

The State of Preoperative Patient Education for Cataract Surgery

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There are numerous keys to successful modern cataract surgery, but to produce truly happy postoperative patients, the results of the surgery must also meet the patient's expectations. In order to properly set expectations, patients must be educated about cataracts themselves, lens implant options, the experience of having cataract surgery and what to expect afterwards. This article reviews the various patient education tools in use today.

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We have all heard the old adage 'try it before you buy it' in reference to big purchases or life decisions. Current USA housing market crisis aside, it has always been common practice to first walk through a house before buying it and, while it would be unusual to request a night to sleep in and evaluate it, a viewing is usually sufficient to get a 'feel' for your new home. Likewise, a visit to a college campus is generally a prerequisite to selecting a place of higher education to call home for 4–6 of the most formative years of life. Yet, when we as cataract surgeons are helping patients decide which intraocular lens implant they want to look through for the rest of their lives, we offer little in the way of adequate description, let alone *experience*, of their soon-to-be vision, or what it will be like to undergo the procedure.

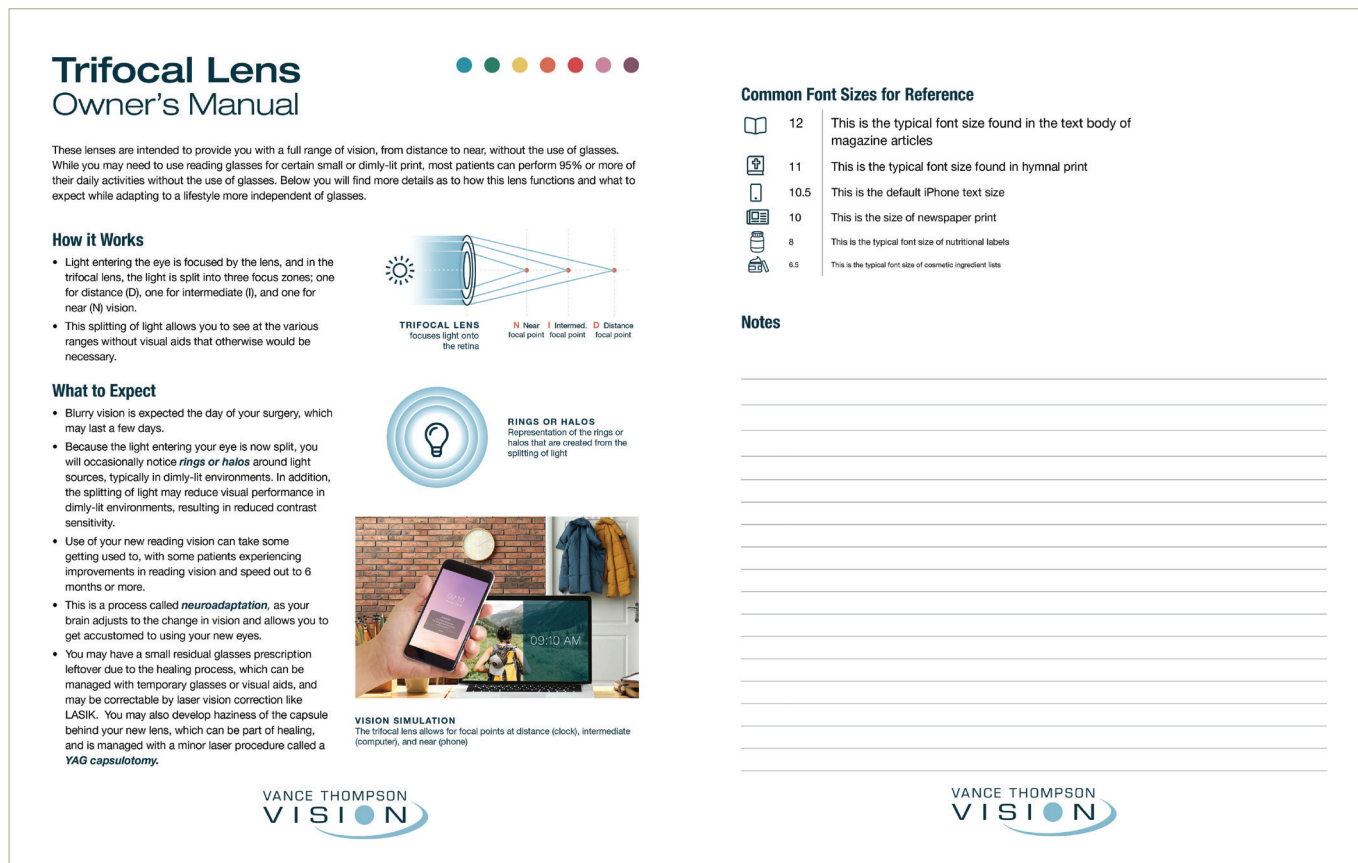
I have never had cataract surgery, however I do perform it about 200 times per month. If I try to put myself in my patient's position (which we should all be doing regularly), I think about all the information I would require to make a decision about how I want to view the world after cataract surgery. Why do I not see as well as I used to? Is it just the cataract or is there something else going on with my eyes? What is a cataract and what will it be like to have it removed? How will I see immediately following the surgery, and after it has healed? Will it stay like that for the rest of my life?

If I think about all of these questions, and the fact that this list probably just scratches the surface of what we have all been asked before, I start to worry about the time it would take to explain it all to a patient. What is worse is that none of the above questions begins to delve into the discussion about the myriad lens options available to today's cataract patient. And the time we allot for all of this education during the evaluation? Probably 5 minutes – on a good day when we are not already running behind. And we are all about to get more pressed for time. The prevalence of cataract surgery in one large study recently was found to increase from 8.8% to 13.6% over the course of just 10 years.¹

Once a patient has an acceptable understanding of their condition and the next steps in surgical correction, it is time to present lens options. The number of lens implants available to surgeons in the USA and their patients is large and expanding rapidly, with monofocal, toric, adjustable, accommodating, extended depth of focus and diffractive-type multifocal optics being a gross oversimplification of what is on the market today. Add to that the ability to perform various steps of the surgical procedure with a laser, as well as the option to alter refractive targets to create blended or monovision, and you have taken an already complex educational proposition and made it exceedingly difficult to ensure the patient is matched to the right intraocular lens technology.

So, how do we give this critical information to patients in a way that is easier to understand and remember? Almost always this requires some form of 'teaching tool', whether it is practice-branded literature, educational videos in the waiting and examination rooms, or specialized counsellors to meet with and answer questions for patients immediately following the visit. Also important is understanding that most of this requires real-time assessments of patient health literacy, and providers must appreciate the patient's level of understanding and make appropriate real-time adjustments in what and how to present.

Figure 1: A descriptive document for patients electing a trifocal lens option



The front contains information to help explain how the technology works and important elements of the postoperative experience, and the back presents patients with font size examples and a notes section.

LASIK = Laser-Assisted In Situ Keratomileusis; YAG = Yttrium Aluminum Garnet

However, we also live in a time of explosive technological innovation and, in just the past few years, we have seen a number of new tools developed that can facilitate the exchange of information between patient and provider. This article will outline some tried and true, as well as new and innovative tools for patient education and information exchange. None of them are perfect, and many can be combined with others to enhance the educational experience for patients and providers alike. However, all of them seek to help with what I believe is the most important factor in success as a modern-day cataract surgeon: setting proper patient expectations.

Current tools and techniques

Visual aids and videos

Of the educational tools at an ophthalmologist's disposal, teaching aids such as pamphlets, visual aids and videos tend to be the most readily accessible and frequently used. In addition, they are the most well studied in peer-reviewed literature, and their impact is positive. In a recent comprehensive literature search, one study found simple visual aids to be highly effective in increasing patient knowledge about cataracts and cataract surgery, as well as in improving results of educational assessments in postoperative care.²

In clinical practice, providers can either create their own educational material or order pre-made material, such as from the American Academy of Ophthalmology website.³ Common practice is to make materials available in waiting rooms and examination rooms, whether it is pamphlets, wall-mounted visual aids, 3D eye models or short videos, which can passively educate the curious patient. However, the most

impactful patient education programmes, such as the ones referenced in the study by Choi et al., will be the ones in which an intentional and active information exchange takes place.²

The authors of the Choi et al. study suggested that dedicated preoperative education with such material can improve the patient experience of undergoing cataract surgery by setting the proper expectations.² This was confirmed in a more recent prospective study of preoperative video education for patients undergoing cataract surgery.⁴ This study evaluated how patients performed on educational assessments regarding their cataract surgery, and found a significant improvement in those who watched a dedicated preoperative video compared with those who did not.⁴ Perhaps the most impactful of these results was a significantly better understanding of postoperative expectations. Proper patient education, in conjunction with positive therapeutic suggestion and relaxation, also reduces patient anxiety and improves cooperation during cataract surgery.⁵

In our practice, the data mirror our real-world experience, and that setting proper patient expectations through intentional education is the key to patient satisfaction. This is particularly true for patients with refractive cataracts. As suggested above, our patients must absorb and retain a lot of new information at their evaluation, which is usually the point at which the decision about lens implant is made. However, we know that patients tend to retain only a fraction of the preoperative information postoperatively. Thus, we use a lens implant 'Owner's Manual' for patients to take home with them and review, consisting of easy-to-understand information specific to their selected lens implant (Figure 1). While we

have only recently rolled this out into clinical practice, we have had an overwhelmingly positive response from patients and staff alike.

Another technology frequently used for patient education today is video, and various software platforms allow practices to display educational material in waiting rooms and examination rooms, and even to connect with patients at home. One such software is Rendia (Rendia Inc., Baltimore, MD, USA), which is a patient education software with medical animations that can be customized to both the practice and the patient. Videos can be curated for in-office waiting rooms or for viewing by patients before their appointment, and can be sent to patients via email or patient portal.⁶ Once in the office, Rendia's interactive examination room and anatomy tools can help explain pertinent pathology and relevant ocular anatomy to the patient to improve understanding.

A unique aspect of Rendia's platform is their Outcome Simulator. This part of the software can provide patients with an estimation of what a given lens option would allow them to see after their cataract surgery. Post-appointment videos can be customized to the patient's visit, contain a summary of their visit and what was discussed, and be sent via email or the patient portal for access from home. A similar technology is the CheckedUp (CheckedUp, New York, NY, USA) platform for patient education during pre-surgical consultation.⁷ Their Explorer Waiting Room can broadcast customized health content to patients waiting for their appointment, priming them for treatment option discussions. In the examination room, the Digital Exam Room Wallboard is a unique technology that allows for interactive patient education and 3D animations on a wall-mounted tablet, which can be annotated and captured to send to patients after their appointment.

A common feature of the educational tools discussed is that the information exchange tends to be unidirectional – unless explicitly asked for, there is no hardwired mechanism for providers to gather information from patients. The following section will review some of the more technical programmes that help facilitate the bidirectional flow of information, which can provide a more interactive educational process.

Preoperative patient assessments

Gathering information from patients is not a new concept, but it is something that has garnered re-energized focus over the past several years. With the rapid development of advanced technology lenses, greater emphasis has been placed on ocular surface health, and many providers employ one or more questionnaires to assess severity of ocular surface disease symptoms. Some, including the American Society of Cataract and Refractive Surgeons SPEED II Preop OSD Questionnaire, combine questions about dry eye and preference for visual correction after cataract surgery.⁸ One of the most time-tested examples of preoperative patient assessment is the Dell Questionnaire. Developed in 2004 and revamped in 2016, the questionnaire was designed to enable providers to tailor their discussion of lens options based on patient responses.⁹

While the primary use of such questionnaires is to obtain information about patient personality and preferences, a subtle but equally important aspect of asking such questions is to shape patient expectations. For example, asking patients if they would prefer optimal quality of vision over functionality without glasses sets the table for a realistic discussion with patients that truly want it all. Anyone who offers advanced or refractive cataract surgery will attest: there is no such thing as a free lunch, and there is certainly no such thing as a perfect lens. Also, the costs of advanced technology lenses is commonly introduced in these

questionnaires, which can help reduce sticker shock for patients excited about the opportunity to regain their independence from glasses. What is more, if there is not a questionnaire that perfectly suits you or your practice, you can pick and choose questions from existing questionnaires and incorporate them into your own.

Software for bidirectional information exchange

A great deal of interest has been recently placed in software that can combine patient assessments with educational content to promote an information exchange before, during and after cataract surgery. Many software technologies now exist that promote practice efficiency, and all boast the ability to increase adoption of premium services through their patient education platforms. A common feature to all is their intention to automate initiating patient contact prior to the actual surgical consultation, which is generally triggered by referral from a primary eye care provider or other physician.

MDbackline (MDbackline Inc., Laguna Beach, CA, USA) is one such automated system that intends to ease information exchange for patients at various stages of the cataract treatment journey.¹⁰ A key principle of the MDbackline software is its 'just-in-time' approach to information exchange, where information is delivered both to and from a patient when it is most relevant. It requests pertinent information from patients and creates a Visual Profile Report that, much like the information gathered by the Dell Questionnaire, can be used by providers to tailor the presentation of lens options to patients based on their responses. It also estimates the likelihood of that patient choosing an upgraded lens option. After surgery, the software continues connecting with patients, using prompted feedback reports that can help patients and providers assess the healing process following surgery.

Another such programme is Surgiorithm (Surgiorithm Inc., Nashville, TN, USA), which sends patients scheduled for surgical consultation an at-home preparation session during which they complete a lifestyle questionnaire and watch educational videos about the surgical process and lens options.¹¹ Surgiorithm also allows brand customization, adding authenticity.

Finally, Ocular (Engage Technologies Group Inc., Meridian, ID, USA) is a programme that breaks the patient experience into three phases and customizes information delivery from your practice, often recorded in short-video format from the doctor the patient is scheduled to see.¹² Unique to this platform is the way patients first engage with the software: by scanning a QR code that links their smartphone to the surgical practice's customized video library. This was developed so that the QR code could be presented to the patient by the referring doctor, allowing the patient to get to know the surgeon office before leaving their primary provider. Then, the practice can 'drip' relevant pre or postoperative information via text message to the patient's personal devices, and can set a particular cadence throughout the surgical journey.

Immersive technology

The final (or at least, most recent) frontier in preoperative patient education is immersive technology. Generally speaking, I would apply this term to any technology designed to gather visual-behaviour information to educate the patient and physician. This can be done either by taking biometric measurements during routine daily activity (such as head position during reading, or eye-movement tracking) or by presenting visual simulations for subjective patient feedback. To date, the few technologies that aim to accomplish these goals are wearable technology, and will be reviewed here.

Imagine a world where physicians need not depend on accurate patient self-reporting of visual habits but instead could simply measure them. That is what the Visual Behavior Monitor (Vivior AG, Zürich, Switzerland) device attempts to achieve.¹³ The Visual Behavior Monitor is attached to the patient's spectacles during a testing period of daily activity. It contains multiple distance sensors and sensors collecting information about orientation, ambient lighting and movement. The data are then processed and displayed in an individualized visual distance profile, to which defocus curves of various lens technologies can be compared. This is an appealing technology that could allow for the most precise patient–intraocular lens matching process, and true personalization of postoperative vision.¹⁴

As alluded to above, a way for the patient to experience their postoperative vision with various lens options would be valuable. Understanding and explaining to patients the differences of pseudophakic monovision and multifocality to that of phakic monovision or multifocal contact lens is an important preoperative consideration, as some patients who are accustomed to a phakic contact lens technology may be surprised by the difference in optic performance. However, there is a new technology that aims to bridge that gap through another wearable technology, the SimVis Gekko (2EyesVision, Tres Cantos, Spain).¹⁵ The headset is worn by a patient preoperatively in the examination room, with the physician or assistant present. Through the headset, various optics can be presented to the patient to simulate the vision that different intraocular lens options may afford them, allowing patients to compare vision quality, presbyopic correction and photopsias in real time.¹⁶

Summary

Cataract surgery has been enhanced through advancements in ophthalmology, including small incision phacoemulsification and multifocal and adjustable intraocular lenses. Of course, with advancement comes optionality, and some of those choices we can and should allow patients to make about their care. Every patient should be presented with the options for vision correction during cataract surgery that would best suit their needs, and that list of options is ever changing and expanding.

So, how can we as surgeons make sure we are presenting the most appropriate options to patients whilst not confusing them with options that would not benefit them? I believe the answer is tailored patient education. Presented here is a short list of tools and programmes available for surgeons to enhance the exchange of information with their patients to narrow the list of suitable intraocular lens options. Such tools can be used alone or combined to fit the practice or surgeon's needs, as no single tool may accomplish all patient education needs. Some help facilitate the direct discussion between provider and patient, while others automate or virtualize the patient education; the 'best' option is likely different for each practice. The key is likely to use the technology as an adjunct to the patient visit, not to shorten the visit, but to improve health literacy and tailor the discussion so that more of the information can be understood and retained. A patient for whom the education is tailored and the expectations set appropriately is a patient truly satisfied with their treatment. □

1. Gollgoly HE, Hodge DO, St Sauver JL, Erie JC. Increasing incidence of cataract surgery: Population-based study. *J Cataract Refract Surg.* 2013;39:1383–9.
2. Choi AR, Greenberg PB. Patient education strategies in cataract surgery: A systematic review. *J Evid Based Med.* 2018;11:71–82.
3. American Association of Ophthalmology. Support patients with brochures, handouts and videos. Available at: www.aao.org/practice-management/patient-education (accessed 23 August 2022).
4. Wisely CE, Robbins CB, Stinnett S, et al. Impact of preoperative video education for cataract surgery on patient learning outcomes. *Clin Ophthalmol.* 2020;14:1365–71.
5. Kekecs Z, Jakubovits E, Varga K, Gombos K. Effects of patient education and therapeutic suggestions on cataract surgery patients: A randomized controlled clinical trial. *Patient Educ Couns.* 2014;94:116–22.
6. Rendia. Available at: www.rendia.com (accessed 23 August 2022).
7. CheckedUp. Available at: www.checkedup.com (accessed 23 August 2022).
8. Starr CE, Gupta PK, Farid M, et al. An algorithm for the preoperative diagnosis and treatment of ocular surface disorders. *J Cataract Refract Surg.* 2019;45:669–84.
9. Cataract and Refractive Surgery Today. The New Dell Questionnaire. Available at: <https://crstoday.com/articles/2017-may/the-new-dell-questionnaire/> (accessed 23 August 2022).
10. MDbackline. Available at: www.mdbackline.com (accessed 23 August 2022).
11. Surgiorithm. Available at: www.surgiorithm.com (accessed 23 August 2022).
12. Ocular Innovations. Available at: www.ocularinnovationsinc.com (accessed 23 August 2022).
13. Vivior. Available at: <https://vivior.com/en/> (accessed 23 August 2022).
14. Pajic B, Zakharov P, Pajic-Eggspuehler B, Cvejic Z. User friendliness of a wearable visual behavior monitor for cataract and refractive surgery. *Appl Sci.* 2020;10:2190.
15. 2EyesVision. Available at: www.2eyesvision.com/es/ (accessed 23 August 2022).
16. Benedi-Garcia C, Vinas M, Lago CM, et al. Optical and visual quality of real intraocular lenses physically projected on the patient's eye. *Biomed Opt Express.* 2021;12:6360–74.