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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 assesed 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 - dacarbazin (94.9% of treated patients), fotemustin (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 reuse 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 (S): 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 products[1]. 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. ResultsFor 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 METATSTATIC 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 lumph 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

tests) were based on official reimbursed prices. **RESULTS:** Out of 4,934 newly diagnosed breast cancer women, 27.5% (1,357) were appropriate for the test application. Only 35% of the women undertaken the oncotype test (N=1,357) were found as high risk for recurrence (N=475). The average total cost of chemotherapy treatment was estimated to €8,271 from which more than 80% refer to pharmaceuticals. The total treatment cost for women who didn't undertake the test reached to €10.9 mil., while the relevant cost for women who undertook the test was estimated to €8 mil. **CONCLUSIONS:** The introduction of Oncotype DX® to the Greek health care system had as a result annual cost savings of almost €3 million and avoidance of unnecessary chemotherapy treatment (and associated complications) to more than 880 women.

PCN97

COST CONSEQUENCE MODEL INVESTIGATING THE IMPACT OF BOWEL CLEANSING ON PREVENTION OF COLORECTAL CANCER IN A GERMAN SCREENING POPULATION

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OBJECTIVES: The degree of benefit from colonoscopy in the prevention of colorectal cancer (CRC) is highly dependent on the quality of bowel cleansing. In a randomized study of patients undergoing screening colonoscopy in Germany (MODEC), 2L polyethylene glycol with electrolytes + ascorbate components (PEG+ASC) resulted in numerically higher overall polyp/adenoma detection rates (PDR/ADR) and significantly higher right-sided PDR/ADR than sodium picosulfate/magnesium citrate (NaPic/MgCit), together with better bowel cleansing. The objective of the model was to examine the socioeconomic impact of bowel cleansing quality on the effectiveness of CRC screening in the eligible German population. **METHODS:** A cost-consequence model was constructed to compare the total cost of colonoscopy and treatment of subsequent CRC over a 10-year period in a cohort of 10,000 patients aged ≥55 years receiving 2L PEG+ASC or NaPic/MgCit prior to colonoscopy. The rates of successful bowel cleansing, completed colonoscopies, and PDR/ADR were obtained from the MODEC study. Published rates of surveillance colonoscopy, associated costs and health care resource utilization in Germany were used, with costs inflated to 2013 prices. **RESULTS:** The model predicts that the use of 2L PEG+ASC versus NaPic/MgCit increases the average per patient cost associated with colonoscopy by €67. However, better bowel cleansing and numerically higher overall PDR/ADR achieved using 2L PEG+ASC rather than NaPic/MgCit avoids progression to CRC in 166 patients, due to early detection, equating to an average per patient saving in CRC treatment costs of €488. The model shows that the use of 2L PEG+ASC versus NaPic/MgCit at screening/surveillance colonoscopy leads to an average overall cost saving of €420 per patient over 10 years. **CONCLUSIONS:** Modeling of long-term outcomes shows that using an effective bowel cleansing preparation in CRC screening may reduce the number of patients developing CRC, and may lead to reduced CRC treatment costs.

PCN98

A COST-CONSEQUENCE ANALYSIS OF HUMAN PAPILLOMAVIRUS VACCINATION IN ROMANIA

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OBJECTIVES: The objective of the study was to estimate the potential cost and epidemiological impact of a Human Papillomavirus (HPV) mass vaccination in Romania for the two available vaccines in the Romania: AS04 adjuvanted HPV16/18 vaccine (AS04V) and the HPV6/11/16/18 vaccine (QV). **METHODS:** We applied, to the Romanian settings, a population steady state model previously published with a one year time horizon estimating the effect (cases and costs) of a vaccination programme. The number of cases and costs (in RON – Romanian National Currency) were collected from the hospitalization Diagnosis Related Group database for the year 2012. cervical cancer (CC) and genital warts (GW) were considered. Vaccine effectiveness was approximated by weighting vaccine-type and non-vaccine-type efficacy with HPV distribution reported for GW (literature) and CC (HPV Centre) for each vaccine. One way sensitivity analysis was conducted on key input parameters. **RESULTS:** HPV vaccination would save17,706,490 RON with AS04V and 16,432,592 RON with QV. An additional 820 CC-related hospitalisations amounting to a cost difference of 1,273,898 RON was estimated in favour of the AS04V. A total of 205 cases of GW prevented and 153,395 RON associated costs were estimated in favour of the QV. The total cost difference amounted to 1,120,503 RON. Robustness of the results was confirmed by sensitivity analyses". **CONCLUSIONS:** Implementing the AS04V would result in >1 million RON saved versus the QV mainly due to a difference of extra 820 CC cases prevented that completely offsets the benefit associated with the prevention of GW. The observed difference is mainly due to higher protection associated with non-vaccine types for AS04V.

PCN99

ASSOCIATION OF HEALTH CARE COST WITH QUALITY OF LIFE FOR VARIOUS TYPES OF CANCERS

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OBJECTIVES: The new cancer treatment modalities are improving survival rates today and one of the main outcomes is the improved health related quality of life (QoL). Prolonged survival also increases the financial burden of cancer care on health care systems. In this study we aimed to analyze the associations between QoL and direct health care costs in different types of cancers. **METHODS:** We evaluated QoL (EORTC QLQ-C30) and direct medical costs (DMC) in 350 patients with lung (Lng), breast (Br), hematological (Hem), head and neck (H&N), colorectal (CR), gastric (Gas), gynecological (Gy), and prostate (Pr) cancers. The DMC data of each patient in the following 3-month period after QoL assessment was obtained from the hospital finance department database. DMC per QoL point was calculated by DMC/QoL score. **RESULTS:** Mean DMC per QoL was lowest in Pr, and highest in Hem cancers (ranged 60.1-195.1 TL/global QoL score) (Pr<Gy<CR≈Gas≈Br≈Lng≈H&N<Hem). QoL was lowest in Gy and highest in CR (ranged 53,1-65,2) (Gy<Lng<Pr<Br≈Hem≈H&NC). Total DMC ranged from 3124-13557 TL (Pr≈GY<Br<Gas≈CR<Lng≈H&N<Hem). Depending on the type of the cancer the association between DMC and QoL could be in different directions (the correlation between DMC and role functioning was positive in Gas, while it was negative in H&N cancer). **CONCLUSIONS:** For a fixed period of time the total DMC associated with the management of different types of cancers vary substantially. As expected the total cost does not however purchase equal amount of QoL for each type of cancer. For those cancers with higher DMC per QoL, we should consider implementing wider psychosocial support measures. Depending on the type of cancer DMC may reflect disease progression leading to decreased QoL, or it may reflect presence of an effective and aggressive management leading to increased QoL.

PCN100

COST-EFFECTIVENESS MODEL OF PERTUZUMAB IN COMBINATION WITH TRASTUZUMAB AND DOCETAXEL COMPARED WITH TRASTUZUMAB IN COMBINATION WITH DOCETAXEL FOR THE 1ST LINE TREATMENT OF HER2+ METASTATIC BREAST CANCER IN COLOMBIA

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OBJECTIVES: To evaluate the cost effectiveness of Pertuzumab plus Trastuzumab and docetaxel (PTD) vs. Trastuzumab and docetaxel (TD) for the first-line treatment in patients with HER2+ metastatic breast cancer in Colombia. **METHODS:** For the evaluation of the cost-effectiveness a health economic area under the curve model was developed. The model considers three health states: progression-free survival, disease progression and death. The proportion of patients in each health state were derived using patient level data from the CLEOPATRA trial like efficacy and safety results, with the exception where overall survival (OS) utilized data from longer term clinical registries. The primary model outcome is the ICER cost per QALY gained in the first-line PTD vs. TD. The following main model input data assumptions were applied for the base case analysis: Time horizon: 15 years; model cycle length: weekly; 3) reference prices for drugs in Colombia, except for Pertuzumab which was supplied by the manufacturer; 4) treatment duration: actual treatment duration from the CLEOPATRA study extrapolated using an exponential function; and 5) discount rates: annual rate of 3.0% for both, future costs and health benefits. **RESULTS:** The outcomes over a time horizon show an increase in mean OS time for patients assigned to the PTD group as compared to those in the TD of 0.72 years. Mean QALYs are also higher in the PTD group than in the TD group 0.58 QALYs. The addition of Pertuzumab leads to higher total average treatment costs of $143.529 dollars per patient compared to the TD group. These findings result in an ICER of $200.509 per life year gained and of $249.582 per QALY gained. **CONCLUSIONS:** When compared to commonly accepted cost-effectiveness thresholds, these results exceed commonly applied willingness-to-pay thresholds, but Pertuzumab becomes a therapeutic alternative that offers a better health outcome.

PCN101

COST-EFFECTIVENESS OF IPILIMUMAB FOR PREVIOUSLY UNTREATED PATIENTS WITH ADVANCED METASTATIC MELANOMA IN SPAIN

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OBJECTIVES: To assess the cost-effectiveness of ipilimumab compared to dacarbazine as first-line treatment in patients with advanced metastatic melanoma. **METHODS:** A three-state Markov (progression-free, progression and death) with three-week cycles model using the Spanish Healthcare System perspective was developed over a lifetime horizon. The clinical profile of ipilimumab (3 mg/kg) was obtained from a pooled dataset of chemotherapy naive patients from four phase II and phase III studies, and from the CA184-024 trial for dacarbazine. Parametric extrapolation methods were used to project survival over lifetime. Costs included were: drug acquisition (ex-factory price -7,5% mandatory rebate) and administration, medical/terminal care, and adverse events management. Unit costs were derived from Spanish health care cost databases (Euros, 2013). For drugs with a double-pricing system (like ipilimumab), costs were based upon the official notified prices in Spain. Costs and benefits were discounted at 3%. Utility values were taken from the CA184-024 trial. Univariate and probabilistic sensitivity analyses (PSA) were performed. **RESULTS:** The life years (LYs) and quality-adjusted life years (QALYs) gained with ipilimumab as first-line treatment over dacarbazine were 2.01 and 1.68, respectively. The incremental cost of using ipilimumab versus dacarbazine was 69,598 €. The incremental cost-effectiveness ratio (ICER) and the incremental cost-utility ratio (ICUR) were 34,566€/LY gained and 41,459€/QALY, respectively. PSA showed that ipilimumab is up to 100% and 90% likely to be cost-effective at the threshold established by the NICE for oncology drugs that meet 'End-of-Life' criteria (50,000-62,000€) for ICER and ICUR, respectively. Additionally, at the threshold acceptable in Spain (30,000-45,000€) the likelihood of ipilimumab being cost-effective is up to 94% and 66% for ICER and ICUR, respectively. **CONCLUSIONS:** Results suggest that ipilimumab is a cost-effective alternative for previously untreated patients with advanced metastatic melanomain Spain.

PCN102

THE POTENTIAL OF (TARGETED) MR COLONOGRAPHY AS A SCREENING TOOL FOR COLORECTAL CANCER: A COST-EFFECTIVENESS ANALYSIS

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OBJECTIVES: MR colonography may have potential as a colorectal cancer (CRC) screening tool since it has comparable test characteristics as colonoscopy but is less invasive. Furthermore, innovators in the field of MR technology are striv-