First Year Resident Curriculum

The first year of ophthalmology training is designed to develop basic skills in history taking and examination of the eye and ocular adnexa. First year residents will also gain experience in the preoperative management of patients undergoing anterior segment surgery, ocular and adnexal trauma, and oculoplastic surgery. Specific goals for each rotation are outlined in this section.

Orientation

Goals

1. To provide an introduction to the fundamentals of ophthalmic history and examination including principles and use of ophthalmic equipment.

2. To prepare the beginning resident in the provision of urgent care for patients with ophthalmic emergencies.

3. To provide an introduction to laser theory, hazards, and safety guidelines.

Learning Objectives

Patient Care

1. Perform a complete ophthalmic history including:
   a. Chief complaint
   b. Present illness
   c. Ocular history
   d. Ocular medications
   e. Medical and surgical history
   f. Systemic medications
   g. Allergies
   h. Social history
   i. Family history

2. Demonstrate the operation of basic examination equipment including:
   a. Visual acuity charts and projectors
   b. Color vision tests
   c. Transilluminator
   d. Lensometer
   e. Phoropter
f. Amsler grid  
g. Goldmann perimeter  
h. Slit lamp  
i. Tonometer  
j. Direct ophthalmoscope  
k. Fundus lenses  
l. Indirect ophthalmoscope  
m. B-scan ultrasound

See the 1st Year Resident Skills Checklist at the end of Section II under Evaluations for other required patient care skills.

Medical Knowledge

1. Describe the components and methods for obtaining a complete ophthalmic history.

2. Describe the components of a complete eye examination and the equipment utilized for each part of the examination.

3. List the common ophthalmic medications, their pharmacology, indications and contraindications, and side effects:
   a. Anesthetic agents  
   b. Dyes and stains  
   c. Anti-infection medications  
   d. Anti-inflammatory medications  
   e. Mydriatics and cycloplegics  
   f. Glaucoma medications  
   g. Decongestants, vasoconstrictors  
   h. Anti-allergy medications  
   i. Artificial tears and ointments  
   j. Corneal dehydrating medications

4. Describe the history, clinical manifestations, and management of common ophthalmic emergencies:
   a. Adult evaluation  
   b. Pediatric evaluation  
   c. Ocular trauma  
   d. Corneal abrasion  
   e. Corneal foreign body  
   f. Globe laceration  
   g. Blunt trauma  
   h. Eyelid laceration  
   i. Hyphema  
   j. Orbital fractures
k. Ocular infections
l. Ophthalmia neonatorum
m. Acute conjunctivitis
n. Endophthalmitis
o. Preseptal cellulitis
p. Orbital cellulitis
q. True ocular emergencies
r. Chemical burn
s. Central retinal artery occlusion
t. Acute angle-closure glaucoma

5. Discuss the principles of laser safety:
   a. Terminology
   b. Laser theory
   c. Medical lasers
   d. Principles of laser safety
   e. Operation guidelines

Practice-based Learning and Improvement

1. Participate in all mandated conferences.

Interpersonal and Communication Skills

1. Work well within a team context relating to students, residents, attending physicians, nurses, and patients.

2. Communicate effectively when discussing patient conditions and health care providers.

Professionalism

1. Display initiative and leadership.

2. Ask for help when needed, and seek and accept feedback.

3. Demonstrate a commitment to carrying out professional responsibilities, adherence to ethical principles, and sensitivity to a diverse patient population.
Systems-based Practice

1. Residents will participate in all orientation and credentialing activities at the university.

2. Residents will supply certification of ACLS and any other prerequisite documentation.

3. Residents will participate in online courses for participating hospitals regarding
   Ethics, HIPPA, CPOE, electronic medical records, etc.)

Resources

- Practical Ophthalmology: A Manual for Beginning Residents
- Basic Science and Board Review Course in Ophthalmology
- Essential Optics for the Ophthalmologist
  By Jack T. Holladay, M.D.
- AAO BSCS
- Refraction: A Programmed Text
  By Robert D. Reinecke and Robert J. Herm
- Lecture notes and handouts

Evaluation

- Small group discussions
- Pre- and Post-Tests
First Year Regional Medical Center Rotation

First year residents spend six months at the Medplex Ophthalmology Clinic and Regional Medical Center. First year residents attend general ophthalmology clinics each day. Specialty clinics are held weekly. During this rotation, residents gain basic experience with a wide variety of patients including chronic and acute diseases. This rotation provides residents with a broad experience in comprehensive ophthalmology as well as population-specific disorders, such as craniofacial trauma, AIDS, diabetes, and glaucoma in a diverse patient population.

Goals

1. To gain basic experience in the following areas:
   a. Techniques of the ophthalmic history and examination.
   b. Evaluation and management of comprehensive ophthalmology disorders in an adult population and in the NICU (excluding retinopathy of prematurity).
   c. Evaluation and management of patients with complex facial and ophthalmic trauma, including burn patients.

2. To introduce the resident to methods of consultation in an in-patient and out-patient setting.

Learning Objectives

Patient Care

1. Perform a complete ophthalmic history and examination.

2. Perform refraction on patients with various refractive errors utilizing objective and subjective methods.

3. Utilize specialized examination techniques including:
   a. Gonioscopy
   b. Three-mirror lens examination
   c. B-scan ultrasound

4. Interpret visual field examinations

5. Interpret fluorescein angiograms and OCTs

6. Perform basic surgical procedures including:
   a. Chalazion incision and drainage
   b. Tarsorrhaphy
   c. Eyelid margin laceration
d. Bandage contact lens fitting

e. Excision of eyelid lesions.

See the 1st Year Resident Skills Checklist at the end of Section II under Evaluations for other required patient care skills.

Medical Knowledge

1. Review the principles of objective refraction:
   a. Positioning and alignment
   b. Fixation and fogging
   c. The retinal reflex
   d. The correcting lens
   e. Finding neutrality
   f. Retinoscopy of regular astigmatism
   g. Aberrations of the reflex

2. Review the principles of subjective refraction
   a. Astigmatic dial technique
   b. Cross-cylinder technique
   c. Refining the sphere
   d. Binocular balance
   e. Cycloplegic and manifest refraction
   f. Over-refraction
   g. Spectacle correction of ametropias
   h. Spherical correcting lenses
   i. Vertex distance
   j. Cylindrical correcting lenses

3. Describes various methods of refraction
   a. Cycloplegic refraction
   b. Duochrome test
   c. Binocular balancing
   d. Near point and reading add
   e. Spectacle prescribing techniques

4. Recognize common accommodative problems
   a. Presbyopia
   b. Effect of spectacle and contact lens correction on accommodation and convergence

5. Explain the principles of prescribing multifocal lenses
   a. Determining the power of the bifocal add
   b. Prentice’s rule and bifocal design
   c. Occupation and bifocal segment
6. Review the principles of special lenses
   a. Aphakic lenses
   b. Absorptive lenses
   c. Special lens materials
   d. Prisms (therapeutic)
   e. Monocular diplopia

7. Discuss the epidemiology, pathophysiology, clinical manifestations, and treatment of the following neuro-ophtalmologic disorders:
   a. Afferent pupillary defects
   b. Paradoxical pupillary phenomena
   c. Episodic pupillary phenomena
   d. Anisocoria
   e. Lesions of the parasympathetic system
   f. Lesions of the sympathetic system
   g. Ocular motor nerve palsies
      • Cranial nerve III (oculomotor)
      • Cranial nerve IV (trochlear)
      • Cranial nerve VI (abducens)
   h. Systemic Conditions with neuro-ophthalmic signs
      • Multiple sclerosis
      • Myasthenia gravis
      • Thyroid opthalmopathy
      • Neuro-ophthalmic disorders associated with pregnancy
      • Disorders of the cerebral circulation
      • Cerebrovascular disease
      • Cerebral aneurysms
      • Headache and facial pain
      • Acquired immunodeficiency syndrome (AIDS)
      • Lyme disease

8. Discuss the epidemiology, pathophysiology, clinical manifestations, and treatment of the following orbital, eyelid, and lacrimal gland disorders:
   a. Orbital Trauma
   b. Midfacial fractures
   c. Orbital fractures
      • Medial orbital fractures
      • Orbital floor fractures
   d. Intraorbital foreign bodies
   e. Orbital hemorrhage
   f. Congenital anomalies
      • Blepharophimosis syndrome
      • Congenital ptosis of the upper eyelid
      • Congenital ectropion
      • Euryblepharon
•  Ankyloblepharon
•  Epicanthus
•  Epiblepharon
•  Congenital entropion
•  Congenital distichiasis
•  Congenital coloboma
•  Congenital eyelid lesions
•  Cryptophthalmos

g. Eyelid inflammation
•  Chalazion
•  Hordeolum

h. Eyelid neoplasms
•  Benign eyelid lesions
•  Benign adnexal lesions
•  Benign melanocytic lesions
•  Premalignant epidermal lesions
•  Premalignant melanocytic lesions
•  Malignant eyelid tumors
•  Masquerading neoplasms

i. Eyelid trauma
•  Blunt trauma
•  Penetrating trauma
•  Dog and human bites
•  Burns

j. Eyelid and canthal reconstruction
•  Eyelid defects not involving the eyelid margin
•  Eyelid defects involving the eyelid margin

k. Eyelid Malpositions and Involutional Changes
•  Ectropion
•  Entropion
•  Symblepharon
•  Trichiasis
•  Blepharoptosis
•  Ptosis
•  Involutional periorbital changes
•  Dermatochalasis
•  Blepharochalasis

l. Lacrimal System
•  Acquired tearing
•  Congenital nasolacrimal duct obstructions
9. Discuss the epidemiology, pathophysiology, clinical manifestations, and
treatment of the following external disease and corneal disorders:

a. Dermatoses affecting the ocular surface
   • Meibomian gland dysfunction
   • Seborrheic blepharitis
   • Chalazion
   • Hordeolum
   • Rosacea

b. Tear deficiency states
   • Dry eye (keratoconjunctivitis sicca)
   • Aqueous tear deficiency
   • Mucin tear deficiency
   • Lipid tear deficiency

c. Structural and exogenous disorders
   • Exposure keratopathy
   • Floppy eyelid syndrome
   • Superior limbic keratoconjunctivitis (SLK)
   • Recurrent corneal erosion

d. Infectious Diseases of the Eyelid, Conjunctiva, Cornea, and Sclera
   • Basic Concepts of External Ocular Infection
   • Defense mechanisms of the outer eye
   • The normal ocular flora
   • Pathogenesis of ocular infections
   • Virulence factors
   • Host risk factors
   • Ocular microbiology
   • Diagnostic laboratory techniques

e. Viral infections
   • Adenovirus keratoconjunctivitis
   • Enterovirus and Coxsackie virus conjunctivitis
   • Herpes simplex virus blepharitis, conjunctivitis, epithelial keratitis, and stromal keratitis
   • Varicella-zoster virus dermatoblepharitis, conjunctivitis, epithelial keratitis, and stromal keratitis

f. Bacterial, fungal, and parasitic infections
   • Staphylococcal blepharitis
   • Fungal and parasitic infections of the eyelid margin
   • Bacterial conjunctivitis in children and adults
   • Bacterial conjunctivitis in neonates
   • Chlamydial conjunctivitis

g. Bacterial and fungal infections of the cornea
   • Bacterial keratitis
   • Fungal keratitis
   • Acanthamoeba keratitis

h. Congenital Anomalies of the Cornea and Sclera
- Cryptophthalmos
- Microphthalmos
- Nanophthalmos
- Blue sclera
- Microcornea
- Megalocornea
- Cornea plana

i. Secondary abnormalities affecting the fetal cornea
- Intrauterine keratitis: bacterial and syphilitic
- Congenital glaucoma
- Birth trauma
- Iridocorneal endothelial syndrome (ICE)

j. Deposits and Degenerations of the Conjunctiva, Cornea, and Sclera
- Conjunctival degenerations:
  - Pinguecula
  - Pterygium
  - Conjunctival concretions
  - Corneal degenerations
  - Epithelial and subepithelial degenerations
  - Stromal degenerations: age-related (involutional) changes
  - Stromal degenerations: peripheral cornea
  - Stromal degenerations: postinflammatory changes
  - Endothelial degenerations
  - Drug-induced deposition and pigmentation
  - Corneal epithelial deposits
  - Pigmentation
  - Senile plaques

k. Wound Healing of the Conjunctiva, Cornea, and Sclera

l. Toxic and Traumatic Injuries of the Anterior Segment
- Thermal burns
- Ultraviolet (UV) radiation
- Ionizing radiation
- Chemical injuries
- Alkali burns
- Acid burns
- Animal and plant substances
- Toxic keratoconjunctivitis resulting from medications
- Concussive trauma
- Conjunctival hemorrhage
- Traumatic mydriasis and miosis
- Traumatic iritis
- Iridodialysis and cyclodalysis
- Traumatic hyphema
10. Discuss the epidemiology, pathophysiology, clinical manifestations, and treatment of intraocular inflammatory and uveitis disorders:
   a. Symptoms and signs of uveitis
      • Anterior segment
      • Intermediate segment
      • Posterior segment
   b. Classification of uveitis
      • Anterior uveitis
      • Intermediate uveitis
      • Posterior uveitis
      • Panuveitis
   c. Review of the patient's health and other associated factors
   d. Differential diagnosis and prevalence of uveitic entities
   e. Laboratory and medical evaluation
   f. Medical management of uveitis
      • Cycloplegics
      • Corticosteroids
      • Immunomodulating and immunosuppressive agents
   g. Complications of uveitis
      • Cataracts
      • Glaucoma
      • Hypotony
      • Cystoid macular edema
      • Vitreous opacification and vitritis
      • Retinal detachment
   h. Anterior uveitis
      • Acute nongranulomatous iritis and iridocyclitis
      • Chronic iridocyclitis
   i. Intermediate uveitis
   j. Posterior uveitis
      • Infectious diseases
      • Collagen vascular diseases
   k. Panuveitis
      • Infectious diseases
      • Immunologic and granulomatous diseases
11. Discuss the epidemiology, pathophysiology, clinical manifestations, and treatment of the following glaucoma disorders:
   a. Open-Angle Glaucoma
      • Primary open-angle glaucoma
      • The glaucoma suspect
      • Normal- (low-) tension glaucoma
   b. Angle-Closure Glaucoma
      • Primary angle-closure glaucoma with pupillary block
      • Acute primary angle-closure glaucoma
      • Subacute angle-closure glaucoma
      • Chronic angle-closure glaucoma
      • Primary angle-closure glaucoma without pupillary block
      • Secondary angle-closure glaucoma with pupillary block
      • Secondary angle-closure glaucoma without pupillary block
   c. Medical Management of Glaucoma
      • Beta-adrenergic antagonists (beta blockers)
      • Adrenergic agonists
      • Parasympathomimetic agents
      • Carbonic anhydrase inhibitors (CAIs)
      • Prostaglandin analogs
      • Hyperosmotic agents
   d. General approach to medical treatment
      • Open-angle glaucoma
      • Angle-closure glaucoma

12. Discuss the epidemiology, pathophysiology, clinical manifestations, and treatment of the following lens and cataract disorders:
   a. Lens embryology and anatomy
      • Normal development
      • Lens anatomy
      • Capsule
      • Zonular fibers
      • Accommodation
      • Lens epithelium
      • Nucleus and cortex
   b. Lens biochemistry
- Molecular biology
- Intracellular membrane and cytoskeleton
- Carbohydrate metabolism
- Oxidative damage and protective mechanisms

c. Lens physiology
- Maintenance of lens water and cation balance
- Lens epithelium: site of active transport
- Pump-leak theory

d. Aging changes
- Nuclear cataracts
- Cortical cataracts
- Posterior subcapsular cataracts

e. Drug-induced lens changes
- Corticosteroids
- Phenothiazines
- Miotics
- Amiodarone

f. Metabolic cataract
- Diabetes mellitus
- Galactosemia
- Hypocalcemia (tetanic cataract)
- Wilson disease (hepatolenticular degeneration)
- Myotonic dystrophy

g. Exfoliation syndromes
- True exfoliation
- Exfoliation syndrome (pseudoexfoliation)

h. Evaluation and Management of Cataracts in Adults
- Clinical history: signs and symptoms
- Decreased visual acuity
- Glare
- Myopic shift
- Monocular diplopia

13. Discuss the epidemiology, pathophysiology, clinical manifestations, and treatment of the following retina and vitreous disorders:

a. Anatomy
- Neurosensory retina
- Retinal pigment epithelium (RPE)
- Choroid

b. Diagnostic Approach to Retinal Disease
- Blood-ocular barriers and fluorescein angiography
- Side effects of fluorescein angiography
- Indocyanine green angiography
- Neovascularization
c. Retinal Physiology and Psychophysics
   - Electrophysiologic testing
   - Electroretinogram
   - Electro-oculogram and RPE responses
   - The electro-oculogram (EOG)
   - Cortical evoked potentials
   - Visually evoked potentials
   - Electrically evoked potentials
   - Psychophysical testing
   - Dark adaptation
   - Color vision
   - Contrast sensitivity

d. Acquired Diseases Affecting the Macula
   - Central serous chorioretinopathy
   - Age-related macular degeneration (AMD)
   - Ocular histoplasmosis syndrome (OHS)
   - Idiopathic causes of CNV
   - Angioid streaks
   - Pathologic myopia
   - Macular hole

e. Retinal Vascular Disease
   - Systemic arterial hypertension
   - Hypertensive retinopathy
   - Hypertensive choroidopathy
   - Hypertensive optic neuropathy
   - Diabetic retinopathy
   - Pathogenesis of diabetic retinopathy
   - Epidemiology of diabetic retinopathy
   - Classification
   - The effect of systemic conditions on diabetic retinopathy
   - Metabolic factors
   - Clinical trials in diabetic retinopathy
   - Photocoagulation for diabetic retinopathy

f. Peripheral retinal neovascularization
   - Retinopathy of prematurity

g. Venous occlusive disease
   - Branch retinal vein occlusion
   - Central retinal vein occlusion

h. Arterial occlusive disease
   - Precapillary retinal arteriole
   - Branch retinal artery occlusion
• Central retinal artery occlusion
• Ocular ischemic syndrome

i. Phakomatoses
• Von Hippel-Lindau disease (angiomatosis retinae)
• Congenital retinal arteriovenous malformations (Wyburn-Mason syndrome)
• Retinal cavernous hemangioma

j. Choroidal Disease
• Choroidal hemangioma

k. Congenital and Stationary Retinal Disease
• Color vision (cone system) abnormalities
• Night vision (rod system) abnormalities

l. Hereditary Retinal and Choroidal Dystrophies

m. Retinal detachment
• Rhegmatogenous retinal detachment
• Tractional retinal detachment
• Exudative retinal detachment

n. Diseases of the Vitreous
• Developmental abnormalities
• Tunica vasculosa lentis
• Prepapillary vascular loops
• Persistent hyperplastic primary vitreous, or persistent fetal vasculature
• Familial exudative vitreoretinopathy
• Asteroid hyalosis
• Cholesterolosis

o. Posterior Segment Trauma
• Blunt trauma
• Vitreous hemorrhage
• Commotio retinae
• Choroidal rupture
• Penetrating injuries
• Perforating injuries
• Intraocular foreign bodies
• Posttraumatic endophthalmitis
• Sympathetic ophthalmia
• Shaken baby syndrome/child abuse
• Avulsion of the optic disc

Practice-based Learning and Improvement

1. Teach medical students.

2. Participate in all mandated conferences.
3. Evaluate patient care practices, discuss how they meet standards, and develop ways to improve these practices.

4. Demonstrate improvement in clinical management.

5. Implement preferred practice patterns into current patient care practices.

6. Obtain information from a variety of sources in ophthalmology and related fields.

7. Learn techniques/take responsibility for developing lifelong learning skills, including individual study to prepare for examinations, research for specific patient care issues, or attendance of Continuing Medical Education activities sponsored by the University and the Department of Ophthalmology.

8. Use information technology such as Up-To-Date, PubMed, or Ovid to enhance patient care.

9. Use patient care errors and near misses to teach residents and students.

Interpersonal and Communication Skills

1. Carefully listen to patients to assess the patient’s health problems including verbal and non-verbal communications.

2. Communicate and establish a therapeutic relationship with patients.

3. Develop respectful and considerate attitudes towards patients and their families, especially when delivering news of untreatable vision loss or poor outcomes.

4. Demonstrate effective communication skills with patients, families, and other health care personnel, especially in communications addressing decisions involving permanent loss of vision.

5. Present cases accurately and succinctly to faculty and peers in the clinical setting as well as in departmental patient care conferences.

6. Provide timely, legible, thorough, succinct medical record documentation - histories and physical examinations, admission notes, progress notes, procedure notes and discharge summaries.

7. Provide education and counseling to patients, and families using non-technical and clear language.
8. Demonstrate skill in handling a variety of difficult patient care situations.

9. Clearly speak when addressing patient issues and management plans with patients, families, and health care colleagues.

10. Be willing to spend adequate time with patients addressing their questions and concerns.

11. Use both non-verbal and verbal communication skills to effectively deliver education and counseling to patients, families, and colleagues.

12. Work well within a team context relating to students, residents, attending physicians, nurses, and patients.

13. Function effectively as a consultant for specialty and subspecialty care.

14. Communicate effectively when discussing patient conditions and health care practices with fellow residents, attending physicians and other health care providers.

**Professionalism**

1. Interface with referring and consulting physicians and appropriate hospital staff in a professional and respectful manner, recognizing and instituting the core competencies.

2. Professionally interact with patients, attending physicians and allied health care personnel, including adherence to dress policy as outlined in the Residents’ Manual.

3. Establish trust with patients and staff by providing reliable and appropriate care to patients.

4. Demonstrate respect, compassion, integrity, punctuality, reliability, and honesty with regards to patients and colleagues.

5. Show regard for the opinions of others.

6. Display initiative and leadership.

7. Acknowledge errors, and alert patients and appropriate health care providers.

8. Create a plan of action to minimize errors.
9. Demonstrate concern for educational development of students and residents.

10. Volunteer for activities for the good of the institution and community.

11. Ask for help when needed, and seek and accept feedback.

12. Demonstrate a commitment to carrying out professional responsibilities, adherence to ethical principles, and sensitivity to a diverse patient population.


14. Demonstrate understanding of the ethical concerns about pharmaceutical and patient gifts.

15. Compassionately respond to issues of culture, age, gender, ethnicity, and disability in patient care.

Systems-based Practice

1. Demonstrate ability to practice medicine in a county/inner city hospital setting.

2. Demonstrate knowledge of different types of medical practice and health delivery systems and know how this affects patient care.

3. Demonstrate knowledge of business aspects of medical practice including coding and insurance.

4. Work with ancillary team members (discharge planners, case managers, and social workers) to provide high quality cost-effective care.

5. Use systematic approaches to reduce errors.

6. Practice effective allocation of health care resources to avoid compromising quality of care.

7. Serve as a patient advocate in the outpatient and inpatient setting.

8. Direct care in inpatient and outpatient settings as a member of a multidisciplinary team.

9. Demonstrate knowledge of how the health care system including other physicians, nurses, and health care professionals affect their patient care practices.
10. Keep medical records review and signage up to date.

11. Record on call patients, procedures, and duty hours as required by the University, Regional Medical Center, and Department of Ophthalmology.

12. Attend University of Tennessee Graduate Medical Education’s System Based Lecture series, or view session online if unable to attend.

Resources

- BCSC (all sections)
- Basic Science and Board Review Course in Ophthalmology
- Essential Optics for the Ophthalmologist
  By Jack T. Holladay, M.D.
- Practical Ophthalmology: A Manual for Beginning Residents
- Refraction: A Programmed Text
  By Robert D. Reinecke and Robert J. Herm
- Departmental conferences and didactic lecture series

Evaluation

- Faculty evaluations of core competencies
- Faculty evaluations of Grand Rounds and Journal Club participation
- Peer evaluations
- Co-worker evaluations
- Patient evaluations
- 1st Year Skills Checklist
- Surgical/procedure logs
- Medical Records deficiency reports
- Duty hour and surgical log deficiency reports
- Evaluation portfolio documents (Grand Rounds presentations and others)
- Mid-year examinations/Mock Orals
- OKAP examination
First Year VA Medical Center Rotation

First year residents spend three months at the VA Medical Center. First year residents attend general ophthalmology clinics each day. Specialty clinics are held weekly or biweekly. During this rotation, residents gain basic experience with a wide variety of adult patients with an emphasis on geriatric patients. This rotation provides residents with a broad experience in comprehensive ophthalmology and with patients having multiple systemic diseases with ophthalmic manifestations and/or in the geriatric age group. Additionally, residents evaluate and manage a large volume of patients with cataracts, glaucoma, diabetic retinopathy, AMD, cornea and external diseases, and eyelid neoplasms.

Goals

1. To gain basic experience in the following areas:
   a. Techniques of the ophthalmic history and examination
   b. Evaluation and management of comprehensive ophthalmology disorders in a predominantly geriatric population.

2. To introduce the resident to methods of consultation in an in-patient and out-patient setting.

Learning Objectives

Patient Care

1. Perform a complete ophthalmic history and examination.

2. Perform refraction on patients with various refractive errors utilizing objective and subjective methods.

3. Utilize specialized examination techniques including:
   a. Gonioscopy
   b. Three-mirror lens examination
   c. B-scan ultrasound

4. Interpret visual field examinations.

5. Interpret fluorescein angiograms.

6. Perform basic surgical procedures including:
   a. Chalazion incision and drainage
   b. Tarsorrhaphy
   c. Bandage contact lens fitting
   d. Excision of eyelid lesions
See the 1st Year Resident Skills Checklist at the end of Section II under Evaluations for other required patient care skills.

**Medical Knowledge**

1. Review the principles of objective refraction:
   a. Positioning and alignment
   b. Fixation and fogging
   c. The retinal reflex
   d. The correcting lens
   e. Finding neutrality
   f. Retinoscopy of regular astigmatism
   g. Aberrations of the reflex

2. Review the principles of subjective refraction
   a. Astigmatic dial technique
   b. Cross-cylinder technique
   c. Refining the sphere
   d. Binocular balance
   e. Cycloplegic and manifest refraction
   f. Overrefraction
   g. Spectacle correction of ametropias
   h. Spherical correcting lenses
   i. Vertex distance
   j. Cylindrical correcting lenses

3. Describes various methods of refraction
   a. Cycloplegic refraction
   b. Duochrome test
   c. Binocular balancing
   d. Near point and reading add
   e. Spectacle prescribing techniques

4. Recognize common accommodative problems
   a. Presbyopia
   b. Accommodative insufficiency
   c. Accommodative excess
   d. Accommodative convergence/accommodation ratio (AC/A)
   e. Effect of spectacle and contact lens correction on accommodation and convergence

5. Explain the principles of prescribing multifocal lenses
   a. Determining the power of the bifocal add
b. Prentice's rule and bifocal design

c. Occupation and bifocal segment

6. Review the principles of prescribing special lenses
   a. Aphakic lenses
   b. Absorptive lenses
   c. Special lens materials
   d. Prisms (therapeutic)
   e. Monocular diplopia

7. Discuss the epidemiology, pathophysiology, clinical manifestations, and treatment of the following neuro-ophthalmologic disorders:
   a. Afferent pupillary defects
   b. Paradoxical pupillary phenomena
   c. Episodic pupillary phenomena
   d. Anisocoria
   e. Lesions of the parasympathetic system
   f. Lesions of the sympathetic system
   g. Ocular motor nerve palsies
      • Cranial nerve III (oculomotor)
      • Cranial nerve IV (trochlear)
      • Cranial nerve VI (abducens)
   h. Systemic Conditions with Neuro-ophthalmic Signs
      • Multiple sclerosis
      • Myasthenia gravis
      • Endocrinologic disorders
      • Thyroid ophthalmopathy
      • Neuro-ophthalmic disorders associated with pregnancy
      • Disorders of the cerebral circulation
      • Transient visual loss
      • Cerebrovascular disease
      • Cerebral aneurysms
      • Headache and facial pain
      • Neuro-ophthalmic manifestations of infectious diseases
      • Acquired immunodeficiency syndrome (AIDS)
      • Lyme disease
      • Fungal infections

8. Discuss the epidemiology, pathophysiology, clinical manifestations, and treatment of the following orbital, eyelid, and lacrimal gland disorders:
   a. Orbital Trauma
   b. Midfacial fractures
   c. Orbital fractures
      • Medial orbital fractures
      • Orbital floor fractures
d. Intraorbital foreign bodies

e. Orbital hemorrhage

g. Eyelid inflammation
   • Chalazion
   • Hordeolum

h. Eyelid neoplasms
   • Benign eyelid lesions
   • Benign adnexal lesions
   • Benign melanocytic lesions
   • Premalignant epidermal lesions
   • Premalignant melanocytic lesions
   • Malignant eyelid tumors
   • Masquerading neoplasms

i. Eyelid trauma
   • Blunt trauma
   • Penetrating trauma
   • Dog and human bites
   • Burns

j. Eyelid and canthal reconstruction
   • Eyelid defects not involving the eyelid margin
   • Eyelid defects involving the eyelid margin

k. Eyelid Malpositions and Involutional Changes
   • Ectropion
   • Entropion
   • Symblepharon
   • Trichiasis
   • Blepharoptosis
   • Ptosis
   • Involutional periorbital changes
   • Dermatochalasis
   • Blepharochalasis

l. Lacrimal System
   • Acquired tearing

9. Discuss the epidemiology, pathophysiology, clinical manifestations, and treatment of the following external disease and corneal disorders:

   a. Ocular Surface Disorders

   b. Dermatoses affecting the ocular surface
      • Meibomian gland dysfunction
      • Seborrheic blepharitis
      • Chalazion
      • Hordeolum
      • Rosacea

   c. Tear deficiency states
      • Dry eye (keratoconjunctivitis sicca)
d. Structural and exogenous disorders
   - Exposure keratopathy
   - Floppy eyelid syndrome
   - Superior limbic keratoconjunctivitis (SLK)
   - Recurrent corneal erosion

e. Infectious Diseases of the Eyelid, Conjunctiva, Cornea, and Sclera
   - Basic Concepts of Ocular Infection
   - Defense mechanisms of the outer eye
   - The normal ocular flora
   - Pathogenesis of ocular infections
   - Virulence factors
   - Host risk factors
   - Ocular microbiology
   - Diagnostic laboratory techniques

f. Viral infections
   - Adenovirus keratoconjunctivitis
   - Enterovirus and Coxsackie virus conjunctivitis
   - Herpes simplex virus blepharitis, conjunctivitis, epithelial keratitis, and stromal keratitis
   - Varicella-zoster virus dermatoblepharitis, conjunctivitis, epithelial keratitis, and stromal keratitis

g. Bacterial, fungal, and parasitic infections
   - Staphylococcal blepharitis
   - Fungal and parasitic infections of the eyelid margin
   - Bacterial conjunctivitis
   - Chlamydial conjunctivitis

h. Bacterial and fungal infections of the cornea
   - Bacterial keratitis
   - Fungal keratitis
   - Acanthamoeba keratitis

k. Depositions and Degenerations of the Conjunctiva, Cornea, and Sclera
   - Conjunctival degenerations:
   - Pinguecula
   - Pterygium
   - Conjunctival concretions
   - Corneal degenerations
     - Epithelial and subepithelial degenerations
     - Stromal degenerations: age-related (involutional) changes
     - Stromal degenerations: peripheral cornea
     - Stromal degenerations: postinflammatory changes
Endothelial degenerations
- Drug-induced deposition and pigmentation
- Corneal epithelial deposits
- Pigmentation
- Senile plaques

1. Wound Healing of the Conjunctiva, Cornea, and Sclera

m. Toxic and Traumatic Injuries of the Anterior Segment
- Thermal burns
- Ultraviolet (UV) radiation
- Ionizing radiation
- Chemical injuries
- Alkali burns
- Acid burns
- Animal and plant substances
- Toxic keratoconjunctivitis resulting from medications
- Concussive trauma
- Conjunctival hemorrhage
- Traumatic mydriasis and miosis
- Traumatic iritis
- Iridodialysis and cyclodialysis
- Traumatic hyphema
- Nonperforating mechanical trauma
- Conjunctival laceration
- Conjunctival foreign body
- Corneal foreign body
- Corneal abrasion
- Posttraumatic recurrent corneal erosion
- Perforating trauma

10. Discuss the epidemiology, pathophysiology, clinical manifestations, and treatment of the following intraocular inflammatory and uveitis disorders:

a. Symptoms and signs of uveitis
   - Anterior segment
   - Intermediate segment
   - Posterior segment

b. Classification of uveitis
   - Anterior uveitis
   - Intermediate uveitis
   - Posterior uveitis
   - Panuveitis

c. Review of the patient's health and other associated factors
d. Differential diagnosis and prevalence of uveitic entities
e. Laboratory and medical evaluation
f. Medical management of uveitis
   - Cycloplegics
• Corticosteroids
• Immunomodulating and immunosuppressive agents

g. Complications of uveitis
• Cataracts
• Glaucoma
• Hypotony
• Cystoid macular edema
• Vitreous opacification and vitritis
• Retinal detachment

h. Anterior uveitis
• Acute nongranulomatous iritis and iridocyclitis
• Chronic iridocyclitis

i. Intermediate uveitis

j. Posterior uveitis
• Infectious diseases
• Collagen vascular diseases

k. Panuveitis
• Infectious diseases
• Immunologic and granulomatous diseases
• Masquerade syndromes

l. Endophthalmitis

m. Ocular Involvement in AIDS
• Virology and transmission of HIV
• Pathogenesis
• Natural history
• Ophthalmic complications
• External eye manifestations

11. Discuss the epidemiology, pathophysiology, clinical manifestations, and treatment of the following glaucoma disorders:
a. Open-Angle Glaucoma
• Primary open-angle glaucoma
• The glaucoma suspect
• Normal- (low-) tension glaucoma

b. Angle-Closure Glaucoma
• Primary angle-closure glaucoma with pupillary block
• Acute primary angle-closure glaucoma
• Subacute angle-closure glaucoma
• Chronic angle-closure glaucoma
• Primary angle-closure glaucoma without pupillary block
• Secondary angle-closure glaucoma with pupillary block
• Secondary angle-closure glaucoma without pupillary block

c. Medical Management of Glaucoma
• Beta-adrenergic antagonists (beta blockers)
12. Discuss the epidemiology, pathophysiology, clinical manifestations, and treatment of the following lens and cataract disorders:

a. Lens embryology and anatomy
   - Normal development
   - Lens anatomy
   - Capsule
   - Zonular fibers
   - Accommodation
   - Lens epithelium
   - Nucleus and cortex

b. Lens biochemistry
   - Molecular biology
   - Intracellular membrane and cytoskeleton
   - Carbohydrate metabolism
   - Oxidative damage and protective mechanisms

c. Lens physiology
   - Maintenance of lens water and cation balance
   - Lens epithelium: site of active transport
   - Pump-leak theory

d. Aging changes
   - Nuclear cataracts
   - Cortical cataracts
   - Posterior subcapsular cataracts

e. Drug-induced lens changes
   - Corticosteroids
   - Phenothiazines
   - Miotics
   - Amiodarone

f. Metabolic cataract
   - Diabetes mellitus
   - Galactosemia
   - Hypocalcemia (tetanic cataract)
   - Wilson disease (hepatolenticular degeneration)
   - Myotonic dystrophy

g. Exfoliation syndromes
   - True exfoliation
h. Evaluation and Management of Cataracts in Adults
   • Clinical history: signs and symptoms
     ➢ Decreased visual acuity
     ➢ Glare
     ➢ Myopic shift
     ➢ Monocular diplopia

13. Discuss the epidemiology, pathophysiology, clinical manifestations, and treatment of the following retina and vitreous disorders:
   a. Anatomy
      • Neurosensory retina
      • Retinal pigment epithelium (RPE)
      • Choroid
   b. Diagnostic Approach to Retinal Disease
      • Blood-ocular barriers and fluorescein angiography
      • Side effects of fluorescein angiography
      • Indocyanine green angiography
      • Neovascularization
      • Retinal neovascularization
      • Choroidal neovascularization
      • Techniques of examination
   c. Retinal Physiology and Psychophysics
      • Electrophysiologic testing
      • Electroretinogram
      • Electro-oculogram and RPE responses
      • The electro-oculogram (EOG)
      • Cortical evoked potentials
      • Visually evoked potentials
      • Electrically evoked potentials
      • Psychophysical testing
      • Dark adaptation
      • Color vision
      • Contrast sensitivity
   d. Acquired Diseases Affecting the Macula
      • Central serous chorioretinopathy
      • Age-related macular degeneration (AMD)
      • Ocular histoplasmosis syndrome (OHS)
      • Idiopathic causes of CNV
      • Angioid streaks
      • Pathologic myopia
      • Macular hole
   e. Retinal Vascular Disease
      • Systemic arterial hypertension
- Hypertensive retinopathy
- Hypertensive choroidopathy
- Hypertensive optic neuropathy

- Diabetic retinopathy
  - Pathogenesis of diabetic retinopathy
  - Epidemiology of diabetic retinopathy
  - Classification
  - The effect of systemic conditions on diabetic retinopathy
  - Metabolic factors
  - Clinical trials in diabetic retinopathy
  - Photocoagulation for diabetic retinopathy

f. Peripheral retinal neovascularization

g. Venous occlusive disease
  - Branch retinal vein occlusion
  - Central retinal vein occlusion

h. Arterial occlusive disease
  - Precapillary retinal arteriole
  - Branch retinal artery occlusion
  - Central retinal artery occlusion
  - Ocular ischemic syndrome

i. Phakomatoses
  - Von Hippel-Lindau disease (angiomatosis retinae)
  - Congenital retinal arteriovenous malformations (Wyburn-Mason syndrome)
  - Retinal cavernous hemangioma

j. Choroidal Disease
  - Choroidal hemangioma

k. Congenital and Stationary Retinal Disease
  - Color vision (cone system) abnormalities
  - Night vision (rod system) abnormalities

l. Hereditary Retinal and Choroidal Dystrophies

m. Retinal detachment
  - Rhegmatogenous retinal detachment
  - Tractional retinal detachment
  - Exudative retinal detachment

n. Diseases of the Vitreous
  - Asteroid hyalosis
  - Cholesterolosis

o. Posterior Segment Trauma
  - Blunt trauma
  - Vitreous hemorrhage
  - Commotio retinae
  - Choroidal rupture
  - Penetrating injuries
  - Perforating injuries
Practice-based Learning and Improvement

1. Teach medical students.
2. Participate in all mandated conferences.
3. Evaluate patient care practices, discuss how they meet standards, and develop ways to improve these practices.
4. Demonstrate improvement in clinical management.
5. Implement preferred practice patterns into current patient care practices.
6. Obtain information from a variety of sources in ophthalmology and related fields.
7. Learn techniques/take responsibility for developing lifelong learning skills, including individual study to prepare for examinations, research for specific patient care issues, or attending Continuing Medical Education activities sponsored by the University and the Department of Ophthalmology.
8. Use information technology such as Up-To-Date, PubMed or Ovid to enhance patient care.
9. Use patient care errors and near misses to teach residents and students.

Interpersonal and Communication Skills

1. Carefully listen to patients to assess the patient’s health problems including verbal and non-verbal communications.
2. Communicate and establish a therapeutic relationship with patients.
3. Develop respectful and considerate attitudes towards patients and their families, especially when delivering news of untreatable vision loss or poor outcomes.
4. Demonstrate effective communication skills with patients, families, and other health care personnel, especially in communications addressing decisions involving permanent loss of vision.
5. Present cases accurately and succinctly to faculty and peers in the clinical setting as well as in departmental patient care conferences.
6. Provide timely, legible, thorough, succinct medical record documentation - histories and physical examinations, admission notes, progress notes, procedure notes and discharge summaries.

7. Provide education and counseling to patients, and families using non-technical and clear language.

8. Demonstrate skill in handling a variety of difficult patient care situations.

9. Clearly speak when addressing patient issues and management plans with patients, families, and health care colleagues.

10. Be willing to spend adequate time with patients addressing their questions and concerns.

11. Use both non-verbal and verbal communication skills to effectively deliver education and counseling to patients, families, and colleagues.

12. Work well within a team context relating to students, residents, attending physicians, nurses, and patients.

13. Function effectively as a consultant for specialty and subspecialty care.

14. Communicate effectively when discussing patient conditions and health care practices with fellow residents, attending physicians and other health care providers.

Professionalism

1. Interface with referring and consulting physicians and appropriate hospital staff in a professional and respectful manner, recognizing and instituting the core competencies.

2. Professionally interact with patients, attending physicians and allied health care personnel, including adherence to dress code as outlined in the Residents’ Manual.

3. Establish trust with patients and staff by providing reliable and appropriate care to patients.

4. Demonstrate respect, compassion, integrity, punctuality, reliability, and honesty with regards to patients and colleagues.

5. Show regard for the opinions of others.
6. Display initiative and leadership.

7. Acknowledge errors, and alert patients and appropriate health care providers.

8. Create a plan of action to minimize errors.

9. Demonstrate concern for educational development of students and residents.

10. Volunteer for activities for the good of the institution and community.

11. Ask for help when needed, and seek and accept feedback.

12. Demonstrate a commitment to carrying out professional responsibilities, adherence to ethical principles, and sensitivity to a diverse patient population.


14. Demonstrate understanding of the ethical concerns about pharmaceutical and patient gifts.

15. Compassionately respond to issues of culture, age, gender, ethnicity, and disability in patient care.

**Systems-based Practice**

1. Demonstrate ability to practice medicine in a government hospital setting, including mastery of the Electronic Medical Record system at the VAMC.

2. Demonstrate knowledge of different types of medical practice and health delivery systems and know how this affects patient care.

3. Demonstrate knowledge of coding within the VA system.

4. Work with ancillary team members (discharge planners, case managers, and social workers) to provide high quality cost-effective care.

5. Use systematic approaches to reduce errors.

6. Practice effective allocation of health care resources to avoid compromising quality of care.
7. Serve as a patient advocate in the outpatient and inpatient setting.

8. Direct care in inpatient and outpatient settings as a member of a multidisciplinary team.

9. Demonstrate knowledge of how the health care system including other physicians, nurses, and health care professionals affect their patient care practices.

10. Keep medical records review and signage up to date.

11. Record on call patients, procedures, and duty hours as required by the University, Regional Medical Center, and Department of Ophthalmology.

12. Attend University of Tennessee Graduate Medical Education’s Systems-based Lecture series, or view session online if unable to attend.

Resources

- BCSC (all sections)
- Basic Science and Board Review Course in Ophthalmology
- Essential Optics for the Ophthalmologist
  By Jack T. Holladay, M.D.
- Practical Ophthalmology: A Manual for Beginning Residents
- Refraction: A Programmed Text
  By Robert D. Reinecke and Robert J. Herm
- Departmental conferences and didactic lecture series

Evaluation

- Faculty evaluations of core competencies
- Faculty evaluations of Grand Rounds and Journal Club participation
- Peer evaluations
- Co-worker evaluations
- Patient evaluations
- 1st Year Skills Checklist
- Surgical/procedure logs
- Medical Records deficiency reports
- Duty hour and surgical log deficiency reports
- Evaluation portfolio documents (Grand Rounds presentations and others)
- Mid-year examinations/Mock Orals
- OKAP examination
First Year Methodist Specialty Rotation

First year residents spend three months on the Methodist Specialty Rotation. First year residents attend specialty ophthalmology clinics each day. During this rotation, residents gain experience with a wide variety of patients including chronic and acute diseases. This rotation provides residents with a broad experience in comprehensive ophthalmology as well as population-specific disorders, such as glaucoma, pediatrics and oncology in a diverse patient population.

Goals

1. To learn evaluation and management skills for the patient with glaucoma, particularly advanced or complicated cases requiring laser/surgical management.

2. To introduce evaluation and management skills for the patient with retinal disease, particularly advanced or complicated cases requiring laser/surgical management.

3. To introduce evaluation and management skills for patients with neuro-ophthalmic disorders.

4. To introduce evaluation and management skills for the patient with orbital and lid disease, particularly advanced or complicated cases requiring radiological imaging and/or surgical management.

5. To gain introductory experience in the diagnosis and management of ophthalmic diseases in pediatric patients.

6. To gain introductory experience in the diagnosis and management of strabismus and motility disorders in children and adult patients.

7. To increase the depth of knowledge of pathology of the eye.

8. To learn the normal anatomy and histology of the eye and ocular adnexa.

9. To learn to diagnose and learn the treatment of intraocular tumors in adults and children. To be familiar with the requirements for the systemic work-ups for newly diagnosed ocular tumors.

10. To become familiar with the retinal disorders including *retinitis pigmentosa*, pattern dystrophies, cone dystrophies, and color blindness syndromes, and the specialized testing that can be used to distinguish between these entities, including electroretinogram (ERG), visually evoked potential (VEP), electro-oculogram (EOG).

11. To gain experience in the handling and processing of ocular pathology specimens.

12. To gain extensive experience in the evaluation and diagnosis of ophthalmic pathology specimens.
Learning Objectives

Patient Care

1. Perform a complete ophthalmic history and examination for the patient with advanced glaucoma

2. Perform tonometry including:
   a. Applanation
   b. Tono-Pen

7. Perform gonioscopy

8. Define the morphology of the optic disc and cup using the slit lamp with handheld lenses

9. Recognize and describe the components of a threshold visual field examination

10. Describe and analyze the reliability parameters of a Humphrey visual field examination

11. Recognize glaucomatous visual field defects

12. Analyze the results of threshold visual field examinations

13. Perform the history and examination of patients with retinal and vitreous disorders.

14. Select appropriate diagnostic studies for patients with retinal and vitreous disorders

15. Interpret fluorescein and ICG angiograms and OCTs

16. Perform the pre-operative evaluation and post-operative care of the following retina and vitreous surgical procedures:
   a. Vitreous tap
   b. Pars plana vitrectomy
   c. Laser retinopexy
   d. Panretinal photocoagulation
   e. Grid photocoagulation
   f. Focal photocoagulation
17. Perform the pre-operative evaluation and post-operative care of the following orbit and oculoplastics surgical procedures:
   a. Eyelid laceration
   b. Chalazion
   c. Excision of eyelid neoplasms
   d. Tarsorrhaphy
   e. Blepharoplasty
   f. Ectropion repair
   g. Entropion repair
   h. Ptosis repair
   i. DCR
   j. Orbital fracture repair
   k. Orbitotomy
   l. Enucleation
   m. Evisceration
   n. Exenteration
   o. Canalicular repair
   p. Temporal artery biopsy

18. Demonstrate the evaluation of the pediatric patient with ophthalmic disease and the adult with strabismus including:
   a. History and presenting complaint
   b. Assessment of visual acuity, particularly in the pre-verbal and pre-literate individual
   c. Assessment of ocular motility and alignment
      - Perform and interpret tests of ocular alignment
      - Identify pitfalls/potential sources of error in ocular alignment assessment
      - Interpret incommittant measurements in different positions of gaze
      - Measure convergence amplitudes
      - Assess fusional vergence
      - Perform and interpret tests of binocular sensory cooperation
      - Perform and interpret special motor tests
      - Perform and interpret three-step test
      - Perform cycloplegic retinoscopy/complete manifest refraction on age-appropriate basis
      - Discuss the relevance of the prism adaptation test in children with acquired esotropia

19. Fit diplopic adult patients with prism glasses

20. Prescribe appropriate spectacle correction for children with refractive errors and/or strabismus and/or amblyopia
21. Demonstrate the evaluation of the patient with suspected intraocular tumor:
   a. History and presenting complaint
   b. Assessment of size, location, duration of lesion
   c. Ultrasound assessment of lesion location and depth
   d. Family history
   e. Risk stratification based on exam to distinguish benign from malignant from suspicious lesions.
   f. Educate patient to the treatments, follow up and long term prognosis of any lesions
   g. Recommend the appropriate systemic work-up for any discovered lesions, as appropriate.

22. Demonstrate the evaluation of the patient with suspected retinal degeneration:
   a. History and presenting complaint
   b. Family history
   c. Assessment of visual acuity, visual field, color vision, light and dark adaptation.
   d. Assessment of ocular motility and alignment
   e. Specialized testing including ERG, EOG, VEP, and Fluorescein angiography.

23. Demonstrate the evaluation of the patient with decreased vision including:
   a. History and presenting complaint
   b. Assessment of visual acuity, visual field deficiencies and afferent pupillary deficit.
   c. Assessment of ocular motility and alignment
   d. Select the most appropriate tests and imaging based on symptomatology, to manage neuro-ophthalmic disorders in a cost effective manner.
   e. Review the anatomical structures relevant to the neuro-ophthalmologist (including the skull, orbit, brain, vascular system, and cranial nerves in order to localize lesions

Medical Knowledge

1. Discuss the epidemiology, pathophysiology, clinical manifestations, and treatment of the following glaucoma disorders:
   a. Open-Angle Glaucoma
      • Primary open-angle glaucoma
      • The glaucoma suspect
      • Normal- (low-) tension glaucoma
b. Angle-Closure Glaucoma
   • Primary angle-closure glaucoma with pupillary block
   • Acute primary angle-closure glaucoma
   • Subacute angle-closure glaucoma
   • Chronic angle-closure glaucoma
   • Primary angle-closure glaucoma without pupillary block
   • Secondary angle-closure glaucoma with pupillary block
   • Secondary angle-closure glaucoma without pupillary block

6. Discuss the medical management of glaucoma including indications, mechanism of action, and side effects, and contraindications of the following medications:
   a. Beta-adrenergic antagonists
   b. Adrenergic agonists
   c. Parasympathomimetic agents
   d. Carbonic anhydrase inhibitors
   e. Prostalandin analogs
   f. Hyperosmotic agents
   g. Combination therapy

7. Describe the general approach to medical treatment of the following:
   a. Open angle glaucoma
   b. Angle-closure glaucoma

8. Describe the indications for and techniques of glaucoma surgical procedures:
   a. Argon laser trabeculoplasty
   b. Yag laser iridotomy
   c. Trabeculectomy (with antimetabolite therapy)
   d. Combined cataract and trabeculectomy
   e. Shunt procedures
   f. Ciliary body ablation procedures
   g. Goniotomy

9. Identify the clinical anatomy and histology of the retina:
   a. Neurosensory retina
   b. Retinal pigment epithelium (RPE)
   c. Choroid

10. Outline the diagnostic approach to retinal disease
    a. Examination techniques
        • Biconvex indirect lenses (60, 78, 90 D)
        • Contact lenses (including 3-mirror)
        • Indirect condensing lenses (14, 20, 28 D)
        • Indirect ophthalmoscopy and scleral depression
    b. Fluorescein angiography
        • Blood-ocular barriers
c. Indocyanine green angiography

d. Other imaging techniques
   • OCT
   • SLO
   • RTA

11. Discuss the acquired diseases affecting the macula including their epidemiology, clinical manifestations, evaluation, differential diagnosis, and treatment
   a. Central serous chorioretinopathy
   b. Drusen and abnormalities of the RPE
   c. Age-related macular degeneration (AMD)
   d. Ocular histoplasmosis syndrome (OHS)
   e. Idiopathic causes of CNV
      • Angioid streaks
      • Pathologic myopia (high myopia, degenerative myopia)
      • Miscellaneous causes of choroidal neovascularization
   f. Vitreoretinal interface abnormalities
      • Idiopathic epiretinal membrane
      • Vitreomacular traction syndrome
      • Idiopathic macular hole
   g. Valsalva retinopathy
   h. Purtscher's retinopathy and Purtscher's-like retinopathy
   i. Terson syndrome

12. Discuss retinal vascular diseases including their epidemiology, clinical manifestations, evaluation, differential diagnosis, and treatment
   a. Systemic arterial hypertension
      • Hypertensive retinopathy
      • Hypertensive choroidopathy
      • Hypertensive optic neuropathy
   b. Diabetes mellitus
      • Diabetic retinopathy and classification
      • The effect of systemic conditions on diabetic retinopathy
      • Metabolic factors
      • Clinical trials in diabetic retinopathy
      • Photocoagulation for diabetic retinopathy
      • Cataract surgery in diabetic patients
      • Neovascularization of the iris or anterior chamber angle
      • Timetables for detailed ophthalmologic examinations
      • Pars plana vitrectomy in diabetic patients
   c. Sickle cell retinopathy
      • Nonproliferative sickle cell retinopathy
      • Proliferative sickle cell retinopathy
• Other ocular abnormalities in sickle cell hemoglobinopathies
• Vitreoretinal surgery in PSR
d. Peripheral retinal neovascularization
e. Retinopathy of prematurity
f. Venous occlusive disease
   • Branch retinal vein occlusion
   • Central retinal vein occlusion
   • Retinopathy of carotid occlusive disease
g. Arterial occlusive disease
   • Precapillary retinal arteriole
   • Branch retinal artery occlusion
   • Central retinal artery occlusion
   • Ocular ischemic syndrome
h. Vasculitis
i. Cystoid macular edema
j. Coats disease (retinal telangiectasia)
k. Parafoveal (juxtafoveal) retinal telangiectasis
l. Arterial macroaneurysms
m. Phakomatoses
   • Von Hippel-Lindau disease (angiomatosis retinae)
   • Congenital retinal arteriovenous malformations (racemose angioma, Wyburn-Mason syndrome)
   • Retinal cavernous hemangioma

13. Describe the clinical manifestations, evaluation, differential diagnosis, and treatment of the following choroidal diseases:
a. Choroidal hemangioma
b. Choroidal ischemia
c. Uveal effusion syndrome

14. Review the congenital and stationary retinal diseases including their definitions, genetics and epidemiology, clinical manifestations, evaluation, differential diagnosis, and treatment
a. Color vision (cone system) abnormalities
   • Congenital color deficiency
   • Achromatopsia
b. Night vision (rod system) abnormalities
   • Congenital night-blinding disorders with normal fundi
   • Congenital night-blinding disorders with prominent fundus abnormality

15. Differentiate between the various hereditary retinal and choroidal dystrophies including:
a. Diffuse photoreceptor dystrophies
   • Rod-cone dystrophies (retinitis pigmentosa)
   • Cone and cone-rod dystrophies
b. Macular and RPE dystrophies
• Stargardt disease (fundus flavimaculatus)
• Vitelliform degenerations
• Diffuse drusen
• Pattern dystrophies
• Other maculopathies
c. Choroidal dystrophies
  • Diffuse degenerations
  • Regional and central choroidal dystrophies
d. Inner retinal and Vitreoretinal dystrophies
  • X-linked juvenile retinoschisis
  • Vitreoretinal dystrophies
  • Peripheral retina degenerations
  • On-line information

16. Recognize the retinal degenerations associated with systemic diseases:
   a. Disorders involving other organ systems
      • Infantile syndromes
      • Bardet-Biedl complex of diseases
      • Hearing loss and retinal degeneration
      • Neuromuscular disorders
      • Other organ system disorders
      • Cancer-associated retinopathy
   b. Known metabolic defects
      • Albinism
      • Central nervous system metabolic abnormalities
      • Mitochondrial DNA disorders
   c. Systemic drug toxicity
      • Chloroquine derivatives
      • Phenothiazines
      • Other agents

17. Discuss the following peripheral retinal abnormalities including their definition, pathophysiology, and clinical appearance:
   a. Retinal breaks
   b. Posterior vitreous detachment
   c. Lesions predisposing to retinal detachment
      • Lattice degeneration
      • Vitreoretinal tufts
      • Meridional folds, enclosed ora bays, and peripheral retinal excavations
   d. Lesions not predisposing to retinal detachment
      • Cobblestone, or paving-stone, degeneration
      • Retinal pigment epithelial hyperplasia
      • Retinal pigment epithelial hypertrophy
18. Outline the guidelines for the prophylactic treatment of retinal breaks and management of rhegmatogenous retinal detachments
   a. Symptomatic retinal breaks
   b. Asymptomatic retinal breaks
   c. Lattice degeneration
   d. Aphakia and pseudophakia
   e. Fellow eye in patient with retinal detachment
   f. Subclinical retinal detachment
   g. Principles of surgery
   h. Anatomic reattachment
   i. Postoperative visual acuity

19. Discuss the pathogenesis, etiology, clinical appearance, and treatment of other types of retinal detachment:
   a. Tractional retinal detachment
   b. Exudative retinal detachment

20. Describe the appearance, etiology, natural history, and treatment of retinoschisis

21. Recognize developmental abnormalities of the vitreous:
   a. Tunica vasculosa lentis
   b. Prepapillary vascular loops
   c. Persistent hyperplastic primary vitreous, or persistent fetal vasculature

22. Discuss the pathogenesis, clinical appearance, differential diagnosis, and treatment of the following vitreous disorders:
   a. Hereditary hyaloideoretinopathies with optically empty vitreous
   b. Familial exudative vitreoretinopathy
   c. Asteroid hyalosis
   d. Cholesterolosis (hemophthalmos, synchysis scintillans)
   e. Amyloidosis
   f. Spontaneous vitreous hemorrhage
   g. Pigment granules
   h. Vitreal complications of cataract surgery

23. Review the evaluation and management of posterior segment injuries following ocular trauma:
   a. Evaluation of the patient with ocular trauma
   b. Blunt trauma
      • Vitreous hemorrhage
      • Commotio retinae
      • Choroidal rupture
      • Posttraumatic macular hole
      • Scleral rupture
c. Penetrating injuries
d. Perforating injuries
e. Intraocular foreign bodies
   • Surgical techniques for removal of intraocular foreign bodies
   • Retained intraocular foreign bodies
f. Posttraumatic endophthalmitis
g. Sympathetic ophthalmia
h. Shaken baby syndrome/child abuse
i. Avulsion of the optic disc

24. Outline the adverse effects of electromagnetic energy on the retina
   a. Radiation retinopathy
   b. Photopic damage
      • Solar retinopathy
      • Photocoagulation
c. Phototoxicity from ophthalmic instrumentation
d. Ambient light

25. Explain the basic principles of photocoagulation
   a. Tissue effects
   b. Absorption spectra of pigments
   c. Laser wavelength
d. Photocoagulation techniques
e. Indications
f. Complications

26. Discuss the basis for photodynamic therapy

27. Review the indications and complications of pars plana vitrectomy:
   a. Complications of proliferative diabetic retinopathy
   b. Complications of other proliferative retinopathies
   c. Complex retinal detachments
d. Macular diseases
e. Complications of anterior segment surgery
f. Chronic uveitis/vitritis
g. Complications of ocular trauma

28. Review the indications, pre-operative evaluation, post-operative complications, and
   post-operative care for the following retina and vitreous surgical procedures:
   a. Vitreous tap
   b. Pars plana vitrectomy
c. Scleral buckle
d. Intraocular foreign body
e. Laser retinopexy
f. Panretinal photocoagulation
g. Grid photocoagulation
h. Focal photocoagulation
i. Cryotherapy

29. Review the differential diagnosis and clinical/surgical management of the following orbital and eyelid disorders:
   a. Congenital orbital anomalies
   b. Infectious and inflammatory disorders
   c. Orbital neoplasms
      • Congenital orbital tumors
      • Vascular tumors
      • Neural tumors
      • Mesenchymal tumors
      • Lymphoproliferative disorders
      • Lacrimal gland tumors
      • Secondary orbital tumors
      • Metastatic tumors
   d. Orbital trauma
      • Midfacial fractures
      • Orbital fractures
      • Intraorbital foreign bodies
      • Orbital hemorrhage
      • Traumatic visual loss
   e. Anophthalmic socket
   f. Congenital anomalies
      • Eyelid inflammation
      • Eyelid neoplasms
      • Eyelid trauma
      • Ectropion
      • Entropion
      • Symblepharon
      • Trichiasis
      • Blepharoptosis
      • Eyelid retraction
      • Involutional periorbital changes
      • Eyelid dyskinesis

30. Review the differential diagnosis and clinical/surgical management of the following lacrimal system disorders:
   a. Congenital tearing
   b. Acquired tearing

31. Review the differential diagnosis and clinical/surgical management of the following ocular surface disorders:
   a. Dermatoses affecting the ocular surface
      • Noninflammatory vascular anomalies
• Tear deficiency states
• Nutritional and physiologic disorders
• Structural and exogenous disorders
• Limbal stem cell dysfunction

32. Review the differential diagnosis and clinical/surgical management of the following infectious diseases of the eyelids, conjunctiva, cornea, and sclera:
   a. Viral infections
      • Microbial and parasitic infections of the eyelid margin and conjunctiva
      • Microbial and parasitic infections of the cornea and sclera

33. Review the differential diagnosis and clinical management of immune-mediated diseases of the eyelids, conjunctiva, cornea and sclera

34. Review the differential diagnosis and clinical/surgical management of the following neoplastic diseases of the eyelids, conjunctiva, cornea, and sclera
   a. Cysts of the epithelium
      • Tumors of epidermal origin
      • Glandular tumors of the conjunctiva
      • Tumors of ectodermal origin
      • Vascular and mesenchymal tumors
      • Lymphatic and lymphocytic tumors
      • Metastatic tumors
      • Epibulbar choristomas

35. Review the indications, pre-operative evaluation, post-operative complications, and post-operative care for the following orbit and oculoplastics surgical procedures:
   a. Eyelid laceration
   b. Chalazion
   c. Excision of eyelid neoplasms
   d. Tarsorrhaphy
   e. Blepharoplasty
   f. Ectropion repair
   g. Entropion repair
   h. Ptosis repair
   i. DCR
   j. Orbital fracture repair
   k. Orbitotomy
   l. Enucleation
   m. Evisceration
   n. Exenteration
   o. Canalicular repair
36. Discuss the evaluation and management of optic nerve disorders
   a. Optic disc edema
   b. Anterior ischemic optic neuropathy
   c. Posterior ischemic optic neuropathy
   d. Optic neuritis
   e. Compressive optic neuropathy
   f. Infiltrative optic neuropathy
   g. Toxic/nutritional optic neuropathy
   h. Dominant optic neuropathy
   i. Leber hereditary optic neuropathy
   j. Optic nerve drusen
   k. Congenital optic disc abnormalities
   l. Optic nerve trauma
   m. Optic atrophy
   n. Lesions of the optic chiasm

37. Discuss the evaluation and management of pupil disorders
   a. Argyll Robertson pupil
   b. Parinaud dorsal midbrain syndrome
   c. Pretectal afferent pupillary defects
   d. Anisocoria
   e. Lesions of the parasympathetic system
   f. Lesions of the sympathetic system

38. Discuss the evaluation and management of abnormalities of the ocular motor system:
   a. Nystagmus
   b. Diplopia
   c. Myopathies
   d. Myoneural junction disease
   e. Internuclear ophthalmoplegia
   f. Cranial nerve palsies (III, IV, VI, multiple)

39. Discuss the evaluation and management of abnormalities of the facial nerve
   a. Disorders of underactivity
   b. Disorders of overactivity

40. Contrast the components of normal binocular vision
   a. Correspondence
   b. Fusion
   c. Retinal rivalry

41. Distinguish abnormalities of binocular vision
   a. Diplopia and confusion
   b. Suppression
   c. Anomalous retinal correspondence
   d. Monofixation syndrome
42. Review the diagnosis, classification, and management of amblyopia
   a. Diagnosis
   b. Classification
      • Strabismic amblyopia
      • Anisometropic amblyopia
      • Isoametropic amblyopia
      • Deprivation amblyopia
   c. Treatment
      • Cataract removal
      • Refractive correction
      • Occlusion and optical degradation
      • Complications of therapy

43. Review the classification of strabismus
   a. Fusional status
   b. Variation of the deviation with gaze position or fixating eye
   c. Fixation
   d. Age of onset
   e. Type of deviation

44. Compare the various esodeviations and outline the management of each:
   a. Pseudoesotropia
   b. Infantile (congenital) esotropia
      • Classic congenital (essential infantile) esotropia
      • Nystagmus and esotropia
   c. Accommodative esotropia
      • Refractive accommodative esotropia
      • Nonrefractive accommodative esotropia
      • Partially accommodative esotropia
   d. Nonaccommodative acquired esotropia
      • Basic (acquired) esotropia
      • Acute esotropia
      • Cyclic esotropia
      • Sensory deprivation esodeviation
      • Divergence insufficiency
      • Divergence paralysis
      • Spasm of the near synkinetic reflex
      • Surgical (consecutive) esodeviation
   e. Incomitant esodeviation
      • Sixth nerve (abducent) palsy
      • Other forms of incomitant esodeviation
45. Compare the various exodeviations and outline the management of each:
   a. Pseudoexotropia
   b. Exophoria
   c. Intermittent exotropia
   d. Constant exotropia
   e. Congenital exotropia
   f. Sensory exotropia
   g. Consecutive exotropia
   h. Exotropic Duane (retraction) syndrome

46. Compare the various vertical deviations and outline the management of each:
   a. Dissociated vertical deviation (DVD)
   b. Inferior oblique muscle overaction
   c. Superior oblique muscle overaction
   d. Superior oblique muscle paresis (fourth cranial nerve palsy)
   e. Monocular elevation deficiency (double elevator palsy)
   f. Brown syndrome (superior oblique tendon sheath syndrome)
   g. Inferior oblique muscle paresis
   h. Orbital floor fractures (blowout fractures)
   i. Inferior rectus muscle paresis

47. Explain A and V Patterns

48. Discuss the surgical considerations for patients with A and V pattern strabismus
   a. Principles of treatment
   b. Horizontal rectus muscle transpositions
   c. Treatment of V-pattern esotropia
   d. Treatment of V-pattern exotropia
   e. Treatment of A-pattern esotropia
   f. Treatment of A-pattern exotropia

49. Review the diagnosis and management of special forms of strabismus including:
   a. Congenital sixth nerve (abducens) palsy
   b. Duane syndrome
   c. Mobius syndrome
   d. Third nerve (oculomotor) palsy
   e. Graves eye disease (thyroid ophthalmopathy)
   f. Chronic progressive external ophthalmoplegia (CPEO)
   g. Myasthenia gravis
   h. Congenital fibrosis syndrome
   i. Internuclear ophthalmoplegia
   j. Congenital ocular motor apraxia
50. Describe the nomenclature of nystagmus and types of childhood nystagmus

51. Outline the work-up of infantile nystagmus

52. Describe the treatment of nystagmus

53. Outline the indications for strabismus surgery

54. Discuss the evaluation, differential diagnoses, work-up, and management of infectious and allergic ocular diseases affecting pediatric patients:
   a. Intrauterine and perinatal infections of the eye
      • Toxoplasmosis
      • Rubella
      • Cytomegalic inclusion disease
      • Herpes simplex virus
      • Syphilis
   b. Ophthalmia neonatorum

   c. Conjunctivitis
      • Bacterial conjunctivitis
      • Viral conjunctivitis
      • Other types of conjunctivitis

   d. Cellulitis
      • Impetigo
      • Preseptal Cellulitis
      • Orbital cellulitis

   e. Ocular allergy
      • Seasonal allergic conjunctivitis (SAC)
      • Vernal keratoconjunctivitis
      • Atopic keratoconjunctivitis

   f. Stevens-Johnson syndrome (erythema multiforme)
   g. Kawasaki syndrome

55. Describe disorders of the lacrimal drainage system affecting children
   a. Developmental anomalies
   b. Dacryocystocele
   c. Nasolacrimal duct obstruction
      • Nonsurgical management
      • Surgical management

56. Outline the embryologic development of the cornea and anterior segment

57. Recognize congenital corneal anomalies
   a. Abnormalities of corneal size and shape
   b. Anterior segment dysgenesis: peripheral developmental abnormalities
c. Anterior segment dysgenesis: central developmental abnormalities
d. Combinations of peripheral and central developmental abnormalities
e. Infantile corneal opacities

58. Cite examples of systemic diseases with corneal manifestations in childhood

59. Identify iris abnormalities occurring in pediatric patients
   a. Aniridia
   b. Coloboma of the iris
   c. Iris nodules
      • Lisch nodules
      • Juvenile xanthogranuloma (JXG)
   d. Primary iris cysts
      • Cysts of iris pigment epithelium
      • Central (pupillary) cysts
      • Cysts of iris stroma
   e. Brushfield spots (Wofflin nodules)
   f. Heterochromia iridis
   g. Persistent pupillary membranes
   h. Abnormalities in the size, shape, or location of the pupil
      • Congenital miosis
      • Congenital mydriasis
      • Dyscoria
      • Corectopia
      • Polycoria and pseudopolycoria
   i. Congenital iris ectropion
   j. Iris transillumination

60. Outline the glaucomas affecting pediatric patients
   a. Primary congenital glaucoma
      • Pathophysiology
      • Clinical manifestations and diagnosis
      • Natural history
   b. Primary developmental glaucomas
   c. Secondary glaucoma

61. Discuss the treatment of childhood glaucomas
   a. Surgical therapy
   b. Medical therapy

62. Review the evaluation and management of childhood cataracts and other pediatric lens disorders
63. Describe the evaluation and management of uveitis occurring in pediatric patients

a. Anterior uveitis
   - Juvenile rheumatoid arthritis
   - Trauma
   - Sarcoidosis
   - Herpes zoster
   - Herpes simplex
   - Sympathetic ophthalmia
   - Syphilis

b. Intermediate uveitis (pars planitis)

c. Posterior uveitis
   - Toxoplasmosis
   - Ocular histoplasmosis
   - Toxocariasis
   - Other etiologies

d. Masquerade syndromes

64. Discuss the epidemiology, pathophysiology, clinical manifestations, and treatment of the following vitreous and retinal diseases affecting children:

a. Leukocoria
   - Persistent hyperplastic primary vitreous (PHPV)
   - Retinopathy of prematurity
   - Coats disease

b. Hereditary retinal disease
   - Leber congenital amaurosis
   - Achromatopsia
   - Blue-cone monochromatism
   - Congenital stationary night blindness (CSNB)
   - Foveal hypoplasia
   - Aicardi syndrome

c. Hereditary macular dystrophies
   - Stargardt disease (fundus flavimaculatus)
   - Best vitelliform dystrophy
   - Familial drusen

d. Hereditary vitreoretinopathies
   - Juvenile retinoschisis
   - Stickler syndrome
   - Familial exudative vitreoretinopathy (FEVR)
   - Norrie disease
   - Goldmann-favre vitreoretinal dystrophy

e. Systemic diseases and disorders with retinal manifestations
   - Diabetes mellitus
   - Leukemia
   - Albinism
Familial oculo-re nal syndromes
Gangliosidoses

Retinopathy of prematurity

65. Outline the various optic nerve disorders affecting children:
   a. Developmental anomalies
   b. Optic atrophy
   c. Optic neuritis
   d. Papilledema
      • Pseudotumor cerebri
      • Pseudopapilledema/drusen

66. Review the diagnosis and management of ocular tumors in childhood
   a. Orbital tumors
      • Primary malignant neoplasms
      • Metastatic tumors
      • Benign tumors
      • Ectopic tissue masses
      • Childhood orbital inflammations
   b. Eyelid and epibulbar tumors
   c. Intraocular tumors
      • Iris and ciliary body lesions
      • Choroidal and retinal pigment epithelial lesions
      • Retinoblastoma

67. Describe the clinical manifestations of the phakomatoses
   a. Neurofibromatosis
   b. Tuberous sclerosis (Bourneville disease)
   c. Von Hippel-Lindau disease (retinal angiomatosis)
   d. Sturge-Weber syndrome (encephalofacial angiomatosis)
   e. Ataxia-telangiectasia (Louis-Bar syndrome)
   f. Incontinentia pigmenti (Bloch-Sulzberger syndrome)
   g. Wyburn-Mason syndrome (racemose angioma)

68. Evaluate craniofacial malformations
   a. Diagnostic approach
   b. Intrinsic ocular pathology
   c. Secondary ocular complications

69. Discuss selected craniofacial syndromes
   a. Craniosynostosis
   b. Other craniofacial anomalies
   c. Fetal alcohol syndrome
d. Fetal hydantoin syndrome (FHS)

70. Recall the ocular findings in inborn errors of metabolism

71. Determine the etiology and recognize the manifestations of ocular trauma in childhood
   a. Child abuse
      • Retinal hemorrhages and associated vitreoretinal findings
      • Hyphema
      • Secondary glaucoma
      • Optic nerve injury
   b. Superficial injury
   c. Penetrating injury
   d. Blunt injury
      • Hyphema
      • Fractures

72. Outline the approach to the infant with decreased vision
   a. Visual inattention in infants
   b. Normal visual development
   c. Differential diagnosis
      • Optic nerve hypoplasia
      • Optic atrophy
      • Leber congenital amaurosis
      • Achromatopsia (rod monochromatism)
      • Congenital infection syndrome/TORCH syndrome
      • Congenital motor nystagmus
      • Cortical visual impairment
      • Delay in visual maturation
      • Albinism

73. Provide appropriate evaluation and management for the child with learning disabilities (including dyslexia or vision problems)

74. Describe in detail the pathophysiology, clinical manifestations, diagnostic work-up/evaluation, treatment, and prognosis of the following secondary tumors of the eye:
   a. Metastatic carcinoma
   b. Lymphomatous Tumors
   c. Malignant lymphoma
   d. Uveal lymphoid infiltration (reactive lymphoid hyperplasia)
   e. Leukemia
75. Describe in detail the pathophysiology, clinical manifestations, diagnostic work-up/evaluation, treatment, and prognosis of the following intraocular tumors:

a. Melanocytic tumors
   - Iris nevus
   - Nevus of the ciliary body or choroid
   - Melanocytoma of the ciliary body or choroid
   - Iris melanoma
   - Melanoma of the ciliary body or choroid
   - Adenoma and adenocarcinoma
   - Acquired hyperplasia
   - Combined hamartoma

b. Angiomatous tumors
   - Hemangiomas
     - Choroidal hemangioma
     - Capillary hemangioma (hemangioblastoma)
     - Cavernous hemangioma

c. Arteriovenous malformation

76. Discuss the proper methods used in the handling of ocular pathology specimens:

a. Specimen Handling
b. Communication with the pathologist
c. Identification of specimen
d. Transillumination of globe
e. Gross dissection
f. Processing/staining
   - Fixatives
   - Tissue processing
   - Tissue staining

77. Describe the histopathologic findings, formulate a differential diagnosis, and establish a final diagnosis for specimens from the following areas:

a. Eyelid
b. Conjunctiva
c. Sclera
d. Cornea
e. Anterior chamber and trabecular meshwork
f. Lens
g. Uveal tract - iris, ciliary body, choroid
h. Vitreous
i. Retina
j. Optic nerve
k. Orbit
l. Trauma
78. Systemic conditions with neuro-ophthalmologic signs
   Multiple sclerosis
   a. Myasthenia gravis
   b. Myopathies
   c. Neurocutaneous syndromes
   d. Thyroid ophthalmopathy
   e. Pregnancy associated neuro-ophthalmologic disorders
   f. Cerebrovascular disease
   g. Cerebral aneurysms
   h. Arteriovenous malformations
   i. Dissecting aneurysms
   j. Cerebral venous and dural sinus thrombosis
   k. Migraine and tension type headache
   l. Icepick pains and stabbing headache
   m. Cluster headache
   n. Facial pain
   o. AIDS
   p. Lyme disease
   q. Fungal infections
   r. Cat-scratch disease

Practice-based Learning and Improvement

1. Teach medical students on service.

2. Participate in all mandated conferences, including presentation of assigned Journal Club articles, Grand Rounds patient presentations, and Morbidity/Mortality Conference.

3. Evaluate patient care practices, discuss how they meet standards, and develop ways to improve these practices.

4. Demonstrate improvement in clinical management.

5. Implement preferred practice patterns into current patient care practices.

6. Obtain information from a variety of sources in ophthalmology and related fields.

7. Learn techniques/take responsibility for developing lifelong learning skills, including individual study to prepare for examinations, research for specific patient care issues, or attendance of Continuing Medical Education activities sponsored by the University and the Department of Ophthalmology.
8. Use information technology such as Up-To-Date, PubMed or Ovid to enhance patient care.

9. Use patient care errors and near misses to teach residents and students.

Interpersonal and Communication Skills

1. Carefully listen to patients to assess the patient’s health problems including verbal and nonverbal communications.

2. Communicate and establish a therapeutic relationship with patients.

3. Develop respectful and considerate attitudes towards patients and their families, especially when delivering news of untreatable vision loss or poor outcomes.

4. Demonstrate understanding of the special issues regarding effective communication skills with patients, especially in communications addressing decisions involving (potential) permanent loss of vision.

5. Present cases accurately and succinctly to faculty and peers in the clinical setting as well as in departmental patient care conferences.

6. Provide timely, legible, thorough, succinct medical record documentation - histories and physical examinations, admission notes, progress notes, procedure notes and discharge summaries.

7. Provide education and counseling to patients, and families using non-technical and clear language.

8. Demonstrate skill in handling a variety of difficult patient care situations.

9. Clearly speak when addressing patient issues and management plans with patients, families, and health care colleagues.

10. Be willing to spend adequate time with patients addressing their questions and concerns.

11. Use both non-verbal and verbal communication skills to effectively deliver education and counseling to patients, families, and colleagues.

12. Work well within a team context relating to students, residents, attending physicians, nurses/technicians, and patients.

13. Function effectively as a consultant for specialty and subspecialty care.
14. Communicate effectively when discussing patient conditions and health care practices with fellow residents, attending physicians and other health care providers.

Professionalism

1. Interface with referring and consulting physicians and appropriate hospital staff in a professional and respectful manner, recognizing and instituting the core competencies.

2. Professionally interact with patients, attending physicians and allied health care personnel, including adherence to dress policy as outlined in the Residents’ Manual.

3. Establish trust with patients and staff by providing reliable and appropriate care to patients.

4. Demonstrate respect, compassion, integrity, punctuality, reliability, and honesty with regards to patients and colleagues.

5. Show regard for the opinions of others.

6. Display initiative and leadership.

7. Acknowledge errors, and alert patients and appropriate health care providers.

8. Create a plan of action to minimize errors.

9. Demonstrate concern for educational development of students and residents.

10. Volunteer for activities for the good of the institution and community.

11. Ask for help when needed, and seek and accept feedback.

12. Demonstrate a commitment to carrying out professional responsibilities, adherence to ethical principles, and sensitivity to a diverse patient population.


14. Demonstrate understanding of the ethical concerns about pharmaceutical and patient gifts. Compassionately respond to issues of culture, age, gender, ethnicity, and disability in patient care.
Systems-based Practice

1. Demonstrate ability to practice medicine in a variety of outpatient surgery settings and systems.

2. Demonstrate knowledge of different types of medical practice and health delivery systems and know how this affects patient care.

3. Demonstrate knowledge of business aspects of medical practice including coding and insurance.

4. Work with ancillary team members (discharge planners, case managers, and social workers) to provide high quality cost-effective care.

5. Use systematic approaches to reduce errors.

6. Practice effective allocation of health care resources to avoid compromising quality of care.

7. Serve as a patient advocate in the outpatient and inpatient setting, particularly in the situation where a child cannot act in his own best interest and abuse or neglect may be involved.

8. Direct care in inpatient and outpatient settings as a member of a multidisciplinary team.

9. Demonstrate knowledge of how the health care system including other physicians, nurses, and health care professionals affect their patient care practices.

10. Keep medical records review and signage up to date.

11. Record on call patients, procedures, and duty hours as required by the University and Department

12. Attend University of Tennessee Graduate Medical Education’s System Based Lecture series, or view session online if unable to attend.
Resources

- AAO Monograph 3—Visual Fields
- BCSC Section 10
- BCSC Section 12
- Laser Photocoagulation of the Retina and Choroid (AAO Monograph 11)
- BSCS Neuro-ophthalmology (American Academy of Ophthalmology)

Evaluation

- Faculty evaluations of core competencies
- Faculty evaluations of Grand Rounds and Journal Club participation
- Peer evaluations
- Co-worker evaluations
- Patient evaluations
- Surgical encounter evaluation forms
- Surgical/procedure logs
- Medical Records deficiency reports
- Duty hour and surgical log deficiency reports
- Evaluation Portfolio documents (Grand Rounds presentations and others)
- Mid-year examinations/Mock Orals
- End of rotation glaucoma oral exam
- OKAP examination