

steroid administration, Drotrecogin Alfa administration, and glycemic control goal. Outcome measures were; In-hospital mortality, ICU mortality, ICU LOS, hospital LOS and hospital discharge location. **RESULTS:** Of 58 patients, 24 (41%) met the criteria for severe sepsis with an average APACHE III score of  $69 \pm 31$ . There was a score of 60% on four (50%) of the eight process measures and <35% on the other four. In-hospital mortality of 25% (16.7% for ICU) compared favorably with 28.6% national. Average hospital LOS ( $9.1 \pm 6.5$  days) and ICU LOS ( $3.3 \pm 3.4$  days) were within expected benchmarks. Discharge to skilled nursing facility was 21%. Compared to those who did not meet severe sepsis criteria, the mortality rates were lower (25% vs. 29.1%) and the LOS values higher (9.1 vs. 8.4 days) in the severe sepsis group. The average direct cost of severe sepsis hospitalization was \$30,061, mean daily cost of \$3303. **CONCLUSIONS:** Variation in adoption of the SSC-IHI guideline is apparent. Though, severe sepsis outcomes are above average, opportunities for process improvement that should enhance outcomes in this setting exist.

PIN52

#### UTILIZATION ANALYSIS AND IMPACT OF ANTIBACTERIAL AGENTS IN TWO LEADING UNIVERSITY HOSPITALS IN NEIGHBORING COUNTRIES WITH DIFFERENT GDP AND HEALTH CARE SYSTEM

Francetic I<sup>1</sup>, Gavrankapetanovic F<sup>2</sup>, Begovic B<sup>2</sup>, Bielen L<sup>3</sup>, Bolanca S<sup>4</sup>

<sup>1</sup>University Hospital Center Zagreb, Zagreb, Croatia, <sup>2</sup>Clinical Center University of Sarajevo, Sarajevo, Bosnia, <sup>3</sup>Medical School University of Zagreb, Zagreb, Croatia, <sup>4</sup>Pfizer Croatia, Zagreb, Croatia

**OBJECTIVES:** Antibacterial agents are still overused in many developing countries with the main consequence of constant increase in bacterial resistance. The purpose of this study is to compare the utilization of antibacterial agents and its economic impact on two leading University Hospitals in two neighboring countries, Croatia and Bosnia and Herzegovina, having similar historical values, but now having notable differences in health care system and GDP. Secondary objective was to assess the appropriateness of clinical guidelines and level of their implementation in each hospital. **METHODS:** Antibacterial utilization in 2007 was assessed for each hospital using the ABC calculator version 3.1. The results were compared at ATC levels 2–4. The following calculated parameters were used for the adjusted hospital to hospital comparison: number of utilized grams, number of utilized DDD's, number of grams utilized per 100 bed-days and finally the number of DDD's per 100 bed-days. Additional analysis of each hospital's treatment guidelines was performed for those ATC classes having actual treatment guidelines and results assessed in light of the level of implementation effectiveness and impact on the cost and bacterial resistance rate. **RESULTS:** Differences in antibacterial use between two leading University Hospitals in Croatia and Bosnia and Herzegovina were noted. Of all noted differences two classes of antibiotics were further analyzed because of their well known impact on bacterial resistance: third generation cephalosporins and quinolones. Subsequent analysis of the incidence of MRSA infections and Gram negative ESBL bacteria are conclusive and in line with the reported utilization findings. **CONCLUSIONS:** Although some treatment guidelines for antibacterial prophylaxis and treatment of bacterial infections were effectively implemented in both hospitals, there were still those which have to be developed and/or revised and subsequently implemented in order to ensure the most beneficial cost-effectiveness ratio and positive impact on bacterial resistance. Additional intra-hospital measures are to be developed and implemented in order to ensure the compliance with treatment guidelines, such as internal audits and issue-focused education of relevant health care professionals.

PIN53

#### PHARMACY-IMPLEMENTED GUIDELINES ON SWITCHING FROM INTRAVENOUS TO ORAL ANTIBIOTICS: A PROSPECTIVE STUDY IN A TEACHING HOSPITAL

Briquet C<sup>1</sup>, D'Hoore W<sup>2</sup>, Bisot-LoCARD S<sup>3</sup>, Simon A<sup>1</sup>, Tilleul P<sup>3</sup>

<sup>1</sup>Cliniques Universitaires Saint Luc, Brussels, Belgium, <sup>2</sup>Université Catholique de Louvain (UCL), Brussels, Belgium, <sup>3</sup>Université Paris Descartes, Paris cedex 12, France

**OBJECTIVES:** Intravenous (IV) to oral (PO) switch therapy is a demonstrated method to achieve a more rational use of antibiotics. Several advantages have been associated with this strategy such as less preparation time, easier administration, greater comfort, lower risk of complications and lower antibiotic budget. The objective was to evaluate the impact of promoting an IV to PO switch of fluoroquinolones (FQ) with three different educational interventions. **METHODS:** A prospective observational study was conducted in 16 different wards of a teaching hospital of 959 beds. For all patients treated with a FQ, whatever the site of infection, data related to infection and therapy were collected during four different 3-month periods. The first period (A) was observational without intervention to identify the prescription habits. The second period (B) was a period of "passive" intervention with publication of IV/PO switch criteria in the hospital bulletin and personal letter to each physician. The third and fourth periods C and D were two crossover active interventions: intervention 1) IV/PO switch training sessions by clinical pharmacist to all physicians of the selected wards, and intervention 2) proactive interventions by clinical pharmacist. **RESULTS:** A total of 349 prescriptions were recorded. There was a significant reduction in number of overprescription days of IV treatment during period B compared to period A ( $4.6 \pm 0.5$  and  $3.1 \pm 0.4$ ,  $p = 0.027$ ) and period B compared to periods C + D ( $3.1 \pm 0.4$  and  $1.5 \pm 0.2$ ,  $p < 0.001$ ). Antibiotics budget and number of FQ vials were also reduced. There was no statistical difference between the two different active interventions ( $p = 0.82$ ). **CONCLUSIONS:** Passive and active interventions to teach early switch from IV to PO FQ therapy are highly effective ( $p < 0.05$ ). Active intervention by a clinical pharmacist whatever it is team-focused or case-focused is more efficient than passive.

#### INFECTION—Conceptual Papers & Research on Methods

PIN54

#### ADAPTATION & CALIBRATION OF A UK MODEL OF MENINGOCOCCAL DISEASE TO THE US SETTING

Aballéa S<sup>1</sup>, McGarry LJ<sup>2</sup>, Taylor DC<sup>2</sup>, Hill G<sup>2</sup>, Pawar V<sup>2</sup>, Clements KM<sup>2</sup>, Thompson D<sup>2</sup>

<sup>1</sup>3 Innovus, Uxbridge, Middlesex, UK, <sup>2</sup>3 Innovus, Medford, MA, USA

**OBJECTIVES:** To evaluate vaccination policies for meningococcal disease in the US, we adapted and calibrated a dynamic model of meningococcal disease originally developed for the UK. **METHODS:** We adapted an age-stratified mathematical model of meningococcal transmission, carriage, and disease from the UK to the US setting. The model focus was expanded from serogroup C to serogroups A, C, W, and Y disease to reflect newer vaccines. The most recent available US cross-sectional carriage data were used to extract serogroups A, W, and Y carriage from the non-C ("other") serogroup data used in the UK model. We used recently-published contact matrix data for transmission calculations and performed formal calibrations to published US surveillance data. We first calibrated age-specific force of infection to ACWY carriage data and solved for transmission rates ( $\beta$ ) at equilibrium for a cohort of 75,000 individuals representative of the US population. We then calibrated the risk of

meningococcal disease conditional on carriage ( $q$ ) to US incidence data. Calibration used the maximum likelihood method; goodness-of-fit was assessed using deviance. **RESULTS:** The calculated  $\beta$  for infant-to-infant transmission is 1.86 effective contacts per 100,000 infants per year.  $\beta$  peaks at 29.7/100,000 for transmission between 14 year olds and 11–14 year olds, and ranges from 0 to 16.3/100,000 for adult-adult transmission. The  $q$  is highest in infants (0.015), declines steeply and plateaus at 0.00013 in those aged >20 years. The model predicted yearly cases of ACWY-related meningococcal disease are 132 among infants, 439 among 1–20 year-olds, and 202 among those aged >20, compared with 129, 433, and 211 for US benchmarks (deviance = 184, with 72 degrees of freedom). **CONCLUSIONS:** Calibration techniques can be used to adapt a UK meningococcal disease model to the US using modified serogroup and contact data such that a reasonable fit is achieved with US benchmarks.

### RESPIRATORY-RELATED DISORDERS— Clinical Outcomes Studies

#### SMOKING, ASTHMA AND COPD IN ADULTS: A TOO FREQUENT RELATION

Sicras A<sup>1</sup>, Navarro-Artieda R<sup>2</sup>

<sup>1</sup>Badalona Servicios Asistenciales, Barcelona, Spain, <sup>2</sup>Hospital Germans Trias i Pujol, Barcelona, Spain

**OBJECTIVES:** To determine the relation with active smoking patients in presence of asthma and COPD, and to know its association with some cardiovascular risk factors and its cost repercussion of attended patients in a Spanish population setting. **METHODS:** Multi-centric retrospective design realised beginning from subjects older than 14 years demanding assistance during year 2006. Smoking habit, asthma and COPD were defined as a clinical illness obtained according to International Classification CIAP-2. Main measures: age, gender, comorbidities (cardiovascular), Charlson index (patient severity) and costs model (fixed/semi-fixed: in operation) and variable ones (diagnostics/therapeutics tests and referrals). Statistic analysis: logistics regression and covariance (ANCOVA) for the correction of the model (recommendations: Thompson-Barber). Program SPSSWIN,  $p < 0.05$ . **RESULTS:** A total of 65,768 patients (use: 73.1%; frequentation: 4.7 visits/100 inhabitants). The 4.1% ( $n = 2,693$ , confidence intervals of the 95% [CI]: 3.9–4.3%) presented asthma and the 2.7% ( $n = 1,769$ , CI: 2.6–2.8%) COPD. The percentage of active smokers was 20.2% (CI: 18.7–21.7%) and 27.0% (CI: 24.9–29.1%),  $p = NS$ , respectively. In general, asthmatic patients were associated to feminine gender (OR = 1.7) and in younger ages (15–44 years: 52.2%),  $p < 0.001$ ; while COPD to masculine gender (women: OR = 0.2), older ages (65–74 years: 64.5%) and cardiovascular events (OR: 1.2). In both patients of high co-morbidity and with obesity (OR = 1.5 and OR = 1.4; in asthma and COPD respectively). The average of adjusted total cost/unitary was superior in COPD (€1,146.30) especially in pharmaceutical cost. **CONCLUSIONS:** The existence of active smoking patients in presence of asthma and COPD is high. In primary prevention should be established measures to carry out the reduction of cardiovascular risk factors (smoking and obesity), above all in subjects with COPD, were the resources consume and risks are higher.

PRSI

#### RELATIVE EFFECTIVENESS OF INHALED CORTICOSTEROIDS AND LEUKOTRIENE-RECEPTOR ANTAGONISTS TO PREVENT MODERATE-TO-SEVERE EXACERBATIONS AMONG ASTHMATIC CHILDREN

Blais L<sup>1</sup>, Kettani FZ<sup>1</sup>, Lemièrre C<sup>2</sup>, Beauchesne MF<sup>1</sup>, Perreault S<sup>1</sup>, Elftouh N<sup>1</sup>

<sup>1</sup>Université de Montréal, Montreal, QC, Canada, <sup>2</sup>Hôpital du Sacré-Coeur de Montréal, Montreal, QC, Canada

**OBJECTIVES:** To investigate the relative effectiveness of inhaled corticosteroids (ICS) and leukotriene-receptor antagonists to prevent moderate-to-severe exacerbations among asthmatic children. **METHODS:** From the linkage of two administrative health databases from Quebec, Canada, we reconstructed a cohort of asthmatic children aged 5 to 15 years that initiated a treatment with either ICS or LTRA between January first 1998 and August 31, 2005. Patients were followed between 4 and 12 months. The primary outcome was moderate-to-severe asthma exacerbations defined as an emergency department (ED) visit for asthma, a hospitalization for asthma or a dispensed short-course ( $\leq 14$  days) prescription of oral corticosteroids. Patients' adherence to their controller therapy was estimated with the medication possession ratio (MPR). All analyses were stratified by the presence or not of an asthma exacerbation in the year before treatment initiation with ICS or LTRA. We estimated the adjusted rate ratios of moderate-to-severe asthma exacerbations comparing patients treated with ICS and LTRA with Poisson regression models including a dispersion parameter. The mean MPR was compared between ICS and LTRA users with a t-test. **RESULTS:** A total of 27,355 children were included in the cohort: 7,494 (27%) with and 19,861 (73%) without an exacerbation in the year prior to treatment initiation. Among children with no exacerbation before treatment initiation, the risk of exacerbations was significantly more than twice with ICS versus LTRA (adjusted RR = 2.3; 95% CI: 1.3–4.0), while the RR was not significant among children who had at least 1 exacerbation before treatment initiation (adjusted RR = 1.6; 95% CI: 0.8–3.1). The mean MPR was 0.16 for ICS compared to 0.35 for LTRA, among children with at least 1 exacerbation prior to treatment initiation ( $p < 0.001$ ). These means were 0.15 and 0.30, respectively, among children with no previous exacerbation ( $p < 0.001$ ). **CONCLUSIONS:** Among children free of exacerbations prior to treatment initiation, our study showed that ICS users were more than twice more likely to have an exacerbation than LTRA users and that higher adherence to LTRA may have accounted for this result.

PRS2

#### PREVALENCE OF CHRONIC OBSTRUCTIVE PULMONARY DISEASE FROM ADMINISTRATIVE HEALTH SERVICES DATABASES

Citarella A, Menditto E, Cammarota S, De Portu S, Riegler S, Mantovani LG

University of Naples, Federico II, Naples, Italy

**OBJECTIVES:** To identify subjects affected by Chronic Obstructive Pulmonary Disease (COPD) in a local health authority of approximately 441 thousand inhabitants situated in Campania, a region in the southwest of Italy. **METHODS:** A retrospective naturalistic longitudinal study was conducted using record linkage between administrative health services databases (drug prescription, hospital admissions, demographic). We enrolled subjects with greater than or equal to 45 years old who had during the period 2006/2007 an hospital admission for Chronic Bronchitis (ICD-9 cod.491) and/or received drugs chronic prescription for obstructive diseases from the R03 Anatomical

PRS3