radiotherapy was US $142.14 (SD: US $46.52). The mean cost per patient in each clinical stage to chemotherapy was I: US $1166.99 (SD: US $2258.67), II: US $3843.45 (SD: US $1381.09), III: US $5254.36 (SD: US $922.43), IV: US $2500.40 (SD: US $1232.60) and the non classified: US $2653.25 (SD: US $1316.95) p < 0.551. CONCLUSIONS: The results show that in México, in more expensive the treatment to patients with non-Hodgkin lymphoma in clinical stage III.

COSTS ASSOCIATED TO THE TREATMENT OF DIFFERENT STAGES OF MEXICAN BREAST CANCER PATIENTS
Balderas-Peña LMA1, Contreras F, Mould-Quevedo JP1, Garduno-Espinosa J1, Sat-Muñoz D1, Morgan-Villalva G1, Solano-Murillo P1, Mariscal-Ramírez I1, Lomelí-García M4, Hernández-Chavez GA1

OBJECTIVES: To describe costs associated to the treatment of different stages of breast cancer patients at the Social Security Mexican Institute (IMSS) from the health care payer’s perspective. METHODS: A cost study was elaborated. Resource use and cost data were obtained from hospital (second and tertiary levels) records of 313 of treated patients during July 2008 to February 2009 using the following inclusion criteria: women older than 16 years with breast cancer histological diagnosis who accepted to be included in the protocol through informed consent. Although, patients excluded were those who showed a second malignant neoplasm or incomplete information. We calculate mean, median, 95% confidence interval (95% CI) for each clinical stage and statistical differences were estimated through ANOVA tests, p value < 0.05 was considered significant to show differences. RESULTS: The median total cost per patient was found in US $6137.18 (SD: US $1426.35) to patients with radiotherapy resulted in US $1260.78 (95% CI, US $423.34–US $1260.78). The mean cost per patient in each clinical stage with chemotherapy was: I: US $1830.80 (95% CI, US $866.21–$2973.39), II: US $5134.11 (95% CI, US $3705.19–$6716.62), III: US $4097.77 (95% CI, US $2739.86–$5419.68), IV: US $4907.21 (95% CI, US $672.11–$9142.31) and the non classified: US $3520.66 (95% CI, US $3306.94–$7140.40). p < 0.401. CONCLUSIONS: The results showed that at the IMSS, it is more expensive the treatment of breast cancer patients in clinical stage III, however, the less expensive treatments resulted for patients in clinical stage I. In addition, the treatment of non classified patients were the second most expensive according to our results.

COSTS ASSOCIATED TO THE TREATMENT OF DIFFERENT STAGES OF MEXICAN PATIENTS WITH COLORECTAL CANCER
Balderas-Peña LMA1, Contreras F, Mould-Quevedo JP1, Morgan-Villalva G1, Garduno-Espinosa J1, Sat-Muñoz D1, Solano-Murillo P1, Mariscal-Ramírez I1, Lomelí-García M4, Hernández-Chavez GA1

OBJECTIVES: To describe costs associated to the treatment of different stages of colorectal cancer at the Social Security Mexican Institute (IMSS) from the health care payer’s perspective. METHODS: A cost study was made. Resource use and cost data were obtained from hospital (second and tertiary levels) records of 115 treated patients from July 2008 to February 2009 using the following inclusion criteria: patients older than 16 years with colorectal cancer histological diagnosis who accepted to be included in the protocol through informed consent. Although, patients excluded were those who showed a second malignant neoplasm or incomplete information. We calculate mean, standard deviation (SD), median, 25 percent and 75 percent for each clinical stage and statistical differences were estimated through ANOVA tests, p value < 0.05 was considered significant to show differences. RESULTS: The median total cost per patient was US $3,263.52 (SD: US $1,111.29 to US $4,881.14), the mean cost per patient per chemotherapy was US $1848.16 (SD: US $111.95), mean cost to radiotherapy was US $402.40 (SD: US $57.20). The mean cost per patient in each clinical stage to chemotherapy was I: US $247,721 (SD: US $247,21), II: US $482.48 (SD: US $208.96), III: US $1937.73 (SD: US $192.33), IV: US $996.17 (SD: US $631.39) and the non classified: US $486.88 (SD: US $105.18) p < 0.321. CONCLUSIONS: The results show that in México, in more expensive the treatment to patients with colorectal cancer in clinical stage IV, the cheapest treatment was to patients in clinical stage I, the treatment to clinical stage II patients are the second most expensive according to our results, probably associated to longer hospital stay.

BEVACIZUMAB FOR THE TREATMENT OF METASTATIC BREAST CANCER: A COST-EFFECTIVENESS ANALYSIS
Fortuna-Grealy A, Cornell P
University of North Carolina at Chapel Hill, Chapel Hill, NC, USA
OBJECTIVES: Novel chemotherapies for metastatic breast cancer (MBC), such as bevacizumab, have the potential to extend progression-free survival but with a financial burden to health systems. We estimate the cost-effectiveness of bevacizumab in combination with paclitaxel as compared to paclitaxel alone from the perspective of the United States Medicare system. METHODS: We constructed a hybrid decision tree-Markov model to follow a cohort for ten years composed of 10,000 women ages 65 and older with a diagnosis of MBC and no prior chemotherapy in the metastatic setting. Individuals in the model transitioned between three health states: progression-free disease, progressive disease, and death. Transition probabilities, cost and outcome data were obtained from clinical trials, published Medicare reimbursement rates, and the peer-reviewed literature. Incremental costs per quality-adjusted life year (QALY) were valued in 2009 US dollars. We performed probabilistic sensitivity analyses using patient-level data from the 1997-2007 surveillance, epidemiology, and end results (SEER)-Medicare datasets for patients diagnosed through 2005. Incremental cost-effectiveness ratio (ICER) was calculated and expressed as cost per life-year.
gained. RESULTS: Patients were categorized into SFU/LV (n = 2,834), oxaliplatin based (n = 621), and irinotecan based (n = 945) subgroups, based on the regimen they received. The median improvement in overall survival with SFU/LV, irinotecan or oxaliplatin based combination therapy was 1.25, 1.34, and 1.72 life-years, respectively. The incremental cost-effectiveness ratio of oxaliplatin based combination therapy was $67,637 per life-year gained.

CONCLUSIONS: This analysis suggested that oxaliplatin or irinotecan based combination therapy improves overall survival but also substantially increases direct medical costs compared with SFU/LV when used in elderly US patients with stage IV colon cancer. Oxaliplatin-based regimens are more cost-effective than irinotecan based regimens.

The cost-effectiveness of cetuximab use among elderly metastatic colorectal cancer patients

Wu DB1, Lin CC1

University of North Carolina at Chapel Hill, Chapel Hill, NC, USA

OBJECTIVES: The cost-effectiveness of cetuximab has been controversial mainly because of its marginal clinical benefits at very high medication cost. This study examines the cost-effectiveness of cetuximab versus best supportive care in the patients with metastatic colorectal cancer in US from the perspective of Medicare. METHODS: As modeled in a decision tree, three treatment options (cetuximab, cetuximab plus irinotecan, and best supportive care) are evaluated clinically and economically. Costs of treatments and lower rate of palliative care vs. supportive care are largely determined by the treatment responses or complete or partial response, stable disease, or progressive, and whether or not the patient experienced severe infusion reaction and/or severe adverse events. The primary outcome is quality-adjusted life expectancy. The treatment response rates and quality of life measurements are based on the results from clinical trials. Incremental cost-effectiveness ratios (ICER) between cetuximab treatments and best supportive care are presented to demonstrate the value of cetuximab treatments. Finally, sensitivity analyses are conducted to test the robustness of the results. RESULTS: In the patients with metastatic colorectal cancer, the incremental cost-quality-adjusted life year (QALY) was $336,218 for cetuximab, and $318,609 for cetuximab plus irinotecan, in comparison with best supportive care. One-way sensitivity analyses showed that the cost of cetuximab had the highest impact on ICERs, compared to other costs and quality of life parameters. Probabilistic sensitivity analyses by Monte Carlo simulation demonstrated that best supportive care is more cost-effective than cetuximab treatments until the threshold of willingness to pay is raised up to $240,000. CONCLUSIONS: Our analyses suggest that cetuximab is not cost-effective, either in monotherapy or in combination with irinotecan, as the cost-effectiveness ratios are far beyond the accepted threshold of $50,000 per QALY gained. Cetuximab treatments need to be carefully evaluated before being delivered to metastatic colorectal cancer patients.

Cost effectiveness of radical prostatectomy versus watchful waiting for non-screen detected prostate cancer: extrapolating from the Scandinavian trial

Shresthastha A1

Washington University School of Medicine, St. Louis, MO, USA

OBJECTIVES: The benefit of screening for and definitive treatment for prostate cancer has been questioned. Results from the Scandinavian study of radical prostatectomy compared with watchful waiting are not available but are likely to decrease in prostate cancer specific mortality, palliative treatment and overall survival. We evaluated the cost effectiveness of radical prostatectomy compared to watchful waiting using data from the Scandinavian study protocol when extrapolated to the US. METHODS: We used the previously reported cost of care data for patients with prostate cancer based on the patterns of care observed in the CaPSURE database. The data from the Scandinavian trial, in accordance with the study protocol, was used to determine the costs and cost-effectiveness of radical prostatectomy for treatment of prostate cancer. The cost-effectiveness for radical prostatectomy was determined and was adjusted for the costs of androgen deprivation therapy as used in the study. A model incorporating age at diagnosis, life expectancy and estimate of benefits from radical prostatectomy was created that predicts cost effectiveness of surgical intervention for prostate cancer. A sensitivity analysis was performed to test the robustness of results. RESULTS: Median and lower rate of palliative care compared to watchful waiting for patients who are surgical candidates watchful waiting is associated with higher mortality, morbidity, and costs.

THE COST-EFFECTIVENESS OF MOHS MICROGRAPHIC SURGERY VERSUS SURGICAL EXCISION FOR THE TREATMENT OF NON-MELANOMA SKIN CANCER

Wilson L1, Paul CJ2, Basi R3, Pregorena M4, Jin M4

1University of California San Francisco, San Francisco, CA, USA, 2University of California Los Angeles Medical Center, Los Angeles, CA, USA

OBJECTIVES: Compare cost-effectiveness of three non-melanoma skin cancer (NMSC): all Mohs Micrographic Surgery (MMS); all surgical excision and mixed MMS and excision. METHODS: A decision-analytic model compared strategies using data from a prospective sample (n = 540) treated with MMS or excision at a university-affiliated dermatology clinic from 1999-2000. The newest (2007) Medicare coding guidelines were used to capture increase in patient volume and number of stages of MMS. Total costs included the procedure, pathology, drugs, 2 month follow-up visits, second procedures, repairs or grafts and recurrences. Short Form (SF)-12 and Skinindex scores at baseline and 2 years were mapped to the Health Utility Index (HUI) to adjust life expectancy and recurrence, our major outcomes. Cost per quality adjusted life year saved (QALYS) was the final outcome. Sensitivity analysis tested uncertainty of model parameters. RESULTS: The All MMS strategy was most cost-effective when compared to mixed (ICER = $30,521/QALYS) and all excision strategies (ICER = $6,722/QALYS). The mixed strategy was cost-effective compared to the all excision strategy (ICER = $1,926/QALYS). All excision was least costly ($183.50/patient), next most ($181.00/patient) and all MMS was most costly ($1830.10/patient). The All MMS strategy (17.2081 QALYS) was most effective compared to mixed (17.2032 QALYS) and all excision (17.1790 QALYS) strategies. The model is sensitive to the proportion of patients who receive MMS versus excision in the mixed strategy. The All MMS strategy no longer is cost-effective compared to the mixed strategy when the MMS proportion is decreased from 58.8% to 50% (ICER = $2,793,794) and at 45% the strategy dominates all other strategies. Not until $900 is added to procedure cost options does MMS lose its cost-effectiveness. All MMS for NMSC is the most cost-effective strategy although the mixed strategy is preferred in some mixtures of patient populations. This analysis demonstrates that MMS is cost-effective if clinically indicated.

A COST-EFFECTIVENESS ANALYSIS OF SORAFENIB VERSUS BEST SUPPORTIVE CARE (BSC) IN ADVANCED HEPATOCELLULAR CARCINOMA (AHCC): THE PUBLIC HEALTH CARE SYSTEM PERSPECTIVE IN BRAZIL

Muszbek N1, Munir U1, Voox H1, Schiavo A1, Valderama A1, Tuch V1

1United BioSource Corporation, London, UK, 2Bayer Healthcare, Sao Paulo, Brazil

OBJECTIVES: Sorafenib is the only agent that has proven to improve survival in AHCC (Llovet, NEJM 2008), and has been considered cost-effective in Canada (Muszbek, Curr Med Res Opin 2008), when compared with BSC. In clinical practice in Brazil, however, patients with AHCC with no access to sorafenib are often treated with other systemic agents, none of which are able to improve the outcome. The objective of this study was to evaluate the cost-effectiveness of sorafenib+BSC vs BSC alone in Brazil, from the perspective of the public health care system. METHODS: A Markov model was developed to project the lifetime survival and costs for both interventions using data from the TTP and OS Kaplan-Meier curves from SHARP trial using a log-normal distribution and an ad hoc baseline with Brazilian medical oncologists, hepatologists, and liver surgeons. Treatment effectiveness was measured in life-years gained (LYG), drug, resource utilization included diagnosis, treatment, recurrences, and adverse events. Costs (in R$, with R$ 1.00 US$ 0.58) and survival benefits were discounted annually at 5%. Univariate and probabilistic sensitivity analyses were conducted. RESULTS: Lifetime per-patient costs in R$ (US$) were $70,632 (43,447) and $9,778 ($5,864) for sorafenib+BSC and BSC alone, respectively. Sorafenib drug cost accounted for nearly 79% of treatment costs. The incremental survival benefit with sorafenib+BSC was 0.49 life-years. The incremental cost-effectiveness ratio of sorafenib+BSC vs BSC alone was R$ 135,262 (US$ 77,293) per LY. Variations in the log-normal parameters for OS of both alternatives demonstrated to be the most influential variables in the cost-effectiveness result in the deterministic sensitivity analysis.

CONCLUSIONS: The addition of sorafenib to BSC is the only intervention that has been found to improve survival in AHCC and the cost-effectiveness results should be interpreted considering the low cost and inefficiency of the comparator.

A COST-EFFECTIVENESS ANALYSIS OF THE FIRST-LINE TREATMENT REGIMENS FOR MULTIPLE MYELOMA IN MACAO CHINA

Lee KC1, Lee WW2, Koo K2

1The Chinese University of Hong Kong, Hong Kong, China, 2Macao Polytechnic, Macao, China

OBJECTIVES: Multiple myeloma (MM) is a hematologic malignancy mainly affecting the elderly population. It is incurable and patients experience a considerable reduction of health-related quality-of-life (HRQoL). Some newer therapies have shown better clinical effects but are more costly. Pharmacoeconomic studies on MM have been widely conducted overseas but local data was lacking. This study aimed to examine the cost-effectiveness of the treatments for MM in Macao, China. METHODS: A retrospective cost-effectiveness study with HRQoL assessment was conducted. Forty patients from the largest public hospital in Macao from 1997–2007 with confirmed MM were studied. Data for costs and treatment effects were extracted from patients'