Innovations in Glaucoma Drug Delivery
What the Future Holds

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To Participate in Live Polling:
• Download “Poll Everywhere” App from your mobile app store
• Log on & choose “I’m Participating”
• Join PollEv.com/

Or to participate via mobile device without the app, text Cornea to 22333 to join

Financial Disclosure
Allergan
Glaukos
Bausch and Lomb
Bio-Tissue
Alcon
BioTissue
Reichert
2020

> 3 Million Americans

Least Scary

Monitor

Glaucoma Meds

MIGS

Cataract Surgery + MIGS

Most Scary

MIGS Filtration Surgery

Cataract Surgery

Safety First

After Trab – Cataract Develops @ 24 months

TVT:

Trab -50% Failure Rate

Tube -35% Failure Rate

Barriers to Medication Compliance

Skepticism of Vision Loss

Skepticism of Meds will Mitigate Vision Loss

Mistrust of Doctor

Poor Self-Efficacy

Poor Knowledge Regarding the Disease
The eye has many protective barriers, which efficiently clear foreign substances but restrict the bioavailability of applied topical agents.

Ocular surface contact time < 5 minutes

Conjunctival & Scleral Absorption
greater surface area than cornea

Corneal Absorption

5% of dose reaches target tissues

Spillage or nasolacrimal drainage

Tearing & Blinking

Tear Film Turnover

Irritation and discomfort cause reflex tearing and blinking

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Ocular surface contact time < 5 minutes

Retention Rate – 89%

Bimatoprost Ring

<table>
<thead>
<tr>
<th>Month</th>
<th>Baseline</th>
<th>1 mo</th>
<th>6 mo</th>
</tr>
</thead>
<tbody>
<tr>
<td>IOP mm Hg</td>
<td>23.9</td>
<td>18.7</td>
<td>18.8</td>
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Bimatoprost Ring

<table>
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<tr>
<th>Variable</th>
<th>Baseline</th>
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<th>6 mo</th>
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<tbody>
<tr>
<td>Peak intraocular pressure</td>
<td>30.45</td>
<td>29.05</td>
<td>28.54</td>
</tr>
<tr>
<td>Peak IOP units</td>
<td>30.45</td>
<td>29.05</td>
<td>28.54</td>
</tr>
<tr>
<td>Corneal thickness</td>
<td>11.94</td>
<td>11.96</td>
<td>11.94</td>
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<tr>
<td>Proximal blood vessels</td>
<td>10.89</td>
<td>9.92</td>
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<tr>
<td>Diameters</td>
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<td>5.06</td>
<td>4.93</td>
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Latanoprost-Eluting Contact Lens

Attractive option secondary to large residence time in the eye.
Latanoprost-Eluting Contact Lens

Comfort of Lens

Patient Compliance

Vision with Lens

Dry Eye/Ocular Surface Disease

Replacement Schedule

Preclinical Trial and Results

CL14 (149g latanoprost) vs CL10 (97g latanoprost)

~ 1 week

Ciolino JB, Ross AE, Tulsan R, et al. Latanoprost Eluting Contact Lenses in
Bimatoprost Intraocular Implant
(Bimatoprost SR, Allergan)

24 Month Phase I/II Clinical Trial

bimatoprost pellet
(6, 10, 15, or 20 micrograms)

75 Patients

topical bimatoprost 0.03%

4 months – IOP reduction
7.2, 7.4, 8.1, 9.5 mm Hg
92% of patients

4 months – IOP reduction of 8.4 mm Hg

Sustained at 6 mos. in 71%
Safety

Conjunctival Hyperemia

Side Effects

52% Implant group
30.7% Topical group

Travoprost Extended Release Implant
(ENV515, ENVISIA)

Travoprost Extended Release Implant

(ENV515, ENV515A)

Baseline IOP 19.7 mm Hg (Lumigan or Xalatan)
Washout IOP 26.1 mm Hg

-6.7 mm Hg (25%) low dose ENV515

Travoprost intraocular implant

(iDose, Glaukos)

Resides in AC angle, anchored behind TM

- Length: 1.8 mm
- Diameter: 0.5 mm
- Titanium
- Non-ferrous

Travoprost intraocular implant

First iDose implant in the U.S. performed by Dr. John Berdahl M.D. in Sioux Falls SD, Vance Thompson Vision on March 29, 2016.

The Future
More than 90% of patients are nonadherent to their ocular medication dosing regimens, and nearly 50% discontinue taking their medications before 6 months.1


Visual Field
Corneal Thickness
Drug Delivery Devices
OCT
ONH Appearance
Family History
Glaucoma Medications
Miotics
Beta Blockers
Prostaglandin Agonists
Filtration Surgery
CXL
Laser Therapy
4/15/17
Thank You!

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