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COST-EFFECTIVENESS ANALYSIS OF BEVACIZUMAB AND RANIBIZUMAB IN NEOVASCULAR AGE-RELATED MACULAR DEGENERATION (AMD): A CLINICAL AND ECONOMIC COMPARISON OF TWO VASCULAR ENDOTHELIAL GROWTH FACTOR INHIBITOR TREATMENTS

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OBJECTIVE: To evaluate the cost-effectiveness of intravitreal bevacizumab to ranibizumab in patients with neovascular AMD. **METHODS:** A Markov Model was constructed to evaluate incremental cost-effectiveness ratios (ICER, $/quality-adjusted life years (QALY)) between bevacizumab and ranibizumab. Transitional probabilities for ranibizumab were extrapolated from two published trials, while bevacizumab probabilities were derived using a weighted mean average of institutional clinical outcome data as well as published studies. Utility values were obtained from a published source. Mortality rates were determined from the Centers for Disease Control (CDC) 2003 Life Tables. A payer perspective was taken with resource utilization and total direct costs estimated using the Centers for Medicare and Medicaid Services and VASDHS Decision Support System cost data. One-thousand patients with a baseline age of 65 and AMD diagnosis were simulated through the model for 20 years. Sensitivity analyses were performed using univariate and probabilistic sensitivity analysis (PSA) on all costs, transition probabilities and utility scores. Utilities and transitional probabilities were subject to a sensitivity analysis using beta distribution and cost by gamma distribution. An acceptability curve was calculated to determine the probability of cost-effectiveness of bevacizumab to ranibizumab. **RESULTS:** The average cost-effectiveness ratio (CER) for bevacizumab was $2,454 per QALY compared to $12,327 per QALY for ranibizumab. The ICER for ranibizumab was $258,355 for each additional QALY gained. The univariate analysis determined the two treatments were sensitive to drug cost. The break even point for equivalent CER was $208 for ranibizumab (varying drug costs) and $2399 for bevacizumab (varying drug costs). The PSA revealed an 89.8% probability of bevacizumab being more cost-effective with a Willingness-to-Pay (WTP). **CONCLUSION:** Based on a WTP defined at $50,000 per QALY, bevacizumab was more cost-effective than ranibizumab 89.8% of the time due to lower acquisition costs.

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COST–EFFECTIVE ANALYSIS OF PEGAPTANIB (MACUGEN®) AS COMPARED WITH RANIBIZUMAB (LUCENTIS®) FOR TREATING IN AGE–RELATED MACULAR DEGENERATION (AMD)

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OBJECTIVE: The purpose of the research was to conduct a cost-effectiveness model in order to analyze the value of Pegaptanib and Ranibizumab on the basis of the information and resources from the previous studies. **METHODS:** The costs of these modalities of AMD were calculated from published sources. The total costs included consumptions of medical resources and non-medical resources for AMD treatment. The annual unit drug costs were collected from the Red Book 2007 and were multiplied by administrations per year. The efficacy was defined as the loss of fewer than 15 letters from baseline visual acuity within a year with recommendation dosage. The analysis model was compared with placebo. We calculated Incremental Cost Effectiveness Ratio (ICER) and plotted the cost-effectiveness

result. **RESULTS:** With a basic decision analysis, considering the probability and costs of the three treatment options, the base estimate of one year of total cost was $13,066 per person from the pegaptanib treatment, and $31,564 for ranibizumab. The total expected cost for placebo was $3152. The result in the ICER model shows that pegaptanib costs $10,746 per year to get only about 12% improvement in effectiveness compared to placebo, while ranibizumab costs $29,244 to gain about 37% improvement over placebo. Thus, compared to placebo, the ICER is $934,433 per unit increase in effectiveness when patients are treated by pegaptanib, and $80,121 in ranibizumab. **CONCLUSION:** Based on this cost-effectiveness model, both anti-VEGF agents are costly. Ranibizumab has higher probability of success versus in pegaptanib therapy (0.7 for pegaptanib vs. 0.95 for ranibizumab). However, the price of ranibizumab is much higher than pegaptanib. The ICER model suggests that ranibizumab maybe the first consideration of anti-VEGF drugs because based on this model, the ICER of ranibizumab is lower than pegaptanib. In future studies, there should be more investigations of quality-of-life factors.

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COST-EFFECTIVENESS OF THE TREATMENT FOR MODERATE TO SEVERE PSORIASIS IN MEXICO: INFLIXIMAB, ETANERCEPT AND EFALIZUMAB

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OBJECTIVE: Psoriasis is a dermatological disease with major consequences on the quality of life of patients. Biological treatments for this disease have an effectiveness which is equivalent to that of conventional drugs with fewer side effects. The objective of this analysis was to evaluate the cost-effectiveness of the treatment for moderate to severe psoriasis from an institutional perspective in Mexico. **METHODS:** To compare the cost and the effectiveness, a decision tree model was structured with a temporary horizon of 12 weeks. Only costs per drug were considered for this analysis, as the rest of the costs are similar for institutional buyers. Comparators: infliximab 5mg/kg given at weeks 0, 2, and 6; etanercept 25 mg twice weekly, etanercept 50 mg twice weekly and efalizumab 1mg/kg weekly. Effectiveness measure: percentage of patients with a PASI 75 (Psoriasis Area and Severity Index) response. Costs were estimated using prices of 2007, and an exchange rate of x pesos/dollar was used. Costs were estimated using 2007 prices and are expressed in USD (exchange rate of 10.93 pesos per USD). **RESULTS:** Costs expected per treatment type are: $6987 infliximab, $6422.70 efalizumab, $5555.40 etanercept 50 mg and $2777.70 etanercept 25 mg. The percentage of patients achieving a PASI 75 response per treatment type is: 84% for infliximab, 49% for etanercept 50 mg, 33% for etanercept 25 mg and 28% for efalizumab. The following ICERs were obtained for infliximab: $1007.70 vs. efalizumab, $8253.50 vs. etanercept 25 mg and $4090.50 vs. etanercept 50 mg. In the three cases, ICERs are less than three times the GDP per capita in Mexico. **CONCLUSION:** Infliximab is a cost-effective drug for the treatment of moderate to severe psoriasis.

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THE COST-EFFECTIVENESS OF RANIBIZUMAB (LUCENTIS®) IN TREATING PATIENTS WITH PREDOMINANTLY CLASSIC, MINIMALLY CLASSIC, AND OCCULT NEOVASCULAR AGE-RELATED MACULAR DEGENERATION (AMD)

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OBJECTIVE: Using a societal perspective, to evaluate the cost-effectiveness of Lucentis compared to Visudyne Photodynamic