

### Introduction and Methods

CE Outcomes, LLC collaborated with the American Optometric Association (AOA) and the Council on Optometric Practitioner Education (COPE) to determine the effectiveness of the 2013 AOA Optometry's Meeting, supported by a multi-supported educational grant. The AOA continuing education programs aim to develop, maintain, and improve the competence, skills, and professional performance of optometrists, paraoptometric professionals, opticians, and practice administrators by providing quality, relevant, accessible, and effective educational experiences that address gaps in professional practice.

For this project, case vignettes were designed to assess whether the diagnostic and therapeutic choices of participants were consistent with clinical evidence presented in the content of the educational activity. The case vignettes were also used to assess whether practice choices of participants were different from practice choices of nonparticipants. All surveys were field tested with practicing members of the target audience community and revised based on field testing data prior to implementation.

Survey instruments were distributed by CE Outcomes to optometrists at least 30 days after completing the activity. Out of 2205 eligible participants, a sample of 50 responses was collected by email. The same survey instrument was distributed to a demographically similar group of optometrists who did not attend the CME program. Screening questions were used to determine attendance of the 2013 AOA meeting. Surveys were distributed by email and responses were collected and analyzed in comparison with the responses of the participant group. Chi-square tests were conducted to detect significant differences between the responses of the participant and nonparticipant groups. In addition, overall mean scores and pooled standard deviations were calculated for both groups. These were used to calculate the educational effect size using Cohen's *d* formula.

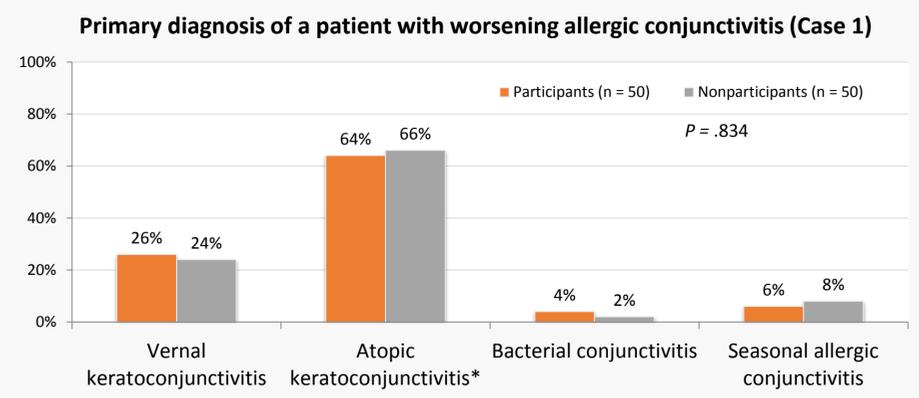
**Case #1:** A 16-year-old man presents with complaints of chronic ocular itching, burning, and light sensitivity that is more severe in the colder months. His symptoms have worsened significantly in the past week, not allowing him to function in his daily tasks. Medical history is significant for eczema. He is currently using a topical ophthalmic over-the-counter antihistamine twice daily with minimal relief. Slit lamp examination revealed red, swollen eyelids with 2+ anterior blepharitis OU, 2+ bulbar hyperemia OU, papillae noted to be more concentrated on the inferior palpebral conjunctiva OU, 2+ pannus OU, and 1+ diffuse corneal staining OU with no infiltrates.

**Case #2:** A 67-year-old man with primary open angle glaucoma bilaterally presents with eye redness, dryness, and burning with instillation of travoprost eye drops daily. This patient has a history of benzalkonium chloride sensitivity. On examination 1+ papillae was noted on the inferior bulbar conjunctiva as well as diffuse punctate keratopathy and 1+ bulbar hyperemia OU. Despite the side effects of the drug, this patient's intraocular pressure is under good control.

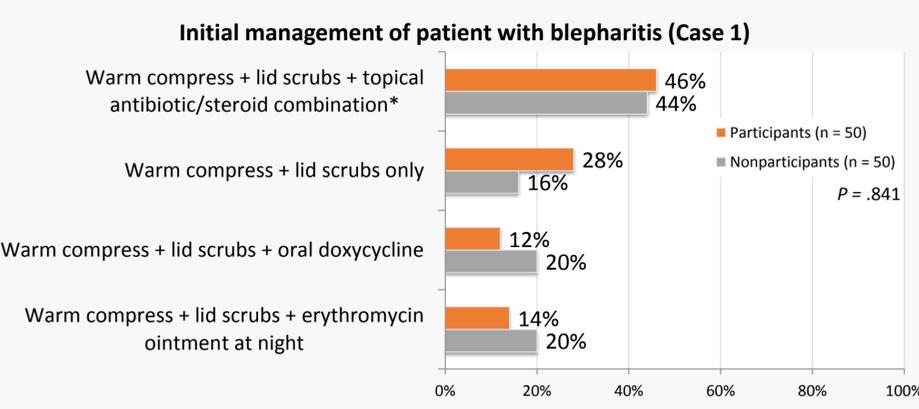
**Case #3:** A 50-year-old woman presents with complaints of fluctuating vision and grittiness from chronic dry eyes bilaterally. She uses artificial tears every hour, with only temporary relief. She was previously treated with dissolvable punctal plugs as a trial, with minimal relief.

STUDY DEMOGRAPHICS	Participants (n = 50)	Nonparticipants (n = 50)
Patients seen per week with eye pathology	31	39
Years since medical school graduation (Years in practice)	18	20
Specialty: Optometry	100%	100%
Practice Location:		
Urban	34%	36%
Suburban	46%	52%
Rural	20%	12%

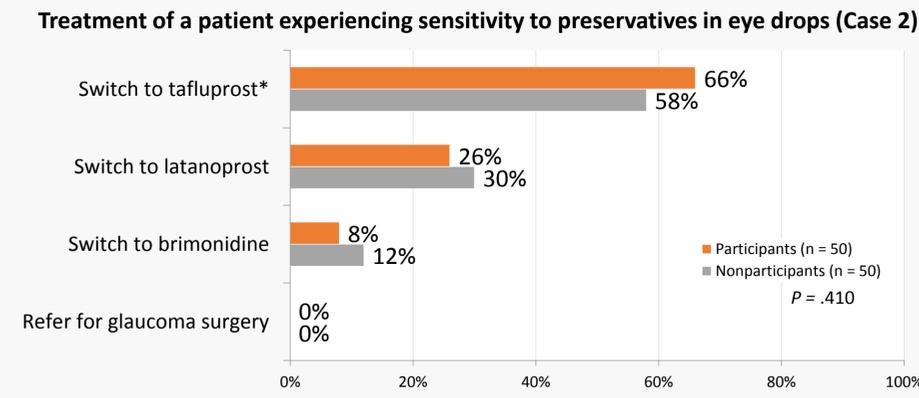
### LO1: Diagnosis and Treatment



Though the majority of both participants and nonparticipants were able to appropriately diagnose this patient, approximately a third of optometrists were unable to do so. Vernal (VKC) and atopic keratoconjunctivitis (AKC) have similar presentations. The key distinguishing feature in AKC is lower palpebral conjunctiva papillae, rather than superior palpebral conjunctiva papillae in VKC. Eczema is also common with AKC. Further education may be needed on distinguishing AKC and VKC.

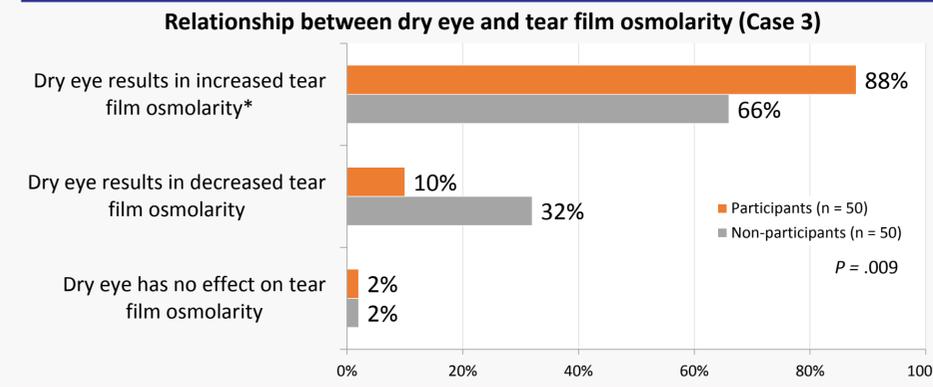


Less than 50% of both participants and nonparticipants would use a topical antibiotic/steroid combination in addition to warm compresses and lid scrubs for this patient's blepharitis, in order to effectively reduce bacterial proliferation and inflammation of the lid margins. More education may be needed on the role of topical combination therapies in the treatment of blepharitis.

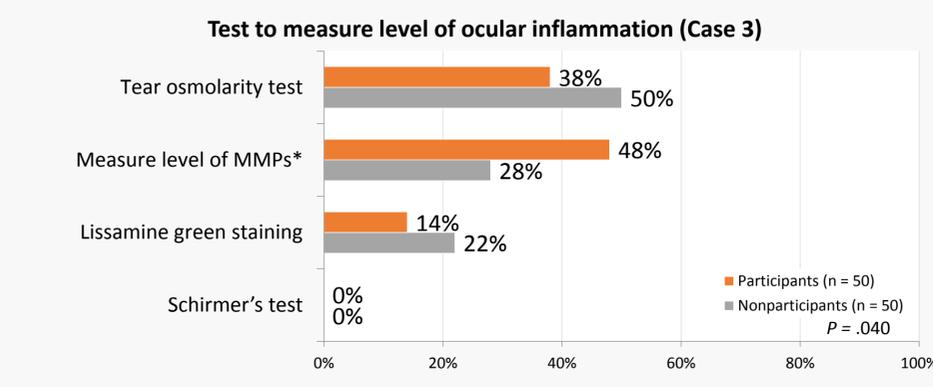


Tafluprost is the first preservative-free prostaglandin. Two-thirds of participants and 58% of nonparticipants would recommend this medication for a patient with glaucoma and preservative sensitivity. More education may be needed, as latanoprost appears to be used by many optometrists for this patient, despite its not being preservative-free.

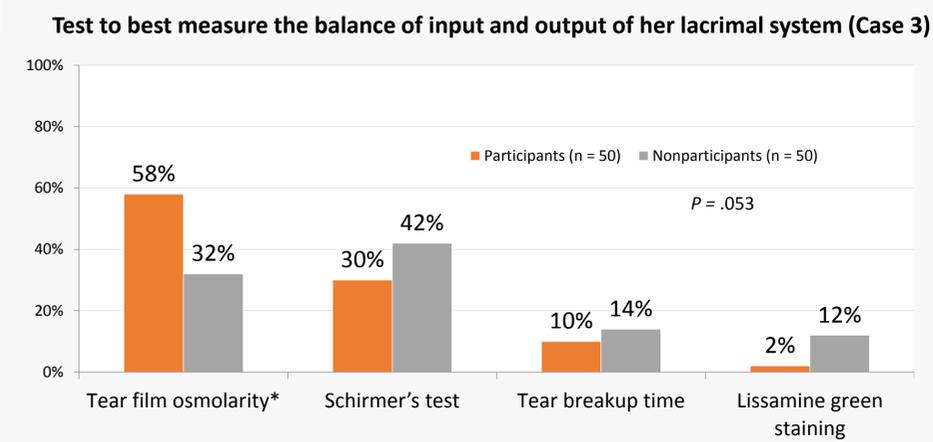
### LO2: Recent Advances in Technology



Participants are significantly more likely than nonparticipants to understand that the tear film osmolarity increases in dry eye disease. Clearly the education was successful in helping optometrists understand the pathophysiology of dry eye disease.



Participants are significantly more likely than nonparticipants to understand that a test for matrix metalloproteinases (MMPs) is the best way to check for a patient's level of ocular inflammation, when compared with other dry eye syndrome tests, and is now the gold standard for dry eye testing. MMPs, proteolytic enzymes produced by stressed epithelial cells on the ocular surface, are nonspecific markers of inflammation.



Participants are significantly more likely than nonparticipants to identify that tear film osmolarity is the best measure of the balance of input and output of the lacrimal system efficiency. As these 2 approaches for dry eye diagnosis are relatively novel, education may need to be continued to raise awareness of their usefulness and superiority in clinical practice.

Organizations rarely attempt to acquire an overall effect for an entire live event with multiple presentations and activities. Additionally, this assessment used performance-based methodology traditionally used in the physician community to apply to a community often overlooked in outcomes: optometrists. This assessment utilized a set of overall themes, matched to overall learning objectives, to understand how effective the annual meeting was to optometrists, 30 days after attendance. At least 67,830 patients with eye pathology, seen weekly by 2205 optometrists who participated in the 2013 AOA Optometry Meeting, are **37%** (effect size of 0.57) more likely to receive evidence-based care than those seen by optometrists who did not participate in the activity. Based on the data collected in this assessment, case vignettes are a simple and cost effective means of measuring performance change from an entire range of activities. Additionally, these results show that the use of established outcomes methodology can and should be applied to the optometrist community to assess impact of education on applying current evidence to practice change.