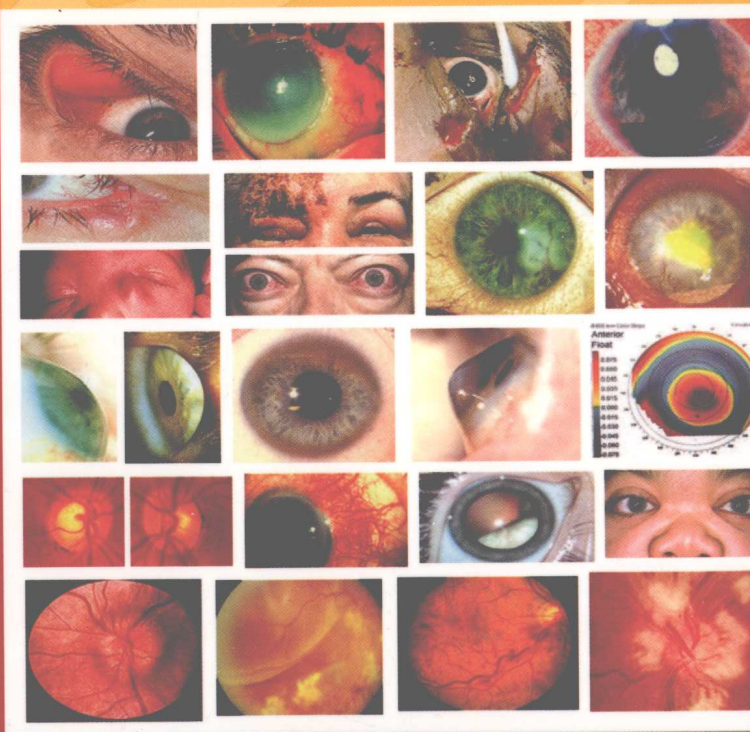
SPIRAL® MANUAL

Manual of Ocular Diagnosis and Therapy

SIXTH EDITION

Deborah Pavan-Langston



Wolters Kluwer Health | Lippincott Williams & Wilkins

MANUAL OF OCULAR DIAGNOSIS AND THERAPY

Sixth Edition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To my daughter, Wyndham Reed Langston,
light of my life and source of infinite joy

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PREFACE

The *Manual of Ocular Diagnosis and Therapy,* now in its sixth edition and published in five languages, maintains its worldwide popularity because this pocket-size paperback in rapid-access format provides the latest information on clinical disease, diagnostic techniques, and specific treatments across a wide variety of ophthalmic subspecialties. This is a highly practical and specific book written for the doctor on the "front lines," the one sitting face to face with a patient. This updated book is written for the widest possible audience: practicing eye care specialists, family practitioners, emergency room physicians, internists, neurologists, and pediatricians—that is, seasoned practitioners and house officers in virtually any discipline, as well as medical students first learning about ocular disease. It is for anyone involved in decisions concerning either care of the eyes or what the eyes can tell us about other care needed by the patient.

Each chapter covers the clinical findings of a multitude of ocular problems, diagnostic tests, differential diagnoses, and detailed treatments. The subject matter varies widely and includes the latest information on topics from the simple removal of corneal foreign bodies to new diagnostic techniques, their indications, and their significance, including OCT, HRT, FA, ERG, confocal microscopy, GDx, CT, MRI, and ultrasound. Other areas include management of hyphema, chemical burns, infections (bacterial, viral, fungal, parasitic), the great variety of glaucomas, cataract extraction and intraocular lenses, pediatric problems, extraocular muscle imbalance, neuro-ophthalmic disease, and the use of anti-infective agents, corticosteroids, immunosuppressive agents, antiglaucoma drugs, and numerous other therapeutic agents. The updated indications and techniques of refractive surgery, laser therapy for the front (LASIK, LASEK, and wave front theory) and the back of the eye, and expanded chapters on retinal and uveal disease are presented in the light of today's knowledge. The ocular findings in systemic disease and an extensive listing of the ocular toxicities of systemic drugs are thoroughly tabulated by disease and drug for easy reference. The familiar outline format of the text, the index, drug formulary, drawings, and tables are all designed so that information can be rapidly brought to hand.

The primary contributing authors were selected for their skills as practicing physicians or surgeons with widely acknowledged expertise in the area covered. All authors have been trained at Harvard Medical School and the Massachusetts Eye & Ear Infirmary. Eight are currently the directors of their specialized clinical divisions. I am indebted to all the fine physicians who contributed to this book.

Eighty-one full-color clinical photographs were contributed from the private collections of the authors. These labeled figures progress anatomically from the external ocular tissues to the anterior ocular segment and then to the back of the eye.

Jean McGough, Jonathan Pine, Adam Glazer, Rosanne Hallowell, and Amy Wallace of Lippincott Williams & Wilkins have all been very encouraging and extremely helpful. Without the help of all these people and countless others too numerous to mention by name, this book would not exist.

Deborah Pavan-Langston, MD, FACS

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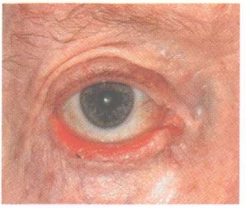

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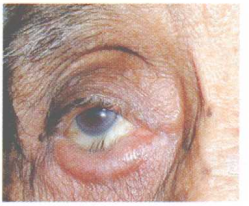

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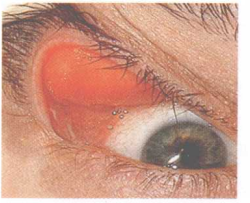

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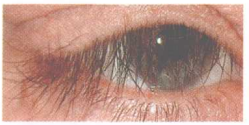

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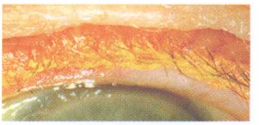

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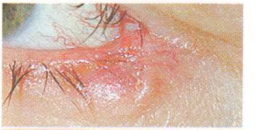

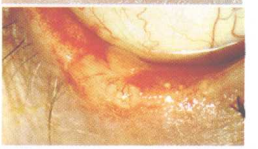

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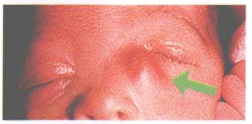

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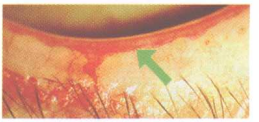

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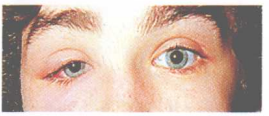

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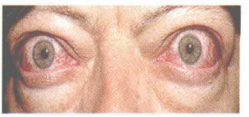

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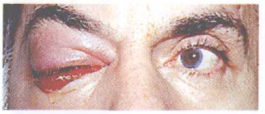

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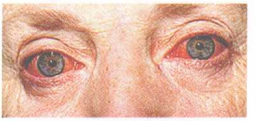
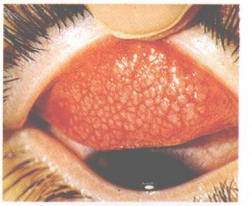


Ocular Allergy or Viral Conjunctivitis



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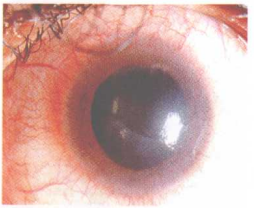

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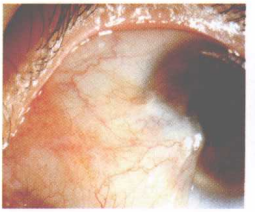

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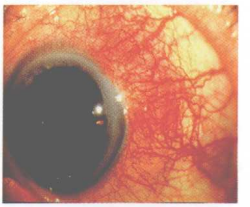

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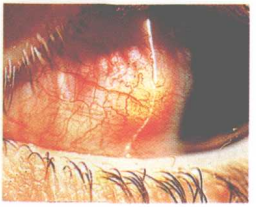

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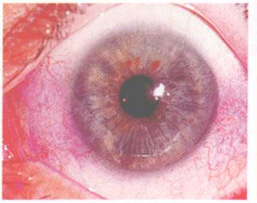

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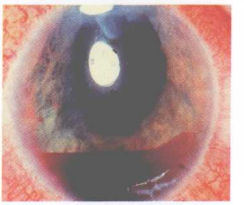

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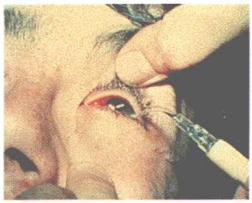
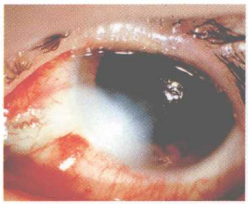
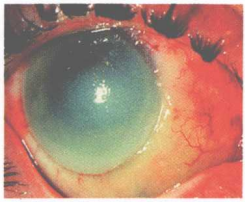


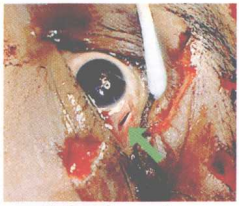
Irrigation Technique



Moderate Chemical Burn



Severe Chemical Burn



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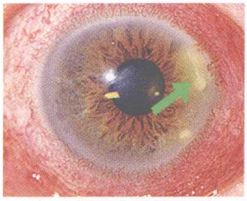

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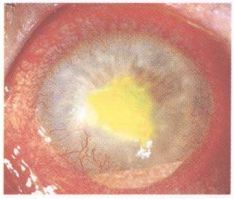

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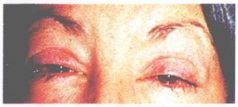

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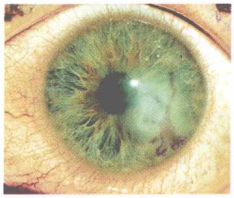
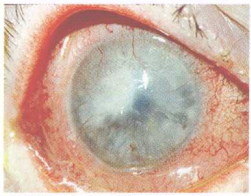


Herpes Dendrite & Disciform Edema



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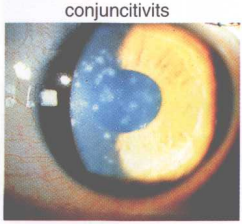

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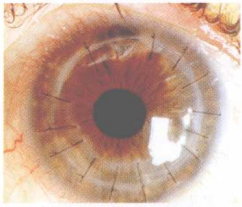

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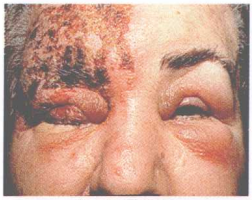
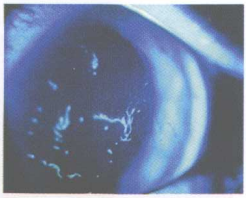


Acute Zoster



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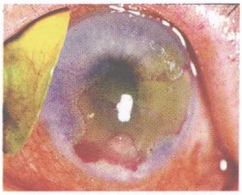

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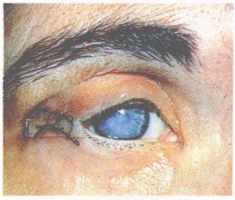
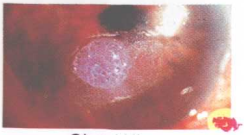
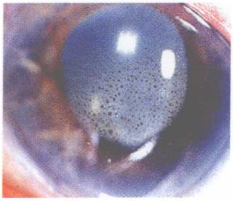


Lateral Tarsorrhaphy

Descemetocoele Ulcer



Glued Ulcer



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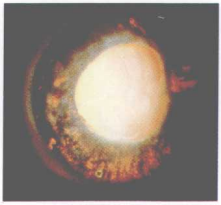

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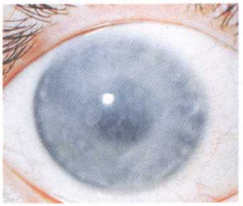

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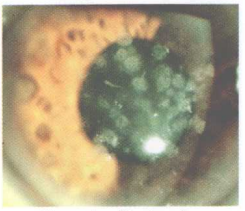

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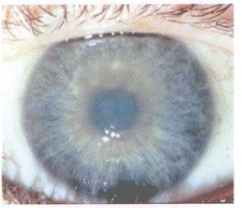

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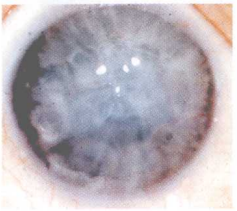
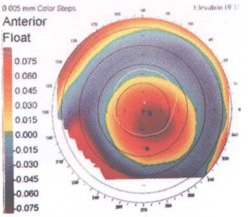
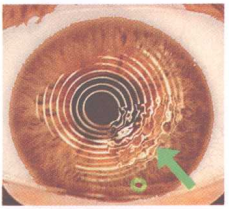


Bullous Keratopathy

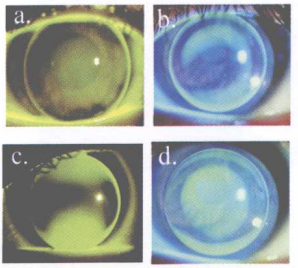
Keratoconus



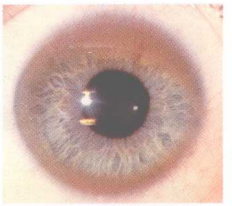
Topography—Keratoconus



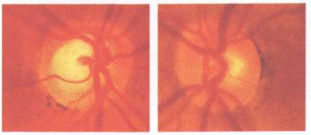
Keratoscopy: Focal Irregular Astigmatism



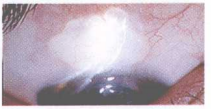
HCL Fit: a. Good. b. Too Flat. c. Too Astigmatic. d. Too Steep.



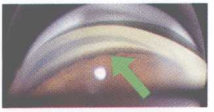
Kaiser-Fleischer Copper Ring



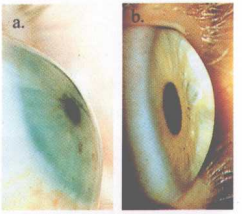
Asymmetric Cupping



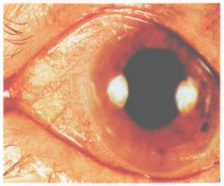
Filtering Bleb



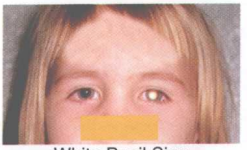
Gonioscopy: Open Angle



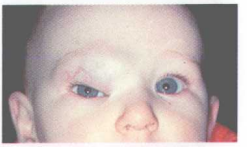
Anterior Chamber: a. Shallow. b. Deep



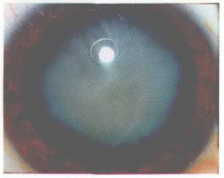
Acute Angle Closure Glaucoma



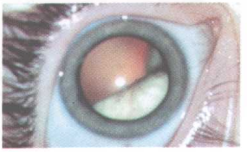
White Pupil Sign



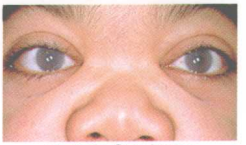
Hemangioma Upper Lid



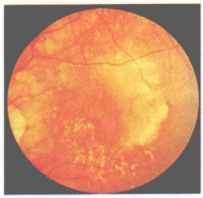
Nuclear Cataract



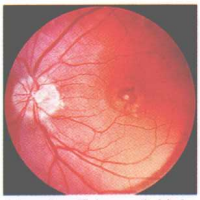
Retinoblastoma



Hurler's Syndrome

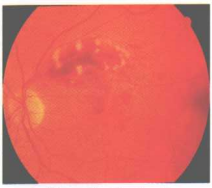


Macular Drusen & Degeneration

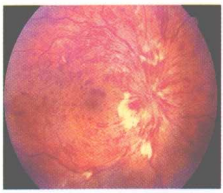


Macular Edema & Hole

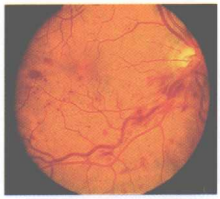
Old Histoplasma Chorioretinitis



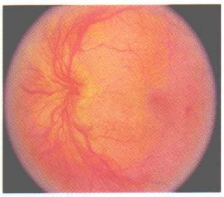
Branch Retinal Vein Occlusion



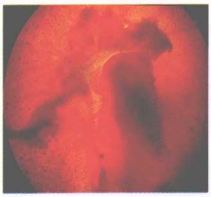
Central Retinal Vein Occlusion



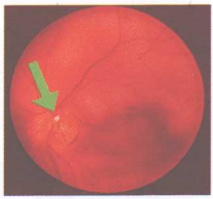
Diabetic Retinopathy



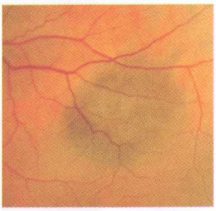
Optic Nerve Neovascularization



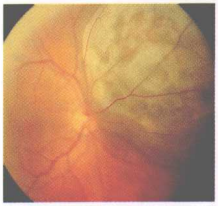
Vitreous Hemorrhage



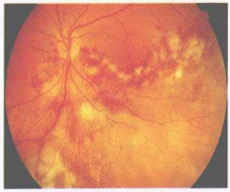
Retinal Embolus & Infarction



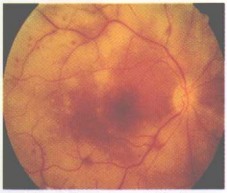
Choroidal Nevus



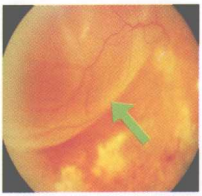
Choroidal Melanoma



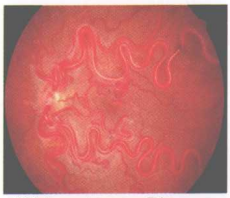
Cytomegalovirus Retinitis



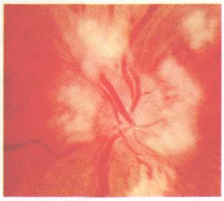
Viral Peripheral Outer Retinal Necrosis



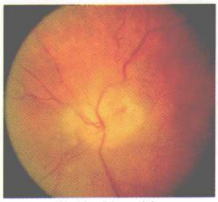
Retinal Detachment With Retinitis



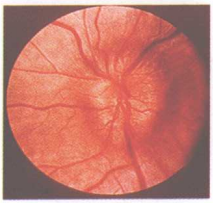
Wyburn Mason Disease



Hypertensive Cotton-Wool Spots



Optic Neuritis



Papilledema

CONTENTS

OCULAR EXAMINATION TECHNIQUES AND DIAGNOSTIC TESTS

1

Pedram Hamrah and Deborah Pavan-Langston

I. GENERAL PRINCIPLES

A. Physical examination and evaluation of the ocular system are greatly facilitated by a detailed history and a number of techniques that are performed in the office using equipment readily available through any optical or medical supply house. However, a specialist in a hospital setting must perform some of the more complicated techniques. These techniques are discussed with a view to (a) their indications, (b) how they are performed, so that the referring examiner can explain to a patient what might be expected, and (c) the necessary information to aid the examiner in management of the patient.

B. Order of examination. Examination of the eye and its surrounding tissues with and without special aids may yield valuable information for the diagnosis and treatment of ocular disease. After acquiring the ophthalmic history, a systematic routine should be adopted for the examination, with particular attention paid to the patient's chief complaint. Additional tests may be required after the initial exam. Individual chapters should be referred to for related details.

C. The typical order for nonemergency examination is as follows:

1. **History.** Chief complaint; present and past ocular problems; family history of eye problems; present and past general illnesses; previous surgeries; ocular and general medications; allergies; social history. Depending on the patient's particular problem, the history may be brief or extensive.
2. **Visual acuity.** Distant and near without and with glasses, if used, and with pinhole if a vision of less than 20/30 is obtained.
3. **Extraocular motility and alignment testing.** Range of action in all fields of gaze, stereopsis testing, and screening for strabismus and diplopia.
4. **Pupillary examination.**
5. **Color vision testing.**
6. **Visual field testing.**
7. **External examination (face, periocular tissues).**
8. **Anterior segment examination** under magnification, if possible (loupes or slitlamp), with and without dyes.
9. **Intraocular pressures (IOPs).**
10. **Ophthalmoscopy** of the fundi.
11. **Other tests** as indicated by history and prior examination:
    - **a.** Tear film adequacy and drainage.
    - **b.** Corneal sensation.
    - **c.** Transillumination.
    - **d.** Exophthalmometry.
    - **e.** Gonioscopy.
    - **f.** Keratometry.
    - **g.** Keratoscopy.
    - **h.** Corneal topography.
    - **i.** Wavefront analysis.
    - **j.** Schleimpflug camera.
    - **k.** Corneal pachymetry.
    - **l.** Specular microscopy.
    - **m.** Confocal slit-scanning microscopy.

n. Fluorescein and indocyanine green angiography.
o. Anterior segment fluorescein angiography.
p. Electroretinography (ERG) and electrooculography (EOG).
q. Ultrasonography.
r. Optical coherence tomography (OCT).
s. Scanning laser ophthalmoscopy.
t. Scanning laser polarimetry.
u. Retinal thickness analyzer.
v. Radiology, tomography, magnetic imaging.
w. Paracentesis.
Procedures e–w are done by eyecare specialists, and referral should be made if such testing is indicated.

II. ROUTINE OFFICE EXAMINATION

A. History. The main goals of taking history are to obtain a likely or differential diagnosis and to aid with the selection of treatment or referral to the appropriate specialist.

1. **Chief complaint.** The patient's main complaints are recorded in the patient's own words in order to document the patient's subjective view of the problem(s). Symptoms, rather than, diagnosis are recorded. All complaints, whether major or minor, are listed.
2. **History of present illness.** It is important to document any additional information and details about the chief complaints. This information will allow the forming of a differential diagnosis. The time of onset, severity, temporal variations, influencing factors, and laterality are documented. It is imperative to ask for visual disturbances, ocular discomfort and pain, photophobia, ocular secretions, abnormal external appearance noted by the patient or family members, and trauma.
3. **Past ocular history.** Ask the patient for any prior ocular problems. These can include, but are not limited to, past ocular medications, ocular trauma, ocular surgery, glasses, contact lens wear, and history of strabismus or amblyopia.
4. **Ocular medications.** Current ocular medications are recorded. It is important to document the duration of the current therapy and the response to current and past therapies. Patients are asked about over-the-counter medications. Occasionally, patients will not remember names of their medication. When this is the case, it is useful to ask for the color of the bottle caps, as these are color coded for eye drops.
5. **Systemic medications.** Systemic medication may be important in regards to ocular problems or surgical management. Particular attention is given to anticoagulants and oral medication used for ocular problems. Further, the medications taken by the patient will give clues about the patient's specific medical problems.
6. **Past medical and surgical history.** The present and past medical history is documented. Many ocular problems are secondary to systemic diseases. In addition, the general health of the patient is important for the preoperative evaluation. A detailed review of systems is further recorded. Date of onset and surgical treatments are documented. Of special importance are diabetes, cardiac and renal status, and autoimmune collagen vascular diseases.
7. **Allergies.** The patient's history of allergies is recorded. The specific reactions are documented because most patients are not able to differentiate the nature of a reaction. In addition to inquiring about allergies to medications, inquire about allergies to shellfish, latex, dyes etc.
8. **Family history.** The family history is important for genetically transmitted disease. Patients are asked about a family history of glaucoma, retinal diseases and detachments, corneal problems, cataracts, diabetes, malignancies, or any other ocular and systemic diseases.
9. **Social history.** For ocular conditions, the social history is not always relevant. Nevertheless, questions about drug abuse, tobacco, alcohol use, sexual history, and HIV are important. No causal relationship, however, should be inferred by the physician.