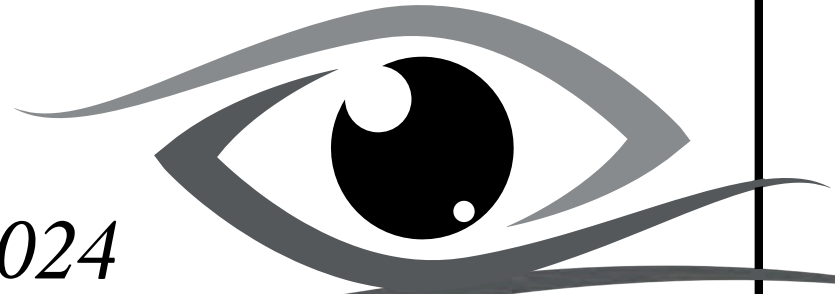




College of Optometry  
UNIVERSITY OF HOUSTON

# Winter Live Webinar

*November 23-24, 2024*



**Sunday**

**PowerPoint**

**Lecture Handouts**

# Winter Live Webinar

Sunday, November 24, 2024

<b>7:45 am to 8:00 am</b>				<b>AM Session: Virtual Conference Entry Period</b>			
8:00 am to 8:05 am		Announcements & CE Credit Overview					
8:05 am to 9:45 am		<b>New Technologies in Dry Eye Disease</b> <i>Selina McGee, OD</i>			2 D/T Hours		COPE ID # 95162-TD
9:45 am to 9:55 am		Break					
9:55 am to 10:45 am		<b>When Rosacea Meets Dry Eye: Strategies for Relief and Management of Ocular Rosacea</b> <i>Kaleb Abbott, OD</i>			1 D/T Hour		COPE ID # 94839-TD
10:45 am to 10:55 am		Break					
10:55 am to 11:45 am		<b>Beyond the Surface: Corneal Nerves and the Complexity of Dry Eye Symptoms</b> <i>Kaleb Abbott, OD</i>			1 D/T Hour		COPE ID # 94838-TD
11:45 am to 11:50 am		Conclusion – AM Session					
11:50 am to 12:45 pm		Lunch Break					
<b>12:45 pm to 1:00 pm</b>				<b>PM Session: Virtual Conference Entry Period</b>			
1:00 pm to 1:05 pm		Announcements & CE Credit Overview					
1:05 pm to 1:55 pm		<b>Common Pitfalls in Medication Documentation, Billing, and Coding</b> <i>Andrew Kemp, OD, FAAO</i>			1 GEN Hour		COPE ID # 94841-PM
1:55 pm to 2:05 PM		Break					
2:05 pm to 2:55 pm		<b>2024 Professional Responsibility Course for Texas Optometrists</b> <i>Andrew Kemp, OD, FAAO</i>			1 GEN/PR Hour		COPE ID # 89781-EJ
2:55 pm to 3:05 pm		Break					
3:05 pm to 3:55 pm		<b>Opioids: Ongoing Challenges in Pain Management</b> <i>David Dinh, OD, FAAO</i>			1 D/T Hour		COPE ID # 90789-PH
3:55 pm to 4:05 pm		Break					
4:05 pm to 4:55 pm		<b>Human Trafficking Training for Health Care Providers</b> <i>Natalie Pirrone, MBA - Poinema Foundation</i>			1 GEN/HT Hour		COPE ID # 92851-PB
4:55 pm to 5:00 pm		Conclusion – PM Session					

**Selina R. McGee, OD**

200 W Covell

Edmond, OK 73003

drmcgee@bespokevision.org

New Technologies in Dry Eye Disease

1) Introduction, Disclosures, and Review of Objectives

- a) Incidence of DED
- b) Screening for DED
- c) Clinical Implementation and Why

2) Anatomy of the Ocular Surface

- a) Lids
- b) Conjunctiva
- c) Cornea
- d) Physiology
- e) Other Considerations
  - i) Inflammatory pathways
  - ii) Dysfunctional tissue repair

3) Types of DED/OSD

- a) Aqueous Deficient
- b) Evaporative
- c) Mixed Mechanism

4) Blepharitis

- a) Anterior
  - i) Staph
  - ii) Serborrhea
  - iii) Demodex
- b) Posterior
  - i) MGD
  - ii) Cutaneous Rosacea
    - (1) Incidence/Prevalence
  - iii) Ocular Rosacea
    - (1) Incidence/Prevalence

5) Diagnostic Equipment

- i) Meibography
- ii) Tear Osmolarity
- iii) MMP-9 MGD Grading Scales
  - (1) Gland Dropout
  - (2) Gland Shortening
  - (3) Gland Distortion

b) Current Literature Review


- i) Ocean Group
    - (a) BEISTO
    - (2) Toyos et al
    - (3) Further studies
  
- 6) Why? How it affects more than you may realize.
  - i) Refraction/Optical/Contact Lenses
  - ii) Refractive & Cataract Surgery
  - iii) Oculoplastic Surgery
  - iv) Ultimately patients' quality of life.
    - (1) Productivity
    - (2) Economic Impact
  - b) Theories of Therapy
    - i) Underlying Pathology/Conditions
      - (1) "Boxing", Categorizing, and Prioritizing
    - ii) The Ocular Surface as a System
    - iii) Interrupting the Inflammation
  - c) Steroids
    - i) "Canadian Consensus"
    - ii) Lotemax vs. FML vs. Prednisolone vs. Durezol
    - iii) Titration and Selection
    - iv) Side Effects
    - v) Combos (Zylet Tobradex)
    - vi) NSAIDs
  - d) Cyclosporine
    - i) What it Does & Does it Work?
    - ii) Cyclosporine 0.09% vs. 0.05%
      - (1) 0.1% for VKC
    - iii) Dropperette vs bottle
  - e) Lifitigrast
    - i) Differences
    - ii) Experience
  - f) Varenicline 0.03%
    - i) Mechanism
    - ii) Differences
  - g) Doxycycline
    - i) What it Does
    - ii) Vs. Azithromycin
  - h) Autologous Serum
    - i) How it Works
    - ii) How to Order It and Where
  - i) Amniotic membranes
    - (1) Types/Differences
  - j) Cenegermin
    - i) How it Works
    - ii) When and Why (Neurotrophic)

- k) Nutraceuticals
    - i) Omega-3
  - l) Anti-evaporative
    - i) Semi-fluorinated alkanes
  - m) Lid Disease
    - i) Demodex Bleph
    - ii) Rosacea
  - n) Pipeline Options
    - i) Anti-keralytics
    - ii) 512
- 7) How Intense Pulsed Light (IPL) works
- a) Lasers vs IPL
    - i) Monochromatic vs polychromatic
    - ii) Wavelengths
  - b) Target tissues
    - i) Chromophores
      - (1) Oxyhemoglobin
      - (2) Melanin
      - (3) Water
      - (4) Exogenous Pigment
  - c) Clinical Endpoints
- 8) Patient Selection
- a) Fitzpatrick scale
  - b) Skin Typing
  - c) Indications
- 9) Parameters Overview
- a) Cut-off filter wavelength
  - b) Fluence (in J/cm<sup>2</sup>)
  - c) Pulse Parameters
    - i) Number of sub-pulses
    - ii) Sub-pulse durations
    - iii) Sub-pulse delays
  - d) Delays
- 10) Contraindications
- a) Tan Skin
  - b) Skin Type V and VI
  - c) Dysplastic nevus
  - d) Active infections
  - e) Active Lupus
  - f) Melasma?
- 11) Treatment Protocol
- a) Pre-treatment Discussions
    - i) Consent Form
  - b) Settings
    - i) Treatment Parameters

- c) Patient Preparation
- d) Treating the Patient
  - i) Treatment Area
  - ii) Test Spot
  - iii) Full Treatment
  - iv) Clinical Endpoints
- e) Post Procedure Care
  - i) Follow up & Expectations
- f) Potential Adverse Effects
- 12) Lipiflow TearCare and Ilux
  - a) How they Work
  - b) Compare and Contrast
- 13) RadioFrequency (RF)
- 14) Low Level Light Treatment
  
- 15) Case Reviews and Discussions
  - i) Ocular Rosacea
  - ii) Mixed OSD (DED)
  - iii) Hordeolum and Chalazia Patient
  - iv) Sjogren's
  - v) Contact Lens Related Stem Cell Deficiency

**When Rosacea Meets Dry Eye:  
Strategies for Relief and Management of Ocular Rosacea**

Kaleb Abbott, OD, MS, FAAO  
Assistant Professor  
University of Colorado SOM  
Dry Eye Clinic  
Center for Ocular Inflammation



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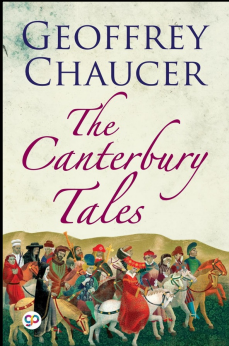
**Financial Disclosures**

- Investigator: Lexitas, Claris Bio, Trinity Life Sciences, Famy Life Sciences
- Consultant: Optase, Tarsus, Dompe, Harrow, Bausch and Lomb, Barti, SunSnap Kids

*\*All relevant financial interests have been mitigated*

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- 1387
- The Summoner
- Described his rosacea and facial redness
- Details treatments consisting of
  - Mercury
  - Lead
  - Brimstone
  - Borax
  - Cream of tartar
  - Arsenic ointment
- Blamed the rosacea on his drinking of strong red wine

3

**An Old Man and his Grandson  
Domenico Ghirlandaio**

This grandfather has rosacea:

- Rhinophyma
- Telangiectatic blood vessels of the face
- Slight puffiness of the eyelids



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Rosacea

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### Rosacea

- “The Curse of the Celts”
- Most common in persons of northern European ancestry
- 4% of rosacea patients have dark skin
- Genetic, microbiome, environmental components
- Only an estimated 18% of persons with rosacea are utilizing any treatments

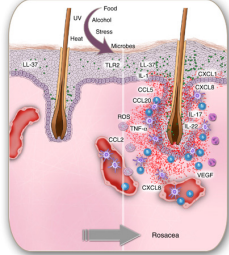


Sun Anschutz-Rodgers Eye Center, University of Colorado Anschutz Medical Campus, uchealth. Gethart L, Chengrattaiyakul U, Eisinger A, Thayer SP. Incidence and prevalence of rosacea: A systematic review and meta-analysis. *Br J Dermatol*. 2017;176(2):291-297. doi:10.1093/bjpa/176.2.291. Epub 2016 Aug 24. PMID: 27521424. Berg M, Lohse S. An epidemiological study of rosacea. *Acta Dermatol Venereol*. 1982;62:114-120.

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### Prevalence of Rosacea

- Most common in:
  - Individuals with fair skin, blonde hair, and blue eyes
  - People between ages 30-60
  - Women, especially during menopause
  - Genetic predisposition

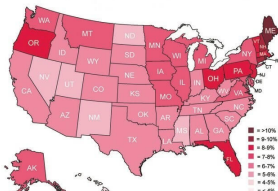


Sun Anschutz-Rodgers Eye Center, University of Colorado Anschutz Medical Campus, uchealth. Rosacea. National Institute of Arthritis and Musculoskeletal and Skin Diseases. <https://www.niams.nih.gov/health-topics/rosacea>. Accessed 11/14/24. Rosacea. National Institute of Arthritis and Musculoskeletal and Skin Diseases. <https://www.niams.nih.gov/health-topics/rosacea>. Accessed 11/14/24. Journal of the European Academy of Dermatology and Venereology. 2012;26(11):155-157.

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### Prevalence of Rosacea

- As high as 14-15% of Caucasian women
- General prevalence of ~5% of the world population
- 10% of the Swedish population
- Affects at least 16 million Americans



**Estimated Rosacea Prevalence In U.S. Adult Population\***

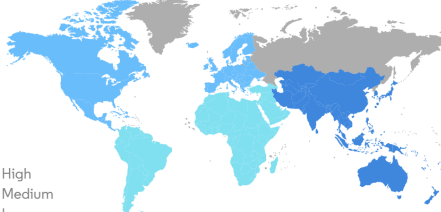
- >=10%
- 8-10%
- 6-8%
- 4-6%
- < 4%

\*Based on National Rosacea Society membership as a proportion of state populations over 18.

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### Rosacea Market - Growth Rate by Region



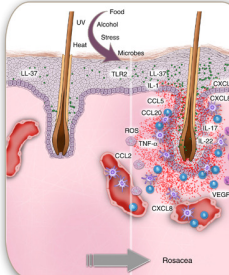
- High
- Medium
- Low

Source: Mordor Intelligence

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### Pathogenesis

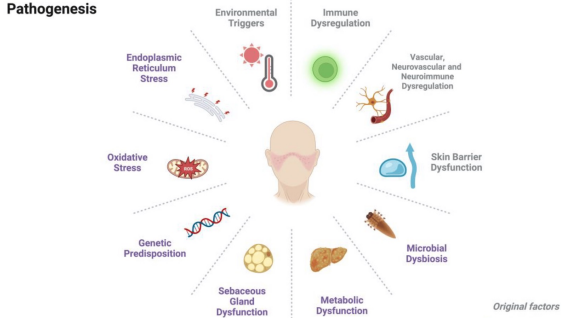
- Neural disease where vasodilation is greater and more persistent
- Autoimmune component where body overreacts to “triggers” causing dermal inflammation
- Telangiectasia forms and redness develops
- Fibrosis and hypertrophic scar tissue is produced



Sun Anschutz-Rodgers Eye Center, University of Colorado Anschutz Medical Campus, uchealth. Abu, Chikara S, and Wilson W. Rosacea pathogenesis. *Dermatologic Clinics* 31.3 (2013): 41-46.

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### Factors in Rosacea Pathogenesis



**Original factors**

- Environmental Triggers
- Immune Dysregulation
- Vascular, Neurovascular and Neuroimmune Dysregulation
- Skin Barrier Dysfunction
- Microbial Dysbiosis
- Metabolic Dysfunction
- Sebaceous Gland Dysfunction
- Genetic Predisposition
- Oxidative Stress
- Endoplasmic Reticulum Stress

**Emerging factors**

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### What is rosacea NOT...

- Purely
  - Endocrine
  - Bacterial
  - Demodex
  - Environment
  - Genetics
  - Skin complexion

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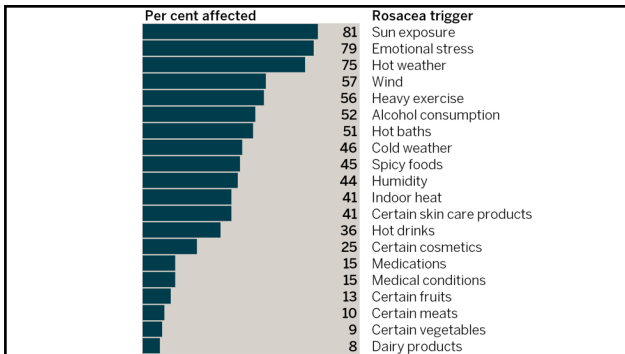
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### Best "treatment" is avoidance of triggers

- Spicy foods
- Foods high in histamines
  - Red wine
  - Aged cheese
  - Yogurt
  - Beer
  - Cured pork products
- Alcohol
- Climate
  - Sun
  - Extreme temperatures
  - Changing temperatures
  - Wind
- Strenuous exercise
- Stress, anxiety, poor sleep
- Fragrances
- Skincare products
- Topical steroids
- Chemicals
  - Witch hazel
  - Camphor
  - Menthol, eucalyptus oil, peppermint oil
- Isopropylalcohols
- Mechanical scrubs
- Men's skincare products are notoriously bad

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### Sun Exposure

- Sunlight (UVB)
  - Stimulates angiogenesis
  - Stimulates dilation and spreading of roots
- Sunscreen options:
  - EltaMD UV Clear
  - Colorescience All Calm

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### pH Balance

- Skin is naturally slightly acidic
  - pH = 5.4
- Soap is alkaline/basic
  - pH usually 8-9
- These patients respond well to simple, gentle cleansers
  - CeraVe Hydrating Facial Cleanser
  - Vanicream

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### The Many Faces of Rosacea


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### Four Types of Rosacea

- Erythematotelangiectatic
- Papulopustular
- Phymatous
- Ocular

\*this categorization is being phased out




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Sharma, Aruj, et al. "Rosacea management: a comprehensive review." *Journal of cutaneous medicine and surgery* 21.5 (2015): 1585-1594.

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### Erythematotelangiectatic

- "Vascular rosacea"
- Prominent redness
- Persistent telangiectatic vessels
- Dilated blood vessels
- Central face
- Neural and vascular component
  - Both are hyperreactive




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Sharma, Aruj, et al. "Rosacea management: a comprehensive review." *Journal of cutaneous medicine and surgery* 21.5 (2015): 1585-1594.

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### Erythematotelangiectatic

- Starts with transient blushing in response to triggers
  - Embarrassment
  - Spicy foods
  - Alcohol
- Dilated blood vessels slowly develop over years



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Sharma, Aruj, et al. "Rosacea management: a comprehensive review." *Journal of cutaneous medicine and surgery* 21.5 (2015): 1585-1594.

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### Papulopustular Rosacea ("Acne Rosacea")

- Due to inflammation and demodex (80%)
- Typical acne treatments and vitamin A derivatives may worsen this
- Affects central face more
- Can cause thickening of skin
- Presents later than typical acne
  - Post-adolescents
  - Middle of adulthood
- Responds well to sulfur, azelaic acid, demodex treatments (lotilaner)




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Sharma, Aruj, et al. "Rosacea management: a comprehensive review." *Journal of cutaneous medicine and surgery* 21.5 (2015): 1585-1594.

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### Phymatous Rosacea

- "Oil gland rosacea"
- Skin thickening
- Larger nose appearance
- Disfiguring appearance
- Greasy appearance
- Oil glands continuously enlarge
- Late-stage tissue fibrosis and thickening
- Does not respond well to OTC options



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Sharma, Aruj, et al. "Rosacea management: a comprehensive review." *Journal of cutaneous medicine and surgery* 21.5 (2015): 1585-1594.

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"The perfect cure of acne rosacea is, in fact, never accomplished."

- Dr. Thomas Bateman (1812)


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Sharma, Aruj, et al. "Rosacea management: a comprehensive review." *Journal of cutaneous medicine and surgery* 21.5 (2015): 1585-1594.

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### OTC Treatments

Sulfur

- PROcure Rosacare
  - Liquorish
  - Niacinamide
  - Chromium oxide greens
    - *Cancels out reds*
- Cetaphil Redness Relief
  - Liquorish
  - Niacinamide
  - Caffeine
- Prosacea Rosacea Gel
  - Contains sulfur
- Sulfur bar soaps
- Azelaic acid
  - The Ordinary
  - Paula's choice
  - Naturium)
- CeraVe Hydrating Facial Cleanser
- Vanicream




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### Prescription Rosacea Treatments

- Topical
  - Metronidazole
  - Azelaic acid
  - Ivermectin
  - Niacinamide
  - Retin-A
  - Pimecrolimus/tacrolimus
  - Steroids
  - Antibiotics (clindamycin, erythromycin, azithromycin)
  - Brimonidine cream
- Sodium sulfacetamide wash
- Benzoyl peroxide
- Oral
  - Antibiotics
    - Tetracyclines (minocycline, doxycycline, tetracycline)
    - Metronidazole, azithromycin, clarithromycin, erythromycin
    - Burst and taper
    - Long-term
  - Omega-3 supplementation
  - Isotretinoin
- Surgical/laser/light treatments



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## Ocular Rosacea

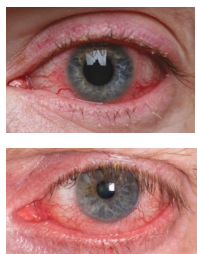
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### Background / Confusion

- Dermatology
  - About 20% of rosacea patients present initially with ocular rosacea
  - Facial rosacea typically precedes ocular rosacea
- Eyecare
  - Found in 58-75% of rosacea patients
  - Up to 90% of ocular rosacea patients have minimal skin findings



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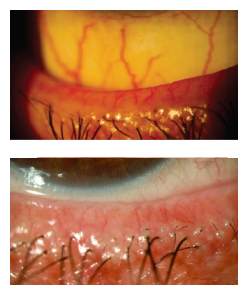
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Shimizu A, et al. Ocular Rosacea. In: Rosenfield, et al. Textbook of Ophthalmology, 6th Edition. Elsevier; 2018. Ocular rosacea. The often-overlooked cause of ocular irritation. Available at: https://www.sciencedirect.com/science/article/pii/S0039625718300000

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### Signs

- Lid margin telangiectasia
- Lid erythema
- Blepharitis
- Meibomian gland dysfunction
  - Reduced MGYLS
  - Thickened meibum
  - Rapid TBUT
- Conjunctival injection
- Saponification



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Shimizu A, et al. Ocular Rosacea. In: Rosenfield, et al. Textbook of Ophthalmology, 6th Edition. Elsevier; 2018. Ocular rosacea. The often-overlooked cause of ocular irritation. Available at: https://www.sciencedirect.com/science/article/pii/S0039625718300000

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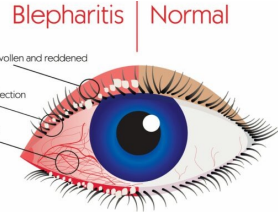
### Symptoms – “the great masquerader”

- Irritation
- Foreign body sensation
- Grittiness
- Burning
- Redness of eyes/eyelids
- Tearing
- Pain
- Fluctuating vision
- Photophobia
- Chalazia/hordeola and styes

**Blepharitis**

- eyelid swollen and reddened
- bacterial infection
- red eyes

**Normal**



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Vinik, Alan G. et al. "Ocular rosacea: common and confusing." Journal of the American Academy of Ophthalmology 184 (2017): 208-91.

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### Abnormal Innate Immune Response

- Exaggerated response of our innate immune system to the environment
  - Increased toll-like receptor 2 (TLR2) expression epidermal keratinocytes
  - Stimulation of TLR2 receptors (by environmental triggers) leads to increased KLK5 (serine protease) which produces cathelicidin

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Kim, J. Young, et al. "Increased expression of cathelicidin by direct activation of cutaneous epithelial keratinocytes is strongly correlated to the upregulation of TLR2." *Investment Ophthalmol Vis Sci* 45(10):2014-2018, 2004.

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### Cathelicidin

- Cathelicidins are antimicrobial peptides capable of inducing inflammation and angiogenesis via innate immunity
- Normal = Cathelicidin is produced in response to pathogens
- Abnormal = Cathelicidin is produced in response to normal environmental stimuli / triggers

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Kim, J. Young, et al. "Increased expression of cathelicidin by direct activation of cutaneous epithelial keratinocytes is strongly correlated to the upregulation of TLR2." *Investment Ophthalmol Vis Sci* 45(10):2014-2018, 2004.

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### Vascular Endothelial Growth Factor

- Cathelicidin → increases VEGF release
- Produces telangiectasias/dilation
- Abnormal vessels are pro-inflammatory
- Increased interleukins and MMPs
- Cosmetic redness
- Meibomian glands compression
- Meibomitis
- Warmth

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Kim, J. Young, et al. "Increased expression of cathelicidin by direct activation of cutaneous epithelial keratinocytes is strongly correlated to the upregulation of TLR2." *Investment Ophthalmol Vis Sci* 45(10):2014-2018, 2004.

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### OSD Manifestations

- Meibomian gland dysfunction (hyper or hypo)
  - Lid margin notching
  - Scarring
  - Lid margin thickening
- Tear film stability
- Ocular surface inflammation
- Altered microbiome (including demodex)
- Hordeola, chalazia, styes
- Conjunctivitis, keratitis
- Dermal edema

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Tawamleh, Shadiq, Nathan Wong, and Elton Chan. "Ocular manifestations of rosacea: a clinical review." *Ocular Allergy Immunology* 4(2):2019, 2019.

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### How bad can it get?

- Corneal neovascularization
- Corneal scarring
- Phlyctenules
- Limbal stem cell deficiency
- Neurotrophic keratitis
- Cicatrizing conjunctivitis
- Entropion/ectropion
- Corneal ulceration or perforation

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### Demodicosis of the face

- Pilosebaceous glands
- Commonly seen with facial rosacea
- Causes localized folliculitis and inflammation
- Doesn't respond to typical rosacea treatments




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UNIVERSITY OF COLORADO ANSCHUTZ MEDICAL CAMPUS uchealth Fisher, P. M. N. "Rosacea, an infectious disease: why rosacea with impatiens should be considered a demodicosis." *Journal of the European Academy of Dermatology and Venereology* 30.7 (2015): 1097-102.

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### Demodex blepharitis

- Commonly seen with rosacea
- Arachnid parasite
- Species
  - Demodex folliculorum
  - Demodex brevis
- Light averse
- Life cycle is ~3 weeks
- Females lay 15-20 eggs (once)
- Crawl 1cm per night



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### Collarettes

- Base of the eyelashes
- Composed of waste products, keratin, lipids, epithelial cells



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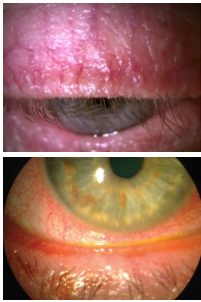
### Ocular Rosacea Treatments

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### Inflammatory Treatments

- Topical immunomodulators
  - Cyclosporine
  - Lifitegrast
- Antibiotic/steroid drops
- Corticosteroid drops
- Oral antibiotics (azithromycin, doxycycline)
- Topical azithromycin
- IPL
- ? OTC brimonidine

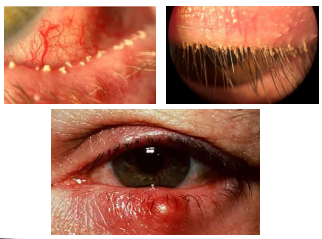


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### MGD/Blepharitis/Hordeola Treatments

- Lid hygiene (ex tea tree oil)
- Oral omega-3s
- ? Warm compresses
- Topical azithromycin
- Oral doxycycline
- Procedures
  - Blepharoxfoliation
  - Thermal pulsation
  - IPL
  - MG probing
- Lotilaner (demodex blepharitis)
- Lotilaner (? MGD)

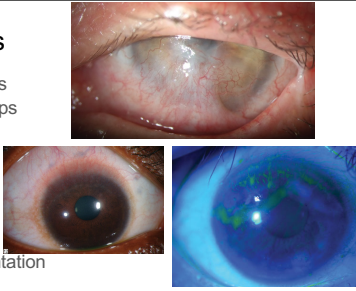


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### Keratitis Treatments

- Topical immunomodulators
- Autologous serum eyedrops
- Topical corticosteroids
- ? Punctal plugs
- Oral doxycycline
- Scleral lenses
- Penetrating keratoplasty
- Limbal stem cell transplantation

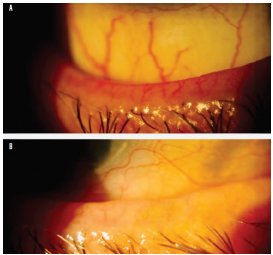


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### IPL for Ocular Rosacea

- Highly effective
- Treating abnormal vasculature
- "Sealing off" telangiectatic vessels
- Improves
  - Inflammation
  - MGD
  - Lid margin telangiectasias
  - Demodex
  - Bacterial overload
  - Blink mechanics
  - Cosmetic appearance




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### Future and Off-label Treatments

- RASP inhibitors
- Lotilaner ointment for the eyelids
- Brimonidine drops
- Vasoconstrictors for the eyelids
- Compounded facial treatments
  - Ivermectin/metronidazole/azelaic acid




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### Lifestyle Changes

- Healthy fats high in omega-3s
- Anti-inflammatory foods
  - Berries, nuts, turmeric,
- Prebiotics
  - Foods high in fiber
  - Onions, greens, garlic, asparagus, oats, flaxseeds
- Probiotics
  - Fermented foods (ex. yogurt, kimchi, saurkraut, kefir, kombucha)
- Limit alcohol consumption
- Sun protection
- Prioritize sleep



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### Summary

- Ocular rosacea is commonly missed
- Prevalent in cases of facial rosacea
- Can occur with or without rosacea
- Symptoms can be non-specific
- Manifestations are wide-spread
- Despite no single FDA approved treatment, we have options to help these patients



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### The Many Faces of Rosacea



Bill Clinton  
WC Fields  
JP Morgan  
Prince Williams  
Megan Rapinoe  
Rosie O'Donnell  
Princess Diana  
Cameron Diaz

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Thank you!  
Any questions?



The complex block contains three photographs. The top-left photo shows two newborn babies in light blue and white patterned onesies. The bottom-left photo shows a family of four (a woman, a man, and two children) smiling outdoors in a field. The right photo shows a family of three (a woman, a man, and a child) smiling outdoors, with the child on the man's shoulders.

### Beyond the Surface: Corneal Nerves and the Complexity of Dry Eye Symptoms

Kaleb Abbott, OD, MS, FFAO  
Assistant Professor  
University of Colorado SOM  
Dry Eye Clinic  
Center for Ocular Inflammation



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### Financial Disclosures

- Investigator: Lexitas, Claris Bio, Trinity Life Sciences, Famy Life Sciences
- Consultant: Optase, Tarsus, Dompe, Harrow, Bausch and Lomb, Barti, SunSnap Kids

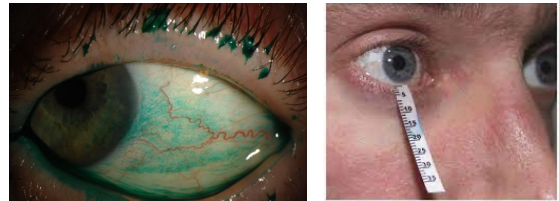
*\*All relevant financial interests have been mitigated*

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### The History of Dry Eye

3

### The History of Dry Eye – Sjogren's Syndrome



4

### The History of Dry Eye

- People were reporting that their eyes **FELT DRY**



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### The History of Dry Eye

Upon examination...these people didn't have "dry eye"  
...despite their eyes... **FEELING DRY**



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### The History of Dry Eye

- Abnormal tear health
  - TBUT
  - Inflammation
  - Osmolarity
- Lid margin disease
- MGD
- Blepharitis

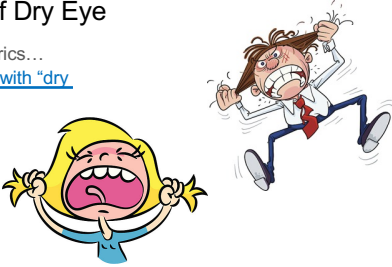


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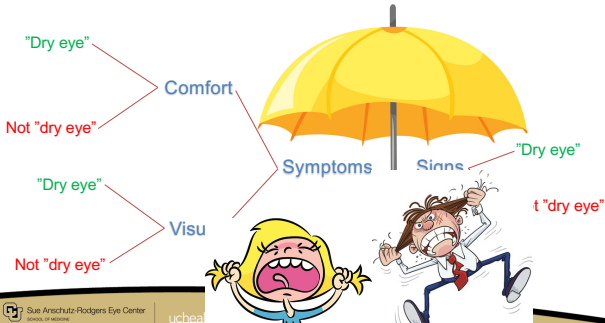
### The History of Dry Eye

- But all these metrics... still didn't correlate with "dry eye" symptoms



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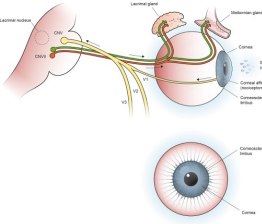
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### Are corneal nerves the missing link?



**Cornea**

- 7000 nerve endings per mm<sup>2</sup>
- 400x more sensitive than skin
- Avascular
- Depends on tear film and corneal nerves for trophic support
- Without proper nerve function... the cornea cannot function...

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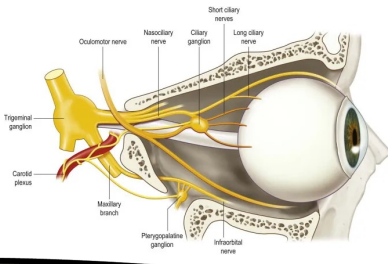
### Corneal nerve anatomy

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### Innervation

Trigeminal nerve nuclei  
↓  
ophthalmic branch (V1)  
↓  
nasociliary nerve  
↓  
long ciliary nerves  
↓  
corneal nerves

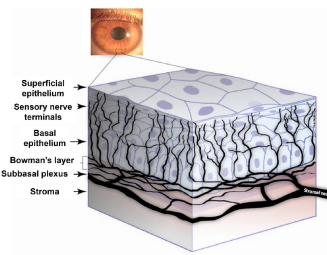


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### Innervation

- 70-80 nerve bundles enter the cornea at the layer of the stroma
- Lose myelin sheath but keep the Schwann cells
- Travel anterior and form a plexiform network in the anterior 1/3 of the stroma



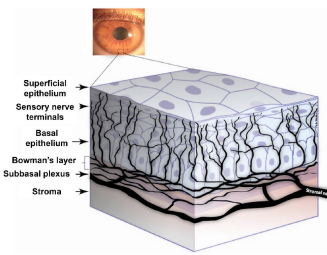
Labels in diagram: Superficial epithelium, Sensory nerve terminals, Basal epithelium, Bowman's layer, Subbasal plexus, Stroma.

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### Innervation

- Axons pass vertically through Bowman's layer
- Lose Schwann cell sheath
- Enter epithelium
- Turn 90 degrees
- Divide into fine branches which course between basal cells



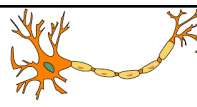
Labels in diagram: Superficial epithelium, Sensory nerve terminals, Basal epithelium, Bowman's layer, Subbasal plexus, Stroma.

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### Fiber Types

- Aδ fibers
  - Myelinated straight nerves with a relatively large diameter
  - Within the basal epithelial cell layer course parallel to the corneal surface
- C fibers
  - Smaller, beaded fibers with no myelination
  - Comprise most of the sub-basal nerve plexus
  - Become free nerve endings




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### Nociceptor Types

- Polymodal (70%)
  - Aδ and C fibers
  - Mechanical, chemical, heat
- Mechano-nociceptors (20%)
  - Aδ fibers
  - Acute pain to touch
- Cold thermoreceptors (10%)
  - Aδ and C fibers
  - Cooling (1–2° threshold) and tear osmolarity

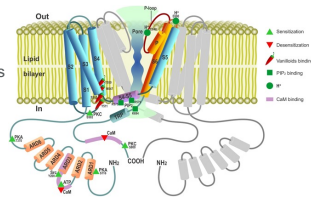


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### Specific Ocular Receptor Ion Channels

- **TRPV1**
  - Polymodal nociceptors
  - Key role in dry eye symptoms
  - Promotes inflammatory mediators
  - Peripheral sensitization
- **TRPM8**
  - Cold thermoreceptors
  - Evaporation and hyperosmolarity
  - Menthol and cold
  - Basal tear production



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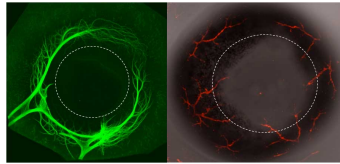
### Corneal nerve physiology

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### Functions of Corneal Nerves

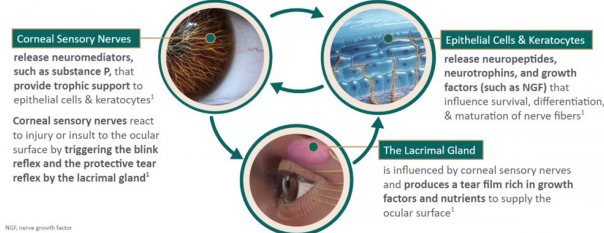
- Sensory
- Blink reflex
- Tear secretions
- **Trophic functions**



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### The Dynamic Interplay Between Corneal Nerves, Epithelial Cells and Keratocytes, and the Lacrimal Gland is Key to Corneal Homeostasis<sup>1,2</sup>



**Corneal Sensory Nerves** release neuromediators, such as substance P, that provide trophic support to epithelial cells & keratocytes<sup>1</sup>

**Epithelial Cells & Keratocytes** release neuropeptides, neurotrophins, and growth factors (such as NGF) that influence survival, differentiation, & maturation of nerve fibers<sup>1</sup>

**The Lacrimal Gland** is influenced by corneal sensory nerves and produces a tear film rich in growth factors and nutrients to supply the ocular surface<sup>1</sup>

NGF, nerve growth factor  
1. Monteggia L, Merson-Davies G, Nalio M, Sacchetti M. Understanding the pathogenesis of neurotrophic keratitis: the role of corneal nerves. J Cell Physiol. 2017;232:737-754.  
2. Zhu YH, Saito YU, Murogan EA, et al. Neurotrophic keratopathy. Prog Retin Eye Res. 2018;68:207-233.  
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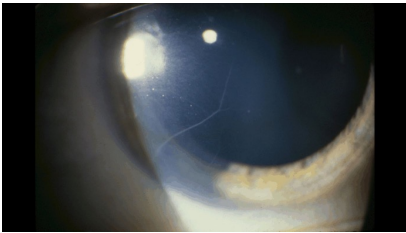
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### Why don't we think about corneal nerves?

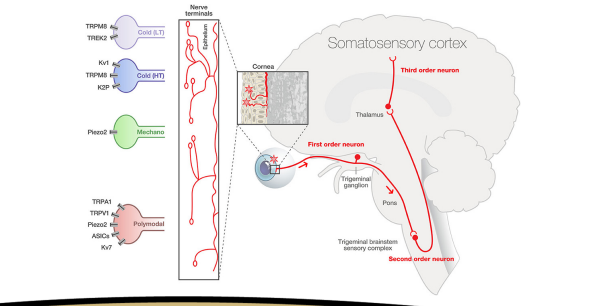
We rarely see them...

We forget their role in maintaining ocular surface homeostasis...



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### Types of Pain

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### Types of Pain

- "Unpleasant sensory and emotional experience associated with actual or potential tissue damage, or described in terms of such damage" (International Association for the Study of Pain)

Forms of ocular pain:



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### Types of Pain

• “Unpleasant sensory and emotional experience associated with actual or potential tissue damage, or described in terms of such damage” (International Association for the Study of Pain)

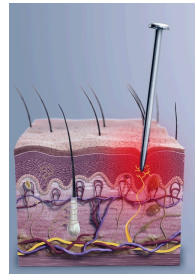
Pain Origins:

1. Nociceptive
2. Neuropathic
3. Nociplastic

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### Nociceptive Pain

- Pain that arises from actual or threatened damage to the body
- Due to the activation of nociceptors
- Transient in nature
- Non-ocular examples
  - acute trauma
  - surgery
  - tissue inflammation



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### Neuropathic Pain

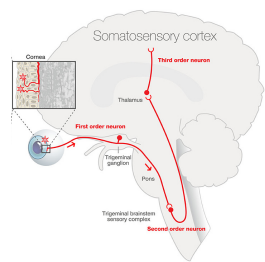
- Pain caused by a lesion or disease of the somatosensory nervous system or central nervous system
- Nerves become hypersensitive
- Peripheral vs central
- Ex.
  - diabetic neuropathy
  - post-herpetic neuralgia
  - chronic post-operative pain



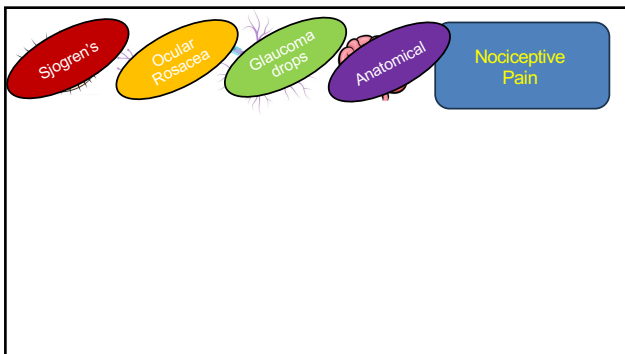
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### Nociplastic

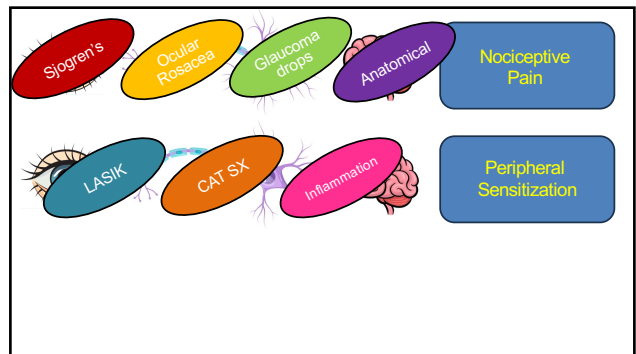
- Pain despite
  - no activation of peripheral nociceptors
  - no evidence for disease/lesion of the somatosensory system
- Dysfunction of the CNS and pain processing centers of the brain
- Ex. fibromyalgia, chronic fatigue syndrome, IBS



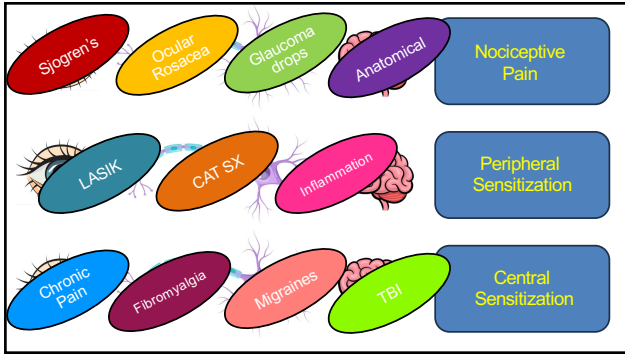
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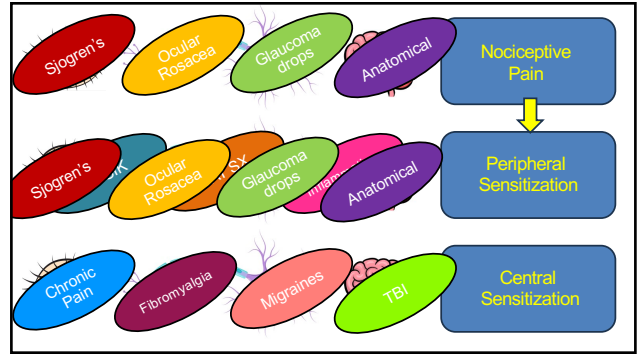
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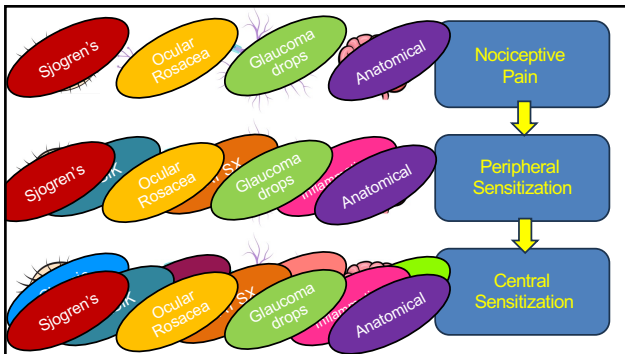
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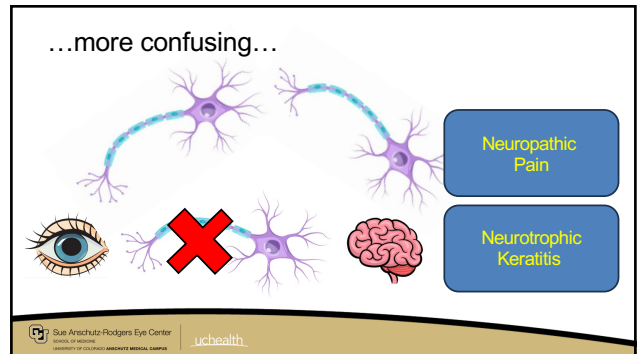
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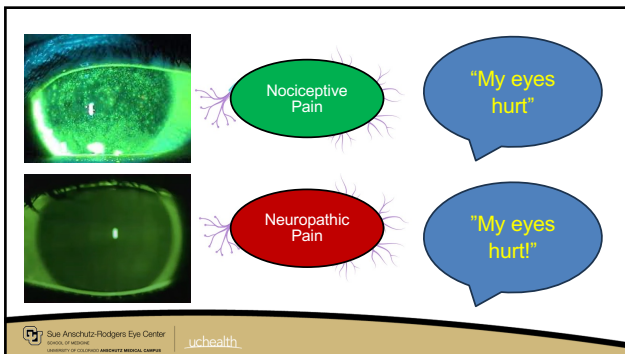
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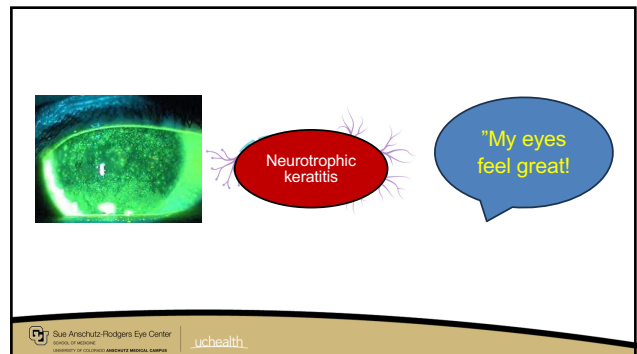
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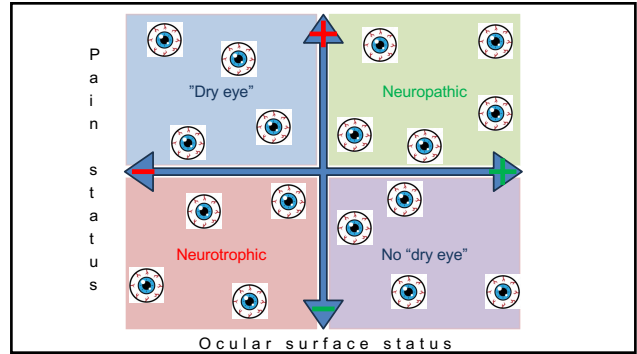


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### Signs ≠ Symptoms

We must consider corneal nerves when treating dry eye!

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### Predictors of Greater Symptoms

- Chronic pain syndrome
- Anxiety/depression
- Psychiatric disorders
- Sleep disorders
- Stress
- Use of anti-depressives
- Use of antihistamines
- Atopic disease
- Osteoarthritis
- Sjogren's Syndrome



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### Dry eye associations

- Dry eye strongly associated with
  - Depression/anxiety
  - Poor perceived health status / health anxiety
  - Sleep disorders
- In asymptomatic vs symptomatic dry eye patients, scores for depression/anxiety were significantly worse in the symptomatic group
- Treating dry eye reduces anxiety/depression levels
- Treatment of anxiety/depression improves the success of dry eye treatments

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### Real or not real?

- Two beliefs
  1. The simplest model is that all symptom reports involve perceptions which accurately represent reality
  2. Thus the second (malingering/hypochondriac) model described by Costa and McCrae involves a patient with so many symptoms that it is impossible to believe that they all represent reality, especially as no objective basis can be found for them.

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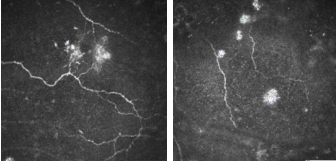
### Real or not real?

- Two beliefs
  1. All symptom reports involve perceptions which accurately represent reality
  2. So many symptoms that it is impossible to believe that they all represent reality, especially as no objective basis can be found for them (malingering/hypochondriac)

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### Objective evidence of eye pain

- Confocal microscopy can display evidence of corneal nerve abnormalities in patients with unexplained ocular pain

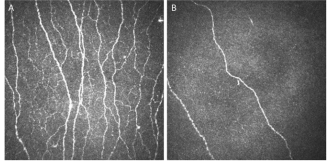


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### Corneal Neuropathic Pain Visualized with IVCM

- Decreased nerve density
- Microneuromas / hyperreflective foci
- Tortuosity
- Nerve beading
- Nerve sprouting

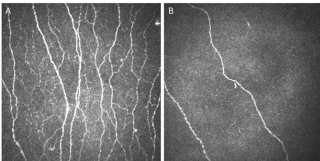


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### Corneal Neuropathic Pain Visualized with IVCM

- **Decreased nerve density**
- Microneuromas / hyperreflective foci
- Tortuosity
- Nerve beading
- Nerve sprouting

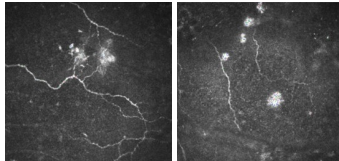


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### Corneal Neuropathic Pain Visualized with IVCM

- Decreased nerve density
- **Microneuromas / hyperreflective foci**
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- Nerve beading
- Nerve sprouting

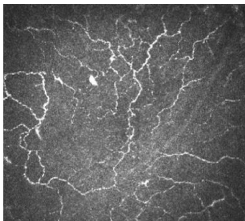


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### Corneal Neuropathic Pain Visualized with IVCM

- Decreased nerve density
- Microneuromas / hyperreflective foci
- **Tortuosity**
- **Nerve beading**
- **Nerve sprouting**



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### Rethinking “dry eye”

- **Neurosensory abnormalities** have been recognized as potential contributors to dry eye disease (2017 Tear Film and Ocular Surface definition of dry eye)
- **Nerve abnormalities** are not always identified as a component of eye disease, and a neurotrophic or neuropathic component to pain is often missed
- There are many forms of pain whose cause is unknown
- In the case of “dry eye”, we often fail to consider neuropathy and mental health conditions as contributing or causative factors

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How do corneal nerve disorders arise?

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How do corneal nerve disorders **NOT** arise?

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Risk Factors of Corneal Nerve Damage

- Dry climates

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Risk Factors of Corneal Nerve Damage

- Dry climates
- Pollution

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Risk Factors of Corneal Nerve Damage

- Dry climates
- Pollution
- UV light

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Risk Factors of Corneal Nerve Damage

- Dry climates
- Pollution
- UV light
- Surgery


Normal Nerve Plexus

FS-LASIK

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### Risk Factors of Corneal Nerve Damage

- Dry climates
- Pollution
- UV light
- Surgery
- Systemic medications




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### Risk Factors of Corneal Nerve Damage

- Dry climates
- Pollution
- UV light
- Surgery
- Systemic medications
- Topical medications




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### Risk Factors of Corneal Nerve Damage

- Dry climates
- Pollution
- UV light
- Surgery
- Systemic medications
- Topical medications
- Chronic medical conditions

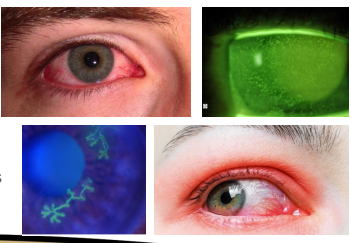


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### Risk Factors of Corneal Nerve Damage

- Dry climates
- Pollution
- UV light
- Surgery
- Systemic medications
- Topical medications
- Chronic medical conditions
- Chronic ocular conditions



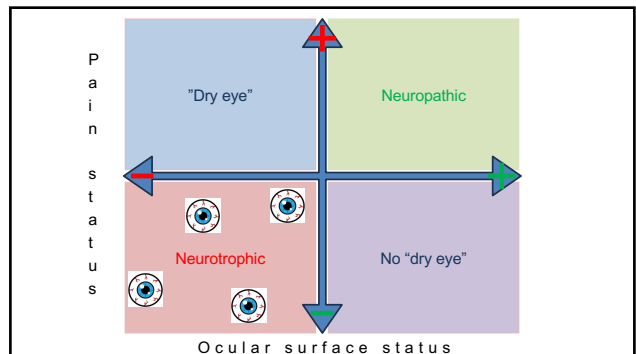
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### Neurotrophic Keratitis

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### Neurotrophic Keratitis

- Estimated prevalence of 16/100,000
- May stem from
  - corneal nerves
  - ocular nerves
  - trigeminal nerve
  - CNS
  - systemic disease
  - genetic conditions

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### Risk Factors for NK

- Top causes
  - Herpetic infection (32.2%)
    - Majority are simplex
  - Intracerebral tumors or neurosurgery (27.7%)
  - Topical medicamentosa (11%)
  - Chronic blepharitis or ocular rosacea (10.7%)
  - Diabetes mellitus (10.5%)

ETIOLOGY	CAUSE
Corneal nerves	Herpes simplex Herpes zoster Refractive surgery (eg. LASIK, PRK, cataract surgery) Corneal transplantation Medicamentosa Contact lens wear
Ocular nerves	Retinal surgery Pars plana photocoagulation Cryotherocoagulation
Trigeminal nerve	Facial trauma Orbital surgery Orbital tumor Ciliary nerve lesion
Central nervous system	Neoplasm (eg. acoustic neuroma, meningioma) Postsurgical Stroke Aneurysm
Systemic	Diabetes mellitus Multiple sclerosis Lampry Vitamin A deficiency
Genetic	Riley-Day syndrome Goldfarb-Gorlin syndrome Familial corneal hypoplasia Moebius syndrome

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### Mackie Classification of NK

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### Mackie Classification of NK

STAGE 1  
Punctate keratitis

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### Mackie Classification of NK

STAGE 1  
Punctate keratitis

STAGE 2  
Epithelial defect

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### Mackie Classification of NK

STAGE 1  
Punctate keratitis

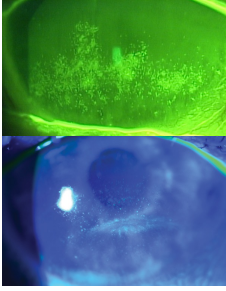
STAGE 2  
Epithelial defect

STAGE 3  
Defect with thinning

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### Stage 1 vs "Dry Eye"

- Stage 1 symptoms are like dry eye
  - Irritation
  - Foreign body sensation
  - Blurred or fluctuating vision
  - Photophobia
- Stage 1 signs are similar to dry eye
- Stage 1 NK is generally accompanied by dry eye
  - ↓ blink rate and ↓ tear secretion

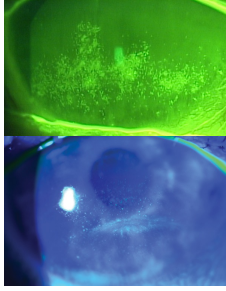


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### Signs / Symptoms

- Discomfort ↓ as severity of NK ↑
- Stage 2 and 3
  - Less discomfort
  - Increased symptoms of blurry vision
- **The hallmark of NK is the reduction of corneal sensation**



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Traditional dry eye therapies have failed	Signs >>> symptoms
Check sensation?	
Corneal has irregular epithelium or edema	Patient has risk factors for NK

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Traditional dry eye therapies have failed	Signs >>> symptoms
Check sensation?	
Corneal has irregular epithelium or edema	Patient has risk factors for NK

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Traditional dry eye therapies have failed	Signs >>> symptoms
Check sensation?	
Corneal has irregular epithelium or edema	Patient has risk factors for NK

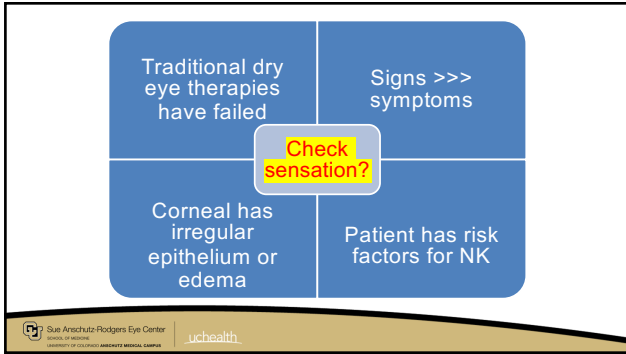
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Traditional dry eye therapies have failed	Signs >>> symptoms
Check sensation?	
Corneal has irregular epithelium or edema	Patient has risk factors for NK

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Esthesiometry (sensation testing)

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### Corneal sensation testing

- Assesses a patient's reaction to brief corneal stimulation
- Functional insight into the status of the corneal nerves
  - Absent
  - Reduced
  - Normal
  - Increased sensitivity

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### Corneal sensation testing

- Assesses a patient's reaction to brief corneal stimulation
- Functional insight into the status of the corneal nerves
  - Absent
  - Reduced | Diagnostic for neurotrophic keratitis
  - Normal
  - Increased sensitivity

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### Corneal sensation testing

- Assesses a patient's reaction to brief corneal stimulation
- Functional insight into the status of the corneal nerves
  - Absent
  - Reduced | Diagnostic for neurotrophic keratitis
  - Normal
  - Increased sensitivity — could indicate neuropathic pain

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### Qualitative Testing

- Testing methods:
  - Cotton swab
  - Dental floss
  - Tissue paper
- Pros/Cons
  - Low cost
  - Readily available
  - Little training
  - Minimal time
  - Subjective
  - More difficult for bilateral cases

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### How to Test

1. Start with unaffected eye
2. Ask when patient FEELS
3. Approach laterally
4. Fixate ahead
5. Observe patient reflex
6. Test central cornea
7. Test each quadrant
8. Contralateral eye



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### How to document

Sensation

- Absent
- Reduced
- Normal
- Hyper

Grade

- 0 = absent sensation
- 1 = reduced sensation
- 2 = normal sensation
- 3 = hyper sensation

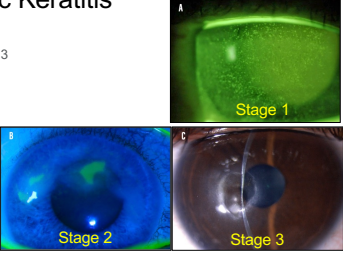


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### Treating Neurotrophic Keratitis

- Original Mackie school of thought
  - Supportive therapy until stage 2 or 3
- Supportive therapy
  - Preservative free artificial tears
  - Warm compresses
  - Punctal plugs
  - BCL/sclerals
  - Topical immunomodulators
- Restorative therapy
  - Amniotic membranes
  - Autologous serum / PRP
  - Recombinant nerve growth factor



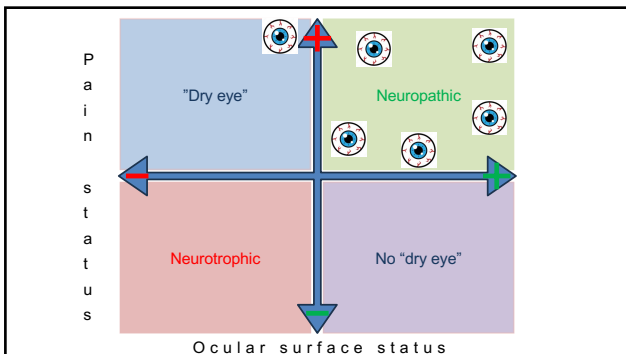
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### Neuropathic Ocular Pain

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### Neuropathic: "Pain with no Stain"

- Eye pain/ache
- Photophobia
- Intense burning
- Radiating pain from eye



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### Neuropathic: "Pain with no Stain"



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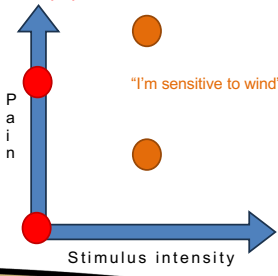
85

### Terms to Know

- Allodynia** = evoked pain from an innocuous stimulus
  - Photoallodynia
  - Cold allodynia
  - Tactile allodynia (cutaneous)
- Hyperalgesia** = increased response to a stimulus
  - Wind

"Light kills my eyes"

"I'm sensitive to wind"

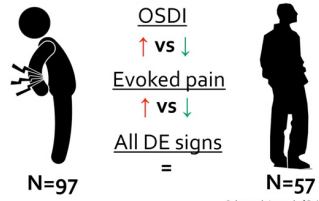


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### Risk Factors for NOP

- Chronic OSD
- Chronic pain syndromes
- Fibromyalgia
- Chronic fatigue
- Small fiber neuropathy
- Migraines
- Trigeminal neuralgia
- Irritable bowel syndrome
- Prior surgery or trauma



Galer et al, Journal of Pain, 2015

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### Risk Factors for NOP

- Chronic OSD
- Chronic pain syndromes
- Fibromyalgia
- Chronic fatigue
- Small fiber neuropathy
- Migraines
- Trigeminal neuralgia
- Irritable bowel syndrome
- Prior surgery or trauma

Although these disorders manifest in different parts of the body, they are often found to co-exist and are likely tied to each other by a unifying pathophysiology linked to neuropathic mechanisms

**"Pain travels together"**

**"DE symptoms may be a peripheral manifestation of systemic disease"**

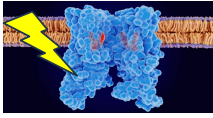
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### What is happening?

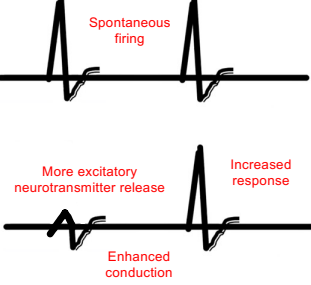
- A proinflammatory environment has been found to sensitize peripheral corneal nociceptors
- Ongoing input of nociception may lead to sensitization
- Recurrent injury is hypothesized to lead to maladaptive neuronal plasticity

**Inflammatory mediators**  
(bradykinin, PGE2, histamine, SP, TNF- $\alpha$ , cytokines, chemokines, CGRP, etc)



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Spontaneous firing

More excitatory neurotransmitter release

Enhanced conduction

Increased response

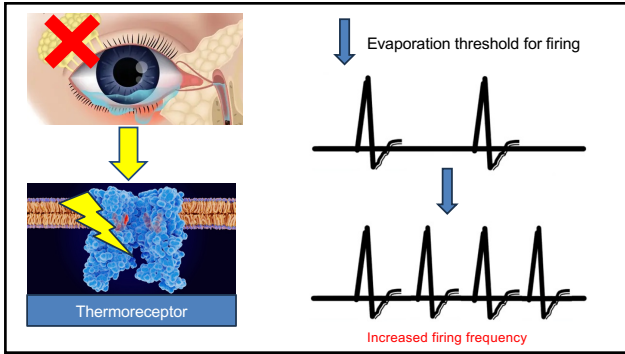
Nerve sprouting

Nerve re-wiring

Conversion of non-nociceptive fibers into fibers exhibiting nociceptive phenotype

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### Central Sensitization

- Ascending pathways that convey pain are modulated by descending inhibitory pathways
  - Inhibit constant pain signaling
  - Creates negative feedback loop
- Reduced descending inhibitory pathways
  - Increases pain perception
  - Causes a chronic pain state
- Changes to the CNS
  - Disproportional perception of pain
  - Continued pain after stimulus is gone

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What to do if you suspect neuropathic ocular pain?

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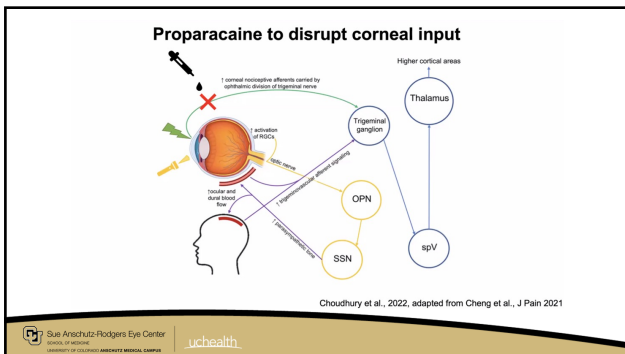
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### Detecting Neuropathic Pain

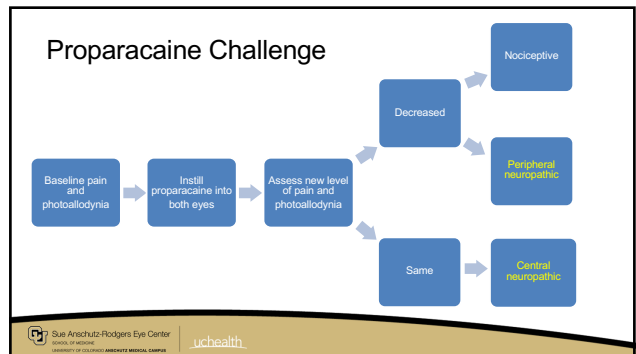
- Allodynia
- Hyperalgesia
- Symptoms >>> signs
  - There can be co-existing OSD!
- Do symptoms fail to improve with eyes closed?
- Does the patient have risk factors?

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### Peripheral and central?

- Yes...
- It is quite common for both forms of pain to exist
- Use proparacaine testing to see which type is contributing most to their pain
- Ex.
  - 60% reduction in pain
  - 70% reduction in photophobia

Decreased → Peripheral neuropathic 60-70%

Same → Central neuropathic 30-40%

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### Treating Neuropathic Pain

- Is there associated OSD?
  - If so, treat before

**Treat nociceptive pain first!**

Evaporation, Aqueous production, Inflammation, Anatomy, Toxicity

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### Treating Neuropathic Pain

- Pain persists?
- Questions
  - Symptoms?
  - Aggravating factors?
    - Wind? Light?
  - Onset?
  - Time course?
  - Risk factors?
  - Unilateral/bilateral?
- Central or peripheral?
- Set expectations! There is no cure for neuropathic ocular pain

Post-surgical: Alter surgery (LASIK, PRK, cataract surgery)

Migraine: Associated with migraine, photophobia

Traumatic: Started after chemotherapy, TBI, burn, etc

Atypical: Post-herpetic neuralgia, trigeminal neuralgia

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### Peripheral Neuropathic Pain

- Anything to reduce nociceptive pain
- Topical
  - High concentration serum tears
  - Platelet rich plasma
  - Topical immunomodulators
  - Low dose corticosteroids
- Punctal plugs
- IPL
- Scleral lenses
- FL-41 glasses
- Alpha lipoic acid
- TRPM8 stimulating compounds

Pretreatment (A), Posttreatment (B) at 4 months, (C), (D) at 6 months

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### Central Neuropathic Pain

- Systemic
  - $\alpha$ - $\delta$  Ligands (pregabalin, gabapentin)
  - Opiate antagonist (low dose naltrexone)
  - SNRIs (duloxetine)
  - TCAs (nortriptyline)
  - Anti-epileptic (topiramate)

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### Central Neuropathic Pain

- Systemic
  - $\alpha$ - $\delta$  Ligands (pregabalin, gabapentin)
  - Opiate antagonist (low dose naltrexone)
  - SNRIs (duloxetine)
  - TCAs (nortriptyline)
  - Anti-epileptic (topiramate)
- Nerve blocks
  - methylprednisolone
  - bupivacaine

Supraorbital nerve, Supraorbicular nerve, Infraorbital nerve, Mental nerve

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### Central Neuropathic Pain

- Systemic
  - $\alpha\delta$  Ligands (pregabalin, gabapentin)
  - Opiate antagonist (low dose naltrexone)
  - SNRIs (duloxetine)
  - TCAs (nortriptyline)
  - Anti-epileptic (topiramate)
- Nerve blocks
  - methylprednisolone
  - bupivacaine
- TENS units



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### Central Neuropathic Pain

- Systemic
  - $\alpha\delta$  Ligands (pregabalin, gabapentin)
  - Opiate antagonist (low dose naltrexone)
  - SNRIs (duloxetine)
  - TCAs (nortriptyline)
  - Anti-epileptic (topiramate)
- Nerve blocks
  - methylprednisolone
  - bupivacaine
- TENS units
- Botox



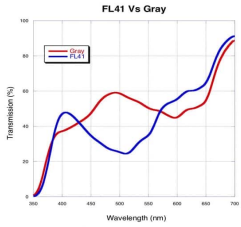
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### Central Neuropathic Pain

#### Spectral Characteristics of FL-41

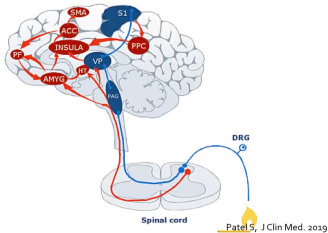
- Systemic
  - $\alpha\delta$  Ligands (pregabalin, gabapentin)
  - Opiate antagonist (low dose naltrexone)
  - SNRIs (duloxetine)
  - TCAs (nortriptyline)
  - Anti-epileptic (topiramate)
- Nerve blocks
  - methylprednisolone
  - bupivacaine
- TENS units
- Botox
- FL-41 glasses



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### Emotional component of eye pain




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### Treating Neuropathic Pain


- Does the patient need lifestyle modifications?
  - Improved sleep
  - Decreased stress
- Referral to a psychologist/psychiatrist
- Untreated anxiety/depression
- Cognitive behavioral therapy
- Exercise, massage, acupuncture



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### Start thinking about corneal nerves!

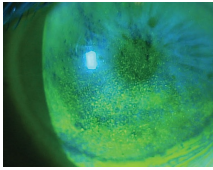



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### When to consider neurotrophic keratitis?

- Neurotrophic keratitis
  - Unresolving corneal staining / defects
  - Signs>>>symptoms
  - Risk factors:
    - Diabetes
    - Herpetic infection
    - H/O eye surgery
    - H/O trauma or brain surgery
  - Test corneal sensation!

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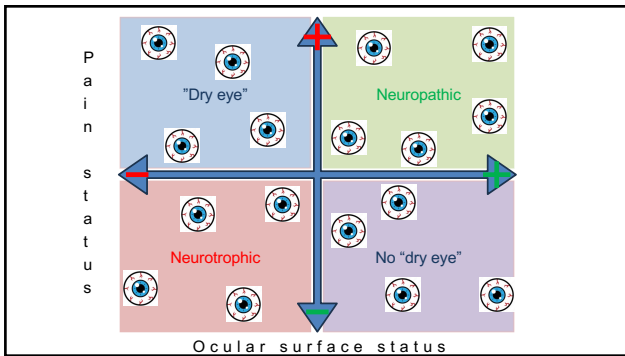
### When to consider neuropathic pain?

- Neuropathic pain
  - Symptoms>>>signs
  - Allodynia or hyperalgesia
  - Risk factors:
    - Chronic pain
    - Fibromyalgia
    - Migraines
    - Small fiber neuropathy
    - Trigeminal neuralgia
    - H/O surgeries, trauma




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"Be kind, for everyone you meet is fighting a hard battle"

- Plato



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### References

1. Laaverson JG. Chapter 2 - Anterior Eye. In: Etkin N, ed. *Contact Lens Practice (Fourth Edition)*. Elsevier; 2024:9-28.e2.
2. Shaheen BS, Baker M, Jain S. Corneal nerves in health and disease. *Surv Ophthalmol*. May-Jun 2014;55(3):263-85. doi:10.1016/j.survophthal.2013.09.002
3. Guarnero-Moreno A, Gaudouin C, Melik Parsadaniantz S, Rezaie-La Gougeon A. Morphological and Functional Changes of Corneal Nerves and Their Contribution to Peripheral and Central Sensory Abnormalities. *Front Cell Neurosci*. 2020;14:570340. doi:10.3389/fncel.2020.010342
4. Lischik H, Hara A, Nagagawa H, Kizaki S, Shimomura Y. Corneal Nerve Fiber Structure, Its Role in Corneal Function, and Its Changes in Corneal Diseases. *Biomol Res Int*. 2017;2017:258268. doi:10.1155/2017/258268
5. Fralko D, Migroni T, Morasu N, Gaudouin C, Rezaie-La Gougeon A, Melik Parsadaniantz S. Transient Receptor Potential Channels: Important Players in Ocular Pain and Dry Eye Disease. *Pharmaceutics*. Sep 2 2022;14(9):1919.
6. Pajk L, Sporkov B, Barboza R. Mechanisms of Peripheral and Central Pain Sensitization: Focus on Ocular Pain. *Front Pharmacol*. 2020;12:764368. doi:10.3389/fphar.2020.764368
7. Chhablani CS, Sivell PC, Feuer NJ, Senanayake GS, Coker A. Epidemiology of discordance between symptoms and signs of dry eye. *British Journal of Ophthalmology*. 2016;102(5):674-678. doi:10.1136/bjophthalmol-2015-029111
8. Nishida J, Sawaie-Smith-Kamminga N, Nibourg SA, Hammond CJ. Predictors of Discordance between Symptoms and Signs in Dry Eye Disease. *Ophthalmology*. 2017;124(3):280-286. doi:10.1016/j.ophtha.2016.11.014
9. Galor A, Meen HR. <https://doi.org/10.1093/oxford/abz039> Neuropathic pain and dry eye. *Optom Surf*. Jan 2018;16(1):31-44. doi:10.1016/j.opt.2017.10.001
10. Szabolcs L, Sebonyi M, Nemeth J, Birko E, Párfel G. The role of health anxiety and depressive symptoms in dry eye disease. *Current eye research*. 2016;41(8):1044-1049.
11. McKinnon CW. Why the symptoms and objective signs of dry eye disease may not correlate. *Journal of Optometry*. 2021;101(1):2021-14(1):3-10. doi:10.1016/j.opt.2021.03.001
12. Mijovic B, Kara K, Schmitt A, Schumacher D. Impact Of Dry Eye Syndrome On Vision-related Quality Of Life Among Women. *Investigative Ophthalmology & Visual Science*. 2004;45(13):3740-3746.
13. Blane NS, Chen QJ, Li M, Davis RM. The correlation between dry eyes, anxiety and depression: the sicca, anxiety and depression study. *Cornea*. 2019;38(8):884-889. doi:10.1097/ICO.0000000000001774
14. Van Der Vaert R, Weaver JA, Lefebvre C, Davis RM. The association between dry eye disease and depression and anxiety in a large population-based study. *American journal of ophthalmology*. 2015;159(2):470-474.
15. Kotz J, Rieger-Brann BN, Fiehler S. Chronic pain, psychopathology, and DSM-5 somatic symptom disorder. *The Canadian Journal of Psychiatry*. 2015;60(4):160-167.
16. Williamson JF, Hyatt K, Weaver JA, Davis RM. Perceptions of dry eye disease management in current clinical practice. *Eye & contact lens*. 2014;40(2):111-115. doi:10.1016/j.ecl.2013.11.009
17. Saad S, Abdelmassih Y, Saad R, et al. Neurotrophic keratitis: Frequency, etiologies, clinical management and outcomes. *Ocul Surf*. Apr 2020;18(2):231-236. doi:10.1016/j.ios.2019.11.009
18. Jabbour S, Ashton C, Batai S, Kaye A, Ahmad S. The management of neurotrophic keratitis. *Curr Opin Ophthalmol*. Jul 1 2021;32(4):362-368. doi:10.1097/ICU.0000000000000786.

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Thank you!

Any questions?




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## Common Pitfalls in Medical Documentation and Billing and Coding

Andrew Kemp, OD FAAO  
Clinical Assistant Professor  
University of Houston College of Optometry

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## Disclosures

- Metro Optics
- Essilor Custom Contacts

2

## The "Truth"

Spend time reading these...

- CPT and ICD manuals
- CMS (Medicare/Medicaid)
- Local Medicare carrier (Jurisdiction H – Texas and Colorado → Novitas)
- Medical payers
- Vision plan provider manuals

3

## Concepts in Medical Eye Care Billing

The two core concepts of ethical medical care are:

- REASON FOR THE VISIT
- MEDICAL NECESSITY

And the third major concept to support those two items is:

- PROPER DOCUMENTATION OF MEDICAL RECORDS

Then there are SOME rules – not really that many!

4

## REASON FOR THE VISIT

5

### Reason For The Visit (RFV) - also called Chief Complaint (CC)

- It's simple – why is the patient seeking your care today
- What qualifies as a **medical** reason for the visit
  - ◊ Symptoms
  - ◊ Direction
    - From the patient
    - From a peripheral physician
    - From the attending physician

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## RFV / CC Documented How?

- ◊ Symptoms are documented in a few words that best approximate what the patient said
- ◊ Direction is documented by **who** directed the encounter and for **what** reason
- ◊ RFV/CC on established patient sometimes includes orders for tests (discussed later)
- ◊ **RFV/CC does NOT contain run on information about the symptom or direction – that goes in the History of Present Illness (HPI) – Try to keep these separate!**

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## Levels of RFV/CC

- ◊ The severity of the CC will establish the medical necessity for the level of exam. Establishes the “nature of the presenting problem”
  - ◊ Minimal severity – presence of the physician is not required
  - ◊ Minor severity – likely to run a definite and prescribed course, is transient in nature, and not likely to permanently alter any health care status
  - ◊ Low severity – risk of morbidity is low even without treatment and a full recovery without functional impairment is predicted

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## Levels of RFV/CC

- ◊ Moderate severity – risk of morbidity is moderate and there is an uncertain prognosis and increased probability of prolonged functional impairment
- ◊ High Severity – risk of morbidity and/or mortality without treatment is high and there is a high probability of severe, prolonged functional impairment

... more on this soon

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## Why is this Important

- ◊ The severity of the complaint should dictate a more detailed or comprehensive examination
- ◊ Only perform what is necessary to evaluate the reason for the visit
  - ◊ Performing a more advanced exam than necessary is fraudulent!
    - ◊ i.e. evaluating the retina for a RFV of “itching”

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# MEDICAL NECESSITY

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## What Is Medical Necessity

### WHAT DOES MEDICARE SAY

*Health care services or supplies needed to diagnose or treat an illness, injury, condition, disease, or its symptoms and that meet accepted standards of medicine.*

<https://www.medicare.gov/glossary/m.html>

That seems pretty generic....can we dumb it down some?

### SIMPLE APPROACH:

*Will the results of this examination or testing influence or dictate my diagnosis and/or treatment of the patient?*

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## Medically Necessity

- ◆ Medical necessity is **NEVER** determined by the fact that a diagnosis is on an approved payment list
- ◆ CANNOT bill a visual field, OCT, pachymetry, corneal hysteresis, fundus photo for a glaucoma suspect simply because it is accepted under a payment policy
- ◆ In 2023, settlements under False Claims Act exceeded \$2.68 BILLION
  - ◆ One hospital center paid out \$21.6 MILLION for tests deemed "effectively worthless"

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## Medically Necessity

- ◆ A physician's determination of medical necessity does not always coincide with the patient's insurance benefits
- ◆ A doctor should determine medical necessity, and **someone should pay for that care!**

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## PROVE IT!

The Medicare Carriers Manual, Part 3 §2320 reads:

*"The coverage of services rendered by a physician is dependent on the purpose of the examination rather than on the ultimate diagnosis of the patient's condition. . . . when a beneficiary goes to his/her physician for an eye examination with no specific medical complaint, the expenses for the examination are not covered even though as a result of such examination the doctor discovered a pathologic condition."*

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## Things that are NOT medical reasons for a visit

- ▶ Comprehensive examination
  - ▶ Annual eye evaluation
  - ▶ Annual medical eye evaluation
  - ▶ Comprehensive eye health evaluation
  - ▶ Diabetic examination (*you're kidding right?*)
- And others....
- ▶ IOP check
  - ▶ Here for visual field
- ALL CREATIONS OF OPTOMETRY  
NONE MEDICALLY NECESSARY

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## Eye Exams On Diabetic Patients

- ◆ No commonly accepted definition for a "Diabetic Eye Exam" exists
- ◆ Some vision plans have their own requirements for patients with diabetes
  - ◆ Often requires dilation
- ◆ My recommended CC "Doctor directed visit for the ocular complications related to...."

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## Dilation in Eye Care

- ◆ Major Issue!
- ◆ For comprehensive ophthalmological exam codes
  - ◆ Usually should be performed, always when medically indicated (what is the chief complaint?)
- ◆ For E/M codes
  - ◆ When medically indicated

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## Dilation Continued

- ◊ If not performed, it should be indicated as to why
  - ◊ Reviewing fundus photography is **NOT** acceptable as a substitute
  - ◊ If a patient refuses, must be documented. Careful with frequent patient refusal!
  - ◊ If a patient is not dilated, peripheral retinal statements should not be included

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## DOCUMENTATION

Documentation is crucial:

- ✓ It's the only way money is kept in an audit
- ✓ It's the only evidence allowed in court

I see A LOT of charts with lazy/no documentation

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## Diagnostic Codes (ICD-10)

- ◊ International Classification of Disease (ICD) – we're now on version 10 – major concept is **SPECIFICITY**
- ◊ These are the keys that unlock the safes of reimbursement – **EVERYTHING IS SYMPTOM OR DIAGNOSIS DRIVEN**
- ◊ This should be no big deal – *it is your job to make the diagnosis!*

*What do the words maybe, possible or probable have in common regarding a diagnosis?*

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## Diagnosis Codes

- ✓ Code to highest level of specificity
- ✓ Use eye codes, not systemic (except “code first” diagnoses)
- ✓ If you diagnose it, you must treat it, but you **don't have to code it!**
- ✓ **The “primary diagnosis” should correspond with the reason for the visit**

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## Diagnosis Codes

Primary diagnosis – answers the RVF and should be listed first (hence primary)

Subsequent diagnosis – revealed during the encounter that are not necessarily associated with the RVF. CPT states inclusion of these on the claim form is optional.

Existing diagnosis – conditions a patient has had in the past not being managed during this encounter. CPT states these should NOT be included

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## ICD 10 Manual “rules”

- ◊ Only full codes are valid. Need the full extent of up to 7 characters. AVOID “unspecified” codes.
- ◊ If a combination code exists, we **must** use it
  - ◊ Using the code that lists diabetic retinopathy w or w/o mac edema together instead of using a code for retinal hemorrhages and macular edema separately.
- ◊ If a condition included laterality, it **must** be used
- ◊ If presenting problem is a complication of care, it **must** be reported as such
  - ◊ Macular edema following cataract surgery, left eye H59.032

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### General Rule for Documentation

When documenting a medical record, record every finding you feel should be documented. Record a diagnosis for every **significant** clinical findings. You must have a plan for each diagnosis.

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### Ophthalmologic vs EM Codes

This is actually VERY simple!

1. You can ALWAYS use an evaluation and management code – conduct a problem-oriented examination based on the reason for the visit and determine medical decision
2. You can ONLY use an ophthalmologic code when your service meets the definition and description of the code (*Means what? Next slides...*)

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### 92002 / 12 Per CPT

*Ophthalmological services: medical examination and evaluation with initiation of diagnostic and treatment program; intermediate*

*Requires:*

The evaluation of a new or existing condition *complicated with a new diagnostic or management problem (?)*

- A medical history
- General medical observation
- Examination of external eye and adnexa

*And any other applicable service; may include the use of mydriasis or cycloplegia*

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### 92004 / 14 Per CPT

*Ophthalmological services: medical examination and evaluation with initiation of diagnostic and treatment program; comprehensive, one or more visits. Requires:*

- General evaluation of the complete visual system
- A medical history
- General medical observation
- Examination of external eye and adnexa
- Ophthalmoscopic examination (usually includes dilation)
- Gross visual fields
- Basic sensorimotor exam
- Always includes initiation of diagnostic and treatment programs

#### EXAMPLES

1. Eye waters?
2. Nevus follow up?
3. Patient with DM?
4. Patient with dry eyes and AMD?

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### And the EM Codes?

It's Complicated, Objective, Opinionated, Debated, and Generally a PITA – but you have to understand them!

- ◊ Key One – The History
- ◊ Key Two – The Examination
- ◊ Key Three – Medical Decision Making

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### New Changes Effecting January 2021

◊ Eliminated 99201

◊ Choosing the proper level is via medical decision making or time spent with a patient

**HOWEVER....**traditional billing tenets still apply!

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## Medical Decision Making

Measured by:

- ◆ Number of possible diagnosis or number of management options
- ◆ Amount and complexity of medical records, diagnostic tests and other information recorded or reviewed
- ◆ Risk of complications, morbidity, mortality and comorbidities

*Defined as STRAIGHTFORWARD, LOW COMPLEXITY, MODERATE COMPLEXITY AND HIGH COMPLEXITY*

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## Here's the Rub

There is NO consensus on what constitutes  
*STRAIGHTFORWARD, LOW COMPLEXITY, MODERATE COMPLEXITY AND HIGH COMPLEXITY*

*TRUTH: Most doctors over-estimate the complexity of their care according to CPT. 77% denial in Medicare – 90% of those due to upcoding!*

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## New Definitions of Medical Necessity

- ◆ The reason for the visit or “problem” will establish the medical necessity and help establish the complexity of the decision making
- ◆ Problem– something that is evaluated and treated at the encounter. Problems managed by an outside provider with no additional assessment does not qualify
  - ◆ Also includes referrals without adequate evaluation

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## Types of Problems in Determining Medical Decision Making

- ◆ Minimal problem – may not require a physician
- ◆ Self-limited or minor problem – a problem that runs a definite and prescribed course, is transient in nature and not likely to permanently alter health status. **NOTE: This could be considered to include a wide range of ophthalmic presentations**
- ◆ Stable, chronic illness – a problem with an expected duration < 1 year. Stable implies the specific treatment goals are being achieved and not just that the condition itself is stable (ie glaucoma).

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## Types of Problems

- ◆ Acute, uncomplicated illness or injury – low risk of morbidity and little or no risk of mortality. Full recovery without functional impairment is expected. Could be self-limited/minor problem that is not resolving (ex. Dry eyes, blepharitis, episcleritis).
- ◆ Chronic illness with exacerbation, progression or side effects of treatment – chronic illness that is acutely worsening, poorly controlled and requiring additional care

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## Types of Problems

- ◆ Undiagnosed new problem with uncertain prognosis – new problem with high risk of morbidity without treatment (corneal ulcer/swollen disc).
- ◆ Acute illness with systemic symptoms – An illness that causes systemic symptoms and has a high risk of morbidity without treatment

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### New definitions – New patient

- ◆ 99202 – Office or other outpatient visit for the evaluation and management of a new patient, which requires a **medically appropriate** history and/or examination and **straightforward** medical decision making
- ◆ 99203 – Office... and **low** level of medical decision making
- ◆ 99204 – Office... and **moderate** level medical decision making
- ◆ 99205 – Office... and **high** level medical decision

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### Established patient

- ◆ 99211 – Office... that may not require the presence of a physician or other qualified health care professional. Usually, the presenting problem(s) are minimal
- ◆ 99212 – Office... **straightforward** medical decision making
- ◆ 99213 – Office... **low** medical decision making
- ◆ 99214 – Office... **moderate** medical decision making
- ◆ 99215 – Office... **high** medical decision making

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### Level 2 E/M codes MUST Qualify 2 of the 3!!!

CPT Code	MDM Level	Number and Complexity of Problems Addressed	Amount and/or Complexity of Data Reviewed and Analyzed	Risk of Complications and/or Morbidity
99202/12	Straightforward	Minimal One self-limiting or minor problem	Minimal to none	Minimal risk of morbidity from additional testing or treatment

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### Level 3 E/M Codes

CPT Code	MDM Level	Number and Complexity of Problems Addressed	Amount and/or Complexity of Data Reviewed and Analyzed	Risk of Complications and/or Morbidity
99203/13	Low	Low Two or more self-limiting or minor problems -or- One stable chronic illness -or- One acute, uncomplicated illness or injury	Limited Must meet at least one of the two categories <b>Category One:</b> Test and Documents Any two of: *Review of prior external notes from unique source *Review of results of each unique source <b>Category Two:</b> Assessment by Independent Historian	Low risk of morbidity from additional testing or treatment

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### Level 4 E/M Codes

CPT Code	MDM Level	Number and Complexity of Problems Addressed	Amount and/or Complexity of Data Reviewed and Analyzed	Risk of Complications and/or Morbidity
99204/14	Moderate	Moderate One or more chronic illness with exacerbation, progression or side effects of treatment -or- Two or more chronic illnesses -or- One undiagnosed new problem with uncertain prognosis -or- One acute illness with systemic symptoms -or- One acute complicated injury	Moderate Must meet at least one of the three categories: <b>Category One:</b> Tests, documents or independent historian Any combination of three from: *Review of prior external notes from each unique source *Review of results of each unique test *Ordering of each unique test *Assessment requiring an independent historian <b>Category Two:</b> Independent Interpretation of tests <b>Category Three:</b> Discussion of Management or Test Interpretation *Discussion of management or test interpretation with external physician	Moderate risk of morbidity from additional testing or treatment *Prescription drug management *Decision regarding minor surgery with patient or procedure risks *Decision regarding major surgery without patient or procedure risks *Diagnosis or treatment significantly limited by social determinants of health

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### Level 5 E/M Codes

CPT Code	MDM Level	Number and Complexity of Problems Addressed	Amount and/or Complexity of Data Reviewed and Analyzed	Risk of Complications and/or Morbidity
99205/15	High	High	Extensive Must meet two of the three categories: <b>Category One:</b> Tests, Documents and Independent Historians  <b>Category Two:</b> Independent Interpretation of Tests  <b>Category Three:</b> Discussion or management or test interpretation	High risk of morbidity from additional testing or treatment

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### Putting it Together

NEW PATIENT	Medical Decision Making	ESTABLISHED PATIENT	Medical Decision Making
		99211	Minimal
99202	Straightforward	99212	Straightforward
99203	Low	99213	Low
99204	Moderate	99214	Moderate
99205	High	99215	High

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### Determining Service Level Based on Time

- ◊ Have always been able to do this...but BIG changes in how it is done
- ◊ Time – total time the physician and qualified healthcare professional spends with the patient, not ONLY the time spend in counseling and coordination of care. It is STILL only the time spent with the patient (excludes waiting time, intake, etc).
- ◊ The requirement that the counseling and coordination be at least 50% of the total time is eliminated
- ◊ Must be clearly recorded in the medical record

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### Billing E/M on Time

NEW PATIENT	TIME	ESTABLISHED PATIENT	TIME
99202	15-29 MINUTES	99212	10-19 MINUTES
99203	30-44 MINUTES	99213	20-29 MINUTES
99204	45-59 MINUTES	99214	30-39 MINUTES
99205	60-74 MINUTES	99215	40-54 MINUTES

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### Commonly Missed Billing

- ◊ Level 4 is billed with one chronic condition with an exacerbation, but no medication is recommended, or surgery discussed
- ◊ Level 4 is billed for one chronic, stable condition and medication is prescribed (ie chronic dry eye)
- ◊ Two chronic conditions are managed and surgery was discussed but the chief complain indicated "routine exam."

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### Surgical Codes

- ◊ Only addressed by Medicare and it is unclear if these rules apply to minor surgeries but most feel a basic surgery report is warranted and would include:
  - ◊ Surgery performed
  - ◊ Reason for surgery
  - ◊ Statement of patient consent – signature?
  - ◊ Documentation of anesthesia if applicable
  - ◊ Short description of what was done
  - ◊ Post-op release instructions

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### Amniotic Membranes (CPT 65778)

- ◊ This is a focus of many insurance payor due to high reimbursement
- ◊ Rules are not clear
- ◊ What IS clear → must established proper medical necessity.
  - ◊ +1 SPK for chronic dry eye is likely **NOT** going to cut it...

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## Keys to Success

- ◆ For amniotic membranes or any advanced procedure...
  - ◆ Medical necessity!!
  - ◆ Must be supported by exam documentation
  - ◆ Indications in the HPI/Assessment on the instability of a condition is **critical**

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## Modifiers Made Easy

Modifiers are attachments to the procedure codes that tell the payor you are doing something **different or additional** for a reason. That reason may go against the payors determination of what is medically necessary but the modifier **SOMETIMES** allows you to override the payors restrictions.

There are **VERY FEW** modifiers you will use as an optometrist.

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## Modifiers in Eye Care

### "Identifying" Modifiers

**RT, LT** - Right eye, Left eye

**E1-E4** - Eyelid location

**GY** – Non-covered modifier (for Optomaps, refractions, etc – optional use)

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## Over-use of -59 and -25 Modifiers

### -59 Modifier

- ◆ The catch all / break all rules modifier – ultimately way abused
- ◆ THE most audited modifier in Medicare
- ◆ Lots of opinions on this one...lots of folks giving out poisonous information. No matter what anyone tells you, use the -59 modifier and you **WILL** get audited and you **WILL** lose the appeal

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## -25 Modifier

**THE SECOND MOST COMMON MODIFIER AUDIT TARGET IN MEDICARE!!!**

When to use:

1. When a patient presents (RFV) for one issue (ex. glaucoma follow up) and you find something in the exam (ex. trichiasis)that necessitates surgery on the same day
2. When you determine you must perform an evaluation and management service to determine the need for surgery (BE VERY CAREFUL HERE! Likely lose every appeal!)

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## Modifiers in Eye Care

**26 & TC** - Describes the technical vs the interpretive component of some services (usually radiological). In our case, applies to a-scans, b-scans

**24 & 79** - For a service performed during a Global surgery fee period unrelated to the surgery. -24 goes with the office visit and -79 with tests

What about co-management?

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### A moment on Co-management

- ◆ Mostly allowed only with Medicare
- ◆ Recent focus on optometry's relationship with ophthalmology – specifically co-management
- ◆ You must **SET** and **COLLECT** your own fees

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### Modifiers in Eye Care

#### 52 Modifier

Used to tell the payer that you are performing a test on only ONE eye even though the test is paid as if you did both eyes.

You can bill only for the eye where the test was medically necessary. There are some exceptions to this (rare – glaucoma is most common)

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### A Few Other Issues Documentation of Interpretation / Reports

- ◆ Every diagnostic test must have an associated interpretation and report
- ◆ Without an interpretation and report, an auditor can deny reimbursement for the test
- ◆ Here's the rub...CPT did not bless us with directions on what should be included in an interpretation and report

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### Documentation of Interpretation / Reports

#### What many suggest

- ◆ **Statement of reason test was run**
- ◆ **Brief summary of results**
- ◆ Statement of reliability of the data
- ◆ Statement of cooperation of the patient
- ◆ Diagnosis associated with the test or **statement of how the results will assist in diagnosis and management of condition**

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### Orders for Diagnostic Tests

- ◆ CPT says that for every diagnostic test...
  - ◆ It must be clear to the auditor from the medical record why you performed the test
- OR-
- ◆ The record must include a physician "order" for the test
- ◆ The second is best!

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### Three Places for Orders

- ◆ In the plan of the previous examination (that the auditor does not have!)
- ◆ In the reason for visit for the current examination
- ◆ In the plan of the current examination or in an order section noting the test is to be performed that day

All OK... but suggest #1 (for others's sake)  
AND #2 or #3 (for the auditor's sake)

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### Major Fraud and Abuse Statues

- False Claims Act (FCA)
  - Sets standards for ethical claims submissions based on medical necessity
- Imposes civil liability
  - Knowing or in deliberate ignorance
  - Fines (\$5,500-\$11,000 per false claim/per line) PLUS up to 3x damages sustained by the government
  - Can face criminal prosecution
  - Exclusion from payor programs

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### This is a BIG Focus

- ◆ 2023 Medicare improper payment rates
- ◆ 7.38% totaling \$31.23 BILLION

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#### Common Causes of Improper Payments

Figure 2: Improper Payment Rate Error Categories by Percentage of 2023 National Improper Payments\*

Error Category	Percentage
Insufficient Documentation	62.0%
Medical Necessity	14.0%
Incorrect Coding	11.0%
Other	8.0%
No Documentation	5.7%

### CMS.gov Improper Payment Data

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### More Data..

**Table 5: Top Root Causes for Office visits - established**

Root Cause Description	Error Category	Sample Claim Count
Documentation supports lower level of E/M service than what was billed*	Incorrect Coding	123
Documentation supports higher level of E/M service than what was billed*	Incorrect Coding	18
Documentation for the billed date of service - Inadequate	Insufficient Documentation	11
Attestation for unsigned documentation - Missing	Insufficient Documentation	6
Documentation for the billed date of service - Missing	Insufficient Documentation	5

Note: Root causes frequently associated with partial improper payments are identified with an asterisk.

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### It's getting better?

- ◆ Improper Payment Rates over time
- ◆ 1996 – 13.8%
- ◆ 2010 – 10.5%
- ◆ 2014 – 12.7%
- ◆ 2021 – 6.26%
- ◆ 2023 – 7.38%

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### Improper Payments by State

The best?	The worst?	Texas? Colorado?
• Wyoming – 0.6%	• West Virginia – 24.4%	• 9.3% • 6.0%

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### More statistics

- ◆ Improper payment rate of orthopedic footwear – 100%
- ◆ Improper payment rate Ophthalmology – 3.3%
- ◆ Improper payment rate Optometry – 8.5%...
  - ◆ Estimated repayment of \$76.5 million
- ◆ Chiropractic was highest at 39.3%
- ◆ Most erroneously billed code across healthcare...99214

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### We can do better ODs!

Provider Types Billing to Part B	Improper Payment Rate	Claims Reviewed	Percentage of Provider Type Improper Payments by Type of Error				
			No Doc	Insufficient Doc	Medical Necessity	Incorrect Coding	Other
Optometry	8.5%	66	0.0%	63.9%	0.0%	32.9%	3.2%
Ophthalmology	3.3%	300	0.0%	81.6%	0.0%	18.4%	0.0%

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### Major Fraud and Abuse Statues

- Anti-Kickback Statute (AKS)
  - Defines criminal offense to knowingly and willfully offer, pay, solicit or receive any remuneration directly or indirectly that induces or rewards referrals of items or services reimbursable by a Federal health care program.
    - Courts may decide to apply this to non-Federal funds
    - Civil penalties up to 3x the amount of kickback
    - Possible criminal penalties including fines and imprisonment

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### Major Fraud and Abuse Statues

- Physician Self-Referral Law (Stark Laws)
  - Prohibits making referral to an entity in which the physician has ownership or a compensation arrangement unless an exception applies (Safe Harbors).

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### The Age of Audits

- ◆ All payers have dramatically increased the number of audits performed (medical and vision)
  - ◆ Gov't is broke
  - ◆ Healthcare reform has placed a major emphasis on uncovering fraud and abuse
  - ◆ Ignorance cannot be used as an excuse!!
  - ◆ Qui Tam – Whistleblower Act – unhappy patients can report who they think are fraudulent and will get paid for it!
    - ◆ Paid out 349 million in 2023 to whistleblowers in 712 lawsuits
  - ◆ Medicare has hired Recovery Audit Contractors (RACs) who are paid based on the amount of money they get back

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### The Age of Audits

- ◆ Ophthalmology (includes optometry) was specifically called out in a report by the Office of the Inspector General about health care fraud.....
- ◆ Payors conducting the most Audits
  - ◆ Medicare
  - ◆ Aetna
  - ◆ VSP (extra evil)
  - ◆ BCBS
  - ◆ EyeMed

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Questions?  
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# Opioids: Ongoing Challenges in Pain Management

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## No Financial Disclosures

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## Disclosure of Relevant Financial Relationships for all Individuals in a Position to Control the Content of this CE Activity

Instructor	Name of Commercial Interest	Nature of Relationship
David Dinh, OD FAAO	Fortrea	Consultant Clinical Investigator
	Essilor	Honorarium

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## Today's Goals

- History**  
What are opioids?  
What's the big deal?
- Clinical Impact**  
How does this influence patient care?
- Alternative Options**  
What other choices in our toolbox?
- Optometric Goals**  
Applying concepts to everyday scenarios

4

## Opioids Through the Years

- Naturally occurring
  - *Papaver somniferum* – opium poppy
  - Use dating back to Neolithic era – 5500 BC
  - Opium → morphine → codeine
- Semi-synthetic
  - Morphine-derived substances
  - Heroin, oxycodone, hydrocodone, buprenorphine
- Synthetic – opioid-like effect
  - Non-morphine opioid substances
  - Methadone, fentanyl



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## Opioids - Who? What? Why?

- *"analgesic to treat pain severe enough to require daily, around-the-clock, long-term opioid treatment and for which alternative treatment options are inadequate"*
- Common opioids:
  - Morphine
  - Heroin
  - Fentanyl
  - Hydrocodone
  - Hydromorphone (Dilaudid®)
  - Methadone
  - Codeine
  - Oxycodone (Oxycontin®)
  - Percocet® (oxycodone + acetaminophen)

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## Getting to Work

01

Site of Action

Requires transport across the blood-brain barrier

02

Absorption

High GI permeability → oral administration

- Notable exceptions: fentanyl

03

Metabolism

High first-pass effect → clinical heterogeneity

- Site of prodru<sup>g</sup> conversion to active metabolite
- Can be bypassed to enhance effect avoid first-pass inactivation

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## Warm Reception

- 3 opioid receptors – post-synaptic, analgesic effects
  - μ (MOR) – most commonly used receptor
  - κ (KOR) – used in conjunction for morphine and oxycodone
  - δ (DOR) – little use amongst most prescribed opioids
- Nociceptin receptor (NOR)
  - Similarity to classic receptors in analgesic effects
  - Affinity preference: agonists typically do not react to classical receptors

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## What Hurts?

- Pain – latest IASP updated definition
  - An unpleasant sensory and emotional experience associated with, or resembling that associated with, actual or potential tissue damage
- Some notable features of pain
  - Biological, psychological, and social influences
  - Life experiences help form our basis of pain
  - Pain does not need to be verbalized
  - A report of pain should be respected
  - Pain and nociception are mutually exclusive
  - Pain have adverse effects on function and social and psychological well-being.

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## Biopsychosocial Model

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## Timing is Everything

- Acute → <3 months
  - May be recurrent because of chronic disease
  - Respond well to opioids → USE WITH CAUTION!
- Chronic → >3 months
  - Often begin as unresolved acute pain
  - Multimodal approach
  - Identification of risk factors for substance use disorders
  - Non-opioid options

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## On the Origin of Pain

- Nociceptive
  - Secondary to actual or potential tissue damage
  - Typically acute
  - Examples: stubbed your toe, burned your hand on the stove
- Neuropathic
  - Dysfunction within the nervous system
  - Acute or chronic
  - Examples: postherpetic neuralgia, diabetic peripheral neuropathy

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### DEA Drug Schedules

Schedule	Potential for Abuse	Examples
I	High Potential for Abuse <b>NO</b> medical applications	Heroin, Marijuana, Ecstasy
II	High Potential for Abuse <b>SOME</b> medical applications	Hydrocodone, Cocaine, Methadone
III	Moderate-Low Potential for Abuse	<90mg of codeine (e.g. Tylenol III)
IV	Low Potential for Abuse	Tramadol®, Xanax®
V	Lowest Potential for Abuse	Robitussin AC®

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### Is it an eyecare problem?

Table 2. Opioid Prescribing Patterns Categorized by Number of Prescriptions Written<sup>a</sup>

Prescriptions Written Annually, No.	Ophthalmologists, No. (%)		
	2013 (n = 19 615)	2014 (n = 19 587)	2015 (n = 19 712)
0	8718 (44)	9004 (46)	9599 (49)
1-10	8556 (44)	8403 (43)	8032 (41)
11-100	2150 (11)	1977 (10)	1896 (9)
>100	191 (1)	203 (1)	185 (1)

JAMA Ophthalmology. 2017;135(11):1216-1220

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### Can we do better?

Table 3. Opioids Prescribed After Corneal Surgery in Patients Receiving a Prescription

Tablet Variable	Opioid Use Cohort Before Guideline Changes (n = 38)		After Guideline Changes (n = 31)		Difference, Mean (95% CI)	P Value <sup>a</sup>
	No. of Tablets	Mean (SD) Median (Range)	No. of Tablets	Mean (SD) Median (Range)		
Prescribed	34	18.8 (4.2) 20 (3-30)	31	6.6 (3.1) 5 (1-15)	12.2 (10.4-14.0)	<.001
Used	29	8.3 (7.0) 6 (0-30)	28	4.0 (3.2) 4 (0-14)	4.3 (1.4-7.2)	.005
Remaining	29	10.3 (6.9) 12 (0-20)	28	2.9 (2.7) 2.5 (0-10)	7.5 (4.7-10.2)	<.001

<sup>a</sup> Calculated using the 2-sample t test.

JAMA Ophthalmology. 2019 Oct 31;138(1):76-80

#### Key Takeaways

- Fewer prescribed opioids resulted in fewer leftover pills
- Fewer prescribed pills maintained adequate pain management

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# What Can I Do?

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- ### Best Prescribing Practices
- **2016 CDC Guideline for Prescribing Opioids for Chronic Pain**
    - Originally intended for PCPs
  - **Lessons Learned**
    - Rapid reduction in opioid prescribing – Good or Bad?
    - Misapplication by boards, insurances, pharmacies, etc.
    - Loss of nuance in clinical decision making

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- ### Best Prescribing Practices
- **2022 CDC Guideline for Prescribing Opioids for Pain**
  - **4 Categories of Updated Recommendations**
    - Should I Start an Opioid?
    - Which Opioid to Use?
    - How Long Should I Use Opioids?
    - How to Assess Risks with Opioid Use?

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## I'm Ready to Prescribe. What Next?

### Internal Controls

- Frequent Follow-ups
  - Evaluate therapeutic effect
  - Stabilize and titrate dosing
- Lab work and counseling to evaluate for misuse
- Limited dosing quantities and pill counts
  - Consideration for origin of pain, expected duration
- E-prescribing

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## I'm Ready to Prescribe. What Next?

### Internal Controls

- Patient Education
  - Set realistic expectations
  - Situations for discontinuation → Patient Contracts
    - Risks outweigh benefits
    - Evidence of misuse → Urine Drug Screening
- DEA Drug Disposal Sites
- Provider Education
  - Education at all levels

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## I'm Ready to Prescribe. What Next?

### External Controls

- Abuse-deterrent Formulations (ADF)
  - Abuse Deterrence vs. Access
- DEA Drug Scheduling
  - 2014 Hydrocodone rescheduling
- Prescription Drug Monitoring Program

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## Prescription Drug Monitoring Program

### Goals

- Prevent doctor shopping
- Enhance tracking among different state/federal organizations
- Allow for insight on prescribing habits to identify outliers

### Key Features

- Pharmacy updates after filling controlled substance
- Prescriber access to patient filled drug history



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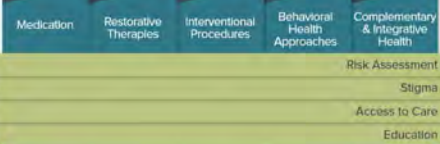
## Ok, I'm REALLY Ready to Prescribe

### Are you staying in your lane?

- Multimodal approach to chronic pain management
  - Did you perform a comprehensive systemic, family, and social history?
  - Do you have the specialized training to best address the root cause of pain?

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## Acute and Chronic Pain Management: Individualized, Multimodal, Multidisciplinary



Source: Department of Health and Human Services. Pain Management Best Practices Inter-Agency Task Force Report

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### ...But Should I?

- **Absolute Contraindications**
  - Current addition to opiates
  - Known history of opiate addiction → technically relative...
- **Relative Contraindications**
  - Pulmonary disease or dysfunction
  - Renal impairment
  - Personal OR family history of substance use disorders (non-opiate related)
  - Allergy to opiates
  - Head injuries

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### “Houston, We Have a Problem”



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### Houston, we have a problem

- **Drug-drug interaction**
  - Respiratory depression → reversible
  - Cardiac rhythm anomalies: QT prolongation → torsade des pointes (TdP)
- **Liver metabolism → CYP450, CYP3A**
  - Enhanced by CYP450 inhibitors: alcohol
  - Enhanced by CYP3A4 inhibitors: fluoxetine, clarithromycin, fluconazole, and valproate
  - Genetic mutations preventing expression of liver enzymes used for metabolism

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### Expecting the Unexpected

- **Short-term Side Effects**
  - sedation, dizziness, nausea, vomiting, constipation
- **Long-term Side Effects**
  - physical dependence, tolerance, and respiratory depression

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### Signs of an Opiate Overdose

- **Things to look for:**
  - Altered/depressed consciousness
  - Difficulties breathing
  - Cold/clammy/cyanotic skin
  - Pupil abnormalities
    - Constricted → Acute
    - Dilated → Anoxic brain injury
- **Opiates account for about half of all suicides**

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### CTRL+Z – The Great Undo Command

- **Naloxone (Narcan®)**
  - Opioid receptor antagonist → requires active systemic opioids
  - Reverses opioid effects and acute respiratory depression → 2-5 minutes latency of action
  - Available as auto-injector or nasal spray
  - All states allow for anyone to purchase from pharmacy and without a prescription in most states



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## An Ounce of Prevention

- Reducing drug-harm outcomes
  - Fentanyl test strips
  - Fentanyl "vaccine"



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## Choosing a Different Path

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## Is There Another Way?

- Physical manipulation/Manual Therapy
  - Chiropractic manipulation – high velocity, low amplitude
  - Massage – tissue extensions
  - Exercise – blood flow and endorphins
  - Surgery – positional correction
  - Acupuncture/Acupressure – acupoint activation → endorphins

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## And Does It Work?

- Manual Manipulation → Neurophysiological results
  - Interaction of inflammatory mediators and nociceptors
    - Decrease in cytokine concentration
    - Increase in serotonin and endorphins
  - Decreased cortical activity in pain centers of the brain

40

## Is There Another Way?

- Stress-reduction
  - Meditation → mindfulness
  - Cognitive-Based Therapy
  - Yoga

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## And Does It Work?

- Non-invasive, sustained results compared to standard therapies
  - Mindfulness-Based Stress Reduction vs. lower back pain
    - Improved Quality of Life
    - Lower pain scores
    - Sustained results → three years out
- Placebo Effect?



Ann N Y Acad Sci. 2016 June; 1373(1): 114-127.

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## Pain in Optometry

### • Concepts to Consider

- Sources of eye pain
  - Location
  - Mechanical vs. Inflammation
- Level of pain management required
- Duration of disease/condition
- Discuss disposal
- Stay vigilant!

43

## Pain in Optometry

### • Common non-opiate options

- Medications
  - Corticosteroids
  - Topical/Oral NSAIDs
  - Immunomodulators
  - Acetaminophen/Ibuprofen
- Mechanical coverage
  - Bandage Contact Lens
  - Amniotic Membranes

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## Pain in Optometry

### • Common controlled substance options

- Hydrocodone → Schedule II
- Codeine-containing medication
  - Tylenol #3 → Schedule III
- Tramadol → Schedule IV

• Requires DEA number and state pharmacy registration for PDMP access

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## Take Home Points

### • Understand and implement best practices:

- Risk-Benefit Analysis
- Multimodal approach
- Non-opiate options

### • How important is all of this?

- Over the course of this CE, 12 more Americans have died of an opioid-related overdose

46

# 2024 Texas Professional Responsibility Course

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UNIVERSITY OF HOUSTON COLLEGE OF OPTOMETRY

ANDREW KEMP, OD, FAAO

PRESENTER

Welcome to the 2024 Professional Responsibility Course sponsored by the University of Houston College of Optometry. As you know, this course is a requirement for Texas license holders. What you may not know is that ***all*** fees associated with this course are devoted to permanent projects that are important for ***the future of the profession.***

Thank you for choosing UHCO for your continuing education.

**The development and production of the 2024 Professional Responsibility Course is underwritten by the Harris Lee Nussenblatt Lecture Series Endowment. This endowment was established in 1992 by the Nussenblatt Family in memory of former Associate Professor Harris Nussenblatt, OD. The Lecture Series focuses on issues related to professional ethics, public health and practice administration**

**The following activity planners and speaker have no relevant financial interests in this lecture:**

Dr. Andrew Kemp, UHCO Speaker

Amanda Johnson, UHCO

Carlos Cole, UHCO

Cristian Loayza, UHCO

Lorellye Macomber, UHCO

## Preface

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The content of the Professional Responsibility Course is at the discretion of the Texas Optometry Board. This year, the Board set an aggressive agenda. **Some of the items are presented based on our knowledge of the subject matter as of January 1, 2024 and may change over the course of the year.**

**Pay attention to any updates from TOB and TOA.**

## AGENDA – TEXAS OPTOMETRY BOARD

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- Statutory address requirement
- CE Broker update
- CPR/BLS CE requirement
- Professional identification requirements (again...)
- Initial examination of a patient – in detail
- Remote care and initial examination of the patient – where are we?
- Review of HB1696 – Vision Plan Bill

# Statutory Address Requirement

## Tex.Occ.Code 351.351 – License Holder Information

(a) A license holder shall file with the board:

- (1) the license holder's mailing address;
  - THIS WOULD BE YOUR PREFERRED MAILING ADDRESS
  - **USED FOR COMMUNICATIONS FROM THE BOARD**
- (2) the address of the license holder's residence;
  - WHERE YOU LIVE
- (3) the mailing address of each office of the license holder; and
  - MAYBE LESS CLEAR – THIS REFERS TO THE MAILING ADDRESS OF THE OFFICE WHERE YOU PROVIDE PATIENT CARE TO TEXAS PATIENTS
- (4) the address for the location of each office of the license holder that has an address different from the office's mailing address.
  - PHYSICAL ADDRESS OF THE OFFICE WHERE YOU PROVIDE PATIENT CARE TO TEXAS PATIENTS IF THAT ADDRESS IS DIFFERENT FROM THE MAILING ADDRESS
- **#3 AND #4 USED BY THE BOARD FOR INSPECTION PURPOSES**

This information would be included in your initial application for licensure. We are focusing on **CHANGE** to that information.

# Statutory Address Requirement

## Tex.Occ.Code 351.351

### LICENSE HOLDER INFORMATION

***THIS IS THE BIG ONE....because change happens!***

(b) Not later than the 10<sup>th</sup> day after the date of a change in the information required to be filed with the board under Subsection (a), the license holder shall file with the board a written notice of the change

### Some Specifics

- This includes **ALL** the information in the previous slide
- Special instructions related to short-term fill-in work (see next slide)
- Primary updates can be made directly at <https://tob.texas.gov/optometrists/update-contact-information/>
- To report secondary addresses, email to [info@tob.Texas.gov](mailto:info@tob.Texas.gov)

## OK...what about the temporary thing

### **For licensees who are in an office routinely and provide ONLY fillin (temporary) services**

If you are in a particular office routinely, report that office as your primary business location

If you see patients at multiple locations in a given year, provide the location where **you see the MOST patients** as your primary location (update online) and supply other locations to the Board (by email) as described in the previous slide

If you are not in any office on a routine basis and see a minimal number of patients, report "No primary address – fill-in work only" in the business address field

**NOTE FOR EVERYONE: The Board is actively reviewing all aspects of the inspection process they are mandated to make by Texas law. Look for notices in 2024 from the Board for any changes applicable to this information.**

# Statutory Address Requirement

Tex.Occ.Code 351.351

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While this may seem like a minor issue, it is imperative that the Board be able to contact every license holder and know where they provide patient care.

Any failure to receive essential / legal information from the Board based on you not keeping contact information up to date is **TOTALLY on you** and there is no allowed excuse.

## CE Broker – Deeper Dive

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### Key Points

- CE Broker is the official / only CE tracking system for the Board
- CE Broker Basic Account is FREE – you can sign up for an upgraded account (\$39 a year) that provides more information, if you wish
- CE hours can ONLY be reported through CE Broker – **NOT the Board**

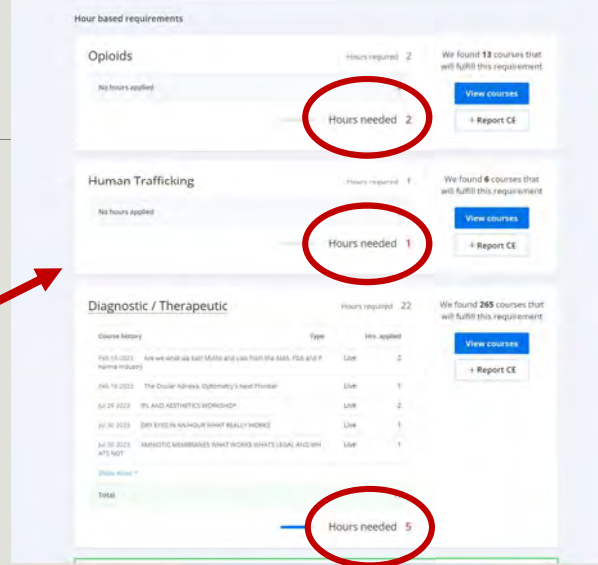
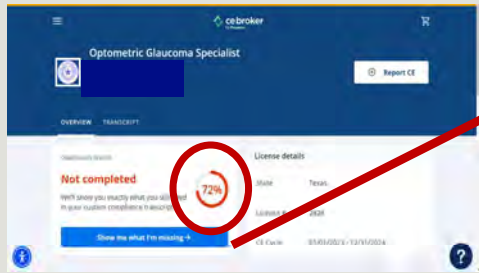
**NOTE: EVERYTHING** CE happens through CE Broker – do not call the Board asking about your hours, asking if a course is approved, asking to approve a course, etc. etc. etc.

## CE Broker

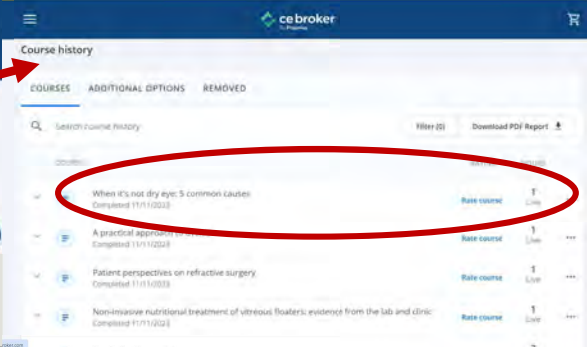
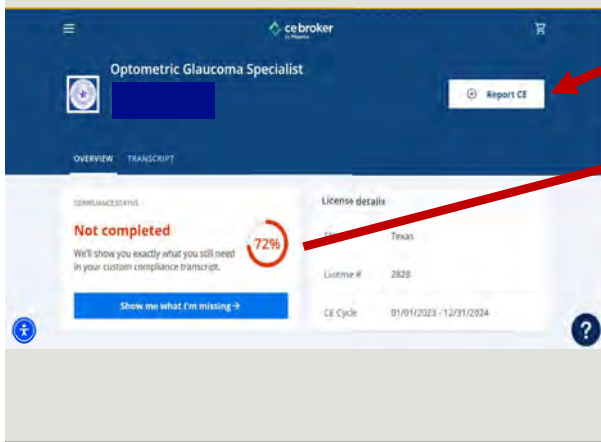
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- Everyone should already have a CE Broker account. For new grads or anyone who has never gone through renewal process, simply go to <https://cebroker.com> and create an account – VERY easy
- Knowing your CE is recorded with CE Broker is **YOUR** responsibility
  - Make sure any CE you expect credit for is going to be recorded with CE Broker **BY THE ENTITY PRESENTING THE CE**
  - You CAN upload CE to your account yourself – a somewhat painful process
  - There is **NO retro-active approval** – **CE must be approved BEFORE you attend**

Very helpful...



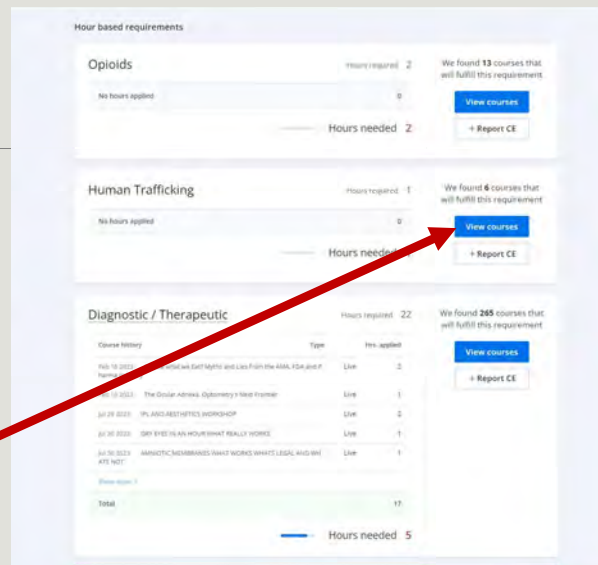
Once you get it, it's pretty cool...



More help...

CE Broker provides a “Course Search” feature (also free) to find courses needed to help with license renewal. Access at <https://courses.cebroker.com/search/tx> – select profession and search away! Or look on your account page

NOTE: These are all online courses – remember you are limited to 16 online credit hours per renewal cycle



Some of the features I showed are not available with the basic plan...here is a breakdown

### **BASIC PLAN – FREE**

- ✓ Connect with TOB
- ✓ Complete course history
- ✓ Can report hours manually
- ✓ Check your status any time
- ✓ Take recommended courses

### **PROFESSIONAL PLAN - \$39/YR**

- ✓ Everything in Basic Plan
- ✓ Detailed view of missing compliance
- ✓ Details of when each requirement was met
- ✓ Can track multiple licenses
- ✓ Personalized compliance transcript
- ✓ Onsite storage of training certificates

**CONCIERGE PLAN ALSO AVAILABLE...PRETTY PRICEY**

## CPR Requirements

Board Rule 273.17

**Everyone who applied or renewed in 2023 had to have this...everyone applying or renewing in 2024 will have to provide this!**

(a) Definitions.

(1) Cardiopulmonary resuscitation (CPR) is an emergency lifesaving procedure performed when the heart stops beating. A certification in CPR includes training and successful course completion in cardiopulmonary resuscitation, AED and obstructed airway procedures for all age groups according to recognized national standards.

(2) Basic Life Support (BLS) is a basic level of pre-hospital and inter-hospital emergency care and non-emergency medical services care. A certification in BLS includes training and successful course completion in airway management, cardiopulmonary resuscitation (CPR), control of shock and bleeding and splinting of fractures, according to recognized national standards.

(b) Requirement for **Initial License**. Commencing effective January 1, 2023, all applicants for initial licensure shall provide proof of successful completion of a CPR or BLS certification prior to receiving a license.

(c) Requirement for **Renewal of License**. Effective January 1, 2023, all active licensees shall provide proof of successful completion of a CPR or BLS certification for renewal of a license each renewal cycle. Licensees may be credited two general hours of continuing education for CPR certification and four general hours of continuing education for BLS certification.

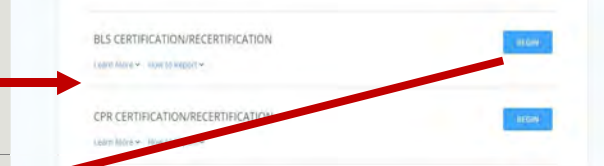
## CPR Requirements

Board Rule 273.17

Break it down....

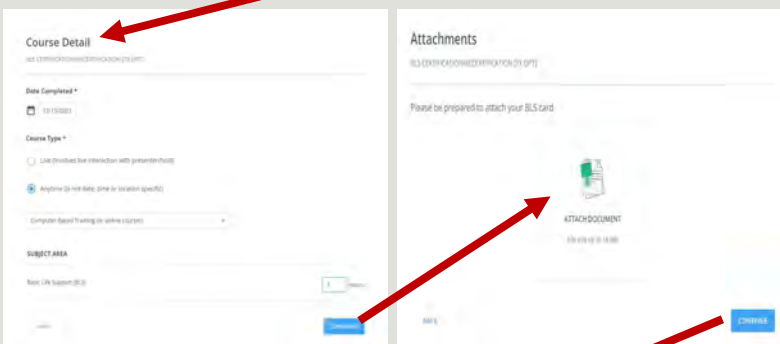
- This requirement was established by Board Rule 2022 – required for all licensee renewals after January 1, 2023
- **CPR** is the basics and entry-level training – **BLS** offers more areas of training for emergency preparedness. Both are allowed for certification – BLS is more applicable to healthcare settings (opinion)
- Courses may be taken live or online – online courses can take less than an hour...advanced live courses can take 2-4 hours
- Courses are readily available – online, certified trainers, fire department, put a group together, extended staff meeting. NOT expensive!!!

Making sure  
it counts....



You must upload your  
certificate of training to the  
CE Broker website – **trainers  
and online presenters will  
typically NOT do this for you**

Log in to your CE broker  
account – select “Report CE”.  
Follow the instructions –  
have your certificate ready  
to upload



Check the attestation on the next page....

## Professional Identification

*Same as seven other PR courses...*

### **Section 351.362 NAME OF PRACTICE**

(a) An optometrist or therapeutic optometrist may practice under a trade name, an assumed name, or the name of a professional corporation or association.

(b) An optometrist or therapeutic optometrist practicing in this state shall display the **actual name** under which the optometrist or therapeutic optometrist is licensed by the board, so that the name is visible to the public before entry into the optometrist's or therapeutic optometrist's office reception area.

## Professional Identification

*Same as seven other PR courses...*

### **Rule 279.10**

(a) To protect the public health and provide a means for the patient to identify a licensee in a complaint filed with the Board, §351.362 of the Act requires an optometrist or therapeutic optometrist to display the doctor's name so that the name is visible to the public before entry into the office reception area. This requirement does not apply to an optometrist or therapeutic optometrist practicing at a location on a temporary basis, as defined in subsection (b) of this section.

(b) Temporary basis is defined as the practice of optometry or therapeutic optometry at an office for no more than two consecutive months. For example, an optometrist or therapeutic optometrist practicing at a location one day per week during a three month period is not at that location on a temporary basis, and the doctor's name must be displayed as required in §351.362 of the Act.

(c) Section 351.458 of the Act prohibits the display of an optometrist or therapeutic optometrist's professional designation if the intent of the display is to mislead the public that the named optometrist or therapeutic optometrist owner regularly practices at that location. Therefore an optometrist or therapeutic optometrist practicing at an office in which the doctor has no ownership interest, must display the doctor's name as licensed by the Board, regardless of the percentage of time spent at that office, unless the doctor's practice meets the definition of temporary basis in subsection (b) of this section.

# Professional Identification

---

## Break it down...

This is a **STATE law** – Occupations Code 104. In effect since 1999.

Optometrists (me as an example) may identify as:

- ✓ Joe DeLoach, Optometrist
- ✓ Joe DeLoach, Therapeutic Optometrist
- ✓ Doctor Joe DeLoach, Optometrist
- ✓ Joe DeLoach, Doctor of Optometry
- ✓ Joe DeLoach, OD

## Key Points

Intent of the law:

- Individuals cannot mislead the public regarding the licensure/credentials of a healthcare provider
- Doctors cannot mislead the public into thinking they **do or do not** practice at a particular location (cannot put name on door unless you practice there – including owners). **WORKS BOTH WAYS!**

# Professional Identification

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**Key point..often misunderstood. “Temporary basis”**

Does not apply to practice at a location on a temporary basis – defined as the “practice of optometry or therapeutic optometry at an office for no more than two consecutive months”. KEY WORD IS **CONSECUTIVE**

## EXAMPLES

1. Doctor works at practice full or part-time for two or more consecutive months – NAME ON DOOR
2. Doctor works only one day every week for two or more consecutive months – NAME ON DOOR
3. Doctor fills in full or part-time for six weeks – NO requirement for name on door

# Minimum Competency and Remote Eye Examinations

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This information is current as of January 1, 2024. Various parties are involved in challenging the law and rules related to Section 351.353.

Information presented **IS** in effect at the time the course was written. It could change at any time.

If this directly applies to you, it is very important you stay aware of any potential changes in the information that will be forthcoming from the TOB, should/when they occur.

## Section 351.353 – Initial Examination of Patient Back to the beginning – 1956!

(formally adopted as law in 1969 after being upheld by the SCOTUS and only a few changes since then)

---

### INITIAL EXAMINATION OF PATIENT.

To ensure adequate examination of a patient for whom an optometrist or therapeutic optometrist signs or **causes to be signed an ophthalmic lens prescription**, in the **initial examination of the patient** the optometrist or therapeutic optometrist shall make and record, **if possible**, the following findings concerning the patient's condition:

## First three issues – #1

---

### **Causes to be signed an ophthalmic lens prescription**

Minimum competency only applies if the examination results in issuing a glasses or contact lens prescription.

In many cases – how would you know beforehand?

### ***Another thought...apply logic***

Patient presents with medical emergency - new patient with a corneal ulcer from CL overwear and no glasses. Would this be a logical exemption from 351.353? Law is law and usually rigidly interpreted. You can only trust, and having been there I do, that your colleagues on the Board can understand when it doesn't apply (wouldn't recommend playing games here!).

## First three issues – #2

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### **Initial examination of a patient**

Current interpretation is initial means the first complete eye examination you conduct on that patient (no specific time limitation like Medicare)

## First three issues - #3

---

### **If possible**

**Intent IS** - a **unique situation** results in not being able to perform the service.

- patient refuses autorefractor (or **any** element of the care)
- cannot perform tonometry because of uncontrollable nystagmus
- cannot adequately perform internal examination due to mature cataracts
- cannot perform biomicroscopy examination because patient is obese

**Intent is NOT** – the patient and the doctor just don't happen to be in the same place at the same time

**KEY TO "NOT POSSIBLE" IS DOCUMENTING WHY!**

## And what is required? 1-5

With the addition of points from Rule 279.3

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- (1) case history - ocular, physical, occupational, and other pertinent information;  
**KEY POINT: "Pertinent" – left to the discretion of the provider**
- (2) visual acuity;  
**KEY POINT: Left to the discretion of the provider**
- (3) results of biomicroscopy examination, including lids, cornea, and sclera;  
**KEY POINT: Rules add "using a binocular microscope"**
- (4) the results of an internal ophthalmoscopic examination, including an examination of media and fundus;  
**KEY POINT: Rules add "using an ophthalmoscope or biomicroscope with fundus condensing lenses"**
- (5) the results of a static retinoscopy, O.D., O.S., or autorefractor;  
**KEY POINT: None – left to discretion of provider**

## And what is required? 6-10

With the addition of points from Rule 279.3

---

- (6) subjective findings, far point and near point;  
**KEY POINT: None – left to the discretion of the provider**
- (7) assessment of binocular function;  
**KEY POINT: None – left to the discretion of the provider**
- (8) amplitude or range of accommodation;  
**KEY POINT: None – left to the discretion of the provider**
- (9) tonometry; and  
**KEY POINT: None – left to the discretion of the provider**
- (10) angle of vision, to right and to left.  
**KEY POINT: None – left to the discretion of the provider**

## Other “Key Points” – Rule 279.3

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- The optometrist must “**personally make and record**”
  - Biomicroscopy (external) exam
  - Ophthalmoscopic (internal) exam
  - Subjective findings, far point and near point (refraction)
- The optometrist may either personally make and record or authorize an assistant present **in the same office with the optometrist** to make and record the remaining seven required findings
- **Videos and photographs do not fulfill the internal ophthalmoscopic examination requirement – YOU MUST LOOK IN THE EYE WITH YOUR OWN TWO EYES!**

## “personally make and record”

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The current TOB interpretation of “*personally*” means the doctor performed the test. This rule IS currently in effect.

The board has submitted a rule change changing the language to “*in person*” – NOT in effect at the time this course was published. This would make it clear that the doctor is **IN THE ROOM WITH THE PATIENT**.

The terms “personally” or “in person” do not apply to telehealth services outside of the requirements of Section 351.353. The Board has an entire section on Rules related to telehealth services (Rule 279.16) – those rules do state that telehealth services must provide the **same level of care as an in-person visit**.

## Few other points...

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**Section 351.359.** Prescription. (a) *An ophthalmic prescription must include:*  
(1) *the signature of the optometrist or therapeutic optometrist...*

**UNLESS PRACTICING UNDER DELEGATION, THE DOCTOR WHO PERFORMED THE EXAMINATION MUST SIGN ANY PRESCRIPTION THAT IS THE RESULT OF THE EXAMINATION. THE BOARD POSITION IS THE DOCTOR THAT SIGNED THE PRESCRIPTION PROVIDED THE SERVICE AND IS RESPONSIBLE FOR COMPLIANCE WITH ALL ASPECTS OF 351.353.**

### Rule 279.2

(o) *an optometrist or therapeutic optometrist may not sign, or cause to be signed, an ophthalmic lens prescription without first personally examining the eyes for whom the prescription is made*

**SELF-EXPLANATORY**

## The Penalty – Rule 279.3

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*The willful or repeated failure or refusal of an optometrist or therapeutic optometrist to comply with any of the requirements in the Act, §351.353 and §351.359, shall be considered by the board to constitute **prima facie evidence that the licensee is unfit or incompetent by reason of negligence within the meaning of the Act, §351.501(a)(2), and shall be sufficient ground for the filing of charges to cancel, revoke, or suspend the license.** The charges shall state the specific instances in which it is alleged that the rule was not complied with. After the board has produced evidence of the omission of a finding required by §351.353, the **burden shifts to the licensee to establish that the making and recording of the findings was not possible.***

Are some optometrists exempt from all this?  
Back to the Act – Section 351.005(a)(2) & (b)

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(a) This chapter does not:

(2) prevent or **interfere with the right of a physician** licensed by the Texas Medical Board to:

(A) treat or prescribe for a patient; or

(B) direct or instruct a person **under the physician's control, supervision, or direction** to aid or attend to the needs of a patient according to the physician's specific direction, instruction, or prescription;

(b) A direction, instruction, or prescription described in Subsection (a)(2)(B) **must be in writing if it is to be followed, performed, or fulfilled outside the physician's office**

WOW...that is a bunch of words. Is it even possible to break this one down?

---

### What is FACT.

A physician licensed to practice medicine in Texas under the Physicians Medical Practices Act has broad authority to “*delegate to a qualified and properly trained person acting under the physician's supervision any medical act that a reasonable and prudent physician would find within the scope of sound medical judgment to delegate...*” (TOTALLY open ended!)

**When an optometrist is under delegation of a physician per the terms of Section 157.001 of the Medical Practices Act which means the physician signs the medical record and the prescription, the optometrist is operating under the PHYSICIAN'S license and IS NOT bound by the Texas Optometry Act. Refer back to Slide 32 – if you sign it, the service was provided by you and you are under the Texas Optometry Law and Board rules.**

WOW...that is a bunch of words. Is it even possible to break this one down?

---

**More FACT**

**Delegation is NOT the same as direction, instruction or prescription.**

Optometrists simply employed by, contracted with (legally or illegally), under the direction of, or who receive a paycheck signed by a physician are NOT operating under delegation unless they have a written delegation order from the physician.

NOTE: Texas optometrists have NO legal delegation authority.

WOW...that is a bunch of words. Is it even possible to break this one down?

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Sure...we can look to precedent issued in 2023 by a Texas Administrative Law Judge (ALJ) and resultant rulings adopted by the Texas Optometry Board.

## Texas Optometry Board Conclusions

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The Board has affirmed that licensees must comply with the Act even if acting under the direction of a medical doctor unless that direction is sufficiently specific, addressed to the optometrist, and aids the needs of the patient. If the optometrist signs the prescription, that licensee must comply with the required 10 findings under Section 351.353 during an initial examination when a prescription will be written **even if the examination is conducted in a remote setting.**

NOTE: The Judge ruling in the case concluded *“the optometrist and employer created the ‘impossibility’ of making the required 10 findings under Section 351.353 when they decided to operate remotely.”*

## What now?

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### **What NOW is what the last two slides said!**

What will happen going forward is in the hands of the courts, as the actions of the State and TOB are being challenged as not legal. The outcome of said challenge will likely take time. In the meantime, **the conclusions of the State ALJ and the TOB are IN FORCE.**

Stay tuned!

## And last....

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A review of HB1696 – the Vision Plan Bill. What it did, where it is and where it's going.

## Let's Start With What It Did

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- ✓ Prohibits plans from the **identifying and tiering of in-network ODs** based on discounts on non-covered services, amounts spent on products, or brands or sources of products utilized by the OD.
- ✓ Prohibits plans from **steering patients towards any particular in-network OD**, any retail location owned by or affiliated with the plan, or any internet site or virtual provider owned by or affiliated with the plan.
- ✓ Requires plans to provide direct, immediate, electronic **access to complete in-network and out-of-network plan benefits** to the patient and OD.
- ✓ Requires plans to accept **standardized claim submission forms and processes**, and reimburse doctors via electronic funds.

## Let's Start With What It Did



- ✓ Prohibits **improper chargebacks** to reimbursements when the plan is not supplying the materials (cost of goods) for a patient.
- ✓ Prohibits plans from **calling services and products "covered" when the reimbursement amount to the OD is considered "de minimus"** in nature. De minimis means of nominal or very small value.
- ✓ Prohibits plans from **calling services and products as "covered" when zero reimbursement** of the service or product comes from the plan to the OD.
- ✓ Prohibits plans from using or offering **reimbursement rates that are different** from another OD based on the OD's particular practice and business decisions, such as what lab they choose to use or what products they choose for a patient.
- ✓ Requires plans to give **90-day notice to any provider contract changes**.

## Let's Start With What It Did



- ✓ Prohibits plans from requiring an OD provide a **covered product or service at a loss**.
- ✓ Prohibits plans from requiring that an OD receive **reimbursement by a virtual credit card**.
- ✓ Prohibits plans from requiring an OD to use **any particular EHR**.
- ✓ Prohibits plans from requiring an OD to use **any particular clearinghouse or claim filing service**.
- ✓ Prohibits plans from requiring **unneeded and unrelated patient information to file a claim** or receive reimbursement for a wellness eye exam, including glasses/contact lens prescriptions, unique anatomical measurements like PD, or facial photographs.
- ✓ Prohibits vision plans from **using extrapolation** as a method to complete an audit. This provision does not apply to medical plans.
- ✓ Requires that the provisions of the bill are to be **enforced by the Texas Insurance Commissioner**.

WOW!



## So, what's going on now...

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Several entities are doing everything in their power to stop this law from making changes in the system

- ☹️ Restraining orders
- ☹️ Injunctions
- ☹️ Law suits
- ☹️ Forcing contract renewals



**THEY DO NOT LIKE WHAT THE STATE OF TEXAS DID!**

## When does this law change things? Some specifics

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1. If you are under operating under a contract you signed or renewed prior to January 1, 2024, that contract is in force under the terms as written. **WATCH FOR #2!!!**
2. Any contract signed after January 1, 2024, renewed after January 1, 2024 **or CHANGED after January 1, 2024** – the conditions and terms of the new law are in **FULL FORCE**

**WATCH FOR ANY NEW CONTRACT OR CHANGE IN YOUR CONTRACT – this will trigger all the stipulations under HB1696**

## So what should I do?

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This law, in whatever form emerges from the legal war, is just like other practice enhancements – therapeutics, managed care plan access, telehealth. They are all resources / choices.

The TOB nor the TOA can tell you what decision to make or how conduct your practice inside the legal aspects of the law.

**Each licensee ultimately has to decide how they interact and cooperate with vision plans, or all managed health plans for that matter.**

# TOA Has Stepped Up As A Significant Resource for Texas Optometrists

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TOA managed care general resource webpage

<https://texas.aoa.org/advocacy/managed-care-plan-laws-resources-for-texas-optometrists?sso=y>

TOA partner law firm for managed care contract review:

<https://texas.aoa.org/Affiliates/TX/Documents/Advocacy/2023/2023-24%20Enoch-Announcement-v4.pdf>

TOA complaint submission form:

<https://texas.aoa.org/advocacy/managed-care-plan-laws-resources-for-texas-optometrists/manage-care-plan-concerns-form?sso=y>

TDI complaint webpage:

<https://www.tdi.texas.gov/hprovider/providercompl.html>




Thank you for your attention  
and have a great 2024 \_\_\_\_\_

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[www.tob.state.tx.us](http://www.tob.state.tx.us)



**Human Trafficking Training for Health Care Providers**

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**Conflict of interest and disclosures**

- The presenter has no financial relations with commercial interest(s) to disclose
- Statistics in this presentation should be viewed through a critical lens
- No standards currently exist for reporting human trafficking

*Trigger warning:*

- Violence, sexual assault, and sexual abuse are discussed. This may be triggering or upsetting for some participants

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**Learning Objectives**

Participants will:

1. Understand Human Trafficking as defined by the TVPA 2000.
2. Learn vulnerability factors for victims.
3. Learn how traffickers recruit victims.
4. Identify potential signs of human trafficking while providing services for patients.
5. Discover immediate health care needs of identified victims
6. Develop ability for a trauma-informed response
7. Identify who should participate in a multi-disciplinary care model
8. Learn about available resources for trafficking survivors' services



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### Human Trafficking

Human trafficking is a modern form of slavery.

It involves selling another person's body or labor in exchange for something of value.

TVPA 2000-The United States Department of Justice generally classifies human trafficking into two major categories: sex trafficking and labor trafficking.



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### Trafficking Victims Protection Act (TVPA) 2000

#### PROCESS/ACTION

- Recruitment
- Harboring
- Transporting
- Provision
- Obtaining
- Patronizing\*
- Soliciting\*

\*only for sex trafficking

#### MEANS

- Force
- Fraud
- Coercion

\*Special Issue:  
These are not required when the victim is a minor.

#### PURPOSE

- Sexual Exploitation
- Forced Labor



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### Trafficking vs. Smuggling



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### Trafficking Vs. Smuggling

<h4>Trafficking</h4> <ul style="list-style-type: none"> <li>❖ Crime against a person</li> <li>❖ Done without consent</li> <li>❖ Exploitation; transportation not required</li> <li>❖ No border crossing required</li> </ul>	<h4>Smuggling</h4> <ul style="list-style-type: none"> <li>❖ Crime against a state</li> <li>❖ Done with consent</li> <li>❖ Requires transportation</li> <li>❖ Must cross an international border</li> </ul>
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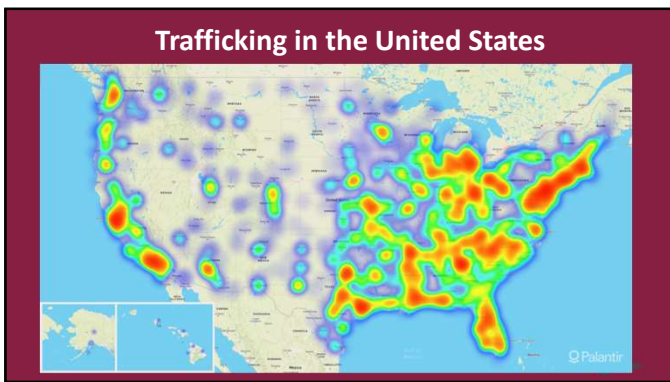
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### Trafficking in Texas



<h4>Labor Trafficking</h4> <ul style="list-style-type: none"> <li>• Agriculture</li> <li>• Food service</li> <li>• Factory work</li> <li>• Day labor/construction</li> <li>• Nanny</li> <li>• Domestic work</li> <li>• Caretaker for the elderly</li> <li>• Landscaping</li> </ul>	<h4>Sex Trafficking</h4> <ul style="list-style-type: none"> <li>• Strip clubs</li> <li>• Brothels</li> <li>• Massage parlors</li> <li>• Nail Salons</li> <li>• Donut shops</li> <li>• Internet ads</li> <li>• Escort services</li> <li>• Recording studios</li> <li>• Hotels</li> <li>• The street</li> <li>• Pornography</li> <li>• Modeling</li> <li>• Neighborhoods</li> </ul>
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### Who are the Victims?

Vulnerability Factors

- Age
- Dysfunctional family
- History of trauma and abuse
- Addiction in the home
- Mental illness
- Low socioeconomic position
- LGBTQ identification
- Runaways

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### Who are the traffickers?

- Friend
- Family
- Strangers
- "Boyfriends"







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### Maslow's Hierarchy of Needs



Maslow's Hierarchy of Needs

- Self-actualization: The need for development, creativity, growth.
- Ego: The need for self-esteem, power, control, recognition.
- Social: The need for love, belonging, inclusion.
- Safety: The need for safety, shelter, stability.
- Physiological: The need for air, food, water, health.

<https://www.educationviews.org/wp-content/uploads/2018/02/Maslow-1024x580.png>



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**Trauma Bonds**

Trauma bonds are a major hurdle to the identification and restoration of victims.

**Symptoms:**

- Failure to self-identify
- Return to trafficker
- Refuse help
- Disjointed memories
- Aggression
- Protect pimp

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**Trauma**

DISREGULATED NERVOUS SYSTEM

- **Hyperarousal:**  
Anger, panic and phobias, irritability, hyperactivity, frequent crying and temper tantrums, nightmares and night terrors, regressive behavior, increase in clinging behavior, running away.
- **Hypoarousal:**  
Daydreaming, inability to bond with others, inattention, forgetfulness, shyness.

Physical symptoms can include: eyes widen, pale skin, complaints of being cold, flat affect.

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### Characteristics of "The Life"

#### Impact on Physical Health/Clinical Settings

- Malnutrition
- HIV/AIDS
- STD's
- Hepatitis
- Effects of drug abuse
- Pregnancy/abortions
- Broken bones/bruises
- Dental injuries/cavities
- Cigarette burns
- Head/face trauma
- Exhaustion/sleep deprivation
- Skin Conditions
- Concussions, traumatic brain injuries
- High blood pressure
- Untreated diabetes
- Substance abuse



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### Characteristics of "The Life"

#### Impact on Emotional/Behavioral Health

- Nervous/anxiety/panic attacks
- Depression
- Suicidal ideation
- Dissociation
- Avoids eye contact
- Unable to answer questions
- Substance abuse
- Complex PTSD



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### Characteristics of "The Life"

#### Other Indicators of Trafficking:

- Inappropriate clothing for the weather
- Accompanied by an older, controlling boyfriend or woman
- The adult with them doesn't let them answer questions
- Lives in an overcrowded home
- Lives at their place of employment
- Has tattoos indicating ownership/branding
- Disorientation-doesn't know their address
- May have multiple hotel keys or cell phones



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**Trauma Informed & Patient Centered Approach**

**If you suspect your patient is a victim of human trafficking:**

- Build trust by asking permission before you do a procedure
- Explain what you are doing during the exam (oral/physical trauma)
- If possible, try to provide a space to speak privately with the patient
- Use your authority to separate the patient from anyone who may have accompanied them to the clinic
- Have protocol in place; limit the number of staff involved
- Safety is of primary importance for everyone; equip your staff to understand the importance of confidentiality

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**Trauma Informed & Patient Centered Approach**

**If you suspect your patient is a victim of human trafficking:**

- Use a professional interpreter if possible (It is tempting to use their family member, but this could be their trafficker or their manager)
- Strive to minimize re-traumatization
- Maintain a nonjudgmental attitude



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**Trauma Informed & Patient Centered Approach**

**Questions you may ask a potential victim of human trafficking:**

- What type of work do you do?
- What are your work hours?
- Are you being paid?
- Are you able to come and go as you please?
- Where do you eat and sleep?
- How many people stay there?
- Do you owe money to your employer?



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**Trauma Informed & Patient Centered Approach**

**Questions you may ask a potential victim of human trafficking:**

- Have you ever been asked to work in an environment that is unfair, unsafe, or dangerous?
- Do you feel pressure to do something you don't want to do?
- Have you been physically hurt?
- Has your family been threatened?



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### Trauma Informed & Patient Centered Approach

**If you suspect your patient is a victim of human trafficking:**

- Provide the patient with options for services, reporting, and resources
- If the patient is in immediate, life-threatening danger, follow your institutional policies for reporting to law enforcement. Whenever possible, try to work with the patient in the decision to contact law enforcement.
- Don't make promises you cannot keep!
- Multidisciplinary approach



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### Multidisciplinary Team

This team may include 3-5 people from different organizations such as:

- Law enforcement
- Attorneys/legal experts
- Anti-human trafficking nonprofits
- Human trafficking task force members
- Domestic violence/sexual assault programs
- Local shelters



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### Mandatory Reporting

**TEXAS LAW**

Anyone who thinks a child, or person 65 years or older, or an adult with disabilities is being abused, neglected, or exploited must report it to DFPS.



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**Resources for Protocols**

National Human Trafficking Training and Technical Assistance Center



[https://nhhtac.acf.hhs.gov/soar/eguide/respond/Response\\_Protocol](https://nhhtac.acf.hhs.gov/soar/eguide/respond/Response_Protocol)



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**Resources for Protocols**



**i:CARE**  
A Health Care Provider's Guide to Recognizing and Caring for Domestic Minor Sex Trafficking Victims

Health Care Provider's Guide to Recognizing and Caring for Domestic Minor Sex Trafficking Victims



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**National Human Trafficking Resource Center (NHTRC)**

**1-888-3737-888**

email: [NHTRC@PolarisProject.org](mailto:NHTRC@PolarisProject.org)  
TOLL-FREE | 24 Hours/day, 7 Days/week  
*Confidential | Interpreters available*

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### What Can I Do?

- Text BE FREE (233733)
- Respect the patient's decision

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### Local Resources

Poema Foundation 469-757-8888	Mosaic Family Services 24-Hour Crisis Hotline 214-823-4434
Valiant Hearts 817-329-6921 Toll Free: 855-524-3747	Unbound Ft. Worth 24/7 Survivor Advocacy Referrals (crisis & non-crisis) 817-668-6462
Traffick 911 (for minors) 817-575-9923	
Child Advocacy Centers	

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### Resources

- *Assessing the Threat of Human Trafficking in Texas*. The Texas Department of Public Safety, 2014. (electronic access: [http://dps.texas.gov/director\\_staff/media\\_and\\_communications/2014/bx-HumanTraffickingAssessment.pdf](http://dps.texas.gov/director_staff/media_and_communications/2014/bx-HumanTraffickingAssessment.pdf))
- Bowley, Mary Francis. *The White Umbrella: Walking with Survivors of Sex Trafficking*. Chicago: Moody, 2012.
- Carnes, Patrick J. *The Betrayal Bond: Breaking Free of Exploitive Relationships*. Deerfield Beach, FL: Health Communication, Inc., 1997.
- Courtois, Christine A. and Julian D. Ford. *Treating Complex Traumatic Stress Disorders: Scientific Foundation and Therapeutic Models*. New York: The Guildford Press, 2009.
- Dank, Meredith and Bilal Khan. *Estimating the Size and Structure of the Underground Commercial Sex Economy in Eight Major US Cities*. The Urban Institute, 2014. (electronic access: <http://www.urban.org/UploadedPDF/413047-Underground-Commercial-Sex-Economy.pdf>)
- *DEMAND: A Comparative Examination of Sex Tourism and Trafficking in Jamaica, Japan, the Netherlands, and the United States*. Arlington, VA: Shared Hope International.
- <https://polarisproject.org/wp-content/uploads/2019/09/Polaris-2019-US-National-Human-Trafficking-Hotline-Data-Report.pdf>
- *Human Trafficking by the Numbers: The Initial Benchmark of Prevalence and Economic Impact for Texas, 2016*. (electronic access: <https://repositories.lib.utexas.edu/bitstream/handle/2152/44597/dvsa-2016-human-trafficking-by-the-numbers.pdf>)
- *Human Trafficking Definitions*. (electronic access: <https://hhs.texas.gov/services/safety/texas-human-trafficking-resource-center>).
- *Human Trafficking Definitions*. (electronic access: <https://www.acf.hhs.gov/otaofact-sheet/resource/fshumantrafficking>).
- <https://www.springfieldnewsun.com/news/national/too-dumb-pimps-texas-police-arrest-connection-with-trafficking-girl/N0FA4mLdXoXdR6LWU7XaIN/>
- Bottom: <https://www.yourcnnnews.com/neighborhood/mcco/news/article/Human-trafficking-prostitution-sting-near-The-13363904.php#photo=16452228>
- <https://www.womenandchildren.org/news/ouston-texas/ouston/article/Dallas-same-sex-prostitution-sin-13336662.php>

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**Resources**

- Lloyd, Rachel. *Girls Like Us: Fighting for a World Where Girls Are Not for Sale: A Memoir*. New York: Harper Perennial, 2011.
- McIlhenny, Joe S. and Freda McKissic Bush. *Hooked: New Science on How Casual Sex is Affecting Our Children*. Chicago: Northfield Publishing, 2008.
- Najavits, Lisa M. *Seeking Safety: A Treatment manual for PTSD and Substance Abuse*. New York: The Guilford Press, 2002.
- Nakazaw, Donna J. *Childhood Disrupted: How Your Biography Becomes Your Biology, and How You Can Heal*. New York: Atria, 2017.
- Sher, Julian. *Somebody's Daughter: The Hidden Story of America's Prostituted Children and the Battle to Save Them*. Chicago: Chicago Review Press, 2013.
- Smith, Linda A., Samantha Healy Vardaman, and Melissa A. Snow. *The National Report on Domestic Minor Sex Trafficking: America's Prostituted Children*. Arlington, VA: Shared Hope International, 2009.
- Smith, Linda A. *Renting Lucy: A Story of America's Prostituted Children*. Vancouver, WA: Shared Hope International, 2011.
- *The Texas Human Trafficking Prevention Task Force Report 2011 to the Texas Legislature*. Shared Hope International, 2011.
- *Trafficking Victims Protection Act 2000*. [electronic access: <https://2009-2017.state.gov/j/tip/laws/61124.htm>]
- *Trafficking Victims Protection §§ 7101 - 7112* Section 7102 – Definitions. [electronic access: <https://law.justia.com/codes/us/2012/title-22/chapter-78/section-7102>]
- Van der Kolk, Bessel. *The Body Keeps the Score: Brain, Mind, and Body in the Healing of Trauma*. New York: Penguin Books, 2014.
- Watters, Ethan. *The Globalization of the American Psyche*. New York: Free Press, 2017.
- Walker, Pete. *Complex PTSD: From Surviving to Thriving*. An Azure Coyote Book, 2014.
- Ziegler, Dave. *Traumatic Experience and the Brain*. Gilbert, AZ: Acacia Publishing, Inc., 2011.




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**Human Trafficking Awareness:  
Health Care Providers**

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