



AMERICAN ACADEMY™  
OF OPHTHALMOLOGY

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# Glaucoma

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**BCSC**  
**Basic and Clinical  
Science Course™**

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# Basic and Clinical Science Course

Louis B. Cantor, MD, Indianapolis, Indiana, *Senior Secretary for Clinical Education*

Christopher J. Rapuano, MD, Philadelphia, Pennsylvania, *Secretary for Lifelong Learning and Assessment*

George A. Cioffi, MD, New York, New York, *BCSC Course Chair*

## Section 10

---

### Faculty

Christopher A. Girkin, MD, *Chair*, Birmingham, Alabama

Anjali M. Bhorade, MD, St Louis, Missouri

JoAnn A. Giaconi, MD, Los Angeles, California

Felipe A. Medeiros, MD, PhD, San Diego, California

Arthur J. Sit, MD, Rochester, Minnesota

Angelo P. Tanna, MD, Chicago, Illinois

Jonathan G. Crowston, MBBS, PhD, *Consultant*, East Melbourne, Victoria, Australia

The Academy wishes to acknowledge the *American Glaucoma Society* for recommending faculty members to the BCSC Section 10 committee.

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*Committee on Aging:* Thomas A. Graul, MD, Lincoln, Nebraska

*Vision Rehabilitation Committee:* Paul I. Homer, MD, Boca Raton, Florida

*Practicing Ophthalmologists Advisory Committee for Education:* James A. Savage, MD, *Primary Reviewer*, Memphis, Tennessee; Edward K. Isbey III, MD, *Chair*, Asheville, North Carolina; Alice Bashinsky, MD, Asheville, North Carolina; David Browning, MD, PhD, Charlotte, North Carolina; Bradley Fouraker, MD, Tampa, Florida; Dasa Gangadhar, MD, Wichita, Kansas; Steven J. Grosser, MD, Golden Valley, Minnesota; Stephen R. Klapper, MD, Carmel, Indiana



*European Board of Ophthalmology:* Carlo Traverso, MD, *Chair*, Genoa, Italy; Gordana Sunaric Mégevand, MD, FMH, FEBO, *Liaison*, Geneva, Switzerland; Augusto Azuara-Blanco, PhD, FRCS(Ed), FRCOphth, Belfast, Northern Ireland; Anders Heijl, MD, PhD, Malmö, Sweden; Gabor Hollo, MD, PhD, DSc, Budapest, Hungary; Anja Tuulonen, MD, PhD, Tampere, Finland

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Dr Giaconi: Allergan (C)

Dr Girkin: Carl Zeiss Meditec (S), Heidelberg Engineering (S), SOLX (S)

Dr Grosser: Ivantis (O)

Dr Heijl: Allergan (C, L), Santen (L), Zeiss (C, L, P)

Dr Hollo: Alcon (C, L), Allergan (L), Santen (C, L)

Dr Isbey: Alcon Laboratories (S), Bausch + Lomb (S)

Dr Medeiros: Alcon Laboratories (C, S), Allergan (C, S), Carl Zeiss Meditec (S), Heidelberg Engineering (S), Merck & Co (S), Reichert Technologies (S), Topcon (S)

Dr Savage: Allergan (L)

Dr Sit: AcuMEMS (C), Aerie Pharmaceuticals (S), Allergan (C), Glaukos Corporation (S), Sensimed AG (C), Sucampo Pharma Americas (C)

Dr Sunaric Mégevand: Alcon (C), Allergan (C)

Dr Tanna: Aeon Astron B.V. (C), Alcon Laboratories (C, L), Apotex (C), Merck & Co (L), Sandoz (C), Sucampo Pharmaceuticals (C), Watson Laboratories (C)

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George A. Cioffi, MD  
F. Jane Durcan, MD  
Neeru Gupta, MD, PhD  
Jody R. Piltz-Seymour, MD  
Thomas W. Samuelson, MD

In addition, the Academy gratefully acknowledges the contributions of numerous past faculty and advisory committee members who have played an important role in the development of previous editions of the Basic and Clinical Science Course.

### **American Academy of Ophthalmology Staff**

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Beth Collins, *Medical Editor*  
Naomi Ruiz, *Publications Specialist*

American Academy of Ophthalmology  
655 Beach Street  
Box 7424  
San Francisco, CA 94120-7424



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# General Introduction

The Basic and Clinical Science Course (BCSC) is designed to meet the needs of residents and practitioners for a comprehensive yet concise curriculum of the field of ophthalmology. The BCSC has developed from its original brief outline format, which relied heavily on outside readings, to a more convenient and educationally useful self-contained text. The Academy updates and revises the course annually, with the goals of integrating the basic science and clinical practice of ophthalmology and of keeping ophthalmologists current with new developments in the various subspecialties.

The BCSC incorporates the effort and expertise of more than 90 ophthalmologists, organized into 13 Section faculties, working with Academy editorial staff. In addition, the course continues to benefit from many lasting contributions made by the faculties of previous editions. Members of the Academy Practicing Ophthalmologists Advisory Committee for Education, Committee on Aging, and Vision Rehabilitation Committee review every volume before major revisions. Members of the European Board of Ophthalmology, organized into Section faculties, also review each volume before major revisions, focusing primarily on differences between American and European ophthalmology practice.

## Organization of the Course

The Basic and Clinical Science Course comprises 13 volumes, incorporating fundamental ophthalmic knowledge, subspecialty areas, and special topics:

- 1 Update on General Medicine
- 2 Fundamentals and Principles of Ophthalmology
- 3 Clinical Optics
- 4 Ophthalmic Pathology and Intraocular Tumors
- 5 Neuro-Ophthalmology
- 6 Pediatric Ophthalmology and Strabismus
- 7 Orbit, Eyelids, and Lacrimal System
- 8 External Disease and Cornea
- 9 Intraocular Inflammation and Uveitis
- 10 Glaucoma
- 11 Lens and Cataract
- 12 Retina and Vitreous
- 13 Refractive Surgery

In addition, a comprehensive Master Index allows the reader to easily locate subjects throughout the entire series.

## References

Readers who wish to explore specific topics in greater detail may consult the references cited within each chapter and listed in the Basic Texts section at the back of the book.

These references are intended to be selective rather than exhaustive, chosen by the BCSC faculty as being important, current, and readily available to residents and practitioners.

### **Videos**

This edition of Section 10, *Glaucoma*, includes videos related to topics covered in the book. The videos were selected by members of the BCSC faculty and are available to readers of the print and electronic versions of Section 10. Mobile-device users can scan the QR code below (a QR-code reader must already be in-stalled on the device) to access the video content.

### **Study Questions and CME Credit**

Each volume of the BCSC is designed as an independent study activity for ophthalmology residents and practitioners. The learning objectives for this volume are given on page 1. The text, illustrations, and references provide the information necessary to achieve the objectives; the study questions allow readers to test their understanding of the material and their mastery of the objectives. Physicians who wish to claim CME credit for this educational activity may do so by following the instructions given at the end of the book.

### **Conclusion**

The Basic and Clinical Science Course has expanded greatly over the years, with the addition of much new text, numerous illustrations, and video content. Recent editions have sought to place greater emphasis on clinical applicability while maintaining a solid foundation in basic science. As with any educational program, it reflects the experience of its authors. As its faculties change and medicine progresses, new viewpoints emerge on controversial subjects and techniques. Not all alternate approaches can be included in this series; as with any educational endeavor, the learner should seek additional sources, including Academy Preferred Practice Pattern Guidelines.

The BCSC faculty and staff continually strive to improve the educational usefulness of the course; you, the reader, can contribute to this ongoing process. If you have any suggestions or questions about the series, please do not hesitate to contact the faculty or the editors.

The authors, editors, and reviewers hope that your study of the BCSC will be of lasting value and that each Section will serve as a practical resource for quality patient care.

# Objectives

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Upon completion of BCSC Section 10, *Glaucoma*, the reader should be able to

- state the epidemiologic features of glaucoma, including the social and economic impacts of the disease
- list recent advances in the understanding of hereditary and genetic factors in glaucoma
- describe the physiology of aqueous humor dynamics and the control of intraocular pressure (IOP)
- describe the clinical evaluation of the glaucoma patient, including history and general examination, gonioscopy, optic nerve examination, and visual field
- list the clinical features of the patient considered a glaucoma suspect
- describe the clinical features, evaluation, and treatment of primary open-angle glaucoma and normal-tension glaucoma
- list the various clinical features of and therapeutic approaches for the secondary open-angle glaucomas
- state the underlying causes of the increased IOP in various forms of secondary open-angle glaucoma and the impact that these underlying causes have on management
- describe the mechanisms and pathophysiology of primary angle-closure glaucoma
- describe the pathophysiology of secondary angle-closure glaucoma, both with and without pupillary block
- describe the pathophysiology of and therapy for primary congenital and juvenile-onset glaucomas

- describe the various classes of medical therapy for glaucoma, including efficacy, mechanism of action, and safety
  - state the indications for, techniques used in, and complications of various laser and incisional surgical procedures for glaucoma
-