

# OPHTHALMOLOGY

## RESIDENCY

### GOALS & OBJECTIVES

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MedStar Georgetown University Hospital/Washington Hospital Center Residency Program  
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COMPREHENSIVE OPHTHALMOLOGY AND ANTERIOR SEGMENT  
STACY BANG, MD

PGY2 Residents:

GOALS AND OBJECTIVES

**Goals:**

- To provide residents with the formal instruction and patient-care experiences that will enable them to take and interpret the results of the basic ophthalmologic examination, effect appropriate care and/or make appropriate referrals as indicated.
- To instruct residents in the indications for and proper, safe performance of laser capsulotomy and peripheral iridectomy.

**Objectives**

- Become expert at taking and interpreting a medical and ophthalmic history
- Become expert at performing and interpreting the results of the elements of the basic eye exam to include refraction, tonometry, slit lamp examination, gonioscopy, fundus examination employing the direct and indirect ophthalmoscope and the hand-held indirect lenses for use with the slit lamp, ocular motility evaluation, confrontation visual fields, contact pachymetry, exophthalmometry, retropulsion of the eyeball, evaluation of the lacrimal secretory systems and the external examination
- Become familiar with the medications employed in the treatment of the diseases commonly encountered in the clinic population to include topical anti-infectious agents, anti-inflammatory agents and mydriatic-cycloplegics
- Become expert in the use of the laser to perform capsulotomy and peripheral iridectomy

PATIENT CARE

Residents will provide patient care that is compassionate, appropriate, and effective for the treatment of eye problems and the promotion of eye health. Through supervised patient encounters in the Eye Center, residents will develop increased proficiency in the PGY2 year with the diagnosis and management of a variety of medical and surgical ophthalmic disorders.

MEDICAL KNOWLEDGE

1. ASSESSMENT OF THE OPHTHALMIC EMERGENCY

All residents: understand the diagnosis and management of the following medical emergencies:

A. Ophthalmic Trauma

1. corneal abrasion
2. corneal chemical burn
3. corneal foreign body
4. hyphema
5. iris trauma (iridodialysis, traumatic mydriasis, angle recession)
6. lens trauma (traumatic cataract, phacoanaphylaxis, lens dislocation)
7. ciliary body/angle trauma (traumatic iritis, cyclodialysis)
8. vitreous hemorrhage
9. globe rupture
10. intraocular foreign body
11. orbital fracture (entrapment, retrobulbar hemorrhage)

B. Vascular events

1. retinal artery occlusion

- 2. retinal vein occlusion
- 3. choroidal neovascularization
- 4. ischemic optic neuropathy (arteritic, non-arteritic)
- C. Infections
  - 1. corneal ulcer (bacterial, viral, fungal)
  - 2. endophthalmitis
  - 3. cellulitis (preseptal, orbital)
- D. Neurologic
  - 1. optic neuritis
  - 2. papilledema
  - 3. third-nerve palsy
  - 4. abducens palsy
  - 5. fourth-nerve palsy
  - 6. Horner's syndrome
- E. Degenerative
  - 1. vitreous detachment
  - 2. retinal detachment (rhegmatogenous, serous, exudative, tractional)

#### REQUIRED SKILLS:

- 1. indirect ophthalmoscopy
- 2. gonioscopy
- 3. tonometry
- 4. ultrasonography
- 5. perimetry
- 6. surgical techniques: wound repair, lateral canthotomy/cantholysis, anterior chamber paracentesis, corneal scraping

#### 2. MANAGEMENT OF COMMON OPHTHALMIC DISORDERS

All residents: understand the diagnosis and management of the following medical conditions:

- A. Cornea/Anterior Segment
  - 1. blepharitis/chalazia
  - 2. exposure keratopathy (Bell's Palsy, Lagophthalmos)
  - 3. dry eye/Meibomian gland dysfunction
  - 4. corneal/conjunctival degenerations (pterygium, pingueculm, arcus)
  - 5. conjunctivitis (viral, bacterial, allergic, toxic)
  - 6. conjunctival hemorrhage
  - 7. corneal dystrophies (map-dot-fingerprint, Fuchs')
  - 8. uveitis (iritis, scleritis, peripheral ulcerative keratitis)
- B. Iris/Angle/Glaucoma
  - 1. abnormal anatomy (narrow angle, plateau iris, pigment dispersion)
  - 2. glaucoma (open angle, normal tension, angle closure)
- C. Lens
  - 1. cataract (congenital, senile, toxic, traumatic)
  - 2. IOL disorders (posterior capsular opacity, lens dislocation, UGH syndrome)
- D. Vitreous/Retina
  - 1. pigmented ocular lesions
  - 2. diabetic retinopathy
  - 3. age-related macular degeneration
  - 4. retinal dystrophies (retinitis pigmentosa, congenital stationary night blindness)
  - 5. lattice degeneration
  - 6. high myopia

7. cystoid macular edema
- E. Neuro-Ophthalmology
  1. optic neuropathy (ischemic, infectious, inflammatory, metabolic, traumatic)
  2. visual field defects (pituitary tumors, stroke)
  3. motility disorders (strabismus, nerve palsies, multiple sclerosis, nystagmus)
- F. Eyelids/Lacrimal System/Orbit
  1. contact dermatitis
  2. trichiasis
  3. ectropion/entropion
  4. ptosis/dermatochalasis
  5. canalicular and nasolacrimal duct obstruction
  6. proptosis
- G. Optics
  1. refractive error (astigmatism, latent hyperopia, presbyopia)
  2. anisometropia/aniseikonia
- H. Systemic
  1. involvement in systemic diseases (diabetes mellitus, hypertension, rheumatoid arthritis, thyroid)
  2. effect from systemic medications (plaquenil, ethambutol, topiramate)

#### REQUIRED SKILLS:

1. indirect ophthalmoscopy
2. gonioscopy
3. tonometry
4. ultrasonography
5. perimetry
6. probe/irrigation
7. exophthalmometry
8. refraction (automated, manual)
9. lensometry
10. keratometry (automated, manual)
11. prism neutralization
12. contact pachymetry
13. surgical techniques: laser capsulotomy, laser iridotomy, chalazion incision and curettage, skin/conjunctival excisional biopsy, temporal artery biopsy

### 3. EVALUATION AND MANAGEMENT OF CATARACTS

All residents: understand the diagnosis and management of cataracts

#### A. Pre-operative evaluation

1. cornea (guttae, scars, limitations to view)
2. anterior chamber (depth, access)
3. iris (pupillary dilation, pseudoexfoliation)
4. lens (cataract type, capsular and zonular integrity)
5. retinal pathology (maculopathy, s/p vitrectomy)
6. keratometry and axial length
7. choice of IOL
8. patient health and stability (challenges during and after surgery)
9. planning (anesthesia, anticoagulation, compliance)
10. patient consent

#### B. Post-operative management

1. wound management (wound leak, wound burn, suture removal)

2. IOL (position, posterior-capsular opacity)
3. intraocular pressure (retained viscoelastic, steroid response)
4. retinal injury (cystoid macular edema, vitreous or retinal tear/detachment)
5. optimizing visual outcome (refraction, anisometropia)
6. complications (bullous keratopathy, iris injury, IOL dislocation, vitreous)
7. endophthalmitis

## PRACTICE-BASED LEARNING AND IMPROVEMENT

Residents will demonstrate the ability to investigate and evaluate their care of patients, to appraise and assimilate scientific evidence, and to continuously improve patient care based on constant self-evaluation. Through their close interactions with clinic attendings and senior residents, PGY2 residents will have continuing opportunities to adjust their examination and treatment patterns, in order to continually improve their competence in these areas. Exercises such as journal clubs and conferences will provide the opportunity to appraise and assimilate scientific evidence and incorporate evidence-based medicine into their care of patients.

## INTERPERSONAL AND COMMUNICATION SKILLS

Residents will demonstrate interpersonal and communication skills that result in the effective exchange of information and collaboration with patients, their families, and health professionals. The very diverse cultural and ethnic backgrounds of the patients in the MWHC Eye Center allow the residents to quickly develop their abilities and skills to communicate across a broad range of socioeconomic and cultural backgrounds. Their attending physicians and senior residents are an invaluable resource to help learn and improve these behaviors. In addition, as part of a large regional medical center, communication with other health professionals is crucial in the care of Eye Center patients. Residents also learn to maintain comprehensive, timely, and legible medical records, both in the Eye Center and the Operating Room.

## PROFESSIONALISM

Residents will demonstrate a commitment to carrying out professional responsibilities and an adherence to ethical principles. Residents will demonstrate compassion, integrity, and respect for others, responsiveness to patient needs that supersedes self-interest, respect for privacy and autonomy, accountability to patients, society, and the profession, and sensitivity and responsiveness to a diverse patient population. Residents will acquire these skills by modeling the behavior of the faculty and senior residents. In addition, specific topics related to ethics and patient privacy are covered as part of the resident didactic series. The diversity of the clinic population allows residents to develop skills in sensitivity to differences in gender, age, culture, race, religion, disabilities, and sexual orientation.

## SYSTEMS-BASED PRACTICE

Residents will demonstrate an awareness of and responsiveness to the larger context and system of health care, as well as the ability to call effectively on other resources in the system to provide optimal health care. The challenges inherent in the MWHC patient population allow the residents to develop excellent skills in these areas. They learn how to work in the larger health care delivery system of the Hospital Center. They help coordinate patient care within the health system for patients who frequently have multiple complex medical problems, in addition to their eye diseases. Since many of the patients are on limited or fixed incomes, the residents learn to incorporate considerations of cost awareness and risk-benefit analysis in patient care. Because of the many difficulties that these patients face, residents learn to advocate for the patients in the health care system and work in interprofessional teams to enhance patient safety and improve quality. Through suggestions made by the residents, they learn to identify system errors and suggest potential solutions.

## PGY3 Residents

### Goals:

To provide residents with the formal instruction and patient care experiences that will enable them to effectively and efficiently provide consultative services, upon request from other medical specialists.

### Objectives:

Learn the elements of a complete consultative examination

Develop an understanding of the systemic conditions with effects on the eye

Effectively coordinate care with referring physicians and other specialists

## MEDICAL KNOWLEDGE

Learn the effects of systemic diseases on the eye, including:

Diabetes

Hypertension

Thyroid disease

Stroke

Rheumatologic diseases

Become proficient in the interpretation of laboratory findings, and their implications in the management of patient's eye problems

## PATIENT CARE

Provide efficient and effective systemic disease consultations, examining patients the same day the request is made

Become an integral member of the overall team caring for the patient

In performing the ophthalmic consultation, residents will learn to:

efficiently and effectively provide ophthalmic support to the inpatient population

A. Triage

B. Patient evaluation

C. Communication with requesting service (recommendations, notice of dilation)

D. Conduct (affability, availability, ability)

## PRACTICE-BASED LEARNING AND IMPROVEMENT

Through review of systemic disease consultations with the attending physician, residents will develop the necessary skills to improve their examinations and evaluations of these patients. Residents are expected to continually strive to improve their performance based on feedback received.

## INTERPERSONAL AND COMMUNICATION SKILLS

Residents will learn to interact with patients, their families, and other health care providers. An important part of this rotation is the development of the ability to communicate pertinent findings to the non-ophthalmologists who have requested the consultation.

## PROFESSIONALISM

Residents will continue to develop their skills in professionalism through their interactions with patients, staff, and referring physicians. They will learn that patients with systemic diseases can react in a variety of ways to their eye problems and will learn to care for these patients with compassion and efficiency.

## SYSTEMS-BASED PRACTICE

Residents will learn to work within the framework of the Hospital as a whole through their provision of systemic disease consultations. They will provide the care, communicate effectively with referring physicians and nursing staff, and coordinate care to ensure that any associated eye problems are managed correctly by the primary care team.

## PGY4 Residents

### Goals:

To provide residents with the formal instruction and patient care experiences that will enable them to effectively and efficiently provide comprehensive ophthalmologic care, both medically and surgically.

### Objectives:

Continue to improve clinical skills, so that the resident can practice independently by the end of the academic year

Develop surgical skills in a variety of procedures, particularly cataract surgery

Mentor the junior residents in the clinic, minor procedure room, and wet labs

## PATIENT CARE

### Residents should:

1. understand the barriers to healthcare in a multi-cultural patient population
2. understand the issues of compliance in a geriatric patient population
3. track diagnostic tests (laboratory and radiologic) and communicate results to patients
4. provide compassionate and tailored care to each individual patient
5. develop competence and proficiency in the required surgical skills:
  - A. Extracapsular cataract extraction with IOL
    - bridle suture
    - shelved limbal wound
    - can-opener capsulotomy
    - irrigation/aspiration
    - wound closure
  - B. Phacoemulsification with IOL
    - scleral tunnel
    - clear corneal shelved wound
    - divide and conquer
    - stop and chop
    - phaco chop
    - iris hooks
    - capsular tension ring
    - trypan blue
    - viscodissection
    - management of capsule rupture
    - anterior vitrectomy
  - C. ACIOL
6. develop competence and proficiency in surgery for corneal disease, glaucoma, retinal disease, and globe trauma
7. provide acute and long-term postoperative care
8. develop skills in the use of topical, injection, and general anesthetics

## MEDICAL KNOWLEDGE

### Residents should:

1. demonstrate knowledge of established and evolving biomedical, clinical, epidemiological and social-behavioral sciences
2. demonstrate application of this knowledge to patient care
3. demonstrate competence in knowledge of the basic and clinical sciences specific to Ophthalmology

## PRACTICE-BASED LEARNING AND IMPROVEMENT

Residents should:

1. expand their knowledge of newly-learned diagnoses by referencing textbooks and performing literature searches
2. practice surgical skills in the wet-lab and virtually as often as needed to perform safe surgery on patients
3. master examination techniques by direct observation and feedback by the service faculty
4. participate in scholarly activities (manuscripts and presentations)

## INTERPERSONAL AND COMMUNICATION SKILLS

Residents should:

1. interact with faculty, peers, students, and technical, administrative, and clerical staff with respect and professional demeanor
2. communicate with patients and their families clearly and empathically utilizing written documents to enhance patient understanding
3. demonstrate aptitude and willingness to teach peers and medical students
4. communicate with referring physicians by telephone or written report
5. communicate with teams requesting consultation as well as bedside nurses

## PROFESSIONALISM

Residents should:

1. demonstrate good work ethic in timeliness, dress, and attitude
2. follow all hospital regulations (hand-washing, HIPAA, sterile technique, sharps disposal, clean environment, etc.)

## SYSTEMS-BASED PRACTICE

Residents should:

1. optimize patient care by communicating with other physicians and health care providers
2. identify barriers to quality patient care and work collaboratively with faculty toward improvement.
3. develop competence and proficiency in the required surgical skills:
  - A. Extracapsular cataract extraction with IOL
    - bridle suture
    - shelved limbal wound
    - can-opener capsulotomy
    - irrigation/aspiration
    - wound closure
  - B. Phacoemulsification with IOL
    - scleral tunnel
    - clear corneal shelved wound
    - divide and conquer
    - stop and chop
    - phaco chop
    - iris hooks
    - capsular tension ring
    - trypan blue
    - viscodissection
    - management of capsule rupture
    - anterior vitrectomy
  - C. ACIOL



CORNEA AND EXTERNAL DISEASE SERVICE  
GOALS AND OBJECTIVES  
JAY LUSTBADER, MD AND SALIM BUTRUS, MD

**Goals:**

- To provide our residents with the formal instruction and patient-care experiences that will enable them to correctly diagnose, manage and/or refer those patients who subsequently seek care from them for corneal and external diseases.

**Objectives:**

- Become expert at external examination of the ocular adnexa to include the lacrimal secretory and excretory systems
- Become expert at slit lamp examination of the cornea, sclera and conjunctiva
- Become able to identify those patients who require culture of the conjunctiva and cornea, and perform same effectively
- Become able to perform competently corneal pachymetry, keratometry, keratoscopy and evaluation of corneal sensation
- Become able to evaluate quality and quantity of tear formation
- Become able to recognize and manage common and uncommon diseases of the external ocular surface and eyelids to include infectious, inflammatory, congenital, degenerative, nutritional, immunologic and neoplastic causes
- Become able to recognize and manage injuries of the anterior surface of the globe
- Become able to perform standard surgical procedures upon the anterior surface of the globe
- Become able to evaluate state of corneal epithelium in patients who are under consideration for keratorefractive surgery

LEARNING OBJECTIVES IN CORNEA, BY YEAR, AND BY COMPETENCIES  
PGY2

At the completion of the PGY2 year, residents will be expected to have satisfactorily fulfilled each of the following competencies:

PATIENT CARE AND MEDICAL KNOWLEDGE\_[Diagnostic and Therapeutic Skills]

- Competently perform a slit lamp examination and be able to
  - appropriately use each of the various modes of slit lamp illumination (direct, indirect, sclerotic scatter, retroillumination, specular) to delineate and identify different types of corneal pathology
  - accurately measure lesion size with the slit lamp micrometer and estimate lesion depth
  - identify the appropriate indications for use of vital dyes (e.g., fluorescein, Rose Bengal) to highlight corneal pathology and recognize common staining patterns and their diagnostic significance
- Know how to perform and interpret basic ancillary testing relevant to cornea and external disease including
  - Seidel testing
  - Schirmer testing
  - Ultrasonic pachymetry
  - Corneal sensation testing
  - Manual keratometry
- Demonstrate competency in basic surgical skills including
  - Understanding of the parts of the operating microscope and their use

- Ability to set up the operating microscope and maintain appropriate levels of zoom, focus, illumination, and centration and appropriate use of hand instruments commonly used in anterior segment surgery
- Competency in the handling of 10-0 nylon suture, including tying, trimming, and burying of knots
- Creation of limbal stab incisions
- Creation and interrupted suture closure of beveled corneoscleral incisions.
- Suture removal
- Pterygium excision

#### Knowledge, Synthesis, Formulation, and Application

- For basic pathologic corneal and external disease processes such as
  - conjunctival papillae and follicles
  - punctate keratopathy, epithelial erosion, and epithelial defect
  - stromal scarring, edema, inflammation, and infiltration
  - Descemet's folds, guttata
 be able to
  - correctly identify the process
  - describe the level, location, size, and morphologic features of the lesion
  - develop a pertinent differential diagnosis
  - accurately document the finding, both verbally and by drawing
- For classic and mildly atypical presentations of the common corneal and external disease conditions such as
  - meibomitis and blepharitis
  - bacterial and viral conjunctivitis
  - keratoconjunctivitis sicca
  - medication-induced ocular surface toxicity
  - bacterial and herpetic keratitis
  - pterygium
 demonstrate the ability to
  - correctly arrive at the most likely diagnosis and be able to synthesize a differential diagnosis
  - identify any relevant work-up that is indicated
  - outline an appropriate plan for management
- For common corneal emergencies such as
  - corneal abrasion
  - corneal foreign body
  - infectious keratitis
  - gonococcal conjunctivitis
  - ocular surface chemical burn
  - corneal perforation
  - corneal/corneoscleral laceration
 be able to
  - document and draw key findings
  - arrive at an appropriate diagnosis and, as relevant, differential diagnosis
  - institute required diagnostic work-up
  - initiate appropriate and timely urgent treatment directed at managing the acute process and preventing potential complications
  - with assistance and supervision, develop and carry out a definitive management plan
- Acquire a fundamental understanding of
  - normal corneal anatomy and physiology
  - disease presentations in cornea and external disease
  - pharmacotherapy of cornea and external disease

- interactions of drugs with the ocular surface, including effects of the ocular surface status on drug penetration and bioavailability, as well as drug-induced effects on the ocular surface
- microbiology and immunology of the cornea and external eye
- surgical principles of corneal wound healing, incision creation, and wound apposition

#### INTERPERSONAL AND COMMUNICATION SKILLS

- Appropriately and clearly document history, examination findings, clinical impression, and plan in the medical record in a timely fashion
- Communicate with patients and their families in a clear, understandable, and contextually appropriate fashion
- Communicate effectively and appropriately with other members of the health care team
- Work in an effective, collegial, and cooperative fashion with other members of the health care team, including ancillary and support staff

#### PROFESSIONALISM

- Maintain ethical, professional, and responsible conduct at all times with patients, professional colleagues, and support staff

#### PRACTICE-BASED LEARNING AND IMPROVEMENT

- Initiate a regular, sustained, and organized program of lifelong learning by regular reading of standard texts and the ophthalmic literature
- Be able to critically analyze an article with respect to methodology, validity, and applicability
- Maintain a log of noteworthy patients seen in clinic and carry out appropriate learning-based activities accordingly, including
  - For patients with diagnoses or presentations that are unfamiliar to the resident, review, at a minimum, the material contained in texts
  - For patients with particularly unusual or complex diagnoses, presentations, or treatment plans, perform an in-depth reading of texts and selected reading of the relevant ophthalmic literature
- Consult with attending physicians regarding any questions or issues that may arise during the course of patient care, including those in the following areas:
  - Interpretation of findings and tests
  - Medical knowledge
  - Differential diagnosis
  - Formulation of assessment and plan
  - Interpretation of the medical literature
  - Patient communication
  - Assessment of patient compliance
  - Systems-based care issues

#### SYSTEMS-BASED PRACTICE

- Understand the role of other health care professionals and support staff outside of ophthalmology in the larger health care system and how to work effectively, appropriately, and cooperatively with other health care professionals and support staff to deliver effective, high quality, and compassionate outpatient and inpatient medical care. Examples include but are not limited to the following:
  - Consulting with pharmacists regarding questions of drug selection, drug interaction, pharmacokinetics, and pharmacoeconomics
  - Consulting with physicians in laboratory medicine, pathology, and radiology regarding interpretation of laboratory results, pathologic findings, or imaging studies
  - Working with medical interpreters to provide language-appropriate and culturally sensitive counseling and explanations to patients

- Be aware of potential issues of health care access and understand how to refer patients to appropriate agencies, professionals, and other resources to help resolve health care access issues
- Understand how to identify and report identified systems issues that could affect delivery of high-quality patient care, and assist as appropriate to discover and implement appropriate solutions for such problems

### PGY3 YEAR

At the completion of the PGY3 year, residents will be expected to have attained all of the competencies of the PGY2 year, plus have gained the following additional competencies:

#### PATIENT CARE AND MEDICAL KNOWLEDGE [Diagnostic and Therapeutic Skills]

- Further expand knowledge base and refine clinical skills by managing patients with increasingly specialized and complex problems
- Be able to perform all elements of a slit lamp examination with proficiency and skill
- Know how to perform a work-up for patients seeking refractive surgery, including understanding of appropriate candidates for surgery, contraindications to surgery, and elements of surgical counseling
- Know when to obtain, how to perform, and how to interpret additional types of ancillary tests relevant to cornea and external disease, including
  - Corneal topography
  - Cultures of the lids, conjunctiva, and cornea
- Demonstrate intermediate levels of surgical skill competency including
  - Ability to maintain appropriate levels of zoom, focus, illumination, and centration throughout a surgical case
  - Fluency in the handling and tying of 10-0 nylon suture
  - Closure of corneoscleral and corneal incisions with minimum levels of induced astigmatism
  - Closure of simple corneal lacerations without assistance and closure of complex corneal lacerations with or without some assistance
  - Epithelial debridement
  - Conjunctival dissection, lesion excision, and closure using a running suture or interrupted (buried knot or exposed knot) suture technique
  - Performance of “X”-type suture closure

#### Knowledge, Synthesis, Formulation, and Application

- Differentiate abnormal from normal corneal topography findings, and correctly identify topographic patterns consistent with
  - regular astigmatism
  - irregular astigmatism
  - subclinical and clinically overt keratoconus
  - post-PRK/LASIK
- Understand the surgical principles of keratorefractive surgery and be able to recognize common postoperative findings after LASIK including
  - normal flap appearance
  - post-LASIK dry eye / neurotrophic keratopathy
  - peripheral epithelial ingrowth
- Acquire a more in-depth understanding, based on reading of texts, didactic teaching sessions, and clinical examination of patients, of an expanded range of classic or minimally atypical disease presentations in corneal and external disease such as
  - neonatal conjunctivitis
  - chlamydial conjunctivitis
  - giant papillary conjunctivitis, vernal keratoconjunctivitis, and atopic keratoconjunctivitis
  - marginal (catarrhal) keratitis and acne rosacea
  - exposure keratopathy and neurotrophic keratopathy

- herpes zoster ophthalmicus
- corneal edema and peripheral corneal thinning disorders
- interstitial keratitis
- anterior basement membrane corneal dystrophy
- traumatic recurrent corneal erosion syndrome
- endothelial graft rejection

and for each entity, be able to formulate an appropriate

- differential diagnosis
  - diagnostic work-up, as indicated
  - management plan
- Identify gaps in patient understanding and compliance and perform appropriate education and counseling to enhance understanding and compliance

#### INTERPERSONAL AND COMMUNICATION SKILLS

- Perform routine preoperative and postoperative surgical counseling in a clear and understandable fashion and be able to document the informed consent process appropriately
- Be able to discuss “bad news” and complications with patients in an appropriate, understandable, and empathetic fashion
- Identify gaps in patient understanding and compliance and perform appropriate education and counseling to enhance understanding and compliance

#### PROFESSIONALISM

- Understand and maintain compliance with privacy and confidentiality regulations in oral, written, and electronic communications with patients, professional colleagues, and support staff, both inside and outside of the workplace

#### PRACTICE-BASED LEARNING AND IMPROVEMENT

- Understand how to appropriately integrate the information learned from critical reading of standard texts with prior learned information and apply any resultant changes in knowledge into clinical practice
- Maintain a log of surgical patients in which the resident has participated and carry out appropriate learning-based activities accordingly, including
  - Identifying the cause of surgical complications that may occur
  - Understanding the prevention and management of such complications
- Effectively analyze and discuss surgical cases and complications, including in a peer discussion setting
- Supplement case-based surgical learning with other methods of surgical learning, including surgical wet lab practice, hands-on microsurgery course learning, surgical video review, and surgical conference attendance

#### SYSTEMS-BASED PRACTICE

- Understand how to work effectively, appropriately, and cooperatively with other health care professionals and support staff to deliver effective, high quality, and compassionate surgical care. Examples include but are not limited to the following:
  - Working with primary care providers, preoperative clinic providers, and anesthesiologists to perform appropriate preoperative assessment and counseling
  - Working with all members of the preoperative, operative, and postoperative team to deliver high quality care and minimize errors
- Work with other members of the health care team to reduce medication errors and improve patient safety, including
  - Charting prescribed medications in a format and means that is accessible and understandable to other providers

- Understanding, identifying, and alerting patients and providers of any potential systemic side effects or drug interactions of prescribed ophthalmic medications

#### PGY4 YEAR

At the completion of the third year of residency, residents will be expected to have attained all of the competencies of the first and second years, plus have gained the following additional competencies:

#### PATIENT CARE AND MEDICAL KNOWLEDGE [Diagnostic and Therapeutic Skills]

- Further expand and refine clinical skills by managing patients with increasingly specialized and complex problems
- Perform rigid contact lens over-refraction
- Understand indications for and correct fitting of therapeutic bandage soft contact lenses
- Know when to obtain, how to perform, and how to interpret additional types of ancillary tests relevant to cornea and external disease, including
  - Aberrometry
  - Specular microscopy
- Demonstrate more advanced levels of surgical skill competency including
  - Closure of complex corneal lacerations without assistance
  - Management of corneal perforation, including use of tissue glue
  - Temporary and permanent tarsorrhaphy
  - Anterior vitrectomy
  - Anterior chamber intraocular lens placement
  - Repositioning and manipulation of posterior chamber intraocular lenses
  - Penetrating keratoplasty closure, with assistance

#### Knowledge, Synthesis, Formulation, and Application

- Achieve confidence and competence in assessing, formulating the differential diagnosis of, and instituting initial management of patients with complex and multiply concurrent problems involving the cornea and external eye
- Understand the range of therapeutic options and formulate an appropriate management plan for common diagnoses and operative complications that may require surgical intervention, including
  - symptomatic corneal edema with good visual potential
  - symptomatic corneal edema with poor visual potential
  - band keratopathy
  - recurrent corneal erosions
  - superior limbic keratoconjunctivitis
  - suspicious limbal lesions
  - descemetocoele and corneal perforation
  - corneal wound leak, rupture, or malapposition
  - surgically induced spherical and/or astigmatic refractive errors
  - intraocular lens malposition or subluxation
  - naturally occurring refractive errors
  - post-refractive surgery refractive errors
- Understand indications for, surgical principles of, and postoperative management of penetrating and lamellar keratoplasty, including endokeratoplasty
- Recognize and appropriately treat surgical complications of keratoplasty, including
  - loose and broken sutures
  - graft rejection (all forms)
  - graft failure
  - postkeratoplasty astigmatism
  - postkeratoplasty glaucoma

- cystoid macular edema
- Understand the indications for, appropriate clinical use of, and side effect profile of specialized pharmacotherapy of corneal and external disease, including
  - antimicrobial therapy, including fortified antibiotics, antivirals, antifungal agents, and antiparasitics
  - topical and systemic anti-collagenase / anti-metalloproteinase therapy
  - topical and systemic immunomodulatory therapies
- Acquire an in-depth understanding, based on reading, didactic teaching sessions, and clinical examination of patients, of classic and atypical manifestations of the full range of disease presentations in corneal and external disease including
  - infectious, inflammatory, and immunologic disorders
  - congenital and developmental abnormalities
  - corneal dystrophies and degenerations
  - neoplasms of the conjunctiva and cornea
  - drug toxicity, chemical injuries, and trauma
  - corneal and conjunctival manifestations of systemic disease
  - surgical complications
 and for each entity, be able to formulate an appropriate
  - differential diagnosis
  - diagnostic work-up, as indicated
  - management plan

#### INTERPERSONAL AND COMMUNICATION SKILLS

- Prepare and deliver a concise, polished presentation at Grand Rounds that demonstrates ability to abstract and summarize clinical data and to highlight select points for teaching purposes
- Communicate with outside physicians in a timely and appropriate fashion.

#### PROFESSIONALISM

- Understand elements of coding and regulatory compliance relevant to medical practice
- Effectively supervise and teach medical students and junior residents

#### PRACTICE-BASED LEARNING AND IMPROVEMENT

- Participate in continuous self-assessment and formulate a plan to gain and update skills and knowledge on a career-long basis
- Regularly review surgical and medical case logs to spot systematic diagnostic and therapeutic errors, and institute appropriate actions to manage those errors and prevent future ones
- Understand and apply the principles of evidence-based medicine to daily practice

#### SYSTEMS-BASED PRACTICE

- Understand how to identify and report identified systems issues that could affect access to or delivery of high-quality patient care, and assist as appropriate to discover, implement, and disseminate appropriate solutions for such problems

GLAUCOMA  
ARTHUR SCHWARTZ, MD

GOALS AND OBJECTIVES

**Goals:**

- To provide residents with the formal didactic instruction and patient-care experiences that will enable them to diagnose, manage and/or refer those patients who subsequently seek care from them for glaucoma or ocular hypertension

**Objectives:**

- Become expert at (a) examination of the anterior segment to include gonioscopy, estimation of anterior chamber depth and potential for angle occlusion on pupil dilation, and detection of iris light transmission defects and (b) examination of the optic nerve head
- Understand the risks for glaucoma and the economic and social aspects
- Understand the mechanisms of aqueous humor formation and outflow
- Become proficient in selecting the appropriate visual field testing parameters and interpretation of glaucomatous visual field loss
- Understand the classification of the different type of glaucoma
- Become familiar with the appropriate management of each type of glaucoma:
- Medical management to include proper selections and sequence of medications with an understanding of the side effects of each class of medicine
- Surgical management of the glaucomas to include selection of appropriate procedure, and mastering the surgical technique and postoperative management of both anterior segment glaucoma laser surgery, and incisional glaucoma surgery including trabeculectomy, shunt procedure, and cyclodestructive procedures
- Laser therapy, including peripheral iridectomy and argon laser trabeculoplasty, as instructed by glaucoma staff.

BY THE COMPLETION OF THE PGY2 YEAR, THE RESIDENT WILL:

1. PATIENT CARE:

- a. appropriately and effectively care for patients with primary open and angle-closure glaucoma with compassion and an understanding of the effect glaucoma and its medical, surgical and psychological management have on the patient, his/her quality of life, family and social milieu as well as those variables on the patient.
- b. ascertain the home environment of the patient and who (if any) is/are the support persons who are potential helpers in glaucoma management.

2. MEDICAL KNOWLEDGE:

- a. describe and distinguish the major types of open angle, closed angle glaucoma and pediatric glaucoma by their clinical course, diagnostic signs and general management. These include primary open angle, low tension, pigmentary, exfoliative, uveitic, steroid, lens induced, and traumatic. Also the primary and secondary angle closure glaucomas and their time course. For the major adult as well as pediatric glaucomas, the resident will
  - i. know the systemic and other associations
  - ii. be familiar with the risk factors for each type of glaucoma
  - iii. intelligently discuss basic theories of pathogenesis
- b. accurately perform slit lamp biomicroscopy of the anterior segment.
- c. accurately measure intraocular pressure by Goldmann and TonoPen applanation tonometry
  - i. discuss advantages and disadvantages of each including dynamic contour tonometry
  - ii. know the sources of error e.g. central corneal thickness, corneal elasticity



- iii. discuss the major factors impinging on intraocular pressure
- d. perform gonioscopy using a three mirror or four mirror contact lens including compression gonioscopy
- e. describe normal and pathological angle anatomy
- f. describe the typical findings of glaucoma in the optic nerve and perform direct and slit lamp examination of the optic nerve.
- g. know the basic visual field defects associated with glaucoma and their differential diagnosis
- h. be familiar with the indications and basic findings in various forms of glaucoma of ultrasound biomicroscopy, scanning laser ophthalmoscopy (HRT) and ocular coherence tomography.
- i. know the major classes of pharmaceutical agents used to treat glaucoma, their mechanism of action, dosages and side effects including
  - i. Beta blockers
  - ii. Prostaglandin-like agents
  - iii. Adrenergic agonists
  - iv. Carbonic anhydrase inhibitors – topical and systemic
  - v. Hyperosmotics
  - vi. Parasympathetic agents
- j. understand and be able to harness the social and financial factors that may drive the choice of treatment both initially and ongoing.
- k. competently manage the routine cases of open and closed angle glaucoma.

### 3. PRACTICE-BASED LEARNING AND IMPROVEMENT:

The resident must be able to identify those parts of glaucoma pathophysiology, diagnosis and management that are not evidence-based or have significant lacunae in understanding.

- a. formulate ways of testing the efficacy of their own management as well as those of the establishment.
- b. find support for his/her diagnosis or management from the scientific literature and be able to critically assess that literature for its strengths and weaknesses.

### 4. INTERPERSONAL AND COMMUNICATION SKILLS:

- a. communicate to the patient (and family or other support personnel) the nature of glaucoma, its untreated or partially treated consequences, its management and the consequences of the management.
- b. communicate with the primary care physician, anesthesiologist and other care-givers involved in the patient's care relevant information that may impact on the care of the patient as a whole or other medical conditions.
- c. communicate to other members of the health care team (pharmacists, nurses, social workers, insurance or other third party payers, etc) the interactions and consequences of the glaucoma management regimen.

### 5. PROFESSIONALISM:

- a. conduct him or herself with a strong sense of responsibility to the patient's best interests.
- b. conduct him or herself in a professional manner, instilling confidence in his or her actions.
- c. conduct him or herself in an ethical and honest manner keeping the patient's best interests in the forefront.

### 6. SYSTEMS-BASED PRACTICE:

- a. know the basic facts of and factors affecting adherence, persistence and compliance.
- b. assess each patient for psychological, constitutional, social, financial factors that may impinge on (i.e. improve or degrade adherence and persistence)
- c. enlist the aid of family and/or friends to improve adherence

- d. be conversant with hospital and community resources to help improve adherence and persistence.

**BY THE END OF THE PGY4 YEAR, THE RESIDENT WILL BE ABLE TO:**

1. Demonstrate the knowledge base, perform the skills, and exhibit the competencies noted above at a level compatible with a fully trained comprehensive ophthalmologist as well as demonstrate the additional knowledge and skills listed below.
2. accurately describe and interpret:
  - a. Visual fields
  - b. Frequency doubled perimetry
  - c. Optic nerve by slit lamp biomicroscopy
  - d. Chamber angle by gonioscopy
  - e. Laser scanning optic nerve results
3. discuss the indications, contraindications, complications, advantages and disadvantages of and appropriate anesthesia for and to perform capably:
  - a. Selective laser trabeculoplasty
  - b. Argon (or diode) laser trabeculoplasty
  - c. Argon laser iridoplasty
  - d. Laser suture lysis
  - e. Nd:YAG iridotomy
  - f. Trans-scleral cyclophotocoagulation
4. discuss the indications, contraindications, complications, advantages and disadvantages, and post-operative management of and appropriate anesthesia for
  - a. Trabeculectomy
  - b. Ex-PRESS shunt implantation
  - c. Ahmed or other tube-shunt drainage device
  - d. Cyclo-destructive procedures including trans-scleral and endoscopic
  - e. Needling of failing filtering bleb
  - f. Management of the post-operative flat chamber
5. competently perform 3 a or b, c, and f.
6. discuss and use correctly anti-metabolite therapy including mitomycin and 5-fluorouracil including pros, cons, complications, dosages and controversies.
7. discuss pros and cons of various combined cataract extraction and glaucoma procedures.

## LOW VISION

ANDREW ADELSON, MD

### GOALS AND OBJECTIVES BY COMPETENCY

#### PATIENT CARE and MEDICAL KNOWLEDGE

The resident will learn about the following conditions that may require low vision services:

- *Pediatrics*: anisometropic amblyopia, cataract, pseudophakia
- *Genetics*: retinitis pigmentosa, cone dystrophy, Stargardt's disease, albinism
- *Neurology*: stroke, multiple sclerosis, optic neuritis, nystagmus, cerebral palsy, ataxia
- *External diseases*: Keratoconus, corneal dystrophies, corneal scarring.
- *Retina*: Macular degeneration, diabetic retinopathy, glaucoma

The resident will be aware of the following techniques for vision rehabilitation:

- Image relocation from the center to the periphery (macular degeneration, optic neuritis and others) or from the periphery to the center (glaucoma, RP)
- Peripheral field expansion (homonymous hemianopsia)
- Manipulation of contrast (corneal opacities, cataract)
- Magnification (for targets at far, intermediate and near)
- Macular stimulation (anisometropic amblyopia)
- Glare control

#### INTERPERSONAL AND COMMUNICATION SKILLS

- Be proficient at communicating disease entities and management options to patients and their families. Resident will learn to use aids such as eye models and schematics to facilitate understanding of these diseases by patients and their families.
- Give clear explanation of rationale for low vision rehabilitation techniques and explain alternative therapies and risks.

#### PROFESSIONALISM

- Demonstrate professionalism around patients, their families, physicians, and other healthcare staff.
- Respond quickly to messages from patients, family members, and healthcare staff.

#### SYSTEMS-BASED PRACTICE

- Understand when low-vision referrals are appropriate. Able to explain benefits and limitations of low-vision aids to patients.
- Understand the role of social worker in helping patients with low vision obtain social services.

#### PRACTICE-BASED LEARNING AND IMPROVEMENT

- Residents are encouraged to refer patients for whom no medical or surgical treatment is available so they can be functional.

## NEURO-OPHTHALMOLOGY

MARTIN KOLSKY, MD

### Goals:

- To provide residents with the formal didactic instruction and patient-care experiences that will enable them to diagnose, manage and/or refer those patients who subsequently seek care from them for neuro-ophthalmologic disorders

### Objectives:

- Know how to take an adequate history, perform an effective neuro-ophthalmic examination, formulate an appropriate differential diagnosis of neuro-ophthalmic disorders, and select appropriate tests and neuro-imaging studies in order to manage such neuro-ophthalmic disorders in a cost-effective manner.
- Have a basic knowledge of neuro-anatomy and neurophysiology as it pertains to neuro-ophthalmic disorders complemented by a familiarity with neuro-imaging studies (MRI/CT), and other "tests" ("lab", electro-physiologic - VER, MFERG, OCT, other).
- Know how to approach patients complaining of reduced vision (permanent and transient) and be able to relate visual field reports to lesions of the visual pathways in the absence of lesions of the ocular media or retina.
- Know how to diagnose and treat such lesions including optic disc elevation, optic disc discoloration, optic disc cupping, optic disc dysmorphism, optic nerve diseases (vascular, inflammatory, compressive, infiltrative, toxic/metabolic, traumatic, genetically-determined, developmental), chiasmal disorders, and retinohiasmal disorders (homonymous hemianopsias, hallucinations, illusions and higher cortical dysfunctions).
- Know the anatomy and physiology of the oculomotor system including the eye muscles, myoneural junction, cranial nerves, internuclear and supranuclear pathways, lesions of which may result in diplopia and disorders of eye movements.
- Know how to diagnose and treat the above-described myopathies (thyroid, traumatic, inflammatory, neoplastic, developmental), neuromuscular junction defects (myasthenic, other), cranial neuropathies (3, 4 and 6), internuclear and supranuclear gaze disturbances (including INO, 1 ½ syndrome, and gaze abnormalities).
- Know how to diagnose and treat patients with nystagmus and other spontaneous eye movement disorders.
- Know the anatomy and physiology of the afferent and efferent pupillary pathways in order to diagnose and treat misshapen pupils, anisocoria, pupillary light-wear dissociation, and unusual pupillary phenomena (episodic and paradoxical).
- Know how to approach patients with eyelid or facial abnormalities that may result in eyelid fissure asymmetry (ptosis or retraction), or abnormalities of facial movement (underactive or overactive).
- Know how to approach patients with pain including a thorough knowledge of ocular/orbital causes and a general knowledge of headache and facial pain.
- Know selected systemic conditions with neuro-ophthalmic symptoms and signs (including, but not limited to 1) immune disorders – multiple sclerosis, myasthenia gravis, thyroid; 2) sarcoidosis; 3) genetic disorders – myopathic phacomatoses; 4) cerebrovascular; 5) infectious – AIDS, Lyme, fungal; 6) pregnancy.
- Know how to diagnose and treat functional (nonorganic) visual disorders involving visual loss, oculomotor dysfunction (voluntary nystagmus, spasm of near), pupillomotor dysfunction (pharmacologic blockade), and volitional ptosis or blepharospasm.
- Know how to perform or refer patients for temporal artery biopsy, tensilon testing, confrontation visual field testing, forced duction testing, optic nerve sheath decompression, optic nerve imaging tests, and newer modalities as they become available.

## GOALS AND OBJECTIVES BY COMPETENCY

**PATIENT CARE:** Residents learn to deliver patient care that is compassionate, appropriate, and effective for the treatment of patients with neuro-ophthalmological problems. Emphasis is placed on the importance of the history and neuro-visual examination in the diagnosis of patients with neuro-ophthalmological disease. Often the diagnosis can be made simply by office examination, without resort to laboratory testing or radiology.

**MEDICAL KNOWLEDGE:** A broad fund of knowledge is essential for the astute diagnosis and treatment of patients with neuro-ophthalmological disease. Residents are expected to acquire the following basic knowledge pertaining to neuro-ophthalmology:

### A. NEUROANATOMY:

Know anatomy of the afferent sensory pathway from retina to visual cortex. Know anatomy of efferent visuomotor pathway, including pathways governing vertical gaze, horizontal gaze, saccades, smooth pursuit, and innervation of eye muscles and eyelids. Know anatomy of skull base, cavernous sinus, and orbit. Know anatomy of pathways governing pupil function. Be familiar with blood supply to retina, optic nerve, chiasm, and visual cortex.

### B. VISUAL FIELDS:

Know basic principles of visual field testing and understand how to interpret visual fields. Be able to localize lesions in visual pathway based upon analysis of visual field defects.

### C. OCULOMOTOR FUNCTION:

Be able to test eye movements and eye alignment. Recognize basic oculomotor disorders and be familiar with the differential diagnosis of diplopia. Recognize various forms of nystagmus and be able to interpret their significance.

### D. OPTIC NERVE DISEASE:

Recognize the fundoscopic appearance of common neuro-ophthalmological conditions that affect the optic nerve. Be familiar with the various forms of optic neuropathy: demyelinating, ischemic, compressive, infiltrative, toxic, nutritional, hereditary/familial, and congenital. Know their typical field defects, clinical findings, and appropriate workup.

### E. NEURO-OPHTHALMOLOGY IN SYSTEMIC DISEASE:

Be familiar with systemic diseases that produce important neuro-ophthalmological manifestations such as: phacomatoses, myasthenia gravis, multiple sclerosis, cranial arteritis, lupus erythematosus, syphilis, AIDS, etc.

### F. TRANSIENT VISUAL LOSS:

Know differential diagnosis of transient visual loss. Know anatomy of cerebral and ocular circulation; carotid and vertebrobasilar systems. Know clinical findings associated with amaurosis fugax, ocular ischemic syndrome, and AION. Know how to evaluate a patient with transient visual loss.

### G. ORBITAL DISEASE:

Understand basic principle of how to evaluate the patient with orbital pain, proptosis, ptosis, enophthalmos, or trauma. Know basic differential diagnosis of orbital disease: Graves, infection, tumor, inflammatory, trauma, etc.

### H. NEUROIMAGING:

Be familiar with basic principles and techniques of computed tomography, angiography, magnetic resonance, and ultrasound. Know which techniques are most suitable for evaluation of

different neuro-ophthalmological conditions. Be able to identify structures of major importance to the ophthalmologist on imaging studies.

**PRACTICE-BASED LEARNING AND IMPROVEMENT:** Residents are encouraged to indulge their intellectual curiosity, and to continue to acquire new knowledge from textbooks, the peer-reviewed literature, attendance at Grand Rounds, teaching conferences, and through discussions with colleagues. When unusual cases are encountered or the optimal management of a patient is uncertain, residents should routinely probe further by consulting libraries, on-line resources, and other doctors with more experience.

**INTERPERSONAL AND COMMUNICATION SKILLS:** Many neuro-ophthalmological diseases are rare and unfamiliar to patients. Extra patience and time are required to explain their causes and implications. Even if a disease cannot be cured, patients can benefit by understanding the diagnosis and prognosis. In neuro-ophthalmology, compared with other branches of ophthalmology, more time and patience are required to convey this information to patients.

**PROFESSIONALISM:** Principles of professional conduct continue to be emphasized on the neuro-ophthalmology service by treating patients with dignity, courtesy, and compassion, respecting confidentiality, being honest, dressing and behaving appropriately, and by adhering to basic principles of ethics and humanity.

**SYSTEMS-BASED PRACTICE:** Neuro-ophthalmology is an interdisciplinary subspecialty, that requires interaction with neurologists, neurosurgeons, endocrinologists, radiologists, internists, optometrists, and family practitioners. Residents learn to broaden their horizons beyond ophthalmology and reinforce their basic medical skills.

OPHTHALMIC PLASTIC SURGERY SERVICE  
NARIEMAN NIK, MD

GOALS

- To provide residents with the formal didactic instruction and patient-care experiences that will enable them to diagnose, manage and/or refer those patients who subsequently seek care from them for oculo-plastic disorders

OBJECTIVES

- Become knowledgeable of the age, gender, racial, and cultural differences in the normal appearance and function of the peri-ocular structures
- Understand the normal anatomy and histology of the skin, muscles, vessels, nerves, tendons, and bones of the peri-ocular tissues
- Be able to evaluate the functional abnormalities associated with developmental, traumatic, degenerative, inflammatory, neoplastic, and iatrogenic changes in the peri-ocular tissues
- Know how to precisely document the presence or absence of functional or cosmetic peri-ocular defects
- Be able to appreciate the aesthetic and functional consequences of peri-ocular surgery
- Be able to clearly explain the differences and intersections between cosmetic and functional peri-ocular surgery
- Be able to evaluate and explain to his or her patients the potential complications of functional or cosmetic peri-ocular surgery
- Be able to compassionately counsel patients who have had or seek functional or cosmetic peri-ocular surgery

GOALS AND OBJECTIVES BY COMPETENCY

COMPETENCY IN THE FOLLOWING SHOULD BE OBTAINED DURING THE PGY2 YEAR OF RESIDENCY AND SOLIDIFIED IN SUBSEQUENT YEARS

**PATIENT CARE:** Residents learn to deliver patient care that is compassionate, appropriate, and effective for the treatment of patients with oculo-plastic problems. Emphasis is on diagnostic thoroughness complemented by skillful history acquisition including use of old pictures, personal and family recollections, etc. in order to precisely characterize the nature of the patients problem(s). Careful measurements and observations are essential to providing the best possible oculo-plastic care.

**MEDICAL KNOWLEDGE:** In addition to a thorough ocular and neuro-visual examination the following examination techniques will be mastered:

A. Eyelids

1. Margin-reflex-distance (MRD)
2. Levator function (LF)
3. Laxity
4. Eyelash position (trichiasis, entropion, ectropion, etc.)
5. Tone (spasm/paresis)
  - a. Lower lid distraction test
  - b. Snap back test
6. Neoplasm

B. Orbit

1. Exophthalmometry
2. Inflammation
3. Neuro-ophthalmic effects of orbital disease

### C. Lacrimal system

#### 1. Outflow

- a. Tear lake
- b. Dye disappearance test
- c. Irrigation
- d. Nasal examination with speculum and endoscope

#### 2. Tear Production

- a. Corneal evaluation for dry eye disease and exposure
- b. Schirmer's test

### D. Brows and face

Be able to assess eyebrow position for brow ptosis and paralysis  
-determine its relation to upper lid dermatochalasis

Assess facial paralysis.

Evaluate the effect of midface cicatricial, paralytic, and involuntional changes on lower eyelid position.

### E. Imaging techniques of the peri-ocular and orbital structures

#### 1. Computed tomography

#### 2. Magnetic resonance imaging

- a. T1, T2, flair, DWI, FIESTA and fat suppressed sequences

## MEDICAL AND SURGICAL KNOWLEDGE:

### A. Be knowledgeable of the incidence, clinical presentation and course of the following orbital diseases:

#### 1. Common orbital disorders of children

- a. Congenital anomalies
- b. Inflammatory disorders
- c. Orbital cellulitis
- d. Orbital pseudotumor
- e. Neoplasm
- f. Dermoid and epidermoid tumors
- g. Capillary hemangioma
- h. Lymphangioma
- i. Optic nerve glioma
- j. Rhabdomyosarcoma
- k. Leukemia
- l. Neuroblastoma
- m. Systemic disorders
- n. Neurofibromatosis

#### 2. Common orbital disorders of adults

- a. Inflammatory disorders
- b. Orbital cellulitis

Know how etiology, organisms, and treatment differ from childhood cellulitis.

Be able to differentiate fungal orbital infections, particularly mucormycosis

#### c. Thyroid orbitopathy

Etiology, diagnosis, physical signs, management, surgical rehabilitation

#### d. Orbital pseudotumor

#### e. Vasculitis - Wegener's, PAN, sarcoidosis, lethal midline granuloma

#### f. Neoplasm

primary and secondary orbital tumors

benign, locally invasive or compressive, malignant/metastatic

#### g. Vascular tumors

cavernous hemangioma



- hemangiopericytoma
- AV malformations
- orbital varix
- CCF - direct and indirect.

- h. Lacrimal gland tumors
  - benign and malignant mixed tumors
  - adenoid cystic carcinoma
  - other inflammatory and lymphoid causes of lacrimal gland enlargement.
- i. Fibro-osseous tumors
  - fibrous dysplasia
  - osteoma
- j. Neural tumors
  - meningioma
  - schwannoma
  - optic nerve glioma
- k. Histiocytic lesions
- l. Lymphoid tumors
- m. Metastatic tumors
- n. Trauma – know the diagnostic and management features of:
  - blow out fractures
  - le forte fractures
  - optic canal and other orbital fractures
  - traumatic optic neuropathy
  - orbital hemorrhage
  - penetrating orbital injury.

B. Anophthalmic socket - know associated problems and management of:

1. Enucleation
2. Evisceration
3. Exenteration
4. Management of the anophthalmic socket

C. Eyelid

1. Developmental
  - a. Blepharophimosis syndrome
  - b. Blepharoptosis
  - c. Ectropion
  - d. Entropion
  - e. Epiblepharon
  - f. Euryblepharon
  - g. Ankyloblepharon
  - h. Coloboma
  - i. Cryptophthalmos
  - j. Distichiasis
2. Inflammation
  - a. Chalazion, hordeolum
  - b. Preseptal cellulitis
3. Trauma - blunt, penetrating, burns
4. Involution changes
  - a. Ectropion
  - b. Entropion
  - c. Blepharoptosis
  - d. Dermatochalasis

5. Blepharochalasis
  6. Eyelid retraction
  7. Misdirected eyelashes
  8. Eyelid tumors
    - a. Verruca vulgaris
    - b. Seborrheic keratosis
    - c. Actinic keratosis
    - d. Molluscum
    - e. Nevus
    - f. Xanthelasma
    - g. Basal cell carcinoma
    - h. Squamous cell carcinoma
    - i. Sebaceous gland carcinoma
    - j. Cutaneous melanoma and variants
  9. Dystonia
    - a. Blepharospasm
    - b. hemifacial spasm
    - c. Facial nerve palsy
- D. Lacrimal drainage system
1. Congenital v. Acquired tearing - etiology, workup, management
  2. Infection
    - a. Canaliculitis
    - b. Dacryocystitis
    - c. Neoplasm
  3. Trauma

## GOALS AND OBJECTIVES FOR RESIDENTS AT ALL LEVELS OF TRAINING

### PATIENT CARE

- demonstrate proficiency in the diagnosis and treatment of complex oculoplastic conditions as outlined above.
- counsel and educate patients and their families regarding their eye care with special emphasis on informed consent of surgical procedures
- demonstrate proficiency in the performance of surgical procedures in management of conditions outlined above.

### MEDICAL KNOWLEDGE

- attend all educational sessions/conferences
- demonstrate a thorough understanding of the indications, complications, and expected outcomes of all oculoplastic procedures
- demonstrate critical thinking in their approach to clinical situations and research questions

### INTERPERSONAL AND COMMUNICATION SKILLS

- demonstrate leadership in the coordination and management of all members of the eye care team including fellows, residents, optometrists, and ancillary staff
- demonstrate the ability to work cordially with departmental ancillary staff including health technicians and front desk clerks
- communicate effectively with other departments regarding consultations or shared patient care
- demonstrate proficiency in communicating with patients regarding their health care

## PROFESSIONALISM

- demonstrate respect and compassion all patients
- demonstrate a commitment to ethical principles pertaining to clinical care, confidentiality of patient information, and informed consent
- demonstrate sensitivity and responsiveness to the culture, age, gender, and disabilities of all patients
- complete in a timely fashion thorough and precise patient care notes, surgical dictations, discharge summaries, and encounter forms
- educate fellow residents in matters of professionalism

## SYSTEMS-BASED PRACTICE

- learn the various practice management and electronic medical records systems, learn to look up patient imaging and laboratory study results.
- identify and utilize characteristics of the Medical System which distinguish it from other health care systems
- advocate for quality patient care and assist patients in dealing with the healthcare system complexities

## PRACTICE-BASED LEARNING AND IMPROVEMENT

- analyze practice experience and perform at least one practice-based improvement activity
- apply knowledge of study design and statistical methods to the appraisal of clinical studies and other information on diagnostic and therapeutic effectiveness
- use information technology to manage information, access on-line medical information; and support the resident's own education

RETINA AND VITREOUS  
REGINALD SANDERS, MD

GOALS AND OBJECTIVES

**Goals:**

- To provide residents with the formal instruction and patient-care experiences that will enable them to diagnose, manage and/or refer those patients who subsequently seek care from them for diseases of the retinal and vitreous, and tumors of the choroid

**Objectives:**

- Become expert at examination of the posterior segment of the eye by direct and indirect ophthalmoscopy with scleral depression, 3-mirror lens and 78 and 90 diopter lenses
- Understand the basic anatomy and physiology of the retina and vitreous
- Be able to interpret fluorescein and indocyanine green angiograms
- Be able to identify and appropriately manage CSR, AMD, OHS and other causes of CNV, vitreoretinal interface abnormalities, HPT and DM retinopathies, SC and SS retinopathies, arterial and venous occlusive diseases, vasculitis, CME, congenital abnormalities of rods and cones, hereditary retinal and choroidal dystrophies, choroidal and retinal neoplasms, retinal manifestations of drug toxicity, peripheral retinal abnormalities including RRD, intravitreal hemorrhage, posterior segment trauma to include retained IOFB and radiation retinopathy
- Be able to perform competently focal and pan-retinal photocoagulation and assist competently in scleral buckling and vitrectomy operations, and intraocular injections
- Be able to recognize and initiate diagnostic studies and treatment for endophthalmitis

SUGGESTED READING:

1. Gass Atlas of Macular Disease
2. Michels' Retina Detachment
3. Ryan (Ed.) Retina
4. Hilton Retinal Detachment (Academy Manual)
5. Basic Science Course Retina Manual (Academy Manual)

LEARNING OBJECTIVES IN RETINA, BY YEAR, AND BY COMPETENCIES  
PGY2 YEAR

PATIENT CARE

- Residents will demonstrate proficiency in clinical evaluation and basic treatment of patients with retinal disease:
  1. Competence at indirect ophthalmoscopy, including scleral depression
  2. Competence performing macular and 3-mirror exam
  3. Ability to draw retinal pathology, including retinal detachment
  4. Ability to treat retinal breaks with laser and cryo
  5. Ability to laser macular edema and perform panretinal photocoagulation
  6. Ability to interpret fluorescein angiography
  7. Ability to interpret optical coherence tomography (OCT)
  8. Ability to interpret electrophysiological studies (ERG, mfERG)
  9. Ability to perform intravitreal injections
  10. Ability to tap and inject for treatment of endophthalmitis
  11. Understand principles be able to perform various steps in scleral buckling surgery
  12. Understand principles and be able to perform simple "core" Vitrectomy

## MEDICAL KNOWLEDGE

- Residents must demonstrate knowledge of medical and surgical diseases of the retina, including epidemiology, clinical features, differential diagnosis, pathogenesis, therapy, prognosis, and impact of each disease on everyday life. Disease entities include the following:
  1. Retinovascular disease (diabetes, vaso-occlusive disease, vasculitis, Coats, etc.)
  2. Diseases causing choroidal neovascularization (e.g. AMD, myopia, POHS, angioid streaks, trauma, etc.)
  3. Chorioretinal inflammatory disease
  4. Diseases of the vitreoretinal interface (epiretinal membranes, macular holes, vitreomacular traction, etc.)
  5. Hereditary retinal degenerations
  6. Toxic retinopathies
  7. Rhegmatogenous retinal detachment
  8. Exudative and tractional retinal detachment
  9. Ocular trauma (penetrating, blunt)
  10. Surgical management of PVR, penetrating trauma, proliferative diabetic retinopathy, and vitreoretinal interface disorders

## PRACTICE-BASED LEARNING AND IMPROVEMENT

- Demonstrate ability to use clinical skills and medical knowledge to obtain relevant history, examine patients, and develop management plan.
- Demonstrate appropriate use of ancillary testing based on clinical assessment of each patient.
- Maintain currency of medical knowledge, including results of national clinical trials, and be able to critically analyze the value of new therapies.
- continue to build knowledge by attending the monthly Fluorescein Angiography conference.
- participate, where appropriate, in Vitreoretinal surgery cases.
- seek out Retina Service attendings to participate in basic and clinical research projects to present at Resident's Day and/or major meetings (AAO, ARVO).

## INTERPERSONAL AND COMMUNICATIONS SKILLS

- Be proficient at communicating disease entities and management options to patients and their families. Resident will learn to use aids such as eye models and schematics to facilitate understanding of these diseases by patients and their families.
- Give clear explanation of rationale for retinal procedures and explain alternative therapies and risks.

## PROFESSIONALISM

- Demonstrate professionalism around patients, their families, physicians, and other healthcare staff.
- Respond quickly to messages from patients, family members, and healthcare staff.

## SYSTEMS-BASED PRACTICE

- Exercise good judgment and involve other medical specialties as needed to diagnose and manage retinal diseases.
- Understand when low-vision referrals are appropriate. Able to explain benefits and limitations of low-vision aids to patients.
- Understand the role of social worker in helping patients with low vision obtain social services.

## PGY4 YEAR

At the completion of the PGY4 year, residents will be expected to have attained all of the competencies of the PGY2 and PGY3 years, plus have gained the following additional competencies:

## PATIENT CARE AND MEDICAL KNOWLEDGE [Diagnostic and Therapeutic Skills]

- Further expand and refine clinical skills by managing patients with increasingly specialized and complex problems
- Understand the major clinical studies and their application to medical practice
- Know when to obtain, how to perform, and how to interpret additional types of ancillary tests relevant to retina and vitreous disease, including
  - Fluorescein Angiography
  - Optical Coherence Tomography
- Demonstrate more advanced levels of surgical skill competency including
  - Placement of pars plana ports
  - Focal laser photocoagulation
  - Core vitrectomy
  - Methods of repair of retinal detachment, with assistance
  - Sutured intraocular lens placement

## [Knowledge, Synthesis, Formulation, and Application]

- Achieve confidence and competence in assessing, formulating the differential diagnosis of, and instituting initial management of patients with complex and multiply concurrent problems involving the retina and vitreous
- Understand the range of therapeutic options and formulate an appropriate management plan for common diagnoses and operative complications that may require surgical intervention, including
  - Vitreous hemorrhage
  - Tractional retinal detachment
  - Rhegmatogenous retinal detachment
  - Macular pucker
  - Macular edema
  - Macular hole
  - Proliferative diabetic retinopathy
  - Cystoid macular edema
  - Central retinal vein occlusion
  - Retained lens fragments
  - Endophthalmitis
  - Posterior segment trauma
- Understand indications for, surgical principles of, and postoperative management of pars plana vitrectomy
- Recognize and appropriately treat surgical complications of keratoplasty, including
  - Redetachment repair
  - Proliferative vitreoretinopathies
  - Vitreous hemorrhage
  - Macular pucker
  - Suprachoroidal hemorrhage
  - Elevated intraocular pressure
- Understand the indications for, appropriate clinical use of, and side effect profile of specialized pharmacotherapy of retina and vitreous disease, including
  - intravitreal antibiotics
  - intravitreal steroids
  - anti-VEGF therapy
- Acquire an in-depth understanding, based on reading, didactic teaching sessions, and clinical examination of patients, of classic and atypical manifestations of the full range of disease presentations in retina and vitreous disease including
  - infectious, inflammatory, and immunologic disorders
  - congenital and developmental abnormalities

- retinal dystrophies and degenerations
- neoplasms of the retina and choroid
- drug toxicity and trauma
- retinal manifestations of systemic disease
- surgical complications

and for each entity, be able to formulate an appropriate

- differential diagnosis
- diagnostic work-up, as indicated
- management plan

#### INTERPERSONAL AND COMMUNICATION SKILLS

- Prepare and deliver a concise, polished presentation at Grand Rounds that demonstrates ability to abstract and summarize clinical data and to highlight select points for teaching purposes
- Communicate with outside physicians in a timely and appropriate fashion.

#### PROFESSIONALISM

- Understand elements of coding and regulatory compliance relevant to medical practice
- Effectively supervise and teach medical students and junior residents

#### PRACTICE-BASED LEARNING AND IMPROVEMENT

- Participate in continuous self-assessment and formulate a plan to gain and update skills and knowledge on a career-long basis
- Regularly review surgical and medical case logs to spot systematic diagnostic and therapeutic errors, and institute appropriate actions to manage those errors and prevent future ones
- Understand and apply the principles of evidence-based medicine to daily practice

#### SYSTEMS-BASED PRACTICE

- Understand how to identify and report identified systems issues that could affect access to or delivery of high quality patient care, and assist as appropriate to discover, implement, and disseminate appropriate solutions for such problems

## UVEITIS SERVICE

### GOALS AND OBJECTIVES

ALICE (WENDY) GASCH, MD

#### **Goals:**

- To give residents didactic instruction and patient-care experiences that will enable them to diagnose, manage and/or refer uveitis patients

#### **Objectives:**

- Learn basic concepts of immunology related to uveitis and its pharmacological treatment.
- Learn to use standardized uveitis nomenclature to describe uveitides.
- Learn to differentiate uveitides through the patient history, review of systems, ocular exam, and appropriate testing and consultation.
- Learn appropriate pharmacological and surgical management of uveitis patients.
- Learn to respect the importance of physician co-management in implementing longterm systemic pharmacological treatment of uveitis and in treating systemic disease underlying uveitis.
- Acquire awareness of the complications of uveitis and its treatments.

### GOALS AND OBJECTIVES BY COMPETENCY

#### **PATIENT CARE:**

Appropriately and compassionately care for uveitis patients.

In doing so:

- 1) educate patients (and, if applicable, family and other support persons), at an appropriate level, about their uveitis diagnosis, treatment, course, and prognosis, and
- 2) incorporate an understanding of the potential psychosocial and economic effects of uveitis and its treatment on patients.

#### **MEDICAL KNOWLEDGE:**

- Know the fundamentals of ocular immunology, including:
  - 1) elements of the immune system and their interactions, including “hypersensitivity reactions,”
  - 2) possible mechanisms of ocular damage by the immune system, and
  - 3) mechanisms of action of current pharmacological treatments for noninfectious uveitis.
- Know the epidemiology, etiology (if known), clinical manifestations, pathology, differential diagnosis, means of diagnosis, treatment, and prognosis of infectious and non-infectious uveitides and masquerade syndromes.
- Perform proper diagnostic evaluations of uveitis patients, including an appropriate medical history, a comprehensive ocular examination, development of a differential diagnosis, and diagnostic testing and consultation based upon the differential diagnosis.
- Use standardized uveitis nomenclature to describe uveitides.
- Properly implement and correctly interpret results of ophthalmic ancillary testing used by the uveitis service, including automated perimetry, b-scan ultrasonography, macular OCT, and fluorescein angiography.
- Demonstrate an understanding of the pharmacological and surgical management of uveitis, including:
  - 1) proper use of topical, periocular, and systemic corticosteroids,
  - 2) indications for non-steroid therapy (alkylating agents, antimetabolites,



- t-cell inhibitors, biologics) as steroid-sparing agents and otherwise,
- 3) issues related implementing immunomodulatory treatment,
- 4) therapeutic and diagnostic indications for surgery, and
- 5) means of minimizing the potential for surgical complications.
- When indicated, collaborate with other physicians in treating uveitis and/or its underlying systemic disease.

#### INTERPERSONAL AND COMMUNICATION SKILLS:

- Communicate with uveitis patients (and, if applicable, family and other support persons) cogently and compassionately about their disease, as outlined above under “Patient Care.” Uveitis is a difficult entity for many patients to understand, yet an understanding is important to facilitate patient participation/compliance with treatment.
- Communicate effectively with other departments, physicians, and health care team members about matters related to shared care, including testing and treatment, of uveitis patients. This necessitates timely completion of clear, concise, and comprehensive patient-care notes, referral letters, and phone calls.

#### PROFESSIONALISM:

- Demonstrate respect and compassion for uveitis patients, including sensitivity and responsiveness to their age, gender, culture, and disabilities.
- Demonstrate commitment to ethical principles pertaining to clinical care, confidentiality of patient information, and informed consent. Doing so necessitates keeping patients’ best interests foremost.
- Demonstrate a professional demeanor in appearance and conduct, and communicate with timeliness.

#### PRACTICE-BASED LEARNING AND IMPROVEMENT:

- Demonstrate an ability to critically assess the strengths and weaknesses of scientific literature, particularly that related to uveitis.
- To optimize patient care, identify and assimilate evidence from the scientific literature relevant to care of uveitis patients.

#### SYSTEMS-BASED PRACTICE:

- Facilitate implementation of the multidisciplinary care required for optimal care of many uveitis patients.
- Advocate for quality patient care, and assist patients in obtaining appropriate referrals within their health care system.

## PGY3 YEAR GOALS AND OBJECTIVES

### PATIENT CARE

- demonstrate proficiency in the diagnosis and treatment of common ophthalmic conditions such as refractive error, diabetes, glaucoma, macular degeneration, and blepharitis
- counsel and educate patients and their families regarding their eye care
- demonstrate safety and proficiency in the use of lasers to perform peripheral iridotomies and posterior capsulotomies
- demonstrate proficiency in the performance of surgical procedures including extracapsular cataract extraction, pterygium surgery and basic oculoplastic procedures including completion of required preparation for human surgery on surgical simulator
- efficiently and competently manage the PGY3 ophthalmology clinics
- demonstrate proficiency in the diagnosis and treatment of common retinal conditions such as diabetic retinopathy, macular degeneration, retinal tears/detachments, and macular holes/puckers
- demonstrate safety and proficiency in the use of lasers to perform horseshoe tear retinopexy, focal laser for CSME, and pan-retinal photocoagulation
- demonstrate proficiency in the performance of surgical procedures including basic phacoemulsification, basic retinal and oculoplastic procedures

### MEDICAL KNOWLEDGE

- attend all educational sessions/conferences
- demonstrate a thorough understanding of the indications, complications, and expected outcomes of any procedure which they perform
- prepare ad hoc educational sessions for trainees on the service
- demonstrate critical thinking in their approach to clinical situations and research questions
- demonstrate the proper use and interpretation of ancillary testing including automated perimetry, optic nerve analysis, ultrasonic pachymetry, and b-scan ultrasonography,
- a-scan/iol master, macular OCT, and fluorescein angiography

## PGY4 YEAR GOALS AND OBJECTIVES

### PATIENT CARE

- demonstrate proficiency in the diagnosis and treatment of complex ophthalmic conditions such as advanced glaucoma, advanced corneal disease, uveitis, and ocular-associated systemic disease, in addition to those expected of PGY2 and PGY3 residents
- counsel and educate patients and their families regarding their eye care with special emphasis on informed consent of surgical procedures
- demonstrate safety and proficiency in the use of lasers to treat all relevant ophthalmic pathologies including those expected of PGY2 and PGY3 residents
- demonstrate proficiency in the performance of surgical procedures including advanced phacoemulsification, glaucoma filtering procedures, and advanced oculoplastic procedures
- efficiently and competently manage the PGY4 year ophthalmology clinics as well as both inpatient and interfacility consults

## MEDICAL KNOWLEDGE

- attend all educational sessions/conferences
- demonstrate a thorough understanding of the indications, complications, and expected outcomes of any procedure which they perform at the VA
- prepare ad hoc educational sessions for trainees on the service
- demonstrate critical thinking in their approach to clinical situations and research questions
- demonstrate the proper use and interpretation of all available ophthalmic ancillary testing including automated perimetry, optic nerve analysis, ultrasonic pachymetry, b-scan ultrasonography, a-scan/iol master, macular OCT, fluorescein angiography, and corneal topography

## PGY3 AND PGY4 YEAR GOALS AND OBJECTIVES

### INTERPERSONAL AND COMMUNICATION SKILLS

- demonstrate leadership in the coordination and management of all members of the eye care team including fellow residents, optometrists, and ancillary staff
- demonstrate the ability to work cordially with departmental ancillary staff including health technicians and front desk clerks
- communicate effectively with other departments regarding consultations or shared patient care
- demonstrate proficiency in communicating with patients regarding their health care
- coordinate with volunteer faculty that attend both clinics and surgery

### PROFESSIONALISM

- demonstrate respect and compassion for the needs of VA patients
- demonstrate ethical and professional behavior when interacting with patients, their families and staff
- demonstrate a commitment to ethical principles pertaining to clinical care, confidentiality of patient information, and informed consent
- demonstrate sensitivity and responsiveness to the culture, age, gender, and disabilities of VA patients
- complete in a timely fashion thorough and precise patient care notes, surgical dictations, discharge summaries, and encounter forms
- educate fellow residents in matters of professionalism

### SYSTEMS-BASED PRACTICE

- be aware of the intricacies that distinguish this hospital from other health care systems
- incorporate the strengths of VA systems and resources into clinical care, especially the electronic medical record
- advocate for quality patient care and assist patients in dealing with VA system complexities

### PRACTICE-BASED LEARNING AND IMPROVEMENT

- analyze practice experience and perform at least one practice-based improvement activity
- identify and assimilate evidence from scientific studies related to VA patients' health problems
- apply knowledge of study design and statistical methods to the appraisal of clinical studies and other information on diagnostic and therapeutic effectiveness
- use information technology to manage information, access on-line medical information; and support their own education

## PGY2 YEAR GOALS AND OBJECTIVES

### PATIENT CARE

- demonstrate proficiency in the diagnosis and treatment of common ophthalmic conditions such as refractive error, diabetes, glaucoma, macular degeneration, and blepharitis
- demonstrate proficiency in the assessment of facial and ocular trauma
- counsel and educate patients and their families regarding their eye care
- demonstrate safety and proficiency in the use of lasers to perform peripheral iridotomies and posterior capsulotomies
- develop skills in assessment and treatment of emergency ophthalmic problems
- demonstrate proficiency in performance of inpatient consultations, with supervision
- develop skills in assisting at cataract, glaucoma, retina, oculoplastic, and other ophthalmic surgeries

### MEDICAL KNOWLEDGE

- attend all educational sessions/conferences
- demonstrate a thorough understanding of the indications, complications, and expected outcomes of any procedure which they perform or on which they assist
- prepare ad hoc educational sessions for trainees on the service, including medical students and ophthalmic technician students
- demonstrate critical thinking in their approach to clinical situations and research questions
- demonstrate the proper use and interpretation of ancillary testing including automated perimetry, optic nerve analysis, ultrasonic pachymetry, b-scan ultrasonography, and corneal topography.

## PGY3 YEAR GOALS AND OBJECTIVES

### PATIENT CARE

- demonstrate proficiency in the evaluation, diagnosis and management of disorders of the cornea and anterior segment
- demonstrate proficiency in the diagnosis and treatment of the ocular manifestations of common diseases
- demonstrate proficiency in the assessment of facial and ocular trauma
- counsel and educate patients and their families regarding their eye care
- demonstrate safety and proficiency in the use of lasers to perform horseshoe tear retinopexy, focal laser for CSME, and pan-retinal photocoagulation
- demonstrate proficiency in the performance of surgical procedures including basic phacoemulsification and intraocular lens implantation, basic retinal, trauma and oculoplastic procedures
- demonstrate proficiency in the diagnosis, management and surgery of pediatric ophthalmology problems

### MEDICAL KNOWLEDGE

- attend all educational sessions/conferences
- demonstrate a thorough understanding of the indications, complications, and expected outcomes of any procedure which they perform or on which they assist
- prepare ad hoc educational sessions for trainees on the service, including first-year residents, medical students, and ophthalmic technician students
- demonstrate critical thinking in their approach to clinical situations and research questions
- demonstrate the proper use and interpretation of ancillary testing including automated perimetry, optic nerve analysis, ultrasonic pachymetry, b-scan ultrasonography, a-scan/iol calculations, and fluorescein angiography

## GOALS AND OBJECTIVES FOR PGY2 AND PGY3 YEAR RESIDENTS

### INTERPERSONAL AND COMMUNICATION SKILLS

- demonstrate the ability to work cordially with departmental ancillary staff including nurses, ophthalmic technicians and administrative personnel
- communicate effectively with other departments regarding consultations or shared patient care
- work as a supportive team member with other ophthalmology residents and specialists
- demonstrate proficiency in communicating with patients regarding their health care

### PROFESSIONALISM

- demonstrate respect and compassion for the needs of patients
- demonstrate a commitment to ethical principles pertaining to clinical care, confidentiality of patient information, and informed consent
- demonstrate sensitivity and responsiveness to the culture, age, gender, and disabilities of patients
- complete in a timely fashion thorough and precise patient care notes, surgical dictations, discharge summaries, and encounter forms
- follow guidelines established by the Joint Commission

### SYSTEMS-BASED PRACTICE

- achieve basic understanding of the hospital's mission
- incorporate the strengths of systems and resources into clinical care
- achieve a basic understanding of health care eligibility
- advocate for quality patient care and assist patients in dealing with system complexities

### PRACTICE-BASED LEARNING AND IMPROVEMENT

- analyze practice experience and adjust behavior and skills accordingly
- identify and assimilate evidence from scientific studies related to patients' health problems
- apply knowledge of study design and statistical methods to the appraisal of clinical studies and other information on diagnostic and therapeutic effectiveness
- use information technology to manage information, access on-line medical information; and support their own education

## CONTACT LENS SERVICE

TERESA NARAYAN, OD

### GOALS AND OBJECTIVES BY COMPETENCY

#### PATIENT CARE AND MEDICAL KNOWLEDGE

At the completion of their course of study in Contact Lens, residents will be able to:

- examine soft and gas-permeable spherical contact lenses on the eye and appreciate their fitting and refractive characteristics.
- understand the correlation between base curve selection and keratometric reading, materials used in designs, types of refractive errors that can be corrected, the concept of Dk (Diffusion coefficient of oxygen) with different plastics, and solution types used in cleaning, disinfecting and storing.
- complete a retinoscopic evaluation and be close to true refractive error.
- understand what scissoring versus normal reflexes look like with retinoscopy.
- examine a soft-toric contact lens on the eye and appreciate its fitting characteristics.
- utilize concept of LARS on rotated toric lens, to perform SCOR (Sphero-Cylindrical Refraction) over toric lens if acuities are poor, to calculate cross-cylinder results to arrive at new toric lens power.
- appreciate how peripheral curvatures and diameters will affect lens fitting.

- understand when bitorics, large diameter lenses, etc. are needed.
- demonstrate critical thinking in handling of challenging contact lens patients by appreciating the types of lenses available.
- understand current trends in the field of contacts including contact lens care regimens and frequency replacement modalities.
- understand the mechanics of hard and soft lens insertion and removal
- understand the various difficulties and complications of contact lens wear and the implications of this on patient safety and satisfaction
- Scleral Lenses: be familiar with the use of Scleral Gas Permeable lenses and common indications for use (keratoconus, ectasia, S/P corneal trauma, infections, high astigmatism, dry eyes); understand the concept of corneal and limbal vault of these lenses and the scleral landing zone; recognize slit lamp appearance of limbal blanching and need for different fit for this condition; understand the risks and contraindications for scleral lenses

#### INTERPERSONAL AND COMMUNICATION SKILLS

- demonstrate proficiency in communicating with patients regarding their contact lens care.
- demonstrate to patients proper contact lens application and removal techniques.

#### PROFESSIONALISM

- demonstrate respect and compassion for the needs of contact lens patients.
- demonstrate a commitment to ethical principles pertaining to clinical care, confidentiality of patient information, and informed consent.
- try and provide care in any contact lens scenario no matter how foreign the concept.

#### SYSTEMS-BASED PRACTICE

- understand the economic implications of various contact lens modalities
- use a system in place to order contact lenses efficiently from manufacturers and distributors.

#### PRACTICE-BASED LEARNING AND IMPROVEMENT

- use information technology to manage notes and observations made in contact lens clinic.
- access current optometric information online for complex contact lens fitting philosophy.

#### OPHTHALMIC PATHOLOGY

SINA SABET, MD

#### GOALS AND OBJECTIVES

##### 1. PGY2 YEAR RESIDENTS

- Evaluate all of the cases (whole eyes, biopsies exenteration specimens and outside consultations) that are sent to the laboratory during the rotation.
- Look at specimens from the teaching collection that will not ordinarily be seen during their rotation. These will be evaluated as “unknowns” and then discussed with the eye pathology instructors.

PGY2 RESIDENTS: At the completion of the PGY2 year, each resident should have an understanding of the following pathologic processes:

##### I. Inflammation

- The cells of inflammation, types of inflammation, and inflammatory processes
- Nongranulomatous inflammation
- Granulomatous inflammation (especially sympathetic uveitis, lens induced uveitis, foreign body granulomas)

D. Inflammation due to micro-organisms, sarcoidosis, foreign bodies

## II. Cornea

- A. Corneal wounds
- B. Corneal degenerations (especially pterygiums, endothelial degeneration)
- C. Dystrophies
- D. Congenital abnormalities (e.g. mesodermal dysgenesis)

## III. Glaucoma

- A. Congenital glaucoma
- B. Primary open angle glaucoma
- C. Angle closure glaucoma
- D. Secondary glaucomas

## IV. Uveal Tract

- A. Inflammatory processes
- B. Tumors (especially melanomas and metastatic tumors)

## V. Lens

- A. Congenital abnormalities (PHPV, congenital cataracts)
- B. Cataractogenesis including complications
- C. Cataract surgery and complications (e.g. epithelial ingrowth, stripped Descemet's membrane)

## VI. Retina

- A. Inflammatory processes (e.g. Toxoplasmosis, CMV retinitis, Toxocara)
- B. Tumors (especially retinoblastoma)
- C. Retinal vascular disease (diabetes, hypertension, arterial and venous occlusive disease)

## VII. Optic Nerve

- A. Atrophy
- B. Tumors (glioma, meningioma)

## VIII. Orbit

- A. Inflammatory processes
- B. Benign and malignant tumors

## IX. Lids

- A. Inflammation and inflammatory tumors
- B. Benign tumors
- C. Malignant tumors (especially basal cell carcinoma, squamous cell carcinoma, sebaceous gland carcinoma, melanoma)

## X. Conjunctiva

- A. Inflammatory processes
- B. Neoplasia (melanotic lesions, CIN, squamous cell carcinoma)

## PGY2 AND PGY3 RESIDENTS

Each resident is expected to

- a. Look at and evaluate any eye or biopsy that they have performed or assisted with. This will be done in the eye pathology laboratory with one of the eye pathology instructors at a mutually agreed upon time but within 1 to 3 weeks of the surgery during which the material was obtained.
- b. Review specimens submitted to the laboratory from outside physicians.

## OBJECTIVES BY COMPETENCY:

**PATIENT CARE.** The resident in every case studied should know how this diagnosis influences the care and prognosis for the patient under study.

**MEDICAL KNOWLEDGE.** The resident should meet the goals and objectives outlined above and demonstrate this knowledge orally to faculty and through case presentations.

**PRACTICE-BASED LEARNING AND IMPROVEMENT.** Evaluated on an individual basis and during questions posed at grand rounds.

**INTERPERSONAL AND COMMUNICATION SKILLS.** The resident must learn how to prepare a proper pathology request (clinical history, location of biopsy, special requests). The resident must also be able to prepare a concise, pertinent and accurate pathology report.

**PROFESSIONALISM.** The resident is responsible for attending all scheduled pathology sessions.

**SYSTEMS-BASED PRACTICE.** The resident should have knowledge of the value and the limitations of a pathology specimen and its report (e.g. inadequate biopsy, more or different tissue needed, biopsy not indicated), when to ask for another opinion or an outside consult, how to integrate the pathology diagnosis into the complete care of the individual patient.

At the completion of each successive year of training, each resident should have a more complete and refined understanding of the pathological processes outlined above for first year residents including new and emerging material from the literature, from personal experience, and from selected areas of research.



## PGY4 YEAR GOALS AND OBJECTIVES

### **Goals:**

- To provide residents with the formal instruction and patient-care experiences that will enable them to effectively evaluate and treat patients in a large general ophthalmology clinic and hospital setting

### **Objectives:**

- Exhibit expertise in all aspects of the basic ophthalmic examination
- List a complete differential diagnosis for each patient
- Independently formulate a management plan
- Communicate with patients regarding their ocular disease and recommend treatments
- Appropriately refer patients to sub-specialists
- Demonstrate knowledge of the preoperative assessment of potential surgical patients
- Effectively communicate benefits, alternatives, and risks of surgery to patients
- Hone and exhibit skill in the performance of anterior segment surgery, particularly phacoemulsification
- Understand and demonstrate the process of intraocular lens power calculations
- Demonstrate skill in postoperative management, including recognition and treatment of complications

## GOALS BY COMPETENCY

### PATIENT CARE

- demonstrate proficiency in the diagnosis and treatment of patients with complex/specialized problems
- demonstrate proficiency in performance of surgical procedures including phacoemulsification, glaucoma filtering procedures, penetrating keratoplasty and oculoplastics procedures
- demonstrate safety and proficiency in use of lasers in treating patients with retinal diseases and glaucoma
- counsel and educate patients regarding their eye care

### MEDICAL KNOWLEDGE

- demonstrate analytical thinking in the approach to clinical diagnosis and formulate the differential diagnosis and treatment
- demonstrate the proper use and interpretation of ancillary testing including OCT, A Scan, IOL Calculation, pachymetry and automated perimetry

### INTERPERSONAL AND COMMUNICATION SKILLS

- demonstrate the ability to work cordially with ancillary staff including ophthalmic technicians, and operating room and administrative staff
- communicate effectively with other departments regarding consultations
- communicate effectively with patients and their families

### PROFESSIONALISM

- demonstrate a commitment to ethical principles regarding patient care, confidentiality of patient information and informed consent
- demonstrate respect and compassion for the needs of all area patients

- demonstrate sensitivity and responsiveness to the culture, age, gender and disability of patients
- complete in a timely fashion precise patient care notes, surgical dictations, discharge summaries and encounter forms

#### SYSTEMS-BASED PRACTICE

- advocate for quality patient care and assist patients in obtaining proper referrals within the health care system

#### PRACTICE-BASED LEARNING AND IMPROVEMENT

- identify and assimilate evidence from scientific studies related to patients' health problems
- apply knowledge of diagnostic and therapeutic effectiveness
- use information technology to manage information, access on-line medical information and support personal education

## PGY3 AND PGY4 YEAR GOALS AND OBJECTIVES

### **Goals:**

- To provide residents with the formal instruction and patient-care experiences that will enable them to effectively evaluate and treat patients in a large general ophthalmology clinic

### **Objectives:**

- Become expert in all aspects of the basic ophthalmic examination
- List a complete differential diagnosis for each patient
- Independently formulate a management plan
- Communicate with patients regarding their ocular disease and recommend treatments
- Learn to appropriately refer patients to sub-specialists
- Become adept at the preoperative assessment of potential surgical patients
- Become able to effectively communicate benefits, alternatives, and risks of surgery to patients
- Become skilled in the performance of anterior segment surgery, particularly phacoemulsification
- Understand intraocular lens power calculations
- Become skilled at postoperative management, including recognition and treatment of complications
- Become skilled at glaucoma filtering procedures, and understand the preoperative and postoperative care for this type of surgery
- Identify and treat a variety of medical and surgical retina problems

## GOALS BY COMPETENCY

### PATIENT CARE

- demonstrate proficiency in the diagnosis and treatment of patients with complex/specialized problems
- demonstrate proficiency in performance of surgical procedures including phacoemulsification, glaucoma filtering procedures, penetrating keratoplasty and oculoplastics procedures
- demonstrate safety and proficiency in use of lasers in treating patients with retinal diseases and glaucoma
- counsel and educate patients regarding their eye care

### MEDICAL KNOWLEDGE

- demonstrate analytical thinking in the approach to clinical diagnosis and formulate the differential diagnosis and treatment
- demonstrate the proper use and interpretation of ancillary testing including OCT, A Scan, IOL Calculation, pachymetry, fluorescein angiography and automated perimetry
- teach medical students the basics of the ophthalmic examination

### INTERPERSONAL AND COMMUNICATION SKILLS

- demonstrate the ability to work cordially with ancillary staff including ophthalmic technicians, and operating room and administrative staff
- be able to communicate effectively with other departments regarding consultations
- be able to communicate effectively with patient and their families

## PROFESSIONALISM

- demonstrate a commitment to ethical principles regarding patient care, confidentiality of patient information and informed consent
- demonstrate respect and compassion for the needs of the Lions Eye Clinic patients
- demonstrate sensitivity and responsiveness to the culture, age, gender and disability of patients
- complete in a timely fashion precise patient care notes, surgical dictations, discharge summaries and encounter forms

## SYSTEMS-BASED PRACTICE

- advocate for quality patient care and assist patients in obtaining proper referrals within the health care system

## PRACTICE-BASED LEARNING AND IMPROVEMENT

- identify and assimilate evidence from scientific studies related to patients' health problems
- apply knowledge on diagnostic and therapeutic effectiveness
- use information technology to manage information, access on-line medical information and support their own education

## PGY2 YEAR GOALS AND OBJECTIVES

### PATIENT CARE

- Demonstrate proficiency at taking and interpreting a medical and ophthalmic history
- Demonstrate proficiency, appropriate for training level, at performing and interpreting the results of the elements of the basic eye exam to include
  - Refraction, tonometry, lit lamp examination, gonioscopy,
  - Fundus examination employing the direct and indirect ophthalmoscope and the hand-held indirect lenses for use with the slit lamp,
  - Ocular motility evaluation, confrontational visual fields,
  - Exophthalmometry, retropulsion of the eyeball, evaluation of the lacrimal secretory systems and the external examination
- Counsel and educate patients and their families regarding their eye care
- Efficiently and competently manage their individual clinic schedules

### MEDICAL KNOWLEDGE

- Attend all educational sessions/conferences
- Demonstrate a thorough understanding of the indications, complications, and expected outcomes of any procedure which they perform
- Prepare case presentations for presentation at weekly rounds
- Demonstrate critical thinking in their approach to clinical situations and research questions
- Demonstrate the proper use and interpretation of ancillary testing including automated perimetry, optic nerve analysis, ultrasonic pachymetry, optical coherence tomography, ultrasonography and other appropriate imaging studies
- Attend formal instruction that will give residents an understanding of the scope and value of ophthalmic pathology in contributing to the understanding of ocular and orbital disease, and the importance of obtaining such examination from appropriately qualified pathologists

### INTERPERSONAL AND COMMUNICATION SKILLS

- Demonstrate leadership in the coordination and management of all members of the eye care team including fellow residents
- Demonstrate the ability to work cordially with departmental ancillary staff
- Communicate effectively with other departments regarding consultations or shared patient care
- Demonstrate proficiency in communicating with patients regarding their health care

### PROFESSIONALISM

- Demonstrate respect and compassion for the needs of patients
- Demonstrate a commitment to ethical principles pertaining to clinical care, confidentiality of patient information, and informed consent
- Demonstrate sensitivity and responsiveness to the culture, age, gender, and disabilities of patients
- Complete in a timely fashion thorough and precise patient care notes, surgical dictations, discharge summaries, and encounter forms
- Educate fellow residents in matters of professionalism
- Demonstrate accountability when on-call.

## SYSTEMS-BASED PRACTICE

- Be aware of the intricacies that distinguish this hospital from other health care systems
- Incorporate the strengths of DoD systems and resources into clinical care, especially the electronic medical record
- Advocate for quality patient care and assist patients in dealing with the DoD system complexities

## PRACTICE-BASED LEARNING AND IMPROVEMENT

- Appropriately incorporate information from clinical studies into practice, especially from current, peer-reviewed ophthalmology journals.
- Apply knowledge of study design and statistical methods to the appraisal of clinical studies and other information on diagnostic and therapeutic effectiveness

CHILDREN'S NATIONAL MEDICAL CENTER  
PEDIATRIC OPHTHALMOLOGY AND STRABISMUS  
BETHANY KARWOSKI, MD

PGY3 YEAR GOALS AND OBJECTIVES

**Goal:**

- To provide residents with the formal instruction and patient-care experiences that will permit them to detect the presence of an ophthalmic disorder in a child, conduct an examination to define the deviations from the normal, determine what is wrong, construct a treatment plan and apply it and/or make appropriate referral

**Objectives:**

- Acquire an understanding of the anatomy and physiology of the extraocular muscles and associated structures
- Be able to identify and treat amblyopia
- Understand the various types of strabismus and their management, and be able to measure deviations accurately
- Understand the common infectious, inflammatory and allergic ocular disorders of childhood, the pediatric glaucomas and cataracts, and the retinal vitreous, optic nerve and ocular adnexal disorders that affect children
- Become familiar with craniofacial malformations, the phacomatoses, the manifestations and management of ocular trauma in children, learning disabilities and dyslexia

PATIENT CARE:

- Examine patients in the pediatric ophthalmology clinic. All new patients are examined by the resident. They examine both pediatric and adult patients with strabismus.
- Perform inpatient consultations on all children in the hospital.
- Attend inpatient Retinopathy of Prematurity rounds in the intensive care nursery.
- Assist in the pre-op, intra-op and post-op care of all surgical patients.

MEDICAL KNOWLEDGE:

At the completion of the rotation each resident should have an understanding of the following pathologic processes.

STRABISMUS

Infantile esotropia  
Accommodative esotropia  
Duane syndrome  
Abducens paresis  
Oculomotor paresis  
Thyroid eye disease  
Trochlear paresis  
Exotropia  
Double elevator palsy  
Myasthenia gravis  
Restrictive strabismus due to blowout fracture  
Brown syndrome  
Congenital fibrosis  
Acquired strabismus in adults  
Nystagmus  
Convergence spasm and insufficiency

## AMBLYOPIA

Anisometropic  
Strabismic  
Deprivation

## RETINOPATHY OF PREMATURITY

Risk factors  
Screening protocol  
Staging  
Treatment

## CONGENITAL CATARACT

Differential diagnosis  
Associated syndromes  
Workup  
Treatment

## CONGENITAL GLAUCOMA

Diagnosis  
Treatment

## CONGENITAL PTOSIS

## ANTERIOR SEGMENT DYSGENESIS

Peters  
Sclerocornea  
Axenfeld  
Reigers

## OPTIC NERVE HYPOPLASIA

Septo-Optic Dysplasia

## CORTICAL VISUAL IMPAIRMENT

## COLOBOMA

## LEBERS AMAUROSIS

## ANIRIDIA

## ALBINISM

## REFRACTIVE ERRORS

## NASOLACRIMAL OBSTRUCTION

## ORBITAL DERMOID

## OPHTHALMIC MANIFESTATIONS OF SHAKEN BABY SYNDROME

## OPHTHALMIC MANIFESTATION OF BONE MARROW TRANSPLANTATION

## OPHTHALMIC MANIFESTATIONS OF INHERITED METABOLIC DISEASE

### PRACTICE-BASED LEARNING AND IMPROVEMENT:

- Prepare for and lead the twice monthly motility conference attended by the residents
- Prepare a case for presentation at grand rounds
- Demonstrate proficiency in retinoscopy in all ages
- Perform accurate refraction
- Perform and record an accurate motility exam
- Demonstrate ability to assess and quantify visual acuity in preverbal, preliterate, and literate children
- Demonstrate ability to accurately diagnose strabismus conditions
- Demonstrate ability to diagnose and develop treatment plan for amblyopia
- Demonstrate ability to develop surgical plan for treatment of strabismus
- Demonstrate ability to perform extraocular muscle surgery involving the recti and inferior oblique
- Demonstrate ability to perform cataract surgery on children
- Demonstrate ability to perform an EUA on children with glaucoma



- Demonstrate ability to perform probing and irrigation of nasolacrimal duct
- Demonstrate ability to know technique and indications for botox treatment

#### INTERPERSONAL AND COMMUNICATION SKILLS:

- Demonstrate the ability to discuss pediatric eye conditions with children and their families. These discussions involve sensitivity to patients' physical and emotional development, the patient-child relationship, the impact on school performance, and the limitations on future activities and occupations that visual impairment may induce.
- Demonstrate the ability to properly counsel patients and their families the risks, benefits, and alternatives to pediatric surgical procedures.
- Demonstrate the ability to counsel patients with amblyopia, and their families, the costs and benefits of amblyopia treatment.
- Demonstrate ability to counsel patients with monocular visual impairment, and their families, the importance of proper eye protection.

#### PROFESSIONALISM:

- Interact with all healthcare, administrative, and clerical personnel with professional conduct.

#### SYSTEMS-BASED PRACTICE:

- Engage in teaching of medical students and peers.
- Identify any barriers against efficient and quality patient care, both related to the institution and to the patients' socioeconomic or cultural background.
- Interact with referring physicians by verbal or written methods.
- Interact with teachers, school officials, social workers, case managers, and other individuals involved in the care of visually disabled children in order to provide high quality patient care.