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## Invited Commentary

# Toward a Better Understanding of Value in Glaucoma Treatment

Joshua R. Ehrlich, MD, MPH; Emily M. Schehlein, MD

**The field of glaucoma** is in a period of rapid innovation, with various novel medical and surgical treatments having been introduced in recent years. From microinvasive glaucoma surgeries to subconjunctival microshunts and new



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drug delivery devices, the treatment options for glaucoma that are available to

the ophthalmologist have increased considerably, and this trajectory will likely continue in the near term.<sup>1</sup> Although data are needed from rigorous trials that evaluate and compare these emerging treatments, the question remains, how do we assess the value of treatments for this complex and chronic condition?

In this issue of *JAMA Ophthalmology*, Fenwick et al<sup>2</sup> described the development of a preference-based questionnaire, the Glaucoma Utility Instrument (Glau-U). The suggested purpose of the Glau-U is to facilitate cost-effectiveness analyses of glaucoma treatment options. The authors pointed out that the EuroQol 5-Dimension, a commonly used generic health utility instrument, did not discriminate between glaucoma severity levels, thereby substantiating the need for the Glau-U. To develop the Glau-U, Fenwick et al<sup>2</sup> performed a discrete choice experiment, one of several well-accepted strategies for deriving utility weights associated with a particular health state. Alternative approaches to measuring utility, such as standard gamble and time trade-off, were not considered because of their perceived high cognitive burden, although it would be informative to know whether the various approaches produce similar results.

A common critique of condition-specific health utility instruments is that they are not scaled to allow for comparison with utilities of other (eg, nonophthalmic) health states. The ability to compare the utility gain of different ophthalmic and nonophthalmic interventions is needed to guide health policy decisions and allocation of scarce resources. The Glau-U was developed with this need in mind. Fenwick et al<sup>2</sup> scaled the best possible utility state to represent perfect health and the worst possible state to represent death, with various severi-

ties of glaucoma situated in between these extremes. Although the researchers reported that the Glau-U discriminated between different levels of glaucoma severity, it should be noted that the mean utilities among participants with mild to severe glaucoma in the better eye covered a narrow range (0.66-0.60), with greater deviations observed only at the extremes (eg, no glaucoma: 0.73; advanced or end-stage glaucoma: 0.22).

The Glau-U also excelled in including various dimensions of vision-related quality of life, each of which may significantly alter the utility of a given health state and thus the value of an intervention. Previously developed instruments, such as the Glaucoma Utility Index,<sup>3</sup> may not adequately account for the socioemotional impact of glaucoma. However, taking a truly person-centered approach to eye care requires consideration of the full implication of disease and treatments for the individual, including psychological well-being. This approach is the cornerstone of integrated people-centered eye care, which the 2019 *World Report on Vision* endorses as a key to addressing challenges in global eye care and blindness prevention.<sup>4</sup>

The study by Fenwick et al<sup>2</sup> highlights several key areas for future research. First, as the authors noted, this work was conducted in Singapore, and utility weights may vary from population to population depending on culturally shaped preferences and concerns. Second, it may be informative to know how contrast sensitivity loss, which is known to be an important factor even in the early stages of glaucoma,<sup>5</sup> affects health utility. Third, it will be critical to understand how utilities vary among individuals who are undergoing different types of treatment for glaucoma (eg, laser trabeculoplasty, microinvasive glaucoma surgery, or topical medication). Fourth, using the appropriate set of health utility instruments, the cost-effectiveness of various glaucoma treatments may be compared with vision-preserving interventions for other chronic eye diseases, such as age-related macular degeneration and diabetic retinopathy, as well as with non-ophthalmic health interventions.

A high cost of treatment for glaucoma may be substantiated when the benefits are extensive, just as a low-cost treatment may represent poor value when the benefits are minimal. With a large and growing array of treatment options for glaucoma, the time is right to consider the value of these treat-

ments; that is, to compare their person-centered cost-effectiveness. The Glau-U is an innovative step forward in this pursuit. However, the work has really only begun. Now that the instrument exists, it is time to put it to use for the good of patients and society at large.

#### ARTICLE INFORMATION

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