LENGTH OF STAY AND COSTS ASSOCIATED WITH SURGICAL SITE INFECTIONS IN COLON PROCEDURES IN A LARGE U.S. DATABASE
Turpin RS¹, Mahmoud N², Yang G³, Saunders W⁴
¹Merck & Co., Inc. West Point, PA, USA; ²Hospital of the University of Pennsylvania, Philadelphia, PA, USA; ³Premier Inc. Charlotte, NC, USA

OBJECTIVES: During the 1990’s, colorectal patients in the U.S. experienced 6.5 extra hospital days and $3089 in costs attributable to surgical wound infections, but no updated information is available. We utilized a large U.S. hospital database to identify the variables associated with increased length of stay (LOS) and costs for colon procedures.

METHODS: We utilized a retrospective comparative national database to access LOS and costs in 196 hospitals from 1/1/2005 through June 30, 2006. The study population was all patients >18 years, identified via ICD-9 & CPT procedure codes for elective colon procedures. Patients given cefotetan as surgical prophylaxis were compared to patients given commonly used prophylactic antimicrobials, including cefazolin/metronidazole. Patient demographics, surgical procedure, primary diagnosis, co-morbidities, and patient severity were examined as predictors of LOS <7 days and cost >=$15,000 using logistic regression. Patient severity was classified by APR-DRG severity of illness subclasses and SENIC risk index for infection.

RESULTS: Hospitals were mostly urban (90%) with >300 beds (70%), and 58% were non-teaching. They represented each region of the U.S., though predominantly Mid- and South-Atlantic (44.0). The 23,801 unique patients were 51% >65 years, 53% female, and 73% white. The overall infection rate was 3.3%; mean LOS 7.0 (SD 5.7); mean total cost $12,871 (SD $11,295); and mean daily cost $2015 (SD $917). In an adjusted model, compared to cefazolin/metronidazole, cefotetan is associated with a lower rate of LOS 7 days or more (OR = 0.92; p = 0.007) and total cost >=$15,000 (OR = 0.71; p < 0.001). Additional predictors of greater LOS and costs are elevated severity (OR = 9.02 & 11.53) and SENIC scores (OR = 1.51 & 4.12), age <75 (OR = 2.18 & 1.66), and non-white ethnicity (OR = 1.31 & 1.16). CONCLUSION: Cefotetan has limited availability and substitutions are increasingly utilized. Yet in elective colon procedures, cefotetan used as surgical prophylaxis is associated with lower LOS and costs compared to cefazolin/metronidazole.

ANALYSIS OF INCIDENCE, RESOURCE USE AND COSTS OF SEVERE SEPSIS IN BRAZIL AND THE ECONOMIC IMPACT OF DROTRECOGIN-ALFA ACTIVATED
Marques AC¹, Janiszewski M², Houlis D³
¹Eli Lilly do Brasil and Paulista Centre of Health Economics, UNIFESP, São Paulo, Brazil; ²Eli Lilly da Brasil and Universidade of São Paulo School of Medicine, São Paulo, Brazil; ³Eli Lilly do Brasil, São Paulo, Brazil

OBJECTIVES: To estimate severe sepsis (SS) incidence, health resource use and costs during hospitalization in Brazilian private health care system, and to verify economic impact of drotrecogin alfa activated (DrotAA) treatment.

METHODS: We performed a retrospective data analysis of private health plans’ electronic claims between April 2005 and March 2006. SS were defined according to 2001 ACP/SCCM criteria. Collected data were: total length of stay (LOS), length of ICU stay (ICU-LOS), maximum organ dysfunction number achieved during hospital stay (MOD), average cost per day, and total cost per patient.

RESULTS: Incidence of SS hospitalization among 5.2 million health plan beneficiaries was 2,12/1000, summing up 11,067 patients/year. Cost/day and total hospital cost increased proportionally to MOD: from R$ 2398.00 (patients with 1MOD) to R$ 2900.00 (4MOD) and from R$ 43,010.00 to R$ 64,276.00. ICU-LOS varied from 8 to 10 and total-LOS from 18 to 22 days. Patients with SS with 1MOD represented >75% of the total number, while with 4MOD were 2% of total population. DrotAA were given to 1.3% of total SS patients (148). Fifty-three percent of DrotAA patients had MOD ≥ 2, compared to 19% of the non-DrotAA patients. Average cost of DrotAA per patient was R$ 38,809.00. Total hospital cost for the whole group of patients was R$ 498,079,803.00. Thus, DrotAA cost represented 1.2% of hospital costs related to SS.

CONCLUSION: Costs with SS are substantial, and increase with disease severity. Since there is minor increase in LOS, an increase in daily medical resources is expected. Patient number receiving DrotAA, and consequently, additional cost are small relative to SS baseline cost. Thus, previously described DrotAA benefit on survival and organ dysfunction may outweigh drug costs.

THE COST-EFFECTIVENESS ANALYSIS OF ENTECAVIR IN THE TREATMENT OF CHRONIC HEPATITIS B (CHB) PATIENTS IN THE PUBLIC SECTOR OF HONG KONG
Lee KK¹, Lee VWY², Yuan Y³
¹The Chinese University of Hong Kong, Hong Kong, China; ²Bristol Myers Squibb International Corporation, Plainsboro, NJ, USA

OBJECTIVES: To study the cost-effectiveness if LVD were replaced by ETV in a group of patients with CHB in a public hospital in Hong Kong.

METHODS: From a public hospital perspective, a decision analytic model was used to study the cost-effectiveness of 2 years of treatment of ETV in a hypothetical cohort of 1000 CHB patients; cirrhosis and hepatocarcinoma (HCC) events were projected to 10 years. Clinical efficacy data was obtained from a recently published international randomized phase III trial in a group of HBsAg negative CHB patients. The multivariate-adjusted relative risks for events were estimated by Cox proportional hazards model from a recent Taiwan epidemiology study. Local health care costs including drug cost were used. Cost of management of the different disease states were adopted from a recently published local cost of illness study and QALYs were calculated using the utility values obtained from another recent local study. Hong Kong governmental population statistics of life expectancy was used for the estimation.

RESULTS: Using a 5% discount rate for all projections, a 2-year of ETV treatment would incur an extra drug cost of HKD23.5 million (about USD3 million, 1USD = 7.8HKD); yet about HKD13.8 million (USD1.7 million) would be avoided in 10 years time due to reduction in compensated and decompensated cirrhosis and HCC. The incremental cost-effectiveness for ETV is about HKD24,000 (about USD3000) per life year saved and HKD3,000 (about USD3800) per QALY saved.

CONCLUSION: Using the US standard of USD30,000 per QALY in deciding whether a therapy is cost-effective, the present study suggests ETV to be a more cost-effective treatment relative to LVD for CHB patients in the Hong Kong public sector.
OBJECTIVES: To evaluate cost-effectiveness of entecavir (ETV) vs. lamivudine (LVD) in treating CHB in Poland. METHODS: A decision tree model was developed to project over a period of 10 years the number of cirrhosis (compensated and decompensated) and hepatocellular carcinoma events based on serum HB viral-DNA levels. Two hypothetical cohorts of CHB patients treated for 2 years were studied: 1) nucleoside-naïve patients treated with ETV (0.5 mg/day) vs. LVD (100 mg/day) and adefovir (ADV) as salvage therapy in case of LVD resistance; and 2) LVD-refractory patients treated with ETV (1 mg/day) vs. ADV (10 mg/day). Effectiveness was measured as quality-adjusted life year (QALY). Efficacy data, the risk predicting models, utility scores and medical costs for CHB disease stages were obtained from published literatures. Life expectancy was estimated using Polish life tables and published literature. A Polish health care payer perspective was considered and a 5% discount rate was used for both costs and outcomes. Sensitivity analyses to treatment patterns, costs and utilities were performed. RESULTS: Resistance to treatment with LVD was associated with lower efficacy and increased costs. In nucleoside-naïve HBeAg-negative patients, ETV compared with LVD therapy with ADV salvage saved 369,676/373,701 PLN and gained 28/30 QALYs for 100 men/women, respectively. For nucleoside-naïve HBeAg-positive patients, savings were 185,066/187,564 PLN and QALYs gained 13/15 for 100 men/women, respectively. In LVD-refractory patients, ETV therapy was associated with savings of 424,383/429,007 PLN and QALYs gained of 26/29 for 100 men/women, respectively. Results were robust to sensitivity analyses. CONCLUSION: This cost-effectiveness analysis suggests that in the Polish health care system, ETV dominates LVD to treat CHB in nucleoside-naïve and LVD-refractory patients. Due to differences in health expectancy between men and women, cost-effectiveness results are more favorable for women with CHB.

COST-EFFECTIVENESS OF LINEZOLID IN GRAM-POSITIVE INFECTIONS: CONSISTENCY OF ECONOMIC ADVANTAGE FROM MULTIPLE HEALTH CARE SYSTEMS

Dutta Gupta S1, Sorensen S2, Liu L1
1Pfizer Inc, New York, NY, USA; 2United BioSource Corporation, Bethesda, MD, USA

OBJECTIVES: Linezolid, an oxazolidinone antibiotic, has been shown to be effective in the treatment of complicated skin and soft-tissue infections (cSSTI) and nosocomial pneumonia (NP) including ventilator-associated pneumonia (VAP) caused by methicillin-resistant Staphylococcus aureus (MRSA) in hospitalized patients. However, hospital use of linezolid has been limited by high acquisition cost compared with other antibiotics. The objective was to compare the consistency of cost-effectiveness findings of linezolid across different health care systems.

METHODS: Separate studies were conducted in Brazil, Italy, Germany, Spain, and the US to estimate the cost-effectiveness of linezolid for the treatment of gram-positive infections. In all studies (except US), a decision-analytic model was used to predict the cost-effectiveness of linezolid vs vancomycin or teicoplanin in each country. For the US, resource use data were obtained from a multicenter trial. For all other countries, clinical efficacy data were obtained from multinational clinical trials, cost data were based on published literature and local government sources, and a Delphi panel comprising local experts provided input into health care resource utilization data. RESULTS: In all health care systems, linezolid was cost-effective due to its superior clinical cure and survival (in NP). In cSSTI, total treatment costs were less expensive by $153 (Germany), $787 (Spain) and $873 (US) mainly due to reduction in length of stay. In Italy, treatment costs were similar (linezolid was $77 more). In VAP, cost per life year saved was $380 in Spain and cost saving in Brazil. Similarly, cost for life year gained for NP was $460.

CONCLUSION: All studies showed that despite higher acquisition cost, linezolid is either cost-saving or cost-effective for hospitalized patients with gram-positive infections across multiple health care systems due to its higher clinical efficacy in terms of cure and survival rates.

COST EFFECTIVENESS OF MF59 ADJUVANTED INFLUENZA VACCINE IN FRANCE

Chambers J1, Eigelshoven P1, Piercy J2, Wait S3
1Mapi Values, Boston, USA; 2Mapi Values, Houten, Netherlands; 3Phimap, Bollington, UK

BACKGROUND: The cost-effectiveness of routine influenza vaccination in people over 65 is accepted. This study compares the incremental cost-effectiveness of the MF59 adjuvanted vaccine Fluad® to non-adjuvanted vaccines in France in situations where the circulating strain matches the strain prepared in the vaccine, and also where there is antigenic drift—where the circulating strain differs slightly from the one included in the vaccine.

METHODS: A decision analysis model was developed using evi-