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Cataract & Refractive Surgery Today

MILLENNIALEYE

Experiences With the New SMILE Indications, Parameters, and Refractive Outcomes

A panel of experienced users provide their thoughts on the one-step refractive surgical procedure.

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Jay Bansal, MD
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The ReLEx® SMILE® procedure with the VisuMax femtosecond laser (ZEISS) has been performed more than 2 million times internationally and was approved by the US FDA in 2016. Based on a pivotal study of 336 eyes at five sites in the United States, the initial approval for SMILE was for the reduction of myopia from -1.00 to -8.00 D, with 0.50 D of cylinder or less.

In October 2018, the FDA granted an expanded indication to treat sphere from -1.00 to -10.00 D and cylinder up to 3.00 D, with a manifest refraction spherical equivalent up to 11.00 D. The new parameters are similar to the settings previously available outside of the United States. The benefits of SMILE include smaller incisions, faster healing times, and potentially greater biomechanical stability and reduced postoperative dry eye.

I have found the benefits of SMILE to be noticeable. With a few months of experience with the software upgrade, a group of colleagues gathered to discuss our experiences and recommendations. We all agree that SMILE is the refractive procedure of the future.

—John F. Doane, MD

The Immediate Benefits of Expanded Parameters

John F. Doane, MD: You are all early adopters of SMILE in the United States. Following FDA approval in 2016, I was performing SMILE on approximately 60% of my refractive patients. With the new approval and indications, this has jumped to 95% of my refractive patients. How many of your patients are electing SMILE as their refractive procedure, and has that increased with the recent approval to treat astigmatism?

Bruce Rivers, MD: As a surgeon in a military center, our situation is unique in that PRK has remained dominant over LASIK because of the (albeit small) risks of a flap. I can now offer my patients a procedure with the stability of PRK and the healing of a LASIK procedure. The rapid healing of the SMILE procedure means that my patients can deploy sooner than the 3-month waiting period following PRK. If you are in a combat unit, that can really drive your decision. Now, about 40% of my refractive patients are choosing SMILE, and some even come in asking for it.

Jay Bansal, MD: In the last 3 months, our number of refractive patients selecting SMILE has increased significantly with indications that that percentage will continue to increase. An important step has been to educate my network of referring optometrists and our own staff in explaining the advantages of SMILE to patients. In our experience, once an OD has seen a SMILE procedure, they get very excited. Now that our referral network is comfortable with the procedure and the new parameters allow us to treat astigmatism, I believe the percentage of SMILE procedures will increase even more quickly.

Y. Ralph Chu, MD: We have a large comanagement network with 300 to 400 referring ODs. We started educating them last year that SMILE was coming, with our early positioning focused on patients who may not be candidates for PRK or LASIK. The wife of one of our referring ODs was just such a patient, a -6.0 D of myopia with dry eyes, allergies, and currently wearing contact lenses. We performed SMILE on her and she achieved 20/20 vision on postoperative day 1. Not only does that help with the referral network, but we were also able to leverage her experience and get her on the local news. We were performing SMILE on about 10% of our refractive patients, but with the indication expanded to astigmatism correction, that has increased to about 30%.

The Outer Limits—Who Are Your SMILE Patients and How Do You Operate?

John F. Doane, MD: I appreciate this insight on how everyone is progressing with SMILE. It is obvious that for us, there is a lot of enthusiasm for the procedure and what it can do for our patients. I perform SMILE regularly on patients with as little as -1.0 D of myopia. We follow up with every patient to assess their satisfaction with their procedure at different time points, and I think the patients who were -1.0 D are the happiest and most excited of all patient groups. I have no hesitation about operating on them. Can I get your thoughts on your individual refractive limits for the procedure?

Y. Ralph Chu, MD: I think that my answer changes as I've gotten more comfortable with the technique. When I first started, I performed SMILE on patients who had -4.0 D of myopia or greater, with a thick lenticule. The first 50 cases were critical for the learning period. Now I am most comfortable performing SMILE on patients with -2.0 D of myopia and greater.

Rex Hamilton, MD, MS, FACS: I agree with Dr. Chu, in that it is best to stick with higher corrections and thick lenticules while you are learning. As you gain experience, the interface at the lenticule edge becomes more transparent, and I am now comfortable performing SMILE below -2.0 D.

Bruce Rivers, MD: I have frequently performed SMILE on patients with -1.0 D of myopia. I had a patient 2 weeks ago that came in asking for SMILE and was -1.5 D in his right eye with 0.75 D of astigmatism, and -0.75 D of myopia in his left eye. When patients are 0.5 D or less, we will do a spherical equivalent, so that put him at -1.0 D. I operated with that in mind, and his vision was 20/20 on the first postoperative day. He was very happy. I perform SMILE on these patients with minimal error all the time.

John F. Doane, MD: Along with the expanded parameters, the VisuMax software (ZEISS) was also updated to include the currently available ranges:

- Sphere 1.0 to 10.00 D
- Cylinder 0.75 to 3.00 D
- Spot and track settings of 3.0 to 4.5 µm
- Adjustable energy settings: 125 nJ to 190 nJ
- Transition zone of 0.0 or 0.5 µm
- Incision angle of 60 or 90°

We now have the same ability to adjust our spot and track settings as our colleagues outside of the United States (Figures 1 and 2). Moving from 3.0 spot and track spacing to 4.5 spot and track spacing effectively lowers the amount of energy applied by about 30%, which contributes to a quicker visual recovery. Can you share your outcomes with the old settings versus the new settings?

Y. Ralph Chu, MD: We have seen excellent early postoperative results since we first started offering SMILE, but I definitely feel there has been a further decrease in recovery time since the new software was released, similar to the OUS software settings.

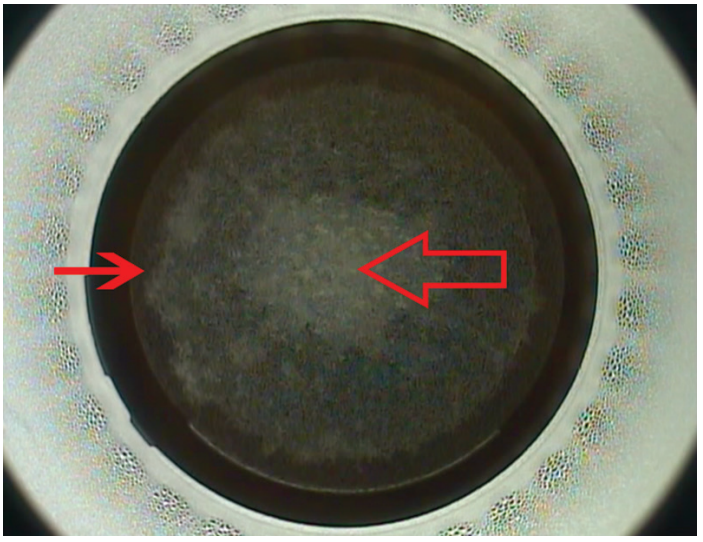

Figure 1. 130 nJ with 3.0 µm spot and track settings.

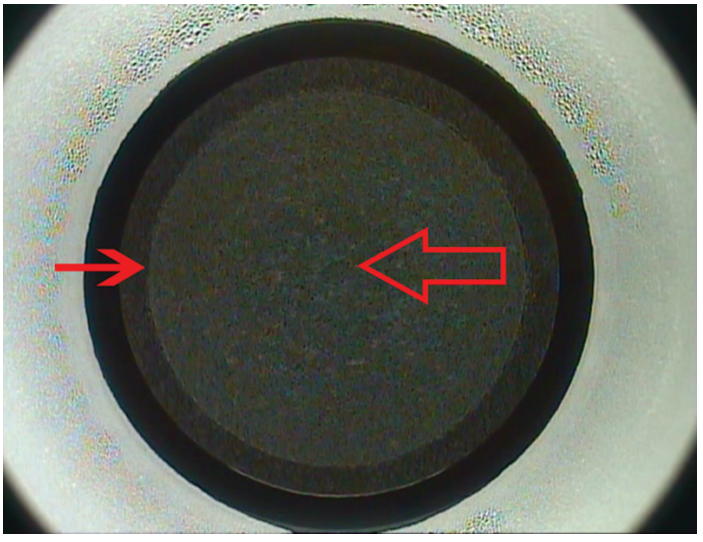

Figure 2. 125 nJ with 4.5 µm spot and track settings.

Steven C. Schallhorn, MD: The low energy settings on the new software have really helped, making it easier to remove the lenticule and speeding visual recovery.

Rex Hamilton, MD, MS, FACS: We have received unbelievable results, especially with the new energy settings. We are using the lowest energy settings and the widest spot spacing, and I love the results.

Jay Bansal, MD: I think the new energy settings have been a complete game changer. I did not perform SMILE on anyone with less than 4 diopters of error prior to the software update, and now I would have no hesitation performing SMILE on a -2.0 D patient.

William F. Wiley, MD: In my opinion, it's almost like a new laser. Previously, we couldn't get the laser energy low enough to allow for an easy dissection, which resulted in delayed visual recovery. Although the week one and later results were quite good, it was rare for us to have a patient achieve 20/40 on postoperative day 1. Now, it's rare that we have a patient with vision worse than 20/40 on day 1. The fact that we can now treat astigmatism means we can treat almost anybody, and that makes it a whole new procedure from the standpoint of our front office and what we can offer patients.

John F. Doane, MD: Most lasers are using spot and track settings in the 4.2 to 4.5 µm with energies of 125 to 150 nJ range. These settings reduce the total corneal energy and provide faster visual recovery. The ZEISS clinical team works with the surgeon to optimize the laser settings for the surgeon's preference, taking into account the ease of tissue dissection and visual outcomes. Most surgeons are using the smaller incision angle of 60°. Personally, I vary my energy settings depending on the patient. If the SE is -2.0 D or less, I lower the energy by 5 nJ. I think an important point is the total energy distribution. One piece of advice for this group is to change the energy setting to be even lower; that will result in a nicer dissection and a much quicker visual recovery. What are the rest of you using for settings?

Jon G. Dishler, MD, FACS: The change from 3.0 to 4.5 µm spot spacing dramatically impacts the energy per square unit area. The energy of each individual spot has some impact on how many bubbles you get in cavitation.

John F. Doane, MD: My initial thought was that with wider spots, I may have needed higher energy. But that is not the case. The femtosecond laser is a focused laser, and when you get the opaque bubble layer, you lose focus and get optical breakdown. That causes a poorer dissection. The wider spots help avoid the opaque bubble layer, which means the laser efficacy is increased, and that is why we can use lower energies with the wider spot spacing.

Rex Hamilton, MD, MS, FACS: In regards to the incision angle, I know we are all using the smaller 60° incision angle. The 90° incision created almost a mini flap, and it would fold over and striae would result. That is pretty much gone with a 60° incision. The benefits of SMILE are the biomechanical and dry eye advantages, so it makes sense to me to go as small as we can.

John F. Doane, MD: I know there are varying opinions in this group regarding irrigating. A 6-month prospective study of SMILE in 91 eyes conducted by Walter Sekundo, MD, PhD, and colleagues included irrigation of the intrastromal space. In this population, 10% of cases had visually insignificant microstriae. Sekundo and colleagues recently completed another study that is in press with the *Journal of Cataract & Refractive Surgery*, that did not find a difference in irrigating versus not irrigating the interface. What are the panelist experiences on this topic?

Average SMILE Parameters in the United States

- Cap thickness: 120 µm
- Incision size: < 4 mm at 12 o'clock
- Spot & track: 4.4
- Lenticule edge thickness: 15 µm
- Optic zone: 6.0 – 6.5 mm

Bruce Rivers, MD: I feel the biggest change in my patients' results came when I stopped irrigating following the procedure. Once I stopped, my postoperative day 1 results improved dramatically.

Rex Hamilton, MD, MS, FACS: I had the same experience. I realized that I was putting fluid in the cavity and possibly creating edema. I stopped irrigating 18 months or more ago and have had great outcomes. I just use a circular Weck-Cel sponge to lightly blot the cornea.

Jay Bansal, MD: I do irrigate, and my rationale has been that irrigation helps reduce the potential for microstriae and minimizes any chance of loose epithelial cells remaining in the pocket.

William F. Wiley, MD: I irrigate all of my cases, and many of my patients still achieve 20/20 or 20/15 vision on postoperative day 1. My thought has been the same, to reduce any microstriae.

Precision With Refraction and Nomograms

John F. Doane, MD: Let's move into how you are refracting your patients and then if you find it necessary to use a nomogram to get the best results. I have had enough patients to develop a nomogram. They are all a little bit plus at 2 weeks postoperative, not quite as much as 3 months postoperative, and hopefully by a year they are on target. If they are over 40 years of age, I don't like them to be plus. I have found that, if you refract like we did in the FDA study, you should be spot-on. In speaking with our international colleagues, I found that almost everybody adds additional treatment for myopia, and then they also alter how they treat astigmatism. Typically, if a patient is under -5.0 D, I add 5 to 7% in the spherical component. With astigmatism, I add 10% against-the-rule. I do nothing in patients with-the-rule. In looking at our outcomes, we see that in patients above -6.0 D we are drifting a little bit myopic, so typically I will add 10% for patients above -6.0 D.

Steven C. Schallhorn, MD: I've found that unless you do a nomogram right, it can be worse than no nomogram. You have to be very exact in how you refract patients, and you have to have a large enough sample size. There is no doubt that a properly-done nomogram can improve patient outcomes, but it takes diligence to do it right, and I am also a believer in keeping clinical routines simple. For me, a nomogram that is useful in clinical practice has got to be simple. That makes it important that the laser is accurate out of the box. The cylinder outcomes in the SMILE PMA were excellent, and that was without marking the cornea.

Y. Ralph Chu, MD: We do not have a nomogram nor do we make any adjustments as of this time. I use the system right out of the box, and I have received great refractive results. In our clinic, we refract our SMILE patients just as we would any other refractive patient. When a patient has 0.5 D of cylinder, I do a spherical refraction, and then I do a spherical equivalent refraction to see if they like that. It's as simple as typing in -8 D + 0.50 D, or -8 D, or -8 D and 0.25 D, or -7.75 D if it's a plus. We have not found cyclotorsion to be a major issue.

Rex Hamilton, MD, MS, FACS: The effects of environment and other issues on SMILE are completely different than LASIK. A nomogram for LASIK is obviously completely different than what you will do for SMILE. Intuitively, it seems like the SMILE nomogram should be simpler, given that it will not have to factor in the amount of correction or hydration level of tissue that is exposed to air. I have tracked my results from day 1 and developed my personal nomogram. I add 5% onto the sphere, nothing for against-the-rule astigmatism, and I add 15% to cylinder for with-the-rule astigmatism. Just like with my LASIK eyes, I target +0.25 D of sphere for patients under 30, plano for patients in their 30s, and -0.25 D for patients over 40. With the lower energy and wider spot spacing, the lenticule is crystal clear and there is no fluffiness at the lenticular edge. At the end of the dissection, the cornea is perfectly clear. I have performed SMILE with these settings on about 40 eyes and only had 1 eye that was not 20/20 on postoperative day 1. That was due to a bandage contact lens being used for a slight epithelial defect at the cut site. One issue that the surgeon must pay attention to is loose epithelium due to friction from the instrument at the incision site. This loose epithelium can be implanted into the interface.

Steven C. Schallhorn, MD: I target +0.25 D in younger patients to account for any regression that may occur.

Jon G. Dishler, MD, FACS: That is exactly what we do. I have seen a few undercorrections, but no overcorrections. If anything, it probably needs a bit of a push.

Jay Bansal, MD: I have found the laser to be pretty good out of the box, perhaps tending towards undercorrection at this point.

John F. Doane, MD: My approach to astigmatism is, worst case scenario, leave the patient with slight with-the-rule astigmatism, e.g., < 0.25 D. I apply the same logic that I apply with my cataract patients. I try to undercorrect with-the-rule Toric lenses. If a patient comes in with 0.5 D of against-the-rule astigmatism, I will treat 0.75 D of astigmatism at their refractive axis. Worst case scenario, again, I leave them with 0.25 D of with-the-rule astigmatism.

William F. Wiley, MD: We also keep in mind the understanding derives from ideal astigmatism outcomes in cataract surgery—that it is preferable to leave people a little bit with-the-rule rather than against-the-rule astigmatism. Over time, we tend to drift and pick up more against-the-rule, so if a patient comes in with 0.50 D of against-the-rule astigmatism, I'm going to correct that, which would result in a final refraction of 0.25 D with-the-rule. But if they come in with 0.5 D of with-the-rule astigmatism, I'd probably leave that untreated as I don't want to flip them to an against-the-rule postoperative refraction.

The Truth About Enhancements

John F. Doane, MD: In the FDA studies, I had to enhance 1 eye out of 90 in the spherical study and 1 eye out of 90 in the astigmatic study. I think that is close to where I am since commercialization. One thing we are doing differently is that, with LASIK enhancements, we do them at about 90 days, when enhancement is needed. With SMILE, we are really trying to push those patients to 12 months. It is interesting to see that patients who were unhappy at 3 months might be happy at 12 months. Since we are pushing a little bit plus with our nomogram, we are seeing that someone who might have been unhappy at 3 months is settled at 12 months. I have also had patients who were -6.0 D or -8.0 D prior to surgery, and when I see them 2 weeks postoperatively I have seen some with a minus refraction, such as -1.0 D. In this instance, I will obtain a topography to ascertain if there is a central island-like appearance. If there is, this will diminish with time, and the refraction will drift toward plano sphere. When I see them again at 3 months and repeat the topography, it is now flat. I think it may just be necessary remodeling or perhaps a little bit of swelling. It is not often—definitely less than 5% of patients—but it is something I keep in mind if a patient comes back in and is still -1.75 D. I perform topography and then have them come back in a couple of weeks. What has your experience been with enhancements?

William F. Wiley, MD: Over 18 months and a couple hundred eyes done with SMILE, we've only had one enhancement. So, it is a rare incidence. From my experience, SMILE is a more predictable and more stable procedure. When an enhancement is necessary, I look at the positive aspects. There are multiple available approaches for correction. If a patient comes in looking for an enhancement and they had LASIK 6 or 8 years prior, all we have is PRK. It's really not that easy to treat those patients.

With SMILE, patients have a pocket rather than a flap, so I think there are more opportunities with safer options. You can perform thin flap LASIK, going above the SMILE flap, or you can choose to go below the previous SMILE site with a thicker LASIK flap. Alternatively, you can perform PRK. You really have a few options, and the ultimate choice will most likely be influenced by why the patient chose SMILE originally.

Rex Hamilton, MD, MS, FACS: I have enhanced one eye that had residual astigmatism. I used PRK. This is less than 1% of eyes, compared to a 2 to 3% enhancement rate for LASIK.

Y. Ralph Chu, MD: I have not had to enhance any SMILE patients either.

Jon G. Dishler, MD, FACS: I have had to perform two enhancements following SMILE, and on both occasions, I enhanced with PRK. I have done a number of post-LASIK PRK.

Centration and Tracking With the VisuMax

John F. Doane, MD: Another unique aspect of SMILE is that tracking is not necessary. However, similar to cataract surgery, there are a few steps that may be helpful to achieve the best outcomes for your patients. To aid possible cyclotorsion, I use an image generated by the Humphrey Atlas Topographer (ZEISS). We know that when the pupil constricts, the center of the pupil tends to move superior nasal. The cornea, or line of sight, doesn't change with the amount of light, but the center of the pupil does. That is why it is necessary to use the corneal vertex and to try and have the same amount of light in the OR as when the Humphrey image was acquired.

Steven C. Schallhorn, MD: The SMILE procedure has a low suction that immobilizes the eye, whereas the excimer laser procedures need tracking and cyclotorsional registration. I think centration is a critical element to achieving good results.

Jay Bansal, MD: The issue with centration is, are you centering based on fixation or are you centering based on the pupil?

Rex Hamilton, MD, MS, FACS: We have the Galilei System (Ziemer), which provides a picture of the pupil and iris with a crosshair through the visual axis. I print that and reference it during surgery to make sure I'm centering on the visual axis of the patient. When I ask the patient to fixate, I find this reference correlates very closely.

William F. Wiley, MD: I use the AcuTarget Optical Quality Analysis System similarly to how Dr. Hamilton uses the Galilei System (Ziemer). In addition, we have a Mastel Ring Light that is connected to the operating scope on the VisuMax and projects a Purkinje image when the patient is on the table. I correlate the Purkinje image to the information gathered from the AcuTarget to see if the patient has angle kappa or not. Then, when I dock under the microscope and look for the green light, I make sure everything is in agreement, adjusting as necessary.

Jon G. Dishler, MD, FACS: It is important that the patient is looking at the green light under the laser. Sometimes they think they are fixated, but it is obvious they are not. I tell them to look away for a second, and then look back at the light. Another thing we have found to be very helpful is turning our ring light down as low as possible while still being able to see. When the light is too bright, the patients want to squint.

Y. Ralph Chu, MD: This is all true. However, listening to this kind of expert advice made me nervous when I was first starting SMILE, but experience has shown that the SMILE procedure is also incredibly forgiving. If we were doing a 3-mm lenticule, you would be in big trouble if you were off by 100 µm. We are doing a 6.5-mm lenticule, so it is very forgiving. I think the critical part for surgeons is centration during docking.

Transitioning Your Practice to SMILE

John F. Doane, MD: Thank you for all of your excellent technical advice. Now let's switch gears to a business mindset. How do you transition your practice from an excimer laser to femtosecond SMILE? In my practice, I present SMILE as the latest version of LASIK, a procedure that continues to evolve and improve. SMILE has several advantages over its predecessor, such as less discomfort, less dryness, and no need to protect a flap because there is no flap. I explain that in many other developed countries, SMILE is much more common than LASIK, but here we have just been waiting on the FDA. Finally, I tell them that in the FDA clinical trials, every patient received SMILE in one eye and LASIK in the other, and the majority of patients said they preferred the SMILE eye. How do you have this discussion with patients?

Y. Ralph Chu, MD: The first thing you are changing is your education program. Staff, technicians, and referring optometrists all have to be educated prior to educating patients. When a patient walks into your refractive practice, they have to feel comfortable with all of the options that you are talking about. We started with all-staff meetings, introducing them to SMILE before we even started offering the procedure. I had my staff, nurses, technicians, and anyone who will work with a patient participate in a wet lab so they could feel and see the tissue and really understand what we are doing. When we started performing the procedure, I had the staff rotate through attending and watching the procedure. Then we started reaching out to our referral network with a series of dinners and one-on-one discussions. One of the most important things I did was educate myself. I went out of the country to a surgeon with a lot of SMILE experience and trained with him. It's a different laser, a different cockpit, so it's a big transition. Watching a colleague

The SMILE procedure has a low suction that immobilizes the eye, whereas the excimer laser procedures need tracking and cyclotorsional registration. I think centration is a critical element to achieving good results. —Steve C. Schallhorn, MD

perform the procedure, watching him manage the postoperative period, and then performing the procedure with him was a great experience. I also had my staff visit Dr. Doane's practice to observe their patients and ask questions. The result of all this is that when we started SMILE, the transition was smooth.

Steven C. Schallhorn, MD: Like Dr. Chu, I feel that educating staff is critical. The staff members need to believe in what they are saying, and performing SMILE on your staff can help. Human beings are very adept at picking up subtle emotional signs and developing trust. A staff that truly believes in SMILE is a great addition.

Jay Bansal, MD: There are also financial decisions to make in regards to integrating the SMILE procedure into your business. In our practice, we decided to price SMILE higher than our other refractive procedures, so patients have to make a financial decision in addition to a treatment decision.

Jon G. Dishler, MD, FACS: We started out with a higher price for SMILE but have since decided to lower it to be priced the same as PRK or LASIK. I wanted my patients to make their decision based on which procedure was best for them and not be influenced by what they can afford.

Rex Hamilton, MD, MS, FACS: We are the only practice in our area to offer PRK, LASIK, and SMILE, providing our patients the opportunity to truly choose what is best for them. Thus, we felt we had the competitive advantage to raise our prices across the board but keep them all priced the same.

Y. Ralph Chu, MD: I offer SMILE, PRK, and LASIK all for the same price as I want my patients to feel like I am genuinely trying to take care of them, rather than upgrade to something new.

Rex Hamilton, MD, MS, FACS: As far as educating patients about SMILE, ZEISS provides a flip book that shows PRK, LASIK, and SMILE that is beautiful in terms of patient education. It demonstrates the evolution of refractive procedures and the differences in terms of recovery. I walk through it with my patients and that is how I educate them. I refer to the lenticule as a "contact lens-shaped piece of material that is customized to your vision." I also performed the SMILE procedure on my patient counselor, which is invaluable in terms of allowing them to truly talk to patients about what their experience will be like.

Jay Bansal, MD: Our discussion is a bit different because we have a different price point for SMILE compared to PRK and LASIK. If we determine that a patient is a good candidate for either SMILE or LASIK, then we explain to them the advantages of SMILE, why we made the investment in the technology, and why we believe it is their best option. We continue to use the word LASIK, explaining that SMILE is the latest advance in LASIK surgery. It is a more expensive treatment, but it is the treatment we would choose for ourselves. We have many patients that say they know someone who had amazing results from LASIK and don't feel the need to have SMILE. Our conversion rate is currently about 50%, but we focus on SMILE on our website and other media, and every month our conversion rate is increasing.

William F. Wiley, MD: We have chosen to downplay the difference between LASIK and SMILE. I tell patients that I am going to perform laser eye surgery on them. I can do a pocket surgery or a flap surgery, and I prefer to do the pocket surgery, if I can. But if they are not a candidate for the pocket laser eye surgery, I will perform flap surgery, and that is fine too. Patients are relying on us to choose the best procedure for them and they may not necessarily be in the best position to understand the nuances of one procedure versus another. With that in mind, if patients are open to relying on the physician to choose the most appropriate procedure, we have them sign a general consent form that covers PRK, LASIK, and SMILE, stating that the patient consents to having the surgeon choose the procedure that is best at the time of surgery. However, many patients are more comfortable with a procedure that they are familiar with—focusing on the fact that their brother, cousin, etc., had LASIK—and thus choose to have that same procedure.

Jay Bansal, MD: My consent form states specifically that, in the SMILE procedure, at any time, the surgeon will have the option to choose the procedure that is most appropriate. I have patients sign that specifically.

Rex Hamilton, MD, MS, FACS: A significant benefit of SMILE is how easy the procedure is for patients. The curved interface and lower suction of the VisuMax don't make the eye red or induce subconjunctival hemorrhaging. There is no sound, smell, or pain associated with the procedure. For patients, fear is a big issue with eye surgery, and as surgeons, we tend to overlook that because we know it is safe. But patients stand up after SMILE and their eyes are white, their vision hasn't gone down during the procedure, and they can't believe the procedure is done. It is an incredibly positive experience for the patient.

Bruce Rivers, MD: A lot of my technicians had PRK, and they frequently tell patients how lucky they are to have the option of SMILE. Many times patients will sit up after SMILE and say, "What do we have to do next?" I tell them, "You're all done!" They can't believe it.

The Future of SMILE

John F. Doane, MD: I have been closely following the SMILE procedure since it was first presented by Dr. Sekundo in 2007, and I see many advantages over LASIK that make me very excited for refractive surgery in general and my patients specifically. The out-of-the-box algorithm for SMILE, without any nomograms or enhancements, achieved outcomes comparable to those achieved with excimer laser technology after 23 years of optimization. I sense that the rest of you are as animated as I am about SMILE.

Rex Hamilton, MD, MS, FACS: With the new laser settings and the expanded parameters that are now similar to OUS parameters, I am in a place where I don't see a need for LASIK unless a patient is outside of the treatment ranges. That is how comfortable I am now with the SMILE procedure.

Bruce Rivers, MD: This is my opinion and not the military's, but I think SMILE offers soldiers the ability to get back to action faster, and that is a huge benefit.

Jay Bansal, MD: I think SMILE is the perfect evolution of laser vision correction. It is really combining the best of LASIK and PRK. This is just the first iteration of the technology, and look how good it is. I truly believe this will become the dominant refractive procedure in the United States.

Y. Ralph Chu, MD: The time is now for SMILE. A lot of the fears and myths have been debunked. Patients are having very quick visual recovery. Right out of the box, with no nomogram and no astigmatism marking, the laser is performing as well as the topography-guided lasers. SMILE is going to be part of the future for us and our patients.

William F. Wiley, MD: Laser eye surgery was already great, but SMILE has helped eliminate some of the outlier concerns. Enhancements have virtually been eliminated given the rate is so low. We are not seeing problems with dry eye, and we potentially have a stronger cornea and other biomechanical advantages. SMILE is taking an already great procedure and making it better. ■

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