very low costs or even no medical attention, and therefore were not taken into account. Data sources included the published incidence rates for the 25 most frequent AE in controlled clinical trials with BEV + IFN or sunitinib. a panel integrated by 10 local experts from different specialties was constituted to estimate medical and nonmedical resource use for diagnosis and treatment of each AE grade 3/4. Cost of medications involved in treating AE were taken from public bids and unit cost of medical services (outpatient medical consultations, laboratory and image tests, hospitalization at general ward and at intensive care unit, surgical and nonsurgical procedures, etc.) was gathered from official tariff lists. All costs are expressed in 2009 Mexican pesos (MXN). **RESULTS:** The average cost per patient for the management of grade 3/4 AE were 76.5% higher for sunitinib ($17,577) than those for BEV + IFN ($9959). The main cost drivers for sunitinib were hypertension, heart failure, and non-febrile neutropenia; for BEV + IFN, main cost drivers included proteinuria and arterial and venous thromboembolic events. **CONCLUSIONS:** BEV + IFN has a more tolerable AE profile when compared to sunitinib, which is also reflected in the nearly double cost for managing AE with sunitinib in patients with mRCC.

PCN43

COST COMPARISON OF ERLOTINIB VERSUS PEMETREXED FOR THE FIRST-LINE MAINTENANCE TREATMENT OF PATIENTS WITH LOCALLY ADVANCED OR METASTATIC NON-SMALL CELL LUNG CANCER IN ITALY

Ravera S[1], Walzer S[2], Ray J[2]
[1]Roche S.p.A., Milano, Italy; [2]F. Hoffmann-La Roche Pharmaceuticals AG, Basel, Switzerland

OBJECTIVES: First-line chemotherapy for locally advanced or metastatic non-small cell lung cancer (mNSCLC) is usually limited to four to six cycles, as prolonged exposure leads to cumulative toxicity without additional survival benefit. Maintenance therapy represents a new treatment option which can delay disease progression and extend survival in patients with mNSCLC. Erlotinib and pemetrexed are currently the only treatments specifically approved for this indication by the European Medicines Agency and US Food and Drug Administration; therefore, it is important to compare the monthly treatment costs of using erlotinib or pemetrexed for the maintenance therapy of patients with mNSCLC. **METHODS:** Italian monthly treatment costs were calculated as the sum of the ex-factory costs for the average dose (erlotinib = 150 mg/day, pemetrexed = 500 mg/m^2) over a 30-day treatment duration plus administration costs. Monthly administration costs were derived from regional tariffs for oncology drugs. **RESULTS:** Monthly drug costs for erlotinib maintenance therapy are lower than for pemetrexed (€1517 vs. €2770, respectively). In addition, as an intravenous treatment, pemetrexed is associated with additional costs related to administration (estimated at €140 per month), whereas orally administered erlotinib is not associated with any administration costs. Pemetrexed total monthly treatment costs are therefore €2910, €1393 higher than erlotinib total monthly treatment costs. The cost saving associated with erlotinib would allow approximately 92% more patients to be treated with erlotinib maintenance therapy, based on a fixed health-care budget. Furthermore, it is anticipated that the management of pemetrexed-related adverse events (e.g., neutropenia, anaemia) would be more costly than those related to erlotinib use (e.g., rash, pruritus). Therefore, the cost saving when using erlotinib versus pemetrexed for first-line maintenance therapy may be greater in a real-world setting. **CONCLUSIONS:** Based on Italian costs, erlotinib is a cost-saving treatment option compared with pemetrexed, for the first-line maintenance therapy of patients with locally advanced or mNSCLC.

PCN44

COST COMPARISON OF ERLOTINIB VERSUS PEMETREXED FOR THE FIRST-LINE MAINTENANCE TREATMENT OF PATIENTS WITH LOCALLY ADVANCED OR METASTATIC NON-SMALL CELL LUNG CANCER IN SPAIN

Castro de Carpeño J[1], Castro-Gómez AJ[2], Walzer S[3], Ray J[3]
[1]La Paz University Hospital, Madrid, Spain; [2]Roche Farma, Madrid, Spain; [3]F. Hoffmann-La Roche Pharmaceuticals AG, Basel, Switzerland

OBJECTIVES: First-line chemotherapy for locally advanced or metastatic non-small cell lung cancer (mNSCLC) is usually limited to four to six cycles, as prolonged exposure leads to cumulative toxicity without additional survival benefit. Maintenance therapy represents a new treatment option which can delay disease progression and extend survival in patients with mNSCLC. Erlotinib and pemetrexed are currently the only treatments specifically approved for this indication by the European Medicines Agency and US Food and Drug Administration; therefore, it is important to compare the monthly treatment costs of using erlotinib or pemetrexed for the maintenance therapy of patients with mNSCLC. **METHODS:** Spanish monthly treatment costs were calculated as the sum of the ex-factory costs for the average dose (erlotinib = 150 mg/day, pemetrexed = 500 mg/m^2) over a 30-day treatment duration plus administration costs. Monthly administration costs were obtained from regional tariffs (Galician Health Service). **RESULTS:** Monthly drug costs for erlotinib maintenance therapy are lower than for pemetrexed (€2045 vs. €2914, respectively). In addition, as an intravenous treatment, pemetrexed is associated with additional costs related to administration (estimated at €235 per month), whereas orally administered erlotinib is not associated with any administration costs. Pemetrexed total monthly treatment costs are therefore €3149, €1104 higher than erlotinib total monthly treatment costs. The cost saving associated with erlotinib would allow approximately 54% more patients to be treated with erlotinib maintenance therapy, based on a fixed health-care budget. Furthermore, it is anticipated that the management of pemetrexed-related adverse events (e.g., neutropenia, anaemia) would be more costly than those related to erlotinib use (e.g., rash, pruritus). Therefore, the cost saving when using erlotinib versus pemetrexed for first-line maintenance therapy may be greater in a real-world setting. **CONCLUSIONS:** Based on Spanish costs, erlotinib is a cost-saving treatment option compared with pemetrexed, for the first-line maintenance therapy of patients with locally advanced or mNSCLC.

PCN45

DIFFERENCES IN HEALTH-CARE COSTS FOR PATIENTS WITH CASTRATION-RESISTANT PROSTATE CANCER (CRPC) TREATED BY ONCOLOGISTS OR UROLOGISTS

Engel-Nitz NM[1], Alemayehu B[2], Nathan F[2], Parry D[3], Kulakodlu M[1]
[1]i3 Innovus, Eden Prairie, MN, USA; [2]AstraZeneca, Wilmington, DE, USA; [3]AstraZeneca, Macclesfield, Cheshire, UK

OBJECTIVES: Patients with CRPC may be treated by urologists or oncologists. This study examined differences in total health-care costs and prostate cancer-specific costs in patients treated by oncologists or urologists. **METHODS:** A retrospective study design used medical and pharmacy claims (2001–2007) to identify patients with CRPC from a large US-managed care health plan. Patients were stratified based on the specialist providing treatment following castration; an oncologist (with/without a urologist, ONC), and a urologist without an oncologist (URO). A 6-month baseline period was used to assess patient characteristics and initial clinical status; a variable follow-up period (until disenrollment or December 31, 2008) was used to assess total health-care costs. Lin's regression was used to assess costs adjusting for the variable follow-up and patient and treatment characteristics. **RESULTS:** A total of 995 URO and 1590 ONC patients with CRPC were identified. Mean age was higher in URO patients than in ONC patients (75.5 vs. 71.1 years, $P < 0.001$). The URO cohort had a lower average Charlson comorbidity score (3.7 vs. 4.9, $P < 0.001$), fewer comorbid illnesses (10.1 vs. 11.1, $P < 0.001$), and were less likely to have other cancers (17.7% vs. 27.4%, $P < 0.001$) or to have had hormones, chemotherapy, and radiation treatment during the baseline period. After multivariate adjustment, mean total health-care costs during the first year were $31,792 (URO), $54,306 (ONC with chemotherapy, $P < 0.05$), and $30,894 (ONC without chemotherapy); during 6 years of follow-up, cumulative costs rose to $86,706 (URO), $168,794 (ONC with chemotherapy), and $114,180 (ONC without chemotherapy), $P < 0.05$ for all. a similar pattern was observed for prostate cancer-specific cumulative costs. **CONCLUSIONS:** CRPC patients treated by oncologists, particularly patients with chemotherapy, had higher total and prostate cancer-related health-care costs than patients treated by urologists.

PCN46

ECONOMIC EVALUATION OF ONCOTYPE DX® TO TARGET CHEMOTHERAPY USE IN LYMPH-NODE–NEGATIVE, OESTROGEN-RECEPTOR–POSITIVE, EARLY-STAGE BREAST CANCER IN IRELAND

Lacey L[1], Hornberger J[2]
[1]Lacey Solutions Ltd., Skerries, Ireland; [2]Stanford University & Cedar Associates, Menlo Park, CA, USA

OBJECTIVES: Oncotype DX® is a clinically validated assay used to guide chemotherapy decision-making for patients with early-stage breast cancer. Patients classified as low risk by Oncotype DX® have low likelihood of benefitting from chemotherapy. By foregoing chemotherapy, patients avoid the risk of chemotherapy-related toxicities. For those patients reclassified by Oncotype DX® as high risk, the assay identifies patients who are likely to gain a large benefit from chemotherapy. The study objective was to estimate the health-care costs of using Oncotype DX® testing in early-stage, lymph node-negative breast cancer in Ireland. **METHODS:** A cost-analysis estimated the health-care costs (chemotherapy, administration, adverse events [AEs], and G-CSF costs) in patients whose treatment decisions are informed by Oncotype DX® testing. The perspective was that of the Irish health-care system. The chemotherapy regimen was docetaxel and cyclophosphamide (4 × 21-day cycles), costing approximately €9200. Univariate sensitivity analysis was performed, together with a probabilistic sensitivity analysis (PSA) of the net reduction in chemotherapy usage from Oncotype DX® testing. In a meta-analysis of seven published studies, there was an estimated 30% (95% CI –40%, –21%; $P = 0.0003$) absolute reduction in chemotherapy usage after Oncotype DX® testing (ratio 0.49 [95% CI 0.41, 0.58]; $P < 0.00001$). **RESULTS:** Adoption of Oncotype DX® testing resulted in approximate cost-neutrality (0.4% increase in cost) to the Irish health-care system, under the above conditions. The main cost drivers were: net reduction in chemotherapy usage from Oncotype DX® testing and the rate of G-CSF usage. From the PSA, the probability of Oncotype DX® being cost-saving is approximately 47%. **CONCLUSIONS:** Using Oncotype DX® to inform chemotherapy decisions in early-stage breast cancer has the potential to reduce the incidence of chemotherapy-induced AEs, while being approximately cost-neutral to the Irish health-care system. a cost-effectiveness analysis would be expected to result in a low incremental cost-effectiveness ratio.

PCN47

CHANGE OF ANTIFUNGAL TREATMENT PATTERNS AND ASSOCIATED COSTS IN PATIENTS WITH ACUTE MYELOGENOUS LEUKEMIA (AML) AFTER CHEMOTHERAPY IN A GERMAN HOSPITAL FROM 2004 TO 2006

Boehme A[1], Atta J[1], Mousset S[1], Steffen B[1], Serve H[1], Hoelzer D[1], Shlaen R[2], Ehlken B[2], Bug G[1]
[1]Med. Clinic II, J.W. Goethe-University, Frankfurt, Germany; [2]IMS Health, Munich, Germany

OBJECTIVES: To describe changes in outcomes, treatment patterns and costs of the management of hospitalized patients with acute AML after chemotherapy in Germany

over a 3-year time horizon, with a special focus on prophylaxis and treatment of invasive fungal infections (IFI). **METHODS:** This was a retrospective, single-center study on AML patients hospitalized for chemotherapy, neutropenia, and infections after myelosuppressive chemotherapy from January 2004 to December 2006. Data on occurrence of IFI, treatment patterns, and resource utilization were collected by chart review. Direct medical costs were calculated from hospital provider perspective. **RESULTS:** In total, 471 hospitalization episodes in 212 patients were eligible for analysis. Occurrence of IFI decreased from 5.9% in 2004 to 1.9% in 2006. Mean hospital stay decreased from 28.7 ± 17.9 days (2004) to 22.4 ± 11.8 days (2006) ($P < 0.05$). From 2004 to 2006, use of a single antifungal drug increased from 30.4% to 46.9% of episodes, whereas use of multiple antifungal drugs decreased from 24.4% to 13.1%. Single antifungal drug use was dominated by azoles and increased from 23.7% (2004) to 43.4% of episodes (2006). Posaconzole monotherapy was applied in 26.7% of episodes. Use of liposomal amphotericin B declined from 21.4% to 3.8%, caspofungin from 19.3% to 8.1%, fluconazole from 25.2% to 11.9%, and voriconazole from 31.9% to 15.0%. Total costs per episode declined from €19,051 ± 19,024 (2004) to €13,531 ± 9,260 (2006) ($P < 0.05$); main reduction was observed for antimycotics, blood products, and hospital stay. **CONCLUSIONS:** These real-life data from a university hospital in Germany indicate that the antifungal management of AML patient hospitalized for chemotherapy, neutropenia, and infections after chemotherapy changed between 2004/5 and 2006. This change was accompanied by a decline in treatment costs. Results suggest that the introduction of posaconazole prophylaxis in 2006 has not only reduced the use of antifungal therapies but also the need for treatment with multiple antifungal drugs.

PCN48

COST-EFFECTIVENESS COMPARISON OF APPROACHES FOR LOW-RISK PROSTATE CANCER CARE: THE NEED TO BALANCE COST AND UTILITY

Olaye A[1], New M[2], Abenhaim L[3]

[1]London School of Economics, London, UK; [2]LA-SER Europe Ltd., London, UK; [3]London School of Hygiene and Tropical Medicine, London, UK

Prostate cancer is the most common form of cancer in UK men and incidence is on the rise, primarily driven by increased screening. Low-risk prostate cancer has disease-specific survival consistently over 95%. Consequently, the UK has deemed radical treatments (RTs) comprising radical prostatectomy, radiotherapy, and brachytherapy as unnecessary for low-risk prostate cancer and recommends active surveillance (AS). AS does not address the disutility for patients living with cancer and in real-life over 50% of patients proceed to RT. Alternative "focal therapies" for this patient population are therefore generating interest. **OBJECTIVES:** Determine the cost-effectiveness of AS in the UK as practiced and contrast with focal therapy. **METHODS:** A Markov model was used to evaluate the cost-utility of treatments for low-risk prostate cancer. Input parameters for progression rates, efficacy, and side effects were derived from the literature. Biochemical and histological progression to RT plus patient choice were modeled. Hormonal treatment was included as salvage therapy. Age-related mortality rates were applied throughout the model. For focal therapy, all low-risk patients received treatment. Failure of treatment led to patients commencing AS, while biochemical progression at any time led to RT. Costs were taken from the UK NHS perspective. **RESULTS:** Over 25 years, AS delivered 13.3 QALYs (3.5% discount rate applied). The QALY value was heavily weighted by the utility of 0.84 associated with AS. Focal therapy delivered improved QALYs (14.6) over the same period and could be delivered for cost parity with AS. Cost-effectiveness is discussed. **CONCLUSIONS:** UK guidelines recommend AS for low-risk prostate cancer but do not meet the needs of patients, evinced by low QoL and by many patients choosing RT. Hence, AS has "hidden costs" in the UK system and there is a place for alternative treatment approaches such as focal therapies.

PCN49

PREDICTORS OF THE DIRECT COSTS OF BREAST CANCER IN THE UNITED STATES ELDERLY POPULATION

Davis KL[1], Iyer S[2], Candrilli S[1]

[1]RTI Health Solutions, Research Triangle Park, NC, USA; [2]Pfizer, Inc., New York, NY, USA

OBJECTIVES: To assess cancer-related costs and related predictors among elderly breast cancer patients in the United States. **METHODS:** A retrospective study was conducted in subjects aged ≥65 years and diagnosed with breast cancer between January 1, 2000 and December 31, 2005. Patients were identified from the SEER-Medicare linked database that combines clinical information on cancer cases with longitudinal (1991–2006) Medicare claims. An index date was defined as the date of the first observed breast cancer diagnosis. Costs (2009 US$) were aggregated from subjects' index date until death, Medicare disenrollment, or database end (December 31, 2006) and included breast cancer-related surgery, radiotherapy, chemotherapy, and other medical encounters carrying a breast cancer diagnosis. Generalized linear models with a log link function and gamma distribution were used to assess predictors of costs. Age, race, stage at diagnosis, hormone receptor status (ER/PR), nodal status, Charlson comorbidity score, and chemotherapy use were key explanatory variables. **RESULTS:** The majority of the 66,217 breast cancer subjects selected were aged 70 to 79 years (47%), Caucasian (88%), and in localized stage (67%) at diagnosis. Median follow-up was 50 onths. Approximately 5% of cases were diagnosed in the metastatic stage with a median follow-up of 26 months. Approximately 73% of subjects with metastatic disease died during follow-up compared to 21% of localized cases. Cancer-related adjusted costs per patient were $55,120 (median $25,991) for all cases and $153,421, $82,789, and $38,099, for metastatic, regional, and local stage cases, respectively. Regional and metastatic stage at diagnosis, increased age, increased number of cancer-positive lymph nodes, negative estrogen/progesterone receptor status, and chemotherapy use were found to be significant ($P < 0.001$) predictors of higher costs. **CONCLUSIONS:** Clinical characteristics indicating poorer prognosis are associated with significantly higher breast cancer costs. Patients with metastatic disease carry the highest cost of care despite having shorter follow-up and poorer survival.

PCN50

BURDEN OF HOSPITALIZATIONS FOR HEPATOCELLULAR CARCINOMA PATIENTS IN A US POPULATION

Tsong W[1], Singer ME[2], Ray S[1]

[1]Abbott Laboratories, Abbott Park, IL, USA; [2]Case Western Reserve University School of Medicine, Cleveland, OH, USA

OBJECTIVES: Hepatocellular carcinoma (HCC) is a rapidly progressing, fatal disease. However, little is known regarding the hospitalization burden for these patients. This study compares the burden of hospitalizations due to HCC and hepatobiliary conditions relative to other nonhepatobiliary comorbid conditions. **METHODS:** Insurance claims (Janaury 1, 2000—December 31, 2008) from a geographically diverse, commercially insured US population were used to identify a cohort of patients with > = 1 HCC claim (index = 1st claim), age > = 18, and no other cancer diagnoses in the year prior to index. Hospitalizations were grouped by primary diagnosis (ICD-9) codes into the following categories: 1) HCC and hepatobiliary, and 2) nonhepatobiliary. Hospitalization burden was compared between these categories based on: number of hospitalizations, time to occurrence since HCC diagnosis, length of stay, and cost (2009 USD). The number of hospitalizations was compared using a sign test for patient-level differences. The remaining parameters were compared using general estimating equations to adjust for patients with multiple hospitalizations. **RESULTS:** This study identified 2927 HCC patients (mean age 50.4 years, 57% male) and 2192 hospitalizations. The subset of patients with > = 1 hospitalization (n = 1083, 37%) had an average of 2.02 admissions per patient with a median of 11.8 follow-up months. Compared to the nonhepatobiliary hospitalizations, the HCC and hepatobiliary hospitalizations had: a higher number of admissions (0.40 vs. 0.35 per patient; $P < 0.001$), a shorter time to occurrence (112 vs. 330 days; $P < 0.001$), a longer length of stay (6.4 vs. 5.4 days; $P < 0.007$), and a higher average cost per admission ($48,539 vs. 23,221; $P < 0.001$). The total cost of HCC and hepatobiliary hospitalizations was 2.3 times higher than nonhepatobiliary hospitalizations ($56,451,173 vs. $23,894,444). **CONCLUSIONS:** HCC and hepatobiliary conditions accounted for the majority of the hospitalization burden in liver cancer patients. Future HCC therapies demonstrating reduced symptom progression may reduce the prevalence, duration, and cost of HCC and hepatobiliary-related hospitalizations.

PCN51

HOSPITALIZATION COSTS FOR HPV-RELATED CANCERS IN MALES AND FEMALES IN FRANCE

Borget I[1], Mathevet P[2], Abramowitz L[3], Largeron N[4]

[1]Institut Gustave Roussy, Villejuif, France; [2]Hopital Edouard Herriot, Lyon, France; [3]Hopital Bichat Claude Bernard, Paris, France; [4]Sanofi Pasteur MSD, Lyon, France

OBJECTIVES: Human papillomavirus (HPV) infection is a necessary cause of cervical cancer and is associated with a subset of other anogenital (anal, vulvar, vaginal, penile) and head/neck cancers (oral cavity, oropharynx/pharynx, larynx). The overall HPV-related disease burden is considerable in Europe. This study aimed to assess the hospital costs of HPV-related cancers for both genders in France. **METHODS:** Hospitalization costs were collected from a recent publication for cervical cancer and from the French national hospital database (PMSI) for other cancers. Costs included hospital stays, radiotherapy, and chemotherapy sessions. Annual costs for each cancer were estimated from the health-care payers' perspective. **RESULTS:** In 2006, the annual costs of cervical cancer were estimated at €43.9 million. In addition, vulvar and vaginal cancers were associated with €9.7 million annually. For anal cancer, the annual costs were €20.3 million (male: €6.3 million; female: €14 million). Penile cancer hospitalizations represented €2.6 million annually. The estimated annual costs for head/neck cancers in 2007 for males and females, respectively, were €54.4 and €17.1 million for oral cavity, €128.2 and €21.7 million for oropharynx/pharynx, and €47.8 and €5.5 million for larynx. Considering the assumed proportion of cancers attributable to HPV (cervical: 100%; vulvar: 34.7%; vaginal 76.8%; anal: 84.2%; penile: 46.7%; oral cavity: 16.0%; oropharynx: 28.2%; larynx: 21.3%, in Europe), the overall hospitalization costs due to HPV-related cancers were estimated at €61.6 million in males and €70.8 million in females. **CONCLUSIONS:** The hospital burden of HPV-associated cancers in males is almost similar as in females, in France. This burden is probably underestimated since outpatient and indirect costs were not included.

PCN53

ANALYSIS OF SOCIOECONOMIC BUREDN OF HEPATOCELLULAR CARCINOMA IN RUSSIA

Omelyanovsky VV, Avksentieva MV, Krysanov I, Ivakhnenko O

Research Center for Clinical and Economic Evaluation and Pharmacoeconomics, Moscow, Russia

OBJECTIVES: In our study, we estimated social and economic burden of hepatocellular carcinoma (HCC) in Russian Federation resulting from HCC from the position of public health-care system. **METHODS:** All types of costs were calculated—direct