



# PollEverywhere

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- Scan QR Code
- Type in: pollev.com/vision

Text to 22333
 vision

Financial Disclosure – Justin Schweitzer, OD, FAAO						
<ul> <li>Aerie = C/L</li> <li>Alcon = C/L</li> <li>Alergen = C/L</li> <li>Bausch + Lomb - C/L</li> <li>Oxilar Threapeutix - C</li> <li>Gerbürnt - C</li> <li>Sight Sciences - C/L</li> <li>Drome = C/L</li> </ul>	<ul> <li>Sun-C/L</li> <li>Equinoc-I</li> <li>Reichert-C</li> <li>J&amp;I-C/L</li> <li>Glaukos-C/L</li> <li>Horizon-C</li> <li>Quidel-C</li> <li>MeiPrim-C</li> </ul>					
Zeiss-C/L     Visus-C	• Wearmin - C • LKC-C/L • Aveling - C					
Science Based Health – C     Kala – C     RVL – C     Tarsus – C/L	• Novartis – C • Verici bio – C • Occuphire - C					



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# Case 1

- 71-year-old African-American male irritated eyes.
- Medical History: HTN

- Medical History: HTN,
   Family History: HTN, DM
   BCVA: 20/20 +1 OU
   TMAX: 29 mm Hg OD; 28
   mm Hg OS
   Ocular Meds:
   Interpret of OU fixed
- Latanoprost qd OU, fixed combo agent bid OU
- IOP: 20 mm Hg OD; 19 mm Hg OS
- C/D: 0.75/0.75 OD 0.65/0.65 OS
- Pachymetry: 510 OD; 514 OS
- Corneal hysteresis: 8 OD 8.9 OS \* Gonioscopy: Open to CB OU w/ trace pigment in TM
- SLE: PCIOL OU and See image
- VF's See next slide
- OCT's See next slide

2/20/24















Pay attention to TSNIT curve.

Pay attention to the actual numbers in the segmentation plot

Pay attention to the numbers between eyes in the segmentation plot

Beware of the artifact!





# What Change Matters?

Average RNFL = ~ 4 microns



Superior/Inferior RNFL = ~ 7 microns Macular GCL-IPL = ~ 4 microns

Mourae JC et al Ability of cirrus IED/CT optic nerve head parameters to discriminate normal from glacormatous opes. Ophthalmology 2011
 KanKE, Longserm spreduchibity of macular gangion cell analysis in clinically atable glacorma patients. Invest Ophthalmel Vis Sci. 2015

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### Case Conclusion

• Performed bimatoprost SR + SLT OU – gave patient "drop holiday"

- IOP 17 OD; 16 OS @ 6 weeks eyes feel so much better
- Monitoring the patient every 4 months initially
- Recent visit stable VFT, OCT, and IOP (schedule q 6 mos)

Impact of Multiple Glaucoma Medications on Dry Eye Disease						
Number of Drops	Incidence of DED among 61 glaucoma patients <sup>1</sup>	Incidence of DED among 19,665 glaucoma patients <sup>2</sup>				
1	11%	51%				
2	39%	55%				
3+	40%	60%				
055 <sup>60</sup> CO/M technol dealan Actua <sup>®</sup> 1. Feature 4D an L Cama 2010 20 416 421, 2 ES C et al. Gardin Acid Cin Eur Opathalinal 2006 246 1193 1461, 3 Leurg EW et al. J Glavosna, 2006,17 305 355 Slide Courtesy of Paul Singh MD						

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## **Effects on Meibomian Glands**

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*pat.86 or groups 1.3 **pat.86 or groups 2 ***pat.85 or groups 2 *****pat.85 or groups BKT, translage time; 05 Aggre	and 5 out 3 protocol despirad in gr 2 and 2 0. Tooler Seflere Rhear <i>Mill.</i> , et al. Br J	yn 1 and 1. wlai, 17. provinsiwe beg	91, Spinnertex I.				





servative-Free Solutions						
Phase 3 (L (n=32	JS) Trial 25)	Phase 3 (Eu (n=3	rope) Trial 53)			
PF-Latanoprost	Xalatan	PF-Latanoprost	Xalatan			
18.8±2.9	19.2 ± 3.1	24.1 ± 1.8	24.0±1.7			
2.7 (2.2 - 3.0)	3.4 (2.9 - 3.8)	8.6 (8.3 - 8.8)	8.9 (8.8 - 9.0)			
	utions Phase 3 (( (n=3) PF-Latanoprost 188±29 2.7 (22-3.0)	Phase 3 (US)         Trial (m=325)           PF-Jatanoprost         Xalatan           18.8 ± 2.9         19.2 ± 3.1           2.7         3.4           (2-3.0)         (2-3.8)	Phase 3 (US) Trial (n=325)         Phase 3 (Eignation (n=325))           PF-Latanoprost         Xalatan         PF-Latanoprost           18.8 ± 2.9         192 ± 3.1         24.1 ± 1.8           2.7         3.4         8.6           (2.2-30)         3.4         (8.3 = 8.5)			

BAK-Free Latanoprost	Preservative-Free				
Following instillation, micelles	Minister, (a)				
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32 year old male CC: LASIK eval ROS: "blurred vision and halo after working out" BCVA: 20/20 OD 20/20 OS No Meds MRx: -3.25 Sph OU IOP: 45 OD; 41 OS Pachymetry: 550 OD 550 OS ONH Eval: 0.40 v OU















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### 2 step treatment in PDS with OHTN

- Step 1: Reduce incidence of irido-zonular contact (LPI) • Step 2: Open up trabecular meshwork (SLT)
- Topical therapy as needed to control IOP and prevent glaucoma



## Pigment Dispersion Syndrome/PD-Glaucoma

Mechanism of Disease Abnormal Irido-zonular/Irido-lens contact Iris pigment deposited on Cornea, Lens, AC angle

ncave Iris approach -Fluid from PC to AC causing higher IOP in AC than PC (Ball-Valve Mechanism) -Pressure gradient causes the iris to bow concave with higher iridolenticular contact in some people= Reverse pupillary block -Blinking, accommodation, *exercise* may promote



Elevation in IOP and IOP spikes secondary to pigment occlusion of physiologic outflow.

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# Estimated prevalence of PDS is 2.45% in the US

Disease less severe as patient ages and pigment release slows

> Mechanism: Crystalline lens thickens causing an adjustment of zonular-iris contact



Lahola-Chomiak AA, Walter MA. Molecular Genetics of Pigment Dispersion Syndrome and Pigmentary Glauco New Insights into Mechanisms. J Ophthalmol. 2018;2018:5926906.



What Is the Risk of Developing Pigmentary Glaucoma From Pigment Dispersion Syndrome?

YASMIN SIDDIQUI, MD, RICHARD D. TEN HULZEN, MD, J. DOUGLAS CAMERON, MD, DAVID O. HODGE, MS, AND DOUGLAS H. JOHNSON, MD

• CONCLUSION: The risk of developing pigmentary glaucoma from pigment dispersion syndrome was 10% at 5 years and 15% at 15 years. Young, myopic men were most likely to have pigmentary glaucoma. An IOP greater than 21 mm Hg at initial examination was associated with an increased risk of conversion. (Am J Ophthalmol 2003;135:794–799. © 2003 by Elsevier Inc. All rights reserved.)

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## Case 3



SLE: trace – 1 NS Cataracts OU Trace K edema OD Gonioscopy – OD and OS = No structures No synechiae noted 360 degrees Patient JT - 59 year old female presents with recent blurred vision in OD > OS that seems to fluctuate and started 2-3 months ago, but worsening.

BCVA: 20/30 OD, 20/20-2 OS BAT: 20/100 OD, 20/100 OS Med: Latanoprost qd OU

IOPS 48 OD, 19 OS Pachy: OD: 545, OS 545 CH: OD: 9.0, OS: 9.0

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Diagnostic accuracy of AS-OCT vs gonioscopy for detecting angle closure: a systematic review and meta-analysis Thomas Desmond<sup>1,2</sup> - Vincent Tran<sup>2</sup> - Monish Maharaj<sup>3,4</sup> - Nicole Carnt<sup>3,2,5,6</sup> - Andrew White<sup>1,2,5</sup>

Received: 12 January 2021 / Revised: 13 May 2021 / Accepted: 3 June 2021 / Published online: 5 July 2021 IC The Author(s), under exclusive licence to Springer-Verlag GmbH Germany, part of Springer Nature 2021

• It is currently unclear how AS-OCT fits into clinical practice for detecting angle closure.

AS-OCT is sensitive for detecting angle closure.

- AS-OCT may be a good screening to for angle closure.
  AS-OCT may be a good screening to for angle closure.
  AS-OCT has a high rate of false positives when measured against gonioscopy.
  AS-OCT in not yet able to replace gonioscopy.

Desmond T, Tran V, Maharaj M, Carnt N, White A. Diagnostic accuracy of AS-OCT vs gonioscopy for detecting angle closure: a systematic review and meta-analysis. Greetes Arch Clin Exp Ophthalmol. 2022 Jan;26(1):1-22. doi: 10.1007/s00471-0719071-4. Epub 2021 Jul 5: Fortam in: Carefacte Arch Clin Exp Ophthalmol. 2021 Sep 22: PMID 3242999. PMICID: MedS253357.







# Our Goal for JT

Attempt to get IOP in the low 30s or less OD Oral Diamox 2 x 250 mg in office Rotate topical meds every 5 minutes

Send patient home with topical meds and oral Diamox until LPI performed or cataract surgery

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### Case #4

65-year-old, Caucasian female referred for a second opinion for possible glaucoma. She states she has never had high eye pressures and doesn't understand how she could have glaucoma.

- Ocular History
   Medical History

   • POHX: Cataract extraction OU 2014, YAG capsulotomy OU 2014
   • PMHX: Hyperlipidemia
- Previous Treatment Regimen: None

Current Treatment Regimen: None
 IOP max
 OD: 17 mm Hg
 OS: 17 mm Hg

 FHX: Mother – glaucoma, age-related macular degeneration
 All Medications: Fluoxetine, Atorvastatin Allergies: Penicillin

Medical History

Blood Pressure: 118/75

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#### Ocular Exam

- Uncorrected visual acuity (UCVA): 20/20 OD, 20/20 OS
   External exam: Normal appearance, symmetrical
   Pupil exam: Equal, round, reactive to light and (-) APD
   Slit-lamp exam
   Lids/Lables: Clear, no debris, no signs of MGD OU
   Conjunctiva: Clear, no contral staining OU, no pigment present OU
   Corres: Clear, no contral staining OU, no pigment present OU
   Material Chamber: Clear, no contral staining OU, no pigment present OU
   Material Chamber: Clear, no contral staining OU, no pigment present OU
   Tess: Very no exhibitive material present, no transiliumination defects OU
   Example: OU
   Contrast: Out on clear Staining OU, No pigment present OU
   Tess: Very no exhibitive material present, no transiliumination defects OU
   Contrast: Out on clearing the OC DI Tess: Very No. 20 OF Cleares No. 20 OF
- Goldmann Applanation Tonometry: 16 mm Hg OD, 17 mm Hg OS
   Central corneal thickness (CCT): 499 OD, 504 OS
- Gonioscopy: Open to CB in all quadrants, no pigment in the TM, and normal iris approach
- Corneal Hysteresis: 9.4 mm Hg OD, 9.3 mm Hg OS

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# Diagnosis

Moderate Normal Tension Glaucoma OD Pre-perimetric Normal Tension Glaucoma OS

Other diagnoses: SPO Cataract Extraction OU, SPO YAG Capsulotomy OU

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# Initial Follow-up and Plan

#### Follow-up at 1 month

latanoprostene bunod 0.024% was well tolerated, easy to instill, and patient states compliance with medication. Follow-up ocular exam: Vision and SLE stable from last examination 1 month ago. Tonometry: OD: 12 mmHg OS: 12 mmHg



### Normal Tension Glaucoma –Landmark Studies

Only 50% of treated eyes achieve a 30% IOP lowering 34% of treated NTG patients show progression 9.9% of NTG patients go blind in 1 eye 1.5% of NTG patients go blind in both eyes

Lowering IOP 20-30% slows progression significantly A 20-30% reduction of IOP confers a 93-96% chance of stability Achieving an IOP of 10-11mmHG confers a 90% chance of stability Achieving a 20% reduction results in 1.4-fold reduction in Progression Achieving a 40% reduction results in a 5.7-fold reduction in Progression

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## CASE #5 History of Present Illness: Ocular

84-year-old, Caucasian female

### Ocular History

Diagnosed with POAG – 2012-2014 OD – latanoprostene bunod 0.024% qd, brimonidine tartrate/timolol maleate 0.2%/0.5% bid, brinzolamide bid OS – history of tube shunt, no current medications Cataract extraction: 2009 OU Family History: POAG - Father

# History of Present Illness: Medical

### Medical History

Systemic Medications: Amitriptyline HCL, Alprazolam 0.25 mg, Carbamazepine 200 mg

Allergies: Codeine, Ultram

Social History: Unremarkable

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## Ocular Exam:

VAcc: OD - 20/20 OS - 20/40

Tmax IOP: OD – 24 mmHg OS – 28 mm Hg

SLEX: Tube shunt OS, otherwise unremarkable

ONH: OD - 0.80/0.80 OS - 0.95/0.95

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## Ocular Exam:

Pachymetry: 510 OU

Gonioscopy: Open to CB

IOP History: OD – consistently 10-12 mm HG (on medications) OS – consistently – 10-11 mm HG (tube shunt)









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