with a risk factor, (heart and respiratory failure) the respiratory infection probability is 4.3%, inducing hospitalizations in 37% of cases. **RESULTS:** Direct costs were calculated as the sum of costs due to medication, consultations, hospitalization and respiratory physiotherapy. The impact of indirect cost should also be taken into consideration. Our estimation evaluated them four times inferior to those due to influenza. With regards to the risk of hospitalization (1%–3% or 5%), the average cost of RSV infection varies, according to a societal perspective, from 750 to 1103 Euros. **CONCLUSION:** The annual financial burden of RSV disease from the payer perspective would be between 306 to 612 millions Euros. This annual figure represents a third of the cost allocated to influenza, which justifies the efforts of research in view of making emerge a vaccine against the RSV.

**EPIDEMIOLOGY AND COSTS OF BRONCHIAL ASTHMA AND CHRONIC BRONCHITIS IN GERMANY**

Weissflog D
Department of Pneumology, Medical Clinic, Albert-Ludwigs-University, Freiburg, Germany

**OBJECTIVES:** Asthma bronchiale (AB) and chronic bronchitis (CB) are common chronic disorders with high rates of prevalence. We performed a cost of illness study that aimed to assess the economic burden of these disorders in Germany. To the best of our knowledge, we used the first time data for entire Germany, in contrast with the few previous studies. **METHODS:** We obtained in a retrospective analysis secondary data from governmental institutions as well as from pharmaceutical industry. Resource use was based on 1996 schedules and costs were estimated in 1996 DM. We chose the cost perspective of sickness funds to estimate direct costs. The human capital approach was applied for the calculation of indirect costs. **RESULTS:** Total estimated costs were DM 5.81 billion related to AB, and DM 20.17 billion related to CB. We did not include outpatient physician services in the calculation of direct costs in lack of adequate data. Therefore, direct costs represented only 33% and 22% of total estimated costs, respectively. The most important cost driver of direct costs was outpatient prescribed medicines, followed by hospitalization. Outpatient prescribed medicines accounted for 55% and 63% of the direct costs, respectively. Of the indirect costs of AB 43% were associated with early retirement. Loss of work was with 75% by far the largest single cost driver of indirect costs due to CB. **CONCLUSIONS:** Findings from this study for Germany show the evident importance of outpatient prescribed medicines as cost driver of direct costs of AB as well as of CB. Furthermore, this study underlines the major role of loss of work concerning indirect costs of CB. The data suggest that therapeutic progress and cessation of smoking can provide distinctive savings of direct costs and even more of indirect costs of AB and CB.

**USE OF PHARMACOTHERAPY AS AN ASTHMA SEVERITY MEASURE IN A RETROSPECTIVE ANALYSIS**

Bataoel J, McLaughlin T, Margraf T
1 The University of Arizona, Tucson, AZ, USA; 2 NDC Health Information Services, Phoenix, AZ, USA; 3 PharMetrics, Inc., Boston, MA, USA

**OBJECTIVE:** To determine the appropriateness of using prescription treatment to measure asthma severity in a retrospective claims database. **METHODS:** All patients within PharMetric’s Integrated Outcomes Database possessing a diagnosis of asthma (ICD-9-CM = 493) and a prescription claim for an asthma medication during 1997–1998, were eligible for study inclusion. Patients with less than 12 months of enrollment following the initial asthma diagnosis, or a diagnosis of chronic obstructive pulmonary disease (COPD) or cystic fibrosis (CF) were excluded from the analysis. Patients were assigned into severity levels based on the combination of asthmatic regimens received during the study period: Level 1 = Short Acting Beta Agonist (SABA) Only; Level 2 = one controller medication (Mast Cell Stabilizer, Inhaled Corticosteroid, or Leukotriene Modifying Agent); Level 3 = 2 Controllers (above list + Long Acting Beta Agonist); Level 4 = 3 or more controllers (above list + Long Acting Beta Agonist). Patient demographics, asthma-specific charges, and comorbid conditions were captured for each patient during the study period. **RESULTS:** 124,076 patients met the inclusion criteria. The mean age was 23.6 years (SD = 19.6), and 53.0% were female. Over half (50.5%) of patients were in Level 1, while only 0.9% were in Level 4. Mean age and percentage of females increased with increasing severity. The mean annual asthma-specific charge per patient was $675.73 (SD = $1992.10), and ranged from $379 for Level 1 patients to $1,414 for Level 4 patients. Prevalence of diabetes, hypertension, and depression increased with increasing severity, while upper-respiratory and lower-respiratory infections decreased. **CONCLUSION:** The use of treatment regimen appears to be a viable alternative for measuring severity of asthma in retrospective analyses, however further research is needed.

**COST-EFFECTIVENESS ANALYSIS OF NSAIDS VS COX-2 SPECIFIC INHIBITORS AND NSAIDS WITH CO-TREATMENTS TO PREVENT GI TOXICITY IN THE TREATMENT OF RA**

Yun HR, Corzillius M, Kim SY, Bae SC
1 The Hospital for Rheumatic Diseases, Hanyang University, Seoul, Republic of Korea; 2 Department of Internal Medicine, Christian-Albrechts-University of Kiel, Kiel, Germany

**BACKGROUNDs:** Nonsteroidal anti-inflammatory drugs (NSAIDs) are used in nearly every patient with rheumatoid arthritis (RA) but their use can be associated with
side effects, which may be prevented with prophylactic prescription of misoprostol, omeprazole, or famotidine. Recently marketed COX-2 specific inhibitor (COX-2) affords protection against gastropathy. **OBJECTIVE:** To assess cost-effectiveness of NSAIDs vs COX-2 and NSAIDs with co-treatments to prevent GI toxicity. **METHODS:** Markov models were used to simulate a cohort of RA patients with approximately 2.5:1 male to female ratio and 50 years, taking disease modifying antirheumatic drugs and one of following strategies: NSAIDs without prophylaxis, COX-2, NSAIDs with misoprostol, omeprazole, or famotidine. Data on incidence, costs and consequences of adverse events from treatments were taken from the literature. Costs were measured in 1999 US dollars and health effects expressed as quality-adjusted life years (QALYs). Sensitivity analyses were performed. Costs and health outcomes were discounted at a rate of 3% per year. **RESULTS:** Among the strategies to prevent GI toxicity, COX-2 was the most cost-effective strategy and famotidine was the least cost-effective strategy. The incremental C/E (cost/effectiveness) ratio between no prophylaxis and COX-2 is 62,278 ($/QALY). Sensitivity analyses using incidence rates were robust. **CONCLUSIONS:** COX-2 is the best option among the strategies to prevent GI toxicity. However, the incremental C/E between no prophylaxis and COX-2 strategies is over 60,000 ($/QALY).

<table>
<thead>
<tr>
<th>Strategy</th>
<th>QALY</th>
<th>Costs ($)</th>
<th>ΔC/E ($/QALY)</th>
</tr>
</thead>
<tbody>
<tr>
<td>No prophylaxis</td>
<td>11.45</td>
<td>43,474</td>
<td>—</td>
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<tr>
<td>Misoprostol</td>
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<td>Extended Dominated</td>
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<td>COX-2</td>
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<td>Omeprazole</td>
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</table>

**PA02**

**A COST-COST STUDY COMPARING ETANERCEPT WITH INFILXIMAB IN MODERATE TO SEVERE RHEUMATOID ARTHRITIS**

Nuijten MJ1, Engelfriet PM1, Duijn KP1, Wierz D1, Koopmanschap M2

1MEDTAP International, Amsterdam, The Netherlands, 2Wyeth-Lederle, Hoofddorp, The Netherlands, 3Wyeth-Ayerst, St. Davids, PA, USA, 4Institute for Medical Technology Assessment (IMTA), Erasmus University, Rotterdam, The Netherlands

**OBJECTIVE:** To compare the total costs associated with two different anti-TNF agents used in the treatment of moderate to severe rheumatoid arthritis: etanercept, which can be administered at home by a subcutaneous injection, versus infliximab, which requires an intravenous infusion in day-care. **METHODS:** An economic model was constructed to determine the costs of both treatments. The cost evaluation included direct medical, direct non-medical and indirect costs. The perspective was that of the Dutch society. The analysis was performed for the adult RA population eligible for treatment with both agents. The base case analysis compared a monotherapy with etanercept versus a combination therapy with infliximab-MTX. Data for the economic model came from published literature, expert opinion and official price and tariff lists. **RESULTS:** The analysis from the society perspective showed that the total annual drug costs per patient do not differ substantially between infliximab and etanercept, with costs of NLG 31,526 (EURO 14,306) and NLG 31,334 (EURO 14,219) respectively. However, the other medical costs are substantially higher for infliximab, which is due to the additional costs associated with day-care and use of MTX (NLG 12,621; EURO 5,727). Overall treatment with infliximab is more expensive than treatment with etanercept with total costs of NLG 45,115 (EURO 20,472) and NLG 31,621 (EURO 14,349), respectively (43.7% increase). The sensitivity analysis showed that the results vary with dosing and dosing interval for infliximab. **CONCLUSION:** Based on the assumptions used in the model, we may conclude that the use of etanercept compares favourable with infliximab: the total costs are substantially lower, while the clinical outcomes of etanercept are at least equivalent to those of infliximab.