taken from the 2005 National Inpatient Sample. One-way frequencies, summary statistics, table analysis, logistic regression, linear regression, and kernel density were all used to evaluate the data. We used exploratory data analysis to investigate patient outcomes. There were 5622 patients with pneumonia and a control group of 5600 patients. **RESULTS:** Pneumonia affects 1–2 year olds more than older children. Most of the patients had a Charlson number of 0, indicating non-severe conditions. Out of 5622 patients, there were 73 fatalities. The majority of patients had a hospital expense of $2,000 to $12,000. Sex did not play a huge factor in the distribution of patient deaths. The mean age was 7.29 years old. The mean length of stay was 9.41 days. Patient procedure and diagnosis codes were analyzed to discover which codes had the most significant impact on patients, length of stay, and total hospital charges. Patients with additional diseases were analyzed to see if there was a significant difference in hospital length of stay and total hospital charges. **CONCLUSIONS:** Patients have different hospital costs, lengths of stay, initial diagnosis, procedures and outcomes according to their sickness, and how they can be treated. Most patients that come into the hospital do not have to stay too long, have a moderate hospital expense, and are generally young children. Pneumonia is a serious illness, occasionally fatal, but it can usually be treated successfully.

PIN3

ECONOMIC ANALYSIS OF MICAFUNGIN VERSUS CASPOFUNGIN THERAPY FOR THE TREATMENT OF CANDIDEMIA AND PNEUMONIA INFECTIONS

Schaffer K, Schaefer M, Schaefer RS

Kansas City Veterans Affairs Medical Center, Kansas City, MO, USA

OBJECTIVES: The primary objective is to compare candidemia treatment success between micafungin and caspofungin. Secondary objectives are to identify cost and mortality rates associated with the use of micafungin versus caspofungin. **METHODS:** This was a retrospective chart review of patients who received one dose of micafungin or caspofungin during their hospitalization in a regional VA medical center between January 1, 2004 and February 29, 2008. A combination of electronic data extraction and manual chart review was performed on each subject's medical record for patient characteristics, risk factors, antifungal use prior and post echinocandin, adverse drug reactions associated with echinocandins, microbiological eradication, clinical success, length of stay, total hospital cost, and echinocandin cost. All statistical tests were two-tailed with p-value of less than 0.05 considered statistically significant. **RESULTS:** A total of 106 patients with at least one positive bloodstream or sputum culture for C. albicans or C. non-albicans were included. Treatment groups had similar baseline characteristics in all areas except more micafungin patients had renal failure ($p = 0.016$), prior antifungal use ($p = 0.021$) and post antifungal use ($p = 0.002$). Treatment success rates were comparable among groups (74% micafungin compared to 64% caspofungin, $p = 0.279$). Microbiological success was 54% vs. 45% ($p = 0.367$) for micafungin vs. caspofungin, respectively. There was no difference in microbiological success between C. albicans and C. non-albicans for micafungin ($p = 0.802$), however, a significant difference was seen in the caspofungin patients (C. albicans 35% vs. 59% C. non-albicans, $p = 0.05$). Total cost of patient care ($p = 0.027$) and echinocandin overall cost ($p = 0.001$) were significantly lower in the micafungin group. Length of stay and mortality rates were comparable among groups. **CONCLUSIONS:** We found overall treatment success was non-inferior among micafungin and caspofungin therapies.

PIN4

US HEPATITIS-C BURDEN ASSESSMENT FROM A TRANSMISSION MODEL

Zhang H, Mehra M, Dibello J

Johnson & Johnson Pharmaceutical Services LLC, Raritan, NJ, USA

OBJECTIVES: Achieving sustained virologic response (SVR) could prevent further transmission of hepatitis C virus (HCV) and reduce chronic hepatitis C (CHC) incidence; we developed a compartment model to describe the dynamics of HCV transmission in the United States. **METHODS:** This population model was expressed by partial differential equations across compartments based on: injection-drug use, CHC infection, diagnosis, genotypes, treatment/re-treatment, SVR and disease progression. Model inputs were based on published sources. Model was calibrated from 2002–2006 and matched closely with CDC reports and other published literature. The calibrated model was then applied to assess the CHC burdens from 2007–2040 under the current pegylated-interferon/ribavirin (P/R) treatment strategy. A scenario from a hypothetical new CHC regimen (NEW) was also assessed. This included: NEW available in 2011 (70% SVR) for genotype-1, treatment-naïve patients; P/R treatment-failure patients (TFs) re-treated by NEW with 50% SVR; NEW not used to treat genotype-2/3 patients; P/R durations consistent with current treatment guidelines by genotypes and costs $28,000/48-week; diagnosis and treatment rates remain unchanged with NEW. All costs were converted into 2007 dollars using 3% discount rate. **RESULTS:** Under P/R, US CHC prevalence at 2040 is projected to be around 1.7 million. Overall CHC direct medical cost is about $6 billion a year under P/R, only 13% of which is treatment-related; the remaining 87% comes from managing the comorbidities and long-term consequences of advanced liver disease (ALD) among undiagnosed patients, diagnosed-but-never-treated patients, and TFs. Compared to P/R, NEW is projected to cure 351,448 more patients, prevent 23,444 more CHC incidences, avert 103,953 more ALD incidence, and prevent 39,929 more deaths from 2007–2040. CHC prevalence at 2040 under NEW is projected to be 335,000 fewer patients. **CONCLUSIONS:** A new CHC regimen may have a higher public health impact than P/R. Costs unrelated to current CHC treatment with P/R are the major burden of hepatitis C.

PIN5

PHARMACOGENOMICS: APPLICABILITY IN ANTIRETRO VIRAL THERAPY (ART) IN HIV PATIENTS

Goyal R[1], Rai MK[1], Chawla A[2], Siddiqui MK[2], Srivastava K[2]

[1]Heron Health Private Limited, Plot No 22-23, Rajiv Gandhi IT Park, Chandigarh, India,
[2]Heron Health Private Limited, Chandigarh, India

OBJECTIVES: The objective of the study was to explore the applicability of pharmacogenomics in ART (Antiretro viral therapy). **METHODS:** Pharmacogenomic studies in HIV patients were identified from the database of WHO, Pubmed, Clinical trials.gov and relevant grey literature from 2000–2008. Two reviewers independently extracted data. **RESULTS:** Pharmacogenomics provides a powerful support to investigate variable responses to antiretroviral therapy. To date, few antiretrovirals appear to have a clear genotype–phenotype correlation. However, such correlations have been demonstrated for CYP2B6 and efavirenz disposition, HLA-B*5701 and abacavir hypersensitivity, and UGT1A1 and atazanavir hyperbilirubinemia. Clinically significant and confirmed pharmacogenomic relationships were identified for three ART drugs. Out of 405 studies, 6/202 studies were identified as relevant to CYP2B6 and efavirenz disposition (2RCTs, 1 nRCT and 3 pharmacokinetic studies). Three (3/118) studies were identified for HLA-B*5701 and abacavir hypersensitivity (2 RCTs and 1 nRCT) and 2/85 studies for UGT1A1 and atazanavir hyperbilirubinemia (1RCT and 1nRCT). Studies (2/6) revealed that genotype and sex were identified as predictive covariates of efavirenz disposition. Studies (2/3) across the world have consistently demonstrated that HLA-B*5701 predicts the likelihood of hypersensitivity reactions to abacavir. As a consequence, pharmacogenetic screening for HLA-B*5701 has entered routine clinical practice and is recommended in most guidelines before starting an abacavir containing regimen. Studies (1/2) show that polymorphisms at MDR1-3435 significantly influence atazanavir plasma concentrations, although ATV plasma concentrations directly correlate with bilirubin levels, the risk of severe hyperbilirubinemia is further increased in the presence of the UGT1A1-TA7 allele. **CONCLUSIONS:** Although the wider applicability of pharmacogenomic relationships is prevalent and its use in clinical practice is still limited. Pharmacogenomics can greatly contribute in taking more adequate therapeutic decisions and to optimise treatment for HIV/AIDS.

PIN6

A DATA ANALYSIS OF INPATIENTS AFFECTED BY THE HUMAN PAPILLOMAVIRUS

Peercy DP

University of Louisville, Louisville, KY, USA

OBJECTIVES: The human papillomavirus is the most common sexually transmitted disease in America. This virus will affect 6.2 million Americans this year. Most cases of HPV come from sexual contact or vaginal delivery from an infected mother. It is the objective of this study to gain more knowledge about HPV in order to be able to control or prevent the spreading of this virus. **METHODS:** A data set of over 22,000 pediatric patients from the 2005 National Inpatient Sample was used for analysis with SAS Enterprise Guide to examine different characteristics of HPV. From SAS, we were able to set up one way frequencies, pie charts, kernel densities, and logistic and linear regressions to compare and contrast different aspects of HPV. We also examined patient diagnosis and procedure codes. **RESULTS:** The most prominent age groups affected by HPV are young children and adolescents. This is a concern since there is a strong relationship to cervical cancer in later life. Although two types of the virus (16 and 18) are responsible for 70% of cervical cancers, less than 1% of the patients in our sample died with HPV. This virus is not costly to detect or treat with the majority of the patients charged around $5,000 from hospitalization with the virus. We found that 90% of patients with a URI also had HPV. We found many statistically significant relationships between demographics, procedures, and diagnoses, and length of stay or total charges of the patient. **CONCLUSIONS:** Further research is still needed for doctors to be able to prevent or cure HPV. Trial medications are out on the market targeting young females, but surprisingly, more males have HPV because they are the carriers of this virus. We need to focus more time and money to find a cure for HPV.

PIN7

EXPLORING CELLULITIS: WHO GETS IT AND HOW SERIOUS IS IT?

DeWilde KM

University of Louisville, Louisville, KY, USA

OBJECTIVES: Cellulitis is a skin infection caused by bacteria. In children, cellulitis most often occurs on the face, legs, arms, or around the area near the anus. It can usually be treated with antibiotics (oral or topical). However, if not treated, the infection can spread and cause far more serious conditions such as meningitis or blood clots in the legs. The objective of this paper is to explore the data of pediatric patients who have cellulitis and to compare the results to patients who do not have the disease. Basic variables such as age, race, and gender are examined along with recorded patient diagnosis and procedure codes. **METHODS:** The statistical software SAS was used to analyze and explore the data supplied by the National Inpatient Sample for 2005. The dataset contained 1287 patients with cellulitis and a control group of 1300 without cellulitis. Statistical methods used include one-way frequencies, kernel densities, summary statistics, table analyses, logistic regression, and linear regression. We also examined the most frequent patient diagnoses and procedures for the patients in the dataset. **RESULTS:** The patients represented by the data are all pediatric. About 63% of patients with cellulitis are male, with about 37% female. The age group with the highest concentration of patients is 0–3 with about 29% of the total. Only 0.08% of the patients with cellulitis actually died. In general, the disease is not fatal. The average

length of stay in the hospital is about 3.5 days. **CONCLUSIONS:** After the logistic and linear regressions, the results showed a small correlation with cellulitis. The likelihood of having a bacterial infection or having infections with microorganisms increases with cellulitis. The likelihood of having a venous catheterization, having the skin drained, or having the tendon sheath of the hand explored increases with cellulitis.

INFECTION – Cost Studies

PIN8

THE ECONOMIC IMPACT OF TRANSITIONING VALACYCLOVIR TO OVER THE COUNTER STATUS FOR THE TREATMENT OF GENITAL HERPES

Chang JY, Nichol MB
University of Southern California, Los Angeles, CA, USA

OBJECTIVES: Genital herpes affects more than 45 million individuals in the United States with an estimated 400,000 physician office visits each year for primary infections. With no cure for the herpes infection, it can be transmitted from the infected individuals to the unsuspecting population throughout the lifetime of the infected. With the approaching patent expiration for the prescription drug valacyclovir (Valtrex®) in 2009, this study examines the implications of transitioning valacyclovir to an over the counter (OTC) status. **METHODS:** A decision analysis model was used to examine the current prescription based requirement for valacyclovir compared to the OTC status for the product. The analysis was constructed from a societal perspective using a budget impact model. A simulation model conducted in a hypothetical cohort of 10,000 individuals with primary genital herpes in the United States with direct medical cost as the principal outcome. Cost estimations are based on literature review and national health care databases. A sensitivity analysis through a Monte Carlo simulation will assess the validity of the cost estimates. **RESULTS:** The transition of valacyclovir to OTC status will amount to an average annual savings of $707 ($544–$868) per newly infected individual in the form of direct medical expenditures. The annual average cost for the OTC transition is $108 per newly infected, compared to the annual average cost of the prescription based requirement of $815 per newly infected. Aggregate annual savings to the United States from newly infected individuals is $282 million per year. **CONCLUSIONS:** Transitioning valacyclovir to OTC status is a cost saving measure for society, largely due to the decrease in physician office visits for valacyclovir prescriptions. Further studies will need to address specific population needs in regards to herpes education, feasibility of self-diagnosis, viral resistance and indirect cost.

PIN9

INCREASING THE AVAILABILITY OF ATAZANAVIR IN THE MINISTRY OF HEALTH (MOH) PUBLIC INSTITUTIONS IN MEXICO: A BUDGET IMPACT ANALYSIS

Uc-Coyoc R[1], Juarez-Garcia A[1], Rangel S[1], Villasis-Keever A[2], Elias-Lopez JI[1], Litalien G[3], Donato B[3]
[1]Bristol-Myers Squibb, México City, Mexico, [2]Bristol-Myers Squibb, Mexico City, Mexico, [3]Bristol-Myers Squibb Pharmaceutical, Wallingford, CT, USA

OBJECTIVES: Studies in Mexico have shown that the health expenditure attributed to antirretroviral treatments for naïve and experimented patients is high. This has an impact on the national budget of the public health institutions, especially for units from the Ministry of Health which deal with the largest number of HIV/AIDS cases in the country. The objective of this analysis was to estimate the financial impact of increasing the availability of atazanavir for the treatment of patients with HIV/AIDS in the MoH institutions. **METHODS:** A budgetary impact model based on epidemiological data, treatment costs and market uptake for four proteasa inhibitors (PI) in a time horizon of five years was developed. A baseline scenario, where the current PIs market distribution remains the same, was compared with a scenario where atazanavir availability is increased. **RESULTS:** The estimated numbers of infected HIV/AIDS subjects will grow around 53.48% in the next five years. As a result, more resources will be needed to face the increasing burden of the disease. The comparisons between the two scenarios show that the estimated budget impact related to the acquisition of PI is cost-saving. The estimated savings in 2009 are of US$1.168 million increasing 3.4 times during the five years period. Savings from the treatment of main side effects such as, diarrhea and cholesterol lowering intervention are also observed (US$ 12,777 and US$17,861 in 2009 respectively). **CONCLUSIONS:** An increase in the utilization of atazanavir represents a good clinical and economic option for the Mexican MoH in the short and long run. The highest impact in the budget is produced mainly by the pharmacological costs. However, budget savings are also derived from the reduction of treatment costs side effects such as diarrhea and hypercholesterolemia.

PIN10

BUDGET IMPACT OF ANTIMALARIA DRUG FORMULARY DECISIONS: A RETROSPECTIVE ANALYSIS FROM A NIGERIAN TEACHING HOSPITAL

Udezi WA[1], Usifoh CO[1], Omotayo OA[2]
[1]University of Benin, Benin, Edo, Nigeria, [2]Faculty of Pharmacy, University of Benin, Benin, Edo, Nigeria

OBJECTIVES: To quantify the Budget Impact of antimalaria drug formulary decisions in a Nigerian Teaching Hospital. **METHODS:** A retrospective random sample of 17,000 prescriptions (2001–2008) with the wholesale prices of each prescribed drug was collected from pharmacy records. The total number of prescriptions per day, the date and the therapeutic class of the prescribed drugs were also noted. From this data, estimates of the proportion of patients that received a particular antimalaria medicine and the year of introduction or deletion of the drug from the drug formulary were made. The costs of a complete dose required for the treatment of a patient suffering from malaria when prescribed a given antimalaria drug were calculated from the extracted wholesale prices. These variables served as input in a stochastic Monte Carlo model which was built to simulate the Budget Impact of each identified formulary decision by subtracting the total cost of drugs in the Old Drug Scenario from that of the New Drug Scenario. Negative values represent cost savings. A sensitivity analysis was conducted by varying the input parameters by ± 50%. **RESULTS:** Halofantrine was introduced into the hospital formulary in 2002 with a resultant significant ($p < 0.0001$) savings of NGN1.02million with a mean of NGN0.16million. The introduction of arthemisinin combination therapies (ACTs) in 2005 with the addition of IM arthemether in 2007 led to an increase expenditure of NGN3.02million ($p < 0.0001$) and NGN0.07million ($p = 0.171$) respectively. In 2008, the number of patients that were prescribed ACTs decreased from 80.9% in 2007 to 67.9%. This strategy produced a cost saving of NGN6.27million which was significant ($p < 0.0001$). Sensitivity analysis confirmed the robustness of the model. **CONCLUSIONS:** Introduction of ACTs into the hospital drug formulary significantly increased drug expenditure. We therefore suggest that a CEA of available antimalarials may prove to be a valuable tool to this budget holder.

PIN11

MODELING THE INPATIENT AND OUTPATIENT COSTS OF METHICILLIN-RESISTANT STAPHYLOCCOCUS AUREUS (MRSA) COMPLICATED SKIN AND SOFT TISSUE INFECTIONS (CSSTI): A COMPARISON OF LINEZOLID, VANCOMYCIN, DAPTOMYCIN, AND TIGECYCLINE

Stephens JM[1], Gao X[1], Verheggen BG[2], Shelbaya A[3], Haider S[4]
[1]PharMerit North America LLC, Bethesda, MD, USA, [2]PharMerit Europe, Rotterdam, Netherlands, [3]Pfizer, New York, NY, USA, [4]Pfizer, Groton, CT, USA

OBJECTIVES: Previous economic analyses of MRSA-confirmed cSSTI have not included costs related to outpatient parenteral antibiotic therapy (OPAT). The objective of this analysis was to develop an economic model to estimate medical and drug costs within both inpatient and outpatient components of care for treating MRSA cSSTI. **METHODS:** A 4-week decision model was developed to estimate the direct total, inpatient, and outpatient costs of treating MRSA cSSTI from a U.S. payer perspective taking into account successes, failures, and adverse events (AEs). Comparators included vancomycin, linezolid, daptomycin, and tigecycline. Published literature and database analyses, with validation by experts, provided clinical inputs and resource use data including MRSA efficacy, length of stay (LOS), consequences of AEs and cSSTI failure, OPAT services, among others. Cost data was derived from literature and standard CPT coding reimbursements. The base case analysis assumed equal efficacy and equal LOS of 4 days among comparators. Univariate and probabilistic sensitivity analyses tested efficacy, complication rates, LOS, and other resource use parameters. Costs were reported in 2008US$. **RESULTS:** Total drug acquisition costs were >4–6 times lower for vancomycin compared to tigecycline, linezolid, and daptomycin. However, the total 4-week cost of treatment including drugs, clinical failures, complications, and OPAT were lowest for linezolid ($8,149), followed by vancomycin ($8,974), tigecycline ($10,333), and daptomycin ($11,362). Oral linezolid reduced the outpatient medical costs by 10-fold versus IV comparators. The most sensitive model variables for total cost were the MRSA efficacy, hospital LOS, OPAT days, and line placement/complication costs. **CONCLUSIONS:** Although total drug acquisition costs were lower for vancomycin vs. comparators, the model suggests linezolid provides total cost savings in cSSTI versus IV therapies, particularly in the outpatient arena. The budget impact of antimicrobials for cSSTI should consider total medical cost offsets from both inpatient and outpatient perspectives.

PIN12

COST-EFFECTIVENESS ANALYSIS OF DAPTOMYCIN VERSUS VANCOMYCIN IN COMPLICATED SKIN AND SOFT STRUCTURE INFECTION (CSSSI) USING A DECISION ANALYTIC MODEL

Zargarzadeh A[1], Bounthavong M[2], Hsu D[1], Okamoto MP[3]
[1]Western University of Health Sciences, College of Pharmacy, Pomona, CA, USA, [2]Veterans Affairs San Diego Healthcare System (VASDHS), San Diego, CA, USA, [3]University of Hawaii at Hilo, College of Pharmacy, Hilo, HI, USA

OBJECTIVES: To evaluate the cost-effectiveness of daptomycin versus vancomycin in complicated skin and soft structure infections (cSSSI). **METHODS:** A decision analytic (DA) model was developed to evaluate the cost-effectiveness of daptomycin versus vancomycin in cSSSI. The payer perspective was adopted and total direct costs related to cSSSI were measured. Efficacy (cure) was defined as a patient who was treated empirically with the study drug, had a positive culture of Methicillin-resistant Staphylococcus aureus did not relapse at the test of cure. Previous literature was used to determine the parameters of the model. Costs were determined from 2008 Drug Red Book and Decision Support System database. Primary outcome was the incremental cost-effectiveness ratio (ICER) of daptomycin over vancomycin. One-way sensitivity analyses was performed for all parameters and presented in a tornado diagram. Probabilistic sensitivity analysis was performed on all parameters using 10,000 trial simulations. **RESULTS:** In the base-case analysis, daptomycin and vancomycin arms had total direct costs of $11,162.88 and $16,307.74, respectively. Cure probabilities for patients in the daptomycin and vancomycin arms were 51.6% and 40.2%, respectively. Cost-effectiveness ratio for daptomycin and vancomycin were $21,619.78/cure