



## MEDICAL AND OPTOMETRY STUDENT GUIDE

### **Introduction**

First off, welcome to our office and to the world of ophthalmology. It is our mission to teach you the basic principles of the examination and understanding of the eye. Our goal is for you to feel comfortable examining an eye in the emergency room or primary care setting. For those of you interested in a residency in ophthalmology, this will be a great starter for future audition rotations.

Although we are a busy private practice, we offer a welcoming and educational atmosphere to all students. Please come prepared. To help you, we have created this introduction and guide. You will be asked in office “pimp” questions and will be given daily assignments. This rotation has a heavy neuro-ophthalmology emphasis as these diagnoses can often times be life threatening. Know your eye, orbit and neuro-anatomy well (especially for surgery).

### **Medical and Optometry Student Liaison**

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- All inquiries should be sent with attention to Heidi
- Please allow time for inquiries to be answered. They will be answered in a timely manner.

### **Orientation 1st Week:**

- Location: 3192 Willow Creek Road, Prescott, AZ, 86301, North Entrance.
- Please show up at 8:00 AM and let the front desk that you have arrived.
- Please wear professional attire (ties are not required). We do not require white coats. After day one, scrubs will be allowed.
- Please wear your name badge given by the university.
- You will be given a tour of the facility and will meet ophthalmologist and optometrists present.
  - These doctors are great resources and are willing to teach and answer your questions.

- Students will follow technicians for the first 2-3 days to learn appropriate work-up, history and EMR.

### **Rotation Schedule**

- See the attached rotational schedule on the M&M website. This an example of what you will encounter as you rotate here at M&M Eye Institute.
- After orientation, schedules will be staggered between the ophthalmologists and optometrists so that each student will have ample opportunities to observe in surgery and clinic.
- Your schedule will be dispensed to you upon the start of the rotation.
- Start and end times will vary based on if you are observing in surgery or if you are in clinic.
  - Surgery: Arrival times vary between 7:00 - 7:30 AM
  - Clinic: Arrival time is between 7:50 - 8:00 AM
  - Check with the doctor you will be with to confirm arrival times
- Any questions/discrepancies in relation the schedule, please consult with the chief optometric resident.

### **Clinic Experience**

- Primary Care
- Ocular Disease
- Cataract & Oculoplastics surgery observation
- Post Ops: Cataract & Oculoplastics
- Retina Clinic observation
- Examination of patients with both the ophthalmologists and optometrists

### **Goals/Requirements**

- All students should become familiar with:
  - Proper documentation of an eye exam
  - How to call in an ophthalmology consult
  - Basic eye examination techniques
    - Entrance Testing (See The Bedside and Office Neuro-ophthalmology Examination on M&M website for more information)
      - Proper designation of right eye (OD) and left eye (OS)
      - Visual Acuity (VA)
      - Extra-ocular motility (EOM) testing and alignment
      - Confrontational Visual Fields (CVF)
      - Pupils
    - Slit Lamp/Indirect Ophthalmoscopy (Assessing the following structures)
      - Intraocular Pressure (IOP)
      - Eyelids/Lashes/Lacrimal Gland
      - Conjunctiva/Sclera
      - Cornea
      - Anterior Chamber

- Lens
- Optic Nerve with Cup to Disc (C/D) ratio
- Blood Vessels
- Macula
- Peripheral Retina
- Vitreous
- Goldmann Tonometry/Tonopen/iCare
- Direct ophthalmoscopy
- Diagnosis and treatment plans of pathologies listed on the guide
- IV line placement prior to cataract surgery (Anesthesiologist will teach)
- 10 minute power point presentation
  - Topic to be determined by Dr. Scott Markham
- For optometry and medical students wanting to pursue residency in ophthalmology
  - Refraction
  - Indirect ophthalmoscopy (20D and BIO)
  - Use of 78/90 diopter lens with the slit lamp

### **Clinical Expectations**

- Demonstrate respect to preceptors, patients and all clinic staff.
- Show up on time for clinic and surgery shifts.
- Be prepared to learn.
  - Ask questions and take notes
- “Equipment Etiquette”
  - Clean and put away after each use
- Be a “Helping Hand” if necessary in facilitating the clinic efficiency.

### **Ophthalmology Rotation Study Guide Topics**

These are some conditions you will be expected to know how to diagnose, treat and manage. You will also be expected to know common ophthalmic medications listed.

#### Trauma

- Chemical Burn (Acid vs. Base)
- Corneal and Conjunctival Foreign Body/Rust Ring
- Hyphema
- Orbital Blow-Out Fracture
- Traumatic Retrobulbar Hemorrhage
- Ruptured Globe

#### Pediatrics

- Leukocoria
- Amblyopia

## Glaucoma

- Primary Open Angle Glaucoma
- Pigmentary Glaucoma
- Pseudoexfoliation Syndrome
- Narrow Angles
- Acute Angle Closure Glaucoma

## Neuro-Ophthalmology

- Anisocoria
- Horner's Syndrome
- Adie's Tonic Pupil
- Isolated Third-Nerve Palsy
- Isolated Fourth-Nerve Palsy
- Isolated Sixth-Nerve Palsy
- Isolated Seventh-Nerve Palsy
- Multiple Cranial-Nerve Palsy
  - Cavernous Sinus Syndrome
  - Superior Orbital Fissure Syndrome
- Myasthenia Gravis
- Papilledema
- Pseudotumor Cerebri
- Optic Neuritis

## Systemic

- Diabetes Mellitus
- Hypertension
- Neurofibromatosis Types I and II
- Multiple Sclerosis

## Headache

- Migraine
- Ocular Migraine
- Cluster Headache

## Eyelid/Orbit

- Chalazion/Hordeolum
- Preseptal and Orbital Cellulitis
- Thyroid Eye Disease (TED)

## Conjunctiva/External Disease

- Acute Conjunctivitis
  - Bacterial vs. Viral
- Subconjunctival Hemorrhage

## Cornea

- Pterygium/Pingcula
- Abrasion
- Herpes Simplex and Zoster (HSV and HZV)
- Wilson's Disease
- Foreign Body
- Dry Eye
- Band Keratopathy

## Lens

- Cataracts
  - Nuclear Sclerosis
  - Cortical
  - Posterior Sub-capsular
- Posterior sub capsular opacification

## Retina

- Central and Branch Retinal Artery Occlusions (CRAO, BRAO)
- Central and Branch Retinal Vein Occlusions (CRVO, BRVO)
- Hypertensive Retinopathy
- Optic Neuropathy
- Amaurosis Fugax
- Age Related Macular Degeneration (ARMD)
- Posterior Vitreous Detachments (PVDs)
- Retinal Tears and Detachments
- Diabetic Retinopathy

## **Common Ophthalmic Medications**

Acular (ketorolac tromethamine ophthalmic solution) 0.5%: Treatment for post-surgical inflammation following cataract extraction.

Acuvail (ketorolac tromethamine): Treatment of pain and inflammation following cataract surgery.

AK-Con-A (naphazoline ophthalmic): Over-the-counter combination vasoconstrictor/antihistamine product for ophthalmic use

Akten (lidocaine hydrochloride): For anesthesia during ophthalmologic procedures

Alamast pemirolast: Potassium ophthalmic solution

Alphagan (brimonidine): Treatment for open-angle glaucoma and ocular hypertension

Alrex: Treatment for seasonal allergic conjunctivitis

Astepro (azelastine hydrochloride nasal spray): Treatment of seasonal and perennial allergic rhinitis

Avastin (Bevacizumab) Injection: Used to treat wet age-related macular degeneration

- Avastin is in a class of medications called vascular endothelial growth factor A (VEGF-A) antagonists. It works by blocking abnormal blood vessel growth and leakage in the eye(s) that may cause vision loss in people with wet AMD.

AzaSite (azithromycin): Treatment of bacterial conjunctivitis

Bepreve (bepotastine besilate ophthalmic solution): Treatment of itching associated with allergic conjunctivitis

Besivance (besifloxacin ophthalmic suspension): Treatment of bacterial conjunctivitis

Betaxon: Lowering IOP in patients with chronic open-angle glaucoma or ocular hypertension

BSS Sterile Irrigating Solution: Treatment during ocular surgical procedures

Cosopt: Treatment for glaucoma or ocular hypertension

Durezol (difluprednate): Treatment of inflammation and pain associated with ocular surgery

Lotemax: Treatment for post-operative eye inflammation

Lucentis (ranibizumab): Treatment of neovascular (wet) age related macular degeneration.

Lumigan (bimatoprost ophthalmic solution): Reduction of intraocular pressure in patients with open-angle glaucoma or ocular hypertension

Macugen (pegaptanib): Treatment of wet age-related macular degeneration.

Ocuflox (ofloxacin ophthalmic solution) 0.3% :Treatment for corneal ulcers

OcuHist: Over-the-counter antihistamine eye drop

Ozurdex (dexamethasone): Treatment of macular edema following branch retinal vein occlusion or central retinal vein occlusion

Quixin (levofloxacin): Treatment of bacterial conjunctivitis

Rescula (unoprostone isopropyl ophthalmic solution) 0.15%: Treatment of open-angle glaucoma or ocular hypertension

Restasis (cyclosporine ophthalmic emulsion): For the treatment of low tear production.

Salagen Tablets: Treatment for Sjogren's Syndrome

Travatan (travoprost ophthalmic solution): Reduction of elevated intraocular pressure in patients with open-angle glaucoma or ocular hypertension

Valcyte (valganciclovir HCl): Treatment of cytomegalovirus retinitis in patients with AIDS

Viroptic: Treatment for inflammation of the cornea in children due to herpes simplex virus

Vistide (cidofovir): Treatment for cytomegalovirus (CMV) retinitis

Visudyne (verteporfin for injection): Treatment of wet age-related macular degeneration (wet AMD)

Vitrasert Implant Drug Delivery System: Treatment of cytomegalovirus

Vitravene Injection: Treatment for CMV in AIDS patients

Zatidor: Treatment for the prevention of itching of the eye

Zirgan (ganciclovir ophthalmic gel): Treatment of acute herpetic keratitis

Zymaxid (gatifloxacin ophthalmic solution): Treatment of bacterial conjunctivitis