Online Medical Education Can Significantly Improve Ophthalmologists' Knowledge on the Interpretation of OCT Retina Biomarkers and Increase Confidence in Clinical Decision Making

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BACKGROUND & PURPOSE

Optical coherence tomography (OCT) of the retina is a standard tool for patient assessment to monitor disease activity, guide treatment decisions, and assess response.

Our aim was to determine if online medical education could improve knowledge on standard and novel OCT-biomarkers in retinal diseases and clinical data in neovascular age-related degeneration (nAMD) and diabetic macular edema (DME), and improve physician confidence in using biomarkers for clinical decisions.

METHODS

657 ophthalmologist test completers; CME launched March 2025; data are reported to November 2025

> 13,000 MD learners had accessed the program by then

Ophthalmologists (n = 657)

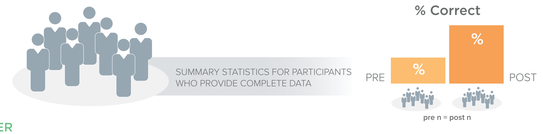
https://www.medscape.org/viewarticle/1002361

An online, on demand 15-minute educational video activity with accompanying, synchronized slides by 2 expert faculty, taking turns to answer questions against the clock

How to Read the Linked Learner Assessment

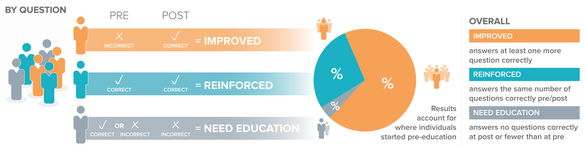
OUTCOMES COMPLETERS

Each individual completed BOTH the pre- and post-education questions – *SAME individuals pre- and post-education*



LINKED LEARNER

Each individual tracked pre- and post-education – *Learners serve as their own controls*

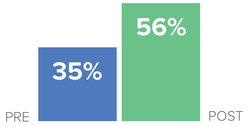


RESULTS

OVERALL

Ophthalmologists (n = 657)

AGGREGATED RESULTS



Average percentage of questions correctly answered

CHI-SQUARE TEST **P <.001**

SIGNIFICANCE (P <.05)

COHEN'S d **0.82**

EFFECT SIZE	EDUCATIONAL IMPACT
< .20	MODEST
.20 - .49	SMALL
.5 - .79	MODERATE
≥0.80	LARGE

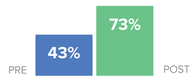
Cohen's d with correction for paired samples estimated the effect size of the education on number of correct responses.

Improved understanding of the relevance of a novel OCT biomarker: Hyperreflective foci (HRF)

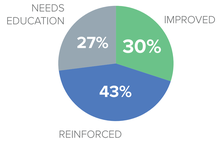
Question 1: What biomarker of inflammation in retinal disease is a sign of activated microglia in the retina? (Correct Answer: Hyperreflective foci; Incorrect Answers [Pre-Post]: Cystoid spaces [15%-7%], Epiretinal membranes [21%-12%], Macular leakage [21%-8%])

Ophthalmologists (n = 657); P <.001

AGGREGATED RESULTS



LINKED LEARNING RESULTS

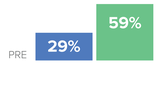


Increased data recall on response to treatment in nAMD-patients: Pigment epithelial detachment (PED)

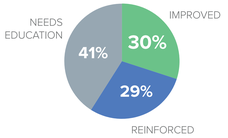
Question 3: In the HAWK and HARRIER trials of brolucizumab and aflibercept 2 mg in patients with nAMD, how did these 2 agents compare in reducing the maximum pigment epithelial detachment (PED) thickness at weeks 16, 48, and 96? (Correct Answer: Greater reduction with brolucizumab than aflibercept 2 mg; Incorrect Answers [Pre-Post]: Greater reduction with aflibercept 2 mg than brolucizumab [17%-15%], Greater reduction with brolucizumab than aflibercept 2 mg, but only at early time points [34%-16%], Similar reduction with the 2 agents [20%-10%])

Ophthalmologists (n = 657); P <.001

AGGREGATED RESULTS



LINKED LEARNING RESULTS

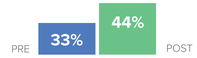


Increased data recall on response to treatment in DME-patients: Macular leakage

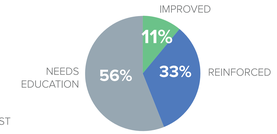
Question 2: Almost all patients with DME in the YOSEMITE/RHINE clinical trials of faricimab and aflibercept 2 mg had presence of macular leakage at baseline (99.9%). In approximately what proportion of patients was macular leakage resolved at 16 weeks after initiating treatment with faricimab? (Correct Answer: 30%; Incorrect Answers [Pre-Post]: 0% [0%-5%], 10% [6%-12%], 50% [60%-38%])

Ophthalmologists (n = 657); P <.001

AGGREGATED RESULTS



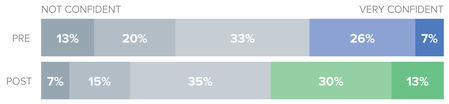
LINKED LEARNING RESULTS



Increased confidence using OCT biomarkers in clinical practice

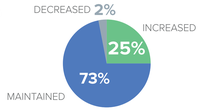
Self-Efficacy Question: How confident are you right now in using OCT biomarkers when making treatment decisions for patients with retinal diseases? (Select ranking from 1 [Not confident] to 5 [Very confident])

Ophthalmologists (n = 657); P <.001



LINKED LEARNING RESULTS

P <.01

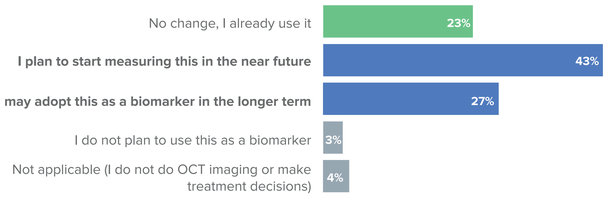


Behavioral change:

70% of learners now plan to measure HRF

Polling Question: As a result of this education, how do you plan to change your use of hyperreflective foci as a biomarker in your clinical practice? (select the single most important option for you):

Ophthalmologists (n = 657)



CONCLUSIONS

- Online medical education is a fast and effective method to improve knowledge and confidence in using OCT retina biomarkers.
- Even short 15-minute programs can motivate learners to integrate novel biomarkers into their clinical decision making.
- Additional education is warranted in this evolving field, with knowledge on these novel biomarkers still being incomplete.

DELEGATE COMMENTS

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For more information contact Kate Carpenter at *kcarpenter@webmd.net*

FINANCIAL RELATIONSHIP(S) DISCLOSURE:

Siggi Trier: Commercial Relationship(s)|Medscape Education Global:Code C (Consultant/Contractor):none | Katherine Carpenter: Commercial Relationship(s)|Medscape Education Global:Code E (Employment):none | Tiphaine Barras: Commercial Relationship(s)|Medscape Education Global:Code E (Employment):none | Stela Vujosevic: Commercial Relationship(s)|AbbVie Inc., Apellis Pharmaceuticals, Bayer, Boehringer Ingelheim Pharmaceuticals Inc, Novartis, Roche, RETINAI, Zeiss:Code C (Consultant/Contractor):none;AbbVie Inc:Code F (Financial Support):none | Arshad Khanani: Commercial Relationship(s)|AbbVie, ADARx Pharmaceuticals, Adverum, Alcon, Alkeus, Allgenesis, Amgen, Annexon, Annexon, Apellis Pharmaceuticals, Ashwatha Therapeutics, Astellas, Avacela Therapeutics, Beacon Therapeutics, Boehringer Ingelheim, Clearside Biomedical, Complement Therapeutics, 4DMT, Entarada, Exegenesis, EyePoint Pharmaceuticals, Frontiera Therapeutics, Genentech, Herow, Lumen Scientific, InFocus, Iveric Bio, Janssen Pharmaceuticals, Kriya Therapeutics, Kyowa Kirin, Leafas, Merit, Neurotech, Nimoscope, Novartis, Ocugen, Ocular Therapeutix, Oculis, Ollin, Opthea, Opus Genetics, Perfuse, Recens Medical, Regeneron Pharmaceuticals, Regenxbio, Revive, RevOpsis, Roche, Samsung, Sanofi, Stealth BioTherapeutics, Sun Pharma, Sunrozen, Thea Pharma, Therini, Unity Biotechnology, Vanotech, Visl, ZipBio:Code C (Consultant/Contractor):none;Avacela, Advarum, Alraton, Annexon, Astellas, Avacela Therapeutics, Biojiva Complement Therapeutics, 4DMT, Eyepoint Pharmaceuticals, Exegenesis, Genentech, Gyroscope Therapeutics, Iveric Bio, Janssen, Kyowa Kirin, Ocular, Ollin, Therapeutix, Regenxbio, Roche, Sanofi, Vanotech:Code F (Financial Support):none;Ashwatha, Avicede Therapeutics, Oculis, Ollin, PolyPhotonix, Recens Medical, Perfuse, RevOpsis, Visl, ZipBio:Code I (Personal Financial interest):none;Oculis (board of directors):Code E (Employment):none

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