The Knowledge Center is a new, periodic special section in Contact Lens Spectrum created to inform and educate you about contact lens products, and how they improve patient care and practice efficiencies. The focus of this first installment is on new products and technology presented at the 2017 Global Specialty Lens Symposium, held in January in Las Vegas. Please visit clspectrum.com to download this Knowledge Center onto your computer.
AN INSIDE LOOK AT PROMANENT GSLS THEMES

The 2017 Global Specialty Lens Symposium (GSLS) featured dozens of educational programs aimed at elevating specialty contact lens fittings and standards of care. Several lectures were sponsored by Bausch + Lomb Specialty Vision Products. One session, led by Jason Jedlicka, OD, FAAO, FSLS, tackled the question of when to use scleral lenses on regular corneas, while a second panel of renowned experts — including Lynette Johns, OD, FAAO, FSLS, FBCIA, Melissa Barnett, OD, FAAO, FSLS, Michael Lipson, OD, FAAO, and Michael Ward, MMSc — fielded numerous audience questions about lens selection for patients who have irregular corneas.

Scleral Lenses for Regular Corneas
Scleral lenses have a history of being reserved for extremely irregular corneas, says Dr. Jedlicka. However, over time, doctors began fitting scleral designs on less irregular corneas as well. Today, fitting has evolved and many doctors embrace scleral lenses for regular corneas with the primary goal of correcting refractive error in patients who have myopia, hyperopia, or astigmatism.

As Dr. Jedlicka pointed out in his GSLS lecture, many patients fall into this category. For example, astigmatic patients who would benefit from GP lenses, but who can’t tolerate corneal GP lenses are candidates for Zen™ RC, a smaller diameter scleral lens for regular corneas. Other groups who might benefit from Zen™ RC include patients with residual astigmatism and those who are not comfortable wearing corneal GP lenses. Scleral designs can also be offered to the part-time wearer, since the wearer doesn’t have to adjust to the lid interaction as they would with a corneal GP lens.

The Zen™ RC fitting set includes 20 diagnostic lenses with two different diameters (14.8 mm and 15.4 mm) and a mildly prolate profile to match the majority of regular corneas.

Like Zenlens™, the Zen™ RC scleral features SmartCurve™ technology, which allows the practitioner to make parameter changes without having to make compensatory adjustments to achieve them. For example, if the sagittal depth required an increase, the limbal clearance will be unaffected without the need to completely reconfigure the lens parameters.

Zen™ RC also offers MicroVault™. This is very helpful if a pinguecula or other conjunctival elevation interferes with a good fit. With the MicroVault™ feature, there is no need to notch the lens. Instead, as with Zenlens™, an isolated lens elevation vaults over the obstacle. Also like Zenlens™, Zen™ RC features landing markings to aid fitting.

Although the two designs are very similar, Zen™ RC differs from Zenlens™ in a few notable ways. First, Zen™ RC features a reduced center thickness of only 250 µm. Sometimes a thinner design may result in more flexure, particularly when fitting astigmats. Practitioners have the option of making the entire

SCLERALFIL™ PRESERVATIVE-FREE SALINE SOLUTION FOR SCLERAL LENS INSERTION

Attendees at the GSLS meeting witnessed the official Bausch + Lomb Specialty Vision Products launch of ScleralFil™ —indicated as a scleral insertion solution.

ScleralFil™ is a sterile, preservative-free saline solution that can be used to rinse soft and gas permeable lenses. It is buffered to maintain pH and comes in travel-friendly, single-use 10-mL vials that stand upright. Each carton contains a 30-day supply.
lens profile thicker so that it is more flexure resistant. Zen™ RC also has a slightly different profile. It features narrower landing zones with slightly reduced limbal clearance for centration. Centration is essential when optimizing optical outcomes.

Dr. Jedlicka reports that fitting the Zen™ RC is very straightforward. First, the diagnostic lens diameter is selected by measuring the horizontal visible iris diameter. Next, the base curve is chosen with the average keratometry reading. Then, the diagnostic lens is placed on the eye and evaluated. The clearance is determined and adjustments are made as needed. Each lens in the diagnostic set is 100 µm different, which is very precise for regular corneas as compared with the 300-µm steps in the standard Zenlens™ required for various irregular corneas. When evaluating the advanced peripheral system (APS) landing on the conjunctiva, the APS can be flattened or steepened in 30 µm steps. Toric peripheries are also available.

**Lens Options for the Irregular Cornea**

Soft lenses have an important place in the keratoconus lens armamentarium. Custom soft lenses can offer patient comfort as compared with corneal GP lenses. With custom parameters, including cylinder correction to -10.00D, the NovaKone™ specialty soft lens can be used to fit keratoconus patients who are corneal GP intolerant as well as those patients who have failed with hybrids or scleral lenses.

Scleral lenses are an additional important part of the specialty contact lens practice. Scleral lenses offer no corneal contact, rigid lens optics, and lens centration. Many doctors still shy away from scleral lenses because they think fitting is too complicated, but SmartCurve™ technology simplifies the fitting of Zenlens™ because it allows you to focus only on the parameter that requires modification. Plus, the support staff and consultants at Bausch + Lomb Specialty Vision Products offer advice and assistance along the way.

Zenlens™ offers prolate and oblate shapes. The prolate design has a steeper central base curve and a flatter periphery. The base curve is flatter than the periphery in the oblate design. Topography or corneal profile aids in shape selection.

The Zenlens™ also offers Microvault™, so isolated elevation to the lens can be designed as needed without the need to notch the lens. Zenlens™ allows the ability to customize just about any parameter. Changes to the sagittal depth or limbal clearance do not require additional compensations with the SmartCurve™ technology. The changes are isolated from one another. The APS scleral landing curves are available in 30-µm steps and toric APS landing zones are also available. CLS
With the reintroduction of scleral lenses, many benefits have been realized, but questions of oxygen delivery to the cornea have also been raised. The benefits to irregular corneas have been demonstrated with improved visual acuity and the treatment of ocular surface disease. The excellent comfort of scleral lenses, along with the ability to deliver crisp vision in a stable design, has led manufacturers and practitioners to expand this technology to the refractive correction of normal corneas.

The long-term outcome of the use of scleral lenses on the normal cornea is unknown, but at Blanchard Contact Lenses, we have always known that “It’s All About Oxygen.” With this in mind, Blanchard developed the Onefit™ Scleral Lens, utilizing a minimalist design and fitting philosophy — minimal lens mass and tear lens thickness to deliver optimal oxygenation to the cornea.

At the 2017 Global Specialty Lens Symposium meeting in Las Vegas, Langis Michaud, OD, MSc, FAAO (dipl), FSLS, FBCLA, presented theoretical data from many studies that modeled the predicted outcome of the oxygen transmissibility of scleral lenses. An in vivo study by Claude, Morency, Melillo, and Michaud confirmed the suggestion by theoretical models that we should limit the thickness of the lens, as well as the thickness of the tear film, to allow normal corneal physiological responses and to avoid hypoxia.

While it is important to strive to meet the Holden and Mertz (Dk/t of 24), Harvitt and Bonanno (Dk/t of 35) criteria when fitting normal corneas, John Gelles, OD, FIAO, FCLSA, presented clinical data in the form of a case report from his pilot study, evidencing the relief of corneal edema using the minimalist fitting approach of Onefit™ lenses on corneal transplant patients. The risk-benefit ratio must be carefully considered when fitting these highly compromised corneas with scleral lenses to avoid irreversible complications, such as corneal vascularization or endothelial pleomorphism or polymegathism.

The clinical study collected global data to determine the corneal thickness in post-graft patients. The patients in the study had previously been fit with a scleral lens system with the following average of parameters: center thickness (CT) of 0.45; vault of 300μm; material Dk of 100. Using the following formula, the Dk/t of the scleral system was determined: Dk/t = 1/[Thickness of Lens/Dk of Lens Material + (Thickness of Post Lens Tear Layer/Dk of Tears)]. In the case presented, the corneal graft patient was wearing a scleral lens system that provided a Dk/t of 14.3 at the apical clearance, the area with the highest Dk/t in the system (CT 0.45; Apical Clearance 200μm; Boston XO). Differential maps showed a significant global increase in corneal thickness from 2012 to 2016 with this scleral lens system, suggesting corneal edema. The patient was refit with Blanchard’s Onefit™ lenses using Menicon Z with a CT of 0.20 and an apical vault of 50μm. Using the above formula, the Dk/t with the Onefit™ was 53.3 at the apical clearance, the area with the highest Dk/t in the system. After only 3 months, the patient experienced a significant reduction in corneal thickness, signifying a reduction in corneal swelling.

Conclusions of this study indicate that an increased Dk/t with a minimalist fitting philosophy reduces hypoxic stress and corneal edema. The minimalist approach includes a decreased CT, reduced vault, and hyper Dk materials to promote improved tear exchange. This provides benefits to the highly compromised cornea, but the extrapolation is that all corneas will benefit. Less stress to the cornea equals better corneal health. The Onefit™ Scleral Lens Platform by Blanchard — with its minimalist design and fitting philosophy — provides ideal oxygen transmission for long-term corneal health, along with consistently crisp vision and hydrating comfort.