

The Future of Optometry - 2022

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FINANCIAL DISCLOSURES:

- LUXOTTICA
- ALLERGAN
- VISUAL PERFORMANCE CENTER

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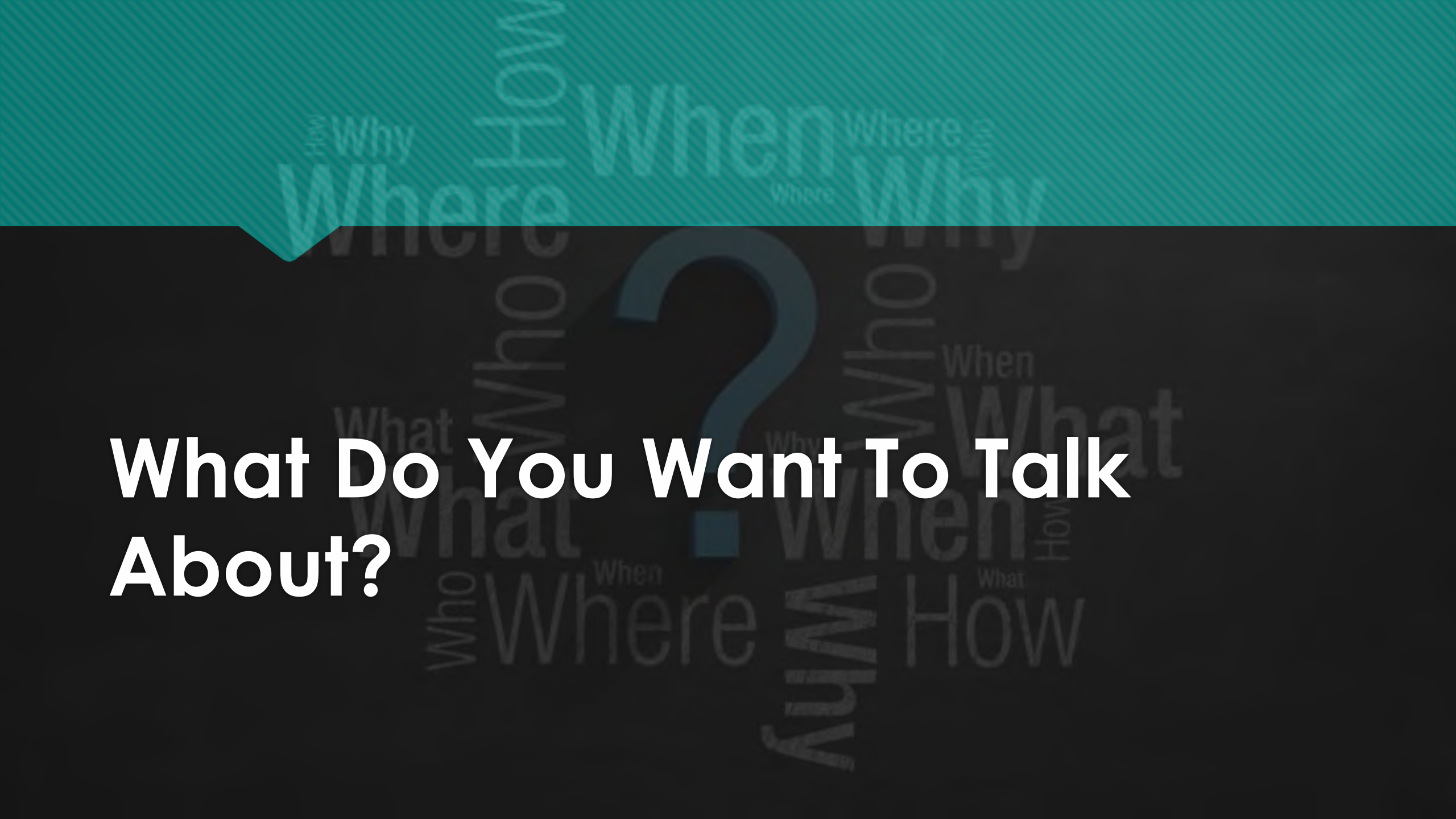
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FINANCIAL DISCLOSURES:

- ALCON
- RVL
- CARL ZEISS MEDITEC
- BAUSCH & LOMB
- NOVARTIS
- ALLERGAN
- MACUHEALTH
- SUN PHARMACEUTICALS
- EYENOVIA
- SIGHT SCIENCES
- OCUSOFT
- NEUROLENS



**What Do You Want To Talk
About?**

Sources



- AOA
- ASCO
- Academy Ophthalmology
- Bureau Labor Statistics
- Vision Monday
- US Census
- Prevent Blindness
- The Vision Council
- Data on File Various Companies
- Unnamed Proprietary

YOU BETTER CUT THE PIZZA
IN FOUR PIECES BECAUSE
I'M NOT HUNGRY
ENOUGH TO EAT SIX

Yogi Berra





Optometry Is a Business

How Big is The Eye Care Market??



Contact Lenses



Glasses



Frames



Exams

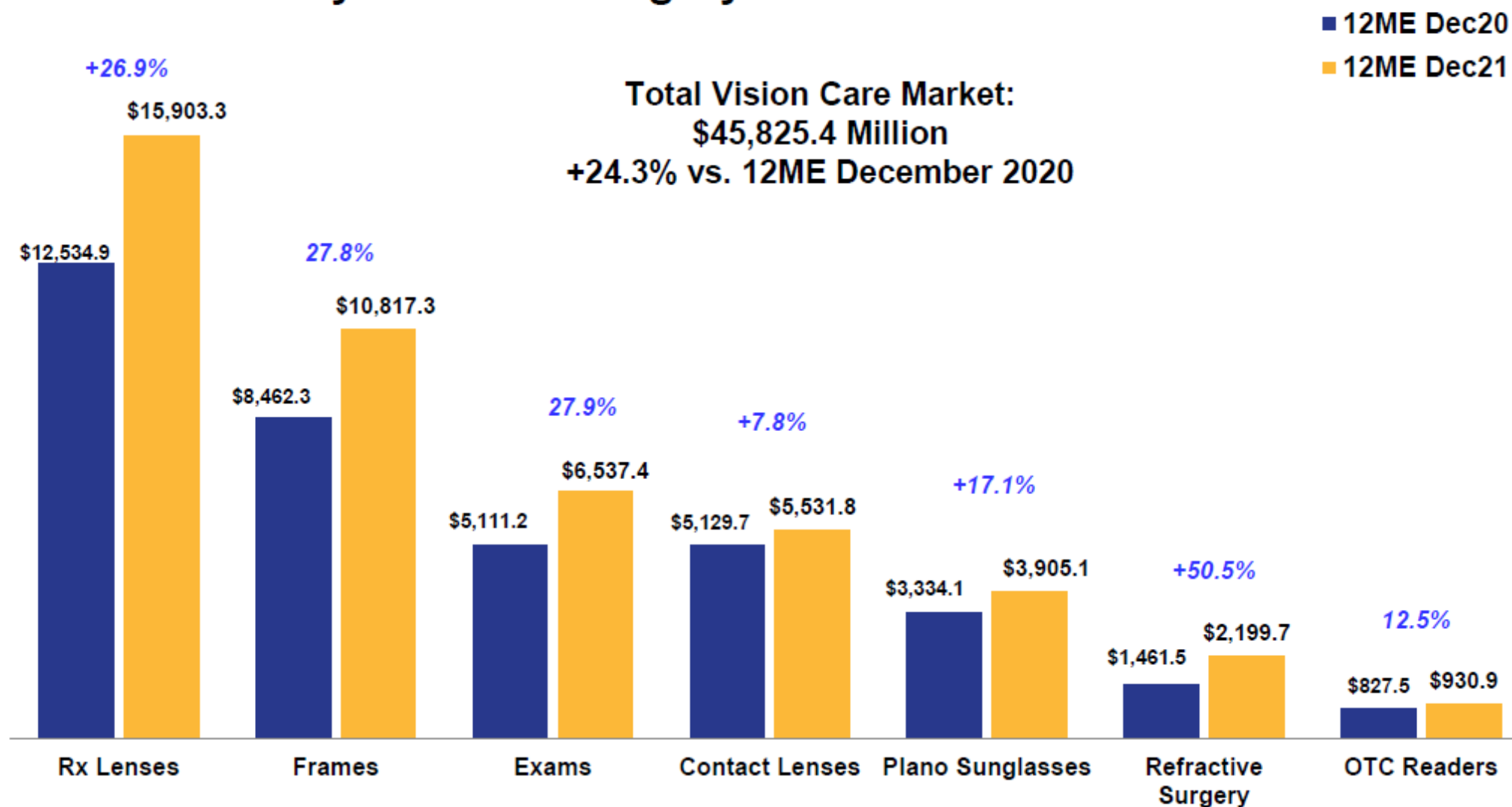


Sunglasses



Medical/Surgical

Annual Sales by Product Category – In Millions



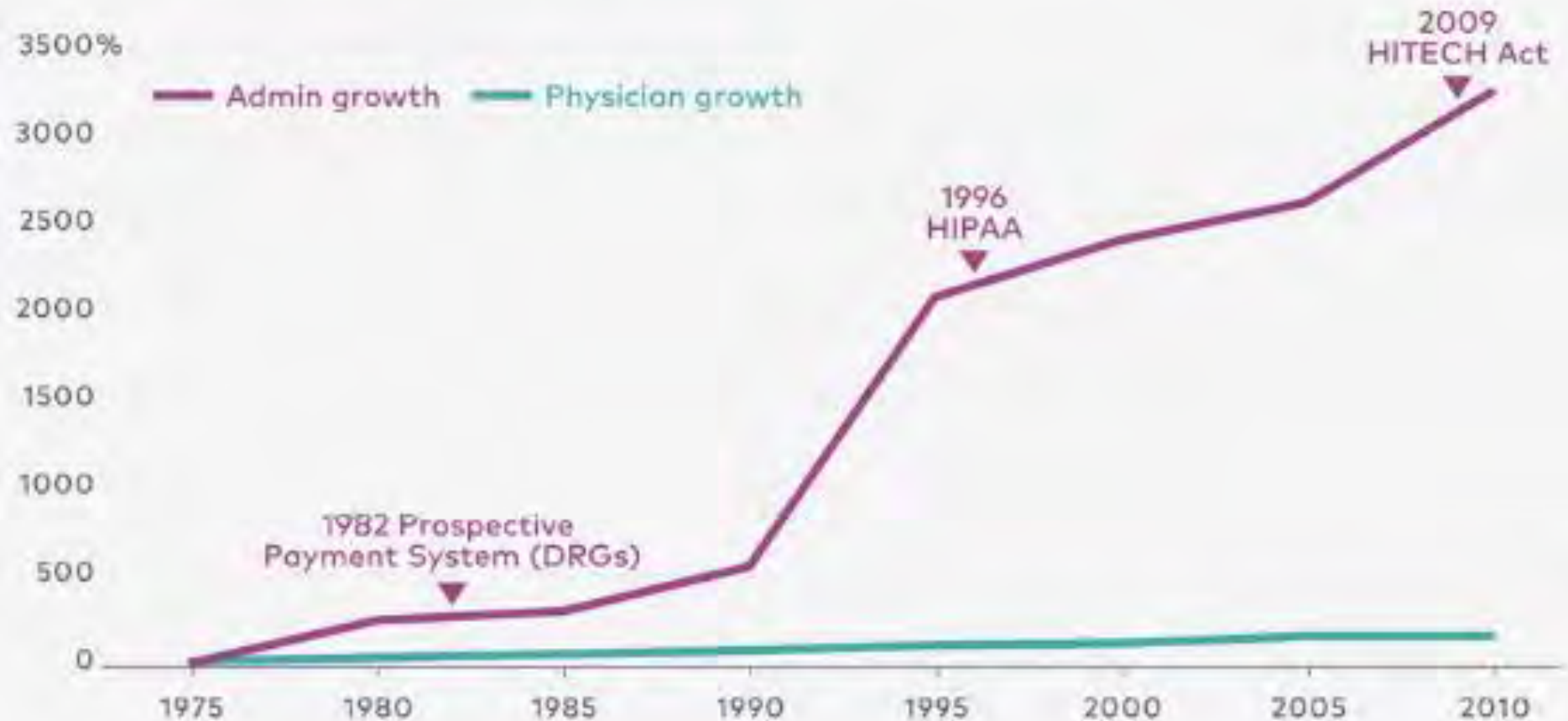
**Total Vision Care Market* includes dollars spent at all retail types at any retail location on the sale of either spectacle lenses (including Rx sun), frames, contact lenses, plano sunglasses, OTC readers, or revenue earned from refractive surgery or eye examinations. This number does not include sunglass clips and reflects the dollars spent only by those U.S. residents 18 and older. Does not include retail dollars spent by/for contact lenses and exams for those 17 years of age and younger.

The background consists of a teal upper section and a black lower section, separated by a jagged horizontal line. The text is white and positioned in the black section.


What is The Managed Vision Care Penetration

HealthCare is A Business

Healthcare administrators far outpace physicians in growth



Source: athenahealth analysis of data from the Bureau of Labor Statistics, the National Center for Health Statistics, and the United States Census Bureau's Current Population Survey

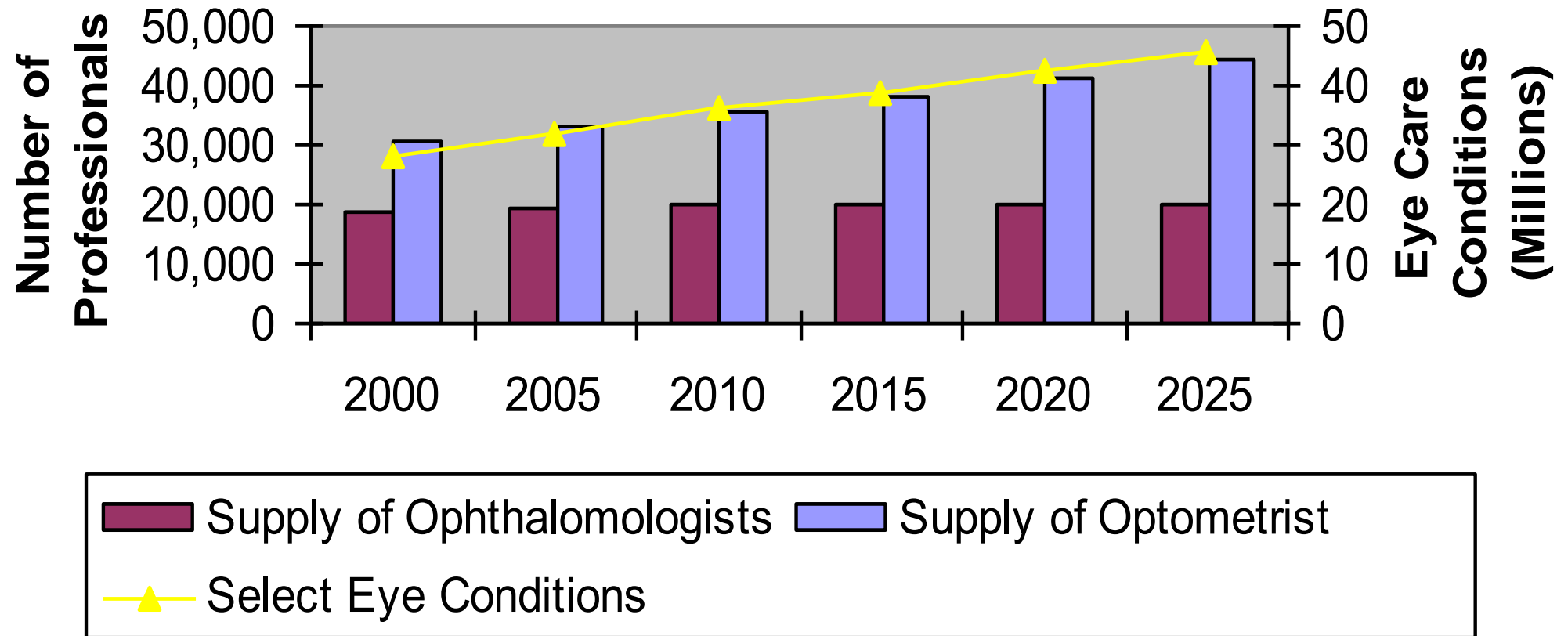


Demographics and Distribution

OPPORTUNITY

US EYE
CARE
SUPPLY
AND
DEMAND

Number of Eye Conditions* & Professionals (US 40+ population)



Source: US Dept. of Labor, US Dept. Health, Education & Welfare, and Review of Ophthalmology

*Select Conditions are Diabetic Retinopathy, AMD, Glaucoma, and Cataracts

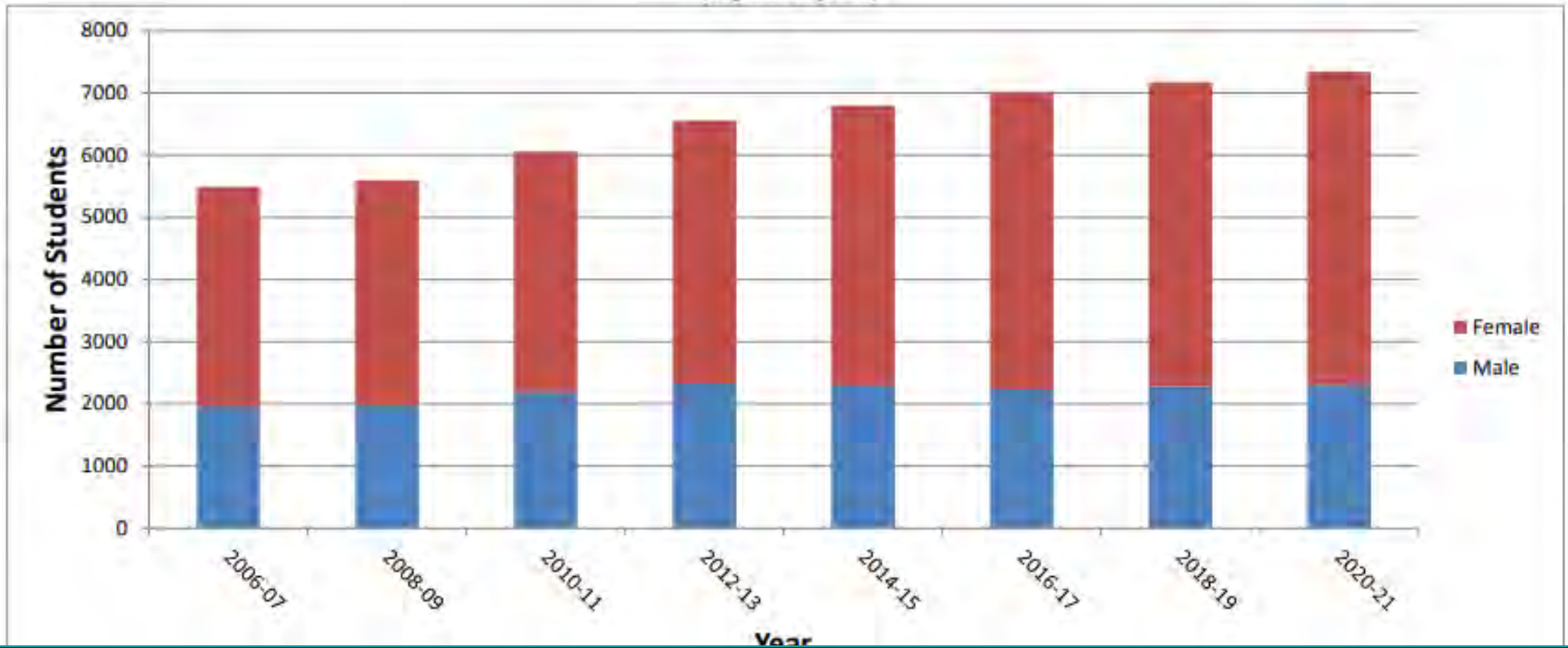
Where are the Optometrists?





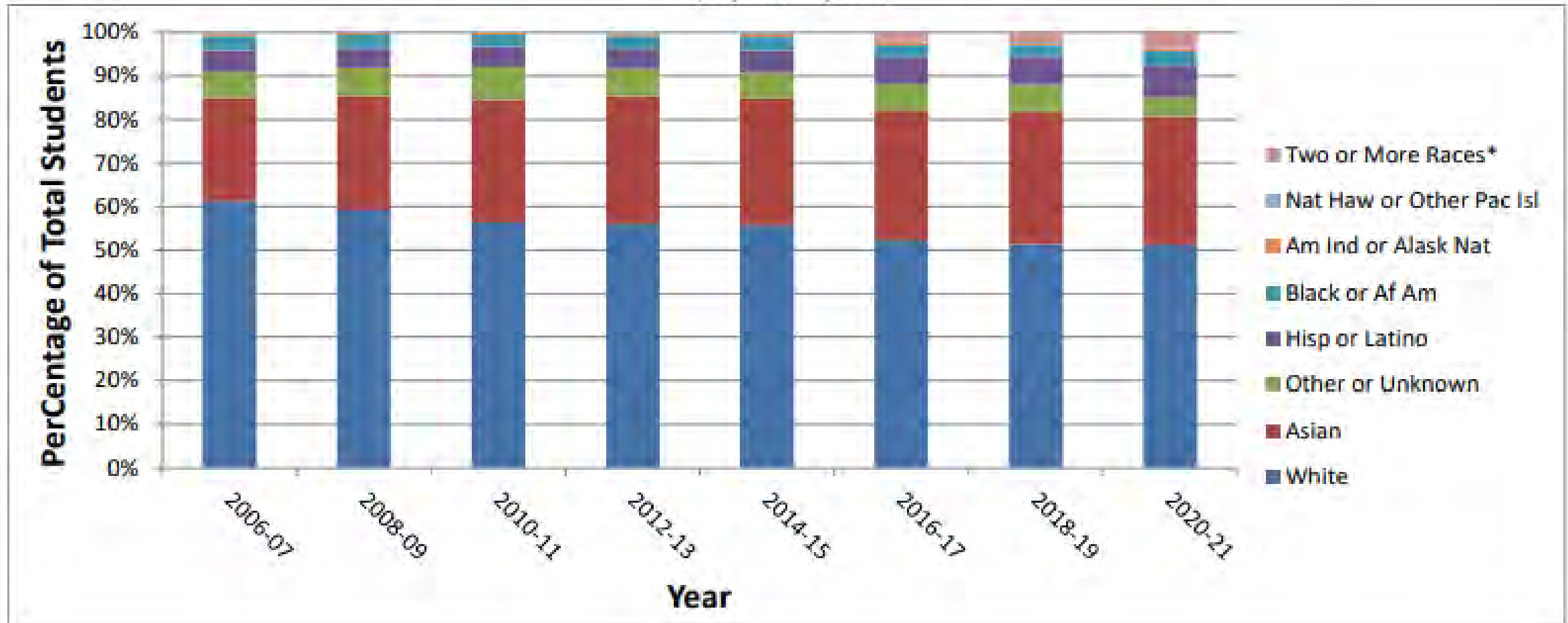
Schools and Students

(Regular Programs)



**DIVERSITY Male-Female
OVERALL ENROLLMENT**

Race/Ethnicity of Full-Time Doctor of Optometry Students, 2006-2021 U.S. Schools and Colleges of Optometry (Regular Programs)

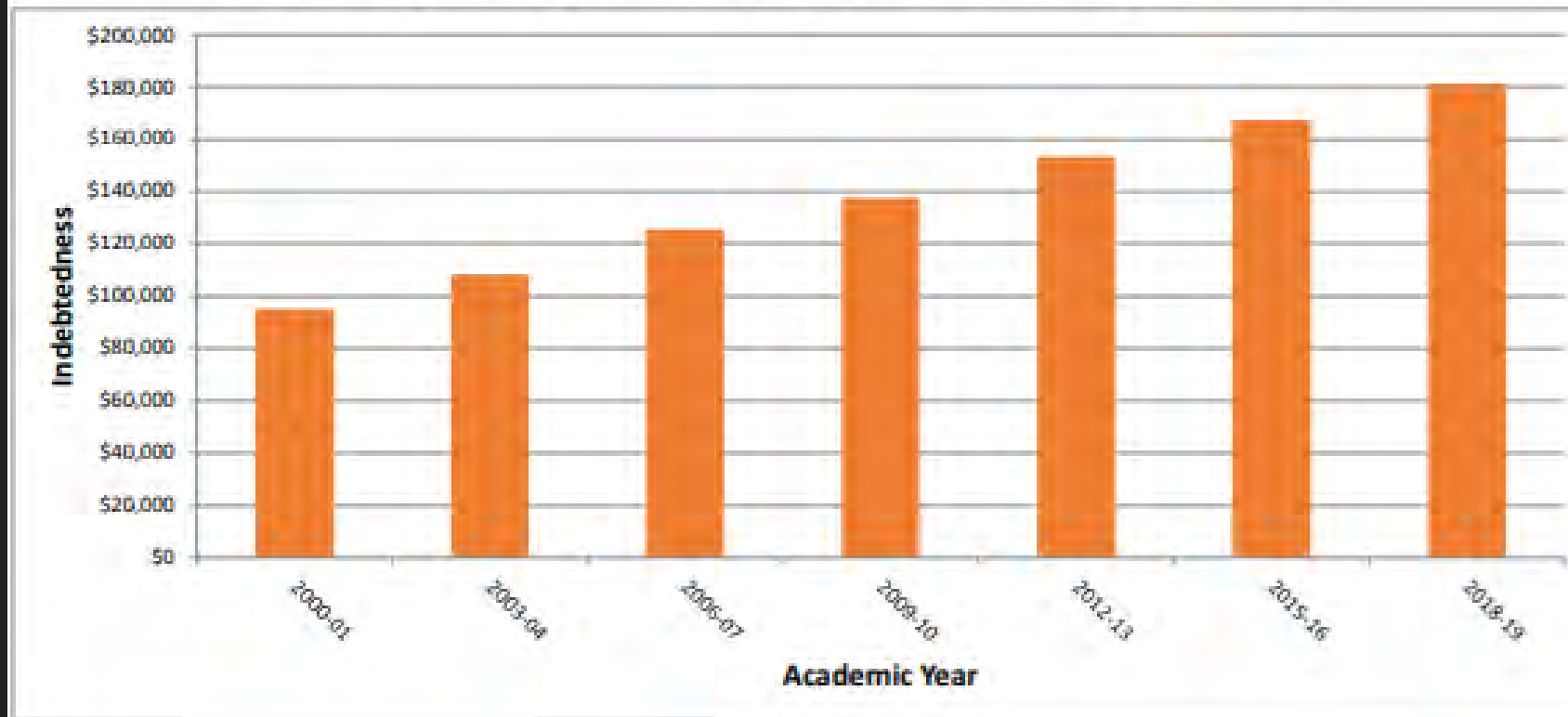


Average Educational Indebtedness of Graduates with Debt*

U.S. Schools and Colleges of Optometry Including Puerto Rico

2000-2019

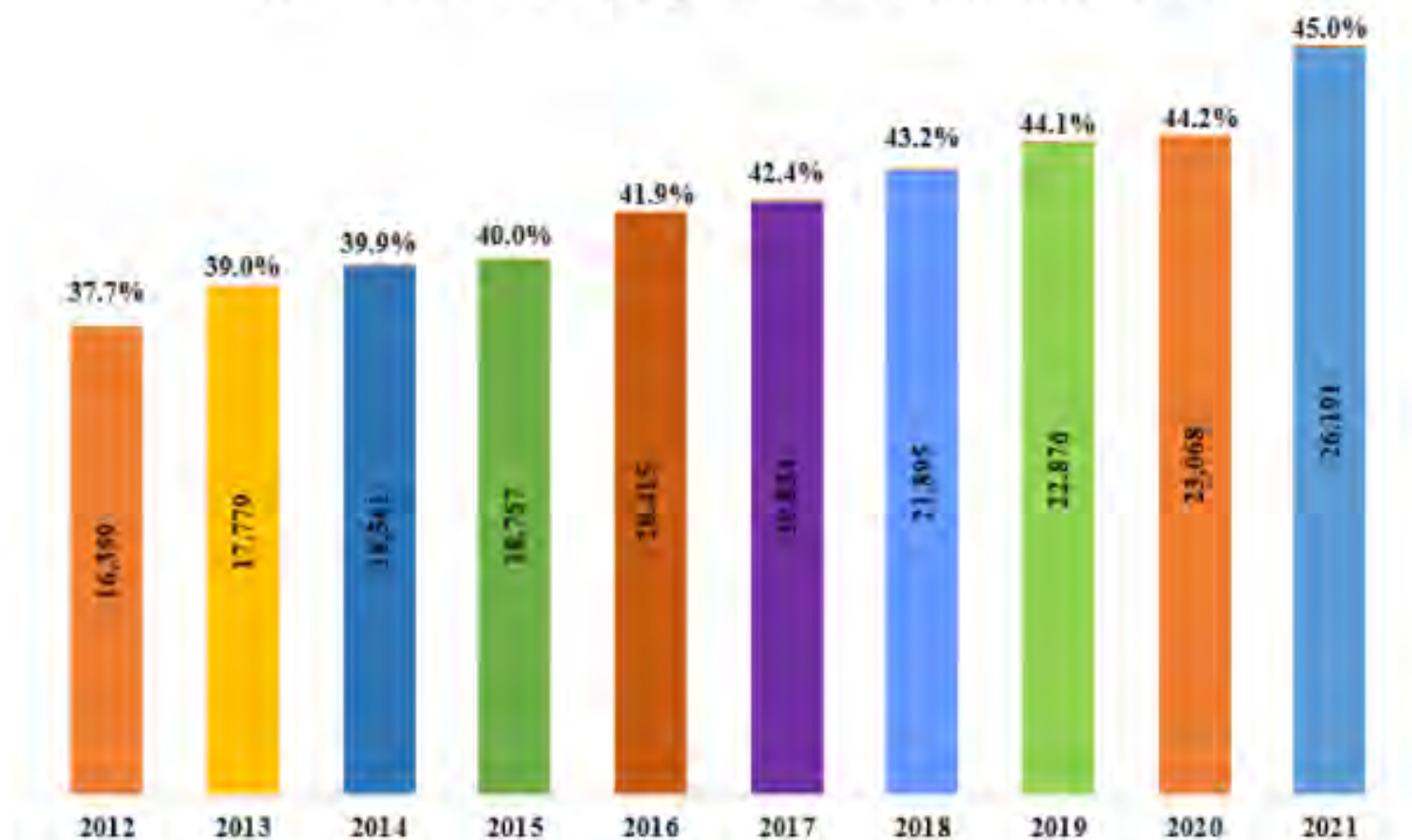
(Includes graduate and professional school debt. Does not include undergraduate debt.)



	2000-01	2003-04	2006-07	2009-10	2012-13	2015-16	2018-19
Average indebtedness	\$95,291	\$108,229	\$125,685	\$137,507	\$153,158	\$167,482	\$181,081

*Figures are incomplete as each of the reported years do not include all optometry schools. Several schools (not necessarily the same each year) report that average indebtedness information is not available.

Number and Percentage of Women ODs Over Time



Guam and Puerto Rico #s were added in 2020. Source: Healthgrades.com, accessed 2/1/2021

State	2021 Total	2021 Men	2021 Women	% of Women 2021	Change in Women ODs
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U.S. total	58,254	32,063	26,191	45.0%	0.8% ▲
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Source: [healthgrades.com](https://www.healthgrades.com), accessed February 2021

- Practicing OD's is closer to 46K . The 58K is total licensed and many licensed in multiple states

Optometry School Applicants

	2012-2013	2013-2014	2014-2015	2015-2016	2016-2017	2017-2018
Verified Applicants	2,639	2,604	2,732	2,812	2,687	2,527
Verified Applications	13,210	13,164	13,261	13,620	13,339	12,293
Total Verified Applications per Applicant	5.01	5.06	4.85	4.84	4.96	4.86

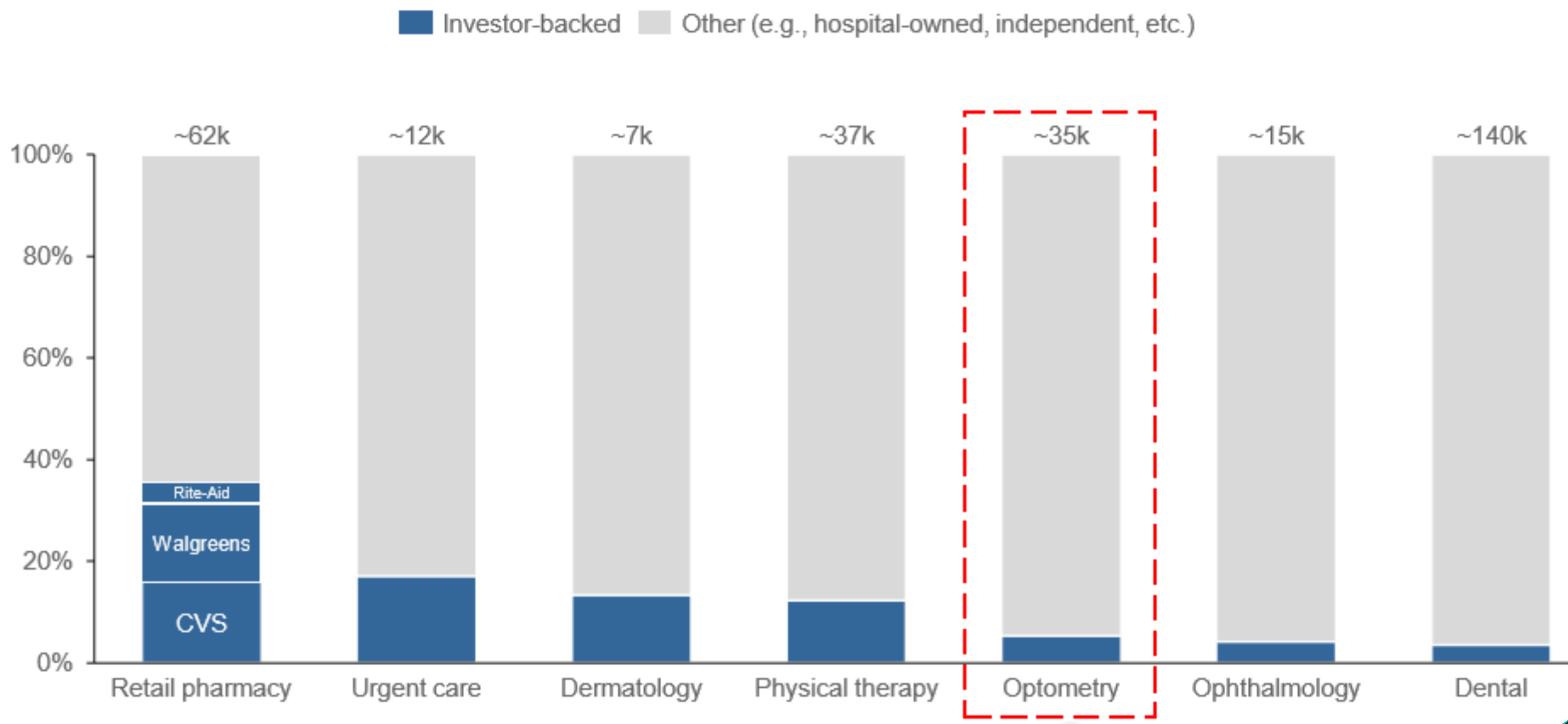
RECRUITING THE FUTURE DOCTORS OF OPTOMETRY

**Being an optometrist
gives me life**



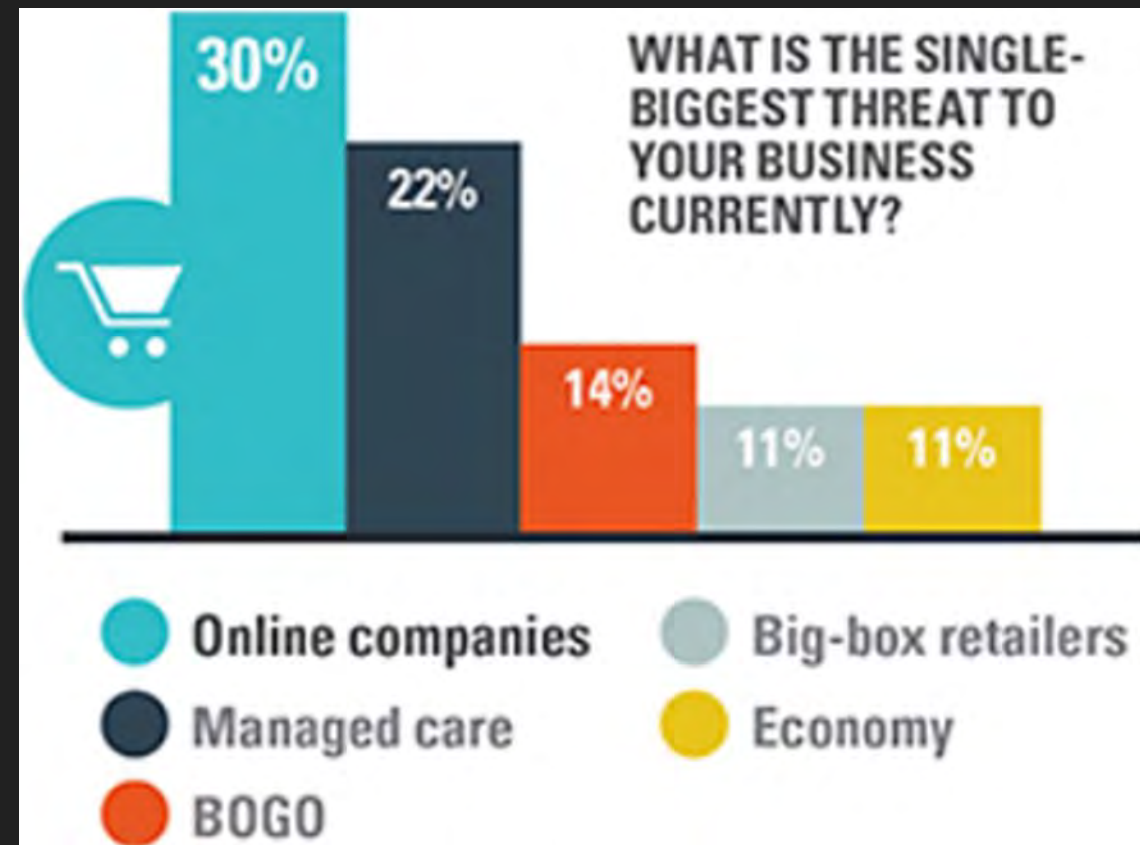
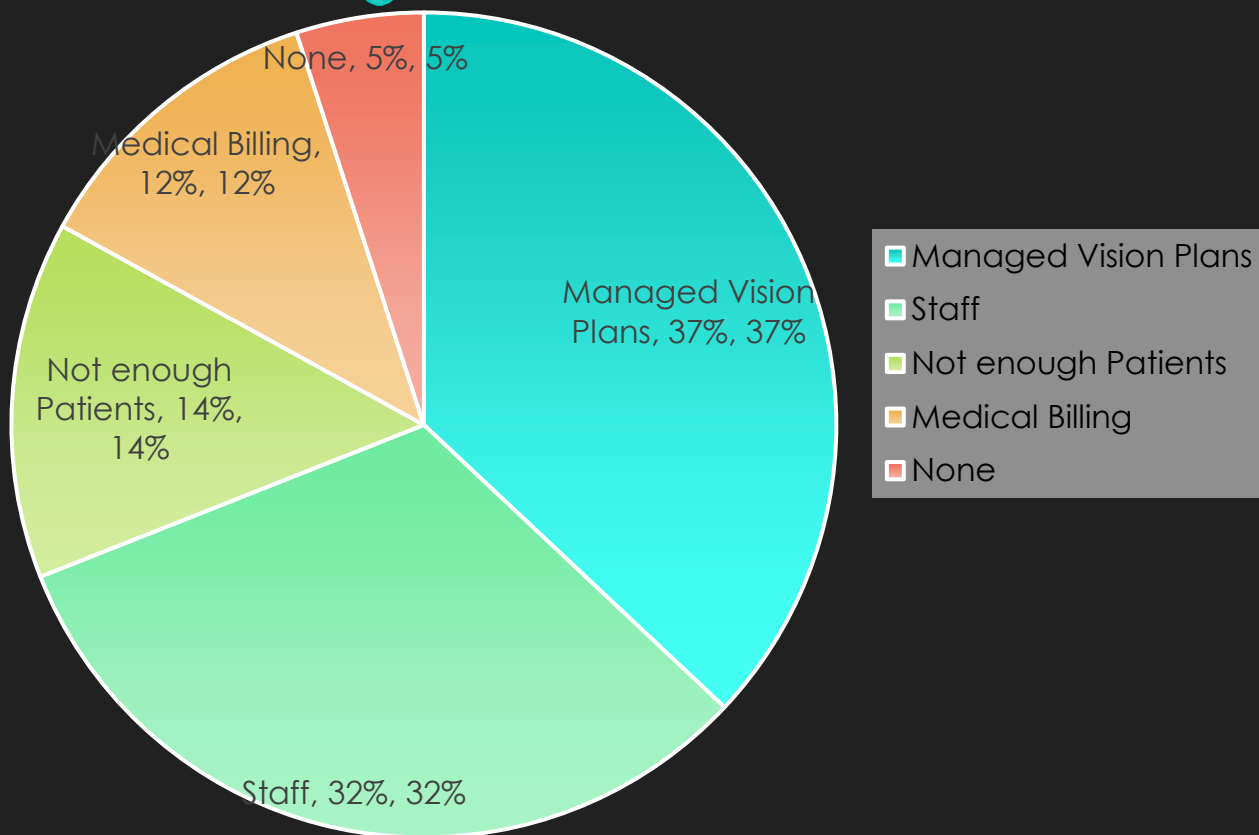
Consolidation and Disruption

PERCEPTION >>>> REALITY

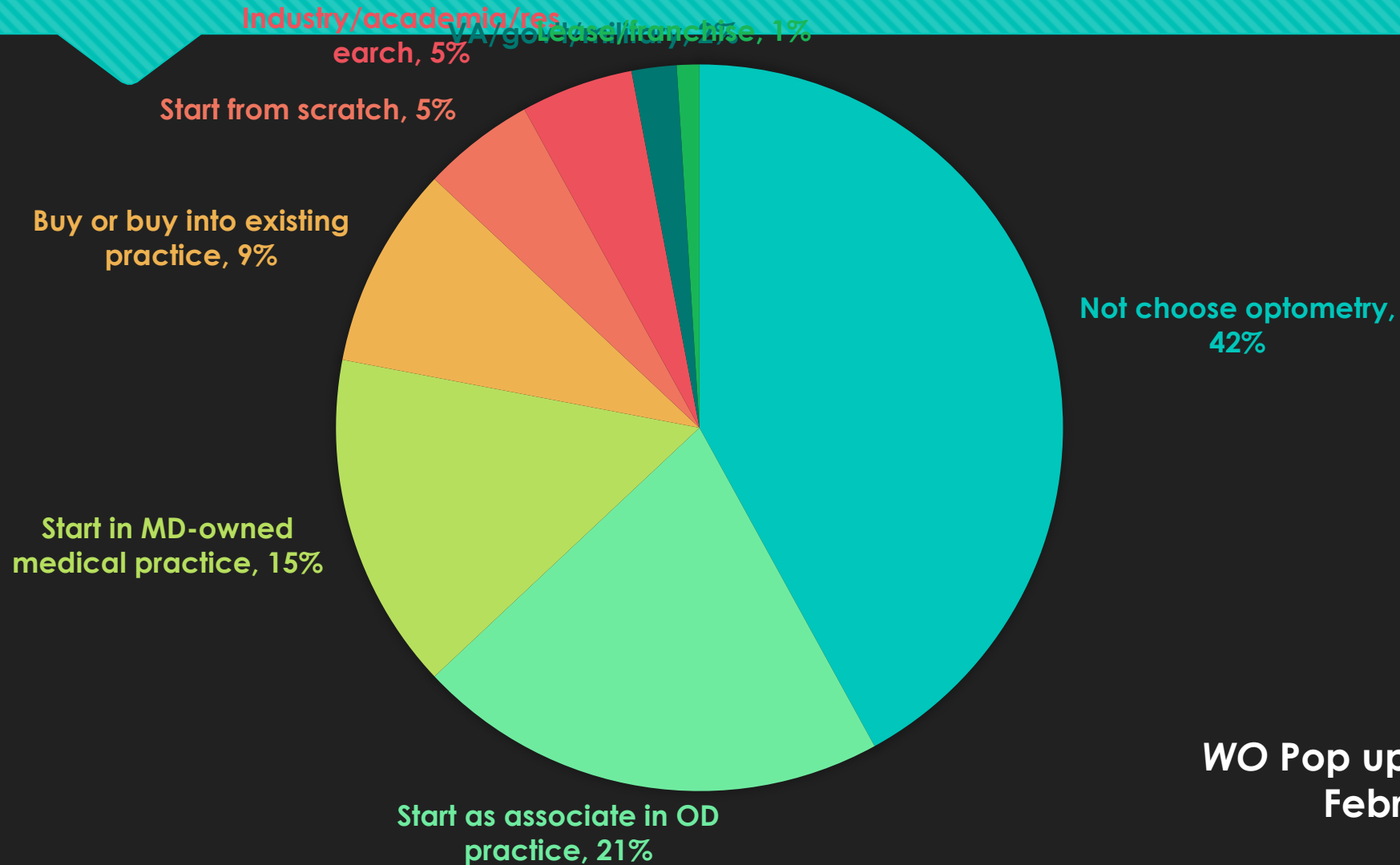


Consolidation – Don't Panic

BIGGEST CHALLENGES /THREATS



HOW WOULD YOU START OUT TODAY?



WO Pop up Poll results from
February 2017

TECHNOLOGY AND DISRUPTION



[Int J Ophthalmol](#). 2018; 11(9): 1555–1561.

Published online 2018 Sep 18. doi: [10.18240/ijo.2018.09.21](#)

PMCID: P

PM

Application of artificial intelligence in ophthalmology

[Xue-Li Du](#), [Wen-Bo Li](#), and [Bo-Jie Hu](#)

Conference

AI in HealthCare Summit

🕒 15 May 2019 ([remind me](#))

📍 San Francisco Marriott Marquis, San Francisco, USA

Interested

Going

Retina-AI releases AI mobile app for eye care providers

July 17, 2018

DeepMind's AI can detect over 50 eye diseases as accurately as a doctor

The system analyzes 3D scans of the retina and could help speed up diagnoses in hospitals

By [James Vincent](#) | Aug 13, 2018, 11:01am EDT

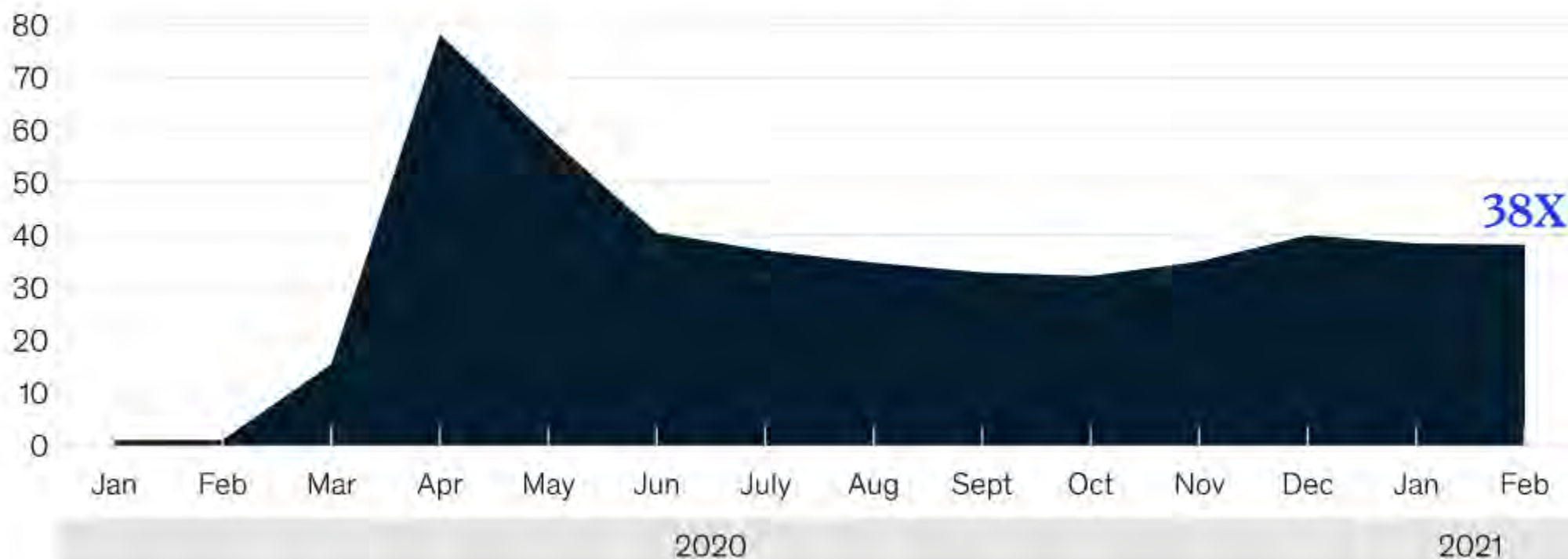
Remote Access Tele-Health



Telehealth usage (today)

Growth in telehealth usage peaked during April 2020 but has since stabilized.

Telehealth claims volumes, compared to pre-Covid-19 levels (February 2020 = 1)¹



¹ Includes cardiology, dental/oral, dermatology, endocrinology, ENT medicine, gastroenterology, general medicine, general surgery, gynecology, hematology, infectious diseases, neonatal, nephrology, neurological medicine, neurosurgery, oncology, ophthalmology, orthopedic surgery, poisoning/drug tox./comp. of TX, psychiatry, pulmonary medicine, rheumatology, substance use disorder treatment, urology. Also includes only evaluation and management visits; excludes emergency department, hospital inpatient, and psychiatry inpatient claims; excludes certain low-volume specialties.

Source: Compile database; McKinsey analysis

Patient usage (and comfort) of telehealth across specialties

How has COVID-19 changed the outlook for telehealth?

1 Consumer

Shift from:



11%

use of telehealth in 2019

To:



76%

now interested in using telehealth going forward

While the surge in telehealth has been driven by the immediate goal to avoid exposure to COVID-19, with more than 70 percent of in-person visits cancelled,¹ 76 percent of survey respondents indicated they were highly or moderately likely to use telehealth going forward,² and 74 percent of telehealth users reported high satisfaction.³

2 Provider

Health systems, independent practices, behavioral health providers, and others rapidly scaled telehealth offerings to fill the gap between need and cancelled in-person care, and are reporting

50–175x

the number of telehealth visits pre-COVID,⁴



In addition, **57%**

of providers view telehealth more favorably than they did before COVID-19 and

64%

are more comfortable using it.⁵

Why Tele-optometry

Patients demands:

- Continued/Growing desire to have services when they want to be seen
- Evening and expanded weekend exam availability and access on holidays
- Desire to use advanced technologies

Doctors' desires:

- Improved work / life balance – flexibility
- Challenges to find doctors to work weekends / weekdays; lack of desire for weekend requirements for OD's
- Desire for some sublease doctors to expand locations

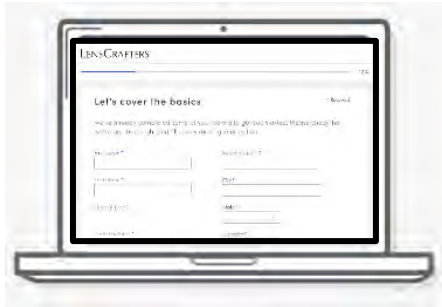
Access to Care:

- Limited dark stores, but stores that have been dark for an extended period of time
- Inability to grow in certain geographies due to lack of availability of doctors
- Not economically viable to put doctors in a set of locations with low exam volume

What does it look like?

HOW THE TELE-OPTOMETRY PROCESS WORKS IN OFFICE

1 Patient Intake



- All Information stored in a proprietary E.M.R. system
- TAB integrates into E.M.R.
- Personal information is entered into the system
- Patient consents are taken electronically with signature
- Intake is performed electronically (Demographics and Health Hx)
- Chief complaint recorded

2 Pre-test



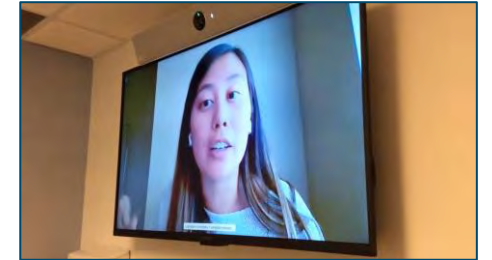
- Testing is performed by a specially trained technician
 - Lensometry
 - AR/AK
 - Corneal Imaging using video slit lamp
 - Tonometry (NCT)
 - Optos (Daytona)
 - Visual Fields (Oculus / FDT)
 - Pre-Tests (VAs, etc.)
- Results recorded, data and images uploaded to system

3 Remote Refraction



- Local technician stays in room to support
- O.D. appears on the video monitor and references chief complaint
- Video camera allows doctor to see patient and vice-versa
- O.D. performs refraction and determines best lens options for the patient

4 Remote Consultation



- O.D. Debriefs patient on health findings and answers any questions
- O.D. can share on screen the patient's retinal images, topographies, VFs, etc.
- O.D. makes any referrals as needed
- O.D. ensures patient understands recommendations for health and vision
- Prescription is automatically printed at store
- Local technician transitions patient out to retail

■ = Key Differences from a 'traditional exam'

Responsible use of Tele-optometry

- Access to an Optometrist and Professional Judgment
 - Per the EyeMed Provider Agreement: Cannot discriminate or prevent patients from receiving care based on their health conditions, age, gender, etc.
 - Can advise patients to seek different types of care based on complaints at time of booking
 - Means every patient may connect with an Optometrist if they choose to have exam
 - Means every Optometrist must review patient health data and determine for themselves the best care plan for the patient
- Utilization of (evolving) technology to standardize patient data, imaging, and objective values
- Secure storage and recall of patient data, results, etc.
- Synchronous

Minimum Standards Proposal

Examinations that include the patient receiving a prescription must also include:

1) Consent – When making appointment and/or confirming appointments made online, inform all patients about how the exam will be performed if any alternative technology is being used

2) Comprehensive eye exams (refraction only exams are not viable) must include:

- Lensometry (if available from patient)
- Autorefraction / Keratometry
- Non-Contact Tonometry
- Video Slit lamp evaluation
- Visual fields (FDT) or confrontations
- Fundus/Photography Retinal Image (OCT / OPTOS / Retinal Camera)
- Phorias / Pupils / EOMs
- Visual acuity – unaided and aided (if applicable)
- Color Vision / Stereopsis
- Blood Pressure
- Refraction (remotely controlled)

Minimum Standards Proposal

- 3) Must be of a **synchronous** nature with a licensed doctor (ie. Real time live video chat)
- 4) Documented process for **referrals** with contact information for local referral providers so that we're ready for "emergencies"
 - Utilize Professional Judgement – Remote OD has full control and can perform a hard stop if identified health concerns are encountered or discovered during exam.
- 5) Must not be of a lower quality (clinically, experientially) than the patient could receive in an office today
- 6) Must meet or exceed state regulation/guidelines

Potential hard stops that could limit the exam completion

HARD STOP of procedure can occur if a patient has one of the following conditions and is NOT under the active care of a doctor. **Rx not able to be generated, referral to in-person OD for Exam:**

- Diabetic Retinopathy
- Macular Degeneration
- Macular Edema
- Significant Cataracts
- Glaucoma
- Keratoconus (for any Corneal Abnormality or Disease)
- Anterior Chamber Abnormalities
- Strabismus
- Visual Field Abnormalities
- Optic Neuropathy
- Significant Media Opacities of Any Origin
- Foreign Body, Trauma, or Any Ocular Pain
- Red Eye(s), Discharge, or Photophobia
- Sudden, Unexplained Loss of vision
- Tumors or Actively Changing Lesions
- ANY unexplained reduction in visual acuity
- Patient ability to maintain focus and complete exam (age – young/old)

Provider is in control and contact with patient if any HARD STOP is necessary for Referral (Professional Judgement)

Potential soft stops that could limit the exam completion

SOFT STOP of procedure may occur if a patient has one of the following conditions and is not under the active care of a doctor or is not actively symptomatic. **Rx able to be generated, referral to in-person OD for follow-up:**

- Hx of Retinal/Macular pathology
- Hx of Ocular Pathology not impacting vision
- Hx of Diabetes (no Retinopathy)
- Hx of Hypertension (no Retinopathy)
- Mild Cataracts not reducing VA
- History of Prism in Lensometry
- Visual Field Abnormalities (non-pathologic patterns)
- Dry Eye / Blepharitis Sn/Sx
- Retinal findings indicating increased risk
- Headaches w/ near work
- Patient ability to maintain focus and complete exam (age – young/old)

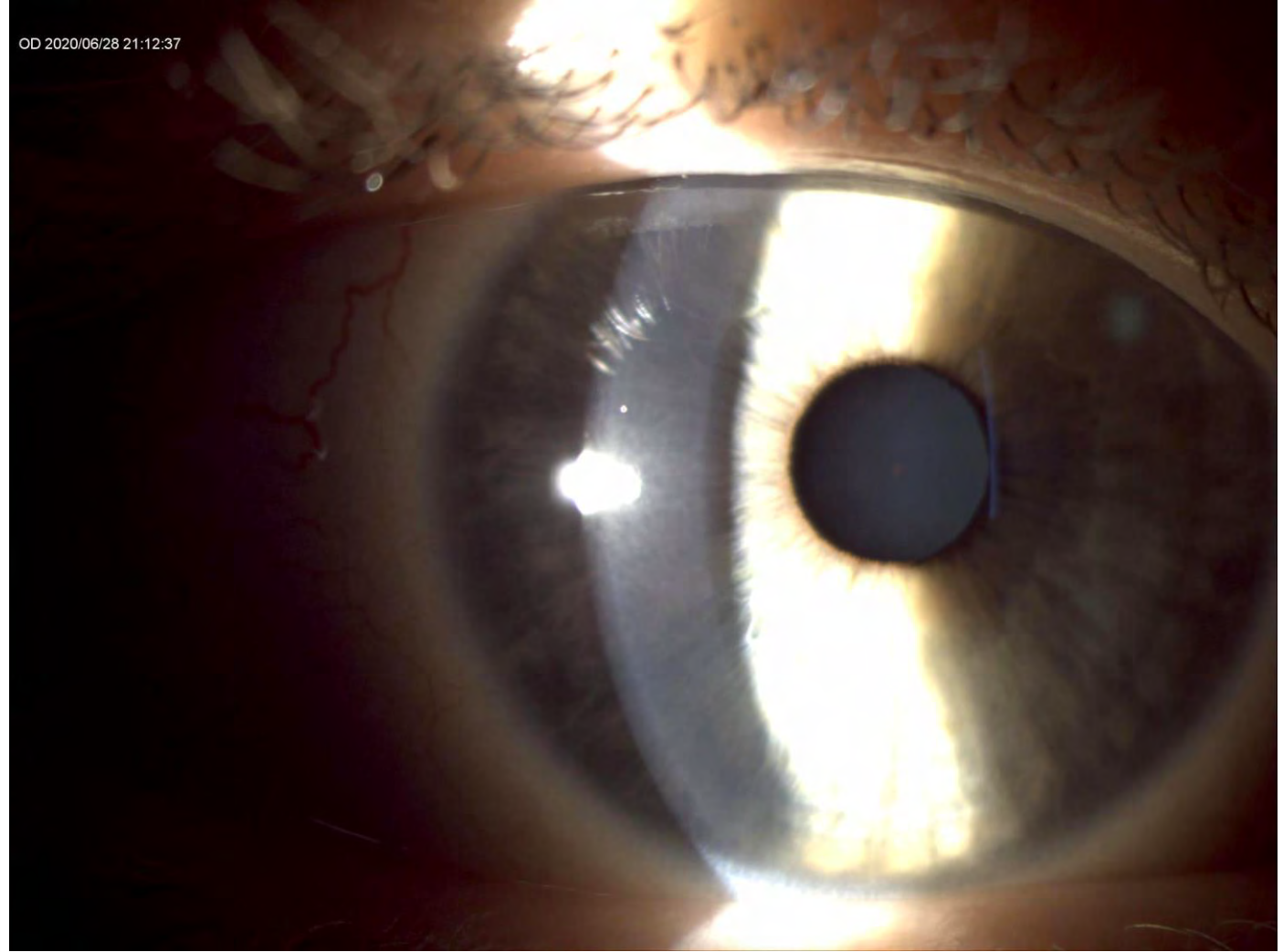
Keys To Success

- Compliant with an Evolving State Regulatory Environment
 - Both Optometric and State Telehealth Regulations
- Position to Define and Set Standards for Tele-Optometry
- Insurance Alignment and Payment
 - NAVCP
 - EyeMed, VSP, Others
- Aligned with American Optometric Association Position Paper
- Positioned to Protect the Patient
 - Referral System

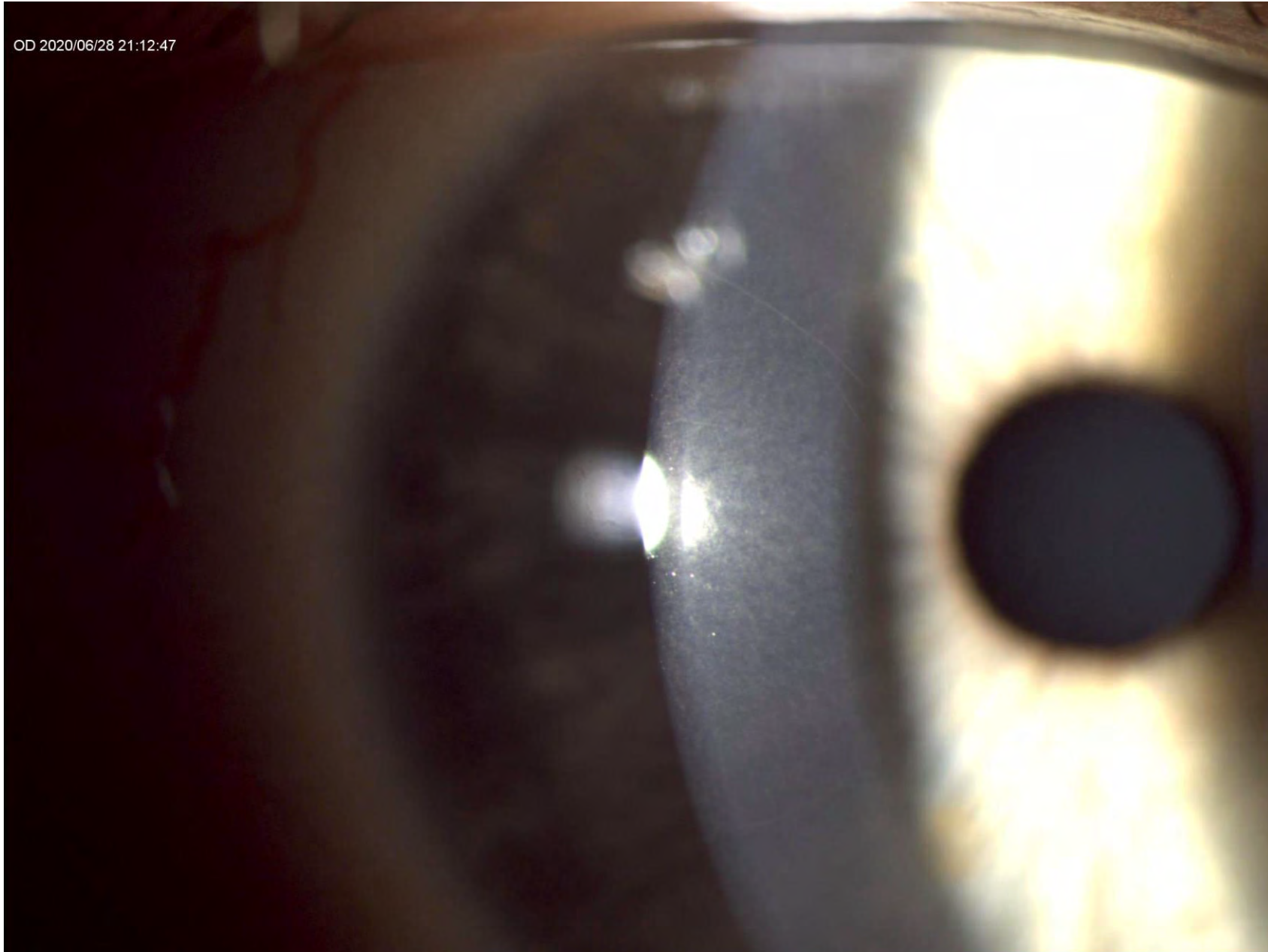
TELEHEALTH, PARITY &
THE INTERSTATE
REGULATORY
ENVIRONMENT



Pre-Test – Slit Lamp Camera



Pre-Test – Slit Lamp Camera



Remote patient monitoring (RPM) is a healthcare delivery method that uses technology to monitor patient health outside of a traditional clinical setting. RPM refers to the specific technology used to electronically transmit information between patients and physicians, and it is just one delivery system within the broader telemedicine industry.

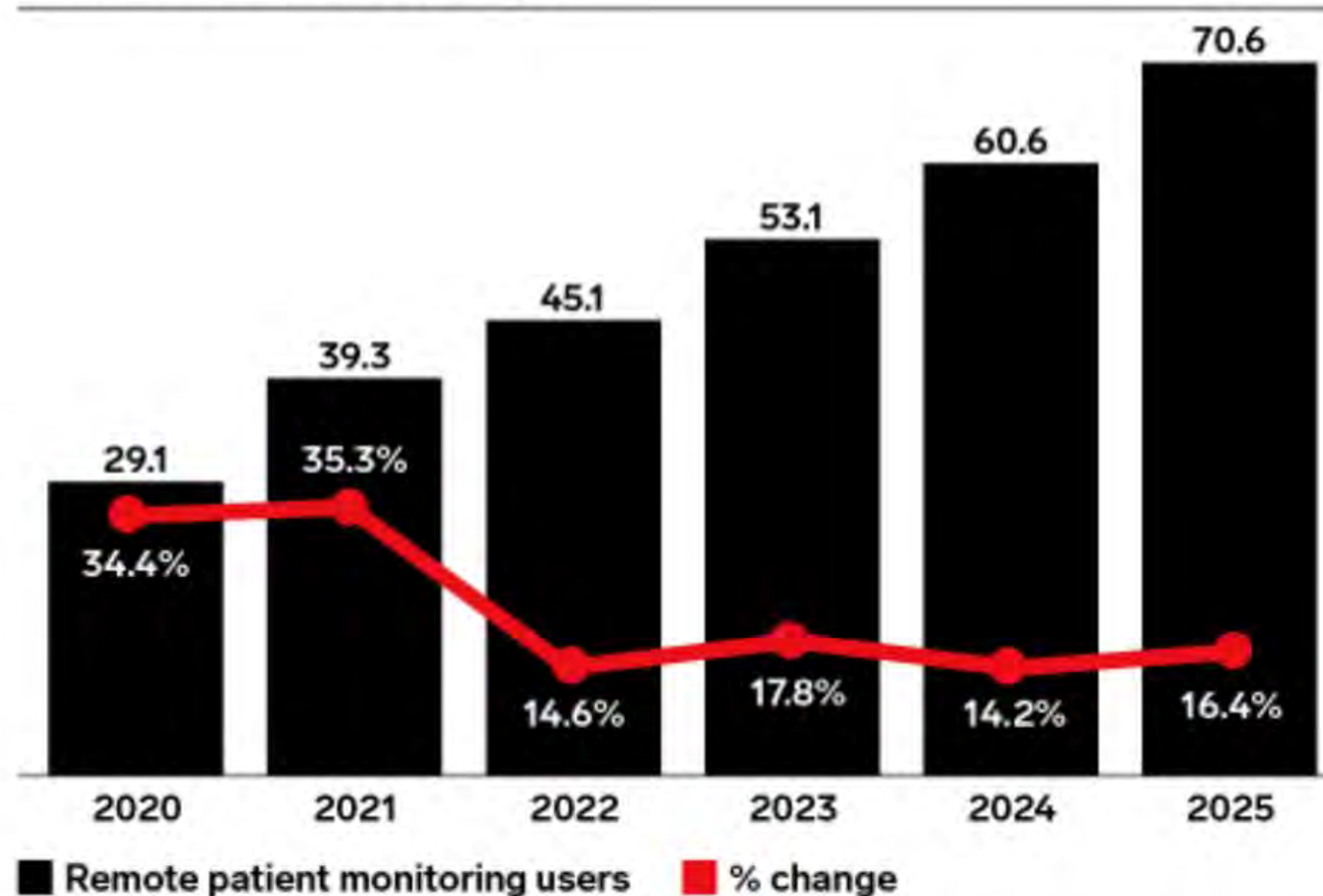
What is RPM?



How does a remote patient monitoring system work?

Unlike other telehealth delivery methods, RPM services do not require interactive audio-video and virtual visits, nor must patients be located in rural areas. They simply require technology that collects and interprets physiologic data. Medicare reimburses RPM services just like in-person clinical services with no additional requirements regarding use or originating site of care. Additionally, RPM systems hold huge potential for generating savings by preventing more severe and costly health outcomes from taking root.

millions and % change



Note: Individuals of any age who use wired or wireless devices that remotely track or collect well-being or medical data from the user outside a traditional healthcare setting at least once per month, and exchange it via the internet with electronic health records accessed by a medical professional or healthcare provider; includes wearable devices, home health devices, and sensors

Source: Insider Intelligence, Aug 2021

269585

[InsiderIntelligence.com](https://www.insiderintelligence.com)

By 2022, 45.1 million US patients will use RPM tools. Insider Intelligence

I. Medicare Reimbursement for RPM

Q: Who can order and bill for RPM?

A: RPM can be ordered and billed only by physicians and non-physician practitioners (collectively, practitioners) who are eligible to bill Medicare for evaluation and management (E/M) services.

Q: Can independent diagnostic testing facilities (IDTFs) bill for RPM services?

A: Because RPM is not considered diagnostic testing, the service cannot be billed by IDTFs. Nor may rural health clinics or federally qualified health centers bill for RPM.

Q: What relationship between the practitioner and patient is required?

A: To bill for any RPM service, the practitioner must have an established relationship with the beneficiary. For the duration of the COVID-19 public health emergency (PHE), however, CMS permits a practitioner to bill for RPM for a new patient.

Consent Required to Bill for RPM:

- Consent from the beneficiary must be secured before providing RPM services. This consent must notify the beneficiary that they will be responsible for co-payments and deductibles as required for the services. Consent can be verbal but must be documented in the record.

Q: What are the reimbursement rates for RPM?

A: The 2021 national payment rates for the five RPM codes are listed in the table below. These rates are slightly less than 2020 national payment rates due to adjustments to the assigned RVUs for each CPT code and slightly reduced conversion factor for 2021.

CPT Code	Non-Facility Rate	Facility Rate
99453	\$19.19	Same
99454	\$62.80	Same
99091	\$56.87	Same
99457	\$50.94	\$31.75
99458	\$41.17	\$31.75

CPT 99453; 99454

- Definition of Medical Device: Medical devices that digitally collect and transmit a patient's physiologic data must be reasonable and necessary for the diagnosis or treatment of the patient's illness or injury or to improve the functioning of a malformed body member.
- The device must meet the FDA's definition of medical device 201(h) of Federal, Food, Drug, and Cosmetic Act; however, it does not have to be FDA-cleared/registered. The devices must digitally (automatically) upload patient physiologic data and cannot be recorded or reported by the patient. Medical devices must be used to collect and transmit reliable and valid physiologic data that helps describes the patients' health status to develop and manage a plan of treatment.

RPM solution providers include

- Dexcom
- Honeywell Life Sciences
- Medtronic
- Philips Healthcare
- ResMed
- Senseonics

RPM market trends & statistics

- Insider Intelligence estimates 70.6 million US patients, or 26.2% of the population, will use RPM tools by 2025.
- Providers using RPM-enabled home health monitoring systems and other telehealth delivery methods are already reducing hospital readmission penalties.
- The University of Pittsburgh Medical Center, for example, reduced the risk of hospital readmissions by 76% — and held patient satisfaction scores over 90% — by equipping patients with tablets and RPM equipment.



RPM market trends & statistics

- Seniors are driving positive ROI from RPM technology and home-based care, largely due to the cohort's high incidence of multiple chronic diseases.
- A KLAS Research report surveying 25 healthcare organizations found 38% of healthcare organizations running RPM programs focused on chronic care management reported reduced admissions, while 17% cited cost reductions.

RPM market trends & statistics

- The next trend in RPM technology is miniaturization. Device makers are making their solutions smaller and less invasive while partnering with new players to expand their market share.
- For example, Dexcom, has partnered with Alphabet's life sciences unit, Verily, on a new implantable diabetes sensor that transmits health data to monitoring devices or smartphones via Bluetooth.

Questions and Discussion