
Article:
Goodall, M., Tosh, J., Alshreef, A.O. orcid.org/0000-0003-2737-1365 et al. (1 more author) (2016) Conceptual Modelling for Cost-Effectiveness Analysis of Intravitreal Therapy with Ranibizumab, Aflibercept or Bevacizumab for Macular Oedema Due to Central Retinal Vein Occlusion. Value in Health, 19 (7). A366. ISSN 1524-4733

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Objectives

Macular oedema (MO) is an eye condition that can result in severe visual impairment. MO can be caused by central retinal vein occlusion (CRVO). The CRVO prevalence in the UK is estimated between 0.1% and 0.4%, with most patients (71%) being at least 65 years old. The objective of this study was to develop a conceptual model comparing bevacizumab, aflibercept and ranibizumab treatment for MO due to CRVO. The conceptual model would be used to inform a lifetime costs and QALYs decision model, which would incorporate data that will become available from the LEAVO trial. The LEAVO trial is a non-inferiority trial that compares these treatments.

Methods

A literature review was conducted to identify cost effectiveness models for MO due to CRVO. These were critiqued and the key limitations identified. A problem-orientated model and 2 decision-orientated models (one discrete event simulation [DES] and one state-transition approach) were developed.

Results

Five cost-effectiveness models were identified, all of which used a state-transition approach. The limitations of these models included modelling one eye only, not accounting for injection frequency, modelling adverse events and effectiveness independently to injection frequency or number of prior injections, and not including fellow eye involvement. The conceptual DES model developed from this work could address more limitations in a simpler way than the conceptual state-transition approach. However, the DES approach is response based, requiring a lot of data to populate, which may not be possible with LEAVO trial data.

Conclusions

Many of the limitations of current decision models of treatments for MO due to CRVO could be addressed by taking a discrete event simulation approach. This approach may be limited by data availability.