Purpose: The standard incisional surgical procedure for glaucoma has traditionally been trabeculectomy. However, in response to growing concerns over bleb-related complications and relative lack of predictability, other devices have been increasing in popularity. The purpose of our study was to assess the cost-effectiveness of different glaucoma surgery devices in Portugal.

Methods: We determined the incremental cost-effectiveness ratio (ICER) of different glaucoma devices (Ahmed valve®, Express® and iStent®) from the hospital perspective comparing with trabeculectomy or phacoemulsification. Cost was evaluated based on the Grupos de Diagnósticos Homogéneos (GDH) and effectiveness was derived from peer-reviewed clinical trial data. The authors also analyzed costs of Xen® and high-intensity focused ultrasound cyclocoagulation EYEOP1®.

Results: The mean cost for trabeculectomy without and with MMC, Ahmed valve, Express, iStent, Xen and EyeOP1 were 1313.65€, 1402.65€, 1938.65€, 1973.65€, 2063.65€, 2303.65€ and 2063.65€, respectively. Considering the Ahmed valve, in patients with primary open (POA) and closed angle (PCA) glaucoma ICER was 315€, in patients with neovascular glaucoma 35€ and uveitic glaucoma 16€ for each 1% increase in its efficacy over trabeculectomy.

Considering Ex-press, in patients with POA, pseudoexfoliation and pigmentary glaucoma, ICER was 165€. iStent and phacoemulsification in patients with mild to moderate open angle glaucoma comparing with phacoemulsification alone resulted in ICER of 34€.

Conclusion: Recent economic situation made costs associated with new surgical procedures an important decision factor. Our analysis showed that trabeculectomy is the most cost-effective surgery in glaucoma. Ahmed valve is a valid alternative in high risk patients, such as uveitic glaucomas.