A COST—EFFECTIVENESS ANALYSIS MODEL FOR TREATMENT OF CANDIDIASIS AND INVASIVE ASPERGILLOSIS IN MEXICO

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OBJECTIVES: The purpose of this research is to estimate the incremental cost–effectiveness ratio (ICER) in Mexican patients with candidiasis and aspergillosis treated within voriconazole, amphotericin B and caspofungine. METHODS: It has been carried out a cost–effectiveness analysis based on a decision model represented with a decision tree describing multiple therapeutic options together with the obtained clinical results and the associated costs. The data come from clinical literature for treatment of candidiasis and invasive aspergillosis in immunodepressed patients. Effectiveness measure was the number of patients with therapeutic success. Costs were taken from hospital records and expert opinion. The perspective was that of the National health provider (only direct medical costs) and the time horizon of the research is of 3 months. The sensitivity analysis was probabilistic and acceptability curves were constructed. RESULTS: On a deterministic analysis, three months expected medical care costs per patient with candidiasis were: US$42.743 for caspofungine, US$30.972 for voriconazole and US$36.736 for amphotericin B. The costs per patient with aspergillosis were: US$49.962 for caspofungine, US$57.378 for voriconazole and US$72.834 for amphotericin B. From a hypothetical patient cohort of 1.000 patients with candidiasis, the ICER was US$272.597 when voriconazole was used against amphotericin B (US$ 272.6 per patient). The ICER in the aspergillosis model was US$206.071 when voriconazole was used against amphotericin B (US$ 206.1 per patient). Acceptability curves showed that voriconazole was the antifungal treatment most cost–effective in comparison with the two other treatments with a mean of 70% of certainty (with independence of the willingness to pay amount). CONCLUSIONS: The use of voriconazole in the treatment of candidiasis and invasive aspergillosis is a more cost–effective therapeutic alternative than amphotericin B and caspofungine, therefore, voriconazole should be the option to be used as the first line treatment in the Mexican health system.

INFANTILE GASTROENTERITIS IN THE COMMUNITY: A COST OF ILLNESS STUDY

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OBJECTIVE: To assess the economic burden of gastroenteritis and, in particular, rotavirus-associated disease among children aged five years old and under, from the perspective of the health service, parents and society. METHOD: Over a period of three rotavirus seasons, stool samples were collected from 223 children who presented at GP surgeries with diarrhoea and vomiting. Parents were asked to complete a questionnaire detailing severity of illness, health care resource use, personal medical expenses, changes in child care patterns and associated costs, and lost income due to their child’s illness. Data were analysed as a whole to establish the cost of illness of gastroenteritis and separately in terms of rotavirus and other viral strains. RESULTS: A total of 48% of the sample had rotavirus acute gastroenteritis; a further 21% had other virus-associated gastrointestinal disease. The average total cost of a child presenting with gastroenteritis and rotavirus-gastroenteritis ranged between £60–£176 and £59–£169 per episode, respectively, depending on the perspective. The annual cost of ‘normal’ childhood illness was estimated to be between £205 and £323. Given the prevalence and severity of the disease, the estimate additional burden of gastroenteritis to society is £75.2 million per year, and for rotavirus gastroenteritis it is £57.2 million per year. CONCLUSIONS: To the nature and prevalence of rotavirus the total burden of illness is considerable. As well as being a major inconvenience to parents and children, it would appear that there is a considerable amount of cost shifting between the health service, parents and society. Some of the economic cost of the illness may be constrained with an immunisation programme; work is currently being undertaken to model the cost effectiveness of vaccination within the UK context.

ANNUAL COST FOR THE TREATMENT OF PATIENTS HOSPITALIZED WITH METHICILLIN-RESISTANT STAPHYLOCCUS AUREUS IN THE UNITED STATES

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OBJECTIVES: To estimate the nationwide annual cost for the treatment of patients hospitalized with methicillin-resistant Staphylococcus aureus (MRSA) infections in the United States. METHODS: An extensive literature search was conducted in order to identify recent studies estimating the direct medical costs associated with MRSA infections in US hospitals. The range of the annual cost of MRSA infections was constructed by multiplying the estimated number of annual discharges due to MRSA infections by the highest and lowest cost per case estimates of MRSA bacteremia and Staphylococcus aureus pneumonia infections. RESULTS: CDC estimated that in 2000 approximately 290,000 US patients were hospitalized with an S aureus infection and that 41.5%, or 120,000 of these were MRSA infections. The most common types of MRSA infections are skin and skin structure infections (SSSI), bacteremia, and lower respiratory tract infections. Abramson and Sexton estimated the direct medical costs associated with MRSA bacteremia to be $27,083 per case. Engemann et al. estimated the direct medical costs associated with an S aureus pneumonia to be $34,900 per case. Rubins et al. estimated the direct medical costs associated with S aureus pneumonia to be $34,900 per case. The average cost of an MRSA-related infection, based on cited studies, ranged from $27,083 to $34,900 per case. Assuming 120,000 annual MRSA infection related hospital discharges, we estimate that the annual nationwide cost for the treatment of patients hospitalized with an MRSA infection in the US to be in the range of $3.2 billion to 4.2 billion. CONCLUSION: The annual cost for the treatment of MRSA infections incurs a significant economic burden on the US health care system. Strategies to minimize hospital costs relating to MRSA infection should be critical to the management of this economic burden placed on US hospitals.

OUTPATIENT COMMUNITY-ACQUIRED PNEUMONIA IN NON-ELDERLY ADULTS: UTILIZATION AND COST

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OBJECTIVE: To examine utilization and cost of services in the outpatient treatment of community-acquired pneumonia (CAP) among non-elderly adults. METHODS: We analyzed claims...
from eight managed care organizations. Index claims were outpatient or emergency department visits in 1999–2001 by individuals aged 25–64 with a primary diagnosis of pneumonia, antibiotic prescription within three-days, chest x-ray on index date, continuous enrollment for 12-months prior, 30-days after index visit. Exclusion criteria: antibiotic prescription, pneumonia diagnosis, or hospitalization in prior 30-days; initial therapy with multiple antibiotics; in prior 12-months residence in a long-term care facility or diagnosis of lung cancer, secondary malignancy, HIV/AIDS, cystic fibrosis, immunodeficiency. We considered the following comorbid illnesses: chronic liver, renal or lung disease; cerebrovascular disease; cardiac disease; diabetes mellitus; malignancy. Follow-up claims were considered CAP-related if the primary diagnosis, using the Clinical Classifications Software, was pneumonia; sepsisemia; pleurisy, pneumothorax or pulmonary collapse; respiratory failure, insufficiency or arrests; other lower respiratory infection. RESULTS: In total, 5748 cases met criteria; 79.7% had no comorbidities, 16.8% had one comorbidity, and 3.5% had two or more comorbidities. Mean total charges were $955.97 (48.2%) inpatient, 25.2% outpatient, 13.4% outpatient testing and diagnostics, 15.5% antibiotic prescriptions, 5.8% emergency department, 13.9% presenting to the emergency department had initial mean charges of $560.48 compared with mean initial charges for outpatients of $167.89. In total, 50% utilized follow-up services with 3.0% requiring hospitalization. Mean total charges for those eventually hospitalized were $1643.23 compared with $673.71 for the 13.1% of patients who failed initial treatment but were not hospitalized, and $431.91 for the 78.0% of patients requiring no additional antibiotics. Number of comorbidities was strongly associated (p < 0.0001) with charges: $888.19 for those without comorbidities vs. $1734.37 for those with multiple comorbidities. CONCLUSION: Cost of outpatient CAP for non-elderly adults is large even for those without comorbid illness.

**IMPACT OF COMPLICATED SKIN AND SOFT TISSUE INFECTIONS ON INPATIENT COSTS FOR AN ACADEMIC MEDICAL CENTER**

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OBJECTIVES: To determine the additional costs and lengths of stay (LOS) attributable to complicated skin and soft tissue infections (cSSI) for patients admitted to Thomas Jefferson University Hospital, an urban academic tertiary care hospital. METHODS: All patients admitted between January 1, 2003 and December 31, 2003 were identified using the hospital billing system. Patients with a potential cSSI were identified using the specific ICD-9 diagnosis codes. Costs of care and lengths of stay, based on the hospital's true cost accounting system, were compared by Diagnosis Related Group (DRG) between the cSSI population and the non-cSSI population. RESULTS: Of the 33,764 patient discharges in 2003, 3,883 (5.5%) included one of the cSSI diagnosis codes; these encompassed 225 DRGs. The mean cost for cSSI cases was $20,965 higher than for non-cSSI cases, and mean LOS was ten days higher for cSSI cases. For surgical and medical DRGs, mean cost of cSSI added $42,563 onto the cost for cases in surgical DRGs compared to an average increase of $10,048 added to cost of medical DRGs. Differences in costs and LOS were observed in analyses by Major Disease Categories (MDCs) and individual DRGs as well. For MDCs, myeloproliferative disorders, multiple trauma, and diseases of the nervous system, costs were $68,027, $48,286, and $27,496, higher for the cSSI cases, respectively. This difference was also reflected in additional days of stay of 22, 11, and 14 days, respectively. For patients with cSSI, the three specific DRGs responsible for the maximum total health care dollars expended were bone marrow transplants, rehabilitation, and small and large bowel procedures. CONCLUSIONS: cSSIs significantly increase hospital resource consumption and costs. The difference in costs is especially pronounced for patients undergoing surgical procedures. Results suggest that measures taken to avoid or more effectively treat cSSIs could yield significant savings to hospitals.

**PIN16 COST-UTILITY OF CHRONIC HEPATITIS C TREATMENT WITH THYMOSIN ALPHA 1 IN MEXICO**


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OBJECTIVE: To estimate cost-utility of the following alternatives in the treatment of chronic hepatitis C (CHC) in the Mexican Institute of Social Security (IMSS): peginterferon, peginterferon plus ribavirin, peginterferon plus ribavirin plus thymosin alpha-1 and finally, not using any drug. METHODS: In Mexico, more than one million persons are infected with CHC virus and 80% of them develop chronic infection that might lead to hepatic cirrhosis and other complications that affect quality of life and costs of health care institutions. Cost-utility analysis was carried out using institutional perspective and time horizon of 45 years, discount rate of 3% for both, costs and effectiveness. The base case was a 30-year-old man with CHC without hepatic cirrhosis or cancer and cost and effectiveness data were taken from literature, a Mexican expert panel and an on-going clinical trial, not yet reported. Effectiveness data are reported in QALYs and costs in 2004 USD. A decision tree using a Bayesian approach and a Markov model were developed. Sensitivity analysis was univariate, bivariate, threshold and probabilistic. Acceptability curves and health net benefits were estimated. RESULTS: Triple therapy (peginterferon plus ribavirin plus thymosin alpha-1) was dominant over the rest of alternatives costing $1802 per QALY, while peginterferon plus ribavirin $2275 per QALY and peginterferon only $2927 per QALY. Not using any drug was the most costly alternative with $4201 per QALY. Sensitivity analysis confirmed the strength of the base study. Triple therapy was not dominated in any comparative case. CONCLUSIONS: Triple therapy had the best cost-utility ratio and not using any drug was the opposite, most expensive and with less utility than all the compared alternatives. Although triple therapy is initially very expensive, it provides the highest gains in the long run, both in the improvement of quality of life and in saving costs.

**PIN17 A COMPARISON OF METHODS TO ASSESS QUALITY OF LIFE IN ECONOMIC ANALYSES OF HEPATITIS C TREATMENTS**

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OBJECTIVES: This study investigated the effect of using different utilities for a cost-utility analysis comparing peginterferon alpha-2b plus ribavirin, interferon alpha-2b plus ribavirin, and no treatment for chronic hepatitis C from a U.S. payer's perspective. METHODS: A Markov model was developed to simulate the lifetime disease progression of hepatitis C virus (HCV) for a 45-year-old male. The analysis was conducted by stratifying HCV genotypes. Health-state utilities were obtained from previously published literature. Standard gamble patient-elicited utilities were used as the base case. Five other expert-estimated