

# Presbyopic Treatments in Refractive Surgery: Building the Bridge Between LASIK and Implants

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Surgeon and consumer interest in refractive surgery continues to grow, with LASIK firmly established as a “category leader” and IOL implants evolving into a refractive segment with lenses that can restore vision for near, intermediate and distance vision. These two “book end” solutions address both ends of the refractive spectrum, with the laser able to address ametropia earlier in adulthood and implants resolving cataracts later in life. In the middle of this spectrum lies presbyopia. This paper attempts to help refractive surgeons understand the significance of this opportunity and their role in helping build a bridge between the two ends of the refractive spectrum. Special attention will be paid to the post-LASIK population, which serves as an ideal target to begin building a presbyopic treatment “practice within a practice.”

## Size of Market

Sometime early in 2006, 5 million patients (10 million eyes) will have undergone LASIK (or PRK) since the excimer laser was first approved a decade earlier. According to data published by Market Scope Newsletter (St. Louis, MO), the current rate of LASIK adoption is 1.4 million eyes per year in the US with patients averaging 40 years of age. Similarly available data on IOL implants show a run rate of 2.7 million eyes per year and rising with an average age that is likely to decline below 65 years (medicare eligibility) due to an increase in the mix of IOLs being used in private-pay cataracts that present earlier than this as well as refractive lens exchange (RLE) procedures.

These incidences of treatment still represent single-digit percentage penetration of the overall US adult population, which is segmented in Figure 1 to show the relative size of three key age ranges. Both LASIK and implants are available to a significant percentage of people in these age ranges. What makes presbyopia distinct is that current and emerging solutions apply to just about 100% of the adult population as it gets older. This unavoidable reality that affects an aging body is what drives manufacturers to significantly invest in solutions to help the presbyopic population move beyond reading glasses.

## Where are the Presbyopes?

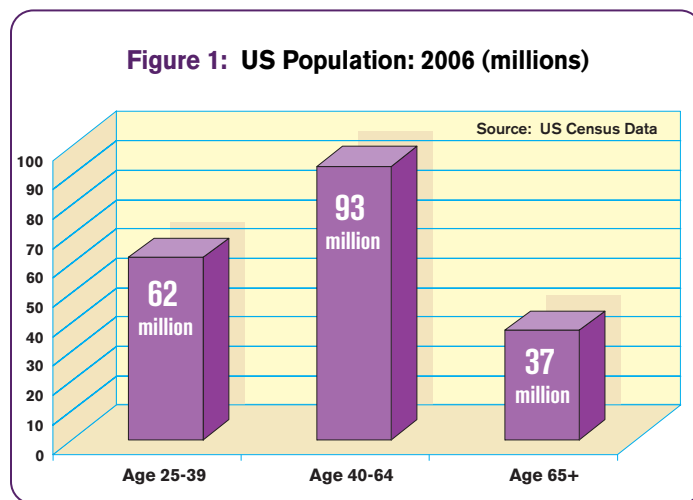
For decades, presbyopes have been turned away by ophthalmologists, having been told that no solutions exist beyond reading glasses available at the local drugstore. As a result, the

presbyopic population is largely invisible to the ophthalmic practice. This is especially true of the plano presbyope, who has up until now never entered the eye care delivery system due to lack of need (and a lifetime of “perfect vision”). As with the development of LASIK, it will likely take several years of consumer-directed messaging from doctors, manufacturers and the media to help create awareness that solutions for presbyopia are increasingly available.

The above-mentioned dynamic helps explain the frustration experienced by refractive surgeons who offer CK (conductive keratoplasty); they find it difficult to reach and attract this “invisible” patient segment of plano presbyopes. With greater awareness, future approved technologies (eg, corneal inlays) and a change in the message about presbyopia heard by the public, that frustration should lessen over time. CK providers are, however, not waiting and are tapping into a population that is visible and easily identifiable to the surgeon: the post-op LASIK patient who is now presbyopic.

## Post-LASIK Presbyopia

The post-LASIK patient is a strong fit for presbyopic refractive solutions for two reasons. First, the fact that they have already undergone LASIK shows a favorable pre-disposition to refractive surgery; LASIK patients have already made it through the “fear hurdle.” Second, they are readily identifiable to the surgeon as part of the practice patient database; this makes them much easier (and less expensive) to reach than the overall presbyopic population.



## Defining the Pool of Post-LASIK Presbyopes

Retrospective analysis of Market Scope data was done to quantify the the pool of LASIK patients that are now or soon will be presbyopic. A year-by-year count of patients treated at each age during the previous 10 years was done to determine the number of patients who are now 40 but were younger at the time of LASIK, as well as patients who were between 40 and 45 years of age at the time of surgery. We intentionally exclude patients that were above 45 years of age, as the incidence of ocular pathology (eg, yellowing of the lens) increases significantly with age and would likely preclude being indicated for a procedure whose sole purpose is to treat presbyopia. Screening for these factors in the LASIK population yields a total of 1.6 million post-LASIK patients that we define as early or “emerging” presbyopes.

At one-third of all eyes treated via LASIK or PRK to date, this 1.6 million population is large in size and worthy of attention. As described above, these post-LASIK patients are a highly-refined target audience for treatments such as CK.

**Figure 2: Accumulation of Emerging Presbyopic Patients in the Refractive Surgery Practice**

A	B	C	D
Surgeons who have been averaging this many LASIK procedures (eyes) per year...	Have accumulated this number of emerging presbyopes over the past decade...	And will be adding this many more emerging presbyopes each year over the next decade... (range per year)	Generating a total pool of emerging presbyopes in the practice that equals...
400 (35 eyes per month)	500	115 to 200	1,500 patients
600 (50 eyes per month)	740	170 to 300	2,300 patients
900 (75 eyes per month)	1,470	250 to 450	3,500 patients
1,500 (125 eyes per month)	1,840	425 to 750	5,800 patients

## Post-LASIK Patients: Forward Momentum

Further analysis was done to estimate the number of post-LASIK patients that exist in the typical refractive practice as well as how that segment will expand in the practice over the next decade (see Figure 2). Column A shows different levels of annual LASIK volume achieved over the past decade. A surgeon who has been averaging 400 LASIK procedures each year – 30 to 35 eyes per month – should have approximately 500 patients already in his practice who are emerging presbyopes (Column B). Based on the LASIK already performed over the past 10 years, that surgeon can expect another 115 to 200 patients *each year* (Column C) to be added to his pool of emerging presbyopes. This forward momentum equates to 1,500 more presby-

opes over the next decade, all emerging from LASIK patients treated in the past decade. Similar estimates are shown for surgeons whose procedure volumes have averaged 600, 900 and 1,500 eyes per year over the past decade. Using \$1,600 per eye as an average fee for CK, the total monetary value of this pool of presbyopes already within the reach of the refractive surgeon ranges from \$2.4 million to \$9.2 million over the next decade, based on the data in Column D.

## Building the Bridge

For LASIK surgeons who will be doing refractive IOLs, CK represents an opportunity to create a bridge for LASIK patients who will eventually require an implant. This requires a shift in how a refractive surgeon views his business model. Traditionally, refractive as well as cataract surgeons have viewed the patient encounter as a one-time event: Catch them, treat them, and send them on their way. The bridge that is built during the emerging presbyopic years puts the surgeon in the position of maintaining a relationship with the patient that spans several decades. As put forth by Durrie, the implications to patient flow and management in this new model require the refractive surgeon to behave more like a glaucoma specialist: See the patient every year and educate him or her on their eye health and refractive options as their visual needs change. Far from being part of a single encounter, the patient stays as part of the active patient base and is contributing to practice revenue throughout their adult life.

## Conclusion

For the ametropes who chose laser vision correction to improve distance vision, presbyopia becomes the proverbial “midpoint” in vision between “being younger” and “getting older.” Advances of technology have made it possible for surgeons to stop turning away presbyopes and start educating them on new opportunities to improve their vision. Surgeons, especially those who are going to provide refractive IOLs to their patients, should view presbyopia and its affect on near vision as an opportunity to extend the relationship they already have with their previously-treated LASIK patients. Doing so builds a bridge in this relationship which shifts the doctor-patient relationship from serving needs during a single encounter to fulfilling vision needs as they change over several decades.

## References:

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