**COST-EFFECTIVENESS ANALYSIS OF ADJUVANT TRASTUZUMAB FOR HER-2 POSITIVE EARLY BREAST CANCER IN TAIWAN**

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**OBJECTIVES:** Results from the HERA, NSABP B-31, and NCCTG N9831 trials demonstrated a reduction in risk of recurrence by approximately 50% with the addition of trastuzumab to standard adjuvant therapy in early breast cancer (EBC). The objective of this cost-effectiveness analysis (CEA) is to evaluate the long term clinical outcomes and economic impact of one year adjuvant trastuzumab compared to no trastuzumab in addition to standard adjuvant therapy for patients with HER2-positive EBC in Taiwan from the payer’s [Bureau of National Health Insurance (BNHI)] perspective. METHODS: A five-state Markov model was developed to estimate the incremental cost and long-term health outcomes in terms of quality-adjusted life years (QALYs) of EBC over a patient’s lifetime. Clinical outcomes and disease transition probabilities were derived from the HERA trial. Direct medical costs associated with drugs, trastuzumab administration, and HER2 testing were based on Taiwan’s National Health Insurance fee schedule 2007. Medical resource utilizations associated with disease-free survival (DFS), recurrence, metastasis, and cardiac side effects were estimated by an expert panel survey conducted among ten oncologists. Population-based utilities were applied to the main health states in the Markov model, while disutilities of cardiac events were obtained from published literature. Benefits and future costs were discounted at annual rate of 3.5%. One-way sensitivity analyses were performed on key model parameters. RESULTS: Compared to standard adjuvant therapy alone, adding trastuzumab to standard treatment increased drugs costs and DFS, however, the incremental costs were offset by reduced costs of recurrence and metastasis. Over a lifetime, one year adjuvant trastuzumab yielded an incremental cost-effectiveness ratio (ICER) of NTDS$152,620 (€3,451) per QALY. Adjuvant trastuzumab remained cost-effective under sensitivity testing. CONCLUSION: From the perspective of Taiwan BNHI, this CEA demonstrates that one year adjuvant trastuzumab offers health benefits at a favorable ICER in patients with HER2-positive EBC.

**COST-EFFECTIVENESS ANALYSIS OF TRASTUZUMAB THERAPY IN PATIENTS WITH EARLY HER-2 POSITIVE BREAST CANCER IN BRAZIL**

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**OBJECTIVES:** In 2007 trastuzumab (T) received regulatory approval in Brazil for 1 year treatment of HER2-positive patients with early breast cancer (eBC) in addition to standard chemotherapy. The objective of this analysis is to estimate cost-effectiveness of T in eBC from the private third-party payer perspective. METHODS: A Markov state transition model was designed to capture the natural history and course of disease for early stage breast cancer patients, and to simulate cost and disease progression over a life time perspective. Disease transition probabilities and clinical outcomes were derived from the HERA trial. Direct costs were considered to estimate the incremental cost-effectiveness ratio using both quality-adjusted life years (QALYs) and life years gained (LYGs). A local Delphi panel was conducted to reflect local clinical practice and assess medical care utilization (for disease-free survival, loco-regional recurrence, metastasis, and cardiac side effects). Unit costs were based on published sources (drugs and materials national prices list and medical society fees list). Utilities and disutilities were obtained from published literature. The discount rate of 3% was adopted for both health outcomes and costs. Both one-way and probabilistic sensitivity analysis were performed to verify the robustness of the results. RESULTS: T treatment costs were higher in comparison with standard treatment, showing higher acquisition drug costs (R$ 190,534) and administration costs (R$ 2,160). On the other hand, cost-offsets for R$ 168,331 were estimated due to the reduction of the metastatic and recurrence cases. T treatment showed an increase in LYG (1.74) and QALYs (1.80). The estimated ICER was R$ 22,587 per QALY gained. CONCLUSION: From a third-party payer, this analysis suggests that trastuzumab treatment for HER-2 positive patients with early breast cancer is a cost-effective alternative in Brazil.
OBJECTIVES: Sunitinib has a 45.9% and a 64.9% probability of being cost-effective compared with IFN-α at the threshold of $50,000 and $100,000/QALY, respectively. Survival, sunitinib drug costs and cost of best supportive care were the key drivers of the model. CONCLUSION: Sunitinib is a cost-effective alternative to IFN-α as first-line treatment in mRCC, with cost-effectiveness ratios within the established threshold that society is willing to pay for health benefits (i.e. $50,000–100,000/LY or QALY).

A cost-consequence analysis of darbePOEtiN alfa administered every 3 weeks (Q3W_DA) compared to weekly EPOetiN alfa (QW_EA) or EPOetiN Beta (QW_EB) in patients with chemotherapy-induced anemia (CIA): the German case
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OBJECTIVE: Chemotherapy-induced anemia (CIA) is often treated with erythropoiesis-stimulating agents (ESAs). This study assessed the cost consequence of Q3W_DA administration (500 µg) compared to QW_EA or QW_EB from a German societal perspective. METHOD: A decision-tree model was developed in MSExcel based on the results of a European retrospective observational study that included data from 786 patients with non-myeloid malignancy and CIA over a 16-week period. Transition probabilities, average hemoglobin (Hb) value over treatment period, number of blood transfusions, drug administrations, transfusion, response to treatment and ESA administration settings were used. Unit costs were applied to medical resources used and to patients’ time, further specified by a panel of 11 German clinical experts. Time was valued at gross hourly wage rate. Both time and medical costs were extracted from official sources (EBM) and adjusted to 2006€. A 5000-replications probabilistic sensitivity analysis was performed with @RISK® using distributions for probabilities (binomial), medical resources used (normal), time (normal) and outcome measures (normal). RESULTS: The difference in hemoglobin between treatments was: Q3W_DA minus QW_EA, 0.13 g/dL (95%CI: -0.151, 0.420) and Q3W_DA minus QW_EB, 0.19 g/dL (95%CI: -0.0168, 0.393). Q3W_DA resulted in comparable mean Hb-change over time to QW_EA and QW_EB. Lower costs were observed for Q3W_DA: -197€ [95%CI: -972, 572] vs. QW_EA and -203€ [95%CI: -722, 294] vs. QW_EB. Sensitivity analysis for Q3W_DA revealed 56% of the replications vs. QW_EA and 75% vs. QW_EB with better Hb values and lower costs (dominant); 23% vs. QW_EA and 21% vs. QW_EB with higher costs and better Hb values. CONCLUSIONS: The analysis with real-life information showed that treatment of CIA with Q_3W_DA was effective and less costly than QW_EB with higher costs and better Hb values. Sensitivity analysis for Q3W_DA revealed 56% of the replications vs. QW_EA and 75% vs. QW_EB with better Hb values and lower costs (dominant); 23% vs. QW_EA and 21% vs. QW_EB with higher costs and better Hb values. CONCLUSIONS: The analysis with real-life information showed that treatment of CIA with Q_3W_DA was effective and less costly than QW_EA and QW_EB. A decision in favor of Q3W_DA has the highest probability to be beneficial from the German societal perspective.

Cost-effectiveness of cetuximab (ERBITUX®) in combination with radiotherapy versus radiotherapy alone in the treatment of locally advanced head and neck cancer in the United Kingdom
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OBJECTIVES: To estimate the cost-effectiveness of cetuximab in combination with radiotherapy (ERT) compared to radiotherapy alone (RT), for the treatment of locally advanced head and neck cancer in patients for whom chemoradiotherapy is inappropriate or intolerable in the UK. METHODS: A modelled economic evaluation calculated the incremental cost per quality-adjusted life year (QALYs) gained with ERT compared to RT. Resource utilisation and survival data were extracted from an international phase-III trial of ERT. Assumptions regarding costs of care were drawn from estimates by an expert clinical panel. Overall survival and progression-free survival times were extrapolated beyond the trial period using statistical models. Patient survival was stratified into health states defined by adverse event status in the acute phase and disease status post-treatment. Utility values for the health states were obtained from a survey of oncology nurses using the EQ-5D. Estimates of individual costs and outcomes were estimated for each patient in the trial and overall mean values calculated for the incremental analysis between the treatment groups. The analysis was conducted from the perspective of the NHS. Costs and outcomes were discounted at 3.5%. RESULTS: In the lifetime analysis, ERT patients were estimated to gain an extra 1.26 QALYs compared to RT patients. From the public establishment perspective, this translated into an incremental cost per QALY gained of ≤50,000. Sensitivity analysis also showed that the ICERs were robust to changes in the key variables. CONCLUSION: Results of the modelled economic evaluation strongly suggest that ERT offers a good value-for-money alternative in the treatment of locally advanced head and neck cancer in the UK.

A health economic evaluation of HEXVIX as adjunct to standard white light cystoscopy in the management of superficial bladder cancer
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OBJECTIVES: Bladder cancer is the fifth leading type of cancer diagnosed in Belgium. Early detection is key in improving survival. Hexvix, by inducing tumor fluorescence during cystoscopies, improves lesion detection, delineation and therefore also lesion resection. The cost-effectiveness of adding Hexvix to standard white light cystoscopy in the diagnosis and management of non-muscle invasive bladder cancer was assessed from the Belgian health care payers’ perspective. METHODS: A Markov model with a 10 year time horizon, describing management patterns and resulting outcomes in patients with suspected bladder cancer, was developed in Excel. Treatment patterns and clinical evolution of high (HR), medium (MR) and low (LR) risk patients were derived from European treatment guidelines and further validated by a panel of 3 Belgian urologists. By using Hexvix in diagnostic cystoscopies bladder cancer could potentially be detected at an earlier stage (4% HR diagnosed in MR and 4% MR in LR) and resection could be more complete resulting in lower recurrence rates (HR: ≤50%; MR: ≤40% and LR: ≤30%; based on data obtained with an unlicensed, less readily taken up fluorescent molecule). Official tariffs were applied to medical resources identified. An annual discount rate of 3% for future cost and 1.5% for effects was applied. Results were expressed as cost per life year gained (LYG). RESULTS: Using this model, compared to standard white light cystoscopy adding Hexvix, in diagnostic and therapeutic cystoscopies, increased survival per patient could be 0.09 years at an increase