PCN70

COST EFFECTIVENESS ANALYSIS OF SUNITINIB, BEVACIZUMAB + INTERFERON-ALFA AND TEMSIROLIMUS AS FIRST-LINE THERAPY OF METASTATIC RENAL CELL CARCINOMA IN SWEDEN

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OBJECTIVES: The introduction of targeted therapies for the treatment of metastatic renal cell carcinoma (mRCC) has greatly improved patient prognosis compared with interferon-alfa (IFN-α). As these therapies differ in clinical efficacy and costs, economic evaluations are needed to help decision makers allocate scarce resources. We evaluated the cost effectiveness of sunitinib versus bevacizumab plus IFN-α and temsirolimus in patients with mRCC. **METHODS:** A cost-effectiveness model applying a third-party payer perspective was developed to simulate disease progression and survival using hazard ratios (HRs) for each treatment against IFN-α. The HRs were taken from latest data available for the pivotal phase III sunitinib trial and the phase II and III clinical trials of temsirolimus and bevacizumab plus IFN-α. Two comparative evaluations were made: (1) sunitinib versus bevacizumab + IFN-α in all patients and (2) sunitinib versus temsirolimus in patients with modified MSKCC poor-risk profile only. Swedish clinical experts' opinions and published data on routine follow-up, treatment-related adverse events, disease progression, best supportive care of terminally-ill patients, and costs were used to complement clinical trial-based parameters and quality of life measures. Model outcomes included life-years (LY), progression-free LY (PFLY), and quality adjusted LY (QALY) gained, treatment costs (2008 Swedish krona [SEK]), and incremental cost-effectiveness ratios. **RESULTS:** Sunitinib was more effective (gains of 0.19 PFLY, 0.23 LY and 0.16 QALY) and less costly (SEK 307,879) than bevacizumab plus IFN-α over 10 years for all patients. In poor risk patients, sunitinib was more effective (gains of 0.12 PFLY, 0.08 LY and 0.07 QALY) and more costly (SEK 18,024) than temsirolimus over 10 years. Sunitinib was cost-effective versus temsirolimus (SEK 265,044/QALY) compared to a threshold of SEK 500,000/QALY (€47,169/QALY). **CONCLUSIONS:** Sunitinib is a cost-effective alternative to bevacizumab plus IFN-α and temsirolimus for the first-line treatment of mRCC in Sweden.

PCN71

COST-EFFECTIVENESS OF RITUXIMAB COMBINED WITH FLUDARABINE AND CYCLOPHOSPHAMIDE IN PREVIOUSLY UNTREATED PATIENTS WITH CHRONIC LYMPHOCYTIC LEUKEMIA IN FRANCE

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OBJECTIVES: This study assessed the cost-effectiveness of Rituximab (R) in combination with Fludarabine and Cyclophosphamide (FC) as first-line treatment for patients with Chronic Lymphocytic Leukemia (CLL) versus FC from the French Sickness Fund perspective. **METHODS:** A 3 health state (PFS, Progression and Death) Markov model with a 15 year life-time horizon was developed from the phase III CLL-8 trial (Hallek et al., 2008) with 2.2 years median follow-up. Utility values originated from a HTA-study in CLL using the EQ-5D York Tariff. Resource use was estimated through published data and expert opinion. The analysis was restricted to direct medical costs including bone marrow transplantation and blood transfusions reported in CLL-8. The unit costs were obtained from French official sources. Costs were discounted at 3%. Deterministic and probabilistic sensitivity analyses were performed and 95% confidence intervals (CI) reported. **RESULTS:** Patients treated with FC compared with R-FC spent longer in progression (0.23 years (CI 0.05–0.44), the mean cost of supportive care for progression represented the main cost driver. The totals per patient mean costs were higher for R-FC compared to FC alone due to the higher drug acquisition costs. However, this was partially offset by the reduction in the mean cost of supportive care for progression. Mean incremental life expectancy for patients treated with R-FC compared to FC was 1.21 years (CI 0.75–1.67), and when quality adjusted was 1.01 years (CI 0.61–1.44), at a cost of €13,585 and €16,226 per life year and quality adjusted life year gained, respectively. Univariate and probabilistic sensitivity analyses confirmed the stability of the model and resulted in ICERs consistently below commonly cited willingness to pay thresholds. **CONCLUSIONS:** R-FC is a clinically effective in first-line treatment of CLL patients as well as an economically optimal strategy in the management of CLL in France.

PCN72

EPIDEMIOLOGICAL AND COST-EFFECTIVENESS ANALYSIS OF THE CROSS PROTECTION DIFFERENCE BETWEEN THE BIVALENT AND THE QUADRIVALENT HPV VACCINES IN FRANCE

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OBJECTIVES: Compare the epidemiological and economic impact of accrued cross-protection against oncogenic human papillomavirus (HPV) types beyond 16/18 provided by the bivalent vaccine (bi-v) vs. additional protection against non-oncogenic HPV types 6/11 of the quadrivalent vaccine (quadri-v), in France. **METHODS:** A lifetime Markov model calibrated to the French setting was developed to reflect the natural history of low- (evolving to genital warts—GWs) and high-risk HPV (evolving to cervical cancer—CC) infections, together with screening and vaccination effects, for a single age cohort of 370,000 14-year-old girls (70% coverage). Transition probabilities, costs and utility were estimated from literature, official tariffs and expert opinions. Vaccine efficacy was obtained from recent phase III clinical trials (HPV-008 for bi-v and FUTURE I-II for quadri-v), for comparable cohorts on pre-sexual debut population (infection naïve). Life-long protection was assumed for both vaccines. Number of Cervical Intraepithelial Neoplastic lesions (CIN), CC, CC deaths and GW, QALY and costs were estimated. Costs and outcomes (discounted at 3% and 1.5% respectively) were compared from a societal perspective without indirect costs. **RESULTS:** Cross-protection of bi-v *vs*. quadri-v led to additional 29,587 CIN1, 2,928 CIN2+, 99 CC and 32 deaths prevented, while quadri-v prevented 14,302 GWs. It resulted in additional 556 QALY gained for bi-v The remaining CIN, CC and GW not prevented by vaccines would cost M€39 for and M€37 for At the current public prices of €111.82 for bi-v and €123,66 for quadri-v per dose, the vaccination program would cost M€143 and M€150 and be cost-effective at an estimated ICER/QALY of €10,611 and €11,833 respectively vs. the absence of vaccination. **CONCLUSIONS:** Both vaccines have different epidemiological impacts with an increased number of cancer cases prevented for bi-v, though in France, the economic impact of HPV mass vaccination is similar whatever the vaccine selected.

PCN73

COST-EFFECTIVENESS OF ADDING ZOLEDRONIC ACID TO ENDOCRINE THERAPY IN PREMENOPAUSAL WOMEN WITH HORMONE-RESPONSIVE EARLY BREAST CANCER IN GREECE, BASED ON THE ABCSG-12 STUDY

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OBJECTIVES: The ABCSG-12 trial demonstrated that adding zoledronic acid 4 mg IV q 6 months (ZOL) to endocrine therapy with goserelin 3.6 mg sc q 28 days plus tamoxifen 20 mg oral qd or anastrozole 1 mg oral qd (ET) in premenopausal women with hormone receptor positive (HR+) early breast cancer (EBC) improves disease free survival versus ET alone. The objective of this study was to estimate the cost-effectiveness of ZOL in this setting from the Greek health care system perspective. **METHODS:** A Markov model was used to project lifetime outcomes and costs of breast cancer care for premenopausal women with HR+ EBC receiving 3 yrs of ET or 3 yrs of ET plus ZOL. Cost-effectiveness was measured as the incremental cost per quality adjusted life year (QALY) gained. Probabilities of breast cancer recurrence were based on ABCSG-12. Probabilities and costs were from the published literature. Results were generated under 2 scenarios: 1) benefits of ZOL persist to the 7 yr maximum follow-up in ABCSG-12 (trial benefits) and 2) benefits persist until recurrence or death (lifetime benefits). **RESULTS:** Expected costs of 3 yrs of ZOL (medication and administration) were €1802. Under the trial benefits scenario, costs of breast cancer recurrence were reduced by €58; ZOL was therefore projected to increase total costs by €1764. Under the lifetime benefits scenario, costs of breast cancer recurrence were reduced by €1548; total expected lifetime costs were therefore increased by €273. QALYs gained with ZOL were 0.43 years under the trial benefits scenario and 1.39 years under the lifetime benefits scenario. Cost per QALY gained was €4102 and €196 under the two scenarios, respectively. **CONCLUSIONS:** Adding ZOL to ET in premenopausal women with HR+ EBC is highly cost-effective from the Greek health care system perspective even under conservative assumptions regarding the duration of ZOL benefits.

PCN74

COMPARISON OF THE COST-EFFECTIVENESS OF ZOLEDRONIC ACID THERAPY FOR RENAL CELL CARCINOMA (RCC) PATIENTS WITH BONE METASTASES IN FRENCH, GERMAN, AND THE UK POPULATIONS

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OBJECTIVES: Zoledronic acid (ZOL) is efficacious in reducing skeletal-related events (SREs) due to bone metastases in RCC patients. However limited information is available on its cost-effectiveness. This study evaluated the economic impact of ZOL therapy for RCC patients in France, Germany, and the UK. **METHODS:** The source for this analysis was a retrospective evaluation of a 9-month trial comparing ZOL *vs.* placebo with concomitant antineoplastic treatment in RCC patients with bone metastases. A model was developed to simulate quality-adjusted life years (QALYs) and costs by integrating relevant assumptions and published information pertaining to SRE-incidence, costs, and effects on quality-of-life (QoL), mortality, drug and administration costs. It was assumed that patients experienced a 20 to 80% decrease in QoL for a month following an SRE, depending on the SRE type. SRE costs were based on diagnosis-related group (DRG) tariffs and the published literature. **RESULTS:** ZOL-treated patients (n = 27) experienced 1.07 fewer SREs, gained discounted QALYs (France and Germany = 0.1563; the UK = 0.1575), and incurred substantially lower discounted SRE-related costs (France = –€4196, Germany = –€3880, the UK = –€3355) compared with patients who were on placebo (n = 19). Inclusive of the treatment costs, ZOL savings per patient by country were as follows: France = €1358, Germany = €1223, and the UK = €719. According to probabilistic sensitivity analyses, ZOL therapy was predicted to result in cost savings in 67% to 77% of 1000 model simulations, depending on the country. The cost per QALY gained was below the threshold of €30,000 in approximately 93% of the cases across all countries. **CONCLUSIONS:** ZOL is a cost-saving therapy for bone health management of advanced RCC patients in France, Germany, or the UK. This is because ZOL effectively prevents SREs,

improves patient QoL, incurs lower health-related costs, and offers a better economic utilization of health care resources relative to placebo.

PCN75

COST-EFFECTIVENESS OF THALIDOMIDE COMBINED WITH MELPHALAN AND PREDNISONE IN PREVIOUSLY UNTREATED MULTIPLE MYELOMA IN WALES

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OBJECTIVES: Thalidomide (Thalidomide Pharmion® brand drug) combined with melphalan (M) and prednisone (P; MPT) increases progression-free survival (PFS) and overall survival (OS) compared to MP. We estimated life-time health and cost consequences of MPT versus MP in Welsh patients with untreated multiple myeloma. **METHODS:** A Markov model with 4 health states: PFS with adverse event, PFS without adverse event, progressed, and dead. Transition probabilities and discontinuation were derived from a clinical trial. Within the trial, subjects remained on treatment for up to 12 6-week cycles or until progression or treatment-limiting toxicity. Treatment duration and average dose were **modelled to match the trial. Thrombo**prophylaxis **with MPT was included. Utilities associated with adverse events and** disease states were obtained from the literature. Disease-management costs reflect clinical practice in Wales. Costs and outcomes were discounted at 3.5% per annum. **RESULTS:** The model estimated 25 months PFS with MPT versus 12 months with MP, with OS of 4.03 for MPT versus 2.88 years with MP; a gain of 0.9 (3.22 vs. 2.32) QALYs. MPT's higher lifetime costs (£16,937 vs. £1,524), lead to an ICER of £17,002 per QALY gained and £13,346 per life-year gained. Probabilistic sensitivity analyses showed that the results remained consistent through changes in model parameters as 95% of model replications produced costs between 12,750 and 26,500 per QALY gained. **CONCLUSIONS:** Replacing MP with MPT is a cost-effective strategy, which can deliver substantial improvements in PFS and OS in a life-limiting orphan disease in Wales.

PCN76

COST-EFFECTIVENESS OF CHEMOPREVENTION WITH DUTASTERIDE BASED ON RESULTS FROM THE REDUCE CLINICAL TRIAL

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OBJECTIVES: The REDUCE trial examined whether chemoprevention with a 5-alpha reductase inhibitor, dutasteride, reduced the rate of prostate cancer (PCa) detection on biopsy. We examine the cost-effectiveness of using dutasteride compared with usual care in preventing PCa in men at increased risk as seen in REDUCE. **METHODS:** A Markov model was developed to compare the costs and outcomes of chemoprevention with dutasteride 0.5 mg/day or usual care in men 50–75 years, with serum prostate-specific antigen (PSA) of 2.5–10 ng/mL (<60 years) or 3.0–10 ng/mL (>= 60 years), and a single negative, prostate biopsy in prior 6 months. The model simulated the REDUCE cohort of men annually through different health states (e.g. healthy male, PCa, BPH, PCa recurrence) over ten years. Risk of PCa for usual care and dutasteride patients was obtained from REDUCE, where dutasteride showed a reduced risk of 23% and no significant increase in high grade tumors. Additional benefits in terms of reduction in benign prostate hyperplasia (BPH) progression (e.g. surgeries, acute urinary retention) were considered. Impact of adverse events (e.g., incontinence, erectile dysfunction, ejaculatory dysfunction) were considered. Costs and utilities were obtained from the published literature. **RESULTS:** Dutasteride patients experienced fewer PCa's (334 vs. 410 per 1000 patients) and increased costs ($17,237 vs. $13,800) compared with usual care patients. Although life years were not significantly impacted, dutasteride patients incurred an increase in quality-adjusted life years (QALYs) of 0.15. Chemoprevention with dutasteride was found to be cost-effective with an incremental cost per QALY of $22,562. Results were robust to changes in parameters. **CONCLUSIONS:** Despite increased costs, due to taking a daily drug for prevention, the use of dutasteride is cost-effective in men at increased risk for PCa. Use of dutasteride for PCa prevention in the appropriate population could reduce the cost associated with the treatment of PCa and prevent reductions in quality of life associated with PCa treatment.

PCN77

COST-EFFECTIVENESS ANALYSIS OF TEMSIROLIMUS VS. SUNITINIB MALATE IN POOR PROGNOSIS METASTATIC RENAL CELL CARCINOMA (MRCC) IN PORTUGAL

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OBJECTIVES: New therapies have recently been introduced for the treatment of mRCC. The objective of this analysis was to evaluate the cost-effectiveness of two such treatments, temisirolimus (TEM) and sunitinib (SUN) for the management of poor prognosis mRCC patients in Portugal. **METHODS:** A Markov model simulating disease progression in poor prognosis mRCC was developed to estimate cost-utility of TEM vs. SUN over 3-year time horizon. Patients in the model move through progression free survival (PFS), disease progression, or death. Transitions between health states were estimated from Weibull curves fitted to overall survival (OS) and PFS of interferon (INF), the common comparator in TEM and SUN trials. Hazard ratios of treatment effect of TEM and SUN to INF were then applied. PFS and OS were based on poor prognosis patient population for TEM and SUN. On-treatment utility estimates were based on EQ5D data. Local costs of drug, administration and medical follow-up were used. Analyses were run considering the uncertainty around PFS and OS measures using model generated 95% CI. Probabilistic sensitivity analysis was conducted to evaluate impact of assumptions on input parameters. **RESULTS:** The mean estimated total cost and QALYs for TEM was €18,757 (range €11,646 to €31,141) and 0.584 yrs. (range 0.388 yrs. to 0.794 yrs.). While for SUN the mean estimated total cost and QALYs was €14,323 (range €4,958 to €38,875) and 0.381 yrs. (range 0.125 yrs. to 0.831 yrs.). The mean incremental cost per QALY for TEM vs SUN was €21,783. Within the ranges of uncertainty, 20% of the time TEM could dominate SUN and 76% of the time TEM was more costly and more effective. **CONCLUSIONS:** TEM is projected to be cost effective compared to SUN in management of poor prognosis mRCC patients.

PCN78

COST-EFFECTIVENESS ASSESSMENT OF ZOLEDRONIC ACID (ZOL) RELATIVE TO PLACEBO (PBO) IN THE TREATMENT OF LUNG CANCER PATIENTS WITH SKELETAL METASTASES IN FIVE EUROPEAN COUNTRIES

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OBJECTIVES: ZOL is efficacious vs. PBO in reducing the risk of skeletal-related events (SREs) in lung cancer (LC) patients with bone metastases. Limited information exists on its economic impact. This study assessed the cost-effectiveness of ZOL in the LC setting in France (FR), Germany (DE), UK (UK), Portugal (PT), and the Netherlands (NL). **METHODS:** Comparisons of direct costs and quality-adjusted life years (QALY) between patients on ZOL *vs*. PBO were assessed using a literature-based model. Clinical information on survival, SRE incidence and infusions administered were obtained from a randomised clinical trial in LC patients, comparing 4 mg ZOL (every 3 weeks for 21 months) to PBO. Drug acquisition and administration costs were obtained from publicly available sources. SRE costs were obtained from Diagnosis-Related Group (DRG) tariffs and published information in FR, UK, and DE and from retrospective medical record reviews in NL and PT. **RESULTS:** The expected average survival for patients on ZOL and placebo was the same (8.5 months [median = 5.89 months]). Per-patient (pp) SRE occurrence was projected to be higher and QALYs lower in PBO group (SREs = 2.07; QALYs = 0.292) vs. ZOL-treated patients (SREs = 1.32; QALYs = 0.352). ZOL drug-related costs ranged from €1510 in DE and €1484 per patient (pp) in UK. The use of ZOL was associated with a reduction in SRE costs ranging from €1.15 pp in FR to €1942 pp in NL. Overall, ZOL saved €319 pp in NL, followed by €291 in DE, €216 in UK, €67 in PT, and €2 in FR. In sensitivity analysis the cost per QALY gained remained under €50,000 in a wide range of scenarios. **CONCLUSIONS:** ZOL leads to fewer SREs and better estimated quality of life. This multinational evaluation reports ZOL to be a highly cost-effective treatment relative to PBO for LC patients with bone metastases.

PCN79

COST-EFFECTIVENESS EVALUATION OF THE USE OF CAPECITABINE+DOCETAXEL VS GEMCITABINE+DOCETAXEL IN PATIENTS WITH RECURRENT BREAST CANCER WHO PREVIOUSLY FAILED TO ANTHRACYCLINE CHEMOTHERAPY AND/OR WITH METASTATIC DISEASE

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OBJECTIVES: To develop a cost-effectiveness evaluation of the use of capecitabine+docetaxel vs gemcitabine+docetaxel in patients with recurrent breast cancer who previously failed to anthracycline chemotherapy and/or with metastatic disease. **METHODS:** A Markov model was built in order to show the clinic course of a cohort of patients with recurrent breast cancer who previously failed to anthracycline chemotherapy and/or with metastatic disease in order to set a quantitative comparison between the costs associated in the schemes at the institutional Mexican context. The model includes three health states (no progression, progression and death), within a 12 months horizon. The outcomes obtained as effectiveness measure is Progression-Free Survival (PFS); in order to define resources and procedures to set costs a literature search for economic evaluation and different disease management alternatives was done; the costs used to run the model included diagnosis, treatment, following and medical support. The threshold to define a therapy as cost-effective was fixed at US$25,020.00 (least than three times Mexican GDP per capita) following the recommendations of WHO's Commission on Macroeconomics and Health. **RESULTS:** The total management cost at 12 moths with capecitabina+docetaxel is US$23,117.90 vs US$23,978.12 for gemcitabina+docetaxel. The Cost-effectiveness plane indicates capecitabina+docetaxel is a cost-effective therapy; with a probability of 0.50 of being cost saving and 0.80 to be cost-efective is at a US$25,020.00 threshold. **CONCLUSIONS:** Results show that capecitabine+docetaxel is a cost effective therapy when comparing with gemcitabine+docetaxel therapy in first line therapy for patients with breast cancer who previously failed to anthracycline chemotherapy and/or with metastatic disease.