

# Pediatric Refractive Surgery

Intervention differs dramatically from surgery on adults.

BY ERIN STAHL, MD

The ophthalmic community and the general public are well versed in the basic concepts of LASIK surgery for adults. Someone who does not like wearing glasses goes to a LASIK center, pays money out of his or her pocket, and receives a service that reduces hassle in his or her life. Everyone has a friend or coworker who has undergone elective refractive surgery, and many people wearing glasses and/or contact lenses are considering having LASIK in the future. Refractive surgery in children, however, differs in almost every way.

## THE DISEASE

Adult surgery aims to treat refractive error alone. In children, the goal is generally to treat amblyopia. Anisometropic or bilateral refractive amblyopia that is resistant to all standard therapies (spectacle correction and occlusion therapy) can be treated with refractive surgery. Because this vision-threatening condition can only be addressed during the critical period for visual development, performing refractive surgery on these children is a time-sensitive and medically necessary step. In addition, a small subset of children who are not amblyopic can benefit from refractive surgery; they have severe behavioral disorders or dermatologic or craniofacial conditions that preclude them from wearing glasses.

## THE POPULATION AND THE PAYMENT

Adults generally enjoy good BCVA before LASIK or PRK. For this population, refractive surgery is available as a private-pay procedure. Those with the financial means can choose refractive surgery as a luxury.

In contrast, the children undergoing refractive surgery do not have good BCVA, and many of their parents are unable to afford an expensive procedure. Refractive surgery is the last option for most of these children, who will suffer permanent vision loss if not treated. For this reason, pediatric refractive surgery is considered a medically necessary procedure. Fortunately, appeals to public and private insurance plans for coverage have met with some success. Applications are made on a case-by-case basis.

## THE PROCEDURES

The vast majority of adults undergo treatment for low to moderate myopia and astigmatism, and the most common

intervention in this group is LASIK. In children with anisometropic amblyopia, the refractive error rarely falls into the “moderate” category but rather the -8.00 to -15.00 D range. To best address their level of refractive error, it is important to consider alternative surgeries such as a phakic IOL for these patients. Additionally, most US doctors who perform pediatric laser refractive surgery choose PRK instead of LASIK. The reasons include a lower potential for flap-related complications, greater biomechanical stability, and a thicker residual bed. Children tend to heal more aggressively than adults and need up to 6 months of low-dose topical steroids to reduce the formation of visually significant haze.

## THE SURGICAL SETTING

The last of the primary differences between adult and pediatric refractive surgery is where the procedures are performed. Most young children undergoing laser or intraocular refractive surgery require general anesthesia. The general consensus among pediatric ophthalmologists is that children should be treated in centers where pediatric patients regularly receive anesthesia. For this reason, an excimer laser is usually brought into a pediatric hospital. A pediatric ophthalmologist—one with special training in refractive surgery or in conjunction with a refractive surgeon who treats adults—will then perform the procedure and manage the patient pre- and postoperatively.

## CONCLUSION

Pediatric refractive surgery has more dissimilarities than similarities to adult refractive surgery. Managing these differences and associated logistical challenges is the main factor in the slow adoption of pediatric refractive surgery in the United States. Several pediatric ophthalmologists, however, recently formed the Pediatric Refractive Eye Surgery Study (PRESS) group. They are working in sites across the country and in Canada to navigate these challenges and to help to bring high-quality pediatric refractive surgery to all children who are in need of treatment. ■

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