

for France and Germany in year 1 and 2, were €502 - €126 for France; €1,429 - €1,156 for Germany. Total costs reached €18,024 (yr1), €7,039 (yr2) France; €19,025 (yr1), €13,295 (yr2) Germany; €15,785 (yr1), €1,990 (yr2) England. Two-year costs totalled €25,063 (France); €32,500 (Germany); €17,777 (England). Subgroup analyses showed higher costs for elderly patients, those with non-metastatic disease and smokers. **CONCLUSIONS:** Considerable differences in average treatment costs were observed. In-patient costs dominate in the first year of treatment in all countries. The study highlights the costly nature of NSCLC.

PCN86

COST OF BEST SUPPORTIVE CARE FOR NON-SMALL CELL LUNG CANCER PATIENTS – A GERMAN PERSPECTIVE

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OBJECTIVES: Best supportive care (BSC) is in general individually provided to patients. Thus, the scope of BSC and its costs can vary widely. Only limited information on BSC costs for patients with non-small cell lung cancer (NSCLC) exists. Aim of this research was to estimate annual BSC costs for NSCLC patients in Germany. **METHODS:** To estimate BSC costs at first a literature search in PubMed with the key words “best supportive care”, “cost”, “non-small cell lung cancer” and “economic analysis” individual and combined search terms was performed. International publications of economic evaluations including data on single cost items which could be applied to the German health care system were included. Additionally, data on BSC from a NSCLC patient registry (n=193) and prescription data derived from a randomised controlled trial (RCT) were used as further references. Cost- items were extracted from each reference and finally applied to the German inpatient and outpatient reimbursement system. **RESULTS:** The literature research yielded 317 records of which 3 met the inclusion criteria (2=UK; 1=North America). An extrapolation of these evaluation results to the German health care system showed that BSC costs based on UK data ranged from 16,940€ to 45,426€ (North America: 31,352€). According to health economic data from an RCT annual cost for BSC amounted to 17,531€, while data from a NSCLC patient registry added up to 28,070€. The average annual costs for BSC were estimated at 27,864€. **CONCLUSIONS:** Since BSC is individually delivered to patients, it leads to a high variance of annual BSC costs for NSCLC patients in Germany. Furthermore, international economic evaluations were extrapolated to the German health care system. Hence, results should be interpreted with caution as international treatment guidelines and reimbursement schemes are not fully applicable to Germany. Future analyses should be based on a German population only.

PCN87

MASTECTOMY DUE TO BREAST CANCER IN BRAZIL: GEOGRAPHIC DISTRIBUTION AND COSTS FROM THE PUBLIC HEALTH CARE PERSPECTIVE

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OBJECTIVES: Treatment for breast cancer is usually based on chemotherapy and radiotherapy, but in unsuccessful cases, mastectomy is required. In Brazil, mastectomies are performed as simple or radical, with lymphadenectomy. This study aims to relate geographic distribution, temporal trends and economic profile of this procedure in Brazil. **METHODS:** Assessments about hospital admissions were performed to analyze costs and geographic distribution among mastectomies related with breast cancer realized in Brazil, from January 2008 to December 2012. The data used were extracted by Brazilian Hospital Information System (SIH/SUS) database, according to ICD-0416120032 (simple mastectomy) and ICD-0416120024 (radical with lymphadenectomy). Costs were estimated in 2014 Brazilian Real (BRL) and represents federal reimbursement values for hospitalizations (exams, drugs, medical procedures and fees). **RESULTS:** In Brazil, the number of mastectomies related with breast cancer ranged from 8,687 in 2008 to 9,703 in 2012. In Southeast region were performed 22,977 procedures, which was the largest number per region, compared with 1,814 in North; 8,443 in South; 2,280 in Midwest and 10,538 in Northwest. In São Paulo; 10,111 procedures occurred in this period, while 8 were performed in Amapá. Total costs with mastectomies due to breast cancer in Brazil during this period were 44,219,235.66 BRL. The value per patient increased about 12.5% over the years with mean costs from 2008 to 2012 of 799.75BRL, 842.62BRL, 845.28BRL, 878.20BRL and 870.25BRL, respectively. In 2010, the mean mortality rate among simple and radical mastectomies was 0.22% and increased until 0.54% in 2012. **CONCLUSIONS:** Geographic distribution of mastectomy due to breast cancer in Brazil is concentrated in Southeast region, in comparison to other regions and from 2008 to 2012 there was no change in this pattern. Although costs elevated, mortality also increased in this period.

PCN88

ESTIMATION OF ECONOMIC LOSSES RESULTING FROM DISEASES ASSOCIATED WITH SMOKING IN MEXICAN INSURED AND UNINSURED POPULATION

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OBJECTIVES: Few data has been published in Mexico related to direct smoking costs from the consumer perspective. To estimate lost income and pocket costs related to smoking diseases from the perspective of Mexican families. **METHODS:** The analysis incorporated patients with public, private and no-health insurance from 18-65 years. Through Mexican literature review, medical costs and prevalence of 3 major diseases associated with tobacco consumption were identified: acute myocardial infarction (AMI), chronic obstructive pulmonary disease (COPD) and lung cancer (LC) as well as absenteeism associated to each disease. Average income was extracted from 2012 national income survey. Scenarios evaluated were: 1) Publicly

health-insured patients: from the 4th day of disability, the Instituto Mexicano del Seguro Social covers 60% of wages, 2) Private health-insured: economical loss of private beneficiaries is a 20% co-pay plus daily average income lost. 3) No-health-insurance: Medical costs and absenteeism represent the economical loss. Costs are expressed in 2014 USD (1USD=13MXN). Morbidity cases were extracted from published data by National Institute of Public Health and used to calculate a weighted average of economical losses for each scenario. **RESULTS:** The distribution of people with smoking-related disease (AMI, COPD and LC) was 25.0%, 65.4% and 9.6%, respectively. Patients in scenario 1) 2) and 3) spend/lose an average of \$446.6, \$8,448.2 and \$37,384.95 per year, respectively (medical costs are the drivers of the economic resources lost by not-insured population). Average illness expense derived from tobacco consumption regarding the proportion of people in each scenario was \$13,917 yearly (local per capita GDP is \$9,749). Regardless of health-insurance status, LC is the most expensive disease (\$39,564.26), followed by AMI and COPD (\$14,337.06 and \$10,109.32, respectively). **CONCLUSIONS:** The study showed that in the long run smokers incur significant economic losses even if they have medical insurance. Costs increases to people that do not have any insurance.

PCN89

COST COMPARISON AMONG FIRST LINE MONOCLONAL ANTIBODIES-BASED ONCOLOGY TREATMENT PROTOCOLS

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OBJECTIVES: To assess and compare the costs of first-line monoclonal antibodies (mAbs) treatment protocols in breast cancer, non-Hodgkin lymphoma and colorectal carcinoma in South- eastern Europe. **METHODS:** A retrospective, bottom-up case series study design was implemented with one-year time horizon and payer's perspective. The study sample size was 265 patients (breast cancer, N=137, colorectal cancer, N=44, and non-Hodgkin lymphoma, N=84) while treatment protocols included adjuvant mAbs: trastuzumab (N=137), bevacizumab (N=28), cetuximab (N=16) and rituximab (N=84). ICD-10 related, direct medical and lost productivity costs (€) across treatment groups during 2010-2013. **RESULTS:** The average length of observation was 128±97 days per patient. Total mean direct and indirect costs of care were: trastuzumab breast cancer group €17,740; bevacizumab colorectal carcinoma group €8,775; cetuximab colorectal carcinoma group €27,181 and rituximab non-Hodgkin lymphoma group €19,431. An average mAbs-treated patient incurred €17,897 costs of medical care. The total combined budget of these 265 patients was €4,742,775. **CONCLUSIONS:** The use of mAbs strongly correlated with high costs in first-line cancer medical care and dominated other cost domains. Cetuximab-based treatment protocol in colorectal carcinoma patients was substantially more expensive compared to trastuzumab (C50); bevacizumab (C20) and rituximab (C80) alternatives. Extremely high costs of mAbs are the key-issue for Eastern European policy makers by crossing the upper limits of affordability in middle-income economies.

PCN90

USE PATTERNS AND COSTS OF ISOLATED LIMB PERFUSION AND INFUSION IN THE TREATMENT OF REGIONALLY METASTATIC MELANOMA: A RETROSPECTIVE DATABASE ANALYSIS

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OBJECTIVES: Isolated limb perfusion and infusion (ILP/ILI) are therapies for regionally metastatic melanoma where high doses of anticancer drugs are delivered directly into the circulation of an affected limb, while minimizing systemic drug exposure. This procedure can lead to high response rates but without proven benefits to overall survival. It is recommended by ESMO and NCCN guidelines as a treatment option for patients with stage III unresectable metastatic melanoma. However, limited information is available on its use pattern and costs in the literature. This study was to examine patterns of ILP/ILI use and associated costs in patients with melanoma in the US. **METHODS:** This is a retrospective, observational study using large administrative claims from the MarketScan® databases. Patients who underwent ILP/ILI (CPT-4: 36823) with diagnosis of melanoma (ICD-9-CM: 172. xx, V10.82) between 1/1/2002 and 3/31/2013 were included. Patient characteristics, use patterns, hospital length of stay, and costs (2013 US \$) of ILP/ILI were assessed. **RESULTS:** A total of 113 patients met the study criteria and were included in the analysis. The mean age was 62.1 years (standard deviation [SD] 14.1); 39.8% were male. The mean baseline Charlson's comorbidity index was 0.24 and 36.4% of patients were Medicare beneficiaries. Overall, 86.4% of patients had melanoma in the lower limb, 12.7% in the upper limb, and 0.9% in both upper and lower limbs; 59.3% had lymph node metastasis and 56.8% had skin metastasis. Four patients (3.5%) underwent multiple ILP/ILI procedures. The mean (±SD) hospital length of stay was 5.6 (± 3.5) days and the mean (±SD) cost was \$35,898 (± \$26,492) per ILP/ILI procedure. **CONCLUSIONS:** The use of isolated limb perfusion and infusion was associated with relatively long hospital stay and high cost. The results of this study may provide source data for economic evaluations of treatment options for regionally metastatic melanoma.

PCN91

A GUIDELINE-BASED ESTIMATE OF HEALTH CARE RESOURCE USE AND COST OF METASTATIC UNRESECTABLE OSTEOSARCOMA

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OBJECTIVES: To estimate the resource use and costs a health plan can anticipate during the diagnosis, treatment, and surveillance of a patient with metastatic unre-

sectable osteosarcoma using national guideline recommendations. **METHODS:** An economic disease model was developed based on recommendations from the 2013 NCCN Clinical Practice Guidelines in Oncology for bone cancer. The model quantified resource use for diagnosis, 12 months of treatment, and 12 months of surveillance of a metastatic unresectable osteosarcoma patient. Costs in 2014 dollar value were derived from publically available sources for reimbursement of CPT codes, HCPCS codes, and generic WAC prices for medications. Chemotherapy dosing was based on NCCN recommended treatment regimens. **RESULTS:** The diagnostic cost was estimated to be \$1,706 per patient. Treatment costs, consisting of stereotactic radiosurgery and chemotherapy with drug monitoring, varied widely across the four NCCN recommended regimens due to differences in the price of pharmacotherapy. The chemotherapy regimens were estimated to be the major cost components associated with this disease. Doxorubicin, cisplatin, and high-dose methotrexate cost \$103,051 per patient; doxorubicin and cisplatin cost \$17,549 per patient; doxorubicin, cisplatin, high-dose methotrexate, and ifosfamide cost \$38,404 per patient; and cisplatin, ifosfamide, and epirubicin cost \$38,936 per patient. Additionally, stereotactic radiosurgery was estimated at \$2,755 per patient, and the cost of drug monitoring during the one year of chemotherapy averaged to \$5,899 per patient. Additionally, one year of disease surveillance cost \$4,264 per patient. **CONCLUSIONS:** A guideline-based disease model can assist health plans to better understand and anticipate the expected diagnosis, treatment, and surveillance resources and costs for unresectable metastatic osteosarcoma patients.

PCN92 RESOURCE USE AND HEALTH CARE COSTS OF METASTATIC MALIGNANT MELANOMA IN SLOVAKIA

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OBJECTIVES: The objective of this cost study was to measure the resource utilisation and the direct costs associated with health care management of metastatic malignant melanoma (mMM) in Slovakia and provide a basis for cost-effectiveness evaluations. **METHODS:** The cross-sectional survey was performed and included 3 oncologists experienced in mMM management. The survey was performed to obtain the information on the management of patients with mMM and to estimate the direct costs of the disease. The studied population were 3 cohorts of mMM patients which are usually identified as the health states in the cost-effectiveness models: "Before progression", "Disease progression" and "Terminal care". Costs of drugs were assessed separately from health states and rated particularly according to BRAF positivity. The cost data were assessed for the year 2013. All types of health care used in mMM management were evaluated (outpatient and inpatient visits, diagnostics, prescription drugs and medical examinations). Costs of adverse events (AEs) were set for one single event. **RESULTS:** The most frequent treatment regimens used in the first treatment line of BRAF mutant and BRAF negative patients were identical - dacarbazine (94.9% of treated patients), fotemustine (4.5%) and ipilimumab (0.6%). Monthly costs of mMM management in addition to the active treatment in the state "Before progression" count for 6.64% (€188.51/patient), during the "Disease progression" it was 45.56% (€1 294.31/patient) and during the "Terminal state of patient" 47.80% (€1 358.02/patient). Adverse event (AE) costs were evaluated for grade 3 and 4. The most costly AEs were neutropenia (€1 014.66), fever (€364.87) and rash (€230.35). **CONCLUSIONS:** In the management of mMM (excluding the active drug cost), the most expensive are the costs of hospitalization and symptomatic treatment. The most costly period is the "Terminal state".

PCN93 COST-BENEFIT ASSESSMENT OF THE ELECTRONIC HEALTH RECORDS FOR CLINICAL RESEARCH (EHR4CR) EUROPEAN PROJECT

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OBJECTIVES: The EHR4CR 4-year research partnership between the European Union and the European Federation of Pharmaceutical Industries and Associations (EFPIA) has developed a platform for the trustworthy use of hospital electronic health records' data for clinical research. A cost-benefit assessment (CBA) was conducted from the pharmaceutical industry perspective to assess the value of the first two EHR4CR clinical research scenarios (S1): Protocol feasibility assessment (S1), and Patient identification and recruitment (S2), either used individually or sequentially within a clinical trial workflow, versus current practices. **METHODS:** The EFPIA partners have conducted a resource utilization assessment to calculate the actual person-time and cost of performing S1 and S2 for one oncology clinical study (Phase II or Phase III) as reference case. Assuming that an estimated 50% reduction in actual person-time and cost under EHR4CR conditions would directly translate in accelerated time to market (TTM), potential benefits to global pharmaceutical industry were derived using global market values (2012) of oncology products¹. Absolute cost-benefit analyses were conducted using Monte-Carlo simulations. **RESULTS:** Compared to current practices, individual EHR4CR scenarios S1 and S2 have yielded efficiency gains of 134 days and 37 days respectively, and of 171 days when used sequentially. Should these efficiency gains from study design optimisation translate in faster TTM, corresponding estimated benefits for the global pharmaceutical oncology franchise could reach 160,45, and 205 Million €, respectively. **CONCLUSIONS:** This CBA is the first to assess the value of EHR4CR scenarios for oncology clinical trials. The results confirm that the EHR4CR platform could generate substantial added value for pharmaceutical industry should its efficiency gains translate in faster TTM. Further benefits are expected from the EHR4CR platform in other therapeutic

areas. **DISCLOSURE:** The EHR4CR project is mandated by the Innovative Medicines Initiative (co-funded by the European Commission and EFPIA).

1. Evaluate Pharma September 2013

PCN94 COST-EFFECTIVENESS OF COLONIC STENTS FOR THE MANAGEMENT OF MALIGNANT LARGE BOWEL OBSTRUCTION

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OBJECTIVES: The aim was to determine the cost-effectiveness of colonic stent insertion for the management of malignant bowel obstructions. Colonic stents are a minimally invasive alternative to open surgery for patients medically unfit for single stage surgery. **METHODS:** Two economic models were developed. The first compared patients who received palliative or definitive stents and were not medically fit for re-anastomosis. The second compared patients who received stents as a bridge-to-surgery and were medically fit for a second stage of two-stage surgery, this included colostomy or Hartmann's procedure. Results for patients requiring palliation, the cost of colonic stent insertion was estimated to be \$17,809 compared to \$20,516 for palliative colostomy (a saving of \$2,707). The benefits associated with both procedures were 0.099 QALYs and 0.089 QALYs gained, respectively, an incremental benefit of 0.01 QALYs per patient. For patients requiring a bridge-to-surgery, the cost of colonic stent insertion was estimated to be \$29,729, compared to \$30,169 for patients that received multi-stage surgery (either a colostomy or a Hartmann's procedure). This represented a cost savings of \$440. The estimated average patient would gain 0.510 QALYs compared to 0.458 QALYs in the multi-stage surgery group. This yields an incremental benefit of 0.052 QALYs per patient. The main drivers of both models were the technical and clinical success of the stent insertion, and length of hospital stay following the procedures. The probability of a resection with primary anastomosis after insertion of a stent and the cost of stenting were also drivers in the bridge-to-surgery model. **CONCLUSIONS:** In terms of cost-effectiveness, colonic stent insertion for malignant bowel obstruction in patients requiring palliation or a bridge-to-surgery dominated the current alternative surgical procedures.

PCN95 A MULTI-STATE MODEL OF METASTATIC COLORECTAL CANCER

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OBJECTIVES: The aim of this study is to develop and validate a decision-analytic model describing the current course of disease, including treatment, in metastatic colorectal cancer. This baseline model will serve as the comparator in analyses of the (cost-) effectiveness of new treatment strategies. **METHODS:** An individual-based micro-simulation model was constructed based on the disease states a patient may experience after a diagnosis of metastatic colorectal cancer. The states include first-line second-line and third-line treatment, as well as states of progression of disease after first-, second- or third-line, finally a death state is included. Time spent in each disease state was predicted using log-logistic, log-normal or weibull survival models, each dependent on a number of patient characteristics. All survival models and patient characteristics were based on patient-level data, provided by the CAIRO trial (NCT00312000). Two oncologists evaluated the model for face validity, the model was further validated by comparing various model outcomes with the original data, the national cancer registry and a population based study. **RESULTS:** There were no significant differences in patient and treatment characteristics, nor intermediate and overall survival estimates between the simulated and original patient-level data. External validation with national cancer registry data showed few differences in survival with the simulated data. Additionally the simulated survival did not significantly differ from the survival as recorded in a pilot oxaliplatin study of 119 patients who were observed in the same timeframe as the RCT. **CONCLUSIONS:** The micro-simulation decision model described in this article underwent an internal and external validation and can be used to evaluate new possibilities for research and treatment in metastatic colorectal cancer.

PCN96 ECONOMIC CONSEQUENCES OF THE ADAPTION OF THE 21 GENE REVERSE TRANSCRIPTASE-POLYMERASE CHAIN REACTION RT-PCR ASSAY FROM THE GREEK THIRD PAYER PERSPECTIVE

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OBJECTIVES: The evaluation of the economic consequences of 21-gene RT-PCR assay OncotypeDX introduction to the reimbursement scheme of National Organization for Health Provision-EOPYY. **METHODS:** A decision tree was developed concerning two treatment scenarios for the year 2013: a) chemotherapy admission according the common treatment practice without the application of the test vs b) chemotherapy admission depending on the results of the test. The sub-group of breast cancer patients appropriate for applying the test was determined according international guidelines and included early stage breast cancer women with hormone receptor positive and lymph node negative age ≤65 years. Cancer incidence was derived from ELSTAT and OECD base, while some assumptions were made concerning the age structure and disease stage of the population. The percentages of women assessed as high risk (score>31) for recurrence were obtained from EOPYY data for 2013. The estimated cost for OncotypeDX test was set according the EOPYY reimbursement price (€2,848 for 2013). Cost of chemotherapy and other cost items (eg laboratory