

# Seeing Eye to Eye: Improving Outcomes Among Rural Spanish-Speaking Latinx Patients With Diabetic Retinopathy or Diabetic Macular Edema

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# **Diabetes Mellitus and Diabetic Retinopathy Overview**

# Recognizing the Scope of Diabetes and DR<sup>1,2</sup>

In 2018, the estimated prevalence of diabetes among adults in the United States was 10.2% (26.8 million cases)

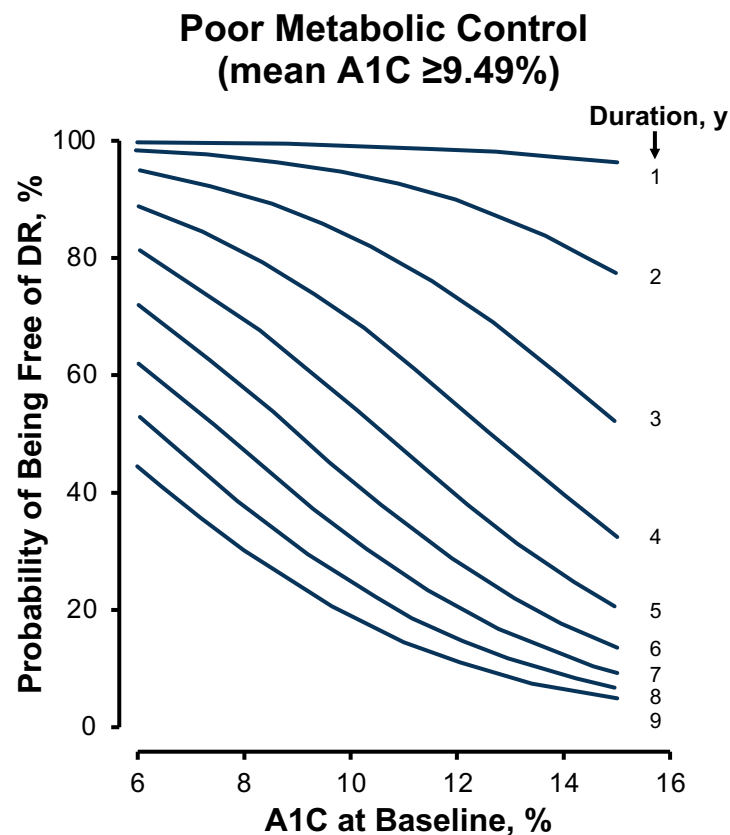
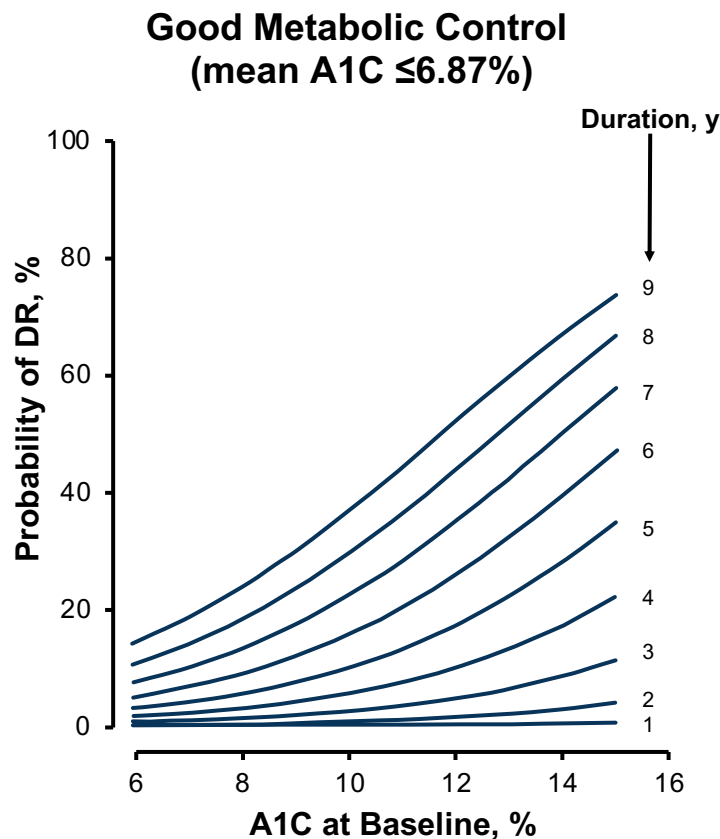
- 17% of US Latinx vs 8% of US Whites
- Occurs at younger ages in Latinx
- Lifetime risk: 40% in US overall vs 50% in Latinx

Globally, 629 million people are expected to have developed diabetes by 2045

Retinopathy develops 10 to 15 years after the onset of diabetes

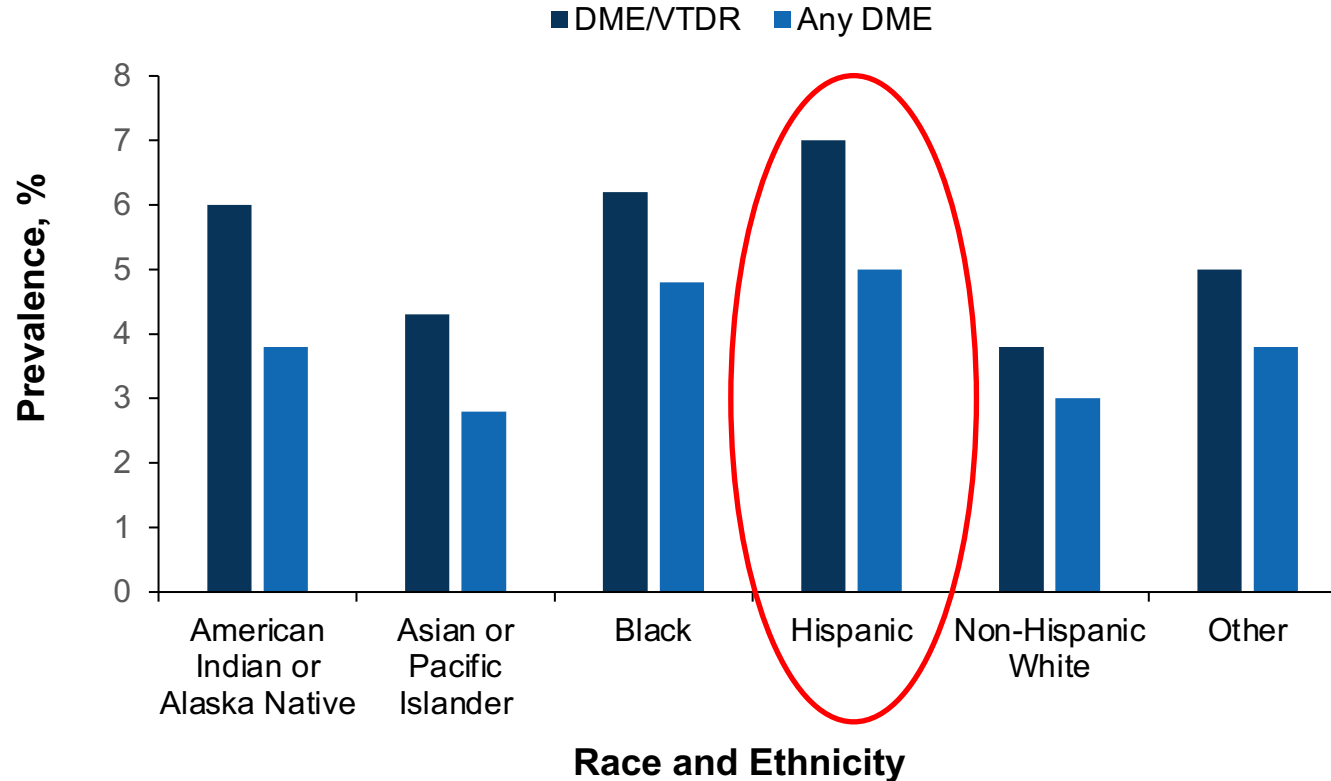
With the increasing prevalence of diabetes, more people are at risk for retinopathy, and greater resources are required to identify and treat this condition

# Risk of Developing Retinopathy in Patients With Diabetes: Duration of Disease and Glycemic Control Are Both Important<sup>1</sup>



1. Zhang LY et al. *Diabetes Care*. 2001;24:1275-1279.

# Prevalence of DME and Vision-Threatening DR Varies With Race/Ethnicity—Medicare<sup>1</sup>, 2018



# Common Screening Tests for DR



## Direct ophthalmoscopy<sup>1</sup>

Assesses lens, pupil, iris, central retina

Poor sensitivity  
High specificity



## Visual acuity<sup>2</sup>

Assesses near and far vision

Poor sensitivity  
Poor specificity



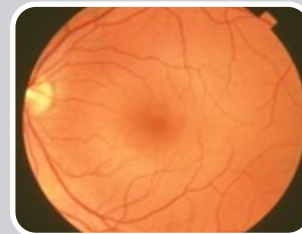
## Indirect ophthalmoscopy<sup>1,3</sup>

Better visualization of retina than direct ophthalmoscopy, especially for peripheral retina



## Visual fields<sup>4</sup>

Assesses peripheral vision  
Primarily used to detect glaucoma



## Fundus photography<sup>5</sup>

Assesses central retina anatomy

Good sensitivity  
Good specificity

- Many common vision screening tools are inadequate for diagnosing DR/DME<sup>1</sup>
- But anomalies/failure of any of these tests demand a referral to an ophthalmologist with DR expertise<sup>2</sup>



**What are the  
Barriers to  
DR/DME Care in  
Rural Spanish-  
Speaking (Latinx)  
Patients?**

# General Barriers to DR Screening<sup>1-4</sup>

## Physician and Other HCPs

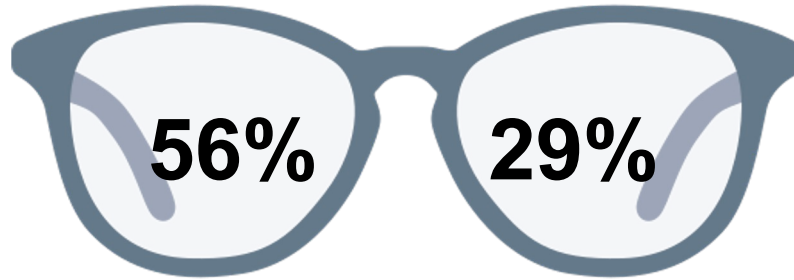
- Unclear roles/responsibilities
- Limited time for office visits
- Lack of specialty clinicians for patient referrals
- Inability to access records outside of their own healthcare network
- Poor communication from eye care specialists
- Unsure about which clinicians to use for patient referrals

## Patients

- Difficulty differentiating screening tests from comprehensive exams
- Lack of symptoms
- Limited understanding of DR/DME and/or exam findings
- Poor communication from clinicians
- Limited clinician networks
- Logistic difficulties accessing specialists (time, cost, distance)
- Unpleasant exams and/or treatments
- Competing health priorities

# Health Insurance Coverage Might Increase Adherence to Recommendations for Annual Eye Exams

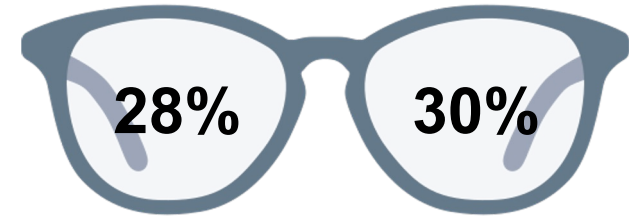
In 2016, individuals with diabetes were more likely to have visited an eye doctor in the past 12 months if they had health insurance coverage<sup>1</sup>:



Of those with health insurance coverage

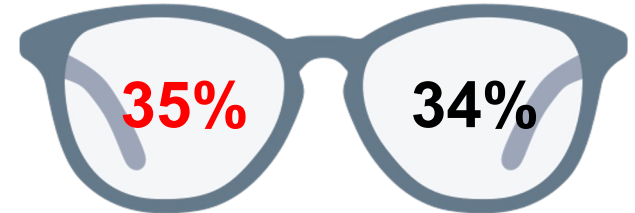
Of those without health insurance coverage

Adding an HSA to an HDHP increases annual exam rates<sup>2</sup>:



Of those with HDHP and no HSA

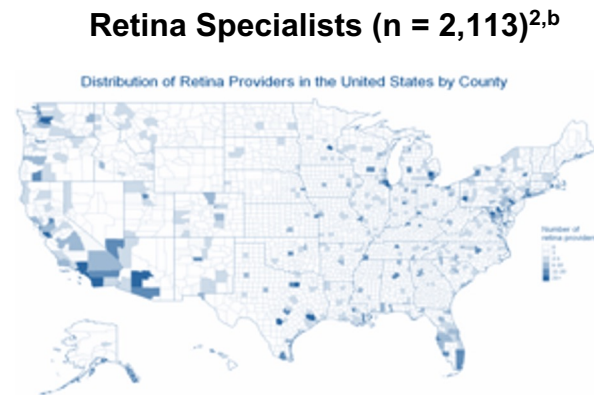
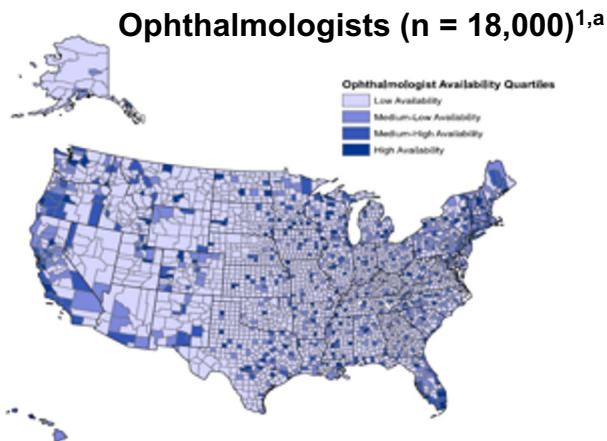
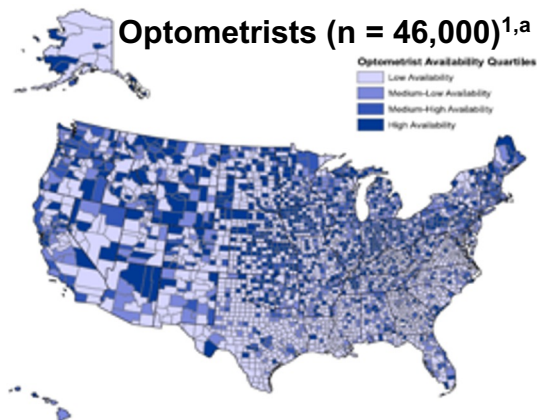
Of propensity-matched controls with low-deductible insurance



Of those with HDHP and HSA

Of propensity-matched controls with low-deductible insurance

# Access to Retina Specialists Is Limited in Most US Counties—Tele-Ophthalmology Could Improve Access<sup>1-4</sup>



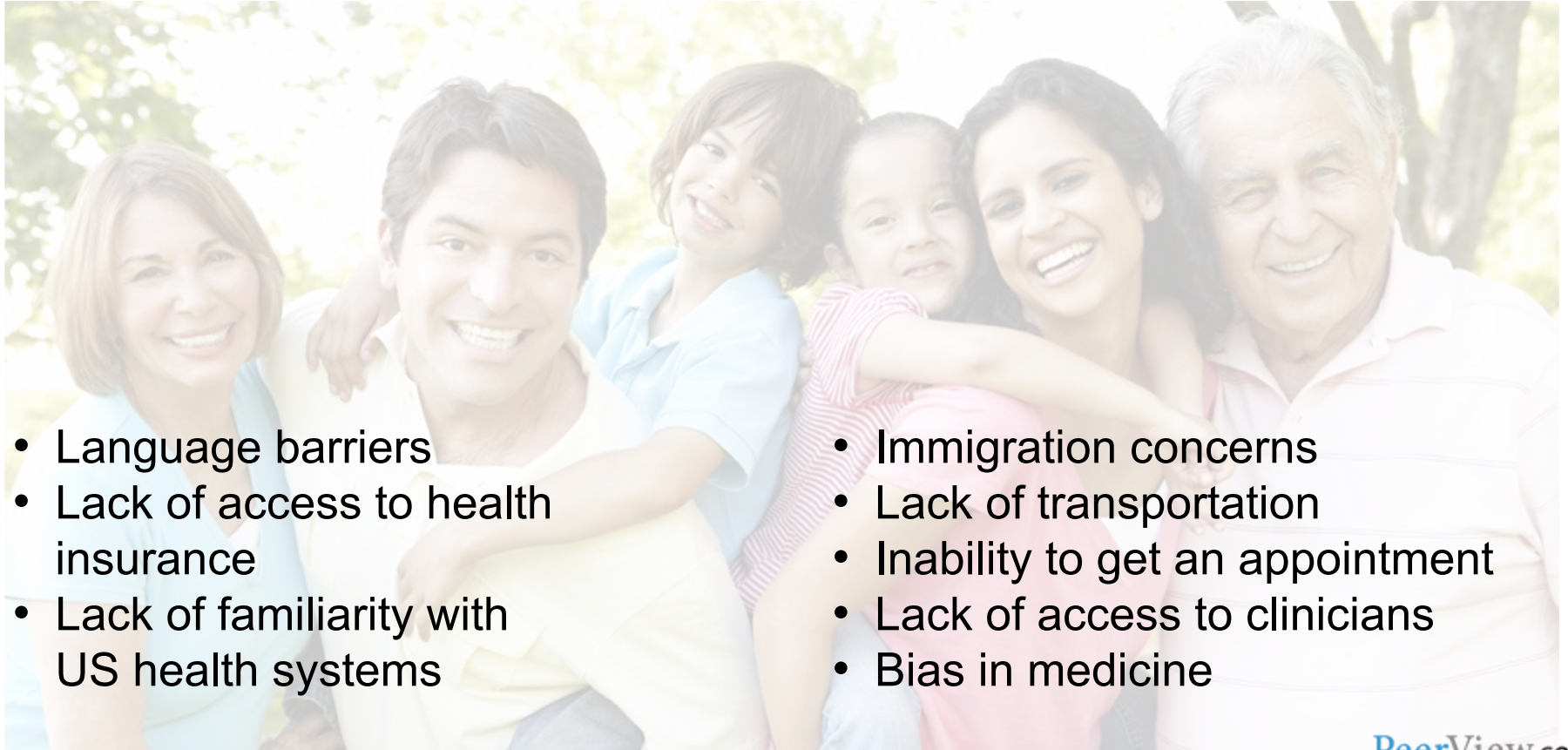
- Teleretinal cameras in non-ophthalmology offices are one proposed solution
- One study found that staff availability, insurance coverage, reimbursement, and patient preference for traditional eye exams were cited as barriers<sup>3</sup>
- Findings were consistent with the benefits and barriers in a 2017 review of tele-ophthalmology status in the United States<sup>4</sup>

<sup>a</sup> US Area Health Resources File, 2011. <sup>b</sup> US Medicare fee-for-service program, 2016.

1. Gibson DM. *Prev Med.* 2015;73:30-36. 2. Pandit R et al. *Invest Ophthalmol Vis Sci.* 2019;60:3961.

3. Mamillapalli CK et al. *J Clin Transl Endocrinol.* 2019;19:100214. 4. Rathi S et al. *Ophthalmology.* 2017;124:1729-1734.

# Specific Barriers to DR/DME Care in the Latinx Community<sup>1-3</sup>



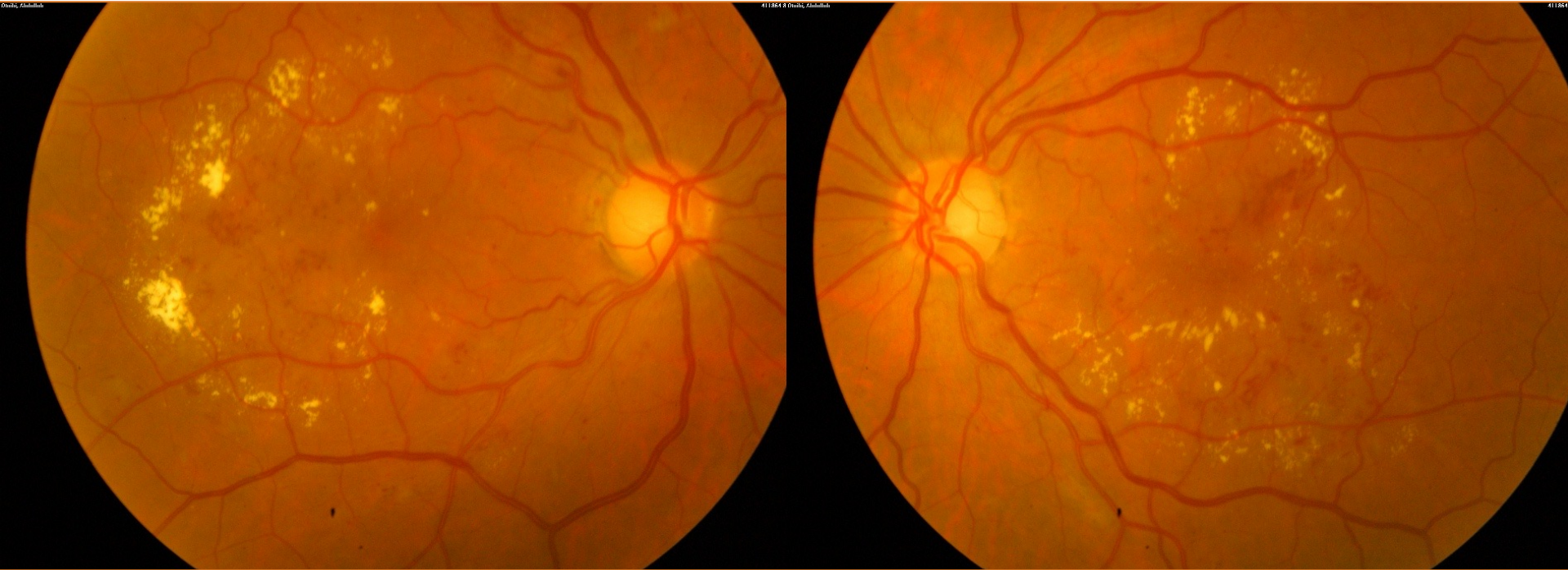
- Language barriers
- Lack of access to health insurance
- Lack of familiarity with US health systems
- Immigration concerns
- Lack of transportation
- Inability to get an appointment
- Lack of access to clinicians
- Bias in medicine

# DR in Latinx Patients<sup>1-4</sup>



- Los Angeles Latino Eye Study (LALES)
  - DR incidence: 34% over 4 years
  - 38.9% with worsening/progressing DR
  - Only 35% adherent to recommended eye care screenings

# Moderate NPDR<sup>1</sup>



# Case Study Introductions

MT



DME with  
partial  
response to  
anti-VEGF  
therapy

CC



PDR with  
recurrent  
leakage

MG



DME, PDR,  
vitreous  
hemorrhage,  
retinal  
detachment

# **Coordinating Care for Rural Spanish- Speaking (Latinx) Patients**

# DR/DME Management Is Multidisciplinary<sup>1-3</sup>

- Requires primary care clinician, ophthalmologist, endocrinologist, physician assistant, and nurse practitioner
- Primary care clinician role:
  - Treat diabetes consistent with evidence-based recommendations to help manage A1C levels
  - Screen for DR/DME
  - Refer patient for ophthalmologic examination/screening if appropriate



# Communication and Planning in Rural Areas<sup>1</sup>

- Rural patients
  - Have less access to specialists vs urban patients
  - Must travel longer distances and spend more time to obtain eye care
  - Are more likely to be uninsured, older, and poorer than urban patients
  - Are less likely to receive guideline-concordant care
  - Might not appreciate the value in regular eye screenings
- Rural communities are often served by multipayer health systems, which are less likely to encourage preventive services
- Primary care clinicians might have difficulty identifying when patients are due for diabetic eye screenings



# Improving The Quality of Care for DR/DME in Rural Areas of South America—Current PAAO Projects in Bolivia<sup>1,2</sup>

OPEN ACCESS

ARVO Annual Meeting Abstract | July 2019

## The Bolivian Diabetic Retinopathy (BOLDR) Project for screening and management of patients with diabetic retinopathy (DR) in underserved areas

Anthony C Christopher M; Rodrigo Cortes Arce; Marcelo Murillo Sasamoto; Georgia Kaidonis; Rajat N Agrawal

+ Author Affiliations & Notes

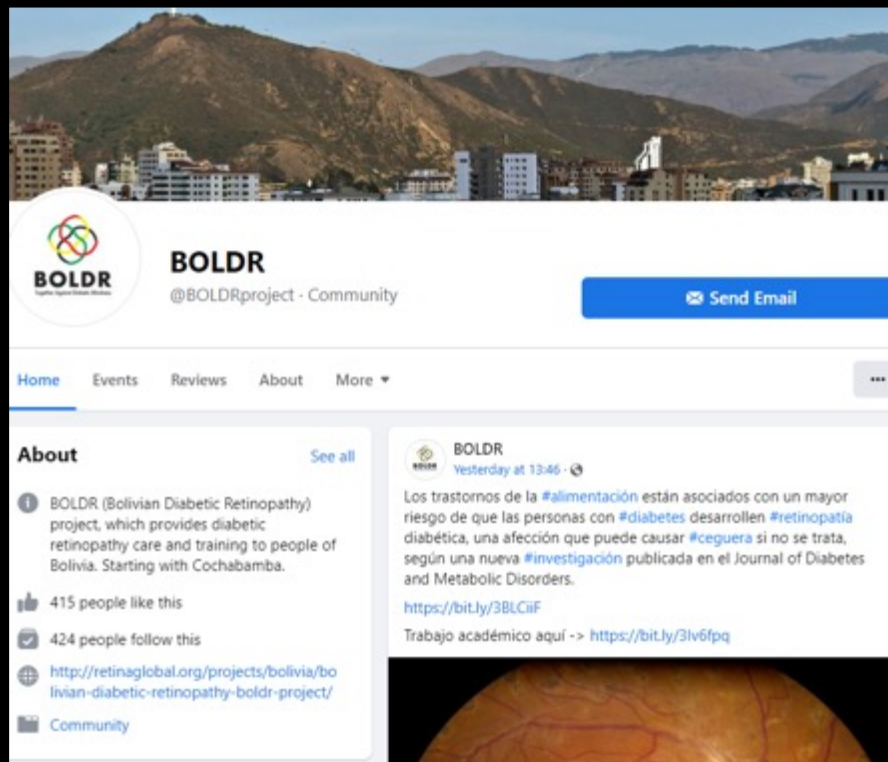
Investigative Ophthalmology & Visual Science July 2019, Vol.60, 5481. doi:

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TOOLS ▼

### Abstract

**Purpose :** With minimal or non-existent retinal services in Bolivia, patients with diabetes are burdened with travelling great distances to reach retinal care. Those unable to access adequate services in a timely manner are at risk of blindness from DR. Retina Global's BOLDR project aims to build a sustainable program providing retinal services for the underserved Bolivian population.



**BOLDR**  
@BOLDRproject · Community

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**About** See all

1 BOLDR (Bolivian Diabetic Retinopathy) project, which provides diabetic retinopathy care and training to people of Bolivia. Starting with Cochabamba.

415 people like this

424 people follow this

<http://retinaglobal.org/projects/bolivia/bolivian-diabetic-retinopathy-bol-dr-project/>

Community

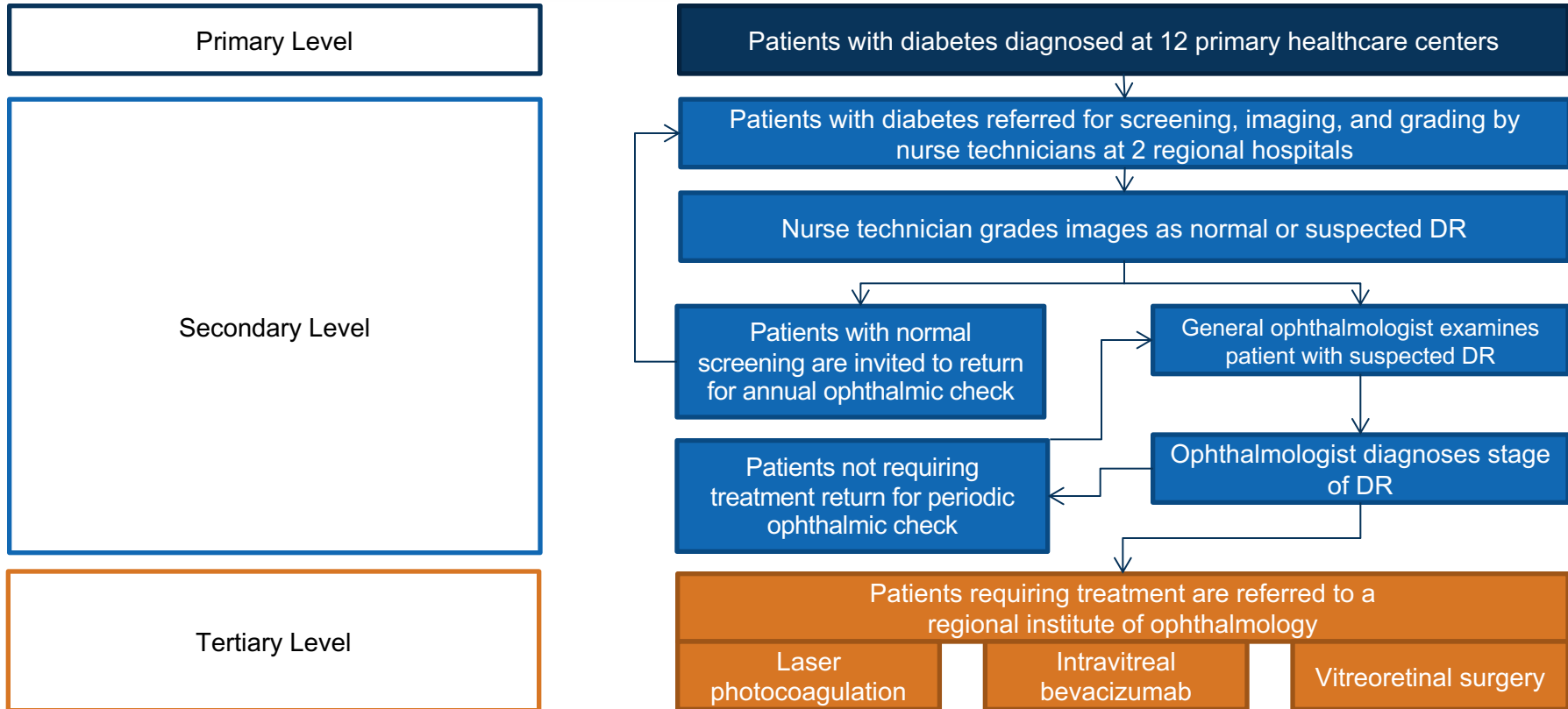
**BOLDR**  
Yesterday at 13:46 · 🌐

Los trastornos de la [#alimentación](#) están asociados con un mayor riesgo de que las personas con [#diabetes](#) desarrollen [#retinopatía](#) diabética, una afección que puede causar [#ceguera](#) si no se trata, según una nueva [#investigación](#) publicada en el Journal of Diabetes and Metabolic Disorders.

<https://bit.ly/3BLCiif>

Trabajo académico aquí -> <https://bit.ly/3lv6fpq>

# Diabetic Retinopathy Referral Network—Peru<sup>1,2</sup>



# Diabetic Retinopathy Referral Network—Peru<sup>1,2</sup> (Cont'd)

## Referral Flow

93,817 population aged >30 years



6,012 registered patients with diabetes (2014-2017)



4,204 new patients screened for DR at referral hospitals



1,428 follow-up patients screened for DR at referral hospitals



441 patients treated at regional institute of ophthalmology

- Hospital-based clinics with access to specialists had better outcomes than primary care clinics
- Primary care clinics need to address A1C, LDL-C, and creatinine/microalbumin targets

# Locating Spanish-Speaking Primary Care Physicians and Ophthalmologists

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- Primary care physicians
  - American Medical Association directory  
<https://doctorfinder.ama-assn.org/doctorfinder/home.jsp?>
- Ophthalmologists
  - Latinous FaceBook page  
<https://www.facebook.com/groups/696358950849059>
  - American Society of Retina Specialists directory  
<https://www.asrs.org/find-a-specialist>
  - American Academy of Ophthalmology directory  
<https://secure.aao.org/aao/find-ophthalmologist>

**Incorporating  
Technology to  
Improve  
Outcomes in Rural  
Latinx Patients**

# Incorporating Technology: Translation Services and Patient Education Tools<sup>1-4</sup>

- Bilingual patient reminder systems
- Smartphone bilingual translation applications
  - 15 voice-to-text and voice-to-voice translation apps
  - 2 apps rated as suitable for everyday communication in the healthcare setting (apps contain preset phrases)
- In-person translators:  
Gold standard

CALD Assist



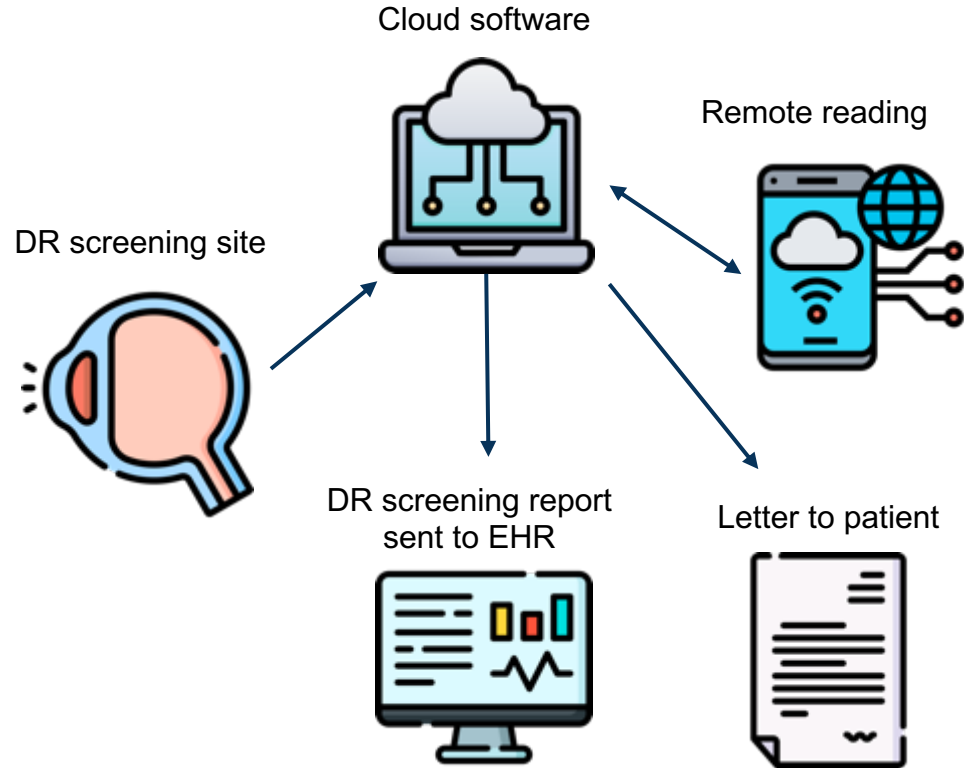
CALD Assist and Talk To Me are top-rated medical translation apps for everyday communication<sup>1</sup>



1. Panayiotou A et al. *JMIR Mhealth Uhealth*. 2019;7:e11316. Published online. 2. Hwang K et al. *Nursing Open*. 2022;9:578-585.  
3. [https://play.google.com/store/apps/details?id=au.csiro.aehrc.CALDAssist&hl=en\\_US&gl=US](https://play.google.com/store/apps/details?id=au.csiro.aehrc.CALDAssist&hl=en_US&gl=US).  
4. <https://apps.apple.com/us/app/talk-to-me/id1289099500>.

# Incorporating Technology: Telehealth<sup>1-5</sup>

- Can reduce travel time and distance
- Can increase annual screening rates
  - From 26% to 40% in one study
  - 50% to 75% increase in another study
  - Up to 80% in single-payer or highly specialized health systems
  - Likely less in multipayer systems
- Can be cost-effective
  - Depends on screening interval, population size, and disease burden



# Incorporating Technology: Artificial Intelligence<sup>1-7</sup>

## AI can be leveraged to evaluate more patients, more efficiently



IDx-DR system permitted marketing by FDA (works with Topcon TRC-NW400)<sup>1</sup>

- Evaluates images from a retinal camera and provides the clinician with one of two results

- More than mild DR; refer to eye care professional (sensitivity 87.4%)
- Negative for more than mild DR; rescreen in 12 mo (sensitivity 89.5%)

Real-world validation study of seven AI systems

- Negative predictive values: 83% to 94%
- Sensitivities: 51% to 86%



EyeArt system has FDA clearance<sup>2</sup>

- 97% imageability
- 96% sensitivity and 88% specificity for mtmDR
- 92% sensitivity and 94% specificity for vtDR

1. Photo courtesy of Digital Diagnostics, Inc. 2. Photo courtesy of Eyenuk, Inc. 3. <https://www.fda.gov/news-events/press-announcements/fda-permits-marketing-artificial-intelligence-based-device-detect-certain-diabetes-related-eye>. 4. <https://www.businesswire.com/news/home/20200805005495/en/Eyenuk-Announces-FDA-Clearance-for-EyeArt-Autonomous-AI-System-for-Diabetic-Retinopathy-Screening>. 5. Lee AY et al. *Diabetes Care*. 2021;44:1168-1175. 6. Savoy M. *Am Fam Physician*. 2020;101(5):307-308. 7. IDx-DR (De Novo) Prescribing Information. [https://www.accessdata.fda.gov/cdrh\\_docs/reviews/DEN180001.pdf](https://www.accessdata.fda.gov/cdrh_docs/reviews/DEN180001.pdf).

**Partnering With  
Patients:  
Encouraging  
Adherence to  
Intravitreal Anti-  
VEGF Therapy**

# State-of-the-Art DME Management: What's in Our Toolbox?

## What's in Our Current Guidelines?<sup>1,2</sup>

### Intravitreal VEGF Blockade

- Most effective and safest
- First-line therapy—best administered early
- FDA-labeled drugs are more effective—switching

### Intravitreal Corticosteroids

- Mainly a second-line option—sequential treatment
- Combination treatment—enhanced drying

### Laser

- Noncenter-involving CSME
- Refractory adjunctive role unclear

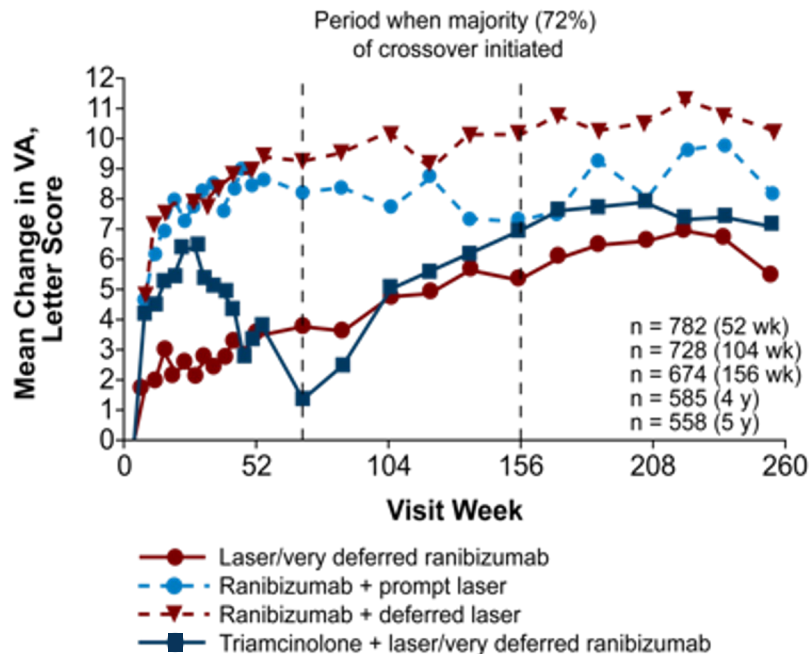
### Pars Plana Vitrectomy

- Vitreoretinal interface abnormalities/refractory?

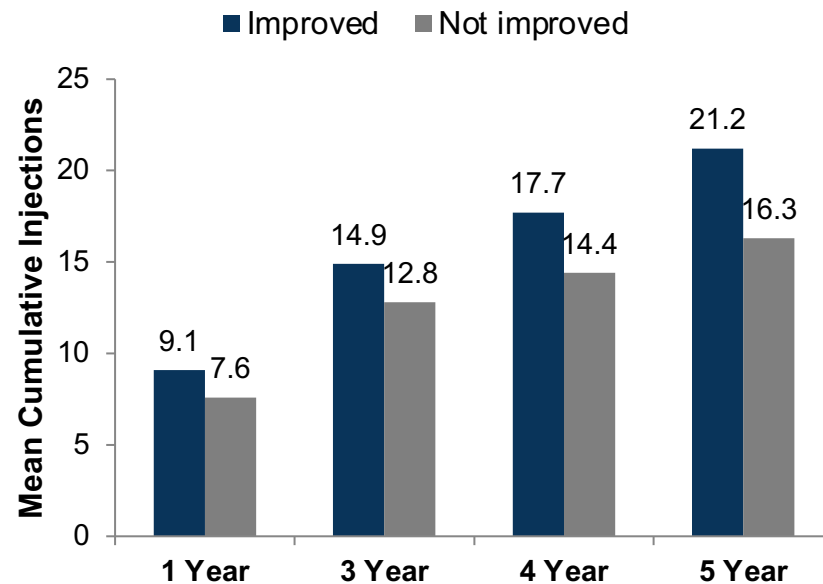
# Improved BCVA Is More Likely With Initial Anti-VEGF Therapy and More Injections

## PRN Treatment Regimen—DRCRnet Protocol I (DME)

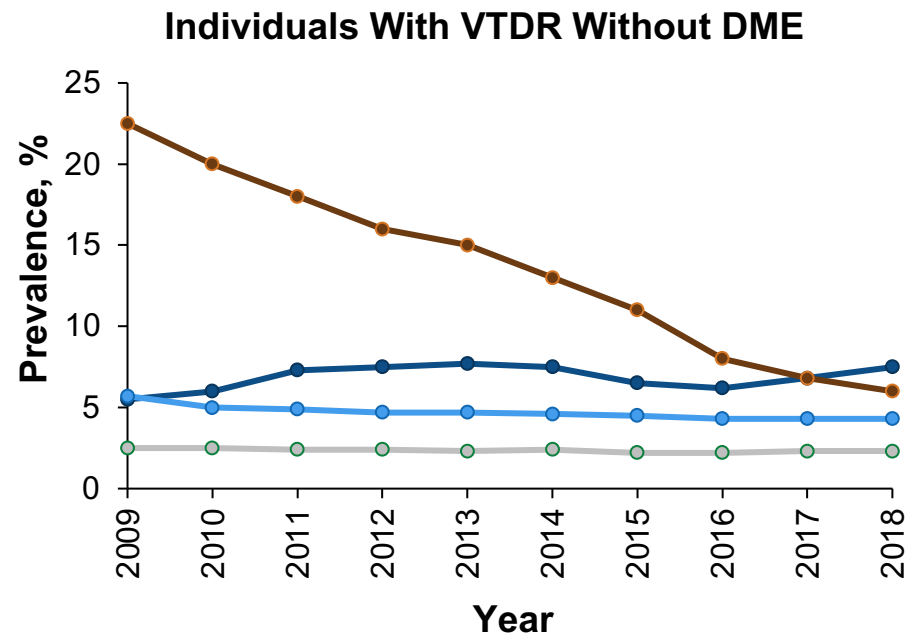
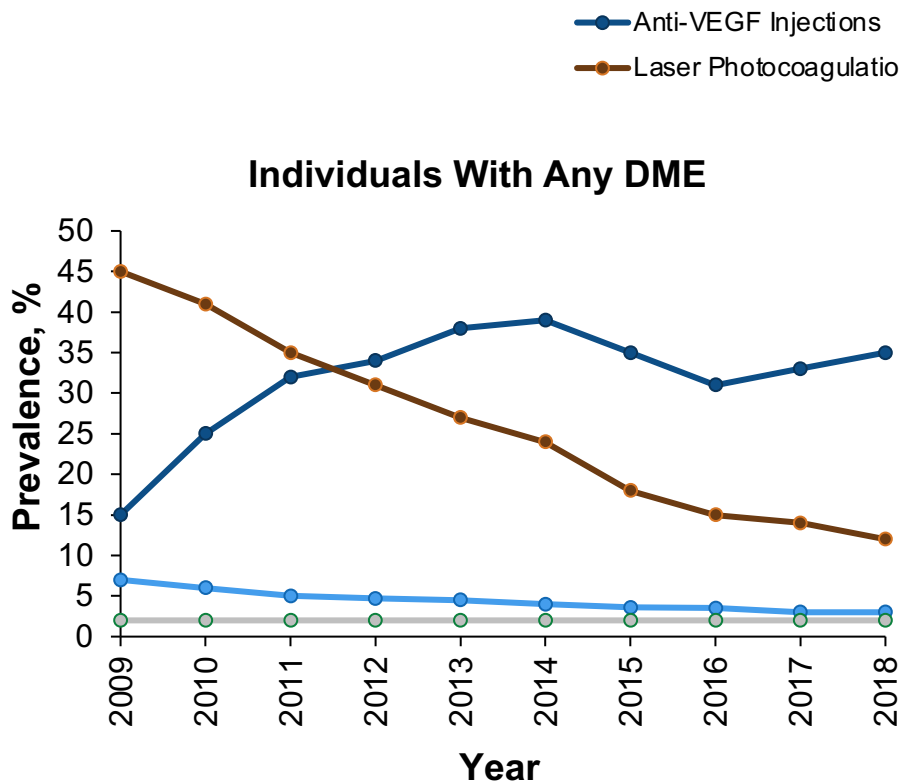
### VA Results by Group<sup>1</sup>



### VA Results by Number of Injections<sup>2</sup>



# Intravitreal Injection Has Displaced Laser Photocoagulation as the Most Frequently Used Treatment for DME<sup>1,a</sup>

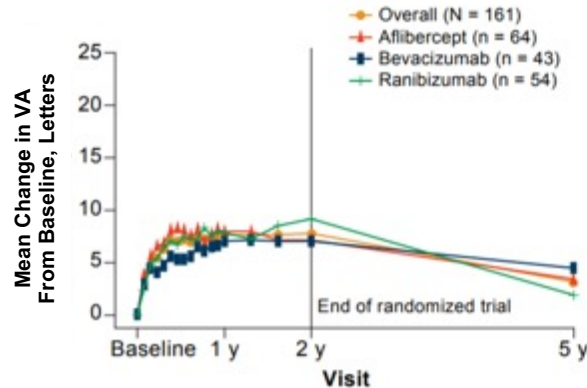


<sup>a</sup> Medicare beneficiaries with diabetes and one or more claims for treatment, 2009-2018.

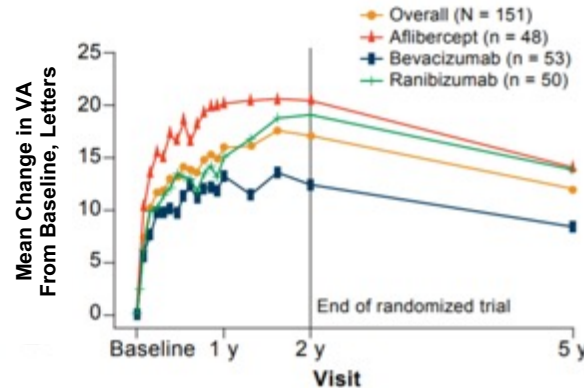
1. Lundeen EA et al. *JAMA Ophthalmol.* 2022;140:345-353.

# DRCR Protocol T: Comparative Effectiveness of Anti-VEGF Therapies<sup>1,2</sup>

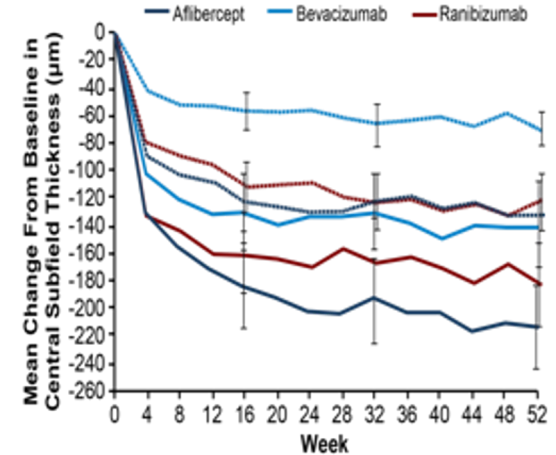
Baseline VA 20/32 to 20/40



Baseline VA 20/50 to 20/320



According to Baseline Visual Acuity  
Central Subfield Thickness on  
OCT



# Intravitreal Injection<sup>1</sup>



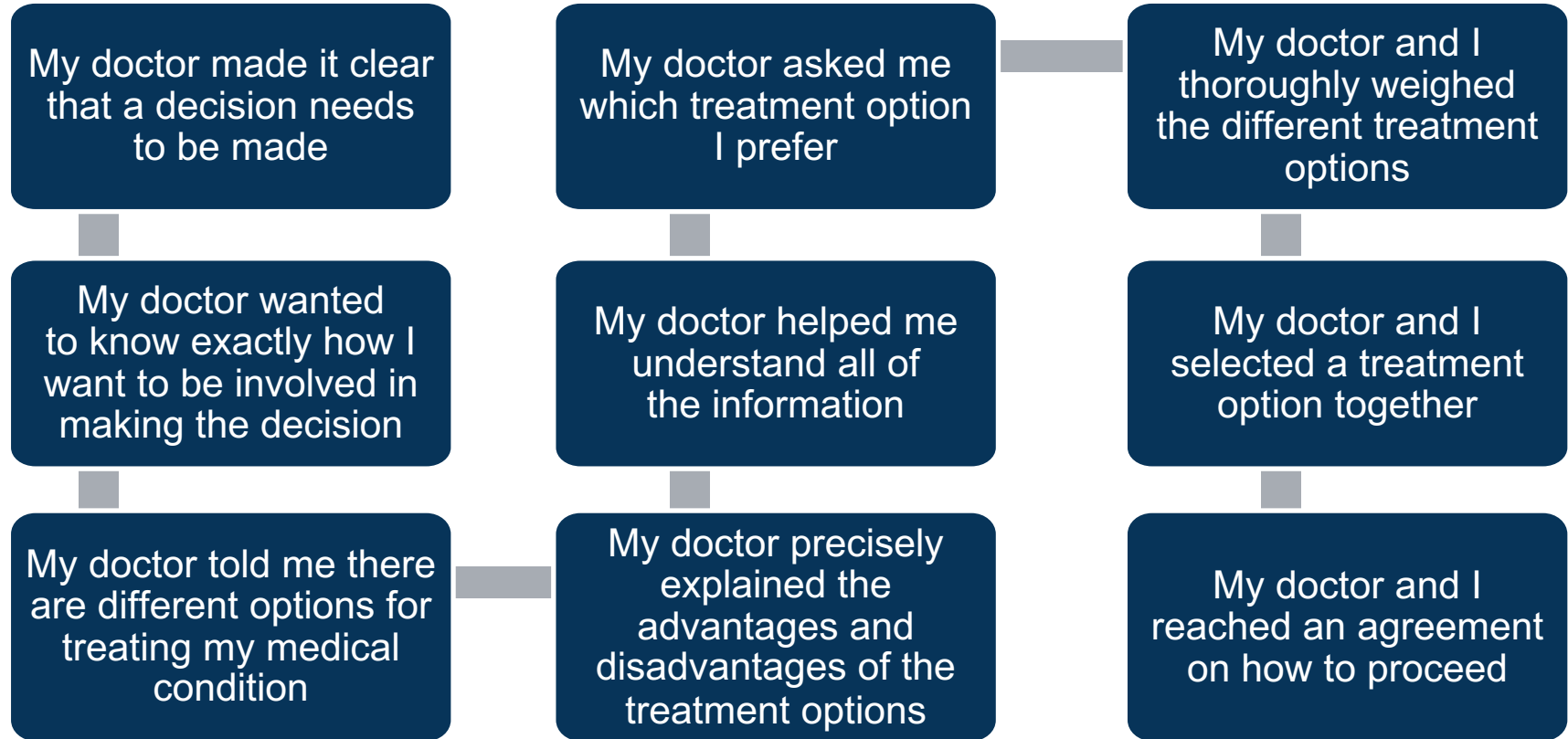
1. Photo courtesy of J. Fernando Arevalo, MD, PhD, FACS.

# Partnering With Patients: SDM Is Important in Ophthalmic Care

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- Selecting among alternative treatment options is one of the four categories of SDM<sup>1</sup>
- Patients want to be informed and engaged<sup>2</sup>
  - But treatment decisions are often made without full consideration of the patient's perspective
- Patient perspectives incorporate their knowledge and beliefs<sup>2</sup>
  - This influences their willingness to engage in a course of care
- Patients need to be able to ask questions about their specific situation, and ophthalmologists need to know their patients' concerns<sup>2</sup>
  - Patient perspectives are valid and realistic only if patients are fully informed
- SDM implies there are reasonable alternate choices available<sup>3</sup>

# Using the SDM-Q-9 Tool Ensures the Patient Is Included in Decision-Making<sup>1</sup>

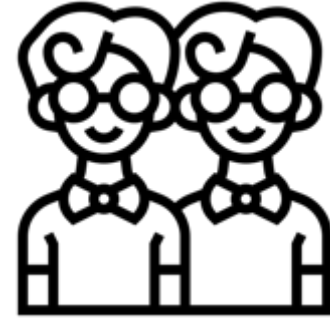


**Emerging  
Treatments to  
Reduce Barriers to  
Care Among Rural  
Latinx Patients**

# Will Biosimilar Intravitreal Anti-VEGF Reduce Barriers to Access?<sup>1-3</sup>

*Ranibizumab-nuna Has Been FDA-Approved in the US for AMD, RVO, and mCNV*

- **Biosimilar** means the biologic product is approved based on data demonstrating it is highly similar to an FDA-approved biologic product (the reference product), and there are no clinically meaningful differences between the biosimilar product and the reference product
- In the US, the FDA has approved ranibizumab-nuna for wet AMD, macular edema following RVO, and myopic choroidal neovascularization (mCNV)
- In Europe, ranibizumab-nuna is also approved for DME and PDR
- Anticipated availability date: July 1, 2022



1. Byovoiz (ranibizumab-nuna) injection Prescribing Information. [https://www.accessdata.fda.gov/drugsatfda\\_docs/label/2021/761202s000lbl.pdf](https://www.accessdata.fda.gov/drugsatfda_docs/label/2021/761202s000lbl.pdf).

2. <https://www.ema.europa.eu/en/medicines/human/EPAR/byovoiz>. 3. <https://www.modernretina.com/view/first-fda-approved-ophthalmic-biosimilar-ranibizumab-nuna-launches-in-the-united-states>.

# Do Extended Treatment Intervals Improve Adherence in Clinical Practice?

## *Prospective, Open-label, Single-Arm Interventional Studies of Aflibercept in DME<sup>1-3</sup>*

- 36 patients (26 eyes)
- BCVA 59-78 letters
- 5 loading doses at 4-week intervals
- Increased intervals in 2-week increments based on disease activity, up to 12 weeks

Curry et al,  
2020



- 48 patients (48 eyes)
- BCVA 20/40 to 20/320
- 5 loading doses at 4-week intervals
- Increased intervals in 2-week increments, based on disease activity, up to 12 weeks

Kim et al,  
2020



- 40 patients (40 eyes)
- BCVA 24-73 letters
- 5 loading doses at 4-week intervals
- Increased intervals in 4-week increments based on OCT, up to 8-16 weeks
- Laser was also used

Hirano et al,  
2021



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Hirano et al,  
2021



**At 2  
years**

- 88% adhered to treatment
- 75% maintained 12-wk treatment intervals without disease activity
- 15% lost  $\geq 5$  letters

- 96% adhered to treatment
- Eyes with BCVA 20/40 or better increased from 17.4% to 43.5%
- 7.0% had  $\geq 2$ -step worsening

- 75% adhered to treatment
- BCVA improved  $5 \pm 12$  letters
- 10% lost  $\geq 5$  letters

# Will a Higher Dose of Aflibercept Allow for Less Frequent Treatment?

## *High-Dose Aflibercept—PHOTON (CI-DME) Phase 2/3 Study<sup>1,2</sup>*

*Objective: Assess noninferiority of high-dose aflibercept dosed less frequently than standard-dose aflibercept dosed every 8 weeks*

Baseline BCVA:  
78 to 24 ETDRS letters  
(20/32 to 20/320)

**PHOTON**  
(N = 640)

Estimated study  
completion date:  
May 2023

Aflibercept  
2.0 mg Q8W after  
a loading dose

High-dose aflibercept  
8.0 mg Q12W after  
a loading dose

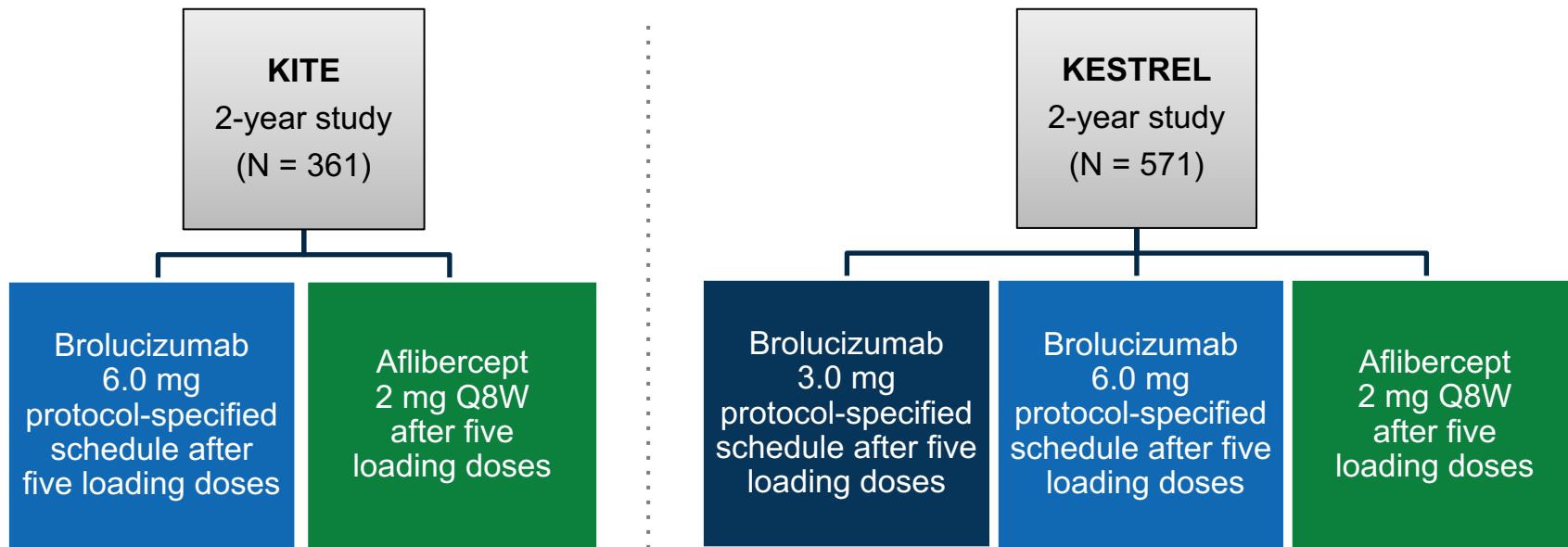
High-dose aflibercept  
8.0 mg Q16W after  
a loading dose

Primary endpoint: BCVA change from baseline at week 48

# Will a More Concentrated Treatment Allow for Reduced Frequency?

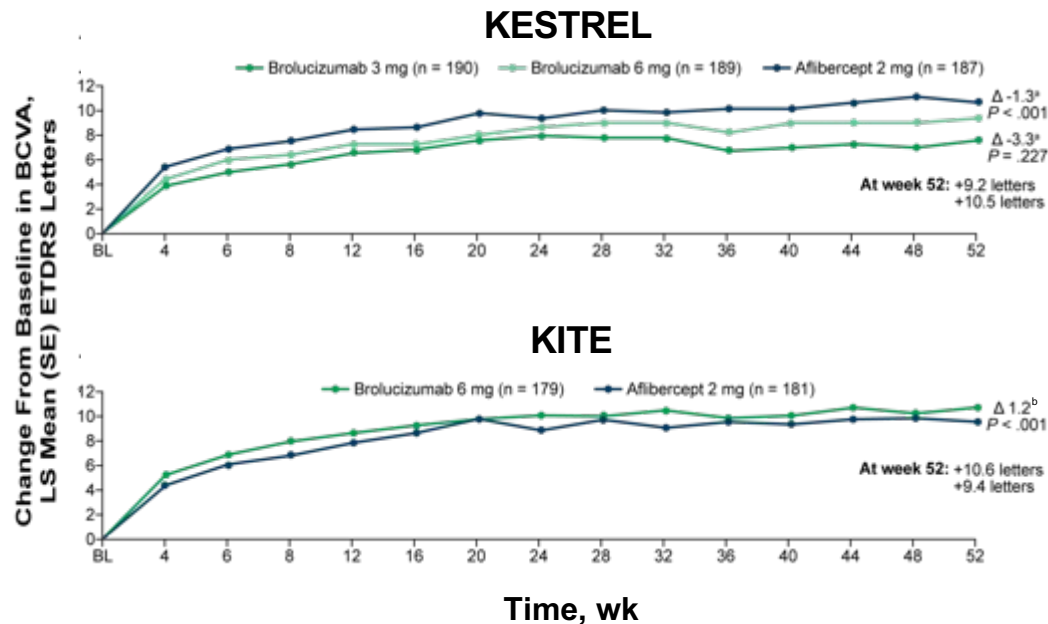
## *Brolucizumab—KITE (DME) and KESTREL (DME) Phase 3, Double-Blind Trials<sup>1-3</sup>*

*Objective: Evaluate the efficacy and safety of brolucizumab vs aflibercept in DME*



Primary outcome: BCVA change at week 52

# Brolucizumab 6 mg Was Noninferior to Aflibercept in Change From Baseline in BCVA at Week 52: Results From KESTREL and KITE<sup>1</sup>



| AEs of special interest in the study eye, n (%) | KESTREL   |           |            | KITE      |            |
|-------------------------------------------------|-----------|-----------|------------|-----------|------------|
|                                                 | Brol 3 mg | Brol 6 mg | Aflib 2 mg | Brol 6 mg | Aflib 2 mg |
| Endophthalmitis                                 | 2 (1.1)   | —         | 1 (0.5)    | 1 (0.6)   | 1 (0.6)    |
| Intraocular inflammation <sup>c</sup>           | 9 (4.7)   | 7 (3.7)   | 1 (0.5)    | 3 (1.7)   | 3 (1.7)    |
| Including retinal vasculitis <sup>c</sup>       | 3 (1.6)   | 1 (0.5)   | —          | —         | —          |
| Retinal vascular occlusion <sup>d</sup>         | 2 (1.1)   | 1 (0.5)   | —          | 1 (0.6)   | 1 (0.6)    |

<sup>a</sup>  $\Delta$  (95% CI) in KESTREL: -1.3 (-2.9 to 0.3) for brolucizumab 6 mg vs aflibercept 2 mg, and -3.3 (-5.1 to -1.4) for brolucizumab 3 mg vs aflibercept 2 mg.  
<sup>b</sup>  $\Delta$  (95% CI) in KITE: 1.2 (-0.6 to 3.1) for brolucizumab 6 mg vs aflibercept 2 mg. <sup>c</sup> Percentages of subjects with intraocular inflammation and percentages of subjects with retinal vasculitis cannot be added up; all cases of vasculitis are considered in the intraocular inflammation events. <sup>d</sup> Includes reported cases of retinal vascular occlusion, retinal artery occlusion, and retinal vein thrombosis. Neither case in KITE was associated with intraocular inflammation.  
1. Brown DM et al. *Invest Ophthalmol Vis Sci*. 2021;62:1045.

# Will an Implanted Device Allow for Less Frequent Treatment?

## *Ranibizumab Port Delivery System—Pavilion (NPDR) and Pagoda (DME)<sup>1-5</sup>*

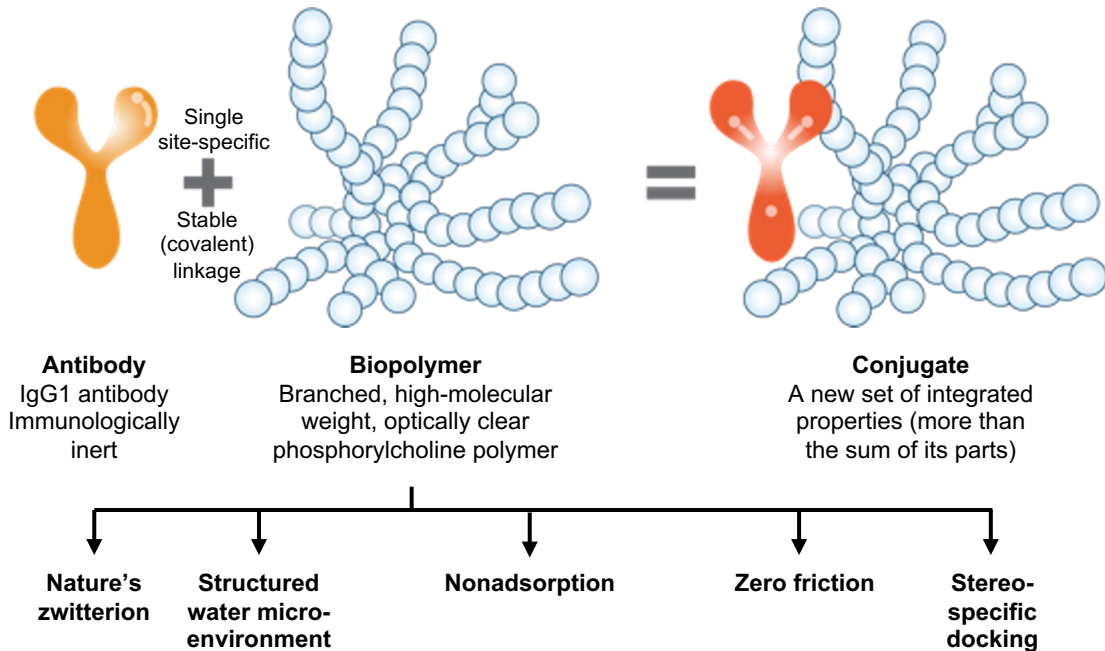


- Innovative drug-delivery system currently approved for AMD
- Permanent, refillable intraocular implant (8.4 mm x 2.6 mm diameter)
- Customized formulation of ranibizumab
- Implant surgically placed in the operating theater at the pars plana area of the eye
- In-clinic, refill-exchange procedures

- Continuous delivery of ranibizumab using the PDS offers a new treatment strategy for retinal vascular diseases that could potentially maintain the clinical benefits of intravitreal anti-VEGF therapy, while reducing overall treatment burden in predominantly working-age adults
- Pavilion and Pagoda, ongoing phase 3 trials, are currently assessing the efficacy, safety, and pharmacokinetics of PDS Q36W in DR and PDS Q24W in DME
  - Estimated completion dates: January 2023 for Pavilion and October 2022 for Pagoda

1. Chang M et al. *Diabetes*. 2021;70(suppl 1):435-P. 2. <https://clinicaltrials.gov/ct2/show/record/NCT04503551>.  
3. <https://clinicaltrials.gov/ct2/show/record/NCT04108156>. 4. [https://www.gene.com/download/pdf/susvimo\\_initial\\_fill\\_implant\\_ifu.pdf](https://www.gene.com/download/pdf/susvimo_initial_fill_implant_ifu.pdf).  
5. [https://www.accessdata.fda.gov/drugsatfda\\_docs/label/2021/761197s000lbl.pdf](https://www.accessdata.fda.gov/drugsatfda_docs/label/2021/761197s000lbl.pdf).

# Will an Antibody–Biopolymer Conjugate Allow for Less Frequent Treatment? KSI-301<sup>1</sup>



## Similarities With Current Anti-VEGF Agents

- Clinically proven targets
- Antibody-based biologic
- Intravitreal administration (safest, proven)
- Optically clear, no residues
- Rapid clinical response

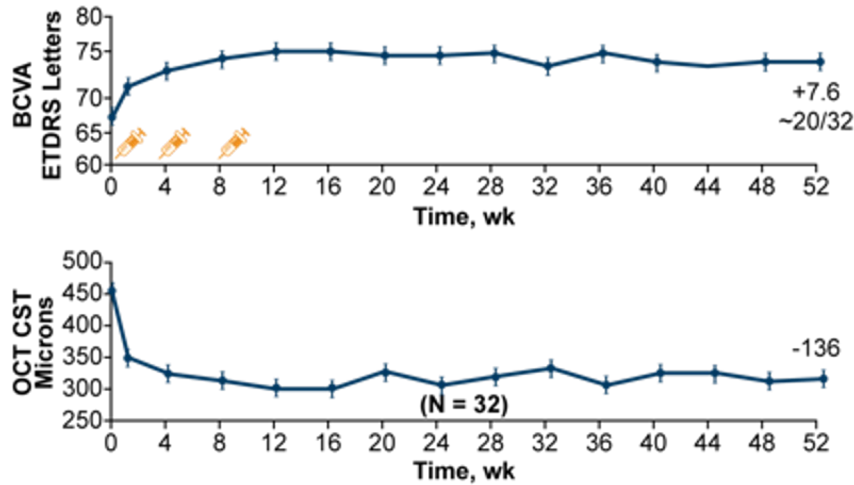
## Differences From Current Anti-VEGF Agents

- Designed for ocular durability
- Rapid systemic clearance
- Improved bioavailability
- Improved biocompatibility

# KSI-301 Has Durable Efficacy and a Reduced Number of Injections: Phase 1B Data (DME)<sup>1-3</sup>

## Efficacy

Change From Baseline to Week 52 in Mean BCVA and OCT



Loading doses

Individualized doses

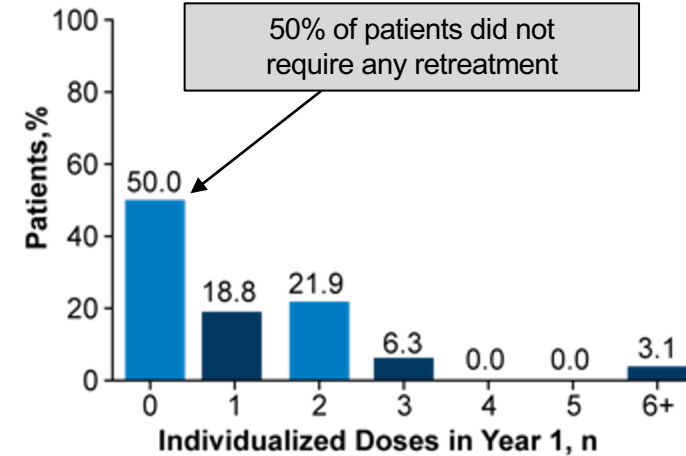
4.0 Mean injections in year 1

1.0 Individualized doses  
3.0 Monthly loading doses

KSI-301

## Retreatment Frequency

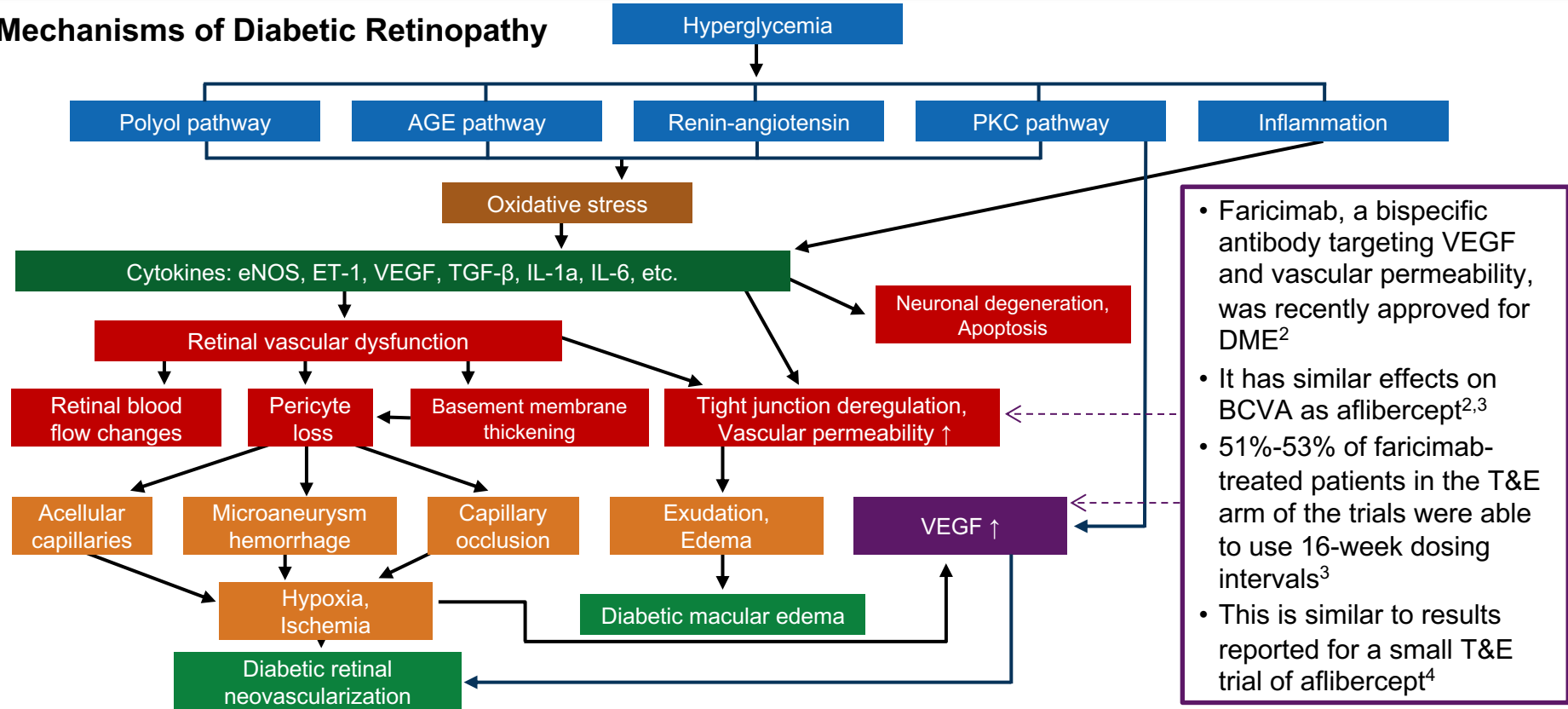
90% of Patients Received Two or Fewer Retreatments in Year 1



GLIMMER and GLEAM are phase 3 studies comparing KSI-301 with aflibercept and a sham injection in treatment-naïve patients with DME (estimated study completion: Oct 2022)

# The Pathophysiology of DR/DME Is Complex, With Many Potential Treatment Targets<sup>1</sup>

## Mechanisms of Diabetic Retinopathy



1. Yuen JZ. *Review of Optometry*. 2020; <https://www.reviewofoptometry.com/article/reconsider-your-approach-to-diabetic-retinopathy>. 2. Eylea (aflibercept) Prescribing Information. [https://www.accessdata.fda.gov/drugsatfda\\_docs/label/2021/125387s069lbl.pdf](https://www.accessdata.fda.gov/drugsatfda_docs/label/2021/125387s069lbl.pdf). 3. Wykoff CC et al. *Lancet*. 2022 Jan 21. [epub ahead of print]. 4. Hirano T et al. *Sci Rep*. 2021;11:4488.

# **Case Review: Putting it All Together**

# Review of Cases: Practical Considerations for Rural Latinx Patients With DR/DME

MT



DME with  
partial  
response to  
anti-VEGF  
therapy

CC



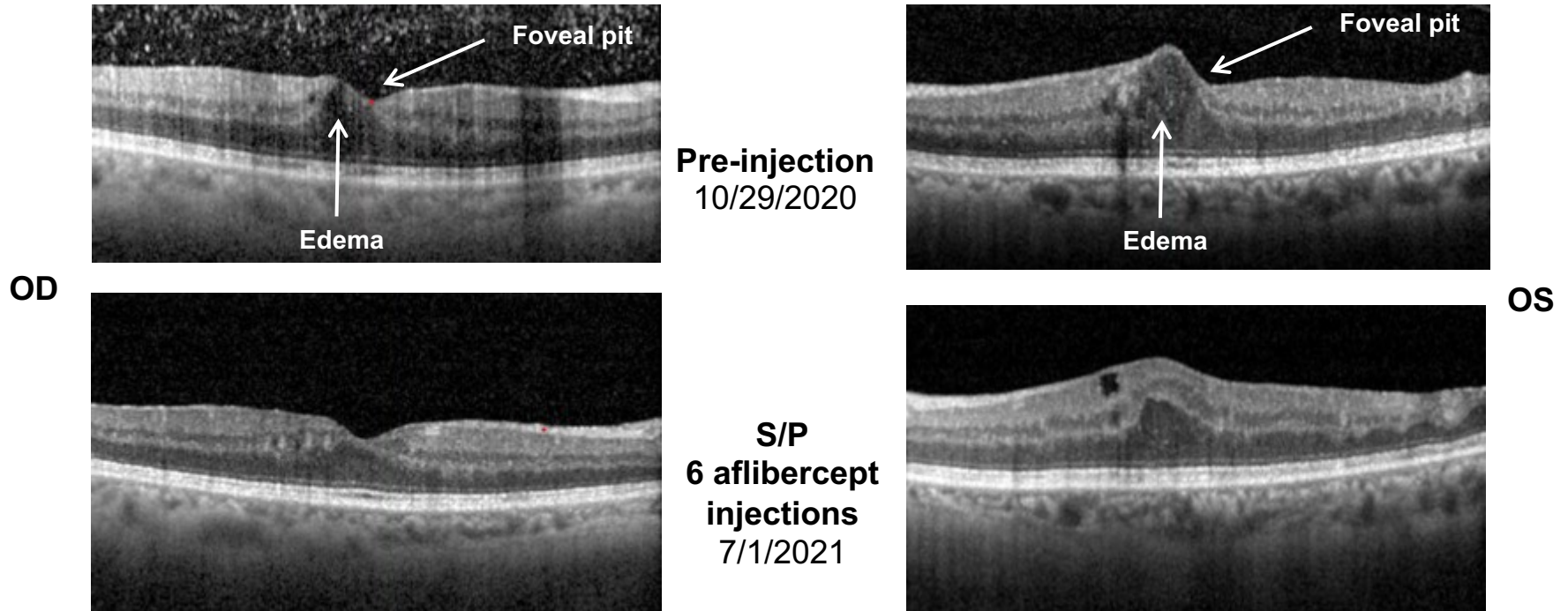
PDR with  
recurrent  
leakage

MG



DME, PDR,  
vitreous  
hemorrhage,  
retinal  
detachment

# MT: A Patient With Bilateral Center-Involved DME and a Partial Response to Treatment<sup>1</sup>

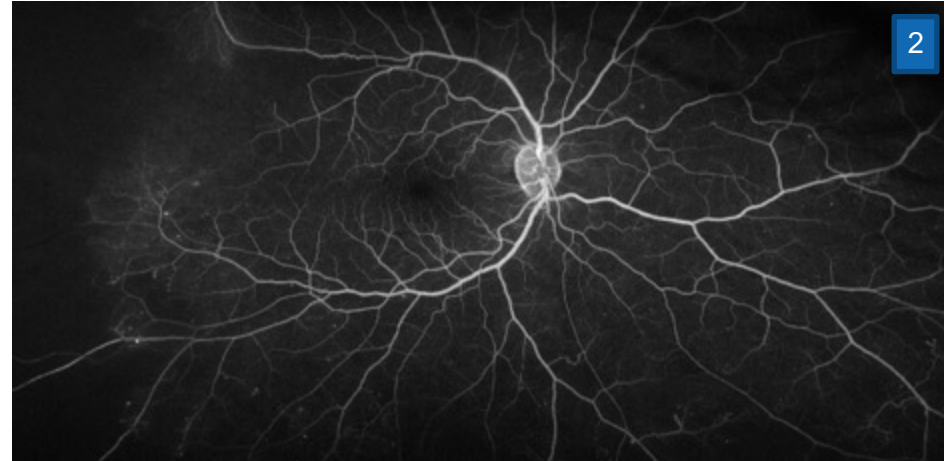


- OD: improved foveal contour, so treat PRN
- OS: needs continuous treatment—every 6 weeks at first, then every 8 weeks, and potentially longer intervals

# CC: A Patient With PDR and Recurrent Leakage<sup>1</sup>

Image 1  
8/19/2019  
Initial exam

Image 2  
1/16/2020  
S/P 7 aflibercept  
injections



Red circles: Neovascularization

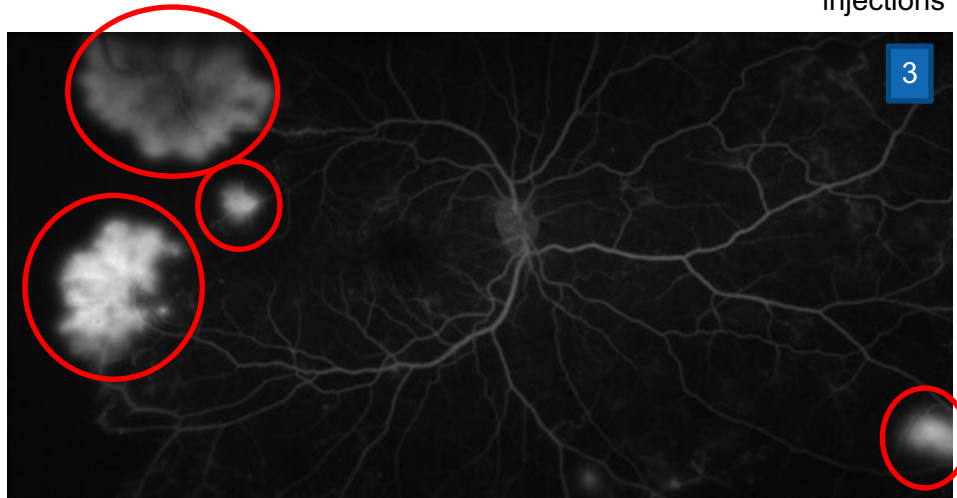
# CC: A Patient With PDR and Recurrent Leakage<sup>1</sup> (Cont'd)

Image 1  
8/19/2019  
Initial exam

Image 2  
1/16/2020  
S/P 7 aflibercept  
injections

Image 3  
5/28/2020  
New leakage

Image 4  
8/27/2020  
S/P a new  
series of 3  
aflibercept  
injections



Red circles: Neovascularization with leakage

# CC: A Patient With PDR and Recurrent Leakage<sup>1</sup> (Cont'd)

Image 1  
8/19/2019  
Initial exam

Image 2  
1/16/2020  
S/P 7  
aflibercept  
injections

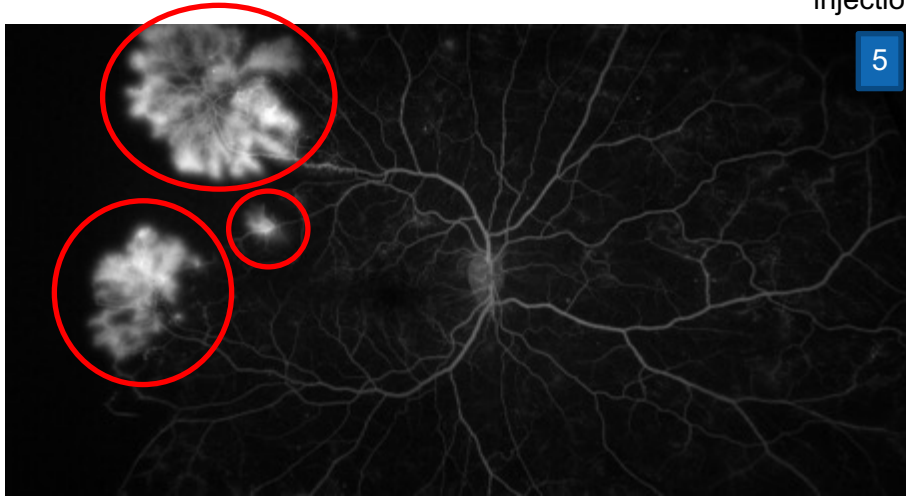
Image 3  
5/28/2020  
New leakage

Image 4  
8/27/2020  
S/P a new  
series of 3  
aflibercept  
injections

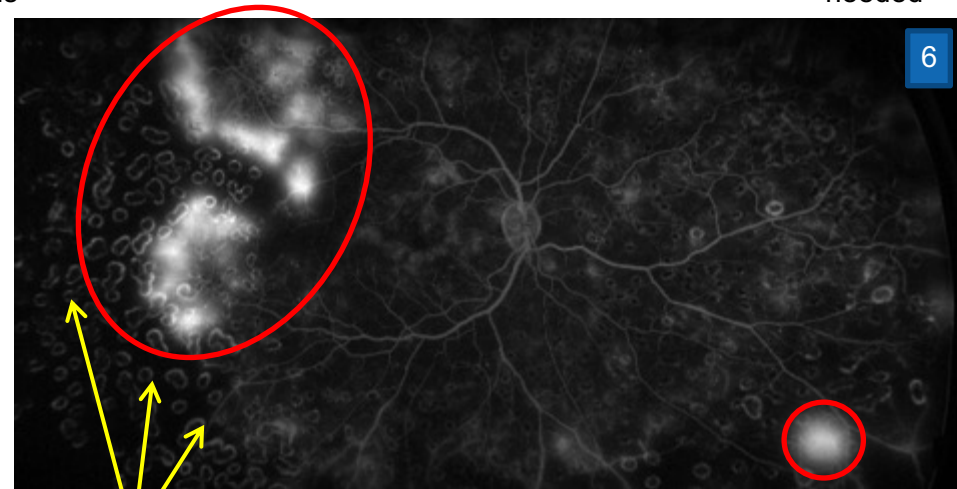
Image 5  
1/7/2021  
More new  
leakage

Multiple sessions of  
laser photocoagulation  
performed

Image 6  
11/18/2021  
Leakage  
resolving,  
more laser  
needed

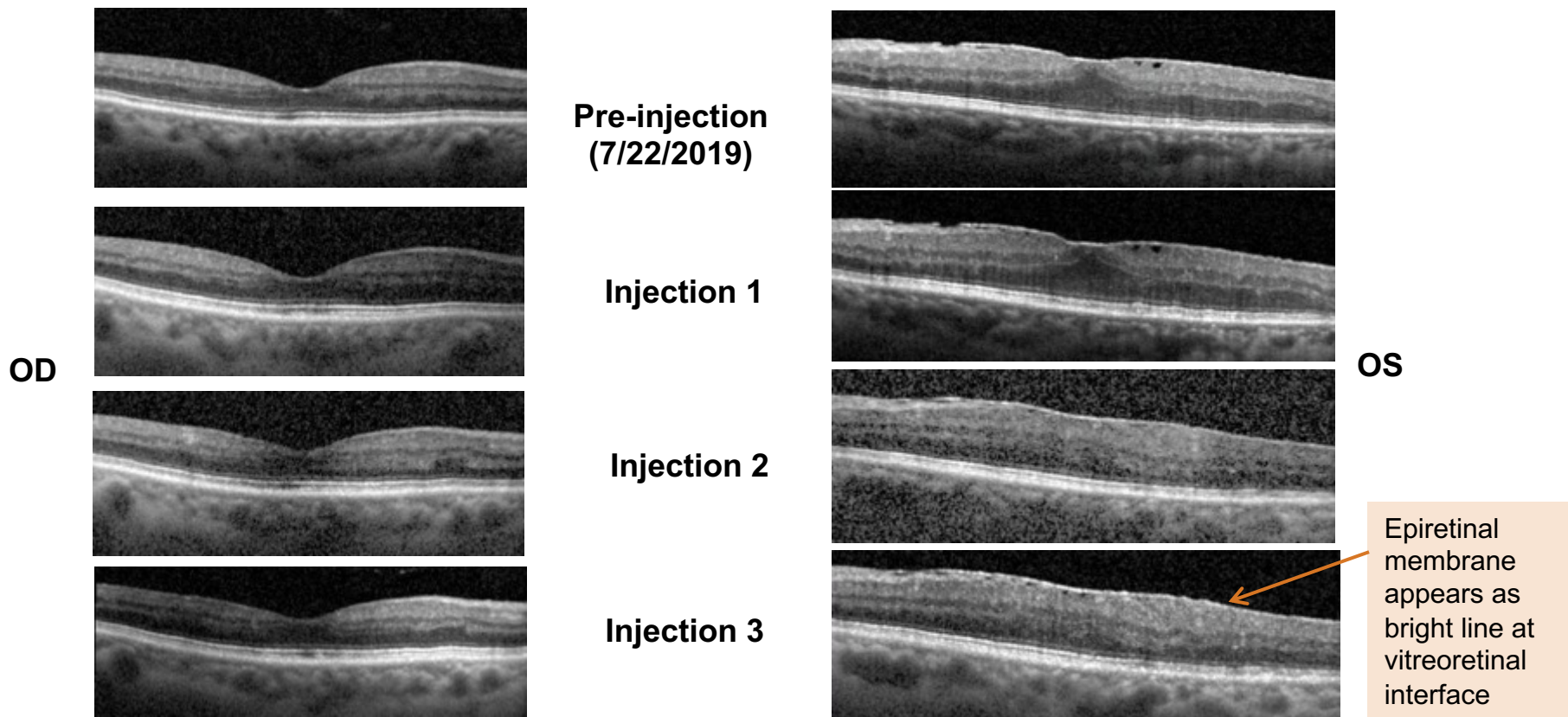


Red circles: Neovascularization with leakage



Photocoagulation scars (gives retina a pebbled appearance)

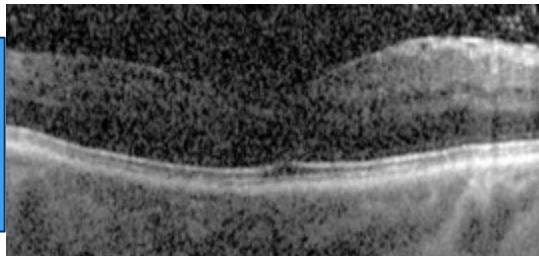
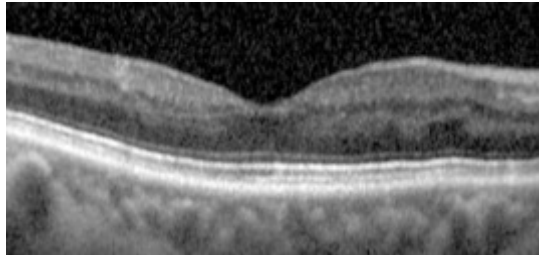
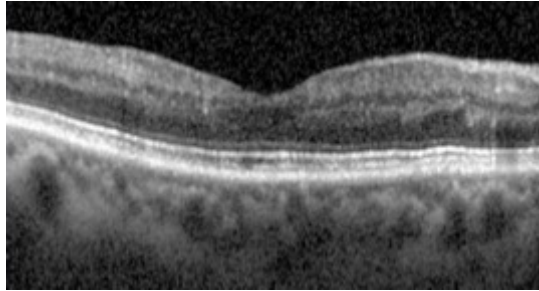
# MG: A Patient With DME, PDR, Vitreous Hemorrhage, and Retinal Detachment<sup>1</sup>



1. Images courtesy of J. Fernando Arevalo, MD, PhD, FACS.

# MG: A Patient With DME, PDR, Vitreous Hemorrhage, and Retinal Detachment<sup>1</sup> (Cont'd)

OD

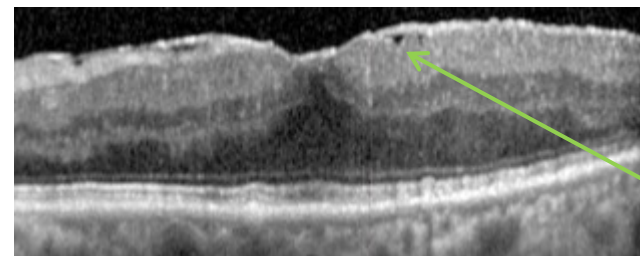
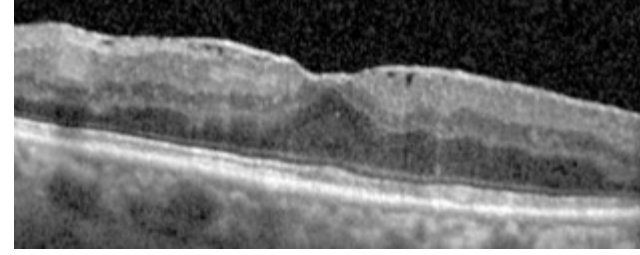
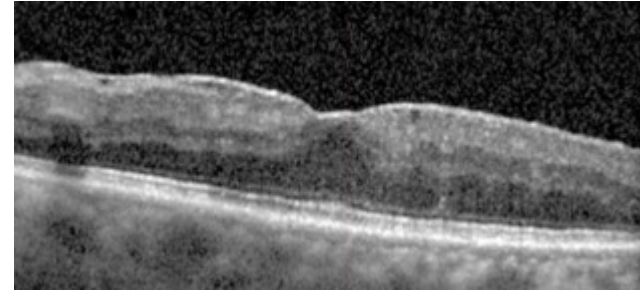


Fuzzy appearance of this image is caused by a cataract in this eye

Injection 4

Injection 5

May 2021  
1.3 years from  
last injection



OS

Epiretinal membrane is beginning to separate from the retina

# Conclusions

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- DM and DR/DME disproportionately affect rural Latinx patients
- Latinx patients face unique barriers to DR/DME screening and treatment
  - Language barriers
  - Immigration concerns
  - Lack of access to healthcare clinicians and health insurance
  - Others
- Shared decision-making is essential to obtain patient cooperation with frequent visits for treatment/monitoring
- Anti-VEGF therapy is the mainstay of DR/DME treatment
- New agents and technologies can improve rural Latinx patient satisfaction and outcomes
  - Telehealth/AI
  - Translator applications
  - Implantable drug-delivery
  - Longer-lasting agents

# Audience Q&A



PeerView  
Live

**Please remember to complete and submit  
your Evaluation.**

**[PeerView.com/DR-Survey-DRR](https://www.peerreview.com/DR-Survey-DRR)**

*Thank you and have a good day.*

PeerView  
Live

# Abbreviations

AGE: advanced glycation end product  
AEs: adverse events  
AI: artificial intelligence  
AMD: age-related macular degeneration  
BCVA: best-corrected visual acuity  
CI-DME: center-involved diabetic macular edema  
CSME: clinically significant macular edema  
CST: central subfield thickness  
DME: diabetic macular edema  
DR: diabetic retinopathy  
DRCR: Diabetic Retinopathy Clinical Research  
eNOS: endothelial nitric oxide synthase 3  
ET-1: endothelial-1  
ETDRS: Early Treatment Diabetic Retinopathy Study  
HCPs: healthcare professionals  
HDHP: high-deductible health plan  
HSA: health savings account  
IL: interleukin  
mtmDR: more than mild diabetic retinopathy

NPDR: nonproliferative diabetic retinopathy  
OD: oculus dexter (right eye)  
OCT: optical coherence tomography  
OS: oculus sinister (left eye)  
PDR: proliferative diabetic retinopathy  
PDS: port delivery system  
PKC: protein kinase C  
PRN: as needed  
PRP: panretinal photocoagulation  
RNV: retinal neovascularization  
RVO: retinal vein occlusion  
SDM: shared decision-making  
S/P: status post  
T&E: treat and extend  
TGF- $\beta$ : transforming growth factor beta  
VA: visual acuity  
VEGF: vascular endothelial growth factor  
VTDR, vtDR: vision-threatening diabetic retinopathy