incremental quality-adjusted life years (QALYs) while ESAs were administered and during a Hb "normalisation period" following cancer treatment. Incremental long-term QALYs were accrued solely through extrapolated overall survival. Short-term mortality and HRQoL associated with adverse events and RBCTs were not modelled. Costs included: ESA acquisition (list prices, British National Formulary) and administration, RBCT, additional blood tests with ESA therapy, and adverse event costs. **RESULTS:** All ESAs except epoetin beta and darbepoetin alfa were cost-effective versus using RBCT only at an upper cost-effectiveness threshold of £30,000/QALY. Incremental cost-effectiveness ratios (ICERs) ranged from £19,400/QALY (biosimilar epoetin alfa) to £35,000/QALY (epoetin beta). Probabilistic sensitivity analysis showed that biosimilar epoetin alfa was cost-effective at the lower cost-effectiveness threshold of £20,000/QALY in 50.9% of simulations. In 19.5% of simulations it was clinically effective but not cost-effective and in 31.4% of simulations it was dominated by RBCT only. Additional sensitivity analyses demonstrated that overall survival was one of the most influential and uncertain parameters. When the survival advantage of ESAs (not statistically significant) was removed, the ICERs for all ESAs were over £100,000/QALY. **CONCLUSIONS:** There is substantial uncertainty regarding the impact of ESA therapy on overall survival, which leads to significant uncertainty about the cost-effectiveness of ESAs in CIA.

PCN158

QALY WEIGHTINGS BASED ON THE BURDEN OF ILLNESS APPLIED TO A UK COST-EFFECTIVENESS ANALYSIS OF NAB-PACLITAXEL + GEMCITABINE VERSUS GEMCITABINE ALONE FOR THE TREATMENT OF METASTATIC PANCREATIC CANCER

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OBJECTIVES: To demonstrate the impact of QALY weightings based on the burden-of-illness (BoI) of pancreatic cancer on the incremental cost-effectiveness ratio (ICER) of nab-paclitaxel plus gemcitabine (NPG) versus gemcitabine (G). **METHODS:** A markov model using data from the MPACT trial plus resource use data and costs from NHS Scotland have been submitted to the Scottish Medicines Consortium. The base case ICER was £52,885/QALY based on a cost of £8,232 and a QALY gain of 0.156 (SMC DAD). QALY weightings up to a maximum of 2.5 distributed across six modifier factors, including BoI, have been proposed (NICE consultation on Value Based Assessment), with BoI measured according to proportional QALY shortfall associated with the condition. The estimated 98% loss of healthy life (proportional QALY shortfall) in pancreatic cancer (Hutchings 2014) represents an almost complete loss of life, and thus a very high BoI. A BoI weighting of 2.5 (maximum weighting allocated entirely to BoI, or BoI FULL) and an alternative BoI weighting of 1.417 (maximum weighting shared equally between six modifiers, so 1/6thof 2.5, or BoI PARTIAL) were therefore applied to the QALY gain of NPG versus G. **RESULTS:** The BoI FULL weighting gives an adjusted QALY gain for NPG versus G of 0.39 and a corresponding ICER of £21,108/QALY. The BoI PARTIAL weighting gives an adjusted QALY gain for NPG versus G of 0.221 and a corresponding ICER of £37,249/QALY. **CONCLUSIONS:** Various ways of accounting for disease severity can be considered and made workable by HTAs, including QALY weightings according to proportional QALY shortfall. The adjusted QALY gain and corresponding ICERs of NPG versus G in pancreatic cancer show that the value of medicines for life-threatening 'end-of-life' conditions with a high relative shortfall can be reflected by an appropriate system of QALY weightings.

PCN159

ECONOMIC EVALUATION OF LAPATINIB IN HER-2-POSITIVE METASTATIC BREAST CANCER PATIENTS IN EGYPT

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OBJECTIVES: The objective of the current analysis was to assess the cost-effectiveness of lapatinib plus capecitabine versus capecitabine alone in human epidermal growth factor receptor-2-positive metastatic breast cancer patients from the third party payer perspective over a time horizon of ten years. **METHODS:** A half cycle corrected Markov chain model comprising 3 health states (stable, progression and death) was developed to estimate the projected clinical and economic implications of Lapatinib. Transition probabilities were estimated based on the results from the EGF100151 clinical trial of Lapatinib. Health state utilities and major adverse events were obtained from published sources. Direct medical costs were obtained from the third party payer list. Costs (in 2013 EGP) and effects were discounted at 3.5% annually. One way sensitivity analyses were conducted. **RESULTS:** The economic evaluation of lapatinib plus capecitabine as combination therapy resulted in additional cost of 1,597,796 EGP, with an incremental positive effect of 5.7 quality adjusted life years (QALY) or an incremental cost-effectiveness ratio (ICER) of 277,169 EGP/QALY gained. The overall survival of the two arms was found to have the greatest impact on the results. **CONCLUSIONS:** Compared with our willingness-to-pay threshold stated by world health organization for middle and lower income countries, the addition of lapatinib to capecitabine is not clearly cost-effective; and most likely to result in an ICER higher than the threshold limit.

PCN160

HEALTH CARE UTILIZATION AND COSTS OF BREAST CANCER IN THE MEDICAID PROGRAM

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OBJECTIVES: To evaluate health care resource utilization and costs among patients diagnosed with breast cancer in the Medicaid program. **METHODS:** Patients diagnosed with breast cancer (International Classification of Disease, 9thRevision, Clinical Modification [ICD-9-CM] diagnosis code 174, 233.0, 238.3, 239.3) were identified using Medicaid data from January 1, 2008 through December 31, 2010. The initial diagnosis date was designated as the index date. Patients without breast cancer (comparison cohort) who were the same age, race, and gender were identified and matched. A random index date was chosen to minimize selection bias. Patients in both cohorts were required to be at least age 18 years, with continuous medical and pharmacy benefits 1-year pre- and 1-year post-index date. One-to-one propensity score matching (PSM) was used to compare health care costs and utilizations during the follow-up period, between the diseased and comparison cohorts, and adjusted for baseline demographic and clinical characteristics. **RESULTS:** After risk adjustment by PSM, a total of 19,079 patients in each cohort were matched. Significantly more breast cancer patients had inpatient admissions (23.77% vs. 12.56%, p<0.0001) and long-term care (7.77% vs. 6.60%, p<0.0001), other service (99.88% vs. 87.86%, p<0.0001) and pharmacy visits (77.80% vs. 68.85%, p<0.0001), compared to those without breast cancer. Breast cancer patients also incurred significantly higher inpatient ($2,141 vs. $1,537, p<0.0001), long-term care ($7,471 vs. $5,335, p<0.0001), other service visit ($23,592 vs. $14,780, p<0.0001) and pharmacy costs ($3,379 vs. $2,787, p<0.0001) compared to those in the comparison cohort. **CONCLUSIONS:** Breast cancer patients in the Medicaid program incurred substantially higher health care resource utilization and costs compared to those without the disease.

PCN161

NAB-PACLITAXEL OR DOCETAXEL AS ALTERNATIVES TO SOLVENT-BASED PACLITAXEL IN METASTATIC BREAST CANCER (MBC): A COST UTILITY ANALYSIS FROM A CHINESE HEALTH CARE PERSPECTIVE

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OBJECTIVES: Paclitaxel and docetaxel are used for the treatment of MBC in China. However, one important drawback, particularly with docetaxel, is the potential for dose-limiting toxicity. To improve the side effect profile and efficacy of paclitaxel, an albumin-bound formulation (*nab*-paclitaxel) is currently available in China (Abraxane®). Clinical trials have demonstrated that n*ab*-paclitaxel is safer and more effective than both docetaxel and paclitaxel. To provide economic data for China, a cost utility analysis comparing n*ab*-paclitaxel to docetaxel, both as alternatives to paclitaxel was conducted. **METHODS:** Clinical data was obtained from a meta analysis of randomized trials comparing either n*ab*-paclitaxel (260 mg/m^2 q3wk) or branded docetaxel (100 mg/m^2 q3wk) to solvent-based branded paclitaxel (175 mg/m^2 q3wk). Health care resource use for the delivery of chemotherapy and the management of grade 3/4 toxicity was collected from a time and motion study in three Chinese cancer centers and from a survey of clinicians. Using the Time Trade-off technique, treatment preferences and utility estimates were obtained from interviewing 28 cancer patients from two centres in China. All costs were reported in 2014 $U. S. **RESULTS:** N*ab*-paclitaxel had the most favourable safety profile characterized with the lowest incidence of grade 3/4 neutropenia, febrile neutropenia, anemia and stomatitis. This translated into lower costs for managing the grade 3/4 side effects of n*ab*-paclitaxel relative to both docetaxel and paclitaxel ($21 vs. $166 vs. $81). In the preference assessment, 22 of 28 (78.6%) patients selected n*ab*-paclitaxel as their preferred agent. As an alternative to paclitaxel, the cost per quality adjusted life year (QALY) gained was more favourable with n*ab*-paclitaxel than docetaxel ($57,900 vs. $130,600 respectively). **CONCLUSIONS:** N*ab*-paclitaxel is an economically attractive alternative to paclitaxel and docetaxel in MBC, providing a substantially lower cost per QALY. Additionally in the patient preference survey, 78.6% of patients selected *nab*-paclitaxel as their preferred agent.

PCN162

THE COST-EFFECTIVENESS OF SECOND-LINE CRIZOTINIB IN EML4-ALK REARRANGED ADVANCED NON-SMALL CELL LUNG CANCER

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OBJECTIVES: Targeted therapy with ALK inhibitor crizotinib offers significant improvement in clinical outcome for treatment of EML4–ALK fusion positive non-small cell lung cancer (NSCLC) patients. We estimated the cost-effectiveness of companion EML4-ALK genetic testing in combination with crizotinib treatment in the second-line setting for advanced NSCLC in Ontario. **METHODS:** We performed a cost-effectiveness analysis using a Markov model from a Ministry of Health perspective and a lifetime horizon. Transition probabilities and mortality rates were calculated based on the data of a recent second-line randomized trial of crizotinib versus chemotherapy (Shaw et al. New Engl J Med 2013). Costs were obtained from OCCI database, public labs and Princess Margaret Hospital. All parameters were varied separately in one-way and selected two-way sensitivity analyses. Various scenarios to assess the impact of model assumptions about testing and treatment were conducted. **RESULTS:** The use of pemetrexed and docetaxel in ALK-rearranged NSCLC, based on our preliminary model, could yield as much as 0.539 QALY and 0.429 QALY respectively, assuming no crossover from chemotherapy to crizotinib. Average costs per patient based on the preliminary model are estimated at CAD $19,388 for pemetrexed and $$33,226for docetaxel, with incremental cost-effectiveness ratios of $333,595/QALY and $125,812/QALY gained respectively. The results of the one-way sensitivity analysis indicated that the primary drivers of the ICER were the utilities and cost of crizotinib treatment. The model was least sensitive to IHC and FISH genetic test costs, re-biopsy cost, probability of progression while on pemetrexed treatment and probability of re-biopsy. **CONCLUSIONS:** EML4–ALK genetic testing in combination with crizotinib treatment for all NSCLC patients eligible for chemotherapy is not economically attractive in the current setting. Lower drug costs would be required to make this strategy economically feasible.

PCN163

COST-EFFECTIVENESS OF IPILIMUMAB IN PREVIOUSLY UNTREATED PATIENTS FOR ADVANCED MELANOMA IN SWEDEN

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OBJECTIVES: Ipilimumab was the first compound to substantially prolong survival in advanced melanoma. Evaluate the cost-effectiveness of ipilimumab in untreated advanced melanoma compared to dacarbazine and vemurafenib from a Swedish national payer perspective (TLV/NLT). **METHODS:** A three-state Markov model with stable disease, progression and death was developed, estimating costs and benefits over a lifetime horizon. Given a lack of head-to-head data and a connected evidence network to allow for a robust NMA, the comparison used two sources of data unadjusted for study characteristics. Ipilimumab survival data were based on a pooled sample of treatment-naïve patients from clinical trials (n=78) and real-world settings (n=181), the clinical data package used for EMA submission. Parametric extrapolation methods were applied to dacarbazine data from CA184-024. Mixture modelling was used to extrapolate vemurafenib data from BRIM-III. Resource use was taken from a survey of Swedish oncologists (n=5). EORTC-8D utility data from an untreated population were used because they match the population of interest. Costs were obtained from official Swedish price lists. Survival and utility assumptions were varied in scenario analyses. **RESULTS:** Ipilimumab was associated with a 0.93 QALY gain and an ICER of SEK782,000 (€84,000) versus dacarbazine. Ipilimumab dominated vemurafenib with a 0.76 QALY gain and a SEK109,000 (€15,000) cost-saving. The unadjusted comparison was the most conservative among alternative methods of clinical comparisons explored. The ICER versus dacarbazine was SEK521,000 (€56,000) using a published survival algorithm (7) and SEK532,000 (€57,000) using a covariate-adjusted survival regression based on the 78-patient dataset. A real-world scenario using the patient shares of dacarbazine and vemurafenib was also deemed cost-effective. **CONCLUSIONS:** As in the previously treated setting, ipilimumab produces large (>0.5 year) survival and quality-adjusted survival gains relative to current treatments. TLV/ NLT considered ipilimumab a cost-effective treatment for advanced melanoma based on these results.

PCN164

COST-UTILITY ANALYSIS OF TRASTUZUMAB IN TREATMENT OF METASTATIC HER2-POSITIVE BREAST CANCER IN VIETNAM

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OBJECTIVES: Trastuzumab, a targeted therapy, has been widely used in treatment of HER2-positive breast cancer because of its proved effectiveness and safety by many studies but its economic impact with low-income countries like Viet Nam has not been assessed yet. The aim of this study is to evaluate the cost-effectiveness of trastuzumab in combination of standard therapy versus standard therapy in treatment of metastatic HER2-positive breast cancer. **METHODS:** A Markov model was developed with 3 states (stable disease, progressive disease and death) to simulate a hypothetical cohort of 1,000 metastatic HER2-positive breast cancer women of an average age of 53 year old with the same entry criteria as in the M77001 study group. Chemotherapy with ACD regimen (Doxorubicin, Cyclophosphamide, Docetaxel) was compared with ACD regimen plus trastuzumab. The cycle length of model was 1 month and time horizon was lifetime. Both cost and Quality-adjusted life-years (QALYs) were discounted annually with 3% discount rate. Probabilistic sensitivity analysis was also conducted. **RESULTS:** Combination of trastuzumab and standard therapy compared with standard therapy in treatment of metastatic HER2-positive breast cancer resulted in addition of 170.9 million VND (658,8 vs 487,9 million VND) and 0.81 QALY (1.77 vs 0.96). The incremental cost-effectiveness ratio resulted in VND 208,736,442.49/QALY, which was less than willing to Pay (WTP) of VietNam in 2013 (VND 253,503,360.00). Therefore, using trastuzumab in treatment of metastatic HER2-positive breast cancer women has been considered to be cost-effective. Sensitivity analyisis showed that the most affecting factors on the cost-utility of trastuzumab are trastuzumab's price and patient's weight. **CONCLUSIONS:** Trastuzumab in combination of standard therapy is cost-effective in treatment of metastatic HER2-positive breast cancer women in Vietnam. Trastuzumab's price and patient's weight are the most affecting factors on the cost-effectiveness of trastuzumab.

PCN165

WHAT'S THE OPTIMAL VISUAL INSPECTION SCREENING INTERVALS FOR CERVICAL CANCER SCREENING IN REAL PRACTICE OF RURAL CHINA? A COST-UTILITY MODELING STUDY

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OBJECTIVES: Chinese government initiated a nation-wide cervical screening program, covering 10 million rural women in 221 counties all over the country. The objectives of the present study were to compare costs, health outcomes, and cost-effectiveness of visual inspection with acetic acid (VIA) screening strategies in rural China, and to identify optimal screening intervals for policy makers. **METHODS:** Markov simulation model was developed to synthesize the evidence of screening and treatment practices in rural China, and applied to predict the long-term costs and effectiveness for hypothetical cohorts over 20 years of screening. Model was validated by calibrating prediction with observation data on age-specific cervical cancer mortality and incidence in China. Costs were considered from a societal perspective while health effects were mainly expressed as quality-adjusted life years (QALY). Both cost and utility were collected on-site and discounted at 5% per year. **RESULTS:** All completing alternatives showed certain benefits due to the decreased number of women developing cervical cancer. A trend for shorter screening intervals to have greater benefit was found. Under different screening intervals, mortality and incidence were expected to be reduced by 6.67-31.74% and 5.12-23.60%, respectively. Comparing to no screening (status quo), ten-year VIA screening was identified as the most cost-effective option, followed by VIA screening every five-, three- and one year, with corresponding incremental cost-utility ratio (ICUR) ranged from 11,921 to 17,215 CNY (1889 to 2728 US dollars, 2012) per QALY saved. All of the ICURs were much less than China's GDP per capita (6247 US dollars, 2012). **CONCLUSIONS:** VIA screening at different intervals were all very cost-effective options for 35-59 years old women in rural China. It is also noted that the cost-effective manner of aselected strategy largely depends on the local economic status and the performance of such organized program.

PCN166

ECONOMIC EVALUATION OF HOME PARENTERAL NUTRITON IN CANCER PATIENTS; THE FRENCH CONTEXT

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OBJECTIVES: This study aims to estimate incremental cost and utility of Home Parenteral Nutrition (HPN) in a heterogeneous group of cancer patients from the French public purchaser perspective, as compared with the same patients receiving no HPN. **METHODS:** Two economic models, from public French perspective, were defined: a 28 day cost-utility model and a lifetime state transition model; both models were based on ecological data from an extensive literature search. Four health states were used in the second model: Home, two hospitalization states and death. Transition to death state was based on survival analysis obtained from published summary statistics from two different studies. Functional Assessment Cancer Therapy-general (FACT-g) scores, reported in a recently published French observational study, were used to compute utility weights in the intervention group by applying relevant published algorithms. In the control groups, they were computed by decrementing the baseline utility weight of the intervention group. All costs: nutrition costs, resources consumption costs, complication costs and hospitalization costs were adapted from published French studies. Both Deterministic and Probabilistic Sensitivity Analyses were performed to test uncertainty. **RESULTS:** The cost-utility ratio of HPN is estimated in 508,059 and 182,584 Euro per QALY gain, in the 28 day cost-utility model and the lifetime state transition model, respectively. DSA showed that survival in the control group and cost of the nutrition were the most influential parameters on the cost-utility ratio in both models. The probability for cost-effectiveness, considering a willingness to pay (WTP) 87,000 Euro (3XGDP per capita in France) for a QALY, was below 1% in both models. **CONCLUSIONS:** Final judgment on HPN cost-effectiveness is difficult, even if it seems to be not cost-effective according to standard WTP. The high cost-utility ratio, which declines with increasing survival benefits, should urge clinicians and policy makers to control the sources of ineffectiveness.

PCN167

COST-EFFECTIVENESS ANALYSIS OF UGT1A1 GENOTYPING BEFORE COLORECTAL CANCER TREATMENT WITH IRINOTECAN

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OBJECTIVES: Irinotecan is an anti-cancer agent that is used for the treatment of metastatic colorectal cancer. Although it prolongs survival, it can cause severe toxicity (e.g. diarrhea and neutropenia) in patients who carry the UGT1A1*28 allele. This study evaluates the cost-effectiveness of UGT1A1 genotyping prior to irinotecan-based chemotherapy from the perspective of the German statutory health insurance. **METHODS:** We develop a decision-analytic Markov model to analyze costs and QALYs during a time horizon of six months (two-week cycles). No testing was compared to (1) change of chemotherapy to an irinotecan-free regimen, (2) dose reduction of irinotecan-based chemotherapy and (3) administration of a prophylactic G-CSF growth factor for patients with a UGT1A1*28 variant. Probability, utility and cost parameters used in this study were extracted from published literature. Uncertainty was assessed by deterministic and probabilistic sensitivity analyses. **RESULTS:** Strategy (2) was the cheapest strategy associated with costs of about €12,600 and effects of approx. 0.32 QALYs. All other three strategies were absolutely dominated. Compared to no testing, strategy (2) resulted in only marginal increases of QALYs (0.0003) but reduced costs by about €1,500 per patient. Strategy (1) resulted in smaller health gains (0.0002 QALYs) and smaller cost savings (about €60). Strategy (3) yielded approximately the same QALY gains as strategy (2) but at higher costs. In the probabilistic analysis, strategy (2) was the optimal strategy in 52% of simulations at a threshold of €50,000 per QALY. Uncertainty for this strategy originated primarily from the utility weights and the costs of chemotherapy. **CONCLUSIONS:** Our analysis suggests that UGT1A1 genotyping and subsequent reduction of irinotecan-based chemotherapy has a substantial cost-saving potential. Due to the promising results, further research, for example in the form of a managed entry agreement would be desirable to validate these findings.

PCN168

COST-EFFECTIVENESS ANALYSIS OF TESTING FOR BRCA MUTATIONS IN WOMEN DIAGNOSED WITH OVARIAN CANCER AND THEIR FEMALE FIRST-DEGREE RELATIVES: A UK HEALTH SERVICE PERSPECTIVE

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OBJECTIVES: Mutations in BRCA1 and BRCA2 are associated with an increased risk of breast and ovarian cancer. If a mutation is detected in women with ovarian cancer their unaffected relatives can potentially undergo gene testing and cancer risk-reducing surgery. Current UK practice is for any such relative to have access to testing. Guidelines also recommend that gene testing should be offered to individuals with BRCA mutation carrier probability of ≥10%, although this is not routinely implemented. In particular, many eligible women with ovarian cancer are not offered BRCA testing. Our aim is to evaluate the long-term cost-effectiveness in the UK of providing BRCA testing to women with ovarian cancer and to the unaffected female first-degree relatives of those with BRCA mutations. **METHODS:** A Markov model with a lifetime horizon was developed to reflect the clinical and economic