Contact Lens Updates for the Primary Care Practitioner: Fitting the Regular and Irregular Cornea

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Question:
- How many of us saw a patient for their annual contact lens exam and let them leave with the exact same lenses?

Habits

Keystone Habit:
- The one thing you can change that would drastically improve your contact lens practice

Who makes more money for your practice, the spectacle wearer or the contact lens patient?

The Contact Lens Patient:
- Returns to clinic on average every 14 months (vs. 28 for spec wearer)
- MBA studies
  - Average exam: $134
  - Average CL exam: $185
  - 10 year revenue: CL wearers net 2.2x
Questions to ask your patient:

- Do you love your contact lenses?
- If you could change one thing about your contacts, what would it be?
- Have you thought about contact lenses?
- If you had an infection and couldn’t wear your lenses for a week, how would you function visually?

Spherical lens options (Monthly)

Habits need to be set intentionally:

- Make CLs essential part of your practice
- Speak to every patient about contact lenses
- No more “boxes”
- Introducing new lens technology

Oxygen Transmissability

<table>
<thead>
<tr>
<th>Brand</th>
<th>Manufacturer</th>
<th>Dk</th>
<th>Replacement</th>
<th>Overnight Approval</th>
</tr>
</thead>
<tbody>
<tr>
<td>Air Optix Night &amp; Day</td>
<td>Alcon</td>
<td>140</td>
<td>Monthly</td>
<td>30 day CW</td>
</tr>
<tr>
<td>PureVision &amp; Purevision</td>
<td>Bausch+Lomb</td>
<td>91</td>
<td>Monthly</td>
<td>30 day CW</td>
</tr>
<tr>
<td>Biofinity</td>
<td>CooperVision</td>
<td>128</td>
<td>Monthly</td>
<td>6 night/7 day EW</td>
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<tr>
<td>Acuvue Oasys</td>
<td>J&amp;J Visioncare</td>
<td>103</td>
<td>2-Week</td>
<td>6 night/7 day EW</td>
</tr>
</tbody>
</table>

Table 2. Currently Available Silicone Hydrogel Brands with Extended Wear or Continuous Wear FDA Approval

Modulus

- [Image of oxygen transmissability chart]
- [Image of eye with modulus graph]
Coefficient of Friction

Spherical Aberration

Toric lens options (Monthly)

Deposits

Wettability

Alcon

Bausch & Lomb

Coopervision

J&J Visioncare
Multifocal lens options (Monthly)

Spherical lens options (Daily)
### Spherical lens options (Daily)

<table>
<thead>
<tr>
<th>Daily Disposable Contact Lens</th>
<th>Material</th>
</tr>
</thead>
<tbody>
<tr>
<td>Dailies Aqua (Alcon)</td>
<td>Hydrogel</td>
</tr>
<tr>
<td>Dailies AquaComfort Plus (Alcon)</td>
<td>Hydrogel</td>
</tr>
<tr>
<td>Acuvue 1-Day Moist (JJVC)</td>
<td>Hydrogel</td>
</tr>
<tr>
<td>Acuvue 1-Day (JJVC)</td>
<td>Hydrogel</td>
</tr>
<tr>
<td>SofLens Daily Disposable (Bausch &amp; Lomb)</td>
<td>Hydrogel</td>
</tr>
<tr>
<td>Proclear 1-Day (Coopervision)</td>
<td>Hydrogel</td>
</tr>
<tr>
<td>Clariti 1-Day (Coopervision)</td>
<td>Silicone Hydrogel</td>
</tr>
<tr>
<td>MyDay Daily Disposable (Coopervision)</td>
<td>Silicone Hydrogel</td>
</tr>
<tr>
<td>Acuvue 1-Day TruEye (JJVC)</td>
<td>Silicone Hydrogel</td>
</tr>
<tr>
<td>1-Day Acuvue Oasys (JJVC)</td>
<td>Silicone Hydrogel</td>
</tr>
<tr>
<td>BioTrue 1-Day (Bausch &amp; Lomb)</td>
<td>Hydrogel/Hypergel</td>
</tr>
<tr>
<td>Dailies Total 1 (Alcon)</td>
<td>SiHy/Water Gradient</td>
</tr>
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</table>

### Price Point (Daily)

<table>
<thead>
<tr>
<th></th>
<th>Economical</th>
<th>Mid-Range</th>
<th>Premium</th>
</tr>
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<tr>
<td>Dailies Aqua/Comfort Plus</td>
<td>BioTrue 1-Day</td>
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</tbody>
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### Toric lens options (Daily)

- Alcon
- Bausch & Lomb
- Coopervision
- J&J Visioncare

**Toric lens options (Daily)**

- Alcon
- Bausch & Lomb
- Coopervision
- J&J Visioncare
Multifocal lens options (Daily)

Colored Lenses/Enhancers

Let's go through some cases
Case #1: The dry eye CL wearer
- Up to 80% of wearers report dry eye
- #1 reason for dropouts (12-51%)
- 12x more likely to report dry eye
- Worse with modern lifestyle
  - Blink 66% less when staring at screens

What causes CL-related dry eye?
- Deposition
- Poor wettability
- Water content
- Dehydration

What can we do about CL-related dry eye?
- International Workshop on Contact Lens Discomfort
  1. Change replacement interval
  2. Change materials
  3. Change/eliminate care system

Battle of the Peroxide-Based Systems
- **ClearCare Plus** (Alcon)
  - Disinfects in 6 hours
  - With hydraglyde technology
  - Case design goes beyond vents and orientation
  - Platinum in disc specially designed for neutralization profile
  - Peroxide as a go-to lens care system?
  - Whatever solution you prefer, prescribe it!
What can we do about CL-related dry eye?

Longterm Therapies

- International Workshop on Contact Lens Discomfort CONT’D
- 1. Tear supplementation
- 2. Dietary supplementation
- 3. Topical medication
- 4. Improve environment

Case #2: The multifocal contact lens wearer

- Largest growing, least developed market segment
- 85% of multifocal wearers recommended by ECP
- Preferred vs. monovision in head to head trials
- Optimize for distance or for near?

Ideal multifocal patient:

- The emerging presbyope
- Moderate distance prescription
- Realistic expectations

Tips for first-fit success:

- Tell your patients about them
- Take good measurements
- Identify ocular dominance
- Give it time
- Ask questions about visual demands

(More) tips for first-fit success:

- Flippers instead of phoropters
- Never test monocular acuities
- Follow fitting guide!!!
- If all else fails, remember your other options

Other options for multifocal patients:

- GP multifocals
- Multifocal torics
- Specialty soft lenses
- Hybrid lenses
- Scleral lenses
Case #3: The high(er) astigmat

- Three options
  1. Cut cyl to traditional lens designs
     - Up to 2.75 (monthly)/2.25 (daily)
  2. Go to an extended range option of traditional designs
  3. Move to a custom lens design (toric GP, soft, scleral or hybrid)

2. Extended Range Lenses

- Biofinity XR (+15.00 → -20.00)
  - Biofinity XR toric coming soon
- Proclear toric XR
  - +6.25 → -10.00 sphere (0.50 D)
  - -2.25 → -5.75 cylinder (5 degrees)
  - Multifocal option
  - Two BCs (8.4/8.8)

3. Custom Lenses

- Toric GP*
- Specialty soft lens
- Hybrid lens*
- Scleral lens*

*Beware of lenticular astigmatism
**Specialty lens designs**

- Not just for specialty corneas (though they’re good for that too)
- Dry eye, multifocal patients, high astigmats are also excellent potential patients

**Specialty Soft Lenses**

- For regular corneas
  - Extended range
    - High sphere
    - High cyl
- For irregular corneas
  - Including KCN/post-surgical

**Custom Soft Contact Lenses for the REGULAR Cornea**

- SpecialEyes
- Flexlens
- Intelliwave
- Concise
- Etc...

**Custom Soft Contact Lenses for the REGULAR Cornea**

- Specify as many or as few parameters as desired*
  - *At least BC/DIA/Rx
- Fitting guides/nomograms for EMPIRICAL ordering
- NO ADDITIONAL CHAIR TIME

**Specialty Soft Lenses**

- Higher sphere and cylinder powers
  - Axis specificity down to 1 degree
- Can manipulate
  - Base curve
  - Diameter
  - Optic zone
  - Prism power
  - Add power
  - Center thickness
- Precise fit and customized optics
- Higher Dk materials and better manufacturing techniques
Custom Soft Contact Lenses for the REGULAR Cornea

- Ultimately just soft lenses!
  - Same evaluation
  - Same chair time
  - More options!
- For the patient who no longer is doing well in traditional lens designs

For the IRREGULAR cornea on the other hand...

Specialty Soft Lenses for the Irregular Cornea

- Great alternative for irregular corneas
  - Good vision
  - Improved comfort
  - Intolerant to corneal GPs
- Still just a soft lens, but THICKER
- Diagnostic fitting

KeraSoft IC (Bausch & Lomb)

- For irregular corneas
  - KCN, PMD, post-refractive sx and others
- Silicone hydrogel (quarterly)
- Front aspheric surface
- Adjustable periphery, sector management control

KeraSoft IC Fitting – Lens Selection

- Select initial BC
- Based on shape and severity
- Central nipple cones/globus cones respond well
KeraSoft IC Evaluation – MoRoCCo VA

- Evaluate the lens within 5 minutes
- Auto-refract, refine, finalize after 15-20 minutes

KeraSoft IC Troubleshooting – There’s an app for that

- Green means GO
- Yellow/Red will provide tips

KeraSoft IC Troubleshooting – There’s an app for that

- Current lens (8.6) has too much rotation
- Refit patient in flatter lens (8.8)

Custom and Specialty Soft Lens Removal
KeraSoft IC
- Easy diagnostic fitting
  - Without NaFl!
- MoRoCCo VA
  - Evaluating soft lens characteristics
- Lots of customer support (on the app and over the phone) for troubleshooting

NovaKone (Alden Optical)
- For all stages of KCN and PMD
- 3 curves
  - Central BC
  - Paracentral fitting curve
  - Peripheral curve
- 5 “IT Factors”
- Straightforward diagnostic fitting

NovaKone Fitting – Step 1
1: Central BC determination

NovaKone Fitting – Step 2
2: Determine IT factor
- Higher IT = thicker lens
  - Mild KCN: 0-1
  - Moderate KCN: 1-2
  - Severe KCN: 3-4

NovaKone Fitting – Step 3
- Determine fitting curve
  - 8.2mm, 8.4mm, 8.6mm
  - Usually start in the middle then make changes
NovaKone Fitting – Step 4

- Evaluate with slit lamp
  - Central: thin tear film with light tough (use HMW NaFl!)
  - Fitting curve: should look like a well-fit soft lens
  - 0.5-1.0mm of movement

NovaKone Fitting – Step 5

- Calculate lens power
  - Autorefract then refine
  - Compensate for rotation

NovaKone

- Good for patients intolerant to other modalities
- Masks irregularities with IT factor
- Easy to fit and evaluate (NaFl!)

RevitaEyes (Metro Optics)
RevitalEyes (Metro Optics)

- Custom soft lens for the irregular PROLATE cornea
  - Post-PKP, post-lasik
- Reverse geometry
- Diagnostic fitting
  - Discard diagnostic lenses after use

RevitalEyes Fitting

- Step 1: Apply initial lens (8.4 for post-refractive, 8.1 for PKP)
  - Moves too much → go steeper
  - Moves too little → go flatter
- Step 2: Over-refract (spherocylindrical)
- Step 3: Order

RevitalEyes

- Maybe the easiest diagnostic fitting process yet
- Available in Definitive (high dk SiHy material) for post-surgical patients
- Affordable fitting set – easy to incorporate into your practice

Tips and Tricks for Custom Soft Lenses for the IRREGULAR Cornea

- Diagnostic fitting
- Evaluation similar to soft lenses
- BC plays an important role
- MPS or hydrogen peroxide
- Take advantage of online or phone consultants – lots of support to make this EASY

Bottom line: one of the simplest ways of expanding your (loyal) CL population

Hybrids (SynergEyes)
Hybrid Lenses

- All made by SynergEyes
  - Duette/Duette Progressive
    - For the regular cornea
  - Ultrahealth/Ultrahealth FC
    - For the irregular cornea

Duette Lenses

- For patients with
  - Moderate or high astigmatism
  - Low astigmatism athletes
  - Oblique astigmatism
- Not for patients with
  - Severe dry eye
  - Lenticular cyl
  - Convenience as a priority

Duette Lens Fitting

- Empirical!
  - Using lens calculator
- Provide K’s and Spec Rx
- Add age for the Duette Progressive
- No NaFl required for evaluation

Hybrid Lens Insertion

Duette Lens Evaluation

- Look for coverage, centration and movement
  - Decentered or lifted: steeper skirt
  - Tight lens: flatter skirt
- DO NOT NEED TO EVALUATE GP
- No fluorescein.
Duette Lens Dispensing

- The lens should be dispensed if it provides good:
  - Fit (coverage, centration, **movement**)
  - Vision (may need to incorporate OR)
  - Comfort

Ultrahealth Lenses

- For **irregular** corneas
  - Keratoconus
  - Ectasias
  - Intacts
  - Post crosslinking/PK/RK/LASIK

Ultrahealth Lens Evaluation

- Have to look at the fluorescein pattern (REGULAR NAFL OK)
- Looking for a nicely fit GP – central vault, slight bearing and good edge lift
- Dark band = inner landing zone
- ½ - 1mm of movement

Hybrid Lens Removal

Ultrahealth Lens Fitting

- Diagnostic: you always start with the SAME lens (250/Flat)
- Decrease/increase the vault until first touch
- Ultimately fit 100 microns of clearance above that

Ultrahealth

- Ultrahealth FC = flat curve
  - For the oblate or flatter cornea
  - Aim: well-fit GP and soft lens
    - **Engagement of the landing zone**
  - Recommended solutions
    - Hydrogen peroxide OR
    - Biotrue (Bausch & Lomb)
**Hybrid Lenses**
- Regular corneas fit empirically (Duette) – no NaFl
- Irregular corneas fit diagnostically (Ultrahealth) – NaFl
- Optimizes vision and comfort
- Straightforward fitting with guide
- Concierge service - troubleshooting

**Scleral Lenses**
- Fastest growing segment of GP market
- Indications for the regular and irregular cornea
  - Astigmatism (beware of lenticular)
  - Dry eye (85% relief in Sjogren’s)

**Scleral Lenses**
- Classification
  - Corneal lenses: up to 12.5mm
  - Corneoscleral lenses: 12.5-15.0mm
  - Scleral lenses: 15.0-25.0mm

**Scleral Lenses in Dry Eye**
- Regular surface provides improved acuity
- Rests on sclera (fit larger) to avoid any mechanical trauma to the cornea
- Vault of tears between lens and cornea

**Scleral Lenses**
- Materials: hyper-DK
- Solutions:
  - any GP-approved cleaning and disinfecting product
  - Filled with saline (non-preserved preferred)
- Myriad of lens designs, all requiring diagnostic set
Scleral Lenses

- Customization (toric, quadrant specific, etc.)
- Accessibility
- Support

Scleral Lenses – what’s the difference?

Scleral Lenses – Insertion

Other insertion techniques
- Tripod/Fingertip
- Dental ring
- Insertion ring
- Adaptive devices
- Good lid and head control

Scleral Lenses insertion

Scleral Lenses – Easy as 1, 2, 3

- 1: Choose a lens which clears the cornea
- 2: Make sure that lens clears the limbus
- 3: Make sure the lens bears evenly on the sclera

Scleral Lenses – 1 (Central vault)

- Optic section, white light, 16x, 20-30 degrees
- For most lenses, looking for 1:1 ratio
Scleral Lenses – 1 (Central Vault cont’d)

Scleral Lenses – 2 Limbal Vault
- Want to ensure vaulting of limbal stem cells
- <1:1

Scleral Lenses – 3 Edge Relationship
- Want an edge that aligns to sclera
- Too flat or too steep = discomfort

Scleral Lenses – Removal (DMV Method)

Scleral Lenses – Removal (Pop Out Method)
- Not as scary as they may seem
- Very straightforward on regular corneas
- Lots of support for troubleshooting
- Huge potential patient population
  - Especially as multifocal options becoming more popular
Closing Thoughts

Back to breaking habits
- #1 patient concern is comfort
  - >vision AND health
  - Need to ask the right questions
  - No more “how are your contacts?”
  - Know the etiologies and treatment options!

Question:
- How many of you are going to work on changing at least one habit to upgrade your contact lens care?

Conclusion
- You are managing a person
- Switch lenses when indicated
- Offer new lenses to ‘experience’
- Promote new lens designs before and throughout examination
- Do not be afraid to try new things
  - And consult someone if it doesn’t work

Back to breaking habits
- What is the one thing you are going to do to improve contact lens care at your office?
  - Increase number of wearers?
  - Expanding into new designs
  - Increase compliance?
  - Increase loyalty of CL wearers?

Thanks!