

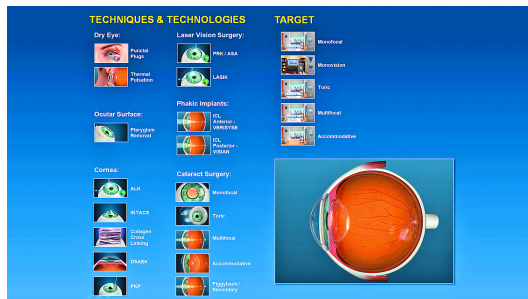
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CUTTING-EDGE ADVANCEMENTS

Vision a la carte: Designing Vision

Re-categorize armamentarium of surgical options for better, more individualized fit for patients

Gloves Off With Gulani by Arun C. Gulani, MD



Vision à la carte is a concept I would like to share with all ophthalmic surgeons wherein we can design vision for each patient individually, using all of today's technologies and techniques, including combinations of these.

The cornerstone of success is the surgeon's ability to customize the approach to each patient's vision goal or best vision potential.

How do we arrange these techniques and pick the ones most suitable for each patient?

My approach has always been that we eye surgeons are all vision-corrective surgeons (irrespective of cornea, LASIK, or cataract specialties).

In this armamentarium of vision-corrective surgery—think of it as an umbrella term with about 48 techniques—there are nearly nine different types of LASIK/laser vision surgery (10 now, with the recent SMILE technique I performed while abroad), four types of implantable contact lenses, six types of premium lens implants, seven types of corneal transplants, five types of intrastromal corneal ring segments, and about three ways of doing corneal collagen crosslinking (CXL).

Combinations for customization

(figure 1) Vision a la carte allows all ophthalmic surgeons to design vision for each patient individually, using all of today's technologies and techniques. (Image courtesy of Arun C. Gulani, MD, and Eyemaginations)

With these approaches at our fingertips, we can try various combinations and have unlimited permutations to tailor to each patient's vision goal. I introduced this concept of vision à la carte at the Bombay Ophthalmology Association's conference, held in Mumbai, India, in August.

I like to teach this to surgeons and my patients as “Lego” pieces. Arrange these surgery techniques like Lego pieces on shelves in the mind. Each category should have its own color.

For example, all laser vision techniques could be blue, all cataract surgery lens implant choices and techniques yellow, all corneal techniques green, and adjunct techniques such as CXL (that can be used in combination with practically any surgery) white.

Now, say a surgeon is planning a combination of cataract surgery (yellow piece) with LASIK (blue piece). The surgeon now has a plan that can be visualized, and the colors can be used to explain the plan so much more easily. This approach also empowers the surgeon to pick whatever piece is best suited for the patient or even choose combinations.

Apply this concept to complex and complicated cases. For example, in the case of LASIK ectasia, the surgeon can plan for lamellar corneal transplant (a green piece), followed by laser PRK (a blue piece) 6 months later. This needs to be followed by CXL (a white piece).

Customization further involves the proper consideration of three factors that I call the 3Ts—target, technique, and technology.

Target. A specific target is a very important piece that I believe was missing from vision corrective surgery until the past few years. Surgeons performed surgeries and hoped for the best (or at least what they thought would be good for patients). Today, we need to plan for specific vision targets. If the patient is a pilot, he or she wants a certain vision at different illuminations—day and night. If the patient is a golfer, he or she wants certain vision at specific distances and often at multiple points. A dental surgeon or an architect’s desire for near vision is usually arm’s length, not 16 inches. We are now making our surgery accountable like never before. Set the target vision with patient counseling and education and work backward to pick the technology and technique to achieve that. This is in sync with patient expectations today.

Technique. Really raising the bar on surgery to an art, techniques have always been as varied as the surgeons performing them. Today, it means more than individual variances based on training and comfort. Technique now implies how we size, shape, and plan depth for LASIK flaps; Smile LASIK concepts; incisions in cataract surgery; planning for the shape, size, and centration of capsulorhexis; flip/crack/chop and other modifications of cataract consumption; or corneal endothelial transplants in the form of DSAEK/DMEK.

Technology. Technology in diagnostics provide information about nooks and crannies of the human eye we did not even know existed previously leaving little excuse to “leave vision on the table.” Study of vision impact factors besides refractive errors—including spherical aberration and wavefronts—allows us to aim for our choice of the specific technology in surgery so we can address all adversely affecting vision factors (like aiming for a strike in bowling, and not just settling for a spare).

Understanding universally applicable system

The Gulani 5S Classification System algorithm sets the background to my approach and makes any simple or complex case scenario lucid enough to understand and effectively treat.

This algorithm involves classification according to sight, scar, shape, strength, and site (Figure 1).

Sight. If the patient has potential vision, we as eye surgeons need to get to work.

Scar. Is the cornea scarred or clear? If scarred, we need to modify the scar in the interest of vision.

Shape. All laser vision surgery is based on shape. We flatten myopia, steepen hyperopia, and turn a football-shaped astigmatic cornea into a spherical basketball.

Strength. Is the cornea tectonically strong (i.e., of a normal thickness)? Is it thicker (Fuchs' dystrophy, epikeratophakia)? Is it thinner (LASIK ectasia, keratoconus)? The surgeon must remove additional tissue, such as in a case of epikeratophakia in a thick cornea, or add a lamellar corneal transplant in a case of ectasia.

Site. Peripheral corneal problems are not as visually significant as central problems, unless they indirectly affect vision, such as with induced astigmatism.

Surgeons can address any virgin or complex case with a simplified understanding of the 5S system and a plan that not only surgeons and their patients can understand but they can e-mail this plan to their friends and families as well. (Eyemaginations is working with me toward developing this three-dimensional software prototype).

The time is now

Today, with patient expectations, available technology options, and information resources, patients are literally coming in with their own vision goals, chosen technology, and researched techniques for the surgeon to perform.

With a global patient clientele in my practice, I am seeing patients every day who are willing to travel to a surgeon they have chosen, in their minds, to be the most capable to deliver their "individualized vision goal."

This concept may serve to relieve surgeons of constantly being under the gun of oncoming technology promises coupled with prohibitive expenses and will not necessitate re-learning techniques and challenging their comfort zone.

Instead, this concept allows us to use all the surgical techniques we already have access to and are capable of performing and put them into a new perspective.

Additionally, this concept of planning with patients invigorates them to the fact that we are personalizing a plan in their best interests, and therefore, the "cost" issue becomes secondary, which otherwise is a confabulating tradeoff toward choice for patients.

Patients are moving from the "burgers-for-everyone" concept and are asking for à la carte treatments. Are we ready to offer a menu of vision-corrective options?

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