

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

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 practices with fellow residents, attending physicians and other 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.

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 eight 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.

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.
 - c. Evaluation and management of patients with complex facial and ophthalmic trauma.
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. Eyelid margin laceration
 - d. Bandage contact lens fitting
 - e. Excision of eyelid lesions.

See the 1st Year Residents Skills Checklist 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-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
 - Thyroid ophthalmopathy
 - 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. 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)
 - Aqueous tear deficiency
 - Mucin tear deficiency
 - Lipid tear deficiency
 - 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 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
- 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 in children and adults
 - Bacterial conjunctivitis in neonates
 - Chlamydial conjunctivitis
- h. Bacterial and fungal infections of the cornea
 - Bacterial keratitis
 - Fungal keratitis
 - Acanthamoeba keratitis
- i. Congenital Anomalies of the Cornea and Sclera
 - Cryptophthalmos
 - Microphthalmos
 - Nanophthalmos
 - Blue sclera
 - Microcornea
 - Megalocornea
 - Cornea plana
- j. Secondary abnormalities affecting the fetal cornea
 - Intrauterine keratitis: bacterial and syphilitic
 - Congenital glaucoma
 - Birth trauma

- Iridocorneal endothelial syndrome (ICE)
- 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
- l. 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 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)
 - 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
 - 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
- 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.
13. Maintain patient confidentiality.
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
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Refraction A Programmed Text By Robert D. Reinecke and Robert J. Herm

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- 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 four 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. 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 Residents Skills Checklist 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
 - 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
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)
 - Aqueous tear deficiency
 - Mucin tear deficiency
 - Lipid tear deficiency
 - 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 in children and adults
 - Bacterial conjunctivitis in neonates
 - Chlamydial conjunctivitis
- h. Bacterial and fungal infections of the cornea
- Bacterial keratitis
 - Fungal keratitis
 - Acanthamoeba keratitis
- i. Congenital Anomalies of the Cornea and Sclera
- Cryptophthalmos
 - Microphthalmos
 - Nanophthalmos
 - Blue sclera
 - Microcornea
 - Megalocornea
 - Cornea plana
- j. Secondary abnormalities affecting the fetal cornea
- Intrauterine keratitis: bacterial and syphilitic

- Congenital glaucoma
 - Birth trauma
 - Iridocorneal endothelial syndrome (ICE)
- 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
- l. 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
 - Nonpenetrating 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)
 - 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
 - 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
 - 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

Practice Based Learning and Improvement

10. Teach medical students.
11. Participate in all mandated conferences.
12. Evaluate patient care practices, discuss how they meet standards, and develop ways to improve these practices.
13. Demonstrate improvement in clinical management.
14. Implement preferred practice patterns into current patient care practices.
15. Obtain information from a variety of sources in ophthalmology and related fields.
16. 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.
17. Use information technology such as Up-To-Date, PubMed or Ovid to enhance patient care.
1. Use patient care errors and near misses to teach residents and students

Interpersonal and Communication Skills

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

21. Provide education and counseling to patients, and families using non-technical and clear language.
22. Demonstrate skill in handling a variety of difficult patient care situations.
23. Clearly speak when addressing patient issues and management plans with patients, families, and health care colleagues.
24. Be willing to spend adequate time with patients addressing their questions and concerns.
25. Use both non-verbal and verbal communication skills to effectively deliver education and counseling to patients, families, and colleagues.
26. Work well within a team context relating to students, residents, attending physicians, nurses, and patients.
27. Function effectively as a consultant for specialty and subspecialty care.
28. Communicate effectively when discussing patient conditions and health care practices with fellow residents, attending physicians and other health care providers.

Professionalism

16. Interface with referring and consulting physicians and appropriate hospital staff in a professional and respectful manner, recognizing and instituting the core competencies.
17. Professionally interact with patients, attending physicians and allied health care personnel, including adherence to dress code as outlined in the Residents' Manual.
18. Establish trust with patients and staff by providing reliable and appropriate care to patients.
19. Demonstrate respect, compassion, integrity, punctuality, reliability, and honesty with regards to patients and colleagues.
20. Show regard for the opinions of others.
21. Display initiative and leadership.
22. Acknowledge errors, and alert patients and appropriate health care providers.
23. Create a plan of action to minimize errors.
24. Demonstrate concern for educational development of students and residents.
25. Volunteer for activities for the good of the institution and community.
26. Ask for help when needed, and seek and accept feedback.
27. Demonstrate a commitment to carrying out professional responsibilities, adherence to ethical principles, and sensitivity to a diverse patient population.
28. Maintain patient confidentiality.

29. Demonstrate understanding of the ethical concerns about pharmaceutical and patient gifts.
30. 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.
13. Keep medical records review and signage up to date.
10. Record on call patients, procedures, and duty hours as required by the University, Regional Medical Center, and Department of Ophthalmology.
11. Attend University of Tennessee Graduate Medical Education's System Based Lecture series, or view session online if unable to attend.

Resources

- BCSC (all sections)
- Departmental conferences and didactic sessions

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
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Refraction A Programmed Text By Robert D. Reinecke and Robert J. Herm

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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

Resident's Name: _____

Skills Checklist
Academic Year 2003-2004
1st Year Residents

Note to Faculty evaluating the Resident: By initialing and dating the skill, you verify that this resident performed the following skill, from start to finish, under your direct supervision, and that he/she has achieved proficiency for unsupervised clinical care for this particular skill.

S K I L L	FACULTY SIGNATURE	DATE
1. Retinoscopy - Prepresbyopic patient		
2. Retinoscopy - Pseudophake		
3. Manifest refraction - presbyopic myope		
4. Manifest refraction - presbyope, including prescription of bifocal adds		
5. Manifest refraction - hyperope		
6. Manifest refraction - anisometropia (> 2 diopters spherical equivalent)		
7. Manifest refraction - high astigmat (> 2.00 diopters in each eye)		
8. Tonometry by applanation		
9. Tonometry by tonopen, including calibration		
10. Swinging flashlight test for afferent pupillary defect		
11. Adjustment of slit lamp for proper inner pupillary distance, and adjustment of oculars		
12. Measurement of a corneal lesion using the slit lamp		
13. Recognition of and correct identification of cell and flare on slit lamp examination		
14. Demonstration of ability to recognize lenticular opacity on retro illumination		
15. Demonstration of ability to recognize macular edema on 60 or 90 diopter exam		
16. Demonstration of ability to recognize nerve fiber layer edema on 60 or 90 diopter examination		
17. Demonstration of ability to correctly identify cup to disk ratio in a glaucoma patient		
18. Demonstration of ability to recognize background diabetic retinopathy		
19. Demonstration of ability to recognize proliferative diabetic retinopathy		
20. Demonstration of ability to examine peripheral retina with indirect ophthalmoscope, including identification of lattice degeneration or localization of other peripheral retinal lesions		

Resident's Name: _____

Skills Checklist

Academic Year 2003-2004

1st Year Residents

Page Two

S K I L L	FACULTY SIGNATURE	DATE
21. Ability to repair lid margin laceration with proper apposition of gray line, lash follicles, and meibomian glands		
22. Demonstration of ability to do adequate corneal scraping for culture		
23. Proper identification of inferior floor fracture, with or without entrapment, on CT scan		
24. Proper identification of retinal detachment, intraocular foreign body, or vitreous hemorrhage on B scan		
25. Proper set up of the operating room microscope, including setting of the oculars, centering XY, and setting initial focal distance		
26. Demonstrating proper set up and use of manual irrigation aspiration unit		
27. Set up and use of automated irrigation aspiration unit		
28. Suturing of corneal wound, including placement of three corneal sutures, including turning, in less than 15 minutes		
29. Proper technique demonstrated while placing a lid block		
30. Proper technique demonstrated while doing a retrobulbar or peribulbar block		
31. Measuring the horizontal and vertical radii of curvature and the axis of the meridians utilizing the keratometer		



Second Year Resident Curriculum

The second-year of ophthalmology training is designed to develop intermediate skills in history taking and examination of the eye and ocular adnexa. The second-year of training serves as an introduction to anterior segment surgery, posterior segment surgery, glaucoma surgery, strabismus surgery, and oculoplastic surgery. Second-year residents are responsible for the preoperative, intraoperative, and postoperative management of patients undergoing anterior segment surgery, posterior segment surgery, glaucoma surgery, strabismus surgery, and oculoplastic surgery. Additionally, second-year residents attend specialty clinics in low vision /contact lens and receive special training in ophthalmic pathology. Specific guidelines for each rotation are outlined in this section.

Second Year VA Medical Center Rotation

Second year residents spend four months at the VA Medical Center. Second year residents attend general ophthalmology clinics each day and specialty clinics are held weekly, biweekly, or monthly. During this rotation, residents gain intermediate 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 as well as an introduction to intraocular and oculoplastics surgery.

Goals

1. To acquire intermediate knowledge and skills in the evaluation and management of comprehensive ophthalmology disorders in adult and geriatric patients
2. To gain basic experience in intraocular and oculoplastics surgery



3. To develop intermediate and advanced knowledge and skills in the performance of systemic disease consultations

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. Perform consultations on patients with a variety of systemic diseases with ophthalmologic manifestations
4. Interpret visual field examinations
5. Interpret fluorescein and ICG angiograms
6. Perform basic surgical procedures including:
 - a. Chalazion incision and drainage
 - b. Tarsorrhaphy
 - c. Bandage contact lens fitting
 - d. Excision of eyelid lesions
7. Perform extracapsular cataract extraction with intraocular lens implantation
8. Perform basic oculoplastics and orbital procedures including:
 - a. Blepharoplasty
 - b. Ectropion repair

- c. Entropion repair
- d. Enucleation
- e. Evisceration

Medical Knowledge

1. 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
2. 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
3. Explain in detail the neuroanatomic and physiologic basis of ocular motility including the following components
- a. Ocular motor nerves
 - Cranial nerve III (oculomotor)
 - Cranial nerve IV (trochlear)
 - Cranial nerve VI (abducens)
 - b. Supranuclear control
 - Horizontal gaze center
 - Vertical gaze centers
 - Internuclear connections
 - Intranuclear input
 - Supranuclear input
 - c. Cerebellar gain
 - d. Saccadic system
 - e. Smooth pursuit
 - f. Vestibulo-ocular reflex
 - g. Vergence system
4. Outline the approach to verifying functional visual loss
- a. "Bottom-up" acuity
 - b. Deception of the eye tested
 - c. "Complete blindness"
5. Discuss the selection of diagnostic imaging studies for various neuro-ophthalmologic disorders:
- a. MRI vs CT scanning
 - Orbit



- Parasellar and cavernous sinus regions
 - Intracranial tumors
 - Vascular lesions
 - Multiple sclerosis
- b. Magnetic resonance angiography
 - c. Arteriography
 - d. Functional MRI
 - e. Color flow Doppler imaging
6. Outline the evaluation of central abnormalities of the ocular motor system
- a. Ocular stability
 - b. Vestibulo-ocular reflex (VOR)
 - c. Optokinetic nystagmus
 - d. Pursuit
 - e. Saccades
 - f. Convergence
7. Review in detail the pathophysiology, clinical manifestations, diagnostic work-up/evaluation and treatment of the following neuro-ophthalmologic disorders:
- a. Afferent pupillary defects
 - b. Anisocoria
 - c. Lesions of the parasympathetic system
 - d. Lesions of the sympathetic system
 - e. Ocular motility disorders:
 - Ocular motor system abnormalities without symptoms
 - Ocular instability: nystagmoid movements
 - Ocular instability: nystagmus
 - Ocular misalignment: diplopia
 - Myopathies
 - Myoneural junction disease



- Internuclear ophthalmoplegia
 - Ophthalmoplegia
 - Sixth nerve palsy
 - Fourth nerve palsy
 - Third nerve palsy
 - Multiple cranial nerve palsies
- f. 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
 - Arteriovenous malformations
 - Dissecting aneurysms
 - Cerebral venous and dural sinus thrombosis
 - Headache and facial pain
 - Migraine and tension-type headache
 - Ice pick pains and idiopathic stabbing headache
 - Cluster headache
 - Facial pain
 - Neuro-ophthalmic manifestations of infectious diseases
 - Acquired immunodeficiency syndrome (AIDS)
 - Lyme disease
 - Fungal infections
 - Cat-scratch 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
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

- Seborrhic blepharitis
 - Chalazion
 - Hordeolum
 - Rosacea
- c. Tear deficiency states
- Dry eye (keratoconjunctivitis sicca)
 - Aqueous tear deficiency
 - Mucin tear deficiency
 - Lipid tear deficiency
- 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 in children and adults
 - Bacterial conjunctivitis in neonates
 - Chlamydial conjunctivitis
- h. Bacterial and fungal infections of the cornea
 - Bacterial keratitis
 - Fungal keratitis
 - *Acanthamoeba* keratitis
- i. Congenital Anomalies of the Cornea and Sclera
 - Cryptophthalmos
 - Microphthalmos
 - Nanophthalmos
 - Blue sclera
 - Microcornea
 - Megalocornea
 - Cornea plana
- j. Secondary abnormalities affecting the fetal cornea
 - Intrauterine keratitis: bacterial and syphilitic
 - Congenital glaucoma
 - Birth trauma
 - Iridocorneal endothelial syndrome (ICE)
- 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
- l. 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:
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 - 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)
 - 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
 - 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
 - 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 and 1st year residents on service.
2. Participate in all mandated conferences, including presentation of assigned Journal Club articles, Grand Rounds patient presentations, and Morbidity/Mortality Conference.
18. Evaluate patient care practices, discuss how they meet standards, and develop ways to improve these practices.
19. Demonstrate improvement in clinical management.
20. Implement preferred practice patterns into current patient care practices.
21. Obtain information from a variety of sources in ophthalmology and related fields.
22. 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.
23. Use information technology such as Up-To-Date, PubMed or Ovid to enhance patient care.
24. Use patient care errors and near misses to teach residents and students.

Interpersonal and Communication Skills

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



35. Provide education and counseling to patients, and families using non-technical and clear language.
36. Demonstrate skill in handling a variety of difficult patient care situations.
37. Clearly speak when addressing patient issues and management plans with patients, families, and health care colleagues.
38. Be willing to spend adequate time with patients addressing their questions and concerns.
39. Use both non-verbal and verbal communication skills to effectively deliver education and counseling to patients, families, and colleagues.
40. Work well within a team context relating to students, residents, attending physicians, nurses/technicians, and patients.
41. Function effectively as a consultant for specialty and subspecialty care.
42. Communicate effectively when discussing patient conditions and health care practices with fellow residents, attending physicians and other health care providers.

Professionalism

31. Interface with referring and consulting physicians and appropriate hospital staff in a professional and respectful manner, recognizing and instituting the core competencies.
32. Professionally interact with patients, attending physicians and allied health care personnel, including adherence to dress policy as outlined in the Residents' Manual.
33. Establish trust with patients and staff by providing reliable and appropriate care to patients.
34. Demonstrate respect, compassion, integrity, punctuality, reliability, and honesty with regards to patients and colleagues.
35. Show regard for the opinions of others.
36. Display initiative and leadership.
37. Acknowledge errors, and alert patients and appropriate health care providers.
38. Create a plan of action to minimize errors.
39. Demonstrate concern for educational development of students and residents.
40. Volunteer for activities for the good of the institution and community.
41. Ask for help when needed, and seek and accept feedback.
42. Demonstrate a commitment to carrying out professional responsibilities, adherence to ethical principles, and sensitivity to a diverse patient population.



43. Maintain patient confidentiality.
44. Demonstrate understanding of the ethical concerns about pharmaceutical and patient gifts.
45. Compassionately respond to issues of culture, age, gender, ethnicity, and disability in patient care.

Systems Based Practice

14. Demonstrate ability to practice medicine in a government hospital setting, including mastery of the Electronic Medical Record system at the VAMC.
15. Demonstrate knowledge of different types of medical practice and health delivery systems and know how this affects patient care.
16. Demonstrate knowledge of business aspects of medical practice including coding and VAMC service-related care issues.
17. Work with ancillary team members (discharge planners, case managers, and social workers) to provide high quality cost-effective care.
18. Use systematic approaches to reduce errors.
19. Practice effective allocation of health care resources to avoid compromising quality of care.
20. Serve as a patient advocate in the outpatient and inpatient setting.
21. Direct care in inpatient and outpatient settings as a member of a multidisciplinary team.
22. Demonstrate knowledge of how the health care system including other physicians, nurses, and health care professionals affect their patient care practices.
23. Keep medical records review and signage up to date.
24. Record on call patients, procedures, and duty hours as required by the University and Department of Ophthalmology.
25. Attend University of Tennessee Graduate Medical Education's System Based Lecture series, or view session online if unable to attend.



Resources

- BCSC (all sections)
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- AAO, "The Ethical Ophthalmologist: A Primer."
- Conference/lecture notes
- AUPO Conference on Clinical Research

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
- OKAP examination

Second Year Pediatrics Rotation -

Pediatric Ophthalmology & Strabismus

Second year residents spend four months on the Pediatric Ophthalmology Service. The resident attends clinic at LeBonheur UTMG pediatric ophthalmology clinics at Hamilton Eye Institute and Germantown, and St. Jude Children's Research Hospital, providing the resident a broad experience in pediatric ophthalmology and strabismus. Residents perform a large number of strabismus procedures as assistant and primary surgeon during this rotation. Additionally, residents have the opportunity to evaluate neonates with Retinopathy of Prematurity, children with cancer (including retinoblastoma), and children with contact lenses during this rotation.

Goals

1. To gain intermediate and advanced experience in the diagnosis and management of ophthalmic diseases in pediatric patients.
2. To gain intermediate and advanced experience in the diagnosis and management of strabismus and motility disorders in adult patients.

Learning Objectives

Patient Care

1. 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 incomitant 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
2. Identify instruments used in strabismus surgery
3. Perform strabismus surgery of the horizontal and vertical extraocular muscles
4. Demonstrate the use of adjustable sutures in strabismus surgery
5. Perform nasolacrimal duct probing in infants
6. Fit diplopic adult patients with prism glasses
7. Prescribe appropriate spectacle correction for children with refractive errors and/or strabismus and/or amblyopia
8. Prescribe orthoptic treatment for appropriate patients
9. Evaluate the fit of a soft contact lens

Medical Knowledge

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

2. Distinguish abnormalities of binocular vision
 - a. Diplopia and confusion
 - b. Suppression
 - c. Anomalous retinal correspondence
 - d. Monofixation syndrome

3. 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

4. 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
5. 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 (abducens) palsy
 - Other forms of incomitant esodeviation
6. 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
7. Explain convergence insufficiency and convergence paralysis
 8. 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 palsy (fourth cranial nerve palsy)
 - e. Monocular elevation deficiency (double elevator palsy)
 - f. Brown syndrome (superior oblique tendon sheath syndrome)
 - g. Inferior oblique muscle palsy
 - h. Orbital floor fractures (blowout fractures)
 - i. Inferior rectus muscle palsy
 9. Explain A and V Patterns
 10. 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
 11. 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
12. Describe the nomenclature of nystagmus and types of childhood nystagmus
13. Outline the work-up of infantile nystagmus
14. Describe the treatment of nystagmus
15. Outline the indications for strabismus surgery
16. Illustrate the surgical techniques for the muscles and tendons
- a. Weakening procedures
 - b. Strengthening procedures
 - c. Adjustable suture techniques
 - d. Transposition procedures
17. Discuss the various considerations in planning surgery for strabismus
- a. Incomitance
 - b. Prior surgery
 - c. Cyclovertical strabismus
 - d. Visual acuity
18. Discuss the choices of anesthesia for extraocular muscle surgery

19. Illustrate the different conjunctival incisions and discuss when to choose one over the other
 - a. Fornix incision
 - b. Limbal or peritomy incision

20. Review the complications of strabismus surgery and outline the management of each
 - a. Unsatisfactory alignment
 - b. Refractive changes
 - c. Diplopia
 - d. Perforation of the sclera
 - e. Postoperative infections
 - f. Foreign body granuloma and allergic reaction
 - g. Conjunctival inclusion cyst
 - h. Conjunctival scarring
 - i. Adherence syndrome
 - j. Dellen
 - k. Anterior segment ischemia
 - l. Change in eyelid position
 - m. Lost muscle
 - n. Slipped muscle
 - o. Postoperative nausea and vomiting
 - p. Oculocardiac reflex
 - q. Malignant hyperthermia

21. Explain the use of chemodenervation for the treatment of strabismus and blepharospasm
 - a. Botulinum toxin pharmacology and mechanism of action
 - b. Indications, techniques, and results
 - c. Strabismus correction
 - d. Eyelid disorders
 - e. Complications

22. 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
23. Describe disorders of the lacrimal drainage system affecting children
- a. Developmental anomalies
 - b. Dacryocystocele
 - c. Nasolacrimal duct obstruction



- Nonsurgical management
 - Surgical management
24. Outline the embryologic development of the cornea and anterior segment
25. 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
26. Cite examples of systemic diseases with corneal manifestations in childhood
27. 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
28. Outline the glaucomas affecting pediatric patients
- a. Primary congenital glaucoma
 - Pathophysiology
 - Clinical manifestations and diagnosis
 - Natural history
 - b. Primary developmental glaucomas
 - c. Secondary glaucoma
29. Discuss the treatment of childhood glaucomas
- a. Surgical therapy
 - b. Medical therapy
30. Review the evaluation and management of childhood cataracts and other pediatric lens disorders
31. 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
32. 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 oculorenal syndromes
 - Gangliosidoses
 - f. Retinopathy of prematurity
- 33. Outline the various optic nerve disorders affecting children:
 - a. Developmental anomalies
 - b. Optic atrophy
 - c. Optic neuritis
 - d. Papilledema
 - Pseudotumor cerebri
 - Pseudopapilledema/drusen
- 34. 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



35. Describe the clinical manifestations of the phakomatoses
 - a. Neurofibromatosis
 - b. Tuberous sclerosis (Bourne ville 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)

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

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

38. Recall the ocular findings in inborn errors of metabolism

39. 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
40. 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
41. Provide appropriate evaluation and management for the child with learning disabilities (including dyslexia or vision problems)
42. Define contact lens parameters:
 - a. Base curve
 - b. Sagittal depth
 - c. Diameter
 - d. DK
43. Discuss the properties and use of various contact lens materials
44. Describe the optics of how a contact lens works



45. Review the essential components of the history for patients being fitted with contact lenses
46. List the steps in the pre-fitting examination
47. Describe the methods for classifying soft contact lenses
48. List the types of patients for whom soft contact lenses are appropriate
49. Discuss patient selection and complications of extended wear soft lenses
50. Outline the advantages/disadvantages of disposable or frequent replacement lenses
51. Describe the qualities of a good soft lens fit
 - a. Centration
 - b. Movement
 - c. Vision
52. List the steps in the fitting of a soft contact lens
53. List the signs and symptoms of the following:
 - a. Loose fit
 - b. Tight fit
54. List the care systems for soft contact lenses
55. Discuss the selection of a lens care regimen
 - a. Allergies
 - b. Lens material
 - c. Tear film



- d. Conventional versus planned replacement
 - e. Cost
 - f. Environment and personal habits
 - g. Simplicity
56. Outline the management of contact lens complications:
- a. Red eye
 - b. Corneal ulcer
 - c. GPC
 - d. Toxic reactions to contact lens solutions

Practice Based Learning and Improvement

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- 44. Communicate and establish a therapeutic relationship with patients.
- 45. Develop respectful and considerate attitudes towards patients and their families, especially when delivering news of untreatable vision loss or poor outcomes.



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

46. Present cases accurately and succinctly to faculty and peers in the clinical setting as well as in departmental patient care conferences.
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57. Maintain patient confidentiality.
58. Demonstrate understanding of the ethical concerns about pharmaceutical and patient gifts.
59. Compassionately respond to issues of culture, age, gender, ethnicity, and disability in patient care.

Systems Based Practice

26. Demonstrate ability to practice medicine in a private not-for-profit children's regional medical center, including mastery of the Electronic Medical Record.
27. Demonstrate knowledge of different types of medical practice and health delivery systems and know how this affects patient care.
28. Demonstrate knowledge of business aspects of medical practice including coding and insurance, particularly related to TennCare/Medicaid involving the provision of health care for children..
29. Work with ancillary team members (discharge planners, case managers, and social workers) to provide high quality cost-effective care.
30. Use systematic approaches to reduce errors.
31. Practice effective allocation of health care resources to avoid compromising quality of care.
32. 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.
33. Direct care in inpatient and outpatient settings as a member of a multidisciplinary team.
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 - Pediatric Ophthalmology, Kenneth Wright and Peter Spiegel, eds.
 - Taylor's Pediatric 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 pediatric ophthalmology oral exam
- OKAP examination

Second Year Pediatrics Rotation - Low Vision and Contact Lens Rotation

Goals

1. To provide an overview of the evaluation, treatment options, and functional implications of vision loss
2. To gain experience in the evaluation and fitting of various contact lenses including rigid and keratoconus lenses

Learning Objectives

Patient Care Skills

1. Perform a low vision evaluation and make recommendations for enhancing residual vision.
2. Demonstrate the evaluation and fitting of a rigid contact lens.

Medical Knowledge

1. Discuss the goals of low vision rehabilitation
2. Outline the evaluation techniques to determine visual capacity:
 - a. Elements of the history

- b. Technique
 - c. Phantom vision
 - d. Documentation
 - e. Visual acuity measurement
 - Distance
 - Near
 - Contrast sensitivity
 - f. Visual field measurement
 - Central
 - Peripheral
 - Heminaopic
 - g. Preferred retinal locus ability
3. Summarize various treatment options to enhance residual vision:
- a. Magnification
 - b. Lighting and contrast enhancement
 - c. Magnification devices
 - High-plus spectacles
 - Handheld magnifiers
 - Stand magnifiers
 - Telescopes
 - Video magnifiers
4. Organize guidelines for training patients with visual loss to develop compensatory skills:
- a. Instruction without devices
 - Fixation
 - Scotoma awareness
 - Scanning
 - Tracing
 - Spotting

- Tracking
- b. Instruction with devices
 - Near work
 - Distance work
 - c. Problems and solutions
 - Nausea or dizziness
 - Scotomas
 - Constricted fields
 - Device-object misalignment
 - Poor motor control
5. Evaluate the functional implications of vision loss and suggest modifications in daily activities affected by vision loss:
 - a. Hazards of untreated visual loss
 - b. Daily living activities
 - c. Treatment to improve daily activities
 - d. Professional rehabilitation personnel
 6. Consider the unique needs of children, adolescents, and teenagers with impaired vision
 - a. Clinical assessment
 - b. Needs and goals
 - c. Examination and refraction at different ages
 - d. Low vision devices
 - e. Children with vision and hearing loss
 - f. Children with multiple handicaps
 7. Describe the information to be obtained when taking a history prior to contact lens fitting



8. List the steps in the pre-fitting evaluation
9. Relate the advantages and disadvantages of rigid versus non-rigid contact lenses
10. List the qualities of a good rigid contact lens fit
11. Discuss the way in which rigid lens parameters are chosen:
 - a. Power
 - b. Base curve
 - c. Optic zone
 - d. Peripheral and secondary curve radius
 - e. Peripheral and secondary curve width
 - f. Center thickness
 - g. Lens diameter
12. Discuss patient instruction and follow-up
 - a. Wearing schedules
 - b. Follow-up
 - c. When to discontinue wear

Resources

Low Vision Rehabilitation (AAO Monograph 12)

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
- OKAP examination

Second Year Specialty Rotation - Ophthalmic Pathology

Goals

1. To provide an introduction to the normal anatomy and histology of the eye and ocular adnexa.
2. To gain experience in the handling and processing of ocular pathology specimens.
3. To gain extensive experience in the evaluation and diagnosis of ophthalmic pathology specimens.

Learning Objectives

Medical Knowledge

1. 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

2. 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

1. Trauma

Skills

1. Demonstrate the proper techniques of specimen handling and processing
2. Perform gross dissection of ocular pathology specimens
3. Evaluate a histopathologic specimen and formulate a differential diagnosis
4. Establish a final diagnosis for ocular pathology specimens

Resources

- BCSC Section 4
- Ophthalmic Pathology: Ophthalmic Pathology Study Set, Volumes 1 and 2 (CDROM)

Evaluation

- Pathology unknowns
- Midyear mock oral exams
- OKAP examination

Second Year Specialty Rotation - Cornea, Retina & Vitreous, Glaucoma, Neuro-ophthalmology, Oculoplastics

Goals

1. To prepare the resident to provide operative care for patients



undergoing anterior and posterior segment surgery, including the preoperative evaluation of the patient, selection of procedure, equipment and operating room/facility considerations (including systems based issues), and patient appropriate postoperative care.

2. To gain experience in the methods of anesthesia for ophthalmic surgery.
3. To provide an introduction to instruments and techniques used in a variety of different types of ophthalmic surgery.
4. To refine and expand the resident's management skills for the patient with glaucoma, particularly advanced or complicated cases requiring laser/surgical management.
5. To refine and expand the resident's management skills for the patient with retinal disease, particularly advanced or complicated cases requiring laser/surgical management.
6. To refine and expand the resident's management skills for patients with neuro-ophthalmic disorders.
7. To refine and expand the resident's management skills for the patient with orbital and lid disease, particularly advanced or complicated cases requiring radiological imaging and/or surgical management.
8. To provide an introduction to techniques and patient selection issues in keratorefractive surgery.

Learning Objectives

Medical Knowledge

- 1 Review the indications, pre-operative evaluation, surgical techniques, intraoperative and post-operative complications, and post-operative care for the following anterior segment surgical procedures:
 - a. Extracapsular cataract extraction with intraocular lens implantation



- b. Phacoemulsification with intraocular lens implantation
 - c. Intracapsular cataract extraction
 - d. Secondary IOL insertion
 - e. IOL exchange
 - f. YAG laser capsulotomy
 - g. Corneoscleral laceration
 - h. Ruptured globe
 - i. Pterygium excision
 - j. Conjunctival laceration
 - k. Conjunctival flap
 - l. Conjunctival transplantation
 - m. Anterior chamber washout
2. Review the indications, pre-operative evaluation, surgical techniques, intraoperative and post-operative complications, and post-operative care for the following cornea and refractive surgery procedures:
 - a. Penetrating keratoplasty
 - b. Lamellar keratoplasty
 - c. Corneal biopsy
 - d. PRK
 - e. LASIK
 3. Compare regional anesthesia principles and methods for anterior segment surgery.
 4. Describe the methods of topical anesthesia for cataract surgery.
 5. 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. Prostaglandin 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, surgical techniques, intraoperative and 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
 - Infectious and inflammatory disorders
 - Orbital neoplasms
 - Congenital orbital tumors
 - Vascular tumors
 - Neural tumors
 - Mesenchymal tumors
 - Lymphoproliferative disorders
 - Lacrimal gland tumors
 - Secondary orbital tumors
 - Metastatic tumors
 - Orbital trauma
 - Midfacial fractures
 - Orbital fractures
 - Intraorbital foreign bodies
 - Orbital hemorrhage
 - Traumatic visual loss

Anophthalmic socket

Congenital anomalies

- Eyelid inflammation
- Eyelid neoplasms
- Eyelid trauma
- Ectropion
- Entropion
- Symblepharon
- Trichiasis

- Blepharoptosis
 - Eyelid retraction
 - Involutional periorbital changes
 - Eyelid dyskinesia
30. Review the differential diagnosis and clinical/surgical management of the following lacrimal system disorders:
- a. Congenital tearing
 - 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, surgical techniques, intraoperative and 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. Optic nerve disorders
- Optic disc edema
 - Anterior ischemic optic neuropathy
 - Posterior ischemic optic neuropathy
 - Optic neuritis

- Compressive optic neuropathy
 - Infiltrative optic neuropathy
 - Toxic/nutritional optic neuropathy
 - Dominant optic neuropathy
 - Leber hereditary optic neuropathy
 - Optic nerve drusen
 - Congenital optic disc abnormalities
 - Optic nerve trauma
 - Optic atrophy
 - Lesions of the optic chiasm
37. Pupil disorders
- Argyll Robertson pupil
 - Parinaud dorsal midbrain syndrome
 - Pretectal afferent pupillary defects
 - Anisocoria
 - Lesions of the parasympathetic system
 - Lesions of the sympathetic system
38. Abnormalities of the ocular motor system:
- Nystagmus
 - Diplopia
 - Myopathies
 - Myoneural junction disease
 - Internuclear ophthalmoplegia
 - Cranial nerve palsies (III, IV, VI, multiple)
39. Abnormalities of the facial nerve
- Disorders of underactivity
 - Disorders of overactivity
40. Systemic conditions with neuro-ophthalmologic signs

- Multiple sclerosis
- Myasthenia gravis
- Myopathies
- Neurocutaneous syndromes
- Thyroid ophthalmopathy
- Pregnancy associated neuro-ophthalmologic disorders
- Cerebrovascular disease
- Cerebral aneurysms
- Arteriovenous malformations
- Dissecting aneurysms
- Cerebral venous and dural sinus thrombosis
- Migraine and tension type headache
- Icepick pains and stabbing headache
- Cluster headache
- Facial pain
- AIDS
- Lyme disease
- Fungal infections
- Cat-scratch disease

Patient Care Skills

1. Perform surgical preparation and draping of patients undergoing anterior segment surgery.
2. Perform regional anesthesia for patients undergoing anterior segment surgery and ocular and adnexal trauma.
3. Identify surgical instruments used in anterior segment surgery.
4. Describe in detail the steps in specific anterior segment procedures:
 - a. Phacoemulsification
 - b. Extracapsular cataract extraction
 - c. Penetrating keratoplasty
5. Perform a complete ophthalmic history and examination for the patient with advanced glaucoma
6. 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 hand held 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
16. Perform preoperative preparation and draping of patients undergoing retina and vitreous surgical procedures
17. Assist in various retinal and vitreous surgical procedures
 - 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
 - h. Cyclocryocoagulation of the ciliary body
4. Perform the pre-operative evaluation, procedure, 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
5. Perform the pre-operative evaluation, procedure, 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

Practice Based Learning and Improvement

1. Teach medical students and 1st year residents on service.
2. Participate in all mandated conferences, including presentation of assigned Journal Club articles, Grand Rounds patient presentations, and Morbidity/Mortality Conference.



31. Evaluate patient care practices, discuss how they meet standards, and develop ways to improve these practices.
32. Demonstrate improvement in clinical management.
33. Implement preferred practice patterns into current patient care practices.
34. Obtain information from a variety of sources in ophthalmology and related fields.
35. 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.
36. Use information technology such as Up-To-Date, PubMed or Ovid to enhance patient care.
Use patient care errors and near misses to teach residents and students.

Interpersonal and Communication Skills

56. Carefully listen to patients to assess the patient's health problems including verbal and non-verbal communications.
57. Communicate and establish a therapeutic relationship with patients.
58. Develop respectful and considerate attitudes towards patients and their families, especially when delivering news of untreatable vision loss or poor outcomes.
Demonstrate understanding of the special issues regarding effective communication skills with patients, especially in communications addressing decisions involving (potential) permanent loss of vision.
59. Present cases accurately and succinctly to faculty and peers in the clinical setting as well as in departmental patient care conferences.
60. Provide timely, legible, thorough, succinct medical record documentation - histories and physical examinations, admission notes, progress notes, procedure notes and discharge summaries.
61. Provide education and counseling to patients, and families using non-technical and clear language.
62. Demonstrate skill in handling a variety of difficult patient care situations.
63. Clearly speak when addressing patient issues and management plans with patients, families, and health care colleagues.
64. Be willing to spend adequate time with patients addressing their questions and concerns.



65. Use both non-verbal and verbal communication skills to effectively deliver education and counseling to patients, families, and colleagues.
66. Work well within a team context relating to students, residents, attending physicians, nurses/technicians, and patients.
67. Function effectively as a consultant for specialty and subspecialty care. Communicate effectively when discussing patient conditions and health care practices with fellow residents, attending physicians and other health care providers.

Professionalism

60. Interface with referring and consulting physicians and appropriate hospital staff in a professional and respectful manner, recognizing and instituting the core competencies.
61. Professionally interact with patients, attending physicians and allied health care personnel, including adherence to dress policy as outlined in the Residents' Manual.
62. Establish trust with patients and staff by providing reliable and appropriate care to patients.
63. Demonstrate respect, compassion, integrity, punctuality, reliability, and honesty with regards to patients and colleagues.
64. Show regard for the opinions of others.
65. Display initiative and leadership.
66. Acknowledge errors, and alert patients and appropriate health care providers.
67. Create a plan of action to minimize errors.
68. Demonstrate concern for educational development of students and residents. Volunteer for activities for the good of the institution and community.
69. Ask for help when needed, and seek and accept feedback.
70. Demonstrate a commitment to carrying out professional responsibilities, adherence to ethical principles, and sensitivity to a diverse patient population.
71. Maintain patient confidentiality.
72. 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

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



39. Demonstrate knowledge of different types of medical practice and health delivery systems and know how this affects patient care.
40. Demonstrate knowledge of business aspects of medical practice including coding and insurance.
41. Work with ancillary team members (discharge planners, case managers, and social workers) to provide high quality cost-effective care.
42. Use systematic approaches to reduce errors.
43. Practice effective allocation of health care resources to avoid compromising quality of care.
44. 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.
45. Direct care in inpatient and outpatient settings as a member of a multidisciplinary team.
46. Demonstrate knowledge of how the health care system including other physicians, nurses, and health care professionals affect their patient care practices.
47. Keep medical records review and signage up to date.
Record on call patients, procedures, and duty hours as required by the University and Department
Attend University of Tennessee Graduate Medical Education's System Based Lecture series, or view session online if unable to attend.

Resources

- Atlas of Ophthalmic Surgery: Volume II: Cornea, Glaucoma, Lens (D. Koch and G. Spaeth)
- AAO Monograph 3—Visual Fields
- BCSC Section 10
- BCSC Section 12
- Laser Photocoagulation of the Retina and Choroid (AAO Monograph 11)

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

Third Year Resident Curriculum

The third year of ophthalmology training is designed to develop advanced skills in history taking and examination of the eye and ocular adnexa, and to develop skills in advanced anterior segment surgery including phacoemulsification, trabeculectomy, combined cataract and glaucoma surgery, penetrating keratoplasty, as well as vitreoretinal surgery, strabismus surgery, and orbit and oculoplastic surgery. Third year residents are responsible for the preoperative, intraoperative, and postoperative management of patients undergoing surgical procedures in their institutions. Specific guidelines for each rotation are outlined in this section.

Third Year Regional Medical Center Rotation

Third year residents spend four months at the Regional Medical Center and Medplex Clinic. During this rotation, senior residents gain broad experience in the management of comprehensive ophthalmology problems in newborns, adults, and geriatric patients. As the only Level I trauma center in the region, the Regional Medical Center rotation provides a unique experience with a large volume of cases of craniofacial trauma, orbital and adnexal trauma, and globe trauma. The Regional Newborn Center also provides residents with experience in the management of neonatal eye disorders.

Goals

1. To gain advanced experience in the evaluation and management of patients with comprehensive ophthalmology disorders
2. To refine skills in the evaluation and management of craniofacial trauma, orbital and adnexal trauma, and globe trauma.



3. To acquire advanced knowledge and skills in providing consultations for patients with systemic diseases.

Learning Objectives

Medical Knowledge

1. Evaluate patients with the following disorders, outline an appropriate differential diagnosis, order and evaluate diagnostic studies, determine a final diagnosis, and formulate a treatment plan:
 - a. Intraocular tumors
 - 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
 - Angiomatous tumors
 - Choroidal hemangioma
 - Capillary hemangioma
 - Cavernous hemangioma
 - Retinoblastoma
 - Metastatic carcinoma
 - Lymphomatous tumors
 - Leukemia
 - Medulloepithelioma



- Leiomyomas, neurilemmomas, and neurofibromas
- b. Optic nerve disorders
 - Optic disc edema
 - Anterior ischemic optic neuropathy
 - Posterior ischemic optic neuropathy
 - Optic neuritis
 - Compressive optic neuropathy
 - Infiltrative optic neuropathy
 - Toxic/nutritional optic neuropathy
 - Dominant optic neuropathy
 - Leber hereditary optic neuropathy
 - Optic nerve drusen
 - Congenital optic disc abnormalities
 - Optic nerve trauma
 - Optic atrophy
 - Lesions of the optic chiasm
 - Disorders of visual integration
- c. Pupil disorders
 - Argyll Robertson pupil
 - Parinaud dorsal midbrain syndrome
 - Pretectal afferent pupillary defects
 - Anisocoria
 - Lesions of the parasympathetic system
 - Lesions of the sympathetic system
- d. Abnormalities of the ocular motor system:
 - Nystagmus
 - Diplopia
 - Myopathies
 - Myoneural junction disease



- Internuclear ophthalmoplegia
- Cranial nerve palsies (III, IV, VI, multiple)
- e. Abnormalities of the facial nerve
 - Disorders of underactivity
 - Disorders of overactivity
- f. Systemic conditions with neuro-ophthalmologic signs
 - Multiple sclerosis
 - Myasthenia gravis
 - Myopathies
 - Neurocutaneous syndromes
 - Thyroid ophthalmopathy
 - Pregnancy associated neuro-ophthalmologic disorders
 - Cerebrovascular disease
 - Cerebral aneurysms
 - Arteriovenous malformations
 - Dissecting aneurysms
 - Cerebral venous and dural sinus thrombosis
 - Migraine and tension type headache
 - Ice pick pains and stabbing headache
 - Cluster headache
 - Facial pain
 - AIDS
 - Lyme disease
 - Fungal infections
 - Cat-scratch disease
- g. Amblyopia
 - Strabismic
 - Anisometropic
 - Isoametropic

- h.
 - Deprivation
 - Strabismus
 - Esodeviations
 - Pseudoesotropia
 - Infantile
 - Accommodative
 - Nonaccommodative acquired
 - Incomitant deviations
 - Exodeviations
 - Pseudoexotropia
 - Exophoria
 - Intermittent
 - Constant
 - Convergence insufficiency
 - Convergence paralysis
 - Vertical deviations
 - Comitant deviations
 - Incomitant deviations
 - A and V patterns
 - Special forms of strabismus
 - Congenital abducens palsy
 - Duane syndrome
 - Mobius syndrome
 - Oculomotor nerve palsy
 - Graves disease
 - CPEO
 - Myasthenia gravis
 - Congenital fibrosis syndrome
 - Internuclear ophthalmoplegia
 - Congenital motor apraxia

- i. Childhood nystagmus
 - Congenital
 - Acquired
- j. Pediatric ophthalmology disorders
 - Eyelid disorders
 - Infectious and allergic ocular diseases
 - Lacrimal drainage system disorders
 - Cornea and anterior segment
 - Iris abnormalities
 - Glaucoma
 - Cataracts and other lens disorders
 - Uveitis
 - Retina and vitreous diseases
 - Optic nerve
 - Ocular tumors
 - Phakomatoses
 - Craniofacial malformations
 - Inborn errors of metabolism
 - Decreased vision in infants and children
 - Learning disabilities and dyslexia
- k. Orbital disorders
 - Congenital orbital anomalies
 - Infectious and inflammatory disorders
 - Orbital neoplasms
 - Congenital orbital tumors
 - Vascular tumors
 - Neural tumors
 - Mesenchymal tumors
 - Lymphoproliferative disorders

- Lacrimal gland tumors
 - Secondary orbital tumors
 - Metastatic tumors
 - Orbital trauma
 - Midfacial fractures
 - Orbital fractures
 - Intraorbital foreign bodies
 - Orbital hemorrhage
 - Traumatic visual loss
 - Anophthalmic socket
- l. Eyelid disorders
- Congenital anomalies
 - Eyelid inflammation
 - Eyelid neoplasms
 - Eyelid trauma
 - Ectropion
 - Entropion
 - Symblepharon
 - Trichiasis
 - Blepharoptosis
 - Eyelid retraction
 - Involutional periorbital changes
 - Eyelid dyskinesia
- m. Lacrimal system disorders
- Congenital tearing
 - Acquired tearing
- n. Ocular surface disorders
- Dermatoses affecting the ocular surface
 - Noninflammatory vascular anomalies
 - Tear deficiency states



- Nutritional and physiologic disorders
 - Structural and exogenous disorders
 - Limbal stem cell dysfunction
- o. Infectious diseases of the eyelids, conjunctiva, cornea, and sclera
- Viral infections
 - Microbial and parasitic infections of the eyelid margin and conjunctiva
 - Microbial and parasitic infections of the cornea and sclera
- p. Immune-mediated diseases of the eyelids, conjunctiva, cornea and sclera
- q. Neoplastic diseases of the eyelids, conjunctiva, cornea, and sclera
- 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
- r. Congenital anomalies of the cornea and sclera
- s. Corneal dystrophies and metabolic disorders involving the conjunctiva, cornea, and sclera
- Anterior corneal dystrophies
 - Ectatic disorders
 - Metabolic disorders
- t. Degenerative disorders of the conjunctiva, cornea, and sclera
- Conjunctival degenerations
 - Corneal degenerations
 - Drug-induced deposition and pigmentation
 - Scleral degenerations



- u. Toxic and traumatic injuries of the anterior segment
 - Injuries caused by temperature and radiation
 - Chemical injuries
 - Concussive trauma
 - Nonperforating mechanical trauma
 - Perforating trauma
 - Surgical trauma
- v. Anterior uveitis
 - Acute anterior nongranulomatous iritis and iridocyclitis
 - Chronic iridocyclitis
- w. Intermediate uveitis and pars planitis
- x. Posterior uveitis
 - Infectious diseases
 - Immunologic diseases
 - Masquerade syndromes
- y. Panuveitis
 - Infectious diseases
 - Immunologic and granulomatous diseases
 - Masquerade syndromes
- z. Endophthalmitis
- aa. Ocular involvement in AIDS
- bb. Open angle glaucoma
 - Primary open angle glaucoma
 - Glaucoma suspect
 - Normal-tension glaucoma
 - Secondary open angle glaucoma
- cc. Angle closure glaucoma
 - Primary angle closure glaucoma with pupillary block
 - Primary angle closure glaucoma without pupillary block



- Secondary angle closure glaucoma with pupillary block
- Secondary angle closure glaucoma without pupillary block
- dd. Combined mechanism glaucoma
- ee. Childhood glaucoma
- ff. Congenital and developmental lens defects
- gg. Cataracts
 - Congenital and infantile cataracts
 - Age-related cataracts
 - Metabolic cataracts
 - Cataracts associated with uveitis
 - Cataracts associated with skin diseases
- hh. Drug-induced lens changes
- ii. Lens trauma
- jj. Exfoliation syndromes
- kk. Lens-induced uveitis
- ll. Lens-induced glaucoma
- mm. Acquired diseases affecting the macula
 - Central serous chorioretinopathy
 - Age-related macular degeneration
 - Other causes of choroidal neovascularization
 - Vitreoretinal interface abnormalities
 - Valsalva retinopathy
 - Purtscher's retinopathy
 - Terson syndrome
- nn. Retinal vascular diseases
 - Systemic arterial hypertension
 - Diabetic retinopathy
 - Sickle cell retinopathy
 - Peripheral retinal neovascularization
 - ROP



- Venous occlusive disease
- Arterial occlusive disease
- Vasculitis
- Cystoid macular edema
- Coat's disease
- Parafoveal retinal telangiectasis
- Macroaneurysms
- Phakomatoses
- oo. Choroidal diseases
 - Choroidal hemangioma
 - Choroidal ischemia
 - Uveal effusion syndrome
- pp. Congenital and stationary retinal disease
 - Color vision abnormalities
 - Night vision abnormalities
- qq. Hereditary retinal and choroidal dystrophies
 - Diffuse photoreceptor dystrophies
 - Macular and RPE dystrophies
 - Choroidal dystrophies
 - Inner retinal and Vitreoretinal dystrophies
- rr. Retinal degenerations associated with systemic diseases
- ss. Peripheral retinal abnormalities
 - Retinal breaks
 - Posterior vitreous detachment
 - Lesions predisposing to retinal detachment
 - Lesions not predisposing to retinal detachment
 - Rhegmatogenous retinal detachment
 - Tractional retinal detachment
 - Exudative retinal detachment

- tt. Vitreous disorders
 - Developmental abnormalities
 - Familial exudative vitreoretinopathy
 - Asteroid hyalosis
 - Cholesterolosis
 - Amyloidosis
 - Vitreous hemorrhage
 - Inflammation
 - Parasitic infestation
 - Pigment granules
 - uu. Posterior segment trauma
 - Blunt trauma
 - Penetrating injuries
 - Perforating injuries
 - Intraocular foreign bodies
 - Posttraumatic endophthalmitis
 - Sympathetic ophthalmia
 - Avulsion of the optic disc
2. Review the indications, pre-operative evaluation, surgical techniques, intraoperative and post-operative complications, and post-operative care for the following anterior segment surgical procedures:
- a. Extracapsular cataract extraction with intraocular lens implantation
 - b. Phacoemulsification with intraocular lens implantation
 - c. Intracapsular cataract extraction
 - d. Secondary IOL insertion
 - e. IOL exchange
 - f. YAG laser capsulotomy
 - g. Corneoscleral laceration
 - h. Ruptured globe

- i. Pterygium excision
 - j. Conjunctival laceration
 - k. Conjunctival flap
 - l. Conjunctival transplantation
 - m. Anterior chamber washout
3. Review the indications, pre-operative evaluation, surgical techniques, intraoperative and post-operative complications, and post-operative care for the following corneal surgery procedures:
 - a. Penetrating keratoplasty
 - b. Lamellar keratoplasty
 - c. Corneal biopsy
4. Review the indications, pre-operative evaluation, surgical techniques, intraoperative and post-operative complications, and post-operative care for the following glaucomasurgical procedures:
 - a. Trabeculectomy
 - b. Trabeculectomy with antimetabolite therapy
 - c. Shunt procedures (Ahmed, Molteno, Baerveldt, Krupin, etc.)
 - d. Goniotomy
 - e. Argon laser iridotomy
 - f. YAG laser iridotomy
 - g. Argon laser trabeculoplasty
 - h. Ciliary body ablation
5. Review the indications, pre-operative evaluation, surgical techniques, intraoperative and 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
6. Review the indications, pre-operative evaluation, surgical techniques, intraoperative and 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
 - p. Temporal artery biopsy
7. Review the indications, pre-operative evaluation, surgical techniques, intraoperative and post-operative complications, and post-operative care for the following pediatric ophthalmology and strabismus surgical procedures:



- a. Nasolacrimal duct probing
- b. Examination under anesthesia
- c. Pediatric cataract extraction (with/without intraocular lens)
- d. Muscle/tendon weakening procedures
- e. Muscle/tendon strengthening procedures
- f. Adjustable sutures
- g. Transposition procedures
- h. Chemodenervation using botulinum toxin

Patient Care Skills

1. Perform the pre-operative evaluation, procedure, and post-operative care of the following anterior segment surgical procedures:
 - a. Extracapsular cataract extraction with intraocular lens implantation
 - b. Phacoemulsification with intraocular lens implantation
 - c. Intracapsular cataract extraction
 - d. Secondary IOL insertion
 - e. IOL exchange
 - f. YAG laser capsulotomy
 - g. Corneoscleral laceration
 - h. Ruptured globe
 - i. Pterygium excision
 - j. Conjunctival laceration
 - k. Conjunctival flap
 - l. Conjunctival transplantation
 - m. Anterior chamber washout

2. Perform the pre-operative evaluation, procedure, and post-operative care of the following cornea surgery procedures:

- a. Penetrating keratoplasty
 - b. Corneal biopsy
3. Perform the pre-operative evaluation, procedure, and post-operative care of the following glaucoma surgical procedures:
- a. Trabeculectomy
 - b. Trabeculectomy with antimetabolite therapy
 - c. Shunt procedures (Ahmed, Molteno, Baerveldt, Krupin, etc.)
 - d. Goniotomy
 - e. Argon laser iridotomy
 - f. YAG laser iridotomy
 - g. Argon laser trabeculoplasty
 - h. Cyclocryocoagulation of the ciliary body
4. Perform the pre-operative evaluation, procedure, 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
5. Perform the pre-operative evaluation, procedure, 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
6. Perform the pre-operative evaluation, procedure, and post-operative care of the following pediatric ophthalmology and strabismus surgical procedures:
- a. Nasolacrimal duct probing
 - b. Muscle/tendon weakening procedures
 - c. Muscle/tendon strengthening procedures
 - d. Adjustable sutures
 - e. Chemodenervation using botulinum toxin

Practice Based Learning and Improvement

1. Teach medical students and 1st year residents 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.
37. Demonstrate improvement in clinical management.
38. Implement preferred practice patterns into current patient care practices.
39. Obtain information from a variety of sources in ophthalmology and related fields.



40. 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.
41. Use information technology such as Up-To-Date, PubMed or Ovid to enhance patient care.
Use patient care errors and near misses to teach residents and students.

Interpersonal and Communication Skills

68. Carefully listen to patients to assess the patient's health problems including verbal and non-verbal communications.
69. Communicate and establish a therapeutic relationship with patients.
70. 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.

71. Present cases accurately and succinctly to faculty and peers in the clinical setting as well as in departmental patient care conferences.
72. Provide timely, legible, thorough, succinct medical record documentation - histories and physical examinations, admission notes, progress notes, procedure notes and discharge summaries.
73. Provide education and counseling to patients, and families using non-technical and clear language.
74. Demonstrate skill in handling a variety of difficult patient care situations.
75. Clearly speak when addressing patient issues and management plans with patients, families, and health care colleagues.
76. Be willing to spend adequate time with patients addressing their questions and concerns.
77. Use both non-verbal and verbal communication skills to effectively deliver education and counseling to patients, families, and colleagues.
78. Work well within a team context relating to students, residents, attending physicians, nurses/technicians, and patients.
79. Function effectively as a consultant for specialty and subspecialty care.
13. Communicate effectively when discussing patient conditions and health care practices with fellow residents, attending physicians and other health care providers.

Professionalism



73. Interface with referring and consulting physicians and appropriate hospital staff in a professional and respectful manner, recognizing and instituting the core competencies.
74. Professionally interact with patients, attending physicians and allied health care personnel, including adherence to dress policy as outlined in the Residents' Manual.
75. Establish trust with patients and staff by providing reliable and appropriate care to patients.
76. Demonstrate respect, compassion, integrity, punctuality, reliability, and honesty with regards to patients and colleagues.
77. Show regard for the opinions of others.
78. Display initiative and leadership.
79. Acknowledge errors, and alert patients and appropriate health care providers.
80. Create a plan of action to minimize errors.
81. Demonstrate concern for educational development of students and residents. Volunteer for activities for the good of the institution and community.
82. Ask for help when needed, and seek and accept feedback.
83. Demonstrate a commitment to carrying out professional responsibilities, adherence to ethical principles, and sensitivity to a diverse patient population.
84. Maintain patient confidentiality.
85. Demonstrate understanding of the ethical concerns about pharmaceutical and patient gifts.
14. Compassionately respond to issues of culture, age, gender, ethnicity, and disability in patient care.

Systems Based Practice

48. Demonstrate ability to practice medicine in a county hospital with a large indigent and tertiary care patient base.
49. Demonstrate knowledge of different types of medical practice and health delivery systems and know how this affects patient care.
50. Demonstrate knowledge of business aspects of medical practice including coding and insurance.
51. Work with ancillary team members (discharge planners, case managers, and social workers) to provide high quality cost-effective care.
52. Use systematic approaches to reduce errors.
53. Practice effective allocation of health care resources to avoid compromising quality of care.
54. Serve as a patient advocate in the outpatient and inpatient setting.
55. Direct care in inpatient and outpatient settings as a member of a multidisciplinary team.



56. Demonstrate knowledge of how the health care system including other physicians, nurses, and health care professionals affect their patient care practices.
57. 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

- BCSC (all sections)
- Principles and Practice of Ophthalmology (Albert & Jakobiec)
- Journals (*Am J Ophthalmology*, *Arch Ophthalmology*, *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
- OKAP examination

Third Year VA Medical Center Rotation

Third year residents are assigned to the VA Medical Center for four months. Residents gain extensive experience in the management of adults and geriatric patients with a wide variety of medical and surgical disorders. Many of the patients have numerous complex medical problems as well as complex ophthalmologic disorders. Residents perform a large number of anterior segment, cornea, glaucoma, retina and vitreous, and oculoplastics procedures during this rotation.

Goals

1. To acquire advanced knowledge and skills in the management of adults and geriatric patients with complex ophthalmologic diseases and disorders
2. To refine the techniques of consultation for patients with multiple systemic diseases and complex ophthalmologic disorders

Learning Objectives

Knowledge

1. Evaluate patients with the following disorders, outline an appropriate differential diagnosis, order and evaluate diagnostic studies, determine a final diagnosis, and formulate a treatment plan:
 - a. Intraocular tumors

- 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
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 - Choroidal hemangioma
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 - Retinoblastoma
 - Metastatic carcinoma
 - Lymphomatous tumors
 - Leukemia
 - Medulloepithelioma
 - Leiomyomas, neurilemmomas, and neurofibromas
- b. Optic nerve disorders
- Optic disc edema
 - Anterior ischemic optic neuropathy
 - Posterior ischemic optic neuropathy
 - Optic neuritis
 - Compressive optic neuropathy
 - Infiltrative optic neuropathy
 - Toxic/nutritional optic neuropathy
 - Dominant optic neuropathy
 - Leber hereditary optic neuropathy
 - Optic nerve drusen

- Congenital optic disc abnormalities
 - Optic nerve trauma
 - Optic atrophy
 - Lesions of the optic chiasm
 - Disorders of visual integration
- c. Pupil disorders
- Argyll Robertson pupil
 - Parinaud dorsal midbrain syndrome
 - Pretectal afferent pupillary defects
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- d. Abnormalities of the ocular motor system:
- Nystagmus
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h. Strabismus

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 - Perforating injuries
 - Intraocular foreign bodies
 - Posttraumatic endophthalmitis
 - Symphathetic ophthalmia
 - Avulsion of the optic disc

2. Review the indications, pre-operative evaluation, surgical techniques, intraoperative and post-operative complications, and post-operative care for the following anterior segment surgical procedures:
- a. Extracapsular cataract extraction with intraocular lens implantation
 - b. Phacoemulsification with intraocular lens implantation
 - c. Intracapsular cataract extraction
 - d. Secondary IOL insertion
 - e. IOL exchange
 - f. YAG laser capsulotomy
 - g. Corneoscleral laceration
 - h. Ruptured globe
 - i. Pterygium excision
 - j. Conjunctival laceration
 - k. Conjunctival flap
 - l. Conjunctival transplantation



- m. Anterior chamber washout
3. Review the indications, pre-operative evaluation, surgical techniques, intraoperative and post-operative complications, and post-operative care for the following corneal surgery procedures:
 - a. Penetrating keratoplasty
 - b. Lamellar keratoplasty
 - c. Corneal biopsy
 4. Review the indications, pre-operative evaluation, surgical techniques, intraoperative and post-operative complications, and post-operative care for the following glaucomasurgical procedures:
 - a. Trabeculectomy
 - b. Trabeculectomy with antimetabolite therapy
 - c. Shunt procedures (Ahmed, Molteno, Baerveldt, Krupin)
 - d. Goniotomy
 - e. Argon laser iridotomy
 - f. YAG laser iridotomy
 - g. Argon laser trabeculoplasty
 - h. Cyclocryocoagulation of the ciliary body
 5. Review the indications, pre-operative evaluation, surgical techniques, intraoperative and 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
6. Review the indications, pre-operative evaluation, surgical techniques, intraoperative and 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
 - p. Temporal artery biopsy
7. Review the indications, pre-operative evaluation, surgical techniques, intraoperative and post-operative complications, and post-operative care for the following pediatric ophthalmology and strabismus surgical procedures:
- a. Muscle/tendon weakening procedures
 - b. Muscle/tendon strengthening procedures
 - c. Adjustable sutures
 - d. Transposition procedures
 - e. Chemodenervation using botulinum toxin



Patient Care Skills

1. Perform the pre-operative evaluation, procedure, and post-operative care of the following anterior segment surgical procedures:
 - a. Extracapsular cataract extraction with intraocular lens implantation
 - b. Phacoemulsification with intraocular lens implantation
 - c. Intracapsular cataract extraction
 - d. Secondary IOL insertion
 - e. IOL exchange
 - f. YAG laser capsulotomy
 - g. Corneoscleral laceration
 - h. Ruptured globe
 - i. Pterygium excision
 - j. Conjunctival laceration
 - k. Conjunctival flap
 - l. Conjunctival transplantation
 - m. Anterior chamber washout

2. Perform the pre-operative evaluation, procedure, and post-operative care of the following cornea surgery procedures:
 - a. Penetrating keratoplasty
 - b. Corneal biopsy

3. Perform the pre-operative evaluation, procedure, and post-operative care of the following glaucoma surgical procedures:
 - a. Trabeculectomy
 - b. Trabeculectomy with antimetabolite therapy
 - c. Shunt procedures (Ahmed, Molteno, Baerveldt, Krupin)
 - d. Argon laser iridotomy
 - e. YAG laser iridotomy

- f. Argon laser trabeculoplasty
 - g. Cyclocryocoagulation of the ciliary body
4. Perform the pre-operative evaluation, procedure, 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
5. Perform the pre-operative evaluation, procedure, 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



6. Perform the pre-operative evaluation, procedure, and post-operative care of the following pediatric ophthalmology and strabismus surgical procedures:
 - a. Muscle/tendon weakening procedures
 - b. Muscle/tendon strengthening procedures
 - c. Adjustable sutures
 - d. Chemodenervation using botulinum toxin

Practice Based Learning and Improvement

1. Teach medical students and 1st year residents on service.
2. Participate in all mandated conferences, including presentation of assigned Journal Club articles, Grand Rounds patient presentations, and Morbidity/Mortality Conference.
42. Evaluate patient care practices, discuss how they meet standards, and develop ways to improve these practices.
43. Demonstrate improvement in clinical management.
44. Implement preferred practice patterns into current patient care practices.
45. Obtain information from a variety of sources in ophthalmology and related fields.
46. 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.
47. Use information technology such as Up-To-Date, PubMed or Ovid to enhance patient care.
Use patient care errors and near misses to teach residents and students.

Interpersonal and Communication Skills

80. Carefully listen to patients to assess the patient's health problems including verbal and non-verbal communications.
81. Communicate and establish a therapeutic relationship with patients.
82. Develop respectful and considerate attitudes towards patients and their families, especially when delivering news of untreatable vision loss or poor outcomes.
Demonstrate understanding of the special issues regarding effective communication skills with patients, especially in communications addressing decisions involving (potential) permanent loss of vision.



83. Present cases accurately and succinctly to faculty and peers in the clinical setting as well as in departmental patient care conferences.
84. Provide timely, legible, thorough, succinct medical record documentation - histories and physical examinations, admission notes, progress notes, procedure notes and discharge summaries.
85. Provide education and counseling to patients, and families using non-technical and clear language.
86. Demonstrate skill in handling a variety of difficult patient care situations.
87. Clearly speak when addressing patient issues and management plans with patients, families, and health care colleagues.
88. Be willing to spend adequate time with patients addressing their questions and concerns.
89. Use both non-verbal and verbal communication skills to effectively deliver education and counseling to patients, families, and colleagues.
90. Work well within a team context relating to students, residents, attending physicians, nurses/technicians, and patients.
91. Function effectively as a consultant for specialty and subspecialty care.
Communicate effectively when discussing patient conditions and health care practices with fellow residents, attending physicians and other health care providers.

Professionalism

86. Interface with referring and consulting physicians and appropriate hospital staff in a professional and respectful manner, recognizing and instituting the core competencies.
87. Professionally interact with patients, attending physicians and allied health care personnel, including adherence to dress policy as outlined in the Residents' Manual.
88. Establish trust with patients and staff by providing reliable and appropriate care to patients.
89. Demonstrate respect, compassion, integrity, punctuality, reliability, and honesty with regards to patients and colleagues.
90. Show regard for the opinions of others.
91. Display initiative and leadership.
92. Acknowledge errors, and alert patients and appropriate health care providers.
93. Create a plan of action to minimize errors.
94. Demonstrate concern for educational development of students and residents. Volunteer for activities for the good of the institution and community.



95. Ask for help when needed, and seek and accept feedback.
96. Demonstrate a commitment to carrying out professional responsibilities, adherence to ethical principles, and sensitivity to a diverse patient population.
97. Maintain patient confidentiality.
98. 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

58. Demonstrate ability to practice medicine in a Va Hospital System, including use of the EMR.
59. Demonstrate knowledge of how this medical care system impacts patient care delivery when compared to other types of medical practice and health delivery systems.
60. Work with ancillary team members (discharge planners, case managers, and social workers) to provide high quality cost-effective care.
61. Use systematic approaches to reduce errors.
62. Practice effective allocation of health care resources to avoid compromising quality of care.
63. Serve as a patient advocate in the outpatient and inpatient setting.
64. Direct care in inpatient and outpatient settings as a member of a multidisciplinary team.
65. Demonstrate knowledge of how the health care system including other physicians, nurses, and health care professionals affect their patient care practices.
66. Keep medical records review and signage up to date.
20. Record on call patients, procedures, and duty hours as required by the University and Department
21. Attend University of Tennessee Graduate Medical Education's System Based Lecture series, or view session online if unable to attend.

Resources

- BCSC (all sections)
- Principles and Practice of Ophthalmology (Albert & Jakobiec)
- Journals (Am J Ophthalmology, Arch Ophthalmology, 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

Third Year Methodist Rotation

Third year residents are assigned to the Methodist University Hospital for four months. This clinic is housed in the Hamilton Eye Institute, and is a referral center for the regional Lions Club, serving children and adults with complex surgical problems such as childhood cataracts, traumatic cataracts, strabismus, nystagmus, anterior segment reconstruction, orbital and craniofacial trauma, and complicated glaucoma. Residents have the opportunity to gain expertise in kerstorefractive surgery and clinical management.

Goals

1. To acquire advanced knowledge and skills in the management of adults and children with complex ophthalmologic diseases and disorders.
2. To acquire advanced knowledge and skills in kerstorefractive surgery.



3. To gain advanced skills in clinic management, including managing appointment schedules, surgical schedules, and insurance issues.

Learning Objectives

Medical Knowledge

1. Evaluate patients with the following disorders, outline an appropriate differential diagnosis, order and evaluate diagnostic studies, determine a final diagnosis, and formulate a treatment plan:
 - a. Intraocular tumors
 - 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
 - Angiomatous tumors
 - Choroidal hemangioma
 - Capillary hemangioma
 - Cavernous hemangioma
 - Retinoblastoma
 - Metastatic carcinoma
 - Lymphomatous tumors
 - Leukemia
 - Medulloepithelioma

- Leiomyomas, neurilemmomas, and neurofibromas
- b. Optic nerve disorders
 - Optic disc edema
 - Anterior ischemic optic neuropathy
 - Posterior ischemic optic neuropathy
 - Optic neuritis
 - Compressive optic neuropathy
 - Infiltrative optic neuropathy
 - Toxic/nutritional optic neuropathy
 - Dominant optic neuropathy
 - Leber hereditary optic neuropathy
 - Optic nerve drusen
 - Congenital optic disc abnormalities
 - Optic nerve trauma
 - Optic atrophy
 - Lesions of the optic chiasm
 - Disorders of visual integration
- c. Pupil disorders
 - Argyll Robertson pupil
 - Parinaud dorsal midbrain syndrome
 - Pretectal afferent pupillary defects
 - Anisocoria
 - Lesions of the parasympathetic system
 - Lesions of the sympathetic system
- d. Abnormalities of the ocular motor system:
 - Nystagmus
 - Diplopia
 - Myopathies
 - Myoneural junction disease

- Internuclear ophthalmoplegia
- Cranial nerve palsies (III, IV, VI, multiple)
- e. Abnormalities of the facial nerve
 - Disorders of underactivity
 - Disorders of overactivity
- f. Systemic conditions with neuro-ophthalmologic signs
 - Multiple sclerosis
 - Myasthenia gravis
 - Myopathies
 - Neurocutaneous syndromes
 - Thyroid ophthalmopathy
 - Pregnancy associated neuro-ophthalmologic disorders
 - Cerebrovascular disease
 - Cerebral aneurysms
 - Arteriovenous malformations
 - Dissecting aneurysms
 - Cerebral venous and dural sinus thrombosis
 - Migraine and tension type headache
 - Icepick pains and stabbing headache
 - Cluster headache
 - Facial pain
 - AIDS
 - Lyme disease
 - Fungal infections
 - Cat-scratch disease
- g. Ambylopia
 - Strabismic
 - Anisometropic
 - Isoametropic

- h.
 - Deprivation
 - Strabismus
 - Esodeviations
 - Pseudoesotropia
 - Infantile
 - Accomodative
 - Nonaccomodative acquired
 - Incomitant deviations
 - Exodeviations
 - Pseudoexotropia
 - Exophoria
 - Intermittent
 - Constant
 - Convergence insufficiency
 - Convergence paralysis
 - Vertical deviations
 - Comitant deviations
 - Incomitant deviations
 - A and V patterns
 - Special forms of strabismus
 - Congenital abducens palsy
 - Duane syndrome
 - Mobius syndrome
 - Oculomotor nerve palsy
 - Graves disease
 - CPEO
 - Myasthenia gravis
 - Congenital fibrosis syndrome
 - Internuclear ophthalmoplegia
 - Congenital motor apraxia

- i. Childhood nystagmus
 - Congenital
 - Acquired
- j. Pediatric ophthalmology disorders
 - Eyelid disorders
 - Infectious and allergic ocular diseases
 - Lacrimal drainage system disorders
 - Cornea and anterior segment
 - Iris abnormalities
 - Glaucoma
 - Cataracts and other lens disorders
 - Uveitis
 - Retina and vitreous diseases
 - Optic nerve
 - Ocular tumors
 - Phakomatoses
 - Craniofacial malformations
 - Inborn errors of metabolism
 - Decreased vision in infants and children
 - Learning disabilities and dyslexia
- k. Orbital disorders
 - Congenital orbital anomalies
 - Infectious and inflammatory disorders
 - Orbital neoplasms
 - Congenital orbital tumors
 - Vascular tumors
 - Neural tumors
 - Mesenchymal tumors
 - Lymphoproliferative disorders

- Lacrimal gland tumors
- Secondary orbital tumors
- Metastatic tumors
- Orbital trauma
 - Midfacial fractures
 - Orbital fractures
 - Intraorbital foreign bodies
 - Orbital hemorrhage
 - Traumatic visual loss
- Anophthalmic socket
- l. Eyelid disorders
 - Congenital anomalies
 - Eyelid inflammation
 - Eyelid neoplasms
 - Eyelid trauma
 - Ectropion
 - Entropion
 - Symblepharon
 - Trichiasis
 - Blepharoptosis
 - Eyelid retraction
 - Involutional periorbital changes
 - Eyelid dyskinesia
- m. Lacrimal system disorders
 - Congenital tearing
 - Acquired tearing
- n. Ocular surface disorders
 - Dermatoses affecting the ocular surface
 - Noninflammatory vascular anomalies
 - Tear deficiency states



- Nutritional and physiologic disorders
 - Structural and exogenous disorders
 - Limbal stem cell dysfunction
- o. Infectious diseases of the eyelids, conjunctiva, cornea, and sclera
- Viral infections
 - Microbial and parasitic infections of the eyelid margin and conjunctiva
 - Microbial and parasitic infections of the cornea and sclera
- p. Immune-mediated diseases of the eyelids, conjunctiva, cornea and sclera
- q. Neoplastic diseases of the eyelids, conjunctiva, cornea, and sclera
- 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
- r. Congenital anomalies of the cornea and sclera
- s. Corneal dystrophies and metabolic disorders involving the conjunctiva, cornea, and sclera
- Anterior corneal dystrophies
 - Ectatic disorders
 - Metabolic disorders
- t. Degenerative disorders of the conjunctiva, cornea, and sclera
- Conjunctival degenerations
 - Corneal degenerations
 - Drug-induced deposition and pigmentation
 - Scleral degenerations
- u. Toxic and traumatic injuries of the anterior segment



- Injuries caused by temperature and radiation
 - Chemical injuries
 - Concussive trauma
 - Nonperforating mechanical trauma
 - Perforating trauma
 - Surgical trauma
- v. Anterior uveitis
- Acute anterior nongranulomatous iritis and iridocyclitis
 - Chronic iridocyclitis
- w. Intermediate uveitis and pars planitis
- x. Posterior uveitis
- Infectious diseases
 - Immunologic diseases
 - Masquerade syndromes
- y. Panuveitis
- Infectious diseases
 - Immunologic and granulomatous diseases
 - Masquerade syndromes
- z. Endophthalmitis
- aa. Ocular involvement in AIDS
- bb. Open angle glaucoma
- Primary open angle glaucoma
 - Glaucoma suspect
 - Normal-tension glaucoma
 - Secondary open angle glaucoma
- cc. Angle closure glaucoma
- Primary angle closure glaucoma with pupillary block
 - Primary angle closure glaucoma without pupillary block
 - Secondary angle closure glaucoma with pupillary block



- Secondary angle closure glaucoma without pupillary block
- dd. Combined mechanism glaucoma
- ee. Childhood glaucoma
- ff. Congenital and developmental lens defects
- gg. Cataracts
 - Congenital and infantile cataracts
 - Age-related cataracts
 - Metabolic cataracts
 - Cataracts associated with uveitis
 - Cataracts associated with skin diseases
- hh. Drug-induced lens changes
- ii. Lens trauma
- jj. Exfoliation syndromes
- kk. Lens-induced uveitis
- ll. Lens-induced glaucoma
- mm. Acquired diseases affecting the macula
 - Central serous chorioretinopathy
 - Age-related macular degeneration
 - Other causes of choroidal neovascularization
 - Vitreoretinal interface abnormalities
 - Valsalva retinopathy
 - Purtscher's retinopathy
 - Terson syndrome
- nn. Retinal vascular diseases
 - Systemic arterial hypertension
 - Diabetic retinopathy
 - Sickle cell retinopathy
 - Peripheral retinal neovascularization
 - ROP
 - Venous occlusive disease



- Arterial occlusive disease
 - Vasculitis
 - Cystoid macular edema
 - Coat's disease
 - Parafoveal retinal telangiectasis
 - Macroaneurysms
 - Phakomatoses
- oo. Choroidal diseases
- Choroidal hemangioma
 - Choroidal ischemia
 - Uveal effusion syndrome
- pp. Congenital and stationary retinal disease
- Color vision abnormalities
 - Night vision abnormalities
- qq. Hereditary retinal and choroidal dystrophies
- Diffuse photoreceptor dystrophies
 - Macular and RPE dystrophies
 - Choroidal dystrophies
 - Inner retinal and Vitreoretinal dystrophies
- rr. Retinal degenerations associated with systemic diseases
- ss. Peripheral retinal abnormalities
- Retinal breaks
 - Posterior vitreous detachment
 - Lesions predisposing to retinal detachment
 - Lesions not predisposing to retinal detachment
 - Rhegmatogenous retinal detachment
 - Tractional retinal detachment
 - Exudative retinal detachment
- tt. Vitreous disorders



- Developmental abnormalities
 - Familial exudative vitreoretinopathy
 - Asteroid hyalosis
 - Cholesterosis
 - Amyloidosis
 - Vitreous hemorrhage
 - Inflammation
 - Parasitic infestation
 - Pigment granules
- uu. Posterior segment trauma
- Blunt trauma
 - Penetrating injuries
 - Perforating injuries
 - Intraocular foreign bodies
 - Posttraumatic endophthalmitis
 - Sympathetic ophthalmia
 - Shaken baby/child abuse
 - Avulsion of the optic disc
2. Review the indications, pre-operative evaluation, surgical techniques, intraoperative and post-operative complications, and post-operative care for the following anterior segment surgical procedures:
- a. Extracapsular cataract extraction with intraocular lens implantation
 - b. Phacoemulsification with intraocular lens implantation
 - c. Intracapsular cataract extraction
 - d. Secondary IOL insertion
 - e. IOL exchange
 - f. YAG laser capsulotomy
 - g. Corneoscleral laceration
 - h. Ruptured globe



- i. Pterygium excision
 - j. Conjunctival laceration
 - k. Conjunctival flap
 - l. Conjunctival transplantation
 - m. Anterior chamber washout
3. Review the indications, pre-operative evaluation, surgical techniques, intraoperative and post-operative complications, and post-operative care for the following cornea and refractive surgery procedures:
- a. Penetrating keratoplasty
 - b. Lamellar keratoplasty
 - c. Corneal biopsy
 - d. PRK
 - e. LASIK/Intralase
 - f. Epilasik
 - g. Intacs
4. Review the indications, pre-operative evaluation, surgical techniques, intraoperative and post-operative complications, and post-operative care for the following glaucomasurgical procedures:
- a. Trabeculectomy
 - b. Trabeculectomy with antimetabolite therapy
 - c. Shunt procedures (Ahmed, Molteno, Baerveldt, Krupin, etc.)
 - d. Goniotomy
 - e. Argon laser iridotomy
 - f. YAG laser iridotomy
 - g. Argon laser trabeculoplasty
 - h. Ablation of the ciliary body



5. Review the indications, pre-operative evaluation, surgical techniques, intraoperative and 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

6. Review the indications, pre-operative evaluation, surgical techniques, intraoperative and 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



- p. Temporal artery biopsy
7. Review the indications, pre-operative evaluation, surgical techniques, intraoperative and post-operative complications, and post-operative care for the following pediatric ophthalmology and strabismus surgical procedures:
- a. Nasolacrimal duct probing
 - b. Examination under anesthesia
 - c. Pediatric cataract extraction (with/without intraocular lens)
 - d. Muscle/tendon weakening procedures
 - e. Muscle/tendon strengthening procedures
 - f. Adjustable sutures
 - g. Transposition procedures
 - h. Chemodenervation using botulinum toxin

Patient Care Skills

1. Perform the pre-operative evaluation, procedure, and post-operative care of the following anterior segment surgical procedures:
- a. Extracapsular cataract extraction with intraocular lens implantation
 - b. Phacoemulsification with intraocular lens implantation
 - c. Intracapsular cataract extraction
 - d. Secondary IOL insertion
 - e. IOL exchange
 - f. YAG laser capsulotomy
 - g. Corneoscleral laceration
 - h. Ruptured globe
 - i. Pterygium excision
 - j. Conjunctival laceration
 - k. Conjunctival flap
 - l. Conjunctival transplantation

- m. Anterior chamber washout
2. Perform the pre-operative evaluation, procedure, and post-operative care of the following cornea surgery procedures:
 - a. Penetrating keratoplasty
 - b. Corneal biopsy
 3. Perform the pre-operative evaluation, procedure, and post-operative care of the following glaucoma surgical procedures:
 - a. Trabeculectomy
 - b. Trabeculectomy with antimetabolite therapy
 - c. Shunt procedures (Ahmed, Molteno, Baerveldt, Krupin)
 - d. Goniotomy
 - e. Argon laser iridotomy
 - f. YAG laser iridotomy
 - g. Argon laser trabeculoplasty
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 - b. Chalazion



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 - 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
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 - b. Muscle/tendon weakening procedures
 - c. Muscle/tendon strengthening procedures
 - d. Adjustable sutures
 - e. Chemodenervation using botulinum toxin

Practice Based Learning and Improvement

1. Teach medical students and 1st year residents on service.
2. Participate in all mandated conferences, including presentation of assigned Journal Club articles, Grand Rounds patient presentations, and Morbidity/Mortality Conference.
48. Evaluate patient care practices, discuss how they meet standards, and develop ways to improve these practices.
49. Demonstrate improvement in clinical management.



50. Implement preferred practice patterns into current patient care practices.
51. Obtain information from a variety of sources in ophthalmology and related fields.
52. 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.
53. Use information technology such as Up-To-Date, PubMed or Ovid to enhance patient care.
Use patient care errors and near misses to teach residents and students.

Interpersonal and Communication Skills

92. Carefully listen to patients to assess the patient's health problems including verbal and non-verbal communications.
93. Communicate and establish a therapeutic relationship with patients.
94. Develop respectful and considerate attitudes towards patients and their families, especially when delivering news of untreatable vision loss or poor outcomes.
Demonstrate understanding of the special issues regarding effective communication skills with patients, especially in communications addressing decisions involving (potential) permanent loss of vision.
95. Present cases accurately and succinctly to faculty and peers in the clinical setting as well as in departmental patient care conferences.
96. Provide timely, legible, thorough, succinct medical record documentation - histories and physical examinations, admission notes, progress notes, procedure notes and discharge summaries.
97. Provide education and counseling to patients, and families using non-technical and clear language.
98. Demonstrate skill in handling a variety of difficult patient care situations.
99. Clearly speak when addressing patient issues and management plans with patients, families, and health care colleagues.
100. Be willing to spend adequate time with patients addressing their questions and concerns.
101. Use both non-verbal and verbal communication skills to effectively deliver education and counseling to patients, families, and colleagues.
102. Work well within a team context relating to students, residents, attending physicians, nurses/technicians, and patients.
103. Function effectively as a consultant for specialty and subspecialty care.



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

Professionalism

99. Interface with referring and consulting physicians and appropriate hospital staff in a professional and respectful manner, recognizing and instituting the core competencies.
100. Professionally interact with patients, attending physicians and allied health care personnel, including adherence to dress policy as outlined in the Residents' Manual.
101. Establish trust with patients and staff by providing reliable and appropriate care to patients.
102. Demonstrate respect, compassion, integrity, punctuality, reliability, and honesty with regards to patients and colleagues.
103. Show regard for the opinions of others.
104. Display initiative and leadership.
105. Acknowledge errors, and alert patients and appropriate health care providers.
106. Create a plan of action to minimize errors.
107. Demonstrate concern for educational development of students and residents. Volunteer for activities for the good of the institution and community.
108. Ask for help when needed, and seek and accept feedback.
109. Demonstrate a commitment to carrying out professional responsibilities, adherence to ethical principles, and sensitivity to a diverse patient population.
110. Maintain patient confidentiality.
111. 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

67. Demonstrate ability to practice medicine in a not-for-profit hospital with philanthropic support of many clinic patients (Lions' Club).
68. Demonstrate knowledge of different types of medical practice and health delivery systems and know how this affects patient care.
69. Demonstrate knowledge of business aspects of medical practice including coding and insurance.
70. Work with ancillary team members (discharge planners, case managers, and social workers) to provide high quality cost-effective care.



71. Use systematic approaches to reduce errors.
72. Practice effective allocation of health care resources to avoid compromising quality of care.
73. Serve as a patient advocate in the outpatient and inpatient setting.
74. Direct care in inpatient and outpatient settings as a member of a multidisciplinary team.
75. Demonstrate knowledge of how the health care system including other physicians, nurses, and health care professionals affect their patient care practices.
76. Keep medical records review and signage up to date.
 - Record on call patients, procedures, and duty hours as required by the University and Department
 - Attend University of Tennessee Graduate Medical Education's System Based Lecture series, or view session online if unable to attend.

Resources

- BCSC (all sections)
- Principles and Practice of Ophthalmology (Albert & Jakobiec)
- Journals (Am J Ophthalmology, Arch Ophthalmology, 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
- OKAP examination