CONCLUSIONS:
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cetaxel in 2L NSCLC therapy. Sensitivity analyses on central input parameters have

COST COMPARISON OF ERLOTINIB VERSUS GENERIC DOCETAXEL IN SECOND-

OBJECTIVES: Lung cancer is the leading cause of cancer deaths worldwide (1.38 million cancer deaths, 18.2% of the total) and of cancer morbidity (1.61 million new cases, 12.7% of all new cancers). Currently only three second-line (2L) non-small cell lung cancer (NSCLC) pharmacotherapies are licensed in the European Union, the chemotherapies pemetrexed and docetaxel as well as the Epidermal Growth Factor Receptor (EGFR) Tyrosine Kinase Inhibitor (TKI) erlotinib.

The cost comparisons showed that erlotinib was less costly compared to docetaxel, which itself was cheaper than pemetrexed. Nowadays erlotinib (and docetaxel) are still less expensive than pemetrexed, but docetaxel lost patent protection (basic compound patent) at the end of 2010, so the docetaxel drug costs have decreased rapidly, which poses the question of whether erlotinib still is the least costly therapy and offers a relevant cost saving. METHODS: Italy has been selected exemplarily to compare the total therapy costs, estimated by combining country-specific drug costs, administration costs and adverse event costs of erlotinib and generic docetaxel in 2L NSCLC therapy. Sensitivity analyses on central input parameters have been performed. RESULTS: The total costs of treating one patient with erlotinib therapy of €6121 are lower than the docetaxel costs of €6699 for the Italian health-care setting. Although the drug costs of erlotinib are higher than generic docetaxel (incremental €3770), the costs of intravenous chemotherapy administration (incremental €4510) and the costs of adverse drug event therapy (incremental €837) lead to higher total therapy costs of docetaxel compared to the EGFR TKI therapy erlotinib.

CONCLUSIONS: The cost comparison findings for Italy show that erlotinib is still the less costly therapy alternative in 2L NSCLC. These results were robust to the use of central input parameters and robust to further potential price decreases for docetaxel.

PCN38 PHYSICIAN-SPECIALTY COST DIFFERENCES OF TREATING NON-MELANOMA SKIN CANCER (NMSC): AN UPDATE

OBJECTIVES: Studies have previously reported specialty-related cost differences for the treatment of non-melanoma skin cancer (NMSC) but without attempting to establish a causal relationship. This study addresses if specialty-related cost differences in the management of NMSC still persist, controlling for potential confounders.

METHODS: Using a previously validated model for episode of care for NMSC, patients diagnosed with NMSC were identified in part B of the Medicare Current Beneficiary Survey claims from 2005-07. Physician specialty exposure during and after the year of diagnosis was examined in three approximate time periods: (1) Extracutaneous, (2) Dermatologist, and (3) Otolaryngologist/Plastic Surgeon. A log-linear regression model was built of treatment cost as dependent variable and physician exposure as independent variable controlling for treatment settings, patient demographics, health status, treatment procedure, tumor size and tumor location that may contribute to differences in the cost of NMSC management. RESULTS: Over years 2005-2007, 1449 unique episodes of care for the management of NMSC were identified, 24% of which were not treatment related episodes. Analyzing treatment-related episodes only, significant median cost differences across the three specialty categories were observed: $297.4 for generalist/other specialist, $441.5 for dermatologist, and $672.8 for otolaryngologist/plastic surgeon. In regression analysis, compared to dermatologist, having seen a generalist/other specialist was associated with 29.6% lower costs (P<0.001) while having seen an otolaryngologist/plastic surgeon was associated with 24.6% higher costs (P<0.001). Those living in metro areas were likely to have 11% (P<0.004) higher costs. Treated a tumor in the facial area was associated with 17% (P<0.001) higher costs than a tumor in the trunk area. CONCLUSIONS: Compared to extracutaneous care, dermatological management incurred 29.6% lower costs (P<0.001). Those living in metro areas were 11% more likely to have costs higher than those living in non-metro areas. Further investigation is necessary to establish causality.

PCN39 DIRECT MEDICAL COSTS ASSOCIATED WITH DIFFERENT LINES OF THERAPY FOR COLORECTAL CANCER (CRC) PATIENTS

OBJECTIVES: To describe the demographic and clinical characteristics and comorbidities of colorectal cancer (CRC) patients and to evaluate the disease-specific expenditures (i.e., insurer-paid costs and patient-incurred out-of-pocket [OOP] expenses incurred by CRC patients with one, two, and three or more lines of therapy.

METHODS: This is a retrospective study of a Thomson Reuters MarketScan® Claims Database. A retrospective analysis population included patients ≥18 years with incident CRC during 2005-2009 who utilized one or more lines of CRC therapy (defined by a 90-day gap in treatment or initiation of a new regimen). Demographic characteristics, health status indices, and comorbidities were measured at baseline and/or during follow-up. Expenditures and attributable costs were calculated for patients while on therapy. OOP expenses were coinsurance and copayments. Average per-patient monthly expenditures (2009 US dollars) were calculated in composite for all patients from initiation of first-line therapy through follow-up, and also stratified by each line of therapy, and patient age at entry, gender, and insurer, respectively. RESULTS: Among 13,670 CRC patients, 13,244 (67.0%) had exactly one line of therapy, 2,836 (14.7%) had exactly two lines, and 1,726 (8.0%) had three or more lines of therapy. Total per-patient expenditures for first-line therapy averaged $12,067 per month, but increased to $13,332 for patients transitioning to second-line therapy, and to $14,651 for patients transitioning to third-line therapy. Monthly OOP expenses were a small (about 2%) contributor to total costs, ranging from $241, $246, and $238 by respective lines of therapy. Total monthly expenditures for patients covered by commercial insurance were substantially (~50%) higher than for patients covered by Medicare supplemental insurance. CONCLUSIONS: Ranging from about $12,000 to $15,000 per month by increasing lines of therapy, direct costs of CRC present a significant economic burden to health plans and self-insured employers. Patient-borne OOP expenses are relatively small but meaningful contributors to the overall financial burden imposed by CRC.

PCN40 PATIENT SURVIVAL, HEALTH CARE UTILIZATION, AND COSTS IN MEDICARE PATIENTS WITH ACUTE MYELOID LEUKEMIA COMPARED TO MATCHED CONTROLS

OBJECTIVES: To compare survival and healthcare utilization and costs among Medicare patients with acute myeloid leukemia (AML) versus matched control patients for Medicare patients without cancer. METHODS: Patients aged 65+ years in the Surveillance, Epidemiology, and End Results (SEER) cancer registry with a new AML diagnosis from January 1, 1997 to December 31, 2007 were identified (first diagnosis year = index). Patients were required to have >6 months Medicare Part A and B benefits pre-index and no managed care enrollment post-index. Patients were excluded if they had another tumor in SEER pre-index. Medicare patients without cancer were identified and matched up to 5:1 based on age (~5 years), gender, race, geographic location, and common comorbidities. Patients were followed from index (or index of the corresponding AML patient) through death or database end (i.e., December 31, 2007). Study measures included median survival and health care utilization and costs. Generalized linear models were undertaken to estimate adjusted costs. RESULTS: A total of 6,888 selected AML patients were matched to 22,346 controls. Among AML patients and controls respectively, mean (SD) age was 78.3(7.2) and 72.7(6.7) years, median survival was 2.6 and 13.7 months, mean (SD) total follow-up costs were $90,395($104,228) and $26,940 ($41,840), and mean (SD) average monthly follow-up costs were $26,990 ($30,719) and $867 ($1,130), respectively. The largest percentage of costs was hospitalizations related in both cohorts (74% and 42% of total, respectively). The cost difference between cohorts was mainly attributable to hospitalizations ($56,314 difference), followed by outpatient visits ($3,382 difference) (both p<0.001). AML patients and controls had similar survival, the same number of emergency department and hospital, and home health visits. Regression analyses found AML patients accrued $74,177 more in costs than controls (p<0.001). CONCLUSIONS: While AML patients had shorter median survival, they accrued 3 times more costs, mainly driven by hospitalizations. This indicates a substantial economic burden incurred by AML patients to Medicare.

PCN41 ECONOMIC BURDEN ASSOCIATED WITH ADVERSE EVENTS IN PATIENTS WITH METASTATIC RENAL CELL CARCINOMA

OBJECTIVES: To estimate costs associated with adverse events (AEs) in patients receiving targeted therapies for first-line treatment of metastatic renal cell carcinoma (mRCC). METHODS: A retrospective study utilizing the Integrated Healthcare Information Services (IHIS) claims data from 2000 to 2009 was conducted. Study subjects were ≥18 years of age, aged ≥18 years with incident mRCC, and receiving treatment with targeted therapies. AEs of interest comprised abdominal pain, back pain, diarrhea, dyspnea, extremity pain, fatigue/asthenia, hand-foot syndrome, hypertension, lymphopenia, nausea/vomiting, neutropenia, and proteinuria. Healthcare encounters and AEs were based on ICD-9-CM diagnosis/procedure codes on healthcare claims. Costs of AEs were examined over a 30-day period, beginning with the date of first mention of each AE, and were estimated based on the difference in total costs between patients with and without events; nonevaluated patients similarly were assigned a “shadow” index code. Direct drug costs of targeted agents were excluded from the analysis. Multivariate generalized linear models (GLM) with a log-link function and gamma response probability distribution were utilized to control for differences in baseline characteristics between patients with and without occurrence of adverse events. RESULTS: A total of 533 patients were included in this analysis: 418 patients with adverse events and 115 patients without adverse events. Baseline characteristics were generally similar between patients in the two groups.
groups. The GLM-based estimate of the increase in post-event costs over 30 days among patients with evidence of any adverse event was $9,807 (95% CI: $4,386, $15,204). For all types of adverse events examined, the estimated difference in costs between evented and non-evented patients was positive; the 95% CI did not include zero for all of the adverse events considered except hypotension and proteinuria.

CONCLUSIONS: Costs associated with AEs of first-line targeted therapies are substantial in patients with mRCC. Efforts to prevent and/or better manage these events may reduce overall healthcare costs.

PCN42 HEALTH CARE UTILIZATION AND COSTS AMONG LUNG CANCER PATIENTS IN TIANJIN, CHINA
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OBJECTIVES: To describe patient characteristics and evaluate inpatient utilization and costs among patients with lung cancer in Tianjin, China. METHODS: Retrospective analyses were conducted using Urban Employee Basic Medical Insurance (UEBMI) claims database from Tianjin from 2003 to 2007, which included a 30% random sample of UEBMI enrollees in Tianjin. Patients with >1 lung cancer diagnosis and continuous eligibility 6 months before and 12 months after the first diagnosis were selected. Inpatient utilization and costs during the 12-month study period were estimated. Costs were valued in 2007 US dollars using the corresponding inflation rate and exchange rate. RESULTS: A total of 2351 lung cancer patients were included with mean age of 66.5 years, 34.9% female, and 86.9% retired. Approximately 50.5% of patients had metastatic first diagnosis. Among the 46.9% who had cardiovascular disease, 27.6% had COPD, and 23.3% had hypertension. The mean number of admissions was 2.44 during the 12 months, with 53.3% of patients having >1 admission. About 84.8% hospitalizations occurred in a tier-3 hospital. The mean length of stay was 25.9 and 24.2 days, respectively, for first and subsequent admissions. Anti-neoplastic agents were used in 66.1% hospitalizations. The mean cost per hospitalization was $2473 and $2660 for first and subsequent admissions, respectively. The total 12-month inpatient costs were $5511 per patient; 70.9% were covered by payers and the rest by patients. Approximately 58.2% of the total inpatient costs were attributed to medication costs. Examinations, medical consumables and bed costs accounted for 14.5%, 9.3% and 5.0% of the total inpatient costs, respectively. CONCLUSIONS: The majority of lung cancer patients is metastatic and treated in tier-3 hospitals. Lung cancer poses substantial economic burden to payers and patients. The majority of the costs were attributed to medications.

PCN43 ECONOMIC BURDEN OF HEPATOCELLULAR CARCINOMA IN CHINA Wu EQ1, Wu J1, Yang H2, Zheng Y2, Xie K1, Wu EQ1
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OBJECTIVES: China has over 50% of new hepatocellular carcinoma (HCC) cases in the world. The study estimated the economic burden associated with HCC in Tianjin, China. METHODS: Data were obtained from the Tianjin Urban Employee Basic Medical Insurance (UBEMI) database (2003-2007), including inpatient claims for medical services and prescription drugs for 30% enrollees. Adult patients with >1 diagnosis of HCC and 6-month continuous enrollment before and after the first HCC diagnosis between 2003 and 2007 were selected. Patient characteristics, healthcare resource utilization and costs were analyzed. Costs were estimated in 2007 U.S. dollars using the Medical Service Consumer Price Index (CPI) in China and an exchange rate of 7.598 Chinese Yuan to 1 USD in 2007. RESULTS: A total of 857 HCC eligible patients were included in the analysis with a mean age of 62.2 years, 25.0% female and 72.4% retired. Approximately 65.2% of all patients had >1 comorbidity, 48.4% had cirrhosis, 35.4% had HBV/HCV, 18.1% had hepatozellular carcinoma, 10.2% had encephalopathy, and 14.4% had diabetes mellitus. The mean number of hospitalizations during the 6-month study period was 1.62, with 40.0% patients having >1 hospital admission. About 84.0% hospitalizations occurred in tier-3 hospitals. The mean length of stay (LOS) was 24.6 days per hospitalization and 38.9 days during the 6-month study period. The total 6-month inpatient costs were $4,400 per patient with 70.1% covered by UEBMI and 29.9% by patients. Medication costs accounted for 56.3% of total inpatient costs, the rest was attributed to medical services. Examinations, medical consumables and bed costs accounted for 14.5%, 9.3% and 4.9% of total inpatient costs, respectively. CONCLUSIONS: The majority of Chinese HCC patients receive treatment in tier-3 hospitals. HCC poses substantial economic burden to the payer and patients in China. Medications accounted for more than half of the total inpatient costs.

PCN44 EXAMINING THE COST OF CHEMOTHERAPY INDUCED NAUSEA AND VOMITING IN PATIENTS TREATED FOR CANCER IN A MEDICAID POPULATION Koutos C1, Li L2, Huang A1, Baser D2
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OBJECTIVES: To assess the clinical and economic burden of chemotherapy induced nausea and vomiting (CINV) in the US veteran population.

METHODS: A retrospective study (October 01, 2005 to September 30, 2010) was conducted using the Veterans Health Affairs Medical SAS Database. Veterans who were newly diagnosed with cancer, newly treated with a MECC or RA regimen, who received a prophylactic 5-HT3-RA during the January 1, 2005 to December 31, 2009, were identified. The primary outcome of interest was the overall cost of care for patients with and without CINV. CINV was defined by any claim for nausea and vomiting, fluid depletion or replacement, and the use of a rescue anti-emetic agent. A cycle of chemotherapy.

RESULTS: A total of 188 patients were identified, 33% undergoing HEC and 67% treated with a MECC regimen. The mean age was 56.7 and 65% were female. Patients were treated with a total of 43,418 cycles of chemotherapy. The overall rate of CINV was 17% per cycle and the rate differed by prophylactic 5-HT3-RA utilized. The rate of CINV per cycle for patients treated with palonosetron was 13% compared to 20% for those treated with another 5-HT3-RA. The average total paid health care per cycle was $2827. Average cost per cycle with and without CINV was $3839 and $2695, respectively, p<0.001.

CONCLUSIONS: In this retrospective study, health care costs associated with the prevention of CINV is approximately $1144 per cycle of chemotherapy. This suggests a reduction in the rate of CINV for patients undergoing chemotherapy could result in significant health care cost savings in the Medicaid system. Further studies are warranted to confirm these findings.

PCN45 EPIDEMIOLOGY, TREATMENT PATTERNS AND COSTS IN PATIENTS WITH STAGE III/IV MELANOMA Wang L1, Li L1, Huang A1, Barszcz E5
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OBJECTIVES: Melanoma is the most serious type of skin cancer that starts in melanocytes. New treatment methods may offer significant benefits in treating patients with advanced melanoma, but in order to assess their cost-effectiveness via pharmacoeconomic modeling data on epidemiology, current standard of care, adverse events and costs is needed. The aim of this study is to collect such information using surveys in major centers in Poland. METHODS: A questionnaire was designed and implemented in MS Excel, and then distributed in three hospitals in Poland covering the majority of melanoma patients being treated. The survey questions encompassed: the disease characteristics, current treatment patterns, health care resources utilization and costs among patients diagnosed with melanoma (SIII-SIV). Resources costs and standard of care data for melanoma patients were divided into three therapy lines, and information such as treatment scheme, drug cost and performed diagnostic procedures were collected. RESULTS: The preliminary results coming from one center are available at this stage. Melanoma incidence and mortality rate (per 100,000) are equal respectively to 8.8 and 3.7 (data for year 2010). The continuation of existing trends will cause an increase of morbidity in the next years and the number of incidence cases can even double in 10 years time. The most common form of treatment in metastatic patients is chemotherapy. The results demonstrated that costs of consecutive lines of therapy decrease, and total yearly cost of 1st, 2nd and 3rd line treatment is estimated to be 1.2m PLN (1 Euro = 4.4 PLN). Adverse events total cost amount to 77,000 PLN. CONCLUSIONS: Melanoma is one of the most malignant human cancers in Poland with an increasing incidence rate. In connection with several treatment patterns that are currently used in clinical practice, it is necessary to conduct databases studies to use them in pharmacoeconomic modeling in health technology assessment process.

PCN46 A DESCRIPTIVE ANALYSIS OF OVARIAN CANCER IN VETERAN PATIENTS IN THE UNITED STATES Wang L1, Li L1, Huang A1, Baser D2
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OBJECTIVES: To assess the clinical and economic burden of ovarian cancer in US veteran population.

METHODS: A retrospective study (October 01, 2005 to September 30, 2010) was conducted using the Veterans Health Affairs Medical SAS Database. Veterans who were newly diagnosed with ovarian cancer were included in the study. Health care resource utilization and costs were assessed for ovarian cancer patients in the 12-month follow-up period. Patients’ demographic, clinical and discharge statuses were compared using Chi-square testing and standardized differences. Student t-tests were used for the means of continuous variables. Mortality and survival rates were also calculated using the Kaplan and Meier method and the PROC LIFETEST procedure. RESULTS: Among the selected ovarian cancer patients (n=1,148), the total mortality rate in the 12-month follow-up period was 20.84% (n=239). The most commonly prescribed medications were sodium chloride (3.1%), dextrose (1.3%), potassium chloride (1.5%), and warfarin (1.0%). The average number of inpatient (4.3, 95% CI (1.8, 6.8)) and outpatient visits (30.74) were calculated per patient. The percentage of inpatient, ER, physician office and outpatient visits were 27.35%, 21.43% and 100%, respectively. The cost of inpatient, ER, physician office and outpatient visits were $6610, $138, $9702, and $9959, respectively. CONCLUSIONS: More research is required to better understand adverse events and side effects of ovarian cancer treatment.

This study suggests that sodium chloride and dextrose were the most frequently prescribed drugs after diagnosis of ovarian cancer.