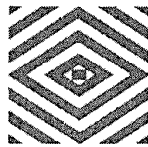


PREFERRED PRACTICE PATTERN®



**Dry Eye
Syndrome**



Secretary for Quality of Care
Anne L. Coleman, MD, PhD

Academy Staff

Nicholas P. Emptage, MAE
Nancy Collins, RN, MPH
Doris Mizuiri
Jessica Ravetto
Flora C. Lum, MD

Medical Editor: Susan Garratt
Design: Socorro Soberano

Approved by: Board of Trustees
September 21, 2013

Copyright © 2013 American Academy of Ophthalmology®
All rights reserved

AMERICAN ACADEMY OF OPHTHALMOLOGY and PREFERRED PRACTICE PATTERN are registered trademarks of the American Academy of Ophthalmology. All other trademarks are the property of their respective owners.

This document should be cited as follows:

American Academy of Ophthalmology Cornea/External Disease Panel. Preferred Practice Pattern® Guidelines. Dry Eye Syndrome. San Francisco, CA: American Academy of Ophthalmology; 2013. Available at: www.aao.org/ppp.

Preferred Practice Pattern® guidelines are developed by the Academy's H. Dunbar Hoskins Jr., MD Center for Quality Eye Care without any external financial support. Authors and reviewers of the guidelines are volunteers and do not receive any financial compensation for their contributions to the documents. The guidelines are externally reviewed by experts and stakeholders before publication.



CORNEA/EXTERNAL DISEASE PREFERRED PRACTICE PATTERN DEVELOPMENT PROCESS AND PARTICIPANTS

The **Cornea/External Disease Preferred Practice Pattern® Panel** members wrote the Dry Eye Syndrome Preferred Practice Pattern® guidelines ("PPP"). The PPP Panel members discussed and reviewed successive drafts of the document, meeting in person twice and conducting other review by e-mail discussion, to develop a consensus over the final version of the document.

Cornea/External Disease Preferred Practice Pattern Panel 2012–2013

Robert S. Feder, MD, Co-chair
Stephen D. McLeod, MD, Co-chair
Esen K. Akpek, MD, Cornea Society Representative
Steven P. Dunn, MD
Francisco J. Garcia-Ferrer, MD
Amy Lin, MD
Francis S. Mah, MD
Audrey R. Talley-Rostov, MD
Divya M. Varu, MD
David C. Musch, PhD, MPH, Methodologist

The **Preferred Practice Patterns Committee** members reviewed and discussed the document during a meeting in March 2013. The document was edited in response to the discussion and comments.

Preferred Practice Patterns Committee 2013

Stephen D. McLeod, MD, Chair
David F. Chang, MD
Robert S. Feder, MD
Timothy W. Olsen, MD
Bruce E. Prum, Jr., MD
C. Gail Summers, MD
David C. Musch, PhD, MPH, Methodologist

The Dry Eye Syndrome PPP was then sent for review to additional internal and external groups and individuals in June 2013. All those returning comments were required to provide disclosure of relevant relationships with industry to have their comments considered. Members of the Cornea/External Disease Preferred Practice Pattern Panel reviewed and discussed these comments and determined revisions to the document.

Academy Reviewers

Board of Trustees and Committee of Secretaries
Council
General Counsel
Ophthalmic Technology Assessment Committee
Cornea and Anterior Segment Disorders Panel
Basic and Clinical Science Course Subcommittee
Practicing Ophthalmologists Advisory Committee
for Education

Invited Reviewers

AARP
Asia Cornea Society
Cornea Society
National Eye Institute
Ocular Microbiology and Immunology Group
Sjögrens Syndrome Foundation
Carol L. Karp, MD
Stephen C. Pflugfelder, MD



FINANCIAL DISCLOSURES

In compliance with the Council of Medical Specialty Societies' Code for Interactions with Companies (available at www.cmss.org/codeforinteractions.aspx), relevant relationships with industry are listed. The Academy has Relationship with Industry Procedures to comply with the Code (available at <http://one.aao.org/CE/PracticeGuidelines/PPP.aspx>). A majority (70%) of the members of the Cornea/External Disease Preferred Practice Pattern Panel 2012–2013 had no financial relationship to disclose.

Cornea/External Disease Preferred Practice Pattern Panel 2012–2013

Esen K. Akpek, MD: No financial relationships to disclose

Steven P. Dunn, MD: No financial relationships to disclose

Robert S. Feder, MD: No financial relationships to disclose

Francisco J. Garcia-Ferrer: No financial relationships to disclose

Amy Lin, MD: No financial relationships to disclose

Francis S. Mah, MD: Alcon Laboratories, Inc. – Consultant/Advisor; Allergan, Inc. – Consultant/Advisor, Lecture fees; ForeSight – Consultant/Advisor; Ista Pharmaceuticals – Consultant/Advisor; Nicox – Consultant/Advisor; Omeros – Consultant/Advisor

Stephen D. McLeod, MD: No financial relationships to disclose

David C. Musch, PhD, MPH: Abbott Laboratories – Consultant fees (member of Independent Data Monitoring Committee); ClinReg Consulting Services, Inc. – Consultant/Advisor

Audrey R. Talley-Rostov, MD: Addition Technology – Lecture fees; Allergan, Inc. – Lecture fees

Divya M. Varu, MD: No financial relationships to disclose

Preferred Practice Patterns Committee 2013

David F. Chang, MD: Abbott Medical Optics – Consultant/Advisor; Allergan, Inc. – Lecture fees; SLACK, Inc. – Patent/Royalty

Robert S. Feder, MD: No financial relationships to disclose

Stephen D. McLeod, MD: No financial relationships to disclose

David C. Musch, PhD, MPH: Abbott Laboratories – Consultant fees (member of Independent Data Monitoring Committee); ClinReg Consulting Services, Inc. – Consultant/Advisor

Timothy W. Olsen, MD: A Tissue Support Structure – Patents/Royalty; Scleral Depressor – Patents/Royalty

Bruce E. Prum, Jr., MD: Pfizer Ophthalmics – Lecture fees

C. Gail Summers, MD: No financial relationships to disclose

Secretary for Quality of Care

Anne L. Coleman, MD, PhD: Allergan, Inc. – Consultant/Advisor; Pfizer Ophthalmics – Consultant/Advisor

Academy Staff

Nicholas P. Emptage, MAE: No financial relationships to disclose

Nancy Collins, RN, MPH: No financial relationships to disclose

Susan Garratt, Medical Editor: No financial relationships to disclose

Flora C. Lum, MD: No financial relationships to disclose

Doris Mizuirri: No financial relationships to disclose

Jessica Ravetto: No financial relationships to disclose

The disclosures of relevant relationships to industry of other reviewers of the document from January to August 2013 are available online at www.aao.org/ppp.



TABLE OF CONTENTS

OBJECTIVES OF PREFERRED PRACTICE PATTERN GUIDELINES	2
METHODS AND KEY TO RATINGS	3
HIGHLIGHTED FINDINGS AND RECOMMENDATIONS FOR CARE	4
INTRODUCTION	5
Disease Definition	5
Patient Population	5
Clinical Objectives	5
BACKGROUND	5
Prevalence and Risk Factors	5
Pathogenesis	7
Associated Conditions	7
Natural History	8
CARE PROCESS	9
Patient Outcome Criteria	9
Diagnosis	9
History	10
Examination	11
Diagnostic Tests	11
Classification of Dry Eye Syndrome	13
Management	13
Mild Dry Eye	15
Moderate Dry Eye	15
Severe Dry Eye	17
Follow-up Evaluation	17
Provider and Setting	17
Counseling and Referral	18
Socioeconomic Considerations	18
APPENDIX 1. QUALITY OF OPHTHALMIC CARE CORE CRITERIA	20
APPENDIX 2. PREFERRED PRACTICE PATTERN RECOMMENDATION GRADING	22
APPENDIX 3. SJÖGREN SYNDROME	27
APPENDIX 4. DIAGNOSTIC TESTS	29
APPENDIX 5. DRY EYE SEVERITY GRADING SCHEMES	31
RELATED ACADEMY MATERIALS	32
REFERENCES	32

Explore Litigation Insights

Docket Alarm provides insights to develop a more informed litigation strategy and the peace of mind of knowing you're on top of things.

Real-Time Litigation Alerts



Keep your litigation team up-to-date with **real-time alerts** and advanced team management tools built for the enterprise, all while greatly reducing PACER spend.

Our comprehensive service means we can handle Federal, State, and Administrative courts across the country.

Advanced Docket Research



With over 230 million records, Docket Alarm's cloud-native docket research platform finds what other services can't. Coverage includes Federal, State, plus PTAB, TTAB, ITC and NLRB decisions, all in one place.

Identify arguments that have been successful in the past with full text, pinpoint searching. Link to case law cited within any court document via Fastcase.

Analytics At Your Fingertips



Learn what happened the last time a particular judge, opposing counsel or company faced cases similar to yours.

Advanced out-of-the-box PTAB and TTAB analytics are always at your fingertips.

API

Docket Alarm offers a powerful API (application programming interface) to developers that want to integrate case filings into their apps.

LAW FIRMS

Build custom dashboards for your attorneys and clients with live data direct from the court.

Automate many repetitive legal tasks like conflict checks, document management, and marketing.

FINANCIAL INSTITUTIONS

Litigation and bankruptcy checks for companies and debtors.

E-DISCOVERY AND LEGAL VENDORS

Sync your system to PACER to automate legal marketing.