

BRINGING IOP MEASUREMENTS HOME



MyEyes enables patients to access an approved device for around-the-clock monitoring.

WITH BARBARA WIROSTKO, MD, FARVO

GT: Can you tell us about MyEyes and its founding?

Barbara Wirostko, MD, FARVO: MyEyes was founded by three individuals who are passionate about glaucoma: a patient, a glaucoma specialist (myself), and an ophthalmic technician. We were all witnessing firsthand how information about IOP fluctuations could inform clinical decision-making and quickly direct a change in disease management. We perceived a need to enable patients to measure and follow their IOP outside of their office visits.

The main objective of MyEyes is to help patients gain access to the iCare Home (iCare USA), an FDA-cleared prescription device that enables users to measure their IOP at home at variable times of the day and/or night. Given the cost of the iCare Home and the acute and short-term needs of some patients, my cofounders and I recognized that not all patients needed to own the device and that some (those whose disease is thought to be well controlled) could benefit from just 1 or 2 weeks of use. MyEyes therefore offers the iCare Home to patients as a rental and/or for purchase. The information provided by the device—whether IOP variability occurs over the course of a day, a night, or week(s)—may enable patients and their physicians to better tailor therapy to reduce those fluctuations and spikes.

GT: How does the rental process work for the patient and for the physician?

Dr. Wirostko: Patients and physicians continue to report positive feedback on the ease of use and on the availability of support, Zoom tutorials, and instructions through MyEyes and iCare USA. All that is needed from the physician is the required prescription. On the MyEyes website (www.MyEyes.net), patients can upload their prescriptions and make a payment, and the device will be shipped to them within a few days. Access to iCare Home teaching videos and instructional information along with available one-on-one tutorials with our ophthalmic technicians facilitates the device's usability. No anesthetic is needed, and sterile probes are provided. Beyond a short learning curve, IOP data can be captured at any time of day and accessed by the patient and physician in real time. When the rental period ends, the patient returns the device in a prepaid box.

GT: In your opinion, is 24-hour IOP monitoring beneficial for all patients with glaucoma?

Dr. Wirostko: As a glaucoma specialist, I have found that measuring IOP at different times of day and night can be very beneficial for me and my patients. This was part of the impetus for founding MyEyes—I saw nighttime IOP rise to the high 20s mm Hg in a few patients with advanced and “controlled” normal-tension glaucoma, and I rapidly shifted treatment and progressed to surgery sooner. It is amazing to now see IOPs flatten with no fluctuation in several patients. We are also seeing variable IOP control depending on the surgical procedure used. Several published case reports¹ have emphasized the importance of having access to this information. On the other hand, I have had patients with advanced damage not experience significant IOP fluctuations, so I feel comfortable that, for the time being, their management plan may be adequate.

GT: How has monitoring IOP over 24 hours made a difference in glaucoma care? What type of clinical observations or decision-making does this diagnostic information enable?

Dr. Wirostko: In my practice, we have seen IOP readings obtained over 24 hours and over 1 or 2 weeks make a difference in the course of glaucoma care. Rojas et al¹ reported a case in which a patient whose disease was thought to be controlled experienced an IOP spike into the high 40s mm Hg during the night, leading to an adjustment in their medication. Although this patient may be unique, their case raises the question of how many patients may be experiencing disease progression because of IOP spikes and despite so-called normal IOP levels in the office. We have long accepted, based on the published literature, that IOP does indeed fluctuate over days, weeks, and months and that, despite a single IOP measurement in the office, patients experience disease progression.

Recent investigations have focused on the 24-hour variability in IOP that can occur, especially in patients with normal-tension glaucoma. In a study by Kim et al,² patients were hospitalized for continuous 24-hour IOP readings to be collected. Although the iCare Home does not perform continuous IOP monitoring, it can indicate a trend toward elevated IOP—a key and modifiable risk factor and driver of disease progression. In this respect, I like to think of the iCare Home as similar to a glucose monitor or a home blood

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pressure monitor. The measurements obtained with these devices clearly identify fluctuations that can affect disease progression. Providers can then educate patients and instruct them to control, measure, and reduce any fluctuations by taking their medications.³ I have also observed that, despite dedicated compliance, IOP fluctuations happen. It is possible that it is not the patient’s treatment adherence contributing to disease progression but IOP variability occurring outside of the office. I am currently collecting data that may help us to discern whose IOP spikes and why.

Unfortunately, unlike a blood pressure or glucose monitor, patients cannot simply buy the iCare Home at a drugstore or from the manufacturer, so this is where MyEyes comes in. In collaboration with iCare USA, we are

making this remote IOP device available to glaucoma patients under their physicians’ care.

GT: What would you say to anyone on the fence about implementing an iCare Home IOP-monitoring program?

Dr. Wirostko: In my mind, there are few to no downsides to this approach. All that is needed from the prescribing physician is the prescription, which can be uploaded by the patient and/or emailed directly to MyEyes at info@myeyes.net. Having the iCare Home graph of IOP measurements provides additional data points on which to base treatment, and this information could save vision.

Numerous studies have shown the variability and elevation of IOP at night. We routinely have patients visit our offices at various times of day (ie, the diurnal curve) in an attempt to

capture that highest IOP. I remember being a resident and having patients hospitalized to measure their IOP overnight and during waking hours. This is indeed a much simpler and more cost-effective way to capture those data. The repeatability, accuracy, and reliability of the iCare Home have been compared with those of Goldmann applanation tonometry; my perspective is that it is less about the direct comparison and more about the trends that the iCare Home provides and demonstrates over time. I cannot imagine that a nocturnal increase in IOP from the low teens to the high 20s mm Hg is not harmful to an already damaged optic nerve. Even if we do not yet fully understand why these pressure spikes occur, we are learning why some patients’ glaucoma may progress despite their having what appears to be controlled IOP in the office. ■

1. Rojas CD, Reed DM, Maroi SE. Usefulness of iCare Home in telemedicine workflow to detect real-world intraocular pressure response to glaucoma medication. *Ophthalmology Glaucoma*. 2020;3(5):403-405.

2. Kim YW, Kim JS, Lee SY, et al. Twenty-four-hour intraocular pressure-related patterns from contact lens sensors in normal-tension glaucoma and healthy eyes: the Exploring Nyctohemeral Intraocular Pressure-Related Pattern for Glaucoma Management (ENIGMA) study. *Ophthalmology*. 2020;127(22):2487-1497.

3. Levin AM, Vezina D, Wirostko BM. Home-based intraocular pressure measurements: tracing a parallel with out-of-office blood pressure measurement. *Ophthalmology Glaucoma*. 2021;4(3):235-237.

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