalent of €171,785 in a societal point of view. Mean cost per patient was €635.8±38. Without discriminating prescription of PEP, the total cost would have been €219,263. Since French recommendations (March 2008) authorising TDF+FTC (Truvada®) in first intention as AZT+3TC (Combi®), associated with lopinavir/ritonavir, we observed a change in PEP prescription compared to 2007, which explained at 72.5% the cost’s increase observed. CONCLUSIONS: The review of cost-effectiveness suggests that PEP may be cost-effective only in certain population subgroups. In our hospital only targeted patients at high-risk received PEP according to guidelines. The cost difference between TDF+FTC and AZT+3TC highlighted here will enable us to begin a revision of local recommendations.

PIN13
THE ECONOMIC IMPLICATION OF A RAPID DIAGNOSTIC AND EARLY SHIFT IN THERAPY IN PATIENTS WITH INVASIVE CANDIDA INFECTION

Kolthe A1, Clausen SR2, Schierbeck J3, Andersen JB4
1Pfizer Denmark, Ballerup, Denmark, 2Odense University Hospital, Odense C, Denmark, 3Copenhagen University Hospital, Copenhagen, Denmark.

Patients at risk or suffering from invasive candida infection can be diagnosed early, using new rapid technologies. Accelerated diagnosis allows earlier shift in antifungal therapy for patients insufficiently treated by first choice of antifungal medicine. OBJECTIVES: To analyze the economic consequences for the Intensive Care Units (ICU) of a faster diagnosis and when indicated earlier shift in therapy using PCR compared with a traditional blood culture. METHODS: A decision-tree based costing model was designed to compare the two approaches to diagnosing (blood culture alone versus PCR plus blood culture). The model compares the costs of the diagnostic methods, costs of medication, costs of LOS at the ICU for the two alternatives. The data for the costing model was based on data for a half year of patients at Copenhagen University Hospital in 2008 having an invasive candida infection (n=10), and all costs were recorded in 2008 Euros. RESULTS: All patients in risk of developing invasive candida infection were treated with fluconazole or diagnosed positive. Based on the national surveillance of patterns of resistance up to 35% of the patients will be shifted to an echinocandin after diagnosis. A faster diagnosis and early shift in therapy with echinocandin will imply in average an extra medical costs between € 254–267. However, at the same time LOS at ICU will in average be reduced by 1-1.5 days, which will result in savings as high as €485.9. Diagnosis with PCR and use of echinocandin for the 35% of the relevant patients could therefore result in savings up to €6405 per patient. CONCLUSIONS: Rapid diagnostic with PCR and early shift in therapy to echinocandin is cost-effective. However, different budgets (including the DRG payments) at the hospital are affected, why also thinking might be a barrier, when deciding upon the cost-effective strategy.

PIN16
COST-EFFECTIVENESS OF HEPTAVALENT PNEUMOCOCCAL CONJUGATE VACCINE (PCV-7) IN MEXICO

Carlos P1, Marceco G2, Aguirre A3, Vargas A4, Bierschwale H5
1R. A. E. Salud, Cancérologo, SA de CV, Ciudad de Mexico, Distrito Federal, Mexico, 2Instituto Nacional de Cancerología, Mexico City, 3Mexico City, 4Mexico City, 5San Diego, California, USA.

Conjugate pneumococcal vaccines (PCV) have been recommended for young children in many countries in the last years. Achieving PCV-7 coverage levels is a challenge. OBJECTIVES: To evaluate the cost effectiveness of PCV-7 in Mexico. METHODS: A cost-effectiveness analysis was performed from a societal perspective in 2008. We included all costs related to PCV-7 and the sequelae of pneumococcal infections. We calculated cost per DALY in incremental analysis to assess the cost-effectiveness of PCV-7 compared with non-tableted strategy. A base case scenario analysis was performed and sensitivity analysis was done using a Monte Carlo simulation. RESULTS: The base case scenario results indicate that PCV-7 is cost-effective in Mexico (1.08 cost/benefit ratio with 95% CI 0.95-1.22). For the base case scenario, PCV-7 is cost-effective compared with non-vaccination and associated with a reduction of 57% of deaths from invasive pneumonia and cure of 26% of hearing loss. Sensitivity analysis indicated that the results remain robust for a wide range of plausible parameters. CONCLUSIONS: PCV-7 is cost-effective in Mexico and leads to a substantial cost saving.

PIN17
THE COST OF ROTAVIRUS GASTROENTERITIS IN YOUNG CHILDREN IN FOUR EUROPEAN COUNTRIES: A STUDY IN PRIMARY CARE

Curran D1, Gaqunto C2, Diaz-Domingo J3, Paterek M2, Padisza P4, Rosillon D1
1Omega Research, Dublin 9, Ireland, 2Hospital Trousseau, Paris, France, 3GSK, Rixensart, Belgium, 4Charles University Pilsen, Pilsen, Czech Republic.

Objectives: To investigate the resource use and cost of rotavirus gastroenteritis (RVGE) in children aged <5 years presenting to primary care in four European countries: Italy, Spain, and the Czech Republic. METHODS: This observational, prospective study collected data from children aged <5 years presenting to primary care (general practitioners and paediatricians) with acute gastroenteritis (defined as diarrhoea for <14 days) and a positive test for rotavirus. Severity of RVGE was assessed using the Vesikari score. Parents completed a cost questionnaire at a follow-up visit or phone call 14 days after the episode, recording information on: direct medical costs (physician visits and contacts including the initial visit, use of medication, rehydration solutions and nutritional products); direct non-medical costs (transport, supervision/carer costs, other costs); and indirect costs (days lost at work or school/daycare). All costs were recorded in 2006 Euros. RESULTS: Cost data were available for 502 children, of whom 126 were in Italy, 217 in Spain, 87 in Poland and 72 in the Czech Republic. A total of 6.5% of the children (n = 326) aged 0–24 months, 52% (n = 263) were male, and 82% (n = 410) were rated as moderate/severe using the Vesikari score. The mean total societal cost per child was €170.6 in Italy, €169.7 in Spain, €44.0 in Poland and €37.6 in the Czech Republic. The share of the total societal cost borne by the family was highest in Italy (57.5%), compared with 55.0% in Poland, 48.3% in Spain and 35.9% in the Czech Republic. CONCLUSIONS: RVGE presents a high cost to primary care in all four countries. Indirect and indirect costs, a high proportion of which are borne by families. These data will be valuable in economic evaluations of paediatric rotavirus vaccination. Acknowledgments to the SPIRK investigators, VIVA Spanish investigators, José Baldes, Nadia Meyer and Monse Soriano-Gabarró.

PIN18
THE COST BURDEN OF ACUTE GASTROENTERITIS IN INFANTS AND YOUNG CHILDREN ATTENDING DAYCARE CENTRES IN FRANCE

Curran D1, Grimpel E2, Meyer N3, Percon J3
1Omega Research, Dublin 9, Ireland, 2Hopital Trousseau, Paris, France, 3GSK, Rixensart, Belgium.

OBJECTIVES: To investigate the cost of acute gastroenteritis (AGE) in children aged <3 years attending daycare centres in France. METHODS: This observational, prospective study was conducted at 15 daycare centres in Paris, France. Children were eligible for the study if they had an episode of AGE (defined as <3 loose stools within 24 hours, lasting for <14 days) before their thirteenth birthday. Parents completed a cost questionnaire for the affected child and household contacts (a person spending at least 50% of nights in the same home) who also experienced AGE in the 14 days before or after onset of gastroenteritis in the affected child. Information on direct medical costs (general practitioner or paediatrician visits and phone consultations, hospitalisations, emergency room visits, and use of medication, rehydration solutions and nutritional products); direct non-medical costs (transport, supervision/carer costs, other costs); and indirect costs (lost workdays) were recorded in 2006 Euros. RESULTS: Costs were available for 71 episodes in 62 subjects (57 children attending daycare and 5 household contacts) of the 113 subjects in the study. Of the children attending daycare, 47% were male and 86% were aged ≤24 months. Most episodes (67%) were scored as mild/moderate using the Vesikari scale and 21% tested positive for rotavirus. The mean societal cost was €231.6 (SD 409.3) per episode, of which direct medical costs accounted for €93.2 (37%), non-medical direct costs €16.0 (6%) and indirect costs €144.4 (57%). Most of the total cost (63%) was borne by families, reflecting the importance of indirect costs. Rotavirus-positive episodes (n = 15) had higher mean total costs than rotavirus-negative episodes (n = 51), at €417.7 (SD €527.1) and €132.0 (SD €304.0) per episode, respectively. CONCLUSIONS: These data show the importance of indirect costs borne by families, and provide useful information for economic evaluations of paediatric rotavirus vaccination.

PIN19
TREATMENT COSTS FOR CHRONIC HEPATITIS B (CHB) IN URBAN CHINA

Wang Z1, Xiong X2, He M3, Dong Z1, He P1
1National Institute of Social Security Studies, Ministry of Human Resource and Social Security, PRC, Beijing, China, 2China Health Insurance Research Association, Beijing, China, 3School of Management, Beijing Traditional Medicine University, Beijing, China.

OBJECTIVES: In China, 93 million people are chronically infected with hepatitis B virus, causing around 19,300 deaths annually. However, detailed costs of treating CHB have not been well studied, particularly within the growing urban areas. This study aimed at the annual direct medical costs for the management of CHB in three cities in China. METHODS: Medical claims of 8,954 urban CHB patients from Beijing, Nanjing, and Qingdao between January 2006 and December 2007 were randomly reviewed. Demographics; inpatient and outpatient costs; type of medications, including antiviral and Traditional Chinese Medicine (TCM), were all recorded and