Heart *of* America
Eye Care Congress

COURSE 1: MODERN CONTACT LENS PRACTICE: FROM SOFT LENSES TO SPECIALTY FITS

Instructor: Elise G. Kramer, OD, FAAO, FSLS, FBCLA
Conference: Heart of America Eye Care Congress 2027
Date: Friday, February 19, 2027
Time: 1:00–2:40 PM
Instructional Duration: 100 minutes
Proposed COPE Category: Contact Lenses (CL)
Course Format: Live, in-person lecture with clinical case discussions
Target Audience: Primary care optometrists, contact lens practitioners, and optometrists seeking to expand their contact lens services

Course Description

Contact lens technology has evolved far beyond conventional soft lenses, offering new opportunities to improve vision, comfort, and ocular health across a wide range of patients. This course provides a practical overview of modern contact lens modalities, including daily disposable and multifocal soft lenses, toric designs, rigid gas permeable lenses, hybrid lenses, and scleral lenses. Through clinical cases, attendees will learn how to identify appropriate candidates, recognize when conventional lens options may be insufficient, troubleshoot common fitting challenges, and determine when specialty lens intervention or referral is indicated. Emphasis will be placed on incorporating contemporary contact lens options into everyday optometric practice to improve patient outcomes and expand clinical capabilities.

Learning Objectives

At the conclusion of this course, participants will be able to:

1. Differentiate the indications, advantages, limitations, and clinical applications of modern soft, RGP, hybrid, and scleral contact lens modalities.
2. Identify appropriate contact lens candidates based on refractive error, ocular anatomy, ocular surface health, visual demands, and lifestyle considerations.
3. Evaluate common fitting challenges and apply practical troubleshooting strategies to improve lens performance, comfort, and visual outcomes.
4. Recognize clinical scenarios in which specialty contact lenses may provide advantages over conventional soft lens correction.

5. Develop an evidence-informed approach to incorporating advanced contact lens technologies into primary optometric practice, including appropriate referral and co-management strategies.

Detailed Course Outline — 100 Minutes

I. Introduction: The Evolution of Modern Contact Lens Practice (10 minutes)

A. Changing landscape of contact lens care

- Evolution from conventional hydrogel lenses to silicone hydrogel, daily disposable, and specialty lens technologies.
- Expanding indications beyond routine refractive correction.
- Increasing expectations for comfort, convenience, and visual performance.
- Role of contact lenses in managing irregular corneas and ocular surface disorders.

B. Clinical decision-making

- Importance of individualized lens selection.
- Matching lens modality to patient needs rather than prescribing by refractive error alone.
- Recognizing when conventional contact lens options are insufficient.
- Opportunities to improve outcomes through advanced contact lens fitting.

II. Contemporary Soft Contact Lens Technologies (20 minutes)

A. Daily disposable and reusable soft lenses

- Hydrogel versus silicone hydrogel materials.
- Oxygen transmissibility, water content, modulus, and surface wettability.
- Daily disposable versus planned-replacement modalities.
- Lens replacement schedules and patient adherence.
- Ocular surface considerations in lens selection.

B. Toric soft contact lenses

- Stabilization mechanisms and rotational behavior.
- Assessing lens rotation and stability.
- Managing residual astigmatism.
- Troubleshooting fluctuating visual acuity.
- Identifying when a custom soft or RGP design may be preferable.

C. Multifocal soft contact lenses

- Simultaneous vision optical principles.

- Center-near and center-distance designs.
- Pupil size and visual performance.
- Managing reduced contrast sensitivity, halos, and near-vision complaints.
- Patient selection and expectation management.

D. Common causes of soft lens dissatisfaction

- Contact lens discomfort and dryness.
- Lens dehydration and poor surface wettability.
- Mechanical interaction with the ocular surface.
- Inadequate visual performance.
- When to change material, replacement schedule, or lens modality.

III. Rigid Gas Permeable and Hybrid Contact Lenses (15 minutes)

A. RGP contact lenses

- Optical advantages of a rigid anterior surface.
- Indications for corneal RGP fitting.
- Regular versus irregular astigmatism.
- Keratoconus and post-surgical corneal irregularity.
- Basic fitting considerations: alignment, movement, centration, and fluorescein patterns.
- Common challenges: discomfort, lens decentration, corneal staining, and adaptation.

B. Hybrid contact lenses

- Design principles combining a rigid optical center with a soft peripheral skirt.
- Indications for hybrid lens fitting.
- Advantages and limitations compared with corneal RGP and scleral lenses.
- Assessment of central clearance, skirt alignment, and lens movement.
- Common complications: lens adherence, junctional staining, and removal difficulty.

C. Modality selection

- When to choose an RGP versus a hybrid design.
- Identifying patients who may benefit from transitioning to scleral lenses.

IV. Introduction to Scleral Contact Lenses (20 minutes)

A. Principles of scleral lens design

- Corneal vaulting and scleral landing.
- Fluid reservoir and optical rehabilitation.
- Differences between corneal RGP and scleral lens fitting.

B. Clinical indications

- Keratoconus and corneal ectasia.
- Post-penetrating keratoplasty and post-refractive surgery irregularity.
- Severe ocular surface disease.
- Exposure keratopathy and selected therapeutic applications.
- High or irregular refractive errors.

C. Basic fitting assessment

- Central corneal clearance.
- Limbal clearance.
- Scleral landing zone alignment.
- Lens centration and stability.
- Lens settling and changes in clearance over time.

D. Common challenges

- Midday fogging.
- Conjunctival compression and blanching.
- Edge lift and discomfort.
- Handling and application difficulties.
- Recognizing when advanced customization may be necessary.

E. Role in primary care

- Identifying candidates for scleral lenses.
- Determining when referral to a specialty contact lens practitioner is appropriate.

V. Advanced and Customized Contact Lens Technologies (10 minutes)

A. Custom soft contact lenses

- Applications for high refractive errors and irregular corneas.
- Expanded diameter and parameter availability.
- Specialty soft lens options for patients unable to tolerate rigid modalities.

B. Advanced scleral lens customization

- Toric and quadrant-specific haptics.
- Freeform and impression-based designs.
- Managing scleral asymmetry and complex ocular anatomy.
- Considerations in eyes with prior ocular surgery.

C. Therapeutic applications

- Ocular surface protection.
- Management of severe dry eye and exposure-related conditions.
- Prosthetic and therapeutic tinted contact lenses.
- Multidisciplinary care and referral considerations.

VI. Practical Clinical Decision-Making and Troubleshooting (15 minutes)

A. Systematic approach to lens selection

- Evaluate refractive needs and visual expectations.
- Assess corneal shape and ocular surface health.
- Consider patient dexterity, lifestyle, and adherence.
- Select an appropriate initial lens modality.
- Reassess performance and modify treatment when necessary.

B. Clinical case discussions

- Case 1: Soft toric lens wearer with persistent fluctuating vision.
- Case 2: Presbyopic patient dissatisfied with multifocal soft lenses.
- Case 3: Early keratoconus requiring improved visual rehabilitation.
- Case 4: Post-refractive surgery patient with irregular astigmatism.
- Case 5: Dry eye patient unable to tolerate conventional soft lenses.

C. Troubleshooting strategies

- Differentiating optical versus mechanical problems.
- Recognizing ocular surface contributions to contact lens intolerance.
- Deciding when to refit, change modality, or refer.

VII. Integrating Advanced Contact Lenses Into Everyday Practice (5 minutes)

A. Clinical implementation

- Identifying specialty lens candidates during routine examinations.
- Establishing appropriate diagnostic and fitting workflows.
- Patient education and informed expectations.
- Importance of follow-up and ongoing ocular health monitoring.

B. Referral and co-management

- Recognizing limitations of conventional lens fitting.
- Establishing relationships with specialty contact lens practitioners.

- Coordinating care for complex corneal and ocular surface conditions.

VIII. Summary and Clinical Pearls (5 minutes)

- No single contact lens modality is appropriate for every patient.
- Lens selection should incorporate ocular health, visual demands, and lifestyle.
- Modern specialty lens technologies can address limitations of conventional correction.
- Early recognition of complex cases facilitates timely intervention.
- Case-based review and audience questions.

Instructional Methods

- Didactic lecture with clinical photography and diagrams.
- Slit-lamp images and corneal topography examples.
- Comparative illustrations of contact lens designs.
- Clinical case presentations and diagnostic decision-making.
- Interactive audience questions and discussion.

Educational Materials

- Contact lens fitting photographs and fluorescein patterns.
- Corneal topography and tomography examples.
- Illustrations of soft, RGP, hybrid, and scleral lens designs.
- Case-based clinical decision pathways.
- Summary tables comparing lens modalities.

Disclosure Statement

The course will be presented in accordance with applicable COPE requirements. Commercial relationships and potential conflicts of interest will be disclosed as required. Educational content will be evidence-informed and designed to support independent clinical decision-making without commercial promotion.