

On behalf of Vision Expo, we sincerely thank you for being with us this year.

Reminder to Complete Your Session Evaluations!

Please be sure to complete your digital session evaluations for each course you attended! Your feedback is important to us as our Education Planning Committee considers content and speakers for future meetings to provide you with the best education possible.



Horizontal lines for session evaluations



Speaker Financial Disclosure Statement

Jerry Robben, O.D. has received honorarium, consulting and speaking fees from Bausch & Lomb who now owns Trukera Tear Osmolarity testing which is discussed in this course.

All relevant relationships have been mitigated.

Horizontal lines for speaker financial disclosure

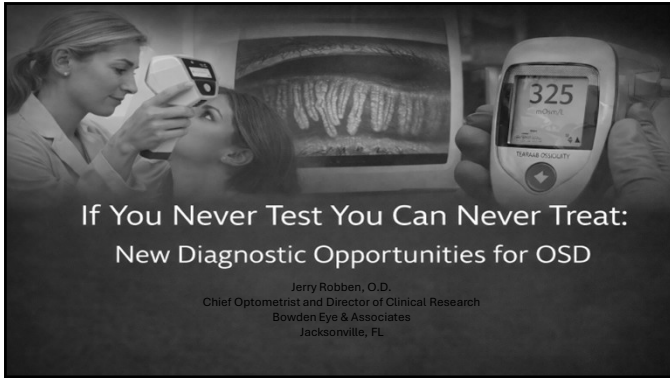


JERRY ROBBERN, OD

FINANCIAL DISCLOSURE: JERRY ROBBERN, OD

- Speaker/Consultant: Allergan/Abbvie, Bausch & Lomb, BioTissue, E-SWIN, EyeVance, I-MED Pharma, Johnson & Johnson Vision, Kala Pharmaceuticals, NovaBay, Novartis, Oyster Point, PECAA, Santen, Sun Pharma, Tangible Science, Tarsus, Thea, Viatrix
Research Investigator: Aerie, Allergan, Allysta Pharmaceuticals, Bausch & Lomb, Claris Pharmaceuticals, Formosa Pharmaceuticals, Novione Scientia, Johnson & Johnson Vision, Kala Pharmaceuticals, Kowa Research Institute, Ocufire, Oyster Point, Nicox Ophthalmics, Novallio, Novartis, Novome Biotherapeutics, Research Insight, LLC, Santen, Shire, Sun Pharma Global FEZ, Surface Ophthalmics, Sylentis, Inc, TearSolutions, Inc, Visus Therapeutics

Horizontal lines for speaker financial disclosure




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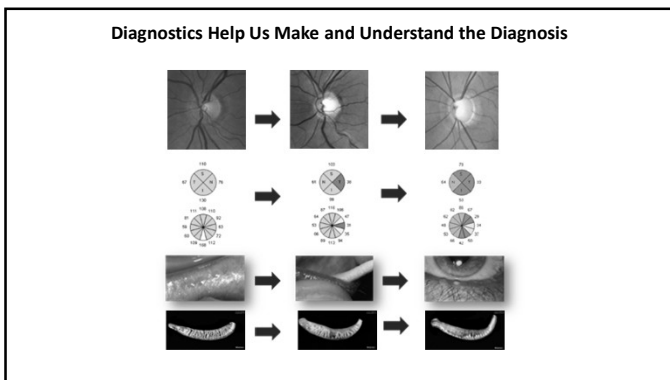
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**Diagnostics – Do You Need Them?**

- You can diagnosis and even manage DED without them
  - But why would you want to do that?
- They help you to Target your Treatments to better customize your care for each patient
- They increase revenue per patient and allow for possible higher-level coding
- Diagnostics help in educating patients that there is a disorder to treat, especially with asymptomatic patients

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### Diagnostics – What Do You Really Need?

- **Osmolarity**
  - Do it on any new patient with SPEED of 1 or above
  - Order it to be done at Dry Eye Follow Up Appts and CEs
  - Do it at any medical F/U with increased DED symptoms
- **Inflammadry**
  - Do it on any new patient with SPEED of 1 or above or any DED F/U or CE if not yet done that year
  - If ever (+) treat the inflammation and order repeat of MMP9 test at F/U and continue if remains (+)
  - Do it at any medical F/U with increased DED symptoms
- **Meibography**
  - Do it on any new patient with SPEED of 1 or above or any DED F/U or CE if not yet done that year
  - Repeat yearly or sooner if significant change seen to gland function
- **Another diagnostic to measure gland function is desirable**
  - Do it on any new patient with SPEED of 1 or above
  - Order it to be done at Dry Eye F/U's 2-4 times per year to track
  - Do it at any medical F/U with increased DED symptoms
- **If you have these then look to add Lactoferrin testing and multitest platforms**

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### THE SPEED

- The SPEED (standard patient evaluation of eye dryness) is a validated patient questionnaire similar to the OSDI and SANDE to assess dry eye symptoms.
- The SPEED quantifies the frequency and severity of dry eye symptoms.
- The SPEED score is an important metric in the evidence-based approach to dry eye care.
- The trend of serial SPEED scores over time is exceedingly useful.
- The SPEED is an essential component of the eye care office encounter.

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### THE SPEED

- The SPEED is a quick, easily understood, and sensitive questionnaire that can be elicited in the office as well as over the phone prior to the office visit.
- The SPEED is useful to facilitate
  - dry disease detection
  - monitor disease progression
  - monitor treatment efficacy
- The SPEED score is quickly elicited at each office encounter with few exceptions.

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### THE MODIFIED SPEED

- The SPEED questionnaire at Bowden Eye has been modified to permit self-reported dry eye symptom severity on a scale of 1 to 10.
- It also permits the patient to describe their expectations of dry eye therapy.

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### THE SPEED

- The SPEED test quantifies patient-reported symptom frequency and severity with a score from 0 to 32.
- An abnormal score of 1 or more may drive point-of-service testing.
- Score patterns at Bowden Eye
  - 0 to 4 Mild Dry Eye
  - 5 to 7 Moderate Dry Eye
  - 8+ Severe Dry Eye

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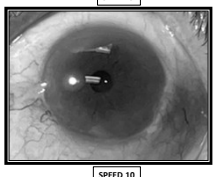
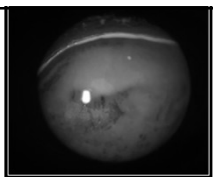
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### SPEED CAVEAT

- Subjective symptoms of dry eye disease often fail to correlate with the extent and severity of clinical signs of MGD.
- A reduced SPEED score in the presence of significant clinical findings may reflect
  - corneal nerve desensitization
  - reduced patient awareness
  - NOMGD




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**SPEED**

- The technician may initiate point-of-service dry eye tests by office protocol with dry eye and or abnormal SPEED score.  
These include:  
MMP-9  
Osmolarity  
Aberrometry  
Tear lipid interferometry  
Meibography
- Patient counseling with appropriate ABN must be obtained when insurance coverage is in question.
- Counselor calls to the patient prior to the visit for SPEED scoring and review of likely tests to be ordered may enhance the office efficiency.
- When the SPEED score is zero, point-of-service testing requires a recommendation by the eye care provider based on clinical findings.

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**SPEED CONCLUSION**

- It is important to obtain the SPEED questionnaire on each office encounter with rare exceptions.
- The technical staff must embrace the dry eye discussion with patients for seamless handoffs to counselors.
- The dry eye symptoms and clinical signs often fail to correlate.
- The SPEED score varies inversely to the number of functional meibomian glands.
- The SPEED score is a useful metric in the detection, longitudinal monitoring, and treatment efficacy assessment in dry eye disease.

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**Osmolarity Testing**

- **Tear Osmolarity: Measurement of the Salts in the tear solution.**
- **Studies show that if the tears are Hyperosmotic there is reduced water content, increased salts and this damages the ocular surface.**
- **Elevated osmolarity is in the definition of DED**
- You can do this test repeatedly to look for trends (like IOP in Glaucoma).
- We order this test to be done at every **Medical** new patient exam, and there after if Dry Eye Syndrome is suspected or diagnosed. Driven by the SPEED
- If the patient tells you that they are asymptomatic or symptoms have improved, but Osmo is still abnormal, you need to look to improve the condition further and try to maintain that...

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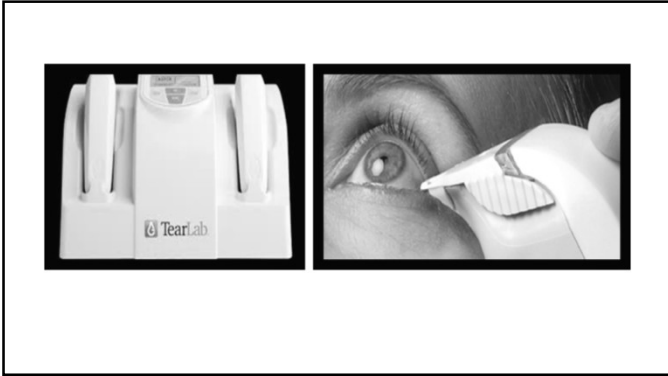
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### Osmolarity Testing

- Normal reading is considered 280 – 300 mOsm/L (below 280 is below range and is abnormal)
- Mild Range = 300-320 mOsm/L (308 is standard)
- Moderate Range = 320-340 mOsm/L
- Severe Range = 340 mOsm/L and up

Normal    Mild    Moderate    Severe

OSMOLARITY

300    320    340

- Also, the reading must be **within 8 between the eyes**
  - Example: OD = 314 OS = 315 mildly abnormal
  - Example: OD = 290 OS = 301 also abnormal due to variation
- Abnormal Osmo can lead you to order further testing...
- Treatment to consider would be ways to increase tear production/stability...
- Normal Tear Osmo means look for coconspirators (CCH, Allergies, Corneal Dystrophy, others)

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### Osmolarity Testing

**CPT 83861**  
**Microfluidic analysis utilizing an integrated collection and analysis device, tear osmolarity**

- **83861 is billed once per testing session**, even if both eyes are tested
- It is considered a **CLIA-waived laboratory test**
- Falls under **lab testing**, not ophthalmic diagnostic testing codes (like 92xxx)

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### Inflammadry Test




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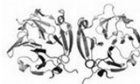
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### Inflammadry Testing

- **Matrix metalloproteinase 9:** inflammatory marker (cytokine) produced by inflamed/damaged epithelial cells.



- Tests for Active Inflammation on the ocular surface by identifying elevated levels of MMP-9.
- **MMP-9 has been proven to be present at elevated levels when uncontrolled inflammation is occurring or has occurred recently.**
- If the MMP-9 is elevated, you are not in control of your patient's ocular surface disease.

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### Inflammadry Testing

- This test can be positive in a very normal looking and asymptomatic patient.
- This test can help you to help these patients when you may have missed them without it!
- The test is quick and easy for your techs to do prior to seeing the patients.
- It only takes 10 mins for the test result to develop and be read.
- We also order this test to be done on every new patient exam with SPEED of 1 or more, surgical patient and there after if a positive was found or if new symptoms arise, or yearly at CEs.
- If it is positive, it can also lead you to order further testing and treat more aggressively sooner with Anti-inflammatories of some type, and/or find a way to reduce evaporative stress

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### Inflammadry Testing

**CPT 83516**  
**Immunoassay for analyte other than infectious agent antibody or infectious agent antigen; qualitative or semiquantitative, single step method (e.g., reagent strip)**

- Typically billed **once per encounter**, even if both eyes are tested
- Classified as a **CLIA-waived in-office lab test**
- Helps support diagnosis of **ocular surface inflammation**

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### Allergy Testing




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### Allergy Testing

- Testing for the presence of Allergies is very helpful to ensure you are treating your patient correctly.
- Antihistamines are not needed unless allergies are present, they will do more harm than good unless needed.
- The in-office allergy testing allows your office to do the testing and know almost instantly if allergies are present.

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### Allergy Testing

- This test will also surprise you and your patients
- Patients with no or mild allergy symptoms can be positive to multiple allergens
- Or patients who will swear that they have allergies and have significant allergy like symptoms can be negative for allergies!!!
- These results can be a game changer in your treatment of your patients
- Reimbursed by medical insurances very well!!! (The most lucrative diagnostic there is in this space)

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### Allergy Testing

**CPT 95004**  
**Percutaneous tests (scratch, prick, puncture), with allergenic extracts; immediate type reaction, including test interpretation and report, per test**

- **Billed per allergen tested** (not per session)
- Example: Testing 40 allergens = **95004 x 40 units**
- Includes:
  - Skin prick (scratch) testing
  - Interpretation
  - Documentation/report

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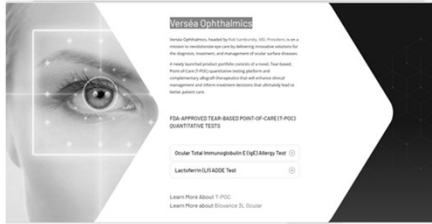
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# Lactoferrin ADDE Test




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- Lactoferrin – Iron-binding glycoprotein that is vital for healthy tears
- Antimicrobial, Anti-inflammatory, Antioxidant properties
  - Lactoferrin is a well-known biomarker for DED, now we can do this test!
  - Low levels of Lactoferrin are usually associated with Aqueous Def. DED but has been observed in Evaporative DED as well
  - Lactoferrin is made by acinar cells in the lacrimal gland and are inhibited by lacrimal gland inflammation/damage
  - Novel medications are in the pipeline that can address low levels of Lactoferrin directly
  - Low Lactoferrin testing can help you confirm your Dx and target your Tx, at least in part, around addressing lacrimal gland dysfunction/inflammation (Cyclosporin A, Steroids, Address/Acknowledge Systemic, Hormonal, Medication effects)

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## T-POC TESTING WORKFLOW

**NOT AVAILABLE**

Test	Who Performs	When Performed	Collection Time	Time to Results
Lactoferrin	Technician or clinician	During tech workup	1-2 min per eye	6-8 minutes
IgE	Technician or clinician	During tech workup	1-2 min per eye	6-8 minutes

Complete an ocular surface disease questionnaire or symptom survey

Collection Time: 1-2 minute per eye



Quantitative results delivered in 6-8 minutes

www.verseeophthalmics.com

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## Diagnostic Platforms to Consider

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### LipiView: Evaluation of the Lipid Layer Thickness and Eye Lid Blinking Pattern



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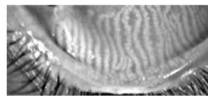
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LipiView with DMI provides a precise, integrated visualization of meibomian gland structure.



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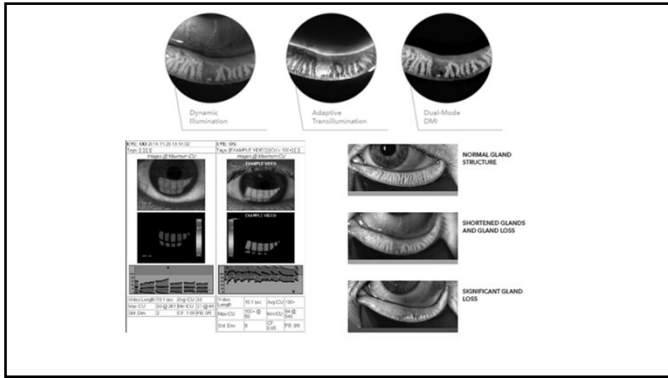
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Meibography only

- 10 seconds per eye
- High Definition Dynamic Meibomian Imaging (DM<sup>®</sup>)
- Under normal lighting
- User friendly
- Small footprint

(Slit Lamp Mounted)

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- Meibography
- Tear Breakup Time
- Tear Meniscus
- Topographer
- Dry eye report

- Ocular Surface Inflammatory Evaluation
- Tear Stability Test
- Tear Break Up
- Eye Redness Evaluation
- Meibography
- Tear Meniscus Measurement
- Demodex Evaluation
- Abortive Blinking
- OSDI Questionnaire Built In

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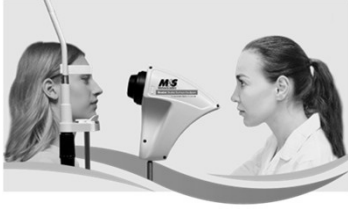
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### Multiple Diagnostics with Analyzing Software and Patient Education Resources



- Comprehensive, all-in-one device for OSD
- Easy to use, does not require extensive training
- Fast, 15 second capture generates 5 test results
- Accurate assessments, for better patient data
- Illustrative, test results saved to show patient progress
- Customizable treatment protocol
- Revenue stream with testing, treatment plan

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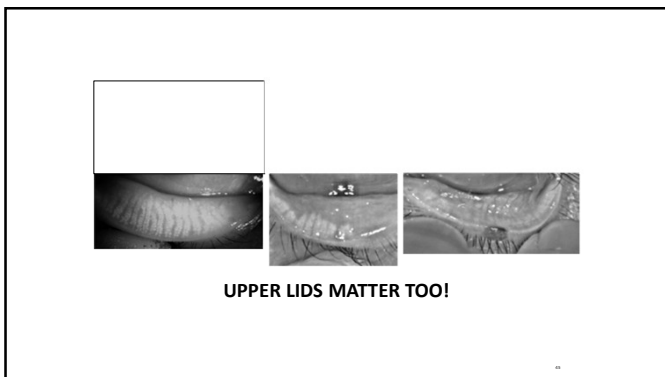
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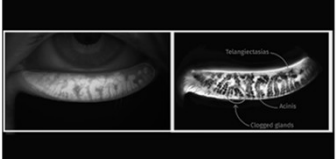
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The exclusive eyelid everter of OMNICAD™ adds the ability to **quantify and qualify the Meibomian Gland Dysfunction**.

- OMNICAD™ brings an **advanced technology** by integrating an eyelid everter with transillumination infrared light to get 2 images in **one click**:
  - Meibography in standard infrared to quantify the glands
  - Meibography in transillumination infrared to evaluate the functionality of the glands
- Its new feature of transillumination adds to the meibography the ability to obtain the **best images for the function of glands**, clearly defining their **obstruction, accumulation of meibum** and the **telangiectasias** that surround them.



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**Eyelid Everter Diagnostic/Examination Aid**






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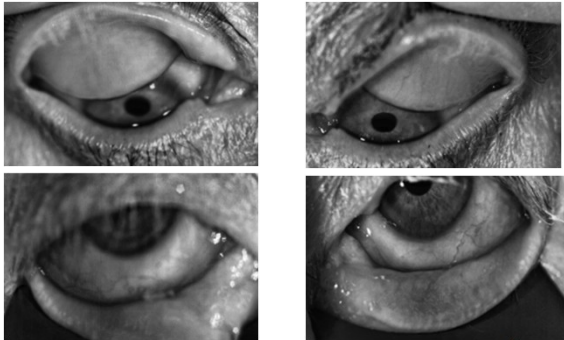
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### Meibography Testing

**CPT 92285**  
**External ocular photography with interpretation and report for documentation of medical progress...maybe??**

Meibography captures **infrared images of the meibomian glands**, which are considered part of the **external ocular adnexa**. **But this code is for photography and meibography are infrared images...Interpret as you wish....We do not use this code for this test in our clinics.**

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### Aberrometry

- 5 in 1 Device that shows vision function in a simple scan
  - Wavefront Aberrometer
  - Autorefractor
  - Keratometer
  - Pupilometer
  - Corneal Topographer
- Exclusive Ray Tracing Technology
  - Can separate corneal visual function from internal optics

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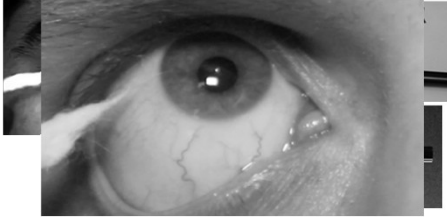
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### TEST CORNEAL SENSITIVITY!

NK IS FAR MORE PREVALENT THAN YOU MIGHT THINK AND OXERVATE TREATS IT VERY WELL, THE SOONER THE BETTER!



www.yourwebsite.com

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### Corneal Esthesiometer

- Portable and Hand-held
- Non-Invasive system
- Five levels of stimulation
- Electronic position system
- Designed to be used in 2 modes: placed on a slit lamp and hand-held
- Includes battery and charging dock



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### Early diagnosis is always better!

#Frames	572	Avg ICV	90
Max ICV	100 @ 527	Min ICV	100
St. Dev.	11	C-Factor	1.00

#Frames	572	Avg ICV	36
Max ICV	57 @ 253	Min ICV	35
St. Dev.	0.93	C-Factor	1.00

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KEY TAKE AWAY - DIAGNOSTICS



1. Get Osmo
2. Get Inflammadry
3. Get Meibography and a don't forget to look at the upper lids
4. Make sure you use these diagnostics as per a SOC and treat based on their results (you cant just do testing, you have to review them with the PT and make clinical judgments and treatment plans based on them...or else it is fraud.

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Q & A

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THANK YOU!

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