Dear Colleague:

This manual, to be used in conjunction with the School of Medicine’s Graduate Medical Education Manual, sets policies and procedures with which all Ophthalmology resident physicians must be familiar in the course of their training at the University of Colorado. The Ophthalmology Residency Program abides and upholds the policies set forth by the ACGME and the University of Colorado School of Medicine Graduate Medical Education Committee.

Names of offices and titles, rather than names of individuals, are given in most instances. A directory of individuals currently filling the positions precedes the contents.

The reader’s attention is directed to editorial policy regarding pronouns. This publication will use “s/he” to mean “she or he” wherever applicable.

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Section 1

GENERAL INFORMATION
1.0.0 GENERAL INFORMATION

THE RESIDENCY PROGRAM

The Ophthalmology Residency Program at the University of Colorado Denver, is a 36-month program. During this period, residents acquire the basic and advanced knowledge and the surgical skills necessary for the general practice of ophthalmology. The art and ethics of ophthalmology are taught at all levels in formal sessions and in the context of patient care. Specific training in the administrative aspects of office management and ethics is provided.

The University of Colorado School of Medicine ophthalmology residency program is conducted by the Department of Ophthalmology at the Rocky Mountain Lions Eye Institute (RMLEI) at the University of Colorado Hospital (UCH), and at three University-affiliated medical centers: Denver Health Medical Center (DHMC); The Children’s Hospital (TCH); and the Veterans Affairs Medical Center (VAMC). All centers are within a 30-minute drive from the Anschutz Medical Campus.

1.0.1 EDUCATION

Training is accomplished through supervised patient care, specialty rotations, teaching conferences, and a Basic and Clinical Science Course in Ophthalmology whose basic material is overseen by the American Academy of Ophthalmology (AAO). Residents are taught and evaluated based on the six core competencies provided by the Accreditation Council of Graduate Medical Education (ACGME) which are Patient Care; Medical Knowledge; Professionalism; Practice-based Learning and Improvement; Interpersonal and Communication Skills; Systems-based Practice; and one additional competency which is Surgical Skills. Policies and procedures are reviewed and updated at least annually for publication in the University of Colorado Residents’ and Fellows’ Manual; faculty, residents, and selected staff each receive an updated copy periodically and it is available online.

Each faculty member or service (more than one faculty member) hosts one or more journal clubs per year with focus in their field of expertise. Specific journal articles are assigned one-week prior for review and discussion. These sessions are intended to encourage analytic assessment of medical literature and are required activities. The optional setting in the home of host faculty provides an opportunity for social interaction and informal discussion between residents and faculty.

Residents at all levels attend supplemental, required instructional courses sponsored by the University of Colorado Department of Ophthalmology during the academic year (see section 7.0.0).
First-year residents participate in additional ongoing teaching conferences, including a series of basic didactic sessions in each of the subspecialties throughout the first academic year.

1.0.2 DEPARTMENTAL CHAIN OF COMMAND

Members of the housestaff are responsible to the Department Chair for all matters pertaining to the professional care of patients; they are responsible to the Administrator of the Department for all matters of administration.

Residents are responsible for being available at all times for patient care at their respective hospitals during clinic hours and after hours according to the call schedule. Failure of performance of duty will first be brought to the attention of the Chief of Service and then to the Program Director and Department Chair.

1.0.3 ROCKY MOUNTAIN LIONS EYE INSTITUTE/UNIVERSITY OF COLORADO HOSPITAL

The University of Colorado Department of Ophthalmology is the only ophthalmology department between Canada and Mexico in the north-south corridor, and Salt Lake City and Omaha to the west and east, respectively. The Department recognizes a service responsibility for approximately 6 million residents in this area. The Eye Clinic averages 46,000 clinic visits per year and over 1,800 surgical procedures per year.

1.0.4 DENVER HEALTH MEDICAL CENTER

DHMC is mandated to provide medical care for all indigent patients in the city and county of Denver. It also serves large numbers of insured patients. It is a Level 1 regional trauma center providing care to injured children and adult patients throughout Colorado and neighboring states. The Eye Clinic services more than 22,000 outpatient visits per year in addition to emergency and inpatient consultations. More than 600 major eye surgeries are performed each year. Subspecialty care in all areas of ophthalmology is provided, and a full surgical and wide array of clinical capabilities are available.

1.0.5 VETERANS AFFAIRS MEDICAL CENTER

VAMC provides a large volume of patient examinations to expand residents’ clinical and surgical experience. All subspecialties are represented. Experience with cataract, glaucoma, oculoplastic and retina surgery, and management of general and chronic ophthalmic disorders, including diabetic retinopathy, are particular strengths of this institution’s educational contribution. VAMC encompasses a tertiary care hospital within the Veterans Administration system.
and has full capabilities within the area of ophthalmology. The Eye Clinic services about 15,000 outpatient visits per year and averages about 600 major eye surgeries each year.

1.0.6 THE CHILDREN’S HOSPITAL

TCH of Denver is a tertiary care level I trauma center for pediatrics. The residents are exposed to a wide variety of pediatric ocular disorders. The Clinic averages 7,000 outpatient visits per year and an active, inpatient consultation service adds to the educational experience. Approximately 500 surgical procedures are done each year.

1.0.7 STEERING COMMITTEE

The Residency Steering Committee meets throughout the year and provides residents with an organized forum to provide and receive input regarding the residency-training program and to provide regular access to the Department Chair and Program Director.

The Committee is designed to record suggestions and criticisms of the residency, develop plans for modifications of the program, and study issues of concern. As issues arise, various additional personnel, including representatives from specific divisions or sections within the University may be invited to contribute to these discussions. The Committee is not, however, designed to deal with administrative or housekeeping functions. It is conceived as a means for candid discussion of larger issues affecting resident training, which may form the basis for subsequent action by the Department.
Section 2

CLINICAL SERVICES
2.0.0 CLINICAL SERVICES

2.1.0 FULL-TIME FACULTY

- **Premilla Banwait, O.D.** is Clinical Instructor practicing primarily at The Children’s Hospital. Dr. Banwait’s clinical interests involve amblyopia/strabismus management, fitting contact lenses (in particular, infant aphakes) and pediatric ocular disease.

- **Jeffrey Bennett, M.D, Ph.D.** is Professor of Neurology with a secondary appointment in Ophthalmology. Dr. Bennett is a neuro-opthalmologist researching the role of neurotrophins in eye development and molecular immunology techniques to determine the cause of optic neuritis and big blindspot syndromes.

- **Jon M. Braverman, M.D.** is Clinical Professor of Ophthalmology practicing at the Denver Health Medical Center. He specializes in anterior segment surgery and ophthalmic trauma. His professional interests include ocular and orbital trauma pathophysiology.

- **Rebecca Braverman, M.D.** is Associate Professor of Ophthalmology and specializes in pediatric ophthalmology and pediatric and adult strabismus. Dr. Braverman’s research interests are thyroid eye disease and strabismus, strabismus and refractive surgery, and congenital cataracts.

- **Richard Davidson, M.D.** is Associate Professor of Ophthalmology. He is active in corneal transplantation and kerato-refractive surgery with research interests in the complications of refractive surgery. Dr. Davidson is director of the Contact Lens Service and co-director of the fellowship program for Cornea, External Disease and Refractive Surgery.

- **Vikram Durairaj, M.D., F.A.C.S.** is Associate Professor of Ophthalmology with a secondary appointment in Otolaryngology-Head and Neck Surgery. He is a specialist in oculoplastic and orbital surgery. His research interests include thyroid eye disease, orbital tumors, periorbital reconstruction, and cosmetic eyelid surgery. Dr. Durairaj is Associate Director of the Ophthalmology Residency Program and Director of the ASOPRS fellowship for Oculoplastic and Reconstructive Surgery.

- **Philip P. Ellis, M.D.** is Emeritus Professor of Ophthalmology and former Chair. He is a leading authority on ocular pharmacology and has a subspecialty interest in glaucoma.

- **Robert W. Enzenauer, M.D., M.P.H.** is Professor of Ophthalmology specializing in Pediatric Ophthalmology and Strabismus and is Chief of Ophthalmology at The Children’s Hospital of Denver. Dr. Enzenauer’s research interests include measuring quality in Ophthalmology and
residency education, quality improvement, Aviation Medicine, Operational Medicine, and Medical Management.

- **Michael Erlanger, M.D.** is Assistant Professor of Ophthalmology specializing in cornea and external diseases, and is the Chief of Ophthalmology at the Denver VA Medical Center. Dr. Erlanger’s research interests involve corneal prosthesis, automated lamellar therapeutic keratectomy, biomechanics of the cornea after Lasik flap procedures and deep lamellar endothelial keratoplasty.

- **Nicholas Faberowski, M.D.** is Assistant Professor of Ophthalmology, practicing primarily at Denver Health Medical Center. Dr. Faberowski is a specialist in the treatment of glaucoma, with research interests in neuroprotection and imaging techniques for glaucoma.

- **Christopher Gelston, M.D.** is Assistant Professor of Ophthalmology specializing in Cornea, External Disease, and Refractive Surgery. Dr. Gelston’s research interests involve ocular surface disease treatments for dry eye, blepharitis, allergic conjunctivitis, and conjunctivochalasis.

- **Darren Gregory, M.D.** is Associate Professor of Ophthalmology specializing in cornea and external diseases. Dr. Gregory’s research interests involve ocular surface repair using amniotic membrane and fibrin glue with particular interest in Stevens-Johnson Syndrome. Dr. Gregory is the Residency Program Director.

- **Kara Hanson, O.D., F.A.A.O.** is Assistant Clinical Professor and is Director of the Low Vision Rehabilitation Service at the University of Colorado Hospital. Dr. Hanson has a particular interest in advocacy and services to aid individuals who are blind or visually impaired.

- **Malik Kahook, M.D.** is Associate Professor of Ophthalmology specializing in the medical and surgical care of glaucoma and cataracts. He is Director of Clinical Research at the Rocky Mountain Lions Eye Institute with specific interest in imaging of the eye, laser surgery for glaucoma, protein markers of ocular disease, improving adherence/compliance to therapy, and both clinical and basic science pharmacology studies.

- **Deegan Lew, O.D.** is Instructor in the Department of Ophthalmology with particular interests in Refractive Surgery and Refractive Technology.

- **Douglas MacKenzie, M.D.** is Assistant Professor of Ophthalmology practicing primarily at the Denver VA Medical Center. Dr. MacKenzie is a specialist in the treatment of glaucoma with research interests in angiogenesis and wound healing, embryonic growth factors, and eye modeling using finite analysis.
- **Naresh Mandava, M.D.** is Professor and Chair of the Department of Ophthalmology and specializes in the medical and surgical treatment of vitreoretinal diseases. Dr. Mandava’s research interests include photodynamic therapy, advanced imaging techniques and gene therapy for retinal diseases. Dr. Mandava is director of the fellowship program for Vitreoretinal Diseases and Surgery.

- **Cameile Moore, M.M.Sc., C.O., C.O.M.T.** is Instructor in Ophthalmology and orthoptist at The Children’s Hospital of Denver. Her primary research interest is inherited eye disease.

- **Jeffrey Olson, M.D.** is Associate Professor of Ophthalmology and specializes in the medical and surgical treatment of vitreoretinal diseases with research interests in novel pharmacologic treatments for exudative macular degeneration.

- **Scott C. N. Oliver, M.D.** is Assistant Professor of Ophthalmology specializing in the medical and surgical treatment of vitreoretinal diseases and is Director of the Ophthalmic Oncology Center at the University of Colorado Hospital. Dr. Oliver’s research interests include retinal vascular disease, radiation retinopathy, and ocular melanoma.

- **Miguel Paciuc, M.D.** is Associate Professor of Ophthalmology specializing in Pediatric Ophthalmology and Strabismus. Dr. Paciuc practices primarily at the Denver Health Medical Center and has research interests in strabismus, amblyopia, and Down's syndrome.

- **Mina Pantcheva, M.D.** is Assistant Professor of Ophthalmology specializing in the medical and surgical treatment of glaucoma and cataracts. Dr. Pantcheva’s research interests involve novel modalities for neuroprotection and diagnosis of glaucoma.

- **Victoria Pelak, M.D.** is Associate Professor of Neurology with a secondary appointment in Ophthalmology. Her research interests include visual processing defects in cortical and sub cortical diseases.

- **J. Mark Petrash, Ph.D.** is Professor and Vice Chair of Research for the Department of Ophthalmology and is the current President of ARVO. Dr. Petrash’s research interests involve the mechanisms of diabetic retinopathy.

- **Hugo Quiroz-Mercado, M.D.** is Professor of Ophthalmology specializing in the medical and surgical treatment of vitreoretinal diseases and is Chief of Ophthalmology at the Denver Health Medical Center. Dr. Quiroz is an internationally recognized expert in advanced retinal disease and artificial vision.
Michael J. Taravella, M.D. is Professor of Ophthalmology and is active in corneal transplantation and keratorefractive surgery and conducts research on intraocular drug delivery and excimer laser. Dr. Taravella is the chief of the Cornea and Refractive Surgery service and is co-director of the fellowship program for Cornea, External Disease and Refractive Surgery.

2.2.0 DEPARTMENT OF OPHTHALMOLOGY CLINICAL SERVICES

2.2.1 Definition
Complete ophthalmologic services are provided at all facilities: UCH, TCH, DHMC and VAMC. The Department directs the resident and fellow teaching program and the patient care activity at the University of Colorado and provides opthalmic care to faculty, staff, and students at the University of Colorado and to patients. A Medical Director and an Administrator oversee clinical activities; the Practice Manager supervises daily operations.

2.2.2 Supervision
ALL patients examined by residents must be examined and discussed with a member of the faculty. In many cases, the faculty member will have subspecialty training. As such, they may be of particular benefit to residents serving on the specialty rotations. All care provided outside of business hours is considered 'general ophthalmology.' The community-based faculty members are expected to see and 'sign off' on all resident patients regardless of the specialty nature of the patients’ problems.

If a member of the community-based faculty is uncomfortable supervising the care of a patient because the patient’s problems fall outside his area of expertise or the community-based faculty is not available, the full-time faculty responsible for the half-day should be consulted. If neither community-based nor full-time faculty are available, as a last resort, a fellow examining patients at that hospital on the same half-day should be consulted and will be required to sign-off on all patients. Under no circumstance is any patient under a resident’s care to leave RMLEI/UCH, TCH or DHMC without being examined with at least one of the above.

New guidelines from the Centers for Medicare and Medicaid Services (CMS) require that the supervising ophthalmologist perform the ‘critical part’ of the examination for all Medicare patients, and that substantial involvement in the evaluation and management of such patients be documented by a handwritten or dictated note; it is not enough to simply sign the chart.

U.S. fellows require supervision by a faculty member, but they do not need to have faculty signatures for their charts. Patients will be billed in the name of the faculty member or fellow who examines and discusses the patient with the resident. Patients seen by a fellow will be billed in the name of that fellow.
For all teaching hospitals, all patients must be seen by an attending within 24-hours after examination by a resident alone if the delay is approved by the faculty member by phone. At UCH, all patients must be seen by an attending within 24- or 48-hours, depending on the problem (Appendix 2.2.2a).

Supervision requirements for all affiliated hospitals are described in Appendix 2.2.2b, 2.2.2c, 2.2.2d, 2.2.2e, 2.2.2f, 2.2.2g.

2.3.0 CLINICAL SERVICES at RMLEI/UCH and TCH

2.3.1 Definition
The Department of Ophthalmology, within University Physicians, Inc. (at RMLEI/UCH and TCH) is a faculty-directed, multi-specialty ophthalmology group practice at RMLEI/UCH and TCH on the Anschutz Medical Campus consisting of residents, fellows, staff, community-based faculty, full-time faculty, optometrists, and associated technical and clinical support staff.

2.3.2 Facilities
The clinical practice is located on the first and second floors of RMLEI/UCH. Facilities include 28 exam rooms, two procedure rooms, six laser rooms as well as a staff conference room, contact lens activity room and offices for staff and patient counseling. Ancillary ophthalmic testing available includes ultrasonography, electroretinography (ERG), visual field testing and ophthalmic photography capabilities. A wide range of lasers also is available.

At TCH, four exam rooms are utilized.

2.3.3 Equipment
Each patient examination suite is fully equipped with all necessary examination equipment including instruments for visual acuity testing, a patient examination chair, and an equipment rack with a slit lamp biomicroscope, keratometer, and phoroptor. In addition, complete trial lens sets are available, as well as lenses for gonioscopic examination, exophthalmometry measurements, color and stereo acuity vision testing, and Amsler Grid testing. **Equipment should remain in the assigned examination rooms.** Equipment should not be taken from one room to another, nor should it be taken from RMLEI/UCH to the Emergency Room or Urgent Care, an inpatient unit, another floor, or another hospital. Please report missing or broken equipment immediately to the Practice Manager. Equipment location is consistent within examination rooms. A ‘consult bag’ is available in the Emergency Department.

There is a fully equipped procedure room for lid laceration repairs, chalazion excisions, minor plastics procedures, lacrimal probing, and other procedures that do not require the full services of an operating room. Equipment assigned to the minor procedure room should not be taken, even for a short time.
2.3.4 **Administration**
The Medical Director, Practice Manager and Administrator oversee the operation of the clinical operations of the Department of Ophthalmology including organization, staffing, finances, policy setting and implementation, marketing, patient recruitment, and contracting. The Medical Director and Administrator report to the Chair of the Department of Ophthalmology. The Practice Manager reports to the Administrator of the Department of Ophthalmology.

All clinic staff (technicians and reception staff) report to the Practice Manager. The Practice Manager is responsible for overseeing daily operations and for handling the majority of problems. The reception staff is responsible for maintaining the scheduling template; scheduling and obtaining results of laboratory tests; scheduling surgical procedures; and handling patient records, visit fees, and correspondence. The technical staff is responsible for lensometry and visual acuity measurements, and for preliminary screening evaluations pertinent to the visit (**Appendix 2.3.4**). At least one technician is assigned to work with each provider in RMLEI/UCH and TCH for each patient half-day.

2.3.5 **Patient Scheduling**
Patients requesting new or return appointments should be instructed to call the RMLEI/UCH scheduling line at 720-848-2020 or TCH scheduling line at 720-777-2020. All cancellations or additions of patients or clinic half-days should be confirmed in writing (**Appendix 2.3.5a, 2.3.5b**). Assigned clinical staff should do all scheduling of surgeries at RMLEI/UCH and TCH (see section 6.1.2). Scheduling requests should be conveyed on the Routing Slips (**Appendix 2.3.5c, 2.3.5d**) at RMLEI/UCH and TCH; one or more CPT codes should accompany the request (**Appendix 2.3.5e**). Faculty, fellows and residents are notified of the date by the scheduler (**Appendix 2.3.5f**). Since postoperative visits are always necessary, they should be scheduled when surgery is scheduled. Postoperative visits should not be overbooked at the last minute.

Every effort will be made to assure a satisfactory mix of patients for the residents. Residents should make each patient's visit as pleasant, expedient, uninterrupted, and thorough as possible. Patient satisfaction is a high priority.

At the time of the visit, patients who are uninsured will be asked to pay in full for services rendered. Prospective patients who are unable or unwilling to pay for service at the time of their visit will be referred to the VAMC, if a veteran, and/or DHMC facilities if a resident of the city and county of Denver. UCH provides care (to capacity) for indigent state residents outside of Denver County who have a life or limb-threatening illness; TCH provides care to indigent residents of the state.

All billing questions should be directed to the Practice Manager. Under no circumstances should any resident or fellow make arrangements not to bill a patient for services. All patients will be billed for each visit, with the exception of
postoperative visits, as negotiated by the individual health insurance plans. Physicians, members of the University of Colorado medical faculty, and their immediate families may be extended professional courtesy (insurance only) for services rendered (but not for supplies such as contact lenses or low-vision aids) by full-time faculty only. There are no other courtesy discounts.

2.3.6 Patient Retention
Patients seen in the Department of Ophthalmology are not a ‘captive’ group. Many may obtain their care anywhere. Therefore, all residents and fellows should provide service of the highest caliber in a timely fashion. Every effort should be made to see patients on time, keep overbooking to a minimum, and be sensitive to each patient’s financial concerns. Be sure to address each patient’s presenting problem or chief complaint. Residents and fellows on specialty rotations must not attempt to address only specialty-related problems while ignoring the presenting complaint of a patient. Do not request unnecessary laboratory tests. No patients are to be ‘sold’ or ‘pressured’ into procedures or treatments for which they are not seeking help or treatment.

To reduce the complaint frequently voiced by patients that they are seen by different physicians each time they visit, the faculty, Chief Resident, and fellows will see their own return patients and will follow those patients throughout their time in the Department unless a referral is made. A referral should be made for procedures and consultations that are necessary and require the skill of a particular service. What would be considered the standard of care in the community should dictate referrals within the Department of Ophthalmology.

An attending must see ALL patients at all UCHSC affiliated institutions.

Transfer of patient care responsibilities should be ‘attending to attending’. Residents and fellows are encouraged to keep return visits at the minimal level necessary and in the best interest of patient care. Excessive follow-up will impair a resident’s or fellow’s ability to see new patients.

2.3.7 Patient Evaluations
All patients must be ‘encountered’ at the front registration desk. There are no exceptions to this policy. Once encountered, they will be directed to the waiting room. If they are new patients, or if they have been given glasses at another facility, the technician will measure their prescription on a lensometer and perform an autorefraction. Patients who have not been seen for three years will be considered new patients and be charged the new patient fee.

Prior to examination, the patient will complete a New Patient or an Interval history self-assessment form. A technician will perform a preliminary examination, including dilation if requested by the physician (see technicians pre-testing list (Appendix 2.3.4). Technicians are responsible for seeing that all appropriate historical and screening blanks on the patient work-up sheet are filled in. The
patient’s eyes will not be dilated unless so directed by the physician. Abnormal findings will be documented by the resident or fellow for verification.

Allergies and any medication, including eye drops administered to the patient, must be documented in the patient’s record.

Universal precautions are policy at RMLEI/UCH and TCH (Appendix 2.3.7a). Residents and fellows are responsible for understanding and practicing proper universal precaution policies and procedures. Please contact the Surgical Service administrative assistant for further information.

Residents and fellows are responsible for performing a complete ophthalmologic examination on every new patient, and an appropriate evaluation is performed on return patients. If a new patient is scheduled to see a resident or fellow on a specialty service, the patient must receive a comprehensive evaluation, not just a specialty-related brief evaluation. A comprehensive ophthalmologic evaluation on a new patient consists of (Appendix 2.3.7b, 2.3.7c, 2.3.7d, 2.3.7e, 2.3.7f, 2.3.7g, 2.3.7h):

(a) chief complaint;
(b) history of ophthalmic and major medical problems:
(c) the current systemic and ophthalmic medications;
(d) Snellen distance visual acuity with best correction and pinhole;
(e) allergies;
(f) social history;
(g) family history;
(h) review of systems (10 systems);
(i) near visual acuity with best correction;
(j) complete external evaluation of the face, eyelids, adnexa, and anterior segments;
(k) manifest refraction or cycloplegic refraction, as indicated;
(l) pupillary examination;
(m) confrontation visual field examination;
(n) motility examination;
(o) slit-lamp biomicroscopic examination of the eyelids, lashes, conjunctiva, corneas, anterior chambers, irises, lenses and anterior vitreous cavities;
(p) gonioscopy, as indicated;
(q) applanation tonometry;
(r) a dilated fundus examination including biomicroscopic evaluation of the disc and macula, and indirect ophthalmoscopy of the retinal periphery; and
(s) scleral depression, as indicated.

At least once per year, returning patients should receive an assessment of refractive error and a dilated examination. The results of the evaluation should be written clearly on new patient or return patient forms (Appendix 2.3.7g, 2.3.7h, 2.3.7i, 2.3.7j).
The American Academy of Ophthalmology Preferred Practice Patterns (PPPs) will be considered the standard of care unless circumstances warrant deviation from the recommendations (view PPPs at http://www.aao.org/ppp).

Based on the Routing Slip and/or requisitions, the clerical staff schedules necessary additional testing or surgical procedures. The name or initials of the requesting attending must be on the requisition. Only under faculty recommendation should referrals be made for subspecialty clinic consultation.

At RMLEI/UCH and TCH, a copy of the typed dictation should be sent to the specialty physician if a referral is indicated. A consult form should be completed for consultations outside the Department of Ophthalmology (Appendix 2.3.7k). All referrals must be clearly documented in the patient’s chart. A signed Release of Information should be used to receive or send medical records (Appendix 2.3.7l, 2.3.7m).

At the conclusion of the visit and after the patient’s chart has been signed by an Attending Physician, the patient must be given the Routing Slip (Appendix 2.3.5c, 2.3.5d) and Superbill (Appendix 2.3.7n, 2.3.7o, 2.3.7p) to ‘check out’ with the staff. Surgical procedures should be documented on the Routing Slip and a surgical packet be completed; coding of the procedure should be submitted for authorization and scheduling.

### 2.3.8 Documentation

#### Charts

RMLEI/UCH and TCH Eye Clinics maintain a shadow copy of its own medical records. All patient charts must be complete and legible. Only the most widely accepted abbreviations may be used; all other entries must be written in full. New JCAHO accreditation standards require all U.S. hospitals to prohibit the use of dangerous abbreviations (Appendix 2.3.8a). Upon completion of examination and documentation and before the patient leaves, the patient must be presented to the attending ophthalmologist for approval and signature. All signatures must be legible. If handwriting is poor, names must be printed or stamped; NCR or carbon copies of all prescriptions should be filed in the shadow chart.

Telephone messages from patients to residents will be placed in the residents’ mailbox along with the patient’s chart. The resident must write a response to each phone call on the hard copy and place it in the chart. **All phone calls with patients should be documented in writing.** Inpatient and outpatient UCH and TCH charts may be requested, if necessary, but may take 24-48 hours to arrive.

**Records should not be removed from any facility.**

The New Patient or Established/Follow-up patient, Health Assessment and history forms, as applicable, are used to record the patient’s medical history, visual acuity, and the findings of the eye examination. **A dictated report must be generated for each patient visit including inpatient consultations.**
A requisition must be completed for any diagnostic test and/or photographic procedures (see Section 4).

The UCH and TCH Problem List Summary (Appendix 2.3.8b, 2.3.8c) records diagnoses, past surgeries, current medications, allergies, and other comments and must be completed on each patient.

2.3.9 Correspondence
Before the end of the day, on all visits, the faculty, fellow or resident must dictate, through the hospital transcription service, reports on all visits with copies to the referring physicians, including RMLEI/UCH and TCH faculty, outside physicians, and to primary care physicians (PCPs). Without exception, these reports must be dictated within 10 working days after the visit. All new and return visits should be dictated using the templates (Appendix 2.3.9a, 2.3.9b, 2.3.9c, 2.3.9d). To access and use the UCH transcription service, dial 720-848-2456 (or toll free 888-407-5336) or x82456 from in-house; written instructions should be followed. To access TCH transcription, please call 720-777-2626 (or toll free 888-290-0005) or x72626 from in-house.

The need will arise periodically to correspond with referring physicians regarding a patient’s planned evaluation and management. It is each resident’s and fellow’s responsibility to see that correspondence is dictated in a timely fashion.

Every attempt should be made to respond to patient requests for information. If a patient asks for a summary letter describing his condition, this should be provided. If a school or employer asks for information regarding a patient’s condition, this should be provided with the patient’s written permission. All correspondence that is deemed appropriate should be dictated on the UCH or TCH transcription service.

2.3.10 Services Provided
The Department of Ophthalmology provides comprehensive and specialty ophthalmic care and contact lens services. This care is provided by residents and fellows with direct full-time or community-based faculty supervision.

The majority of patients seen in the Department of Ophthalmology have problems of a general or comprehensive nature. A patient calling with such a complaint will be given an appointment with the first available full-time faculty, fellow, optometrist or supervised resident on the patient’s preferred visit day.

When a patient calls to schedule an appointment, the clerical staff will make every effort to determine if the patient has a problem that falls into a specialty area. If so, the patient will be scheduled to see the first available full-time faculty or fellow in the appropriate specialty on his preferred day.

If full-time faculty, fellows or Chief Resident are not fully booked with patients who have specialty problems, they will be assigned patients who have general or comprehensive problems. These patients must be given a thorough,
comprehensive evaluation even if they are seen on a specialty service. Again, residents and fellows on specialty rotations must avoid performing an evaluation limited to their specialty rotation. In addition, no patient should be pressured into specialty-related evaluations and procedures if this is not part of their ophthalmic complaint. (It is certainly within the scope of good care to relay problems that are evident on examination, and if these problems happen to fall within the realm of the specialty rotation, all the better.)

2.3.11 Outpatient Surgery
See section 6.0.0, Surgery Services.

2.3.12 Resident and Fellow Attendance
Regular attendance for clinical and educational activities by residents and fellows is mandatory. Resident rotations have been carefully coordinated with the Residency Program Director and the Medical Director so that no other professional activities will conflict. All residents and fellows must submit requests for vacation time or leave for professional meetings at least 10 weeks in advance so that patient appointments can be blocked. (Please see section of leave requests for further details.) No last-minute changes in patient scheduling can be accommodated, except in unusual circumstances of real urgency which require the approval of the Medical Director and the Residency Program Director. Any resident or fellow who anticipates arriving late to see patients must notify the Residency/Fellow Coordinator and the Practice Manager.

2.4.0 DENVER HEALTH MEDICAL CENTER (DHMC)

2.4.1 Definition
DHMC is Colorado's premier Level One Trauma Center located at 8th Avenue and Speer Boulevard in Denver, Colorado. The Division of Ophthalmology is organized as a component of the Department of Surgery and is a member of the Trauma Service. The division currently employs four full-time ophthalmologists and enjoys the contributions of many volunteer community ophthalmologists from various sub-specialty areas. One resident at each level of post-graduate residency training and a part-time optometrist complete the professional staff. Three ophthalmic technicians, one Health Care Partner and two clerks as well as a division secretary complete the front and back office support staff. All DHMC policies are available on-line on the 'Pulse.'

2.4.2 Facilities
The outpatient clinic and administrative sections are located in the Davis Pavilion North on the DHMC campus. The clinic contains seven exam rooms, a minor surgery treatment room, a laser room, a diagnostics section, and administrative offices. An adjoining break room also serves as a meeting room. An optical dispensary is part of the patient waiting area, conveniently located to serve the staff and patients at DHMC.
The outpatient operating room is fully equipped with state-of-art machines and instruments for anterior and posterior segment intraocular surgery, and orbital surgery.

The Emergency Department (ED) is located in the northwest corner of the main hospital on the first floor; the access code is 1335.

### 2.4.3 Equipment

Each patient examination room is equipped with a full array of standard ophthalmic examination tools including: eye chart projection lamps, motorized and reclining examination chairs, central powered equipment tree housing the Haag-Streit slit lamp biomicroscopes, recharging wells for direct ophthalmoscope, muscle light, streak retinoscope, and overhead utility light source, and phoropter. The workspace desk provides drawer storage of diagnostic lenses, prism kits and bars, trial lens sets, color/stereo vision testing tools, exophthalmometer, and gonioscope. A specially equipped pediatric lane (Room 2) has additional devices to aid in the examination of young children.

The diagnostic area houses the Humphrey visual field tester, fluorescein angiography apparatus, anterior segment camera, and visual media coordination.

The laser room contains the YAG laser and three-color argon laser. Indirect laser application is performed as well.

The minor treatment room is equipped with a motorized patient table, an operating microscope, cryotherapy tanks, A and B scanner ultrasound unit, keratometer, and supply storage.

A portable slit lamp and indirect ophthalmoscope is available for inpatient consults. The emergency room has a separate ophthalmic area that provides access to a slit lamp.

Each resident and fellow is responsible for the proper maintenance of equipment. At the start of each day, it is the responsibility of each resident to survey his or her work area and immediately report any missing, damaged, or nonfunctioning equipment. The consult resident is additionally responsible for the portable slit lamp and indirect ophthalmoscope.

### 2.4.4 Administration

The Medical Director, assisted by a nurse administrator, oversees the daily activities in the Division. The Medical Director reports to the Chief of the Department of Surgery. The Nursing Operations Manager oversees the technical and clerical staff in the Ophthalmology Division as well as several other surgical subspecialty areas. Resident and fellow issues should be presented to the Medical Director.
Cross training is a goal for each new hire in the technical and clerical areas of the division. Flexibility is achieved allowing our busy clinic to function during planned and unplanned absences from our technical and clerical areas.

2.4.5  Patient Scheduling
Patient schedules identify each care provider in the division. All appointment requests are entered into the computer database. Residents and fellows must always indicate such appointment requests in the patient records and by way of the Routing Slip given to the patient for presentation to the clerk. Patients seen by residents or fellows on weekends or after business hours should be instructed to phone the clinic for a follow-up appointment. The discharge nurse in the ED will arrange for follow-up if the patient is discharged from the ED. If it is necessary for another resident to see this patient in follow-up prior to the resumption of normal business hours, the referring resident will directly contact the consulting resident. It is NOT acceptable to instruct patients to appear in the clinic for follow-up without an appointment.

Whenever possible, residents and fellows should endeavor to follow-up patients they have managed in the past to maintain continuity.

Department of Corrections patients necessarily must be handled differently than the general population. Per policy, care providers cannot discuss with or disclose the time and date of a follow-up visit to the inmate.

Out-of-county patients who are uninsured can only be seen in clinic as an extension of a life or limb threatening injury or illness. The screening exam for determining life or limb threatening injury or illness is performed in the Emergency Department or Adult Urgent Care Clinic (WIC). Following stabilization, these patients must be referred outside the system.

2.4.6  Faculty Supervision
The outpatient clinic is supervised for all half days by a full-time faculty or community-based faculty attending. Many subspecialty clinics are supervised by community-based faculty members. Residents should review all patients with an attending irrespective of the nature of the suspected pathology. Attending notes and signatures should be entered on each encounter by the covering staff. If no attending is in the Eye Clinic, all walk-in patients should be registered and seen in the ED.

ALL patients examined by residents must be examined and discussed with a member of the faculty. The community-based faculty are expected to see and sign off on all resident patients regardless of the specialty nature of the patients' problems. If a member of the community-based faculty is uncomfortable supervising the care of a patient because the patient’s problems fall outside his area of expertise or the community-based faculty is not available, the full-time faculty for the half-day should be consulted. If the community-based and full-time faculty are unavailable, as a last resort, a fellow examining patients on the same half-day should be consulted and will be required to sign-off on all patients.
Under no circumstance is any patient under a resident’s care to leave without being examined with at least one of the above. The DHMC faculty supervision policy is included as Appendix 2.2.2e.

Inpatient consults should be seen in clinic provided that the patient can be transferred. For those patients that require bedside evaluations, the consult resident needs to make arrangements with the covering attending to leave the clinic and perform rounds. An attending must evaluate every inpatient as soon as possible after the initial examination, and should be involved in the day-to-day care of the patient.

Transfer of faculty responsibility must be ‘attending to attending.’

### 2.4.7 Patient Evaluations

All patients will first be registered at the front desk of the clinic in order to generate a formal encounter. Each patient will be screened by a technician or designate to determine refractive error by autorefractor, lens reduction, baseline acuity, and brief review of history according to the format of the encounter. Except for acute emergencies, patients will be asked to wait in the waiting area in the front of the clinic. Care providers are responsible for determining the proper order in which to call patients into the exam room.

Patients that require an evaluation in clinic after normal hours, due to equipment needs or post-operative visits on a weekend, should be met at the Information Desk in the main hospital and escorted by the physician and security to the Eye Clinic. To obtain security, please call the operator. The patient should be registered on the first floor prior to being escorted to the Eye Clinic.

Standard precautions are policy at DHMC. Residents and fellows are responsible for understanding and practicing proper standard precaution procedures, which have been provided to all residents through the GME office. Please contact the Nurse Supervisor for the division for additional information, if necessary.

Prior to examination, the patient will complete a New Patient or an Interval history self-assessment form. A technician will perform a preliminary examination, including dilation if requested by the physician (see technician’s pre-testing list (Appendix 2.3.4). Technicians are responsible for seeing that all appropriate historical and screening blanks on the patient work-up sheet are filled in. The patient’s eyes will not be dilated unless so directed by the physician. Abnormal findings will be documented by the resident or fellow for verification.

Allergies and any medication, including eye drops administered to the patient, must be documented in the patient’s record.

Residents and fellows are responsible for performing a complete ophthalmologic examination on every new patient, and an appropriate evaluation is performed on
return patients. If a new patient is scheduled to see a resident or fellow on a specialty service, the patient must receive a comprehensive evaluation, not just a specialty-related brief evaluation. A comprehensive ophthalmologic evaluation on a new patient consists of \textit{(Appendix 2.3.7b, 2.3.7c, 2.3.7d, 2.3.7e, 2.3.7f, 2.3.7g, 2.3.7h)}.

(a) chief complaint;
(b) history of ophthalmic and major medical problems;
(c) the current systemic and ophthalmic medications;
(d) Snellen distance visual acuity with best correction and pinhole;
(e) allergies;
(f) social history;
(g) family history;
(h) review of systems (10 systems);
(i) near visual acuity with best correction;
(j) complete external evaluation of the face, eyelids, adnexa, and anterior segments;
(k) manifest refraction or cycloplegic refraction, as indicated;
(l) pupillary examination;
(m) confrontational visual field examination;
(n) motility examination;
(o) slit-lamp biomicroscopic examination of the eyelids, lashes, conjunctiva, corneas, anterior chambers, irises, lenses and anterior vitreous cavities;
(p) gonioscopy, as indicated;
(q) applanation tonometry;
(r) a dilated fundus examination including biomicroscopic evaluation of the disc and macula, and indirect ophthalmoscopy of the retinal periphery; and
(s) scleral depression, as indicated.

At least once per year, returning patients should receive an assessment of refractive error and a dilated examination. The results of the evaluation should be written clearly on new patient or return patient forms \textit{(Appendix 2.3.7g, 2.3.7h, 2.3.7i, 2.3.7j)}.

The American Academy of Ophthalmology Preferred Practice Patterns will be considered the standard of care unless circumstances warrant deviation from the recommendations (view PPPs at http://www.aao.org/ppp).

Based on the Routing Slip and/or requisitions, the clerical staff schedules necessary additional testing or surgical procedures. The name or initials of the requesting attending must be on the requisition. Only under faculty recommendation should referrals be made for subspecialty clinic consultation.

\textbf{2.4.8 Documentation}

All charting must be done in black ink in a clear and legible fashion. Residents should avoid making up abbreviations for compound words. Write out words or utilize established abbreviations. Please note that many of the standard
abbreviations in Ophthalmology are no longer allowed (Appendix 2.3.8a). All records are scanned and maintained online.

All patient contacts (including phone conversations and medication refills) must be documented (Appendix 2.4.8). If a treatment is performed, or a medication administered or prescribed, documentation supporting this must be entered into the patient record.

Operative reports must be dictated on the day that the procedure occurred, preferably at the conclusion of the case. Dictation instructions are posted in every examination room.

After hours documentation must be turned in to the clinic staff for posting by the next business day.

Procedure forms for laser and minor surgical procedures must be completely filled out and included with the patient record. Lab and radiology forms must be completely filled out at the time the test is ordered. Technicians assist with laboratory and radiology requests.

2.4.9 Correspondence
All med-legal correspondence must be done by attending faculty. This would include driver's license renewal forms, disability forms, narrative requests from lawyers or other officials. Please forward such requests to the full-time physician staff.

Not infrequently, patients request letters documenting their condition or ability to return to work. In general, we do not create such letters for patients or relatives of patients. Any release of information about a patient must first be authorized and specifically addressed to a receiver. It is our policy not to write up such letters and give them to patients. Ask requesting patients to provide us with a name, address, and phone number of the person or entity requesting the medical information. We will then send a narrative to that person or entity. A copy of all correspondence sent outside DHMC must be sent to Medical Records as documentation.

Any verbal instructions given to patients directly must always be documented in the record. This includes activity restrictions and closed-ended work restriction. We discourage you from making open-ended work restrictions.

2.4.10 Other Services Provided
Our part-time optometrist provides contact lens services by appointment. An optical dispensary is available to patients and staff during normal business hours, located in the main waiting room. The optometrist also spends 30 minutes with each PGY2 and PGY3 in contact lens instruction.
2.4.11  Outpatient Surgery
The majority of scheduled cases are performed on an outpatient basis. Scheduling is accomplished by filling out a preoperative packet (SCOR packet) and registering cases with the Chief Resident, who is responsible for overseeing and managing operating room scheduling. Cases must be coordinated with the attending that will be staffing the surgery. Special requested times must be cleared with the operating room prior to scheduling outside of our service's block time. Ophthalmology OR days are Monday, Tuesday, Wednesday, Thursday, and Friday full days; the 4th Thursday of each month for oculoplastics cases. All operating room surgeries are directly supervised by attending ophthalmologists.

2.4.12  Attendance
Residents and Fellows are expected to be on time to clinic sessions and surgery, and must notify the Medical Director if they are going to be late to a clinic session. Absence without notification will not be tolerated. Clinics start at 0830 (8:30 AM) and are scheduled so residents are able to be on time for assigned didactic lectures.

Elective leave (vacation, education) request forms must be completed and received by the Residency/Fellow Coordinator at least 10 weeks in advance. All signatures must be in place according to resident leave policies (section 9.14.1) before final approval for leave will be granted. Exceptions to this policy cannot be made. Urgent leave requests may be considered on an individual basis by the Medical Director and Director of Residency Training. No more than one resident may take elective (vacation, educational) leave at any time during the rotation.

2.4.13  Keys/Parking Passes
Each resident and fellow is responsible for any access keys or cards provided them by DHMC. The loss or theft of any items must be reported immediately to the Medical Director. Failure to do so may delay certification of residency or fellowship completion.

2.4.14  After-hours coverage
A junior resident and a Chief Resident are on-call at DHMC for emergencies and urgent care issues at all times. Full-time staff attending coverage is provided. If a resident is called to the ED and needs equipment which is only available in the Eye Clinic, the examination may be performed in the Eye Clinic. The patient should only be examined in the Eye Clinic if the Charge Nurse is unable to obtain the equipment; the resident and patient must have a security escort.

2.4.15  Trauma Outreach Patients
DHMC is one of the premier trauma centers in the Rocky Mountain Region. Patients with life and limb threatening trauma are referred from throughout the state as well as from neighboring states. It is a requirement that all Trauma Outreach Patients are seen by the attending on-call. If the patient is referred primarily for ophthalmic or orbital trauma, the attending must be present in the Emergency Department when the patient arrives. The emergency medicine attending will page the attending ophthalmologist on-call when patients are
referred specifically for ophthalmic or orbital trauma. The attending is responsible for coordinating resident participation. A letter should be dictated to the referring physician within 24 hours on all Trauma Outreach Patients. A follow up phone call to the referring physician is also requested.

2.5.0 DENVER VETERAN’S AFFAIRS MEDICAL CENTER (VAMC)

2.5.1 Definition
VAMC is a tertiary referral hospital for U.S. veterans located on Clermont Street in Denver, Colorado. The Ophthalmology section is a component of the Surgical Service, and employs one service chief, one full-time attending ophthalmologist, one part-time attending ophthalmologist, and one part-time attending neuro-ophtalmologist. There are part time glaucoma, retina, cornea, neuro-ophtalmology and oculoplastics and general ophthalmology attendings as well as several volunteer community attendings that staff clinics and surgeries.

The cornea and retina fellows also work in their respective clinics at the VAMC.

There is one first, and two third year residents rotating at the VAMC each rotation. There is one ophthalmic technician in the eye clinic.

2.5.2 Facilities
The outpatient clinic is located in the VAMC hospital in building 24. The clinic contains 7 exam rooms, a minor surgery/laser treatment room, and a visual field room.

2.5.3 Equipment
Each patient exam room is equipped with standard ophthalmic examination equipment. This includes eye chart projection lamps, motorized and reclining exam chairs, slit lamps, direct ophthalmoscope, retinoscope, muscle light, trial lens set, trial lens frame, phoropter, and indirect ophthalmoscope. The clinic also has prism sets, color plates, exophthalmometers, A and B scan ultrasonography, gonioscopes, tonopens, automated lensometers and autorefractors.

The laser/minor surgery room is equipped with a motorized patient table and a microscope. An Nd: YAG laser and a three-color argon laser are also in this room.

The visual field room contains a Humphrey visual field machine, digital fluorescein angiogram, slit lamp and fundus non-mydriatic cameras.

2.5.4 Administration
The Chief of Ophthalmology oversees the activity of the section. The Chief of the Ophthalmology Section reports to the Chief of the Surgical Service. The technician reports to the Chief of Ophthalmology. The clerical staff at the check in desk reports to the director of clerical staff at the hospital. Resident and fellow concerns should be reported to the Chief of Ophthalmology.
2.5.5 Patient Scheduling
The patient schedule identifies each care provider in the section. All appointments are entered into the computer database. Residents and fellows must indicate appointment requests in the patient records and scheduling sheets. Patients seen after hours that need a follow up appointment will be discussed with the residents at the VAMC the following day and the patient will be scheduled at the appropriate time.

2.5.6 Faculty Supervision
The outpatient clinic is covered all half days by one of the attendings/fellows. All resident examinations are to be discussed and/or seen with an attending.

All patients who are to undergo laser procedures will be examined with an attending prior to the laser procedure. The attending must be present for the procedure. The attending will write a note documenting that the patient is approved for the procedure and that they were present for the laser procedure.

All patients undergoing surgical procedures in the main operating room must have an attending present for the entire procedure.

All new inpatient consults will be seen by an attending within 24 hours and this will be documented in the medical records. All patients admitted to the ophthalmology service will be seen initially by an attending physician within 24 hours and this will be documented in the medical records.

Full text of the VAMC supervision policy is included as appendix item 2.2.2f.

2.5.7 Patient Evaluations
Patients will be registered at the check-in desk to generate a formal encounter. Patients will be seen in the order of their appointments. Emergencies and consults will be seen as needed and will be worked into the schedule depending on the acuity of the emergency. A comprehensive evaluation is described in section 2.3.7. Please refer to this list of components.

Universal precautions are policy at the Denver VAMC. Residents and fellows are responsible for understanding and practicing proper universal precaution policies and procedures. Please contact the Surgical Service administrative assistant for further information.

2.5.8 Documentation
All charting must be done in ink and be legible. All patient contacts must be documented including phone contacts. If a treatment is performed or medication dispensed – this must be entered into the medical record.

Most patient contacts/examinations are to be entered into the computer medical record. The exceptions are for retina, cornea, oculoplastics and for laser procedures because there is not an adequate way to transfer drawings to the
computer note at present. All of these notes should be handwritten in the medical record. A brief computer note summarizing the findings and care plan/follow-up must also be entered.

All laser and minor procedures are to be documented in the medical records and recorded in the logbooks in the laser/minor procedure room.

Operative reports must be dictated within 24 hours of the procedure. Dictation procedures are in the PACU and in the chief resident’s examination room. The attending must write a pre-op note as well as an operative note documenting their presence for the procedure.

2.5.9 Correspondence
All med-legal correspondence must be done by an attending faculty. This includes driver’s license renewal forms. These are to be forwarded to the chief of ophthalmology.

Patients requesting letters documenting their condition or ability to return to work are reviewed on a case-by-case basis. These are for a set duration of time related to a specific event or surgery. Restrictions of activity are documented in the chart, as is the time limit of this limitation.

2.5.10 Other services provided
The VAMC fits and dispenses glasses through the VAMC Prosthetics service. This service is available on specific days at the VAMC. Please contact the Prosthetic service for additional information.

The VAMC has a full time visual disability coordinator. When residents rotate onto the service the visual disability coordinator gives a 1-hour orientation to the criteria for evaluation for visual disability services for veterans. Residents are instructed to fill out a consult form for all patients that meet these criteria. The VAMC has a wide variety of low vision services. Please contact the visual disability coordinator for more information.

2.5.11 Outpatient Surgery
The majority of scheduled surgical cases are performed on an outpatient basis. Scheduling is accomplished by filling our pre-operative packet and registering the cases with the surgery coordinator (technician) in the eye clinic. The surgery coordinator technician is responsible for entering this information into the computer and scheduling the surgery. Cases must be coordinated with an attending who will be present for the surgery. Ophthalmology has surgical block time all day Tuesday and Thursday as well as Friday afternoon.

2.5.12 Attendance
Residents and fellows are expected to be on time to clinic sessions and surgery. Residents and Fellows must notify the Chief of the Ophthalmology Section if they are going to be late for a clinic session. Absence without notification will not be
tolerated. Clinic starts at 0830. Clinics are scheduled so that residents are able to be on time for morning conference, grand rounds and basic science lectures.

Elective leave (vacation, education) request forms must be completed and received by the Residency/Fellow Coordinator at least 10 weeks in advance. All signatures must be in place according to the resident leave policies in section (9.14.1) before final approval for leave will be granted. No exceptions will be made. Urgent leave requests will be considered on an individual basis by the Chief of Ophthalmology and Director of Residency Training. No more than one resident may take elective (vacation, educational) leave at any time during the rotation.

2.5.13 Keys/Parking
All eye clinic exam rooms are opened by the VAMC clerk prior to 0800. They are closed by the cleaning staff that evening after the rooms are cleaned. If access is needed after hours, the VAMC security staff may be contacted to open examination rooms.

2.5.14 After-hours coverage
A junior resident and a Chief Resident are on-call at the Denver VAMC for emergencies and urgent care issues at all times. Full time attending coverage is available 100% of the time.

2.6.0 CONTACT LENS SERVICE
A Contact Lens Service is available at the Department of Ophthalmology. It is staffed by full-time optometrists or contact lens technicians. Residents rotate through the service and participate in the care of patients as part of their residency education. Patients who are interested in obtaining contact lenses should be referred to the Contact Lens Service. Professional courtesy may be extended to eligible faculty and house staff for professional services only, not for contact lenses or supplies.

Patient education brochures on contact lenses are available.
Section 3

OPHTHALMOLOGY
INPATIENT
CONSULTATION
SERVICE
3.0.0 OPHTHALMOLOGY INPATIENT CONSULTATION SERVICE

The Ophthalmology Consultation Service at all hospitals provides prompt, faculty-supervised consultations for inpatients (Appendix 3.0.0a).
The Consultation Service operates 24 hours a day, 365 days a year. During normal working hours, 0800-1630 (8 A.M. to 4:30 P.M) Monday through Friday, it is directed by the second-year resident (RMLEI/UCH PGY3 and TCH PGY3). After hours, it is administered by the first-year or second-year resident on call, with backup from the Faculty on call. Requests for ophthalmology inpatient consultations (Appendix 3.0.0b) should be directed to UCH ED at 720-848-9111. At TCH during the day, the provider should enter an inpatient consultation request into EPIC and the in-service resident will respond. After hours, the provider should enter an inpatient consultation request into EPIC and call the resident on call. Requests for consultation on newborns and those with retinopathy of prematurity at TCH should be referred by entering an order into Epic through a ROP Processing note and then calling 303-847-5402. At DHMC, requests for inpatient consults should contact the resident 'on call' through the 'Pulse.'

Every effort should be made to bring consultation patients to an eye lane for the best possible examination. Only if a patient cannot come to an eye lane, should the resident go to the floor to evaluate the patient.

When a patient is seen, an original examination sheet should be placed in the chart and the requesting physician should be notified by phone of findings and of further diagnostic or therapeutic recommendations, if appropriate. All consultations should be seen with the faculty member assigned to consults that day or the faculty member whose specialty the consult involves before recommendations are made. The faculty will ensure that a full dictated note follows within 24 hours.

3.0.1. Instructions for Completing Ophthalmology Consultation Notes

The instructions that follow are general guidelines for dictating ophthalmology consultation notes. Some of the information that is included in the consultation note is vital for obtaining reimbursement, so please adhere to these guidelines as much as possible.
(Appendix 2.3.9a, 2.3.9b, 2.3.9c, 2.3.9d).

All dictations should begin with the following sentence: “This is Dr. First Name, Middle Initial, Last Name, of the Department of Ophthalmology, dictating an Ophthalmology Consultation Note on patient First Name, Middle Initial if any, Last Name, medical record number 123-45-6789, date of consultation (appropriate month/date/year), date of dictation (current month/date/year).

The body of the text should follow the ophthalmology template and begin with the following: “HISTORY OF PRESENT ILLNESS: Ophthalmologic consultation was requested by Dr. James R. Resident (please include first name, middle initial, and last name of ANY physician mentioned), on the service of Dr. Mark J. Attending (very important), for this 77-year-old white woman who was admitted to UCH on DATE, with a diagnosis of WHATEVER.” At this point, give in detail the
reason for the hospitalization and the pertinent workup to date, particularly if it has a bearing on the reason for the consultation. Then proceed to describe specifically the reason for consultation and the patient’s eye complaints. In this section provide details of the ocular history and the name of the patient’s private ophthalmologist, if any.

The remainder of the consultation note should include the following headings:

MEDICAL HISTORY (past medical; past ocular; past surgical; must include 10 review of systems)
SOCIAL HISTORY (must be present to bill at level 3 or above)
FAMILY HISTORY
REVIEW OF SYSTEMS (must contain @ least 10 items in order to bill @ a level 3 or above)
CURRENT MEDICATIONS (if pertinent)
OPHTHALMOLOGIC EXAMINATION
REVIEW OF DATA (if appropriate)
IMPRESSION
RECOMMENDATIONS

Under “IMPRESSION” list the diagnoses in numerical order. Begin with the refractive error followed by an anatomic walk-through of the eye from the lids to the optic nerve, then by systemic illnesses that affect the eye, and then by systemic illnesses that do not affect the eye. Such a list might read as follows (this is just an example):

IMPRESSION

1. Myopia, OU
2. Presbyopia
3. Staphylococcal blepharitis, OU
4. Pterygium, OS
5. Nuclear sclerotic cataracts, OU
6. Glaucoma suspect secondary to increased cup-to-disc ratio
7. Type II diabetes mellitus with background diabetic retinopathy
8. History of central nervous system lymphoma
9. History of hydrocephalus, S/P ventriculoperitoneal shunt

If laboratory studies – such as head CTs, MRIs or carotid angiographic studies – relevant to the patient’s visual complaint have been done or reviewed, please include a comment under the heading of LABORATORY STUDIES before the IMPRESSIONS are dictated. Always specify follow-up, if any is necessary, in the RECOMMENDATIONS. If no follow-up is necessary, please state something to that effect.
At the very end of the dictation, note that the patient was seen and/or discussed with (Name of faculty member). Then send copies of the note to the patient’s private ophthalmologist, if any, and to the attending physician of record. All consultations must be discussed with the attending before the resident leaves the unit, and the resident must ensure that the attending places a note on the chart within 24 hours. For all serious conditions, the attending must examine the patient promptly.
Section 4.0.0

CLINICAL LABORATORIES
4.0.0 CLINICAL LABORATORIES
All patients requiring ancillary testing must have a laboratory requisition completed (appendices 4.0.0a, 4.0.0b), and the requesting attending physician must be identified. A complete list of faculty assignments for laboratory test interpretation is included as appendix 4.0.0c.

All patients are referred to the Front Desk for checkout, scheduling of follow-up visits, ophthalmic tests and insurance authorization issues.

4.1.0 OPHTHALMIC PHOTOGRAPHY CLINICAL LABORATORY

4.1.1 Definition
The Ophthalmic Photography Clinical Laboratory evaluates referred patients from any physician. Documentation and diagnostic tests include:

(a) slit-lamp or external camera views of ocular adnexa;
(b) ocular motility photographs;
(c) standard and wide-angle fundus photographs;
(d) iris and fundus fluorescein angiography;
(e) indocyanine green choroidal angiography;
(f) GDx - laser treatment called the GDX Nerve Fiber Analyzer measures the nerve fiber layer, a thin layer of tissue surrounding the optic nerve, and has been found to be more accurate and precise than other technologies currently used to detect glaucoma;
(g) OCT - Optical Coherence Tomography, or OCT, is a noncontact, noninvasive imaging technique used to obtain high resolution cross-sectional images of the retina;
(h) corneal topography; and
(i) contrast sensitivity.

For teaching and research presentations, the Office of Academic Affairs Educational Support Services prepares glossy prints, slides, and audiovisual tapes.

4.1.2 Scheduling
The Ophthalmic Photography Clinical Laboratory is open during regular business hours and appointments can be scheduled by calling 720-848-2020.

The physician requesting photographs must complete the Ophthalmic Photography Request form (Appendix 4.0.0b). The patient’s eye cannot be dilated unless this form is completed.

4.2.0 FLUORESCEIN ANGIOGRAPHY

Patient Evaluation in Fluorescein Angiography
Fluorescein Angiography is performed according to standard photographic procedures in conjunction with an intravenous injection of 5 cc of 10% fluorescein sodium solution in a 3 to 5 second period.

Standard photographic procedures provide for identification of a primary area of clinical interest and secondary or tertiary areas of clinical interest, as appropriate, by the physician requesting the fluorescein angiography.

In every case, unless modified by physician instructions, limitations of mydriasis, or other factors, photographs are obtained as follows:
(a) color photographs (stereo) of
   (i) disc and macular of each eye, and
   (ii) any additional areas of special interest;
(b) red-free photographs of
   (i) macula of each eye, and
   (ii) any additional areas of special interest;
(c) preinjection photographs with excitor and barrier filters in position;
(d) prearterial (choroidal), arterial, arteriovenous, venous, and late photographs (stereo) of the area of primary interest; and
(e) transit photographs as feasible and late photograph (stereo) of
   (i) disc and macula of opposite eye, and
   (ii) any other area(s) of interest as requested by the physician or as observed by the ophthalmic photographer.

In patients with choroidal neovascular membranes, additional frames with fixation target should be included during early, middle and late phases of the eye of interest.

Interpretation and reporting
All fluorescein angiograms are interpreted and reported by the Retina Resident, Retina Fellow and a full-time faculty retinal specialist. Diagnostic impressions constitute the basis for the fluorescein angiography registry for retrieval and collation for teaching and research.

Retina Resident/Fellow responsibilities include
(a) interpretation and reporting of fluorescein angiography on patients within two working days of availability of material; report marked ‘Preliminary Report’ and sent with photographic materials on completing the transcription, to outside physician requesting the test;
(b) review of preliminary report on ‘outside’ private patients with the appropriate faculty member twice a week, that is, within two working days of completion of transcription for each patient;
(c) review, amend if necessary, and sign reports prepared by resident on consultation patients, within **two working days** of completion of transcription;

(d) selection of studies for presentation at Fluorescein Angiography Conference or weekly Department of Ophthalmology Clinical Case Conference (five or six cases with good quality color photography and fluorescein angiogram with adequate clinical histories);

(e) selection of studies for the teaching collection on fluorescein angiography.

**Faculty responsibilities include**

(a) review, amend if indicated, and approve fluorescein angiography reports prepared by the Retina Resident, within **five working days** of completion of transcript;

(b) selection of studies for presentation at weekly Department of Ophthalmology Clinical Case Conference;

(c) selection of studies for teaching collection of fluorescein angiography; and

(d) attendance at Fluorescein Angiography Conference.

**Ophthalmic Photographer responsibilities include**

(a) provision of photographs in orderly sequence (with the requisition and billing slip), with enlargements as appropriate, and requisition with requesting physician to be available for interpretation and reporting no later than the **fifth working day** after fluorescein angiography; provision of black and white photographs on special request within one day after fluorescein angiography;

(b) distribution of fluorescein angiography material to outside physicians, medical records, and Photography Clinical Laboratory files in the specified manner;

(c) provision for all aspects of transcription, distribution of materials, mailing, and filing relevant to the Fluorescein Angiography Program;

(d) provision for a Teaching Collection in which copies of designated studies are available for use by Ophthalmology residents, fellows and faculty;

(e) provision for keys to be available for appropriate access to the Photography Clinical Laboratory to enable interpretation and reporting by physicians participating in the Fluorescein Angiography Program; and

(f) prompt notification of appropriate resident about an emergency ("stat") study.

**Fluorescein Angiography File**

Files maintained by the Ophthalmic Photographer Coordinator provide for a diagnosis and retrieval system. Each fluorescein angiography study will include the following materials:

(a) color fundus photographs representative of all color photographs obtained on the patient,
(b) original negatives of red-free and black-and-white angiography photographs,
(c) proof sheet of red-free and black-and-white angiography photographs;
(d) copy of the report;
(e) GDx; and
(f) OCT.

4.3.0 OPHTHALMIC ULTRASONOGRAPHY CLINICAL LABORATORY

4.3.1 Definition
Ophthalmic ultrasonography is a sophisticated diagnostic examination technique using high frequency sound waves to detect, differentiate, and measure ocular and orbital disease processes. Two modes in clinical use, the A-scan and the B-scan, measure different parameters and are used to provide optimal information regarding pathologic processes. Ophthalmic ultrasonography is particularly valuable where opacities of the media preclude direct ophthalmoscopic visualization of the posterior segment of the eye.

The Ultrasonography Clinical Laboratory evaluates patients referred from the Department of Ophthalmology and outside physicians.

Procedures performed include:
(a) standardized diagnostic ophthalmic echography:
   (i) A-scan (ocular and orbital)
   (iii) B-scan (ocular and orbital);
(b) high resolution B scan ultrasound of anterior structures;
(c) axial length measurements;
(d) intraocular lens power calculations;
(e) operating room examination; and
(f) inpatient examination

Available instrumentation includes
(a) Innovative Imaging, Inc. ABD model (combined standardized A, B, high resolution and biometry),
(b) Alcon Surgical Biophysic Ophthascan S (for residents use after hours).

4.3.2 Scheduling
The referring physician should complete the Ophthalmology Laboratory Request form (Appendix 4.0.0a), and not attempt to specify A-scan or B-scan technique but should leave determination to the discretion of the examiner.
The procedures performed in the Ultrasonography Laboratory are scheduled by calling 720-848-2020 at RMLEI/UCH or 720-777-2020 at TCH. The referring physician must complete the appropriate request form at the time a patient is scheduled for diagnostic ultrasonography or intraocular lens power calculation. It is important that the technician performing the examination have basic information about the patient, such as clinical history, prior eye surgery, eye to be examined, and visual acuity. Tests will not be scheduled until request form and insurance referral have been received.

For intraocular lens power calculation, an old and current refraction and visual acuity are to be provided. Formulas used for calculating lens power require an A-constant corresponding to the lens planned for each patient. It is essential that the Ultrasonography Laboratory receive this information in advance.

4.3.3 Indications
Indications for ophthalmic ultrasonography are as follows:

(A) Ocular Indications:

(1) Opacities in the ocular media precluding direct visualization of posterior structures, including
   (a) corneal opacities;
   (b) dense cataract;
   (c) vitreous opacification:
       (i) vitreous hemorrhage,
       (ii) vitreous membranes,
       (iii) cellular vitreous opacification,
       (iv) suspected endophthalmitis;
   (d) suspected retinal detachment in cases where direct visualization is not possible;
   (e) leukocoria.

(2) Intraocular mass lesions.

(3) Atypical retinal detachment, including
   (a) bullous detachment without detectable breaks;
   (b) detachment with shifting fluid;
   (c) exudative detachment, possibly secondary to intraocular neoplasm;
   (d) retinal detachment with turbid subretinal fluid.

(4) Ocular trauma
   (a) associated with opacities in the ocular media
   (b) possibly affecting integrity of globe
   (c) involving intraocular foreign bodies

(5) Axial length measurement
   (a) in cases of pseudoproptosis;
(b) to determine intraocular lens power.

(B) Orbital Indications:
(1) Proptosis from any cause, including
   (a) orbital neoplasm, primary or metastatic;
   (b) orbital extension of periorbital neoplasm;
   (c) orbital inflammatory process, such as cellulitis or pseudotumor;
   (d) suspected Graves ophthalmopathy;
   (e) orbital mucocele;
   (f) vascular malformation and varices;
   (g) suspected arteriovenous fistula.
(2) Detection and localization of orbital abscess.
(3) Unexplained strabismus with diplopia.

(C) Anterior Segment Indications
(1) Lesions of iris, angle, ciliary body
(2) Abnormalities of lens
   (a) anterior polar cataract
(3) Lesions in anterior globe unable to be assessed by contact B-scan
(4) Anterior vitreous traction

(D) Difficult biometry cases and IOL calculations from community physicians

4.3.4 Lens Calculation Database
The Ultrasonography Laboratory has capability to maintain an ongoing database of all patients who have had intraocular lens power calculation performed at our facility. Postoperative follow-up data from operating surgeons may be collected, and personalized A-constants and surgeon factors are then calculated for each surgeon and lens style. These data also allow us to assess and maintain a high level of accuracy in our formulas and techniques.

4.3.5 Interpretation and reporting
All ultrasounds are interpreted and reported by the technician performing the test and a full-time faculty member.

Faculty responsibilities include
(a) review, amend if indicated, and approve ultrasonography reports prepared by the technician, within five working days after completion of transcript;

Ultrasound Technician responsibilities include
(a) provision of photographs of ultrasonography, preliminary interpretation and requisition for final interpretation and reporting no later than the fifth working day after test, and
4.4.0 VISUAL FIELD AND OTHER OPHTHALMIC PROCEDURES

4.4.1 Definition
Visual Field and other ophthalmic procedures include:
(a) visual field examinations (Humphrey, Goldmann, automated perimetry, manual perimetry);
(b) intraocular pressure lability testing with pharmacologic agents;
(c) endothelial cell count and pachymetry measurement;
(d) potential acuity meter (PAM);
(e) laser interferometer; and
(f) topography.

Repeat examinations are performed for serial documentation of progressive conditions.

4.4.2 Scheduling
Ancillary testing is open during regular business hours at 720-848-2020. The physician requesting visual fields and other ophthalmic procedures must complete the proper request form (Appendix 4.0.0a, 4.0.0b). The patient’s eye cannot be dilated unless this form is completed.

4.4.3 Interpretation and reporting
All visual fields are interpreted and reported by the Full-time Faculty Glaucoma Specialist.

Faculty responsibilities include
(a) review visual fields and dictate reports within five working days after completion, unless out of town;

Technician responsibilities include
(b) provision of visual fields or other test results and requisition for interpretation to appropriate fulltime faculty specialist no later than the fifth working day after test, and
(c) distribution of report to outside physicians, medical records, and Laboratory files in the specified manner.

4.5.0 ELECTROPHYSIOLOGIC TESTING

4.5.1 Definition
Electrophysiologic testing includes electroretinography and testing for color vision and dark adaptation.
Dark adaptation testing quantifies night vision impairment and reveals the kinetics of cone and rod recovery from bleaching.

Electro-oculograms or electroretinograms may help establish a diagnosis in cases of panretinal functional disturbance involving the retinal pigment epithelium, receptor layers, and bipolar cell layer. Focal electroretinograms aid in the identification and diagnosis of macular dysfunction.

Color vision testing includes AO H-R-R and Ishihara pseudoisochromatic color plates, and Farnsworth-Munsell 100-Hue test. These tests may be obtained to evaluate drug toxicity, macular function, congenital color-blindness, optic atrophy, and optic neuritis.

4.5.2 Scheduling
The laboratory requisition form (Appendix 4.0.0a) must be completed in advance for scheduling. Schedule laboratory appointments at 720-848-2020. Detailed information on findings of the clinical examination (e.g. visual acuity and appearance of the macular and optic discs) and the presumptive diagnosis is necessary for the technicians to conduct an appropriate evaluation and to interpret results accurately. Calls to discuss appropriate procedures are welcome prior to scheduling.
Section 5

HOSPITAL ADMISSIONS
5.0.0 HOSPITAL ADMISSIONS

When the decision is made to admit a patient, the resident admitting the patient is responsible for obtaining, within a 24-hour period, the admission note of the attending physician in the patient’s medical chart. If the consulting faculty physician is different from the physician whose name was previously on the records, the resident should write an order on the chart to indicate the change. Admissions at UCH may be arranged by calling 720-848-2828, One Call (720-777-3950, 720-777-3999) for admissions to TCH, or Bed Control (303-602-9245) at DHMC.

Chart Documentation
Proper chart documentation and prompt dictation of patient discharge summaries is increasingly important for the continuity of patient care and collection of third-party payments for hospital and professional services. Both chart documentation and dictation of discharge summaries are monitored. Occasional reminders may be left on patient charts to indicate that further documentation is necessary.

Postoperative Documentation
The resident assigned to a case is responsible for assuring that the faculty physician provides daily substantial postoperative documentation in the patient’s chart. Monies collected from third-party agencies provide a substantial income to the Department of Ophthalmology, and are a primary source of support for the Residency Program. In order to collect the maximum allowable on any surgery, these agencies require 100% postoperative documentation by the attending faculty physician. Postoperative attending notes must include the attending faculty physician’s signature. This documentation requirement is an integral part of fulfilling the patient care concept in a teaching hospital.

Discharge Summaries
The Patient Discharge Summary is to be completed within 24 hours of discharge. In the event of illness or absence of the physician responsible for dictation of the patient discharge summary, the resident on first call on the day of discharge will be responsible for dictation of the summary.

Signing Prescriptions and Charts
Following a survey by the CDPHE (Colorado Department of Public Health and Environment), the UCH Medical Board has implemented the following requirements in order to satisfy CMS (Centers for Medicare and Medicaid Services) Conditions of Participation concerning resident supervision. Attendings must:
- date, time, and sign every medical record entry with their name and UPI number (or CO license number if non-UPI provider),
- co-sign every H&P, and
- write a note, or transfer “attending to attending.”
Reasonable exception to the policy mandating chart signature would include instances in which prescription pads with a printed name are employed, or the physician's name is indicated clearly on the addressograph plate being used. Other reasonable exceptions include multiple signature entries in an inpatient or outpatient chart by the physician, with the printed name readily identifiable in an adjacent segment of the chart.

In all cases, housestaff must:
- date, time, and sign every medical record entry with their name and post-graduate year (PGY), using the stamper provided by the GME office,
- document discussions with the attending in the medical record, and
- include the attending faculty member's name when writing an order to admit, discharge or transfer a patient.
Section 6
SURGERY SERVICES
6.0.0 SURGERY SERVICES

6.1.0 GENERAL PROCEDURES

6.1.1 Guidelines for Resident and Fellow Surgery

Introduction
Since ophthalmology is a surgical specialty, residents must assist in and perform a sufficient number of surgical procedures to allow them to develop competence and confidence as practicing ophthalmologists. The surgical procedures performed by residents as primary surgeons should include cases that fall within the realm of the general or comprehensive ophthalmologist. On the other hand, residents should assist on cases involving procedures ranging from the simple and general to the most complicated subspecialty procedures. The surgical training program at the University of Colorado is dedicated to these premises.

Fellowships also are an integral part of the ophthalmology training program at the University of Colorado. Fellows enhance the research and clinical productivity, teach residents, and provide the next generation of academic ophthalmologists and leaders in the various subspecialties. Without a fellowship program, the University of Colorado could not provide academic ophthalmologists and subspecialty leaders for the future.

The full-time or volunteer community-based faculty member has the ultimate responsibility for determining who undertakes a case. In no situation should the patient’s welfare be jeopardized for the sake of resident or fellow education. Moreover, these guidelines will need constant monitoring and modulation so that they evolve appropriately with the changing scene in ophthalmology here and elsewhere.

All resident surgery is to be supervised by a faculty member or, on occasion, by a fellow. Resident surgeons should perform only those surgical cases or parts of surgical cases that they are qualified to perform safely; other aspects of the procedure should be performed by the supervising faculty surgeon.

6.1.2 Location and Scheduling
To schedule a surgical case at RMLEI/UCH, TCH, or DHMC (including a laser) the resident must note details on the Routing Slip. The Surgery Scheduler must be notified of the following using the Routing Slip (RMLEI/UCH and TCH) and the CPT Code Surgery Scheduling form (RMLEI/UCH only)(Appendix 2.2.8n, 2.2.8o, 2.2.5d).

(a) diagnosis;
(b) resident surgeon and faculty attending physician (it is the resident surgeon’s responsibility to arrange for faculty supervision of all surgical procedures);
(c) exact operative procedure and the eye(s) to undergo surgery;
(d) estimated duration of procedure (realistic);
(e) contamination, if present;
(f) date of proposed surgery;
(g) using requisitions:
   any laboratory studies required such as intraocular lens calculations, ultrasonography, and endothelial cell counts;
(h) special items required if any – these may include silicone sponge, skin grafts, fascia lata grafts, and any specific instruments such as phacoemulsification, specialty lasers, or vitrectomy units;
(i) interval between surgery and initial postoperative visit (Routing Slip).

At RMLEI/UCH, all materials must be given to the technician for confirmation.

The scheduling of patients at RMLEI/UCH, TCH, and DHMC for major and minor surgical procedures, including laser, will be coordinated by the Surgery Scheduler based on protocol (Appendix 6.1.2a). The Surgery Scheduler will arrange for Operating Room time, the necessary preoperative studies, anesthesia visits, and preoperative and postoperative visits. Before elective surgery can be conducted, preauthorization from the patient’s insurance company is usually required. An Advanced Beneficiary Notice (ABN) or waiver must be signed by the patient if insurance does not cover procedure or surgery. Patient Care Orders must be filled out at the time of scheduling. The attending surgeon, fellow, resident and the attending surgeon’s administrative assistant will be notified of the date and time of surgery (Appendix 2.2.5e); the patient will be notified of the date and pre-surgery instruction (Appendix 6.1.2b).

Certain surgical operations are performed on an outpatient basis in the procedure room of RMLEI/UCH and DHMC. For such cases, the Technician Supervisor should be informed as to the nature of the surgery and any special equipment needs.

When scheduled cases are cancelled, it is the responsibility of the Surgery Scheduler (during office hours) or the surgeon (if after hours), anesthesia personnel and the assisting surgeon to notify the UCH, TCH, or DHMC Operating Room. When cancellation occurs on the evening before surgery, it is particularly important to notify the Operating Room by telephone. This is necessary to achieve realistic scheduling and to avoid conflicts among Anesthesia and Operating Room staff and other
schedules. If a 0730 (7:30 AM) case is cancelled, the next case should be moved up to that time, if possible.

**Emergency/Urgent Surgery**

For emergency or urgent surgeries that come in during office hours, the Surgery Scheduler should be notified. The Routing Slip should be used to document scheduling for all cases including ROP. For emergency surgery that occurs after hours, the Chief Resident should notify the UCH Operating Room (303-372-0100), ACAM Operating Room (720-848-1370), TCH One Call (720-777-3950, 720-777-3999), or DHMC Operating Room (303-436-6488).

**Operating Room Schedule**

The ACAM, TCH, and DHMC Operating Rooms are open 0630-1930 (6:30 AM to 7:30 PM) on regular work days throughout the year, and a staff is on call at all other times. Regular surgery is expected to be finished by 1530 (3:30 PM). The Resident will be notified of all surgeries in writing (except emergencies) and be present 30 minutes in advance of surgery on his assigned day. S/he should be in surgical attire, scrubbed, and ready to prepare the patient by 0715 (7:15 AM). The resident should be in the Operating Room during induction of anesthesia and must remain there until the patient leaves the Operating Room, whether the anesthetic is general or local. If relatives are waiting, s/he should speak with them as soon as the procedure is finished.

During transport of an anesthetized patient to the main Post-anesthesia Care Unit after hours, the resident must accompany the nurse and/or anesthesiologist. The resident or fellow is responsible for discharging patients from the outpatient surgery unit after discharge criteria have been met.

Residents assigned to perform surgery or to assist in surgery are responsible for informing the Operating Room staff of their whereabouts while they are away from the Operating Room on their assigned day. This is essential in order that they may be contacted on short notice in the event of additions to the surgical schedule. They are to be available during that operating day for any type of surgery that may be assigned regardless of their specialty and regardless of whether they have previously been asked to assist.

Exceptions to the foregoing policies may be necessary in special circumstances; in this event, the operating resident should consult with the faculty member with whom s/he is serving on rotation.
6.1.3 Patient Evaluation
All preparations for non-emergency surgery (e.g. history and physical examination, laboratory studies, electrocardiogram, chest x-ray) are to be completed prior to the day of surgery under the direction of the operating surgeon and anesthesiologist.

Patients who will need either monitored local or general anesthesia at UCH must have their Self Health Assessment form (Appendix 2.3.7b) faxed to anesthesia and a formal consult requested (Appendix 2.3.7k).

6.1.4 Documentation and Legal Consent

Consent to Operation

Written informed consent must be obtained from the patient prior to the day of surgery using a (examination under anesthesia excepted) preprinted consent if available (Appendix 6.1.4a, 6.1.4b, 6.1.4c, 6.1.4d, 6.1.4e, 6.1.4f, 6.1.4g, 6.1.4h, 6.1.4i, 6.1.4j). All consents must indicate the eye or eyes undergoing the surgery. Handwritten notes on the consent should not include medical jargon. Additionally, the Physician’s Order Form and Preoperative H & P Form must be completed at the time of scheduling.

Informed consent for surgical patients is extremely important. The consent forms are to be completed by the surgeon and the patient. For minors, a legal guardian must supply a copy of the form authorizing him to act on behalf of the child. A foster parent is not legally empowered to give consent for surgery, and in such cases the resident should ask an administrator for assistance in obtaining the necessary court order or other authorization for the procedure. Preprinted, approved consent forms are available for cataract, strabismus surgery, laser posterior capsulotomy and retinal laser examination under anesthesia. Consent is valid for 1 month at UCH, one year at TCH if not used for some other procedure, and 30 days but only for that specific procedure at DHMC.

Consents should include the fact that sickness and death can be associated with either local or general anesthesia. However, signatures on the consent form for the administration of anesthetics will be obtained by the anesthetist.

The consent form should not obligate the surgeon to use a lens implant in cataract surgery, since s/he will then technically have performed battery if circumstances at the time of surgery lead to not using the implant. Similarly, the consent should not obligate the surgeon to use an adjustable suture.
Preoperative Evaluation

Accreditation and other considerations require that a preoperative evaluation be entered into the chart of any patient scheduled for surgery. In general, this evaluation should summarize findings, document surgical indications, and describe the patient’s participation in making the decision. The notes should be detailed. They must include the patient’s name, hospital number, indications for surgery, the surgical procedure, date, anesthetic to be used, and the name of the admitting physician. They also must include a comprehensive eye examination and a recent history and physical.

The ophthalmology H&P includes copies of the Self Health Assessment Form (Appendix 2.3.7b), the original typed ophthalmic examination, the most recent ophthalmic examination, the pre-op medical clearance/original H&P, and pertinent test results (e.g., IOL calculation).

Written approval for the surgery by a member of the full-time or authorized attending community-based faculty must be incorporated into the clinic visit at which the decision was made to do surgery.

With the exception of examination under anesthesia, all of the above procedures should be carried out prior to the day of surgery. Operative reports will be typed within one week.

The Surgery Scheduler will ensure that the consent is valid and sent to the Operating Room pre-operatively.

Immediately before the operation at UCH

The shadow chart will be placed on the attending surgeon’s desk by noon on the working day prior to surgery. When major surgery in which unexpected events might arise is being performed, it is of paramount importance that a patient’s eye clinic shadow chart also be present.

Immediately before the operation, the operating resident must review his patient’s chart and verify that:

(a) Consent form is completed, signed and the date is valid;
(b) The Ophthalmology H&P is completed and signed, including (Appendix 6.1.4k)
   (1) Self Health Assessment Form (within 30 days) (Appendix 2.3.7b),
   (2) ophthalmologic examination (initial and most recent),
   (3) appropriate tests are on the chart (e.g., Lens Implantation Data Sheet (Appendix 6.1.4l); and
Pre-medication has been ordered, if needed (Doctor’s Orders, Appendices 6.1.4m, 6.1.4n, 6.1.4o, 6.1.4p, 6.1.4q, 6.1.4r).

Operative Reports

All Operative Reports, including reports for ‘Examination under Anesthesia’ and ‘Laser Photocoagulation’, become part of the legal report on the patient and should be dictated on the day the procedure is performed. Each procedure must be dictated – even those performed separately on the same day. These detailed reports are required for both billing and the accreditation of UCH and TCH. Handwritten summaries are required but not detailed enough for complete documentation. Adherence to this policy will permit residents to send reports to referring physicians.

All operative reports must include the following statement ‘Dr. Attending Surgeon and, if appropriate, Dr. Fellow was/were present for the entire procedure.’

The components of the dictated Operative Report (Appendix 6.1.4s) include:

(a) the patient's name,
(b) date of operation,
(c) preoperative diagnoses,
(d) postoperative diagnoses,
(e) operation,
(f) surgeon,
(g) supervising surgeon or assistant surgeon(s),
(h) anesthesia,
(i) complications,
(j) specimens,
(k) indications for procedure,
(l) description of procedure, and
(m) estimated blood loss (if applicable).

To expedite billing, the specific procedures performed (e.g. ‘examination under anesthesia with tonometry,’ ‘examination with gonioscopy,’ ‘examination with indirect ophthalmoscopy,’ etc.), should be clearly indicated. The Joint Commission on Accreditation of Health Organizations (JCAHO) requires that Operation Reports be signed promptly. The original and copy should be placed into appropriate bins for filing in the hospital outpatient medical record and in the UOA chart. If the resident wishes to make another copy for his own records, s/he may do so, but should not take the copy supplied by the transcription service.

If more than one procedure is performed, each should be reported and dictated specifically as a separate procedure.
The Operating Room record and the Operative Report must agree. Preoperative and postoperative diagnoses and surgical procedures need to be specific. For example, ‘narrow-angle glaucoma,’ not just ‘glaucoma,’ and ‘ptosis repair using Mueller technique,’ not just ‘ptosis repair,’ should be dictated.

Postoperative Orders

Postoperative orders must be comprehensive and clear. (Appendices 6.1.4m, 6.1.4n, 6.1.4o, 6.1.4p, 6.1.4q, 6.1.4r)

Discharge and Follow-up

Postoperative orders in the patient’s chart must include arrangements for a return appointment and instructions for home care.

Resident’s Personal Records

It is essential that an accurate record of the surgical procedures performed by each resident be maintained by that resident in his / her Visor. This information is critical for residency accreditation.

6.1.5 Advertising
Residents are not permitted to solicit patients for surgery including refractive and cosmetic surgery through written (including websites) or verbal advertising.

6.2.0 CATARACT SURGERY AND INTRAOCULAR LENS IMPLANTATION

6.2.1 Definition
Cataract surgery and intra-ocular lens implantation procedures are governed by the general policies of the Ophthalmology Department, Surgical Services, current standards of medical care, and the following principles and procedures.

6.2.2 Patient Evaluation
Prior to cataract surgery, patients require a complete ophthalmologic history. This should include specific notations concerning the indications for cataract surgery. In general, surgery is indicated when there is

(a) cataract-related decrease of vision interfering with activities important or essential to the patient,
(b) cataract-related intra-ocular inflammation or glaucoma, or
(c) cataract that interferes with diagnosis or management of posterior ocular segment disease such as diabetic retinopathy.

Patients also require a general medical and family history pertinent to the ophthalmologic condition and the proposed management. A general medical evaluation is also warranted, and may be achieved by working with the patient’s personal general physician. Specific instructions to the general physician are required to ensure that procedures are completed as appropriate for outpatient or inpatient procedures.

In addition, patients require a complete ophthalmologic examination including intraocular implant power calculations and a corneal endothelial cell count when medically indicated. (Appendix 6.2.2).

Intraocular Lens Implantation

Patients scheduled for implantation procedure should have the following:

(a) specific indications (foregoing) for cataract surgery,
(b) chronological age appropriate for intraocular lens implant,
(c) absence or inactivity of contraindications such as rubeosis iridis and recurrent intraocular inflammation,
(d) desire for intraocular lens implantation based on fully informed consent, and
(e) written approval of the surgery by a Department of Ophthalmology faculty member.

Patients with good visual potential only in the eye that is scheduled for surgery constitute a special circumstance that requires individual consideration of each patient.

Secondary Intraocular Lens Implantation

Secondary implantation of intraocular lenses, surgery for monocular individuals, or other potentially complex problems should be planned with special care. Such cases should be discussed, prior to the day of scheduled outpatient or inpatient surgery, with a member of the faculty active in cataract surgery. Procedures should be performed by a qualified ophthalmology resident.

Other Special Circumstances

A pediatric ophthalmology patient with cataract sufficient to warrant surgery presents a special circumstance that should be reviewed specifically with a member of the pediatric ophthalmology Division faculty
active in cataract surgery. Likewise, a pediatric patient with glaucoma will require evaluation with a glaucoma faculty member.

Patients with active posterior uveitis, history of retinal detachment, and recent injury present circumstances that are likely to require review with a member of the Retina Division faculty prior to cataract surgery.

For all general procedures and principles there are reasonable exceptions to be made in the interest of best-quality patient care. These should be reviewed with a faculty member qualified to provide appropriate guidance for the special circumstances affecting the patient.

6.2.3 Documentation and Legal Consent

Written approval by a full-time or community-based faculty member is required prior to surgery. If possible, the approval should come from the specific surgeon who will attend at the surgery.

Consent forms should be completed by the resident who will perform the surgical procedure. In addition to the usual procedures for obtaining informed consent and fulfilling medicolegal requirements, considerations to be specifically discussed in connection with cataract surgery include the following:

(a) definition and explanation of cataract;
(b) therapeutic alternatives; and
(c) complications including infection, hemorrhage, corneal clouding, glaucoma, and retinal detachment.

Considerations to be specifically discussed in connection with intraocular lens implantation include the following:

(a) the possibility that the lens may not actually be used;
(b) if it is used, later repositioning or removal may be required;
(c) subsequent laser capsulotomy may be required; and
(d) glasses are still likely to be needed for distance and/or near vision even with successful lens implantation.

Intraocular Lens Implantation

Resident responsibilities particularly important to intraocular lens implantation include:

(a) obtaining informed consent from each patient prior to lens implantation;
(b) ordering the lens at least one week in advance of surgery;
(c) registering all patients with implants with the Lens Accountability form provided in the lens packet distributed by the Operating Room nurse;
(d) reporting adverse reactions within 5 days; and
(e) recording as part of the usual medical records preoperative, operative, and postoperative information on lens implant patients.

6.3.0 PROCEDURE ROOM
Procedures not requiring the full services of the main Operating Room may be performed in the procedure room. They may be scheduled with one of the technical staff. All procedures must have a signed consent and faculty supervision. All equipment must be logged and signed out in equipment log. The procedure should be documented in the patient’s chart with a brief handwritten note and a full dictation.
6.4.0 LASER SURGERY

I. UCH LASER CLINICAL POLICIES AND PROCEDURES
   (ENVIRONMENTAL SAFETY)

A. EXECUTIVE SUMMARY
To provide safety measures for staff and patient during laser procedures.

DEFINITION: Controlled Area: A room where a laser is present and turned on. The door is closer and shades are drawn as necessary.

B. PROCEDURE
1. During the time a laser is in a controlled area and turned ON, the following procedures will be carried out without exception. All personnel (nurses, technicians, surgeons, anesthesiologists) will continually monitor these safety procedures.

2. Electrical/Water Safety
   a. Laser indicator signs will be placed on the outside door of all entrances into the room.
   b. Appropriate goggles for the specific wavelength laser in use will be placed in the laser room for any personnel who may enter the controlled area during a procedure.
   c. When Argon and YAG lasers are in use, all windows will be covered by drawn window shades. NOTE: A diffuse laser beam is not sufficient to cause fire to the window shade, but a very minimal amount of laser energy is easily refocused by the lens of the eye and directed onto the retina.

3. Eye Protection
   a. All personnel in the controlled area will wear protective eyewear during the laser procedure as appropriate.
   b. Personnel will check integrity of electrical plugs and outlet prior to plugging in instrumentation.
   c. The laser will not be used when:
      Electrical cords are loose or frayed
      The isolated transformer alarms
      There is any water leakage from the laser console
   d. PERSONNEL WILL STAND ON DRY FLOOR WHEN PLUGGING IN THE LASER.
   e. PERSONNEL WILL PLACE THE LASER FOOT PEDAL ON A DRY FLOOR AND WILL ENSURE THE FLOOR REMAINS DRY IN THAT AREA.

4. Instrumentation
a. The first choice of instrumentation is left to the discretion of the physician performing the laser procedure.
b. It is recommended that instruments which are to be used in close proximity to a laser beam have a dull, rough surface to diffuse any stray energy or be constructed of material that will absorb energy.

5. Smoke Evacuation
   a. Some laser procedures generate little if any smoke. If a procedure is to be performed in which tissue vaporization will occur, such as CO2 laser procedures with concurrent generation of smoke, a means of smoke evacuation will be employed. See Policy and Procedure: Smoke Evacuation During Laser Application.

6. Fire Extinguisher
   a. Fire extinguishers are located in the Operating Room Corridor and PACU.

II. UCH LASER CLINICAL POLICIES AND PROCEDURES (LASER EYE PROTECTION)

A. EXECUTIVE SUMMARY
   To provide maximum eye safety for all personnel in the room during a laser procedure.

B. PROCEDURE
   1. All laser procedures will be done in a controlled area. The controlled area will be clearly identified by warning signs on the doors.

   2. The appropriate eyewear will be worn by all personnel during the specific procedures. The following is a list of acceptable eyewear.
      a. CO₂ Laser Procedures
         • Clear goggles or glasses with side shields.
         • Prescription glasses without side shields may be worn; however, the University of Colorado Hospital assumes no responsibility if a stray laser beam causes eye injury.

      b. Argon Laser Procedures
         • Eyewear stating optical density (OD) ≥ 5 at 0.52 um.
         • Goggles or glasses with side shields for Argon wavelength 488-514 nm, generally Amber in color.

      c. Nd:YAG Laser Procedures
         • Eyewear stating optical density (OD) ≥ 4.5 at 1.06 um.
• Goggles or glasses with side shields for Nd:YAG wavelength 1060 nm, may be light green to dark green fitted glasses.

3. Care of Protective Eyewear:
   a. This eyewear is very expensive and the lenses are porous. This requires careful handling, cleaning and storing. Avoid scratching the lenses because this can decrease the filtration of the laser beam and possible injury to the person’s eye. Clean with a soft cloth and soapy water, blot dry.

III. UCH LASER CLINICAL POLICIES AND PROCEDURES (USE OF LASER OPTICAL FIBERS)

A. EXECUTIVE SUMMARY
   To outline proper technique for use of laser fiberoptics during surgical laser procedures.

B. PROCEDURE
   1. Only those individuals trained in the use or fiberoptics should handle them during laser procedures as they are fragile.

   2. Inspect the proximal end of the fiberoptics before inserting it into the laser aperture. It should be clean and the quartz should have no cracks or black debris.

   3. Insert the proximal end squarely into the laser aperture. Avoid “bumping” the end into the sides of the aperture.

   4. Do not allow the fiberoptic to lie on the floor where it can be stepped on and cracked.

   5. Inspect the tip of the fiberoptic before and during laser procedures. It should be perfectly clean and there should be no cracks in the quartz. If it does become burned out or damaged, put it aside and use a new fiberoptic. Burnout is evidenced by a black film on the quartz tip which cannot be wiped away.

   6. To prevent premature burnout:
      a. The physician should not fire the laser when touching tissue, except when using special laser contact probes.
      b. The fiber tip should be free of debris when the laser is fired.

   7. Discard the fiber after using. Do not reuse.
IV. UCH LASER CLINICAL POLICIES AND PROCEDURES: SMOKE EVACUATION FOR LASER PROCEDURES

A. EXECUTIVE SUMMARY
To provide the health care personnel with information on how and what equipment is available to safely evacuate the smoke plume.

To protect the staff, patient and suction system from airborne particles that are in the smoke plume. Studies have been conducted revealing “unusual compounds” in the smoke plume. The particles that are in the smoke plume are large enough to cause considerable damage to the suction system of a hospital.

DEFINITION: Smoke Evacuator: A separate suction system with its own filter system. If the procedure involves a laser which will produce a smoke plume, wall suction is not appropriate for the evacuation of this smoke. A smoke evacuator, special canister with filter or an in-line system must be used.

B. PROCEDURE
1. A smoke evacuator will be used at all times during CO₂ laser procedures.
2. The smoke evacuator will be used with a sterile handpiece that is connected to either sterile or non-sterile corrugated tubing.
3. The handpiece may also be connected to a regular size suction tubing with an adapter which will allow the smoke evacuator to provide the suction canister before the smoke evacuator to collect the fluid and have the smoke plume go into the smoke evacuator.
4. Hold the end of the handpiece about 2 inches from the area of treatment. This will allow the MAXIMUM suction power to capture the smoke plume.
5. Change the filter on the smoke evacuator after 90 minutes of use.
6. Leave the smoke evacuation system on for about 30 seconds after the laser treatment has been completed. This will capture the remaining plume or particles on the tubing of the smoke evacuator.
7. CO₂ laser marks should be worn in conjunction with using a smoke evacuation system.

V. LASER CLINICAL POLICIES AND PROCEDURES (LASER CAUSED FIRES)

A. EXECUTIVE SUMMARY
To assist health care personnel in the prevention of laser related fires and guide them in the event of a fire.
B. PROCEDURE

1. All physicians using a laser must be approved by the Laser Safety Office and their names must be on the laser privilege list. All laser operators must complete the required education and their names must be on the laser operator privilege list. This assures that all of these individuals have completed the required education on lasers and will be able to provide a safe environment for all patients and personnel who come in contact with lasers.

2. The prevention of fire is a major concern when using a laser. Fires may occur in a number of ways: ignited drapes, sponges, endotracheal tubes, clothing or hair; or the combustion of ointment prep solutions, anesthetic gases or flatus.

3. PREVENTION OF NON-AERODIGESTIVE FIRES
   a. Precautions to be taken to prevent the inadvertent ignition of flammable materials:

   1. The laser operator will turn the laser to “stand-by”, “wait”, “disarm”, or “off” when the laser is not actually used.
   2. Low reflectance instruments will be used to prevent specular reflection.
   3. Avoid using flammable degreasing or prepping agents, such as alcohol.
   4. Have a basin of sterile saline water on the field during the procedure.
   5. Keep all drapes, sponges and gauze adjacent to the wound site wet throughout the procedure; sterile saline preferred.
   6. Cover standard surgical drapes (fenestrated area at least) with set towels or sponges.
   7. Never place “hot” fiberoptic devices on surgical drapes, dry towels, or any other fabric material which can burn or melt.

4. IF A FIRE DOES OCCUR THE LASER OPERATOR WILL:
   a. Turn off the laser.
   b. Have the water or saline ready.
   c. Have the fire extinguisher available.
   d. Assist the physician in the stabilization of the patient.
   e. Report the incident to the Laser Safety Officer.
VI. UCH LASER CLINICAL POLICIES AND PROCEDURES (LASER UTILIZATION)

A. PURPOSE
   1. To identify guidelines for appropriate laser utilization and identify safety precautions involved.

B. REFERENCE
   1. University Hospital Operating Room standard: Laser Utilization.

C. POLICY
   1. Laser utilization performed in consistent manner with Laser Safety Committee Guidelines.

D. PROCEDURE
   1. Obtain signed consent (Appendix 6.4.0a) from the patient indicating the procedure will involve a laser.
   2. Follow safety precaution as recommended by the Hospital Laser Safety Committee.
      a. Technician will distribute appropriate eye protection to all persons in the room.
      b. Technician to place warning signs and protective eyewear on doors and lower the window shades.
      c. Eye protection is in place with all personnel involved before turning the laser to the “operative” mode.
      d. Begin procedure with power density according to surgeon’s orders.
      e. Technician will act as Laser Safety Office during procedure.
   3. Laser Safety Office present during the procedure.
      a. Assure safety policies and procedures are followed.
      b. Assure appropriate patient and staff eye protection.
      c. Assure laser is plugged in properly to electrical outlets.
      d. Verify physician has laser privileges.
         1. Notify Director of Medical Staff office if attending physician does not have laser privileges.
         2. Document on the Record of Laser Use form if a laser privileged physician precepts the attending physician.
      e. Verify laser operator privileges to operate the laser.
         1. Assure the laser operator has completed the required training and education.
         2. Assure documentation of training and education is on file in the Nurse Manager’s office.
      f. Attend to the laser during the procedure.
         1. Assure the verification of power output as necessary.
2. Assure appropriate eyewear is in place prior to turning the laser to the “operate” mode.
3. Turn the laser off in case of emergency.
g. Complete documentation record.

VII. UCH LASER CLINICAL POLICIES AND PROCEDURES (LASER OPERATOR EDUCATION)

A. EXECUTIVE SUMMARY
To ensure that all persons who operate medical lasers at the RMLEI/UCH are trained to operate the lasers and ensure all safety precautions are followed during the procedure.

B. POLICY
1. All non-physician personnel who are operating the laser area are required to complete an annual education/continuing education program. All ophthalmologists are certified to used the Argon and YAG lasers at the completion of their ophthalmology residency.
2. The initial education course consists of: a lecture of laser physics, types of lasers and delivery systems, safety, policies and procedures, clinical applications, nursing roles, and patient management; plus supervised hands-on with the lasers.
3. The Laser Unit Manager will keep an up-to-date list of the laser operators who have completed the education requirements.
4. The annual continuing education can also be fulfilled by teaching in a laser course. This requires the employee the stay current in the various applications of laser and literature.
5. The RMLEI/UCH nurses are available 24 hours a day to assist with any emergent laser involved procedure.
6. Any non-compliance with this policy will result in a report to the RMLEI/UCH Practice Manager (if necessary), Laser Safety Officer, and Risk Management Department.
7. For the ease of identification, the term “certified laser operator” will be used for any person who has completed the education requirements.

VIII. RMLEI/UCH Laser Procedure Protocol
The protocol for laser procedures performed at RMLEI/UCH and the UCH Department of Ophthalmology is as follows:

A. All personnel will comply with the Laser Clinical Policies and Procedures. Laser procedures will be performed following laser safety guidelines attached.
B. An Attending Physician must staff all laser procedures in the Operating Room or the clinic. This includes laser cases performed on weekends.
C. The physician performing the procedure is responsible for obtaining consent on patients for all laser procedures.

D. Laser keys will be given only to the technicians. The technician checking in patients will use the pre-printed Laser Operative Note to confirm that all pre-procedure history and testing (visual acuity, intraocular pressure, and indications) is completed prior to performing the laser procedure. Keys will also be given to full-time faculty members who routinely perform laser procedures in the clinic for use at night and on weekends.

E. Consent to treat must be obtained by the treating physician. The technician will ensure a valid consent is present prior to treatment for all cases (whether or not an attending or resident is the primary laser surgeon). The technician will then turn on the laser.

F. Following the laser procedure, the laser will be turned off and the key handed back to the technician by the treating physician.

G. A written operative note (Laser Operative Note) (Appendix 6.4.0b) will be completed by the treating physician following the laser procedure.

H. The procedure must be documented in the Log Book. The technician must enter or confirm the Log Book entry.

I. An operative note must be dictated (dictation number is to be written on the Laser Operative Note below the addressograph). Assigned clinic staff will check weekly using Clinical Workstation to confirm that a laser procedure note is dictated.

J. Residents failing to follow these procedures will lose the privilege of performing laser cases in the clinic and may face other administrative action.

The complete Laser Safety Policy for UCH can be found at https://pnp.uch.edu/file.aspx?pvdlID=247
Section 7

RESIDENT EDUCATION
7.0.0 RESIDENT EDUCATION

7.1.0 EDUCATIONAL GOALS AND OBJECTIVES

The principal objective of the program is to train excellent clinical ophthalmologists. The training over the three-year period is a continuum with increased responsibility provided in the management of patients. However, residents at all levels attend the same didactic teaching sessions, conferences, journal clubs, Grand Rounds, etc. These general objectives supplement the education objectives for each individual rotation.

OPHTHALMOLOGY CURRICULUM DIDACTIC AND SKILLS TRANSFER MANUAL

The following set of guidelines provides a plan for a standard curriculum of ophthalmology residency training. The program is constructed based on a three-year training program model. These guidelines are inclusive of both didactic knowledge acquisition and acquired skills transfer, and are set forth in broad terms and on a subspecialty by subspecialty basis. Resident learning and development is provided through a combination of lectures, supervised patient care, graduated hands-on procedural and surgical experience, research and independent study. The goal of the curriculum is to train ophthalmologists who are capable of providing 'state of the art' comprehensive ophthalmologic care and to help interested residents prepare for additional fellowship training. Ideally, graduates of such a curriculum should possess the knowledge and experience necessary for membership in the American Board of Ophthalmology.

7.1.1 General Objectives:

1) Supervised direct patient care experience which allows the resident to:
   a) Master ophthalmologic examination skills,
   b) Formulate and work up differential diagnoses,
   c) Manage clinical problems of increasing complexity,
   d) Develop and exercise clinical and ethical decision making abilities,
   e) Develop patient communication techniques, and
   f) Work effectively as a member of the medical care team.

2) Graduated supervised procedural and surgical experience including:
   a) Modern cataract and other anterior segment, strabismus and oculoplastics techniques,
   b) Anterior and posterior segment laser surgery, and
   c) Exposure to all areas of subspecialty surgery.

3) Development of a broad fund of basic science and clinical knowledge through lecture, reading, and interactive conference and review sessions.
4) To provide residents with exposure to research, to teach them to knowledgeably assess research results and to motivate residents to pursue projects.

5) Development of teaching skills.

6) Preparation for American Board of Ophthalmology exams.

7) Develop learning skills for a life-long career in ophthalmology.

8) Develop appreciation for complex vision research and importance of new knowledge.

7.1.2 Objectives by Year

1) PGY-2 (RMLEI/UCH (6 months), DHMC (3 months), VAMC (3 months))
   a) Development of a core knowledge base through attendance of a basic science course, use of American Academy of Ophthalmology Basic and Clinical Science Course, and attendance at clinical conferences.
   b) Learning of basic anterior and posterior segment examination skills.
   c) Learning and acquiring skills in diagnostic ophthalmology, including tonometry, slit lamp examinations, indirect ophthalmoscopy, refraction, etc.
   d) Management of uncomplicated general ophthalmologic disorders, including refractive errors, contact lenses, external inflammations, minor trauma, uncomplicated uveitis and glaucoma.
   e) Introduction to examination techniques and management of basic problems in the subspecialty areas of glaucoma, cornea, ophthalmic plastics, retina and neuro-ophthalmology.
   f) Development of facility with management of most ophthalmic emergencies via emergency room coverage.
   g) Learning of elementary refraction and contact lens fitting techniques.
   h) Performing minor surgical procedures (i.e. chalazion excision, etc.).
   i) Introduction to special diagnostic techniques – ultrasound, fluorescein angiography, electroretinography, visual field testing, etc.
   j) Opportunities for teaching medical students in the clinic.
   k) Identification of an area of research interest and pursuit of an original project with faculty guidance.

2) PGY-3 (RMLEI/UCH 6 months (3 months oculoplastics and 3 months vitreoretinal), DHMC (3 months), TCH (3 months))
   a) Development of a core knowledge base through attendance of a basic science course, use of American Academy of Ophthalmology
b) Increasing clinical decision making in management of general clinic and emergency patients.
c) Extension and expansion of diagnostic skills and management techniques in more complicated ophthalmologic disorders.
d) Acquiring and developing skills and techniques of providing consultation to other services.
e) Completion of an intramural ocular pathology course.
f) Learning and acquiring skills in subspecialties of ophthalmology – glaucoma, neuro-ophthalmology, ophthalmic plastics, etc.
g) Learning of pediatric ophthalmology and strabismus.
h) Training in and performance of adult and pediatric strabismus surgery.
i) Performance of simple surgical procedures such as pterygium excision, tarsorrhaphy and lacrimal probing.
j) Training in techniques of anterior and posterior segment laser surgery.
k) Understanding of the indications for and uses of low vision aids.
l) Development of interpretive skills in assessing diagnostic tests such as fluorine angiograms, radiologic images, etc.
m) Performance of ophthalmic consultations in a general medical hospital and emergency room.

m) Performing extraocular surgery, principally strabismus surgery and laser procedures, including panretinal photocoagulation, laser iridotomies, argon laser trabeculoplasty, and YAG capsulotomy.

o) Introduction to intraocular (cataract) surgery.
p) Assisting in supervision and teaching of first-year residents.

3) PGY-4 (RMLEI/UCH (3 months anterior segment), DHMC (3 months), VAMC (6 months))
   a) Development of a core knowledge base through attendance of a basic science course, use of American Academy of Ophthalmology Basic and Clinical Science Course, and attendance at clinical conferences.
   b) Continued improvement in the diagnosis and treatment of complicated eye disease.
   c) Learning and development of competency in intraocular surgery (cataract surgery, glaucoma surgery, retinal detachment procedures, major ocular trauma, etc.) and in complicated ophthalmic plastic procedures such as orbital fracture and tumor resection.
   d) Training in management of complications of surgery.
   e) Developing skills and acquiring experience in preoperative evaluation and postoperative management.
f) Coverage of the ocular trauma service and learning of the medical and surgical management of ocular trauma

g) Responsibility of dictating (under faculty supervision) reports of fluorescein angiography and development of skills in ultrasound examination.

h) Introduction to current modern practice management techniques.

i) Assisting in the teaching and supervision of first and second year residents.

j) Presentation of a research project completed during the residency-training period.

7.1.3 Objectives by Subspecialty

These subspecialty objectives are generously provided by Andrew G. Lee, M.D. and Morton F. Goldberg, M.D. as part of the International Council of Ophthalmology and International Task Force on Resident and Specialists Training. These are guidelines for education of the ophthalmic specialist and sub-specialist.

Each of these objectives falls under at least one of the following six competencies:

PC – Patient Care
MK – Medical Knowledge
PBLI – Practice Based Learning & Improvement
ICS – Interpersonal & Communication Skills
P – Professionalism
SBP – Systems Based Practice

OPTICS

Basic Level – PGY2

Cognitive skills

1. To describe the basic optics of the human eye (e.g., ametropia, astigmatism, hyperopia, myopia, presbyopia, aniseikonia, anisometropia, aphakia). [PC, MK, ICS, P]

2. To describe the importance of pupil size and its effect on optical resolution. [MK, ICS]

3. To list the various refractive surfaces. [PC, MK]

4. To describe the optical parameters affecting retinal image size. [PC, MK, ICS, P]

5. To describe a schematic eye and reduced eye. [PC, MK, ICS, P]

Technical skills

1. To perform a basic refraction of simple refractive error. [PC, ICS]

2. To perform basic assessment of corneal topography (e.g., Placido disc, keratometry, automated corneal topography). [PC]

3. To perform the following basic refractometric techniques: [PC]
   - Retinoscopy
- Objective and subjective refraction (manifest and cycloplegic refraction and post-cycloplegic refractions)
- Use of cylinders
- Application of cross cylinder technique
- Refining sphere and cylinder
- Duochrome technique
- Comfort and clarity
- Binocular balancing
- Presbyopia, measuring for near adds
- Refracting the basic low vision patients

4. To describe and apply in a clinical setting the following basic concepts: [PC, MK]
   - Snell's Law
   - Refraction and axial myopia
   - Refraction and axial hyperopia
   - Cylinder lenses and pinhole

5. To describe and to apply in a clinical setting the following concepts on accommodation and convergence: [PC, MK, PBLI, ICS]
   - Amplitude of accommodation
   - Near point of accommodation
   - Effects of spectacles and contact lenses
   - Far point
   - Near point

6. To describe the following terms related to magnification: [MK]
   - Linear
   - Angular
   - Relative size
   - Electronic

7. To describe the following terms related to visual acuity testing: [MK]
   - Distance and near acuity measurement
   - Minimal
   - Visible
   - Perceptible
   - Separable
   - Legible
   - Vernier acuity

8. To describe, describe the indications for, and interpret basic tests of contrast sensitivity and color vision (e.g. Ishihara color plates, Hardy-Rand-Rittler plates, Farnsworth-Munsell testing). [PC, MK, ICS]

9. To describe the following terms and describe the clinical application for each: [PC, MK, ICS]
   a. Physical Optics
      - Properties of light
        ▪ Wave theory of light
        ▪ Photon-particle theory of light
• Images
• Objects as light sources
• Laws of refraction
  ▪ Passage of light from one medium to another
  ▪ Absolute index of refraction
  ▪ Total reflection
b. Vergence of light
• Diopter
• Convergence
• Divergence
• Vergence Formula
c. Real/Virtual objects and images
d. Interference and coherence
e. Polarization
f. Diffraction/Diffusion
g. Scattering
h. Transmission and absorption
i. Illumination
j. Pinhole imaging
k. Image quality
l. Brightness and radiance
m. Light propagation-optical media and refractive index
n. Ray tracings

10. To describe the following optical concepts in a clinical context: [PC, MK, ICS]
a. Geometrical Optics
   • Optical interfaces
   • Objects and images at infinity
   • Refractive index
   • Snell’s Law
   • Multiple lens systems
b. Mirrors
   • Laws of reflection
   • Critical Angle
   • Regular and diffuse reflection
   • Image and field of a plane mirror
   • Focal point and focal length of a spherical mirror
   • Critical angles
c. Prisms
   • Types
     ▪ Plane
     ▪ Parallel
     ▪ Plate
   • Refraction of light through a prism
   • Total internal reflection
   • Ophthalmic prisms
• Thin prisms
• Prism diopters
• Minimum deviation
• Prismatic effect of lenses
• Prentice rule
• Fresnel's prisms
d. Lenses
• Diopter
• Concave and convex
• Vertex power/lens effectivity
• Sphero-cylinder lenses and surfaces
• Cross cylinders
• Conoid of Sturm
• Transposition of +cylinder/-cylinder
• Focal points and focal planes
• Principal planes and principal points
• Focal length
• Reflection and refraction at curved surfaces
• Image jump and displacement
• Lens effectivity
• Simple lens formula
e. Lens Aberrations
• Spherical aberration
• Coma
• Astigmatism
• Distortion
• Aberration
• Pantoscopic tilt
f. Lens Materials
• Lens styles/materials
• Slab off prism
• Aphakic spectacles
g. Instruments
• Lensometer
• Slit lamp biomicroscope
• Retinoscope
• Direct ophthalmoscope
• Indirect ophthalmoscope
h. Telescopes
• Galilean
• Keplerian
i. Anisekonia
• Knapp’s Rule
Advanced level
To apply the relevant optics information above in the following situations: [PC, MK, ICS]
1. Refraction and prescribing of spectacles and contact lenses
2. Intraocular lens calculation
3. Cataract surgery
4. Use of prisms for diplopia
5. Low vision aid prescribing

RETINOSCOPY AND REFRACTION

Overall goals:
A. To identify the principles and indications for retinoscopy. [PC, MK, ICS, P]
B. To perform the technique of retinoscopy. [PC, MK]
C. To identify media opacities with retinoscopy. [PC]
D. To perform an integrated refraction based upon retinoscopic results. [PC, PBLI]

Basic level goals – PGY2
1. To describe the major types of refractive errors. [PC, MK, ICS]
2. To perform elementary refraction techniques (e.g., myopia, hyperopia, accommodative add). [PC]
3. To perform objective and subjective refraction techniques for simple refractive error. [PC]
4. To describe the basic ophthalmic optics and optical principles of refraction and retinoscopy. [PC, MK, ICS]
5. To perform retinoscopy for detecting simple refractive errors. [PC]
6. To describe the indications for and to use the trial lenses or a phoropter for simple refractive error. [MK, ICS]
7. To describe the basic use of a trial frame and trial lens set for simple refractive error. [MK, ICS]
8. To describe the basics principles of a keratometer. [MK, ICS]

Standard level goals – PGY3 (in addition to Basic)
1. To describe more complex types of refractive errors including post-operative refractive errors. [PC, MK, ICS]
2. To perform more advanced refraction techniques (e.g., astigmatism, complex refractions, asymmetric accommodative add). [PC, MK, PBLI, ICS]
3. To perform objective and subjective refraction techniques in more complex refractive errors including astigmatism and post-operative refractive error. [PC, MK, PBLI, ICS]
4. To describe the more advanced ophthalmic optics and optical principles of refraction and retinoscopy (e.g., post-keratoplasty, post-cataract extraction). [MK]
5. To perform more advanced techniques of retinoscopy for detecting simple and complex refractive error. [PC]
6. To describe and use more advanced techniques using trial lenses or the phoropter for more complex refractive errors including modification and refinement of subjective manifest refractive error. [PC, MK, PBLI, ICS]

7. To describe and perform more advanced use of a trial frame and trial lens set for more complex refractive errors (e.g., advanced and irregular astigmatism, vertex distance). [PC, MK, PBLI, ICS]

8. To use the keratometer for detection of more advanced refractive error. [PC]

Advanced level goals – PGY4 (in addition to Basic and Standard)

1. To describe the most complex types of refractive errors including post-operative refractive errors, post-keratoplasty, and refractive surgery. [PC, MK, PBLI, ICS]

2. To perform the most advanced refraction techniques (e.g., irregular astigmatism, pre and post-refractive surgery). [PC, PBLI]

3. To perform objective and subjective refraction techniques in the most complex refractive error including astigmatism and post-operative refractive error (one should be more complex; the other should be most complex). [PC, PBLI]

4. To describe the most advanced ophthalmic optics and optical principles of refraction and retinoscopy including higher order aberrations. [MK, ICS]

5. To perform the most advanced techniques of retinoscopy for detecting simple and complex refractive errors including post-keratoplasty and refractive surgery. [PC, PBLI]

6. To perform the most advanced techniques using the trial lenses or the phoropter for more complex refractive errors including modification and refinement of subjective manifest refractive, cycloplegic retinoscopy and refraction, and post-cycloplegic refraction. [PC, PBLI]

7. To perform the most advanced use of a trial frame and trial lens set for the most complex refractive error including astigmatism, post-keratoplasty, and refractive surgery cases. [PC, PBLI]

8. To use the keratometer for detection of subtle or complex advanced refractive error. [PC]

9. To use more advanced refraction instruments and techniques (e.g., distometer, automated refractor, corneal topography). [PC, PBLI]

CATARACT AND LENS

Overall goals:

A. To describe the indications, evaluation and management, and intra- and post-operative complications of cataract surgery and other anterior segment procedures. [PC, MK, PBLI, ICS]

B. To master the ophthalmologic examination of cataract patients. [PC, PBLI]

C. To formulate the differential diagnoses of cataract and evaluate the normal and abnormal lens. [PC, MK, PBLI]

D. To perform optimum refraction of the post-cataract surgery patient. [PC, PBLI]

E. To develop and exercise clinical and ethical decision making in routine cataract patients. [P, SBP]
F. To develop good patient communication techniques regarding cataract surgery. [ICS, P]

G. To perform routine and advanced cataract surgery and intraocular lens placement. [PC, PBLI]

H. To manage basic and advanced clinical and surgical cataract problems. [PC, PBLI]

I. To effectively diagnose and manage intraoperative and post-operative complications of cataract surgery. [PC, PBLI]

J. To work effectively as a member of the medical care team. [ICS, P, SBP]

K. To develop teaching skills for training junior learners and students. [ICS, P]

Basic level goals – PGY2

A. Objectives:
   1. To identify the most common causes and types of cataract (e.g., anterior polar, nuclear sclerotic, lamellar, posterior lenticous, cataract-associated with microphthalmia). [MK]
   2. To list the basic anterior and posterior segment examination skills for cataract evaluation pre-operatively. [MK]
   3. To describe the steps in cataract surgical procedures. [MK, ICS]
   4. To perform elementary refraction and contact lens fitting techniques. [PC, MK]
   5. To describe the major etiologies of dislocated or subluxated lens (e.g., trauma, Marfan’s syndrome, homocystinuria, Weill-Marchesani, syphilis). [MK, ICS]

B. Cognitive skills:
   1. To describe the following: [MK, ICS]
      a. basic ophthalmic optics as related to cataracts
      b. types of intraocular lenses
      c. types of refractive error in cataract
      d. retinoscopy techniques for cataracts
      e. subjective refraction techniques for cataract patients
   2. To identify and describe the mechanisms of the following instruments in the evaluation of cataracts including: [PC, MK, ICS]
      a. lensometer
      b. autorefractor
      c. retinoscope
      d. phoropter
      e. keratometer
      f. slit lamp biomicroscope
      g. glare and contrast testing devices
      h. potential acuity meter

C. Technical and surgical skills
   1. To perform basic slit lamp biomicroscopy, retinoscopy, and ophthalmoscopy. [PC]
   2. To evaluate and classify common types of lens opacities. [MK]
   3. To perform subjective refraction techniques and retinoscopy in patients with cataracts. [PC]
4. To perform direct and indirect ophthalmoscopy pre- and post-cataract surgery. [PC]
5. To perform basic steps of cataract surgery (e.g., incision, wound closure) in the wet lab. [PC, PBLI]
6. To assist at cataract surgery and perform patient preparation, sterile draping, anesthesia. [PC, PBLI]
7. To be aware of the technique of intracapsular cataract extraction. To perform the initial steps of cataract surgery under supervision, including any or all of the following: (Wound construction. [PC, PBLI]
   a. Anterior capsulotomy/capsulorrhexis
   b. Viscoelastics (Extracapsular and phacoemulsification-techniques (e.g., sculpting, divide & conquer, phaco-chop)
   c. Irrigation and aspiration
   d. Intraocular lens implantation (e.g., anterior and posterior, special IOLs)
   e. Intraocular lens repositioning, removal or exchange

Standard level goals – PGY3 (in addition to Basic)
A. Cognitive skills:
1. To describe the less common causes of lens abnormalities (e.g., spherophakia, ectopia lentis). [MK, ICS]
2. To describe the pre-operative evaluation of the cataract patient, including: [PC, MK, PBLI]
   a. systemic diseases of interest or relevance to cataract surgery
   b. relationship of external and corneal diseases of relevance to cataracts and cataract surgery (e.g., lid abnormalities, dry eye)
   c. relationships of glaucoma and secondary lens opacities related to cataract surgery
3. To describe glare analysis testing for cataract surgery. [MK, ICS]
4. To describe the use of A and B scan ultrasonography in cataract surgery. [PC, MK, ICS]
5. To describe the types, indications and techniques for local anesthesia for cataract surgery (e.g., topical, local, general). [PC, MK, ICS]
6. To describe intracapsular surgery technique, complications and indications. [MK, ICS]
7. To describe indications, techniques, and complications of surgical procedures, including: [PC, MK, ICS]
   a. Extracapsular surgery
   b. Intracapsular surgery
   c. Phacoemulsification
   d. Paracentesis
8. To describe the indications for, principles of, and techniques of YAG laser capsulotomy. [PC, MK, ICS]
9. To describe history and techniques of basic intraocular lens implantation. [PC, MK, ICS]
10. To correlate the level of visual acuity with the lens opacities. [PC, PBLI]
11. To describe the basic complications of cataract and anterior segment surgery (e.g., intraocular pressure elevation, hyphema, endophthalmitis, cystoid macular edema, retinal detachment, intra-ocular lens dislocation, lens-induced glaucoma and uveitis). [MK, ICS]

B. Technical and surgical skills:
1. To perform local injections of corticosteroids, antibiotics, anti-metabolites, and anesthesia. [PC]
2. To implement the basic preparatory procedures for cataract surgery (e.g., identification of instruments, sterile technique, gloving and gowning, prep and drape, other pre-operative preparation, obtaining informed consent). [PC, PBLI]
3. To perform paracentesis of the anterior chamber. [PC]
4. To use the operating microscope for basic cataract surgery. [PC, PBLI]
5. To perform more advanced steps in cataract extraction (e.g., capsulorhexis). To perform extracapsular surgery in a practice setting (e.g., animal or wet lab) and then in the operating room, including mastery of the following skills: [PC, PBLI]
   a. Wound construction
   b. Anterior capsulotomy/capsulorrhexis
   c. Viscoelastics
   d. Beginning phacoemulsification-techniques (e.g., sculpting, divide & conquer, phaco-chop)
   e. Irrigation and aspiration
   f. Intraocular lens implantation (e.g., anterior and posterior, special IOLs)
6. To perform repositioning, removal or exchange of intraocular lenses. [PC, PBLI]
7. To assist in cataract surgery and perform more advanced steps in patient preparation and anesthesia. [PC, MK, PBLI]
8. To describe the use of viscoelastics in surgery. [MK, ICS]
9. To treat common post-operative complications of cataract surgery (e.g., endophthalmitis). [PC, MK, PBLI]
10. To perform basic post-operative evaluation of the cataract patient. [PC, MK, ICS]
Advanced level goals – PGY4 (in addition to Basic and Standard)

A. Cognitive skills
1. To list the indications for, describe the performance of, and describe the complications of anterior segment surgery, including basic techniques and more advanced procedures (e.g., intraocular lenses [IOLs] and indications for specialized IOLs). [PC, MK, ICS]
2. To describe the indications for, techniques of, and complications of cataract in the context of the subspecialty disciplines of glaucoma (e.g., combined cataract and glaucoma procedures, glaucoma in cataractous eyes, cataract surgery in patients with prior glaucoma surgery), retina (e.g., cataract surgery in patients with scleral buckles or status post vitrectomy), cornea (e.g., cataract extraction in patients with corneal opacities), ophthalmic plastic surgery (e.g., ptosis following cataract surgery), and refractive surgery (e.g., cataract surgery in eyes that have undergone refractive surgery). [PC, MK, ICS]
3. To evaluate and manage complications of cataract and IOL implant. [PC, MK, PBLI, ICS, P]
4. To describe the instruments and techniques of cataract extraction including extracapsular surgery and phacoemulsification. [MK, ICS]
5. To understand the technique of intracapsular surgery. [MK]
6. To describe the indications, instrumentation, and techniques used to implant foldable and non-foldable IOLs. [MK, ICS]
7. To describe the evaluation and management of common and uncommon causes of post-operative endophthalmitis. [PC, MK, ICS]
8. To assist in the teaching and supervision of basic and standard level learners (i.e., first and second year residents). [PBLI, P, SBP]
9. To describe the government and hospital regulations that apply to cataract surgery. [ICS, P, SBP]

B. Technical and surgical skills
1. To describe the indications for, mechanics of, and performance of A scan ultrasonography and calculation of IOL power. [MK, ICS]
2. To perform phacoemulsification in a practice setting (e.g., animal or wet lab) and then in the operating room including mastery of the following skills: [PC, PBLI]
   a. Wound construction
   b. Anterior capsulotomy/capsulorrhesis
   c. Viscoelastics
   d. Intracapsular, extracapsular and phacoemulsification-techniques (e.g., sculpting, “divide & conquer”, “phaco-chop”, “stop and chop”)
   e. Instrumentation and techniques of irrigation and aspiration
   f. Intraocular lens implantation (e.g., anterior and posterior, special IOLs)
   g. Intraocular lens repositioning, removal or exchange
3. To perform implantation of foldable and non-foldable IOLs. [PC]
4. To perform intraoperative and postoperative management of any event that may occur in cataract surgery, including: [PC, MK, ICS]
   a. Vitreous loss
   b. Capsular rupture
c. Anterior or posterior segment bleeding

d. Positive posterior pressure

e. Choroidal detachments

f. Expulsive hemorrhage

g. Elevated intraocular pressure

h. Use of topical and systemic medications

i. Astigmatism

j. Post operative refraction (simple and complex)

k. Corneal edema

l. Wound dehiscence

m. Hyphema

n. Residual cortex

o. Dropped nucleus

p. Uveitis and cystoid macular edema (CME)

q. Elevated intraocular pressure and glaucoma

CONTACT LENS

Basic level goals – PGY2

Objectives

1. To perform a basic contact lens (CL) history and examination, and to be aware of additional basic tests and questions that are required for CL patients with more complex needs. [PC, MK, ICS]

2. To perform the techniques of retinoscopy, refraction, and over-refraction in the routine CL patient. [PC]

3. To describe the optics of the soft contact lens and hard contact lens (e.g., rigid gas permeable CL); base curve changes, the lacrimal lens, and the optic zone. [PC, MK, ICS]

4. To describe conversion of a spectacle prescription (Rx) to a CL Rx, including method of converting from plus to minus cylinder. [MK, ICS]

5. To describe basic CL design, using appropriate terminology. [PC, MK, ICS]

6. To describe the techniques for and perform basic CL fitting. [PC, MK, PBLI, ICS]

7. To describe the selection of CL candidates with non-complex needs. [PC, MK, ICS]

8. To use the auxiliary CL instruments and tests (e.g., trial set, fluorescein testing). [PC, MK]

9. To perform CL verification for vision correction, fit, and comfort. [PC, MK]

10. To describe the contraindications for contact lens use. [MK, ICS]

Cognitive skills

1. To describe the fundamentals of ophthalmic optics in CL management (e.g., CL choices, techniques for fitting individuals). [MK, ICS]

2. To list the indications for contact lenses in non-complex cases. [PC, MK, ICS]

3. To describe CL choices and techniques for fitting individuals with non-complex CL needs. [PC, MK, ICS]
Technical skills

1. To perform advanced retinoscopy techniques in a CL patient. [PC, PBLI]
2. To perform advanced refraction techniques in a CL patient, including diagnostic fitting. [PC, MK, PBLI]
3. To perform techniques to verify and inspect contact lenses. [PC]
4. To utilize appropriate teaching skills to instruct patients in the safe insertion, removal, and care of contact lenses. [PC, MK, ICS, P]

Standard level goals – PGY3 (in addition to Basic)

A. Objectives

1. To perform a more advanced contact lens (CL) history and examination, employing additional tests and questions appropriate for patients with more complex CL needs (e.g., keratoconus, difficult CL fittings). [PC, PBLI, ICS]
2. To perform retinoscopy and refraction in the CL patient with more complex needs (e.g., keratoconus, post-keratoplasty). [PC, PBLI]
3. To describe the more advanced optics of the soft contact lens (SCL) and hard contact lens (e.g., rigid gas permeable CL); base curve changes, the lacrimal lens, and the optic zone. [MK, ICS]
4. To describe more advanced CL design (e.g., special lenses and special CL shapes or materials). [MK, ICS]
5. To describe and perform more advanced CL fitting (e.g., post-keratoplasty). [PC, MK, PBLI, ICS]
6. To describe the selection of CL candidates with more complex needs (e.g., post surgical). [MK, ICS]
7. To use the auxiliary CL instruments in patients with more complex needs (e.g., post-surgical topography). [PC, MK, PBLI, ICS]
8. To perform CL verification for vision, fit, and comfort in therapeutic CL care. [PC, MK, PBLI]

B. Cognitive skills

1. To describe the more advanced concepts of ophthalmic optics in CL. [MK, ICS]
2. To describe the indications for more advanced contact lenses (e.g., therapeutic lenses). [MK, ICS]

C. Technical skills

1. To perform more advanced retinoscopy techniques in a CL patient. [PC, PBLI]
2. To perform more advanced refraction techniques in CL patient, including diagnostic fitting. [PC, MK, PBLI]
3. To perform advanced techniques to verify and inspect contact lenses in patients with complex CL needs. [PC]
4. To perform more advanced CL fitting in patients with complex needs (e.g., keratoconus, CL in children, active corneal disease). [PC, MK, PBLI]
5. To describe and use the CL instruments in more complex cases. [PC, MK, ICS]
6. To describe the more advanced CL complications. (e.g. microbial keratitis, sterile corneal infiltrates, preservative toxicity). [MK, ICS]
7. To perform appropriate CL selection (e.g., material selection, CL modification). [PC, MK, PBLI]
8. To perform corneal topography to fit contact lenses. [PC]

Advanced level goals – PGY4 (in addition to Basic and Standard)
A. Objectives
1. To perform the most advanced techniques in CL history and examination, and to understand what additional tests and questions are needed during the most complex CL examination (e.g., post-keratoplasty, multiple surgeries, post-refractive, complex keratoconus fitting, active corneal disease). [PC, MK, ICS]
2. To perform retinoscopy and refraction in the CL patient with the most complex needs (e.g., keratoglobus, keratoconus, following open globe repair [e.g., corneal laceration] or multiple keratoplasty). [PC]
3. To describe the most advanced optics and applications of soft contact lenses and hard contact lenses (e.g., piggyback CL). [PC, MK, ICS]
4. To describe the most advanced CL design, using appropriate terminology (e.g., special fittings, special lenses for difficult-to-fit patients). [MK, ICS]
5. To describe the indications for and to perform the most advanced CL fitting (e.g., post-multiple keratoplasty or traumatic corneal repair). [PC, MK, PBLI, ICS]
6. To describe the indications for and apply the most complex CL in special circumstances or for candidates presenting increased level of difficulty (e.g., post surgical patients, children). [PC, MK, PBLI, ICS]
7. To use the auxiliary CL instruments in patients with the most complex needs (e.g., topography, fluorescein testing, diagnostic lenses). [PC, MK, PBLI, ICS]

B. Cognitive skills
1. To describe the differences between CL material choices. [PC, MK, PBLI, ICS]
2. To describe methods of modifying a contact lens to improve comfort, vision, or physiological response. [PC, MK]
3. To evaluate and to manage CL-induced complications. [PC, MK, PBLI, ICS, P]
4. To perform and interpret corneal topography in CL fitting. [PC, MK]

C. Technical skills
1. To perform CL modification in complex cases. [PC, MK, PBLI]
2. To select the appropriate CL in more complex cases. [PC, MK, PBLI]

CORNEA, EXTERNAL DISEASE AND REFRACTIVE SURGERY
Basic level goals – PGY2
A. Cognitive skills
1. To describe the basic anatomy, embryology, physiology, pathology, microbiology, immunology, genetics, epidemiology, and pharmacology of the cornea, conjunctiva, sclera, eyelids, lacrimal apparatus, and ocular adnexa. [MK, ICS]
2. To describe the common congenital abnormalities of the cornea, sclera, and globe (e.g., microphthalmos, birth trauma, buphthalmos). [MK, ICS]
3. To describe the common corneal and conjunctival degenerations (e.g., pterygium, pinguecula, Salzmann, senile plaques of the sclera, keratoconus). [MK, ICS]

4. To recognize the common corneal dystrophies and degenerations (e.g., map-dot-fingerprint, Meesman’s, Reiss-Buckler, Francois, Schnyder, congenital hereditary stromal dystrophy, lattice, granular, macular, congenital hereditary endothelial dystrophy, Fuchs’ dystrophy, posterior polymorphous dystrophy). [PC, MK, PBLI]

5. To recognize the common corneal inflammations and infections (e.g., herpes simplex, syphilis, interstitial keratitis). [PC, MK, PBLI]

6. To understand the fundamentals of corneal optics and refraction (e.g., keratoconus). [MK]

7. To describe the fundamentals of ocular microbiology and recognize corneal and conjunctival infections (e.g., Staphylococcal hypersensitivity, simple microbial keratitis, simple conjunctivitis, trachoma, ophthalmia neonatorum, herpes zoster ophthalmicus, herpes simplex keratitis and conjunctivitis). [MK, ICS]

8. To recognize the basic presentations of ocular allergy (e.g., phylctenules, seasonal hayfever, vernal conjunctivitis, allergic and atopic conjunctivitis, giant papillary conjunctivitis). [PC, MK]

9. To recognize and treat lid margin disease (e.g., Staphylococcal blepharitis, meibomian gland dysfunction). [PC, MK]

10. To describe the features of, diagnose, and treat (or refer) vitamin A deficiency (e.g., Bitot spots, dry eye, dark adaptation) and neurotrophic corneal disease. [PC, MK, PBLI, ICS, SBP]

11. To describe the basic differential diagnosis of the acute and chronic conjunctivitis or “red eye” (e.g., scleritis, episcleritis, conjunctivitis, orbital cellulitis, gonococcal and chlamydial conjunctivitis). [MK, ICS]

12. To describe the basic mechanisms of traumatic and toxic injury to the anterior segment (e.g., alkali burn, simple lid laceration, simple orbital fracture). [MK, ICS]

13. To understand the mechanisms of ocular immunology and recognize the external manifestations of anterior segment inflammation (e.g., acute and chronic iritis). [PC, MK]

14. To describe the basic principles of ocular pharmacology of anti-infective, anti-inflammatory and immune modulating agents (e.g., indications and contraindications for topical corticosteroids and antibiotics). [MK, ICS]

15. To recognize corneal lacerations (perforating and non-perforating), pterygia that may require surgery, corneal and conjunctival foreign bodies. [PC, MK, PBLI]

16. To diagnose and treat corneal exposure (e.g., lubrication, temporary tarsorrhaphy). [PC, MK, PBLI]

17. To describe the epidemiology, differential diagnosis, evaluation and management of common benign and malignant lid lesions, including pigmented lesions of the lid (e.g., nevi, melanoma). [MK, ICS]

18. To describe the epidemiology, classification, pathology, indications for surgery, and prognosis of the common malpositions of the eyelids (e.g., blepharoptosis, trichiasis, distichiasis, essential blepharospasm, entropion, ectropion) and
19. To recognize and describe the treatment for a chemical burn (e.g., types of agents, medical therapy). [PC, MK]
20. To recognize and describe the etiologies of hyphema and microhyphema. [PC, MK, ICS]
21. To describe the etiologies and treatment of superficial punctate keratitis (e.g., dry eye, blepharitis, toxicity, ultraviolet photokeratopathy, contact lens related). [MK, ICS]
22. To describe the symptoms and signs, testing and evaluation for, and treatment of exposure keratopathy and dry eye (e.g., Schirmer testing). [PC, MK, ICS]
23. To recognize the anterior segment manifestations of systemic disease (e.g., Wilson’s disease) and pharmacologic side effects (e.g., amiodarone vortex keratopathy). [PC, MK, ICS]
24. To recognize, list the differential diagnosis, and evaluate aniridia and other developmental anterior segment abnormalities (e.g., Axenfeld’s, Rieger’s, Peter’s anomalies and syndromes). [PC, MK, ICS]
25. To recognize and treat pyogenic granuloma. [PC]

B. Technical/surgical skills
1. To perform external examination (illuminated and magnified) and slit lamp biomicroscopy, including drawing of anterior segment findings. [PC]
2. To perform special topical stains of the cornea (e.g., fluorescein dye and Rose Bengal). [PC]
3. To perform simple tests for dry eye (e.g., Schirmer test). [PC]
4. To perform punctal occlusion (temporary or permanent). [PC]
5. To perform simple corneal sensation testing (e.g., cotton tip swab). [PC]
6. To perform tonometry (e.g., applanation, tonopen, Schiotz, pneumotonometry). [PC]
7. To perform techniques of sampling for viral, bacterial, fungal, and protozoal ocular infections (e.g., corneal scraping and appropriate culture techniques). [PC]
8. To perform and interpret simple stains of the cornea and conjunctiva (e.g., culture techniques, culture media, Gram stain, Giemsa stain, calcofluor white, acid fast). [PC, MK]
9. To manage corneal epithelial defects (e.g., pressure patching and bandage contact lenses). [PC, PBLI]
10. To perform removal of a conjunctival or corneal foreign body (e.g., rust ring). [PC, PBLI]
11. To perform simple pterygium excision. [PC]
12. To perform a simple lid laceration repair. [PC]
13. To perform a simple corneal laceration repair (e.g., linear laceration not extending to limbus). [PC]
14. To perform epilation. [PC]
15. To perform a lateral tarsorrhaphy. [PC]
16. To incise/drain or remove a simple chalazion/stye. [PC]
17. To perform a simple incisional or excisional biopsy of a lid lesion. [PC]
18. To perform irrigation of chemical burn to the eye. [PC]
19. To treat hyphema and microhyphema (e.g., complications of increased intraocular pressure and rebleeding). [PC]

**Standard level goals – PGY3 (in addition to Basic)**

**A. Cognitive skills**

1. To describe the more complex anatomy, embryology, physiology, pathology, microbiology, immunology, genetics, epidemiology, and pharmacology of the cornea, conjunctiva, sclera, eyelids, lacrimal apparatus, and ocular adnexa. [MK, ICS]

2. To describe the more complex congenital abnormalities of the cornea, sclera, and globe (e.g., hamartomas and choristomas). [MK, ICS]

3. To describe, recognize, evaluate, and treat peripheral corneal thinning (e.g., inflammatory, degenerative, dellen-related, infectious, allergic). [PC, MK, ICS]

4. To recognize the common conjunctival neoplasms (e.g., benign, malignant tumors). [PC, MK, PBLI]

5. To recognize and treat less common corneal or conjunctival presentations of degenerations (e.g., inflamed or atypical pterygium, band keratopathy). [PC, MK, PBLI]

6. To describe the epidemiology, differential diagnosis, evaluation, and management of Bitot’s spots. [PC, ICS]

7. To describe the epidemiology, differential diagnosis, evaluation, and management of Thygeson’s superficial punctate keratopathy. [PC, ICS]

8. To understand the more complex corneal optics and refraction (e.g., irregular astigmatism). [MK]

9. To correlate the concordance of the visual acuity with the density of media opacity (e.g., cataract) and to evaluate the etiology of discordance between acuity and media examination findings. [PC, MK, PBLI]

10. To describe the more complex ocular microbiology and describe the differential diagnosis of more complicated corneal and conjunctival infections (e.g., complex or atypical bacterial fungal, Acanthamoeba, viral, or parasitic keratitis). [MK, ICS]

11. To describe the differential diagnosis, evaluation, and treatment of interstitial keratitis (e.g., syphilis, viral diseases, inflammation). [MK, ICS]

12. To describe the more complex differential diagnosis of the “red eye” (e.g., autoimmune and inflammatory disorders causing scleritis, episcleritis, conjunctivitis, orbital cellulitis). [PC, MK, PBLI, ICS]

13. To describe the key features of trachoma, including epidemiology, clinical features and staging, complications (e.g., cicatricization) prevention (e.g., facial hygiene), and topical and systemic antibiotic treatment (especially in hyperendemic regions) and surgery (e.g., tarsal rotation). [MK, PBLI, ICS]

14. To describe the more complex mechanisms of traumatic and toxic injury to the anterior segment (e.g., long term sequelae of acid and alkali burn, complex lid laceration involving the lacrimal system, full thickness laceration). [MK, ICS]
15. To describe the differential diagnosis and the external manifestations of more complex anterior segment inflammation (e.g., acute and chronic iritis). [MK, ICS]

16. To describe the more complex principles of ocular pharmacology of anti-infective, anti-inflammatory and immune modulating agents (e.g., use of topical non-steroidal and steroid agents, topical cyclosporine). [MK, ICS]

17. To recognize and treat corneal lacerations (perforating and non-perforating). [PC, MK, PBLI]

18. To recognize and treat large or atypical pterygia that may require surgery. [PC, MK, PBLI]

19. To describe and treat corneal and conjunctival foreign bodies. [PC, MK, PBLI]

20. To diagnose and treat severe corneal exposure (e.g., lubrication, temporary tarsorrhaphy). [PC, MK, PBLI]

21. To recognize and treat common and uncommon benign and malignant lid lesions. [PC, MK, PBLI]

22. To recognize and treat common malpositions of the eyelids (e.g., entropion, ectropion, and ptosis) as they apply to secondary corneal disease. [PC, MK, PBLI]

23. To recognize and treat recurrent corneal erosions. [PC, MK, PBLI]

24. To recognize and treat foreign body, animal and plant substance injuries. [PC, MK, PBLI]

25. To recognize and treat more complex hyphemas (e.g., surgical indications). [PC, MK, PBLI]

26. To recognize, evaluate, and treat chronic conjunctivitis (e.g., chlamydia, trachoma, molluscum, Parinaud’s oculoglandular, ocular rosacea). [PC, MK, PBLI]

27. To describe the epidemiology, clinical features, pathology, evaluation, and treatment of ocular cicatricial pemphigoid. [PC, MK, PBLI]

28. To recognize, evaluate, and treat the ocular complications of chronic exposure keratopathy, contact dermatitis, and Stevens-Johnson syndrome. [PC, MK, PBLI]

29. To describe the epidemiology, clinical features, pathology, evaluation, and treatment of peripheral corneal thinning or ulceration (e.g., Terrien’s marginal degeneration, Mooren’s ulcer, rheumatoid arthritis related corneal melt). [PC, MK, PBLI]

B. Technical/surgical skills

1. To perform more advanced techniques including keratometry, keratoscopy, endothelial cell count and evaluation, specular microscopy, and pachymetry. [PC]

2. To understand and perform basic contact lens fitting. [PC]

3. To perform stromal micropuncture. [PC]

4. To perform application of corneal glue. [PC]

5. To assist in more complex corneal surgery (e.g., penetrating keratoplasty and phototherapeutic keratectomy). [PC, PBLI]
6. To perform more advanced tests for dry eye (e.g., modified Schirmer tests, assessment of tear break up time, fluorescein dye testing, Rose Bengal dye). [PC]

7. To perform a more complex pterygium excision, including conjunctival grafting. [PC, PBLI]

8. To perform a more complex lid laceration repair. [PC, PBLI]

9. To perform manual superficial or lamellar keratectomy. [PC]

10. To perform a more complex corneal laceration repair (e.g., stellate perforating laceration). [PC, PBLI]

11. To repair simple lacerations of the lacrimal drainage apparatus (e.g., perform intubations and simple closure). [PC]

Advanced level goals – PGY4 (in addition to Basic and Standard)

A. Cognitive skills

1. To describe the most complex anatomy, embryology, physiology, histopathology, microbiology, immunology, genetics, epidemiology, and pharmacology of the cornea, conjunctiva, sclera, eyelids, lacrimal apparatus, and ocular adnexa. [MK, ICS]

2. To describe the most complex and less common congenital abnormalities of the cornea, sclera, and globe (e.g., cornea plana, keratoglobus). [MK, ICS]

3. To recognize the common and uncommon corneal and conjunctival neoplasms, dystrophies and degenerations (e.g., lattice dystrophy). [PC, MK, PBLI]

4. To understand the most complex corneal optics and refraction (e.g., post-keratoplasty). [MK]

5. To describe the less common and rare ocular infections and describe the differential diagnosis of the most complicated corneal and conjunctival infections (e.g., amoebas, Leishmaniasis, nematodes). [MK, ICS]

6. In non-endemic areas, to describe the basic features of onchocerciasis. [MK, ICS]

7. In endemic areas to define the etiology, vector (e.g., black fly), and incidence, diagnostic features (e.g., microfilariiae, keratitis, iritis), diagnosis (e.g., skin snip test), course and prognosis, treatment (e.g., ivermectin, nodulectomy), and prevention (e.g., vector control, environmental and behavioral changes). [MK]

8. To describe the most complex differential diagnosis of the “red eye” (e.g., pemphigoid, pemphigus, Stevens-Johnson syndrome). [MK, ICS]

9. To diagnose and treat the most complex traumatic and toxic injuries to the anterior segment (e.g., total lid avulsion, alkali burn). [PC, MK]

10. To describe the differential diagnosis and the external manifestations of the most complex or uncommon anterior segment inflammations (e.g., syphilitic keratouveitis). [MK, ICS]

11. To describe the most complex principles of ocular pharmacology of anti-infective, anti-inflammatory and immune modulating agents (e.g., combination therapies of antiviral and anti-inflammatory agents). [MK, ICS]

12. To recognize and treat complex corneal lacerations (e.g., lacerations extending beyond the limbus). [PC, PBLI]
13. To diagnose and treat the most severe corneal exposure cases (e.g., conjunctival flap). [PC, PBLI]
14. To understand ocular surface transplantation, including conjunctival autograft/flap, amniotic membrane transplantation, limbal stem cell transplantation. [PC, MK, PBLI]
15. To understand the surgical indications (e.g., Fuchs’ dystrophy, apheriac/pseudophakic bullous keratopathy), surgical techniques, and recognition and management of postoperative complications (especially immunologically-mediated rejection) of corneal transplantation (e.g, penetrating, lamellar). [PC, MK, PBLI]
16. To understand the preoperative assessment, patient selection, surgical management, and postoperative care of refractive surgical techniques, including keratotomy (radial, astigmatic), photoablation (photorefractive, phototherapeutic, LASIK), corneal wedge resection, thermokeratoplasty (LTK), intracorneal rings, phakic intraocular lens and clear lens extraction. [PC, MK, PBLI]

**B. Technical/surgical skills**

1. To perform and interpret the most advanced corneal techniques (e.g., pachymetry, endothelial microscopy, computerized corneal topography). [PC, MK]
2. To understand and perform specialized and complicated contact lens fitting (e.g., post-keratoplasty). [PC, MK]
3. To perform more complex corneal surgery (e.g., penetrating or lamellar keratoplasty, keratorefractive procedures and phototherapeutic keratectomy). [PC, PBLI]
4. To repair simple entropion and ectropion. [PC]
5. To perform a thin conjunctival flap (e.g., Gunderson flap). [PC]
6. To perform other complex conjunctival surgery (e.g., autograft). [PC]
7. To perform basic non-laser refractive surgery techniques (e.g., relaxing keratotomy). [PC]
8. To manage and treat more complex neoplasms of the conjunctiva (e.g., carcinoma, melanoma). [PC, MK, PBLI]

**GLAUCOMA**

*Basic level goals – PGY2*

**A. Cognitive skills**

1. To describe the epidemiology of primary open angle glaucoma (POAG). [MK]
2. To perform evaluation of POAG. [PC]
3. To describe the mechanics of aqueous humor dynamics and the anatomy of the anterior chamber and its angle. [MK]
4. To describe basic tonometry and to understand the principles of tonography. [MK, ICS]
5. To describe the optic nerve and nerve fiber layer anatomy in glaucoma. [MK, ICS]
6. To describe the fundamentals of perimetry, including kinetic and automated static perimetry. [MK, ICS]
7. To describe the principles, indications, and basic techniques of gonioscopy, including normal and abnormal findings. [MK, ICS]
8. To describe the principles of medical management, including indications for and side effects of treatment options (e.g., topical and systemic medications) for simple glaucoma (e.g., POAG, primary angle closure glaucoma). [MK, ICS]
9. To describe and recognize normal tension glaucoma (“low tension glaucoma”). [MK, ICS]
10. To describe the features of and recognize primary and secondary angle closure glaucoma and aqueous misdirection. [PC, MK, ICS]
11. To describe the clinical features of and to recognize hypotony (e.g., Seidel test for transconjunctival leakage). [PC, MK, ICS]
12. To list the main results of the major clinical trials in glaucoma (e.g., Glaucoma Laser Trial, Normal Tension Glaucoma Study, and Advanced Glaucoma Intervention Study). [MK]

B. Technical skills
1. To perform basic tonometry (e.g., applanation, tonopen) and recognize the pitfalls and artifacts of the testing. [PC, PBLI]
2. To perform basic gonioscopy (e.g., recognize angle structures, identify angle closure). [PC]
3. To perform stereo examination of the optic nerve using 90 diopter lens. [PC]
4. To interpret manual (e.g., Goldmann) and automated (e.g., Humphrey, Octopus) visual fields in routine glaucoma. [PC, MK]

Standard level goals – PGY3 (in addition to Basic)
A. Cognitive skills
1. To describe the epidemiology and perform screening for routine and more advanced primary and secondary open angle glaucoma. [PC, MK, ICS]
2. To describe the treatment of disturbances of aqueous humor dynamics. [MK]
3. To describe the more complex etiologies for, evaluation of, and treatment of glaucoma (e.g., angle recession, inflammatory, steroid-induced, pigmentary, pseudoexfoliative, phacolytic, neovascular, post-operative, malignant, lens particle glaucomas; plateau iris; glaucomatocyclitic crisis; iridocorneal endothelial syndromes; aqueous misdirection). [PC, MK, ICS]
4. To describe more advanced tonometric and tonographic (if applicable) methods (e.g., diurnal curve). [MK, ICS]
5. To describe more advanced optic nerve and nerve fiber layer anatomy in primary and secondary glaucoma and to recognize typical and atypical features associated with glaucomatous cupping (e.g., rim pallor, rapid progression, central acuity loss, hemianopic or other non-glaucomatous types of visual field loss). [PC, MK, ICS]
6. To describe the more advanced forms of perimetry (e.g., kinetic and automated static visual fields) and perimetry strategies (e.g., threshold testing, supra-threshold testing, special algorithms). [MK, ICS]
7. To describe the principles, indications, and more advanced anatomic findings and gonioscopic features of primary and secondary glaucomas (e.g., plateau iris, appositional closure). [MK, ICS]
8. To describe the principles of medical management of more advanced glaucomas (e.g., advanced POAG, secondary open and closed angle glaucomas, normal tension glaucoma). [PC, MK, ICS]
9. To describe the features of, recognize, and treat primary angle closure glaucoma and aqueous misdirection. [PC, MK, ICS]
10. To describe the clinical features of, recognize, and treat less common etiologies of ocular hypotony. [PC, MK, ICS]
11. To describe the results and apply the conclusions to clinical practice of the major clinical trials in glaucoma (e.g., Glaucoma Laser Trial, Normal Tension Glaucoma Study, and Advanced Glaucoma Intervention Study). [PC, MK]
12. To recognize and treat the various adult secondary glaucomas. [PC, MK, ICS]
13. To describe the features of primary infantile and juvenile glaucomas. [MK, ICS]
14. To describe and apply specific medical treatments of more advanced glaucoma. [MK, ICS]
15. To describe the principles of laser treatments of glaucoma (e.g., indications, techniques, and complications, use of various types of laser energy, spot size, laser wavelengths). [MK, ICS]
16. To describe the surgical treatment of glaucoma: (e.g., trabeculectomy, combined cataract and trabeculectomy, glaucoma drainage implants, and cyclodestructive procedures, including indications, techniques, and complications). [PC, MK, ICS]

B. Technical/ surgical skills
1. To perform YAG posterior capsulotomy for uncomplicated posterior capsule opacity. [PC]
2. To perform laser peripheral iridotomy for narrow anglest angle closure. [PC, PBLI]
3. To perform argon laser trabeculoplasty for glaucoma. [PC]
4. To perform cyclophotocoagulation for cases. [PC]
5. To describe and manage a flat anterior chamber. [PC, ICS]
6. To perform routine revision of filtering blebs. [PC]
7. To treat angle closure glaucoma. [PC, MK]

Advanced level goals – PGY4 (in addition to Basic and Standard)
A. Cognitive skills
1. To describe the features of the most complex and most advanced forms of primary and secondary open angle glaucoma. [PC, MK, ICS]
2. To describe the mechanics of aqueous humor dynamics in the most advanced and complex etiologies of glaucoma (e.g., angle recession, combined or multifactorial glaucoma, traumatic and inflammatory glaucoma, pigmentary dispersion glaucoma). [MK, ICS]
3. To apply in clinical practice tonometry and tonography methods (e.g., diurnal curve) in complicated or atypical cases of glaucoma. [PC, MK]
4. To apply the most advanced knowledge of optic nerve and nerve fiber layer anatomy and describe the techniques, methods, and tools for analyzing the nerve fiber layer. [PC, MK]

5. To recognize and evaluate atypical or multifactorial glaucomatous cupping (e.g., rim pallor). [PC, PBLI]

6. To describe, interpret, and apply the results of the most complex and advanced forms of perimetry, including special kinetic and automated static perimetry strategies (e.g., special algorithms) in atypical or multifactorial glaucoma. [PC, MK, ICS]

7. To describe the principles and indications, and apply to clinical practice the findings of gonioscopy in the most complex primary and secondary glaucomas. [PC, MK, ICS]

8. To describe the principles of medical management of the most advanced and complex glaucoma (e.g., advanced POAG previously treated with medicine, laser or surgery; secondary glaucomas). [PC, MK, ICS]

9. To describe, recognize, and treat the most advanced cases of primary open angle glaucoma (e.g., monocular patients, repeat surgical cases), normal tension glaucoma, and secondary glaucomas (e.g., inflammatory glaucoma, angle recession). [PC, MK, PBLI, ICS]

10. To describe the features of, recognize, and treat the most advanced cases of primary angle closure glaucoma and complex glaucomas (e.g., post-operative cases, secondary angle closure, aqueous misdirection). [PC, MK, PBLI, ICS]

11. To describe the clinical features of, recognize and treat common and uncommon etiologies of ocular hypotony (e.g., choroidal detachment, leaking trabeculectomy bleb). [PC, MK, PBLI, ICS]

12. To describe the results, apply the conclusions, and critically analyze the major clinical trials in glaucoma (e.g., Glaucoma Laser Trial, Normal Tension Glaucoma Study, and Advanced Glaucoma Intervention Study), as well as describe and use the other publications in the management of glaucoma patients. [MK]

13. To recognize and treat the uncommon adult secondary glaucomas. [PC, MK, PBLI]

14. To describe the features of and treat or refer the primary infantile and juvenile glaucomas. [PC, MK, ICS, SBP]

15. To describe and apply specific medical treatments in the most complex and most advanced glaucoma cases (e.g., refractory glaucoma, monocular patients, non-compliant patients). [PC, MK, PBLI]

16. To describe the principles, indications, and complications of laser treatment of more advanced or complex glaucoma (repeat procedures). [PC, MK, PBLI]

17. To describe the more advanced surgical treatment of glaucoma: (e.g., trabeculectomy, combined cataract and trabeculectomy, setons, and cyclodestructive procedures, including indications, techniques, and complications). [MK, ICS]
B. Technical/surgical skills
1. To perform YAG or argon laser procedures in glaucoma patients (e.g., monocular patient, repeat laser, vitreous lysis, suture lysis). [PC, MK]
2. To perform laser peripheral iridotomy for more advanced glaucoma (e.g., monocular patient, acute angle closure, hazy cornea). [PC, MK]
3. To perform laser treatments (e.g., argon laser trabeculoplasty, iridoplasty) for more advanced glaucoma cases (repeat treatments, monocular patient). [PC, MK]
4. To perform cyclophotocoagulation for more advanced cases (e.g., monocular). [PC, MK]
5. To perform routine and repeat trabeculectomy with or without antimetabolites. [PC, MK]
6. To describe, manage, and treat surgically, if necessary, a flat anterior chamber. [PC, MK, ICS]
7. To perform more advanced techniques for the revision of filtering blebs (e.g., failing bleb). [PC, MK]
8. To recognize and treat glaucoma surgery bleb complications. [PC, MK]

NEURO-OPHTHALMOLOGY
Basic level goals – PGY2
A. Cognitive skills
1. To describe the neuro-anatomy of the visual pathways. [MK, ICS]
2. To describe the neuro-anatomy of the cranial nerves. [MK, ICS]
3. To describe the pupillary and accommodative neuro-anatomy. [MK, ICS]
4. To describe the ocular motility and related neuronal pathways. [MK, ICS]
5. To describe the typical features, evaluation, and management of the most common optic neuropathies (e.g., demyelinating optic neuritis, ischemic optic neuropathy, Leber’s hereditary optic neuropathy, ethambutol toxicity, neuroretinitis, and compressive, inflammatory, infiltrative, traumatic optic neuropathies. [MK, ICS]
6. To describe the typical features, evaluation, and management of the most common ocular motor neuropathies (e.g., third, fourth, sixth nerve palsy). [MK, ICS]
7. To describe the typical features of cavernous sinus and superior orbital fissure syndromes (e.g., infectious, vascular, neoplastic, inflammatory). [MK, ICS]
8. To describe the typical features, evaluation, and management of the most common causes of nystagmus (e.g., congenital motor and sensory, downbeat, upbeat, gaze-evoked, drug induced). [MK, ICS]
9. To describe the typical features, evaluation, and management of the most common pupillary abnormalities (e.g., relative afferent pupillary defect, anisocoria, Horner syndrome, third nerve palsy). [MK, ICS]
10. To describe the typical features, evaluation, and management of the most common visual field defects (e.g., optic nerve, optic chiasm, optic radiations, occipital cortex). [MK, ICS]
11. To describe the epidemiology, clinical features, evaluation, and management of ocular myasthenia gravis. [MK, ICS]
12. To describe the epidemiology, clinical features, evaluation, and management of carotid cavernous fistula. [MK, ICS]
13. To describe the epidemiology, differential diagnosis, evaluation and management of congenital optic nerve abnormalities (e.g., optic pit, disc coloboma, morning glory syndrome, tilted disc, optic nerve hypoplasia, myelinated nerve fiber layer, melanocytoma, disc drusen, Bergmeister’s papillae). [MK, ICS]

B. Technical skills
1. To perform a basic pupillary examination
   a. To describe indications for and perform basic pharmacologic pupillary testing for Horner syndrome, pharmacologic dilation, and Adie’s tonic pupil. [PC, MK, ICS]
   b. To list the differential diagnosis of anisocoria (e.g., sympathetic or parasympathetic lesion, physiologic). [MK]
   c. To describe, detect, and quantitate a relative afferent pupillary defect. [PC, MK, ICS]
   d. To list the causes for light-near dissociation (e.g., Argyll-Robertson pupils, diabetic neuropathy, tonic pupil). [MK]
2. To perform a basic ocular motility examination
   a. To assess ocular alignment using simple techniques (e.g., Hirschberg, Krimsky). [PC]
   b. To describe and perform basic cover/uncover testing for tropia. [PC, MK, ICS]
   c. To describe and perform alternate cover testing for phoria. [PC, MK, ICS]
   d. To perform simultaneous prism and cover testing. [PC]
   e. To perform measurement of deviations with prisms. [PC]
   f. To describe the indications for and apply Fresnel and grind in prisms. [PC, MK, ICS]
   g. To describe the indications for and to perform forced duction and forced generation testing. [PC]
   h. To perform an assessment of saccade accuracy and pursuit and optokinetic testing. [PC]
   i. To perform a measurement of eyelid function (e.g., levator function, lid position). [PC]
3. To describe the indications for visual field testing and to perform and interpret perimetry studies
   a. To perform confrontational field testing (static and kinetic, central and peripheral, red and white targets). [PC]
   b. To perform and interpret a tangent screen test. [PC]
   c. To describe the indications for and perform basic Goldmann perimetry, and interpret results. [MK, ICS]
   d. To describe the indications for and perform basic automated perimetry, and interpret results. [MK, ICS]
4. To perform basic direct, indirect, and magnified ophthalmoscopic examination of the optic disc (e.g., recognize papilledema, optic disc swelling, neuroretinitis). [PC, MK]

5. To describe the anatomy and indications for, order appropriately, and interpret basic radiology studies of the brain and orbits. [PC, MK, ICS, SBP]

6. To describe the indications for and interpret basic echography of orbits. [PC, MK, ICS]

**Standard level goals – PGY3 (in addition to Basic)**

**A. Cognitive skills**

1. To describe the typical and atypical features, evaluation, and management of the most common optic neuropathies (e.g., papilledema, optic neuritis, ischemic optic neuropathy, inflammatory, infectious, infiltrative, compressive, hereditary optic neuropathies). [MK, ICS]

2. To describe the typical and atypical features, evaluation, and management of the more advanced supranuclear and internuclear palsies and less common ocular motor neuropathies (e.g., progressive supranuclear palsy and internuclear ophthalmoplegia). [MK, ICS]

3. To describe the typical and atypical features, evaluation, and management of the more complex and less common forms of nystagmus (e.g., rebound, convergence retraction). [MK, ICS]

4. To describe the typical and atypical features, evaluation, and management of the more advanced and less common pupillary abnormalities (e.g., light-near dissociation, pharmacologic miosis, chronic Adie’s tonic pupil). [MK, ICS]

5. To describe the typical and atypical features, evaluation, and management of the more complex and less common visual field defects (e.g., lateral geniculate, monocular temporal crescent). [MK, ICS]

6. To describe the more advanced aspects of visual field indications, selection, and interpretation (e.g., artifacts of automated perimetry, testing and thresholding strategies). [MK, ICS]

7. To describe the neuro-ophthalmic aspects of common systemic diseases (e.g., hypertension, diabetes, thyroid disease, myasthenia gravis, temporal arteritis, systemic infections and inflammation). [MK, ICS]

8. To describe the neuro-ophthalmologic findings in trauma (e.g., traumatic optic neuropathy, traumatic brain injury). [MK, ICS]

9. To describe the common features of inherited neuro-ophthalmologic diseases (e.g., Leber’s hereditary optic neuropathy, autosomal dominant optic atrophy, spinocerebellar degenerations). [MK, ICS]

10. To recognize, evaluate, and treat ocular myasthenia gravis. [PC]

**B. Technical skills**

1. To describe the indications, administer, and interpret the results of intravenous edrophonium (Tensilon) and prostigmine tests for myasthenia gravis. [PC, MK, PBLI, ICS]

2. To perform a detailed cranial nerve evaluation (e.g, testing of trigeminal and facial nerve function). [PC, MK]
3. To describe the more advanced interpretation of neuro-radiologic images (e.g., indications and interpretation of orbital tumors, thyroid eye disease, pituitary adenoma, optic nerve glioma, optic nerve sheath meningioma). [MK, ICS]

4. To describe the evaluation, management, and specific testing (e.g., stereopsis, mirror test, red-green testing) of patients with functional visual loss (e.g., recognize non-organic spiral or tunnel visual fields). [MK, ICS]

5. To describe the indications for, to perform, and to list the complications of temporal artery biopsy. [PC, MK, ICS]

Advanced level goals – PGY4 (in addition to Basic and Standard)

A. Cognitive Skills

1. To describe the typical and atypical features, evaluation, and management of the most advanced and least common optic neuropathies (e.g., chronic or recurrent optic neuritis, and posterior ischemic, autoimmune, toxic/nutritional, and Leber’s hereditary optic neuropathy). [MK, ICS]

2. To describe the typical and atypical features, evaluation, and management of the most complex and least common ocular motor neuropathies and their mimics (e.g., progressive supranuclear palsy). [MK, ICS]

3. To describe the typical and atypical features, evaluation, and management of the most complex and least common forms of nystagmus (e.g., surgical treatment options, using the null point in prism or surgical therapy). [MK, ICS]

4. To describe the typical and atypical features, evaluation, and management of the most advanced and least common pupillary abnormalities (e.g., pupil findings in coma, transient pupillary phenomenon). [MK, ICS]

5. To describe the typical and atypical features, evaluation, and management of the most complex and least common visual field defects (e.g., combination or bilateral lesions, cortical visual impairment). [MK, ICS]

6. To describe the most advanced aspects of visual field indications, selection, and interpretation (e.g., variability in automated perimetry, application of specific testing and thresholding strategies for different patient populations with different neuro-ophthalmic conditions, different testing abilities (e.g., young or old age, mental status, hand-eye coordination, reaction time). [PC, MK, PBLI, ICS, P, SBP]

7. To describe, evaluate, and treat the neuro-ophthalmic aspects of systemic diseases (e.g., malignant hypertension, diabetic papillopathy, toxicity of systemic medications, pseudotumor cerebi). [PC, MK, PBLI, ICS, P, SBP]

8. To describe, evaluate, and treat the neuro-ophthalmologic findings in trauma (e.g., corticosteroid or surgical therapy in traumatic optic neuropathy). [PC, MK, PBLI, ICS, SBP]

9. To describe, evaluate, and provide appropriate genetic counseling for the common and less common inherited neuro-ophthalmologic diseases (e.g., Leber’s hereditary optic neuropathy, chronic progressive external ophthalmoplegia, von Hippel Lindau syndrome). [PC, MK, ICS, P, SBP]

10. To recognize, evaluate, and treat (or refer) the more complex forms of nystagmus. [PC, MK]
11. To recognize, evaluate, and treat (or refer) transient monocular or binocular visual loss. [PC, MK]

B. Technical skills

1. To perform and interpret the results of the intravenous edrophonium (Tensilon) and prostigmine tests for myasthenia gravis, and to recognize and treat the complications of the procedure. [PC, MK, SBP]

2. To perform and interpret the complete cranial nerve evaluation (e.g., testing of trigeminal and facial nerve function) and basic neurologic exam in the context of neuro-ophthalmic localization and disease. [PC, MK, SBP]

3. To interpret neuro-radiologic images in neuro-ophthalmology (e.g., interpretation of orbital imaging for orbital pseudotumor and tumors, thyroid eye disease, intracranial imaging modalities and strategies for tumors, aneurysms, infection, inflammation, and ischemia) and to appropriately discuss the localizing clinicoradiologic features with the neuroradiologist in order to obtain the best study and interpretation of the results. [MK, PBLI, SBP]

4. To recognize patients with functional visual loss and provide appropriate counseling and follow-up. [PC, MK, PBLI, P, SBP]

OPHTHALMIC HISTOPATHOLOGY

Basic level goals – PGY2

A. Cognitive skills

1. To describe the basic ocular anatomy and to identify the histology of the major structures of the eye (e.g., conjunctiva, episclera, sclera, cornea, anterior chamber angle, iris, ciliary body, lens, vitreous, retina, retinal pigment epithelium, choroid, optic nerve). [MK, ICS]

2. To describe the basic pathophysiology of the common disease processes of the eye and to identify the major histologic findings of each (e.g., infection, inflammation, neoplasm). [MK, ICS]

3. To identify the histology of the major intraocular and adnexal diseases (e.g., endophthalmitis, retinoblastoma, choroidal melanoma, microbial keratitis). [MK, PBLI]

B. Technical skills (for an ocular pathology laboratory, as available)

1. To describe the appropriate steps in the basic handling and processing of gross specimens in the ocular pathology laboratory (e.g., basic preparation of the specimen) and to demonstrate proficiency in these steps in the laboratory. [MK, PBLI, ICS]

2. To describe the specific information necessary to communicate to the pathologist regarding special handling of specimens for special stains or studies. [PC, MK, ICS, P]

3. To describe the indications for frozen sections in ocular pathology. [MK, ICS]

4. To perform the cutting and gross examination of whole globes. [MK]
5. To participate under supervision in the microscopic examination of ophthalmology specimens from active cases. [PC, MK]

Standard level goals – PGY3 (in addition to Basic)

A. Cognitive skills
1. To describe the more advanced ocular anatomy and to identify the histology of the major and minor structures of the eye (e.g., conjunctival glands, normal pigment, common variants). [MK, PBLI, ICS]
2. To describe the more advanced pathophysiology of the disease processes of the eye and to identify the major histologic findings of each (e.g., fungal keratitis, skin and adnexal neoplasms, and less common intraocular tumors). [MK, PBLI, ICS]
3. To identify the histology of the less common but potentially vision- or life-threatening intraocular and adnexal diseases (e.g., temporal arteritis, fungal endophthalmitis, extraocular spread of intraocular tumor, metastatic disease to the eye) [MK, PBLI, ICS]
4. To describe more advanced techniques in ocular histopathology (e.g., electron microscopy, immunohistochemistry, flow cytometry, tumor free margins). [MK, PBLI, ICS]

B. Technical skills
1. To describe the appropriate steps in the more advanced handling and special processing of gross specimens in the ocular pathology laboratory. [MK, PBLI, ICS]
2. To describe the specific indications for special handling and to communicate to the pathologist the necessity for special handling of specimens for special stains or studies (e.g., electron microscopy, immunohistochemistry, flow cytometry). [MK, PBLI, ICS]
3. To describe the indications and to perform and prepare a biopsy specimen for frozen section in ocular pathology. [PC, MK, PBLI, ICS]
4. To perform the preparation of a basic histologic specimen for review by the pathologist. [PC, MK]
5. To participate as an “at the elbow” observer during the microscopic examination of active ophthalmology cases and to perform microscopic examination of a specimen with and without direct supervision. [PC, MK, ICS]

Advanced level goals – PGY4 (in addition to Basic and Standard)

A. Cognitive skills
1. To describe the most advanced ocular anatomy and to identify the histology of the major and minor structures of the eye and their less common variants (e.g., pars plana cysts, iris heterochromia). [MK, ICS]
2. To describe the most advanced, less common, or more complex pathophysiology of the disease processes of the eye and to identify the major histologic findings of each (e.g., inflammatory pseudotumor, lymphoma, artifacts of processing). [MK, ICS]
3. To identify the histology of the least common but potentially vision- or life-threatening intraocular and adnexal diseases (e.g., healed giant cell arteritis, mimics and masqueraders of inflammation or neoplasm). [PC, MK, ICS]

B. Technical skills
1. To describe and to perform the appropriate steps for gross specimens in the ocular pathology laboratory. [MK, ICS]
2. To perform pre-operative, intra-operative, and post-operative consultation with the pathologist, regarding specific indications for special stains or processing (e.g., orientation of specimen, special handling). [MK, ICS, P, SBP]
3. To perform and interpret the pathologic report of frozen section in ocular pathology. [MK, PBLI, ICS, SBP]
4. To perform the preparation of a basic and more advanced histologic specimens for review by the pathologist (e.g., simple special stains or fixation methods). [MK, SBP]
5. To participate as an “at-the-elbow” observer during the microscopic examination of active ophthalmology cases. [PC, MK]
6. To perform microscopic examination of a specimen with and without direct supervision and to provide a relevant differential diagnosis. [MK, ICS]

OCULOPLASTIC AND ORBITAL SURGERY
Basic Level – PGY2
A. Cognitive skills
1. To describe the basic eyelid, lacrimal, and orbital anatomy and physiology. [MK, ICS]
2. To describe the clinical features, evaluation, and treatment of common congenital eyelid deformities. [PC, MK, ICS]
3. To describe the epidemiology, clinical features, evaluation and management of congenital orbital deformities. [MK, ICS, SBP]
4. To describe the basic mechanisms and indications for treatment of eyelid, orbital, and lacrimal trauma. [MK, ICS]
5. To describe the epidemiology, clinical features, evaluation, and management of the common craniosynostoses. [MK, ICS, SBP]
6. To describe the epidemiology, clinical features, evaluation, and management of fetal alcohol syndrome. [MK, ICS, SBP]
7. To perform the pre-operative and post-operative assessment of patients with common oculoplastic disorders. [PC, MK, PBLI, SBP]
8. To recognize simple orbital trauma. [MK]
9. To recognize and treat floppy eyelid syndrome and simple trichiasis. [PC, MK]
10. To recognize blepharospasm and hemifacial spasm. [PC, MK]
11. To describe the differential diagnosis of common orbital tumors in children and adults. [PC, MK, ICS]
12. To describe the differential diagnosis of lacrimal gland mass. [PC, MK, ICS]
13. To identify normal orbital anatomy on imaging studies. [PC, MK, PBLI]
14. To describe the differential diagnosis of proptosis in children and adults. [PC, MK, ICS]
15. To list the complications of minor operating room procedures. [PC, MK, PBLI, ICS]

B. Technical/surgical skills
1. To describe the indications for and to perform the basic office examination techniques for the most common oculoplastic and orbital abnormalities. [PC, MK, ICS]
2. To identify the indications for and to perform the basic assessment of the eyelids and eyebrows. [PC, MK]
3. To identify the indications for and to perform the basic lacrimal assessment. [PC, MK]
4. To identify the indications for and to perform the basic assessment of the orbit. [PC, MK]
5. To identify the indications for and to perform the basic socket assessment. [PC, MK]
6. To perform minor lid procedures or surgery. [PC, MK, PBLI]
7. To treat the complications of minor operating room procedures. [PC, MK, PBLI]
8. To perform punctal plug insertion or removal. [PC]

Standard level goals – PGY3 (in addition to Basic)
A. Cognitive skills
1. To describe the more advanced eyelid, lacrimal, and orbital anatomy and physiology. [MK, ICS]
2. To treat (or refer for treatment) the congenital eyelid abnormalities (see Basic Level above). [PC, MK, SBP]
3. To perform the pre-operative and post-operative assessment of patients with simple and more serious oculoplastic disorders. [PC, MK, ICS]
4. To describe the mechanisms and indications for treatment of more advanced eyelid, orbital, and lacrimal trauma. [PC, MK, ICS]
5. To describe the features of, recognize, evaluate, and treat more complicated cases of nasolacrimal duct obstruction, canaliculitis, dacryocystitis, acute and chronic dacryoadenitis, preseptal cellulitis, and orbital cellulitis. [PC, MK, ICS]
6. To recognize, evaluate and treat thyroid ophthalmopathy. [PC, MK]
7. To recognize, evaluate and treat orbital inflammatory pseudotumor. [PC, MK]
8. To recognize and treat or refer blepharospasm or hemifacial spasm. [PC, MK, P, SBP]
9. To recognize the less common orbital tumors. [PC, MK]
10. To describe the common features of orbital cellulitis. [PC, MK, ICS]

B. Technical/surgical skills
1. To describe the indications for and to perform the more advanced in office examination techniques for the less common oculoplastic and orbital abnormalities. [PC, MK, PBLI, ICS]
2. To identify the indications for and to perform the more advanced assessment of the eyelids and eyebrows. [PC, MK, PBLI]
3. To identify the indications for and to perform the more advanced lacrimal assessment. [PC, MK, PBLI]
4. To identify the indications for and to perform the more advanced assessment of orbit. [PC, MK, PBLI]
5. To identify the indications for and to perform the more advanced socket assessment. [PC, MK, PBLI]
6. To perform more complicated lid procedures or surgery. [PC, MK, PBLI]
7. To recognize the indications and complications and to perform more complex minor operating room or limited operating room procedures. [PC, MK, PBLI]
8. To recognize and treat orbital trauma. [PC, MK, PBLI]
9. To recognize and treat trichiasis. [PC, MK]
10. To perform enucleation and evisceration. [PC, MK, PBLI]
11. To identify common orbital pathology on imaging studies. [PC, MK, PBLI, SBP]
12. To treat the common presentations of preseptal or orbital cellulitis. [PC, MK, SBP]
13. To describe, recognize the indications and complications, and to perform the basic lacrimal procedures below: [PC, MK, ICS]
   a. Punctal dilation
   b. Lacrimal probing
   c. Lacrimal drainage testing (irrigation, dye disappearance test, etc.)
   d. Lacrimal intubation
   e. Dacryocystorhinostomy (external)

Advanced level goals – PGY4 (in addition to Basic and Standard)
A. Cognitive skills
   1. To describe the most advanced eyelid, lacrimal, and orbital anatomy and physiology. [PC, MK, ICS]
   2. To evaluate and to treat simple and more advanced eyelid, orbital, and lacrimal trauma. [PC, MK]
   3. To perform the pre-operative and post-operative assessment and coordination of care of patients with more advanced or complex oculoplastic disorders. [PC, MK, ICS, P, SBP]
   4. To describe the etiology, epidemiology, evaluation, and medical and surgical treatment for the following eyelid diseases. [PC, MK, ICS, SBP]
      a. Congenital lesions
      b. Complex ectropion
      c. Complex entropion
      d. Complex myogenic ptosis
      e. Complex differential diagnosis for dermatochalasis
      f. Benign or small potentially malignant, pre-malignant, or malignant eyelid tumors
      g. Single or recurrent inflammatory lesions
      h. Facial dystonia
i. Facial nerve palsy with exposure keratopathy
j. Complex lid and orbital trauma cases

B. Technical/Surgical skills

1. To describe the indications for and to perform the more complicated and advanced “in office” examination techniques for the less common but important oculoplastic and orbital abnormalities. [PC, MK, PBLI, ICS]

2. To perform preoperative and intraoperative assessment of the eyelids and eyebrows. [PC, MK, PBLI]

3. To perform the more advanced lacrimal assessment. [PC, MK, PBLI]

4. To recognize and treat more complex or difficult socket-related problems and complications [PC, MK, PBLI]

5. To perform more complicated lid procedures. [PC, MK, PBLI]

6. To describe the management of and treat lacrimal system abnormalities [PC, MK, PBLI, ICS]
   a. More complex congenital disorders
   b. More complex acquired
   c. Complex moderate trauma

7. To recognize the typical and atypical features and to describe the differential diagnosis, epidemiology, clinical features, and treatment of more complicated orbital disease [PC, MK, PBLI, ICS]
   a. More complex orbital infections
   b. Congenital tumors
   c. Fibro-osseus disorders and tumors
   d. Vascular tumors
   e. Xanthomatous tumors
   f. Lacrimal gland tumors
   g. Neural tumors
   h. Rhabdomyosarcoma
   i. Orbital pseudotumor
   j. Lymphoid lesions
   k. Thyroid-related orbitopathy
   l. Metastatic tumors of the eye
   m. Trauma
   n. Anophthalmic socket – implant exposure, volume augmentation

8. To describe, recognize the indications and complications, and to perform the eyelid procedures listed below [PC, MK, ICS]
   a. Basic biopsy techniques
   b. Lateral tarsal strip
   c. Specialized lid suture procedures
   d. Medial spindle
   e. Retractor reinsertion
   f. Levator advancement
   g. Eyelid laceration/margin repair
   h. Tarsorrhaphy
   i. Lateral canthoplasty (canthotomy and cantholysis)
j. Blepharoplasty
k. Facial nerve palsy – gold weight placement in the lid
l. Simple eyelid reconstruction
m. Orbital approaches and incisions
n. To describe, recognize the indications and complications, and perform the basic orbital skills and procedures
   a. Anterior orbitotomy for tumor biopsy/excision
   b. Orbital floor fracture repair
9. To describe the indications for and to interpret CT and MRI scans. [PC, MK, PBLI, ICS]
10. To perform simple botulinum toxin injections. [PC, MK]
11. To identify more advanced orbital pathology on imaging studies. [PC, MK, PBLI]

PEDIATRIC OPHTHALMOLOGY AND STRABISMUS
Basic level goals – PGY2
A. Cognitive skills
   1. To describe the basic strabismus exam techniques (e.g., ductions and versions, cover and uncover testing, alternate cover testing, prism cover testing). [MK, PBLI, ICS]
   2. To describe the basic visual development and visual assessment of the pediatric ophthalmology patient (e.g., central, steady, maintained; illiterate E, Allen cards, Landolt C rings). [PC, MK, ICS]
   3. To describe fixation assessment. [MK, ICS]
   4. To describe the basic strabismus anatomy and physiology (e.g., innervation of extraocular muscles, primary actions, comitant and incomitant deviations, overaction and underaction, restrictive and paretic, saccades and pursuit movements). [PC, MK, ICS]
   5. To describe the basic sensory adaptations for binocular vision (e.g., normal and anomalous retinal correspondence, suppression, horopter, Panum’s area, fusion, stereopsis), [MK, ICS]
   6. To describe and recognize pseudostrabismus. [PC, MK, ICS]
   7. To describe the different etiologies of amblyopia (e.g., deprivation, ametropic, strabismic, anisometropic, organic). [MK, ICS]
   8. To describe the etiologies of esotropia (e.g., congenital, comitant and incomitant, accommodative and non-accommodative, decompensated, sensory, neurogenic, myogenic, neuromuscular junction, restrictive, nystagmus blockage syndrome, spasm of the near, monofixation syndrome, consecutive). [PC, MK, ICS]
   9. To describe the etiologies of exotropia (e.g., congenital, comitant and incomitant, decompensated, sensory, neurogenic, myogenic, neuromuscular junction, restrictive, basic, divergence excess, exophoria, convergence insufficiency). [MK, ICS]
10. To describe the various strabismus patterns (e.g., A or V pattern). [MK, ICS]
11. To describe the etiologies, evaluation, and management of vertical strabismus (e.g., neurogenic, myogenic, neuromuscular junction, oblique overaction, dissociated vertical deviation, restrictive). [PC, MK, ICS, SBP]

12. To describe the non-surgical treatment of strabismus. [PC, MK, ICS]

13. To describe the different forms of childhood nystagmus. [PC, MK, ICS]

14. To describe the features, classification, and treatment indications for retinopathy of prematurity. [PC, MK, ICS, SBP]

15. To describe the etiologies and types of pediatric cataracts. [PC, MK, ICS]

16. To describe and recognize the ocular findings in child abuse (e.g., retinal hemorrhages) and appropriately refer to child protective services or other authorities. [PC, MK, PBLI, ICS, P, SBP]

17. To describe the common hereditary or congenital ocular motility or lid syndromes (e.g., Duane syndrome, Marcus Gunn jaw winking, Brown syndrome). [PC, MK, ICS]

18. To describe the typical features of retinoblastoma. [PC, MK, ICS]

19. To describe the basic features of dyslexia. [PC, MK, ICS]

20. To describe the basic evaluation of decreased vision in infants and children (e.g., retinopathy of prematurity, hereditary retinal disorders, congenital glaucoma, measles, vitamin A deficiency). [PC, MK, ICS]

21. To describe the basic congenital ocular anomalies (e.g., microphthalmia, persistent hyperplastic vitreous). [PC, MK, ICS]

22. To describe the ocular findings in inherited metabolic disorders. [PC, MK, ICS]
   a. Mucopolysaccaridoses (e.g., Hurler syndrome, Scheie syndrome, Hunter syndrome, San Fillipo syndrome, Morquio syndrome, Sly syndrome)
   b. Lipidoses (e.g., Tay-Sachs disease, Sandhoff, Niemann-Pick, Krabbe’s, Gaucher’s, Fabry’s, metachromatic leukodystrophy)
   c. Aminoacidurias (e.g., homocystinuria, cystinosis, Lowe, Zellweger, galactosemia, galactokinase deficiency)

Standard level goals – PGY3 (in addition to Basic)

A. Cognitive skills
   1. To describe the basic and more advanced strabismus examination techniques (e.g., combined vertical and horizontal prism cover testing, double Maddox rod testing). [PC, MK, ICS]
   2. To describe the basic and more advanced visual development and visual assessment of the pediatric ophthalmology patient (e.g., blink, measures of fixation and following behavior, objective measures of visual acuity). [PC, MK, PBLI, ICS]
   3. To describe the more advanced strabismus anatomy and physiology (e.g., torsion, tertiary actions, consecutive deviations). [PC, MK, ICS]
   4. To describe the more advanced sensory adaptations (e.g., anomalous head position). [PC, MK, ICS]
   5. To describe the basics of binocular sensory testing (e.g., Titmus stereo testing, Randot stereo testing, Worth 4-dot, Bagolini lenses, afterimage testing). [MK, PBLI, ICS]
   6. To describe and to recognize the different etiologies for amblyopia. [MK, ICS]
7. To describe and recognize the etiologies for esotropia. [PC, MK, ICS]
8. To describe and recognize the etiologies for exotropia. [PC, MK, ICS]
9. To describe and recognize the various strabismus patterns (e.g., A or V pattern). [PC, MK, ICS]
10. To describe and recognize the etiologies for vertical strabismus. [PC, MK, ICS]
11. To describe and utilize the non-surgical treatment of strabismus and amblyopia (e.g., patching, atropine penalization, Fresnel and grind in prism therapy). [PC, MK, ICS]
12. To describe and recognize the different forms of childhood nystagmus (e.g., sensory, motor, congenital, acquired). [PC, MK, ICS]
13. To describe and recognize retinopathy of prematurity (e.g., stages, treatment indications). [PC, MK, PBLI, ICS]
14. To describe and recognize the etiologies and types of pediatric cataracts (e.g., congenital, traumatic, hereditary, idiopathic). [PC, MK, ICS]
15. To describe and recognize the less common hereditary ocular anomalies and syndromes (e.g., Mobius, Goldenhar syndrome). [PC, MK, ICS]
16. To describe and recognize the typical features of retinoblastoma (e.g., differential diagnosis, evaluation, treatment indications). [PC, MK, PBLI, ICS, SBP]
17. To describe the main features of dyslexia and the relationship to vision. [PC, MK, ICS]
18. To describe the basic evaluation and differential diagnosis of decreased vision in infants and children (e.g., retinal and optic nerve etiologies, amblyopia). [PC, MK, ICS]
19. To describe and recognize the common causes of blindness in infants (e.g., albinism, optic nerve hypoplasia, achromatopsia, Leber’s congenital amaurosis, retinal degeneration, congenital optic atrophy), and provide treatment if available. [PC, MK, ICS]
20. To describe the etiology, evaluation, and management of congenital infections (e.g., toxoplasmosis, rubella, cytomegalovirus, syphilis, herpes). [PC, MK, ICS, SBP]
21. To describe and recognize the common causes of pediatric uveitis. [PC, MK, ICS]
22. To describe the ocular findings in chromosomal abnormalities (e.g., Trisomy 21, Trisomy 13, Trisomy 18, Short arm 11 deletion, Long arm 13 deletion, Cri du Chat, Turner). [PC, MK, ICS]

B. Technical skills
1. To perform an extraocular muscle examination based on knowledge of the anatomy and physiology of ocular motility. [PC, MK]
2. To assess ocular motility using ductions and versions testing. [PC, MK]
3. To apply Hering’s and Sherrington’s laws. [PC, MK]
4. To perform basic measurement of strabismus (e.g., Hirschberg, Krimsky, cover testing, prism cover testing, simultaneous prism cover test, alternate cover testing, Parks-Bielschowsky three-step test, Lancaster red-green test, Maddox rod testing, double Maddox rod testing). [PC, MK]
5. To perform assessment of vision in the neonate, infant, and child. [PC, MK]

6. To recognize and apply in a clinical setting the following skills in the ocular motility examination (simple, advanced). [PC, MK]
   a. Stereoacuity testing
   b. Accommodative convergence/accommodation ratio (e.g., heterophoria method, gradient method)
   c. Tests of binolarity and retinal correspondence
   d. Cycloplegic refraction (retinoscopy)
   e. Anterior and posterior segment examination
   f. Basic and advanced measurement of strabismus
   g. Cover test measurement
   h. Assessment of vision
      1) Teller acuity cards
      2) Induced tropia test
      3) Fixation preference test
      4) Standard subjective visual acuity tests

7. To perform basic extraocular muscle surgery
   a. To describe the indications and contraindications for strabismus surgery; [PC, MK]
   b. To describe and perform the perioperative assessment, intraoperative techniques and to describe the intraoperative and postoperative complications for strabismus surgery; [PC, MK, ICS]
   c. To describe the indications for and to perform the following surgery [PC, MK, ICS]
      1) Recession
      2) Resection
      3) Muscle weakening (e.g., tenotomy) and strengthening (e.g., tuck)
      4) Transposition
      5) Use of adjustable sutures
   d. To manage the complications of strabismus surgery (e.g., slipped muscle, anterior segment ischemia). [PC, MK, P, SBP]

C. Required Reading
   AAO Basic and Clinical Science Course, Section 6, Pediatric Ophthalmology and Strabismus

Advanced level goals – PGY4 (in addition to Basic and Standard)
A. Cognitive skills
   1. To describe and perform the most advanced strabismus examination techniques (e.g., complicated prism cover testing in multiple cranial neuropathy, patients with nystagmus, dissociated vertical deviation, double Maddox rod testing). [PC, MK, ICS]
   2. To perform the most advanced techniques for assessment of visual development in complicated or non-cooperative pediatric ophthalmology patients
3. To apply the most advanced knowledge of strabismus anatomy and physiology (e.g., spiral of Tillaux, secondary and tertiary actions, spread of comitance) in evaluation of patients. [PC, MK]

4. To describe the clinical application of the most advanced sensory adaptations (e.g., anomalous head position) and to recognize the significance of the findings (e.g., anomalous retinal correspondence). [PC, MK, ICS]

5. To recognize and treat the most complicated etiologies of amblyopia (e.g., refraction non-compliance, patching failures, pharmacologic penalization). [PC, MK]

6. To recognize and treat the most complex etiologies of esotropia (e.g., optical, prism induced, post-surgical/consecutive). [PC, MK]

7. To recognize and treat the most complex etiologies of exotropia (e.g., supranuclear, paralytic pontine exotropia, consecutive). [PC, MK]

8. To recognize and treat the most complex strabismus patterns (e.g., aberrant regeneration, post-surgical, thyroid and myasthenia gravis). [PC, MK]

9. To recognize and treat the most complex etiologies of vertical strabismus (e.g., skew deviation, post-surgical, restrictive). [PC, MK]

10. To apply the non-surgical treatment (e.g., patching, atropine penalization) of the more complicated forms of amblyopia (e.g., non-compliant, patching failures). [PC, MK]

11. To recognize, evaluate, and treat the most complex forms of childhood nystagmus (e.g., sensory, spasmus nutans, associated with neurologic or systemic disease). [PC, MK]

12. To recognize and treat (or refer for treatment) complex retinopathy of prematurity (e.g., stages, treatment indications, retinal detachment). [PC, MK, ICS, P, SBP]

13. To recognize and treat (or refer for treatment) the uncommon etiologies and types of pediatric cataracts (e.g., congenital, traumatic). [PC, MK, ICS, P, SBP]

14. To recognize and appropriately evaluate the more complex hereditary ocular syndromes (e.g., bilateral Duane syndrome, Moebius syndrome). [PC, MK]

15. To recognize and treat (or refer for treatment) patients with complicated retinoblastoma (e.g., bilateral cases, monocular patient, treatment failure). [PC, MK, P, SBP]

16. To recognize and evaluate the less common congenital ocular anomalies (e.g., unusual genetic syndromes). [PC, MK]

17. To apply the most advanced principles of binocular vision and amblyopia (e.g., physiology of binocular vision, diplopia, confusion, and suppression, normal and abnormal retinal correspondence, classification and characteristics of amblyopia). [PC, MK]

18. To recognize and treat complex pediatric retinal disease (e.g., inherited retinopathies, retinopathy of prematurity). [PC, MK]

19. To recognize and treat complex pediatric glaucoma. [PC, MK]
20. To recognize and treat complex pediatric cataracts and anterior segment abnormalities (including surgical implications, techniques, and complications). [PC, MK]
21. To recognize and treat complex pediatric eyelid disorders (e.g., lid lacerations, lid tumors). [PC, MK]
22. To recognize and treat (or refer) pediatric orbital disease (e.g., orbital tumors, orbital fractures, rhabdomyosarcoma, severe congenital orbital malformations). [PC, MK, PBLI, SBP]

B. Technical/surgical skills
1. To perform more complex extraocular muscle surgery (e.g., vertical and horizontal muscle surgery). [PC, MK]
2. To describe the indications and contraindications for more complex strabismus surgery. [PC, MK, ICS]
3. To describe and perform the pre-operative assessment, intraoperative techniques and to describe the postoperative complications for more complicated strabismus surgery (e.g., re-operations, slipped muscle). [PC, MK, ICS]
4. To describe the indications for and to perform adjustable sutures in more complicated cases (e.g., thyroid ophthalmopathy). [PC, MK, ICS]
5. To describe and manage the more complex complications of strabismus surgery (e.g., globe perforation, endophthalmitis, overcorrection). [PC, MK, ICS]

VITREORETINAL DISEASE
Basic level goals – PGY2
A. Cognitive skills
1. To describe the basic principles of retinal anatomy and physiology (layers of the retina, retinal physiology, and histology). [PC, MK, ICS]
2. To describe the fundamentals and demonstrate basic understanding of fluorescein angiography as applied to retinal vascular disease (e.g., phases of the angiogram, indications). [PC, MK, PBLI, ICS]
3. To describe the etiologies and mechanisms of retinal detachment. [PC, MK, ICS]
4. To describe macular anatomy and function and to describe the typical features of common macular disease (e.g., age related macular degeneration, macular hole). [MK, ICS]
5. To describe the basic principles of laser photocoagulation. [PC, MK, ICS]
6. To describe and recognize the features of commotio retinae and traumatic choroidal rupture. [PC, MK, ICS]
7. To describe the common forms of retinal vascular disease (e.g., branch, hemi- or central retinal vein and artery occlusion). [PC, MK, ICS]
8. To describe the typical features of retinitis pigmentosa. [MK, ICS]

B. Technical skills
1. To perform basic direct ophthalmoscopy. [PC]
2. To perform indirect ophthalmoscopy. [PC]
3. To perform slit lamp biomicroscopy with the Hruby, +78, +90 lenses, and 3-mirror contact lens. [PC]
4. To interpret basic fluorescein angiography in common retinal disorders (e.g., diabetic retinopathy, cystoid macular edema). [PC, MK, ICS]
5. To describe the features of, recognize, and evaluate posterior vitreous detachments. [PC, MK, ICS]

Standard level goals – PGY3 (in addition to Basic)

A. Cognitive skills
1. To describe the more advanced retinal anatomy and physiology (layers of the retina, retinal physiology and histology). [MK, ICS]
2. To describe the more advanced concepts of fluorescein/ICG angiography as applied to retinal vascular disease (e.g., phases of the angiogram, indications). [MK, PBLI, ICS]
3. To describe the principles of retinal detachment recognition, the various types of retinal detachment (e.g., exudative, tractional), and their evaluation, management and repair (e.g., identify retinal break). [PC, MK, PBLI, ICS]
4. To describe and recognize the less typical features of common macular disease (e.g., parafoveal telangiectasias, cone dystrophies, toxic maculopathies). [PC, MK, ICS]
5. To describe the indications for and complications of laser photocoagulation. [MK, PBLI, ICS]
6. To describe the findings of the major studies in retina, including the following [MK, PBLI, ICS]
   a. Diabetic Retinopathy Study (DRS)
   b. Diabetic Vitrectomy Study (DVS)
   c. Early Treatment of Diabetic Retinopathy Study (ETDRS)
   d. Macular Photocoagulation Study (MPS)
   e. Diabetes Control and Complications Trial (DCCT)
   f. Branch Vein Occlusion Study (BVOS)
   g. Central Vein Occlusion Study (CVOS)
   h. United Kingdom Prospective Diabetes Study (UKPDS)
7. To describe the fundamentals of, evaluate, and treat (or refer) peripheral retinal disease and vitreous pathology (e.g., vitreous hemorrhage). [PC, MK, ICS, SBP]
8. To describe, evaluate, and treat choroidal detachments. [PC, MK, ICS]
9. To identify and evaluate retinoschisis (e.g., juvenile, senile). [PC, MK]
10. To diagnose, treat, and recognize the complications of retinopathy of prematurity. [PC, MK]
11. To diagnose, evaluate, and treat the following retinal vascular diseases [PC, MK]
   a. Arterial and venous obstructions
   b. Diabetic retinopathy
   c. Hypertensive retinopathy
   d. Peripheral retinal vascular occlusive disease
   e. Acquired retinal vascular diseases
f. Ocular ischemic syndrome  
g. Sickle cell retinopathy

12. To describe and recognize the common macular disorders [PC, MK, ICS]  
a. Age-related macular degeneration (ARMD)  
b. Choroidal neovascularization (e.g., ARMD, histoplasmosis)  
c. High myopia  
d. Macular dystrophies  
e. Macular pucker (e.g., epiretinal membrane)  
f. Macular holes  
g. Cystoid macular edema  
h. Central serous choroidopathy (retinopathy)  
i. Optic pit and secondary serous detachment

13. To describe the fundamentals of retinal electrophysiology. [MK, ICS]

14. To describe, recognize, and evaluate the hereditary retinal and choroidal conditions (e.g., gyrate atrophy, choroideremia, retinitis pigmentosa, cone dystrophies, Stargardt’s disease, Best’s disease, congenital stationary night blindness). [PC, MK, ICS]

15. To recognize, evaluate, and treat (or refer) retinal and choroidal toxicity (e.g., phenothiazine, hydroxychloroquine/chloroquine toxicity, tamoxifen). [PC, MK, SBP]

16. To describe the techniques for retinal detachment repair (e.g., pneumatic retinopexy, scleral buckling, vitrectomy). [PC, MK, ICS]

17. To describe the basics of surgical vitrectomy (e.g., mechanics, instruments, indications, and technique for vitrectomy). [PC, MK, ICS]

18. To describe the indications for and perform basic laser treatment for diabetic retinopathy (e.g., pan-retinal photocoagulation). [PC, MK, ICS]

19. To describe the fundamentals of special vitreoretinal techniques [PC, MK, ICS]  
a. Macular hole repair  
b. Epiretinal membrane peeling  
c. Complex vitrectomy for proliferative vitreoretinopathy  
d. Use of heavy liquids and intraocular gases (e.g., perfluorocarbons)

20. To describe posterior uveitis syndromes and endophthalmitis. [MK, ICS]

B. Technical skills
   1. To perform indirect ophthalmoscopy with scleral indentation. [PC]  
   2. To perform ophthalmoscopic examination with pan-funduscopic lenses. [PC]  
   3. To interpret fluorescein and ICG angiography. [MK, PBLI]  
   4. To describe the indications for and interpret retinal imaging technology (e.g., ocular coherence tomography). [MK, PBLI, ICS]  
   5. To perform posterior segment photocoagulation. [PC]  
   6. To perform diabetic focal/grid macular laser treatment. [PC]  
   7. To perform peripheral scatter photocoagulation (panretinal). [PC]  
   8. To perform laser retinopexy (demarcation) for simple breaks. [PC]  
   9. To describe the indications for and interpret basic electrophysiological tests (e.g., electroretinogram [ERG], electro-oculogram [EOG], visual evoked potential [VEP], dark adaptation). [PC, MK, PBLI, ICS]
10. To interpret basic ocular imaging techniques (e.g., B-scan echography, nerve fiber layer analysis). [PC, MK, PBLI]
11. To perform fundus drawings of the retina showing complex vitreoretinal relationships and findings. [PC, MK, ICS]
12. To perform cryotherapy of retinal holes and other pathology. [PC]
13. To perform scleral buckling. [PC]
14. To describe the indications, techniques, and complications of pars plana vitrectomy and to assist a retinal surgery or perform under supervision the procedure. [PC, MK, ICS]

Advanced level goals – PGY4 (in addition to Basic and Standard)

A. Cognitive skills

1. To apply in clinical practice the most advanced knowledge of retinal anatomy and physiology (e.g., surgical anatomy). [PC, MK]
2. To apply in clinical practice the most advanced concepts of fluorescein/ICG angiography in complex retinal vascular disease (e.g., occult choroidal neovascular membranes, recurrent neovascularization, vascular tumors). [PC, MK, PBLI]
3. To evaluate, treat or refer the most complex retinal detachments (e.g., recurrent retinal detachment, proliferative vitreoretinopathy). [PC, MK, PBLI, ICS, P, SBP]
4. To evaluate, treat or refer the most complex macular disease (e.g., recurrent neovascular membranes). [PC, MK, PBLI, ICS, P, SBP]
5. To describe the indications for laser photocoagulation, including photodynamic therapy for the most complex retinal pathology (e.g., subfoveal neovascular membranes). [PC, MK, , ICS]
6. To describe the findings of the major studies in retina, and describe the indications and exceptions for application to individual patients [PC, MK, PBLI, ICS]
   a. Diabetic Retinopathy Study (DRS)
   b. Diabetic Vitrectomy Study (DVS)
   c. Early Treatment of Diabetic Retinopathy Study (ETDRS)
   d. Macular Photocoagulation Study (MPS)
   e. Diabetes Control and Complications Trial (DCCT)
   f. Branch Vein Occlusion Study (BVOS)
   g. Central Vein Occlusion Study (CVOS)
   h. United Kingdom Prospective Diabetes Study (UKPDS)
7. To apply in clinical practice understanding of the most complex peripheral retinal disease and vitreous pathology (e.g., Goldmann-Favre disease). [PC, MK, PBLI]
8. To evaluate and treat complications of retinal photocoagulation (e.g., vitreous hemorrhage, chorioretinal anastamoses). [PC, MK]
9. To recognize and treat complex retinal detachments (e.g., giant tear). [PC, MK]
10. To evaluate, treat or refer the more complex cases of retinopathy of prematurity (e.g., tractional retinal detachment). [PC, MK, SBP]
11. To evaluate, treat or refer the most complex forms of retinal vascular disease [PC, MK, SBP]
   a. Arterial and venous obstructions
b. Diabetic retinopathy  
c. Hypertensive retinopathy  
d. Peripheral retinal vascular occlusive disease  
e. Acquired retinal vascular diseases  

12. To evaluate and treat or refer the uncommon manifestations or presentations of the following macular diseases [PC, MK, SBP]  
   a. Age-related macular degeneration (ARMD) / choroidal neovascularization (e.g., recurrent subfoveal neovascularization)  
   b. Uncommon macular dystrophies  
   c. Refractory cystoid macular edema  
   d. Recurrent central serous choroidopathy (retinopathy)  

13. To apply in clinical practice the more complex retinal electrophysiology (e.g., multifocal electroretinography). [PC, MK]  

14. To apply in clinical practice the more complex techniques for retinal detachment repair [PC, MK]  
   a. Pneumatic retinopexy  
   b. Repeat scleral buckling  
   c. Pars plana vitrectomy  

15. To apply in clinical practice the more complex principles of surgical management of diabetic retinopathy (e.g., vitrectomy, membrane release). [PC, MK]  

16. To apply in clinical practice the complex special vitreoretinal techniques [PC, MK]  
   a. Macular hole repair  
   b. Epiretinal membrane peeling  
   c. Complex vitrectomy for proliferative vitreoretinopathy  
   d. Use of heavy liquids  

17. To evaluate and treat or refer the etiologically more complex or uncommon cases of posterior uveitis (e.g., sympathetic ophthalmia) and endophthalmitis (e.g., endogenous). [PC, MK, SBP]  

B. Technical skills  
   1. To perform indirect ophthalmoscopy with scleral indentation in complex retinal cases (e.g., multiple holes with retinal drawing). [PC]  
   2. To perform ophthalmoscopic examination with pan-funduscopic lenses in complex retinal conditions (e.g., giant retinal tears). [PC]  
   3. To interpret and apply in clinical practice the results of fluorescein and ICG angiography in complex retinal or choroidal pathology (e.g., occult subretinal neovascular membrane). [PC, MK, PBLI]  
   4. To perform posterior segment photocoagulation in more complicated retinal cases [PC]  
      a. Diabetic focal/grid macular treatment (e.g., monocular patient, repeat treatment)  
      b. Peripheral scatter photocoagulation (panretinal)  
      c. Laser retinopexy (demarcation)  
   5. To interpret and apply in clinical practice electrophysiology (e.g., ERG, EOG, VEP, dark adaptation) in more complicated retinal pathology. [PC, MK]
6. To interpret and apply in clinical practice ocular imaging techniques (e.g., B-scan echography) in more complex cases (e.g., choroidal osteoma). [PC, MK, PBLI]

7. To perform fundus drawings of the retina with vitreoretinal relationships in the most complex retinal cases (e.g., recurrent retinal detachment). [PC, MK, ICS]

8. To perform laser therapy or cryotherapy of retinal holes and other more complex retinal pathology. [PC, MK]

9. To perform scleral buckling in retinal detachment. [PC, MK]

10. To perform a basic pars plana vitrectomy (e.g. diagnostic vitrectomy, core vitrectomy). [PC, MK]

UVEITIS
Basic level goals – PGY2

A. Cognitive skills

1. To describe the basic principles of history taking and examination of patients with uveitis. [PC, ICS]

2. To list the signs and symptoms of anterior and posterior uveitis (e.g., red eye, blurred vision, anterior segment cell and flare, vitreous opacities, pars planitis, retinal or choroidal infiltrates). [MK, ICS]

3. To describe the differentiating signs of uveitis (e.g., granulomatous, non-granulomatous). [PC, MK, ICS]

4. To describe the differential diagnosis of uveitis (e.g., acute and chronic uveitis, granulomatous and non-granulomatous uveitis, anterior, intermediate, and posterior uveitis). [PC, MK, ICS]

5. To describe the typical features and differential diagnosis of anterior uveitis including infectious (e.g., bacterial, viral, protozoal, parasite), inflammatory (e.g., sarcoid, HLA-B27 associated, Behcet’s disease, collagen vascular disease), neoplastic (masquerade syndromes), demyelinating (e.g., multiple sclerosis), post-surgical, post-traumatic, Fuchs’ heterocyclic uveitis. [PC, MK ICS]

6. To describe the typical features and differential diagnosis of the following posterior segment uveitis [PC, MK, ICS]
   a. Toxoplasmosis
   b. Sarcoidosis
   c. Pars planitis
   d. Acute retinal necrosis
   e. Vogt-Koyanagi-Harada syndrome
   f. Large cell lymphoma
   g. Post-operative uveitis
   h. Endophthalmitis (e.g., post-operative, traumatic, endogenous, fungal, phacoanaphylactic, sympathetic ophthalmsia)
   i. Unusual infectious etiologies for uveitis (e.g., human immunodeficiency virus, herpes simplex virus, herpes zoster virus, pneumocystis carinii, syphilis)
   j. Acquired and congenital ocular syphilis
B. Technical skills
   1. To perform an examination of the anterior and posterior segment for uveitis (e.g., slit lamp biomicroscopy, scleral depression, magnified posterior segment exam, vitreous evaluation for cells). [PC]
   2. To describe the indications for ancillary testing in the evaluation of uveitis (e.g., fluorescein angiography, ultrasound, laboratory testing, radiologic testing). [PC, MK, PBLI, ICS]

Standard level goals – PGY3 (in addition to Basic)
A. Cognitive skills
   1. To describe the more advanced principles of history taking and examination of patients with uveitis. [PC, MK, ICS]
   2. To list the less common signs and symptoms of anterior and posterior uveitis. [PC, MK, ICS]
   3. To list the differentiating signs of less common forms of uveitis (e.g., iris nodules, conjunctival ulcer or granuloma). [PC, MK, ICS]
   4. To describe the differential diagnosis of less common forms of uveitis (e.g., chronic uveitis, intermediate uveitis (e.g., pars planitis), and infectious (e.g., Whipple disease, syphilis) or inflammatory posterior uveitis. [MK, ICS]
   5. To evaluate and treat common causes for anterior and posterior uveitis. [PC, MK]

B. Technical skills
   1. To perform a directed examination of the anterior and posterior segment for uveitis (e.g., slit lamp biomicroscopy, scleral depression, magnified posterior segment exam, vitreous evaluation for cells). [PC, MK]
   2. To perform ancillary testing in the evaluation of uveitis (e.g., fluorescein angiography, ultrasound, laboratory testing, radiologic testing). [PC, MK]

Advanced level goals – PGY4 (in addition to Basic and Standard)
A. Cognitive skills
   1. To recognize, evaluate and treat uveitis associated with immunosuppressed individuals (e.g., acquired immune deficiency syndrome, immunosuppression). [PC, MK]
   2. To recognize, evaluate and treat acquired and congenital ocular syphilis. [PC, MK]
   3. To recognize, evaluate and treat (or refer) less common, rare, or tropical conditions associated with uveitis (e.g., Leishmaniasis). [PC, MK, SBP]
   4. To describe the indications and contraindications for corticosteroid treatment in uveitis (e.g., topical, local, systemic). [PC, MK]
   5. To describe the indications and contraindications for immunosuppressive therapy in uveitis. [PC, MK]

B. Technical skills
   1. To administer steroids in the treatment of uveitis. [PC, MK]
2. To administer immunosuppressive agents in uveitis (or refer for administration). [PC, MK, SBP]

3. To evaluate and treat the complications of uveitis therapy (e.g., cataracts, glaucoma). [PC, MK]

OCULAR ONCOLOGY
Basic level goals – PGY2
A. Cognitive skills
1. To describe the basic categorization of common intraocular tumors. [MK, ICS]
2. To describe the differential diagnosis, epidemiology, evaluation, and management of leukocoria (e.g., inflammatory, infectious, neoplastic, congenital, persistent hyperplastic vitreous, cataract, Coat’s disease, vitreous hemorrhage, retinal detachment). [PC, MK, ICS, SBP]
3. To describe the key features of choroidal melanoma and to describe the differentiating features of similar lesions. [MK, ICS]
4. To describe the major diagnostic features of major intraocular tumor types (e.g. retinoblastoma, choroidal melanoma, metastatic lesions). [MK, ICS]

B. Technical skills
1. To perform the slit lamp, ophthalmoscopic and ocular transillumination examination of patients with basic intraocular tumors (e.g., choroidal melanoma). [PC]
2. To recognize an ocular tumor and refer appropriately. [PC, MK, SBP]

Standard level goals – PGY3 (in addition to Basic)
A. Cognitive skills
1. To describe the management options for different intraocular tumors. [PC, MK, ICS]
2. To describe the findings of the Collaborative Ocular Melanoma Study (COMS). [PBLI, ICS]
3. To describe the classification of retinoblastoma. [MK, ICS]
4. To describe the basic histopathology of intraocular tumors. [MK, ICS]
5. To list the basic differential diagnoses for tumors of the iris, ciliary body, choroid, retina and optic disc (e.g., melanoma, retinoblastoma, hemangioma). [MK, ICS]
6. To describe the evaluation for common intraocular tumors (e.g., imaging, laboratory, referral). [MK, ICS, SBP]
7. To describe the prognostic significance of different types of ocular tumors and to be able to guide work up for systemic involvement. [PC, MK, ICS, P, SBP]

B. Technical skills
1. To perform indirect ophthalmoscopy in the diagnosis and localization of intraocular tumors. [PC]
2. To describe the indications for an examination under anesthesia for pediatric intraocular tumors. [MK, ICS]
3. To describe the indications for A- and B-scan echography of intraocular mass lesions. [MK, PBLI, ICS]

4. To describe the indications for fluorescein angiography of intraocular tumors. [MK, PBLI, ICS]

5. To describe the indications for cyclodestruction of conjunctival, corneal and intraocular tumors. [MK, ICS]

6. To describe the indications for laser photocoagulation for intraocular tumors. [MK, ICS]

7. To recognize the major histopathologic appearance of common intraocular tumors. [PC, MK]

8. To describe the indications for the surgical procedures and their complications and be able to refer for: [PC, MK, ICS, SBP]
   a. Plaque radiotherapy
   b. Iridectomy and iridocyclectomy
   c. Resection of conjunctival tumors

9. To perform an evisceration or enucleation under supervision. [PC, MK]

10. To perform transillumination for intraocular tumor. [PC, MK]

11. To describe the indications and techniques of radiation therapy for ocular tumors (e.g., radioactive plaque localization, external beam radiation). [PC, MK, PBLI, ICS]

12. To describe the indications for and techniques of transthermal therapy for intraocular tumors. [PC, MK, PBLI, ICS]

13. To discuss the various treatment options with patients and their families in a complete, ethical, and compassionate manner. [PC, MK, ICS, P, SBP]

Advanced level goals – PGY4 (in addition to Basic and Standard)

A. Cognitive skills
   1. To describe the management options for unusual intraocular tumors (e.g., choroidal metastasis, choroidal osteoma). [PC, MK, ICS, SBP]
   2. To apply the findings of the Collaborative Ocular Melanoma Study (COMS). [MK, PBLI]
   3. To recognize, evaluate, and treat intraocular tumors. [PC, MK, SBP]

B. Technical skills
   1. To perform indirect ophthalmoscopy in the diagnosis and localization of intraocular tumors prior to treatment. [PC,]
   2. To describe the indications for and to perform an examination under anesthesia for pediatric intraocular tumors (e.g., retinoblastoma). [PC, MK, ICS]
   3. To describe the indications for and to interpret A- and B-scan echography of intraocular mass lesions. [PC, MK, PBLI, ICS]
   4. To describe the indications for and to interpret of fluorescein angiography of intraocular tumors. [PC, MK, PBLI, ICS]
   5. To describe the indications for and to perform cyclodestruction of conjunctival, corneal and intraocular tumors. [PC, MK, ICS]
6. To describe the indications for and to perform laser photocoagulation for conjunctival, corneal, and intraocular tumors. [PC, MK, ICS]

7. To recognize the major histopathologic appearance of common and less common intraocular tumors. [PC, MK]

8. To describe the indications for surgical procedures and their complications and be able to perform or to refer: [PC, MK, ICS, SBP]
   a. Plaque radiotherapy
   b. External beam radiotherapy
   c. Iridectomy and iridocyclectomy
   d. Resection of conjunctival tumors
   e. Transthermal therapy

9. To perform a complicated evisceration or enucleation (e.g., complicated hemorrhaging, small orbit). [PC, MK]

LOW VISION REHABILITATION
Basic level goals – PGY2
A. Cognitive skills
   1. To describe low visual assessment techniques (e.g., Early Treatment of Diabetic Retinopathy Study charts, Sloane charts). [MK, ICS]
   2. To describe the significant co-morbidities that impact low vision rehabilitation. [MK, ICS]
   3. To describe the various low vision aids, [PC, MK, ICS]
   4. To describe the optics of low vision devices. [PC, MK, ICS]
   5. To be sensitive to the psychological and emotional aspects of visual impairment. [ICS, P]
   6. To describe the challenges commonly encountered by individuals with visual impairments. [PC, MK, ICS]
   7. To prescribe simple but appropriate rehabilitative therapies and optical devices to help the patient meet his/her goals. (e.g., magnification, illumination). [PC, MK]
   8. To describe the functional implications of various visual system pathologies and diseases. [PC, MK, ICS]
   9. To describe the visual field enhancing techniques for hemianopic field loss. [PC, MK, ICS]
   10. To describe the difference between visual acuity testing at both distance and near and contrast sensitivity testing. [PC, MK, ICS]
   11. To describe the evaluation of and rationale for licensing automobile drivers who are visually impaired. [PC, MK, ICS, P]
   12. To describe the evaluation of visual acuity and visual field for disability determination. [PC, MK, ICS]

Standard level goals – PGY3 (in addition to Basic)
B. Cognitive skills
   1. To recognize significant co-morbidities that impact low vision rehabilitation. [PC, MK, SBP]
2. To recognize and describe the clinical applications, indications, and limitations of
the various low vision aids (e.g., closed circuit television, magnification, large
print, Braille). [PC, ICS]
3. To describe the more advanced optics of low vision devices. [PC, ICS]

C. Technical skills
1. To prescribe more complex rehabilitative therapies and optical devices to help
the patient meet his/her goals. [PC]
2. To apply and prescribe the visual field enhancing techniques for hemianopic
field loss. [PC]
3. To perform the evaluation of vision assessment in licensing drivers who are
visually impaired. [PC, SBP]
4. To evaluate the visual acuity and visual field for disability determination. [PC,
ICS]
5. To demonstrate low vision devices and educate low vision patients on the uses
and limitations of these devices. [PC, ICS]

Advanced level goals – PGY4 (in addition to Basic and Standard)

D. Cognitive skills
1. To treat the significant co-morbidities that impact low vision rehabilitation. [PC,
MK]
2. To describe the indications for the most complex low vision aids. [PC, MK, ICS]
3. To apply the more complex principles of optics of low vision devices. [PC]

E. Technical skills
1. To prescribe the most complex rehabilitative therapies and optical devices to
help the patient meet his/her goals. [PC, MK, PBLI, ICS, SBP]
2. To apply and prescribe the most complex visual field enhancing techniques for
hemianopic field loss. [PC, MK, PBLI, ICS, SBP]

OPHTHALMIC PRACTICE
Basic level goals – PGY2
1. To describe the fundamentals and principles of medical ethics in ophthalmology
(e.g., patient care decision-making, informed consent, competency issues,
ethics of inter-collegial relations, risk management. [PBLI, ICS, P, SBP]
2. To describe the basics of ophthalmic practice management (e.g., contractual
negotiations, hiring and supervising employees, financial management, working
with associates, billing). [PBLI, ICS, P, SBP]
3. To describe the basics of the health care system and reimbursement, as
appropriate to the local, regional, and national market of the trainee (e.g., third
party payers, managed care, Medicare (USA), medical documentation, Medicaid
(USA), private insurance, nationalized health care systems (UK, Canada). [ICS,
P, SBP]

Standard level goals – PGY3 (in addition to Basic)
1. To describe and apply the more advanced principles of medical ethics (e.g., life and death patient care decision-making, ethics of optometric relations, documentation requirements, claims in risk management). [ICS, P, SBP]

2. To describe and apply the more advanced aspects of practice management (e.g., business models, documentation requirements and coding, privacy requirements, dealing with patients or employees with disabilities). [ICS, P, SBP]

3. To describe and apply the more advanced aspects of health care reimbursement (e.g., physicians’ role in managed care organizations, administrative role, third party reimbursement, capitated programs). [ICS, P, SBP]

Advanced level goals – PGY4 (in addition to Basic and Standard)

1. To demonstrate proficiency in the more advanced principles of medical ethics (e.g., informed consent in children, the mentally ill or disabled, or the demented patient; physician and industry relationships; acceptance of gifts or consultation fees). [ICS, P, SBP]

2. To utilize in clinical practice the principles of practice management (e.g., starting a practice, getting a loan to start a practice, licensing and credentialing applications). [P, SBP]

3. To utilize in clinical practice more advanced aspects of health care reimbursement (e.g., denials of claims, hospital contracting, electronic billing). [P, SBP]

Residents are evaluated by faculty after each quarterly rotation and their progress is reviewed with the Program Director at least every six months. Results of the yearly OKAP (Ophthalmic Knowledge Assessment Program) examination are discussed with each resident. Decisions regarding advancement to the next year of residency or graduation are made by full-time faculty in the spring.

7.2.0 REQUIRED ROTATIONS (Appendix 7.2.0)

PGY2 - In the first year of the residency program, diagnostic clinical skills and medical ophthalmology are emphasized. Residents spend 3 months of the year on the comprehensive ophthalmology service at RMLEI/UCH, 3 months on the glaucoma service at RMLEI, 3 months at DHMC and 3 months at VAMC. Clinical responsibilities include refraction and contact lens clinics as well as weekly subspecialty clinics in the areas of retina, cornea, glaucoma, strabismus, oculoplastics and neuro-ophthalmology. First year residents perform minor surgical procedures and are introduced to cataract surgical techniques and outpatient laser procedures occur as well. First year residents attend all didactic sessions. PGY2 residents are responsible for case presentations at
clinical conferences. A detailed presentation on a topic of interest is given each year as a resident seminar.

PGY3 - During the second year of residency, emphasis shifts toward subspecialty training and increased surgical experience. Three months are spent at TCH on the Pediatric Ophthalmology Service. There is an active consultation service and many congenital ocular anomalies are seen. During this rotation residents attend clinic and both assist on and perform strabismus surgery. Each resident participates in about 20 strabismus surgeries as the primary surgeon.

Three months are spent at RMLEI/UCH on the oculoplastic/orbital surgery service. The residents participate in an intramural ocular pathology course during this rotation. This resident is also responsible for the inpatient consultation service. Three additional months are spent at RMLEI/UCH on the Vitreoretinal service.

Three months of the second year are spent at DHMC where the resident participates in general and subspecialty clinics, sees consults and performs laser and strabismus procedures. Second year residents attend all didactic sessions and participate as the primary surgeon in cataract surgery.

PGY 4 - In the third year of the residency program, surgical experience is emphasized. Each resident performs an average of 100 cataract surgeries as the primary surgeon, with at least half of these cases done by phacoemulsification. Residents learn the most recent techniques of clear corneal incision with small incision foldable intraocular lenses. Third year residents can expect to be the primary surgeon on a number of vitreoretinal, corneal, glaucoma, orbital and oculoplastic cases, all directly supervised by faculty. Residents spend 6 months at VAMC, 3 months at the RMLEI/UCH, and 3 months at DHMC. While on the retina service, the resident is also responsible for retinal cases at DHMC and VAMC. The resident’s main duties include general and subspecialty clinics, pre- and post-operative patient evaluations, some consultation services and some specialized laser procedures.

A research project is required of every resident and is presented at the Alumni, Resident and Fellow Research Day held June.

7.3.0 CONTINUING EDUCATIONS PROGRAMS

7.3.1 Definition
An overview of the continuing education programs (e.g.: Journal Clubs, Basic Science Course, Grand Rounds etc.) offered to University of Colorado ophthalmology residents, fellows, faculty, staff, community, and visiting ophthalmologists is summarized in the following sections. Schedules are distributed by the Residency Coordinator on an annual and monthly basis and give location and scheduling information for current programs. For additional resident responsibilities and perquisites in connection with these programs, see section 9.0 of this manual.

The Ophthalmology Education Program is planned to fulfill a portion of the requirements of the American Board of Ophthalmology and serves primarily as an adjunct to ophthalmology residency training. A formal program schedule distributed in advance outlines the responsibility of each resident for the entire year. Each resident is required to attend all sessions. Resident responsibilities at the sessions are assigned on a yearly basis.

7.3.2 Description

The rotations and curriculum of the Ophthalmology Residency Program is designed to fulfill the requirements set forth by the Residency Review Committee (RRC) for Ophthalmology. The Ophthalmology Residency Program abides by and upholds the policies set forth by the ACGME, the Graduate Medical Education Office and the Housestaff Association manual. See Section 12.0.0.

‘Sign-in’ is required for all conferences and the ‘sign-in sheet’ will be ‘closed’ 5 minutes after the conference is scheduled to begin. Any unexcused absence will result in assignment of an additional morning report.

Unexcused absences include:

- Arrival more than 5 minutes after the scheduled start of the conference
- Departure before the scheduled conclusion of the conference
- Scheduled patient care

All excused absences must be approved in writing by the Residency Director and may include:

- Vacation
- Educational leave
- Family emergencies
- Illnesses
- Documented ‘real-time’ emergency patients

Mandatory Educational Activities

Intramural
Ophthalmology Basic and Clinical Science Course: Conducted as a series of lectures by members of the department faculty, this instructional program is based on the Ophthalmology Basic and Clinical Science course published by the American Academy of Ophthalmology and rotates on a 2-year cycle. Lectures are given from 8:30-noon on the 1st and 3rd Fridays throughout the year.

Ophthalmology Clinical Case Conference: This session reviews patient care activities of the Department, provides for consideration of general topics in ophthalmic science, and promotes discussion of relevant aspects of ophthalmic pathology. This conference takes place every Wednesday at 7 A.M.

Each week, patient cases will be presented that represent some of the following: common and unusual diagnoses, problems related to diagnosis, problems related to management and interesting and unusual findings. Two residents are required to contribute interesting cases to this portion of the program. These weekly clinical case conferences provide an informal opportunity for residents to review clinical unknowns and render appropriate diagnoses.

Grand Rounds: Grand Rounds are held on the 1st and 3rd Fridays from September through May from 7:00-8:30 A.M. Each resident/fellow is required to present; the number of times is based on the post-graduate year.

Other Regular Meetings

Morbidity and Blindness Conference: This quarterly conference held on the last Wednesday of each quarter at 7:00 A.M. is an opportunity for residents to present complications for critical discussions. Typically, two to three cases from any of the hospitals are presented by the RMLEI and VA chiefs.

Fluorescein Angiography Conference: Arranged by the Retina Service, the Fluorescein Angiography Conference is convened three times each month (2nd & 4th Friday and 3rd Thursday) to review current angiograms representing disease entities, unusual abnormalities, and controversial interpretations of angiographic findings. This conference is intended primarily for the PGY-2 residents and is hosted by community retina faculty.

Retina Conference: Arranged by the Retina Service, the Retina Conference is held twice each month (2nd & 4th Fridays) and is attended by the retina fellows, PGY-3 and PGY-4 residents, interested medical students, and retina faculty.

Journal Club: The subspecialty directed Journal Club, with a faculty member serving as host, meets monthly as scheduled to discuss scientific material published in current issues of the major ophthalmology journals. Articles are assigned on a rotating basis to residents, who are required to participate in this educational activity. Fellows and invited guests may also participate.
Annual Resident, Fellow, Faculty and Alumni Research Day: Held in June each year, Resident, Fellow, Faculty and Alumni Research Day offers an opportunity for the residents as well as post-doctoral fellows in vision science to present reports of their research. Each resident is required to present each year during their three years in the residency program. Each fellow is required to present during each year of their fellowship. Faculty members of the Department of Ophthalmology as well as alumni of the CU ophthalmology residency and clinical fellowship programs meet on the same day, and may present their current research. A dinner to honor our graduating residents and fellows is held in the evening.

Annual Ophthalmology Symposium: This is a two-day educational program in the fall of each year, and is sponsored by the Office of Continuing Medical Education. It highlights up-to-date information on a wide range of ophthalmologic topics.

See section 9.14.6 for information on the Senior Resident Elective Program (Santo Domingo).
Section 8

RESEARCH
8.0.0 RESEARCH

8.0.1 Definition
Responsibilities of residents and fellows in the University of Colorado Department of Ophthalmology include participation in its teaching and research programs. The following paragraphs delineate some of the requirements and describe assistance provided by the Department to individuals carrying out these responsibilities.

8.0.2 Research
All residents and fellows are required to participate in one or more research projects during their training at the University of Colorado. Reports on their research are given at the Annual Resident, Fellow, Faculty and Alumni Research Day each June. This research must have been performed primarily by the resident or fellow, must have been performed primarily during his time of training at the University of Colorado, and should involve collaboration with a faculty member of the University of Colorado Department of Ophthalmology.

All second- and third-year residents and fellows are required to enter an abstract for presentation as a research paper or a poster at that meeting. Any of the first-year residents who have material they would like to present will be given the opportunity; however, they are not obliged to report on their research activities.

Publishing Research Reports
Residents, like other trainees, are encouraged to submit reports of their research to professional journals. The resident should be sure that accepted works are proofread as may be required by the publisher and that reprints are ordered at the time proofs are returned. Because payments usually are to accompany the order, prior approval is required from the Residency Director and Department Administrator. *In no event should proofs be delayed* while the University issues a check.

Presenting Research at Scientific Meetings
Residents are encouraged to present original research at major scientific meetings. The Department of Ophthalmology will pay up to $1000 per meeting for each resident to attend two domestic meetings each year to present original research. The venues must be one of the following which have been approved by the faculty: AAO, ARVO, ASCRS, AGS, AAPOS, ARS or ASOPRS. The $1000 per meeting will cover meeting registration, airfare, poster preparation costs and hotel. The resident must follow up each presentation with a research paper.

For additional information regarding circumstances under which travel for presentation at scientific meetings can be reimbursed, please see sections 9.15.1 and 9.15.2 of this manual.
Section 9

RESIDENT EMPLOYMENT POLICY
9.0.0 RESIDENT EMPLOYMENT POLICY
Information and regulations not covered in this manual regarding residency in the University of Colorado School of Medicine are contained in the Graduate Medical Education Manual distributed at GME orientation each July and published on-line by the Graduate Medical Education Office (http://www.ucdenver.edu/academics/colleges/medicalschool/education/graduatemedicaleducation/ResidentsFellows/Pages/Index.aspx).

9.1.0 RESIDENT ELIGIBILITY AND SELECTION
The Ophthalmology residency program does not discriminate with regard to sex, race, age, religion, color, national origin, disability or veteran status. Selection of individuals applying for training positions will be considered according to the following criteria:

1. Applicants must be registered through the San Francisco Match program sponsored by the Association of University Professors of Ophthalmology (AUPO) (http://sfmatch.org);
2. Applicants must document compliance with one of the following:
   a. graduate from a medical school accredited by the Liaison Committee on Medical Education (LCME);
   b. graduate from a college of osteopathic medicine accredited by the American Osteopathic Association (AOA);
   c. be a foreign medical graduate holding a valid certificate from the Educational Commission for Foreign Medical Graduates (ECFMG);
   d. hold a full, unrestricted license to practice medicine in a U.S. licensing jurisdiction;
   e. successfully complete a Fifth Pathway program provided by an LCME-accredited medical school.
3. Applicants must successfully pass a criminal background investigation (criteria specified in University and GMEC background investigation policies).
4. First priority will be given to non-international medical graduates.

The CU School of Medicine recognizes that residents enrolled in its programs are trainees, not employees. As such, all applicants also must be able to meet conditions of the institutional resident training agreement. Specifically, individuals must meet one of the following requirements:

1. be a U.S. citizen;
2. hold a valid U.S. resident alien card;
3. possess (or be eligible to possess) all of the following:
   a. valid passport;
   b. valid I-94 card (obtained upon entry to the U.S.) that indicates D/S J-1 (Duration of Status for J-1 visa);
   c. J-1 visa sponsorship from the ECFMG to train at the CU medical school in the specific training program.
9.2.0 MOONLIGHTING
Department of Ophthalmology policy considers appointment as a resident or postdoctoral fellow to be a full-time activity. The special nature of programs associated with these appointments requires extensive clinical activity and frequent availability to patients at times other than regular working hours. In addition, these programs have a continuing academic component that requires considerable personal effort. It is Department of Ophthalmology policy not to permit any outside employment.

Outside employment is defined as employment with compensation that is not part of the academic appointment. This employment also is referred to as dual employment and moonlighting and includes functioning in a medical capacity or in any other professional, skilled or unskilled function for compensation. Specifically, the term outside employment also includes contractual services to health care providers such as a hospital or clinic, private medical practice, or group practice. Outside employment does not include military obligations as a member of the United States Armed Forces.

The Residency Program Director has the authority to grant exceptions to this policy in unusual and exceptional circumstances. All exceptions must have the prior written approval of the Department of Ophthalmology. Violations of this policy are subject to disciplinary action including suspension and dismissal from the program. Disciplinary action is subject to the Grievance Procedures of the University of Colorado School of Medicine.

As an exception, outside employment is not governed by these policies during periods of formal vacation in which a written statement of vacation is filed in the departmental office. Residents and fellows must be aware, however, that University of Colorado professional liability coverage does not extend to formal vacation periods and does not cover hospitals other than UCH, DHMC, VAMC and TCH.

9.3.0 SECURITY
Identification Card
All University of Colorado residents must have a current identification card from the University, UCH, DHMC, VAMC and TCH. Arrangements must be made through the Administrative Office for issuance of these cards.

Keys
Each resident will receive a key or a key code for the clinics from the respective hospitals.

9.4.0 LEGAL MATTERS
All policy and decisions regarding legal medical matters are dictated by the University of Colorado Professional Risk Management Office (PRMO). Any questions regarding the resident’s role in responding to a subpoena, summons,
complaints, search warrant or any other legal action, are to be directed to PRMO, telephone 303-724-7475 (4-RISK). **It is extremely important that the PRMO be advised immediately of any such action, request or communication involving legal medical liabilities.** It is equally important that the resident involved not discuss any legal matter directly with the respective patient or his agent, attorney, other outside physician, or family members.

For further information on risk management policies, the resident should refer to the Risk Management section in the Graduate Medical Education manual.

**Instructions Regarding Your Deposition**

A deposition is one of several means provided by law for the taking of testimony under oath. The deposition is conducted in question and answer form. Although a deposition is a part of a judicial proceeding, it is usually taken in the office of an attorney or at a physician’s place of work.

The person being deposed, you in this instance, are placed under oath by a Court Reporter who records and later transcribes all that is said.

The questioner has the right to ask about all matters that relate to the subject matter of the lawsuit.

Depositions, basically, serve three purposes, namely:

(a) discovery, that is obtaining information;
(b) impeachment, in the event of any conflict between deposition testimony and other testimony and;
(c) witness evaluation, allowing the opposing attorneys an opportunity to evaluate the relative impression a witness will make on a jury at the time of trial.

Depositions are important also for the time and inconvenience they may ultimately save all parties because, in many instances, the deposition will afford the attorneys their first real opportunity to accurately evaluate the relative merits of their case. Because of the importance of a deposition and the latitude given to the questioner, it is important that you be prepared to give accurate and complete answers to the questions asked. As a resident, you cannot be an expert witness. You can only attest to your findings and not speculation.

In preparing for a deposition, there are a few basic points to keep in mind:

- Answer only the questions asked. If the question may be answered accurately by a simple ‘yes’ or ‘no,’ such an answer is desirable. If at all possible, avoid lengthy explanations.
• Tell the truth. If asked, do not hide any previous injuries or accidents or any facts, unless you are instructed not to answer a question.

• Be polite to the questioner. Do not let the questions or manner upset you. Should s/he adopt a surly manner; s/he is probably doing it only to test you. Your ability to calmly, thoughtfully and accurately answer all questions will increase your value as a witness.

• Do not argue with counsel; remain polite and natural. Never become angry or hostile. Avoid asking questions in your answers unless you are asking for clarification of a question.

• Think before answering. Do not answer a question unless you understand it. If the question is unclear, ask examining counsel to repeat it or phrase it in clearer language; the reporter can also be asked to read it.

• Do not volunteer. Think about each question before you answer and do not supply information not requested by the question, even though you think it relevant. If examining counsel does not ask about all you know, do not volunteer information. The deposition is an opportunity for the adverse party to obtain information, and is not the trial, during which you will have an opportunity to tell all you know about the case. Too often a witness is asked a question, ignores it, or gives an acceptable answer and then rambles on; do not ramble.

• If you do not know the answer to a question, say "I don't know." Do not feel that just because a question is asked you are expected to know the answer to it. If you recall, say so. Do not guess or speculate.

• Give factual information in answer to a question only if you have first-hand knowledge of the facts. Do not base your answer on hearsay information (something someone else has said) unless specifically asked for it.

• If an objection is made and you are instructed by your attorney not to answer the question, do not answer it.

• Do not try to memorize your answers. Give a factual, straightforward response to the questions.

• Dress neatly and according to your usual habit and style.
Please remember that the University is interested in affording you the best possible representation and, additionally, is interested in protecting you from any undue harassment.

Before arranging to give a deposition the resident must consult with the Professional Risk Management Office and the Residency Program Director.

9.5.0 MEDICAL CORRESPONDENCE
Requests directed to residents for medical information should be forwarded to the Medical Records Department at the hospital where the appropriate release of information can be completed. In special situations the resident may be required to dictate a short letter if the required data or information is not available in the patient’s chart.

9.6.0 PROFESSIONAL ORGANIZATIONS
It is the responsibility of each resident to apply for membership to the AAo. It is the resident’s responsibility to pay any initial membership fees and/or annual dues levied by professional organizations to which s/he wishes to belong.

9.7.0 EVALUATION OF PERFORMANCE
Resident Evaluation
To monitor progress and to comply with recommendations of the American Board of Ophthalmology regarding satisfactory completion of residency training, each resident is evaluated at the end of each three-month rotation by the faculty members supervising that rotation. The formal written evaluation shall

- address each of the six ACGME core competencies and surgical skills assessment;
- include scoring and rating criteria that seek to minimize subjective assessment of performance;
- include language indicating satisfactory performance, advancement to the next level of training (if applicable) or provide specific actions and performance requirements by the resident to return to a level of satisfactory performance or advancement to the next level of training;
- be signed and dated by the resident and preceptor;
- become a part of the permanent record file for the resident.

Additionally, the Department of Ophthalmology evaluates residents using the following tools:

- 360° evaluation form – to be completed specifically by clinic or administrative staff with whom you work
- Ophthalmic Clinical Evaluation Exercise (OCEE) is to be used to evaluate an observed encounter between a resident and a new patient. This is the form plus two pages of scoring rubric.
- Resident On-call Consultation Evaluation should be used to compare the resident’s and attending’s experience when on call
- The Surgical Skills Assessment form is an opportunity to evaluate the resident’s skills in the OR.

In the event that the academic status of a resident is changed to probation or termination, a letter of notification to the resident will be co-signed by the Associate Dean for GME. Additional information is provided in the institutional policy titled “Grievance Policy and Procedure.”

These reports become part of the resident’s permanent record. They are also taken into account at year-end and in a final statement as to whether the individual has satisfactorily completed the entire residency training. Satisfactory completion is prerequisite for admission to the Written Qualifying Examination of the American Board of Ophthalmology.

Each resident is assigned a faculty preceptor, with whom s/he should arrange to meet at least twice each year (October and April are suggested) to discuss progress. The resident is encouraged to meet with the preceptor at any other time when either of them feels there are areas of concern or need for advice. If deficiencies are noted in the rotation report, the preceptor is expected to review them with the resident as soon as possible, and to provide suggestions for improvement and correction. Attributes to be weighed include overall medical knowledge, medical skills and judgment, surgical skills and judgment, personal and attitudinal qualities, and moral and ethical behavior.

Additionally, the resident should meet at least once each year with the Program Director to discuss program issues and progress in the program.

Advancement from the first to second year, from the second to third year, and to completion of residency is not automatic but is based on evaluation by the Department of Ophthalmology Chair, Program Director and full time faculty. Residents whom the faculty believe to be having difficulties in acceptable development of knowledge, clinical skill, or other significant areas will be so advised. The range of options extends from counseling to discharge from the residency.

Faculty Evaluation
At least annually, residents evaluate faculty teaching performance on a standardized evaluation form through New Innovations (Appendix 9.7.0a). The Residency/Fellowship coordinator collects and summarizes the evaluations at the end of the academic year and provides the summary to the Chair, Program Director and faculty member.

Rotation Evaluation
On a quarterly basis, the residents evaluate the rotations at each hospital on a standardized evaluation form through New Innovations (Appendix 9.7.0b,c,d).
The Residency/Fellowship coordinator collects and summarizes the evaluations at the end of the academic year and provides the summary to the Chair and Program Director.

9.8.0 PROBATION
The Department of Ophthalmology has established the following guidelines regarding probation for its residents/fellows. These policies are consistent with those of the Graduate Medical Education Committee published in the Graduate Medical Education Manual. Probation is a remedial mechanism utilized in a variety of circumstances and is designed to improve the performance of a resident/fellow. In most instances, residents placed on probation continue to progress satisfactorily in the program. If a resident's/fellow’s performance is unsatisfactory for reasons including, but not limited to, clinical skill, medical knowledge, academic performance, performance of duties or clinical conduct, the Department Chair and the Program Director will notify the resident, in writing, of the specific deficiencies, with a copy to the Associate Dean for Graduate Medical Education.

Probation may last varying lengths of time depending on the circumstances but not less than 30 days. Probation for academic reasons, failure to attend required didactic sessions (no tolerance for unexcused absences), poor performance on standardized tests, failure to demonstrate increasing fund of knowledge (for example) may extend probation to 12 months. An overall score of 10% or less on the annual OKAP examination will result in consideration of probation. Probation for ethical misconduct (sexual harassment, patient abandonment, abuse of prescribing privileges, unlawful discrimination, as examples) or substance abuse requires mandatory referral to the Colorado Physician Health Program and may last until the end of the resident's/fellow’s training period. If a resident’s/fellow’s behavior is considered dangerous to patients, the resident/fellow may immediately be suspended at the discretion of the Department Chair or Program Director without probationary periods. At the end of the probationary period the Department Chair or Program Director will review the resident's/fellow’s progress and determine whether satisfactory improvement has been made. If progress has been satisfactory, the resident/fellow may be continued on probation for a period of time not to exceed 6 months. If performance becomes unsatisfactory again during this time, the resident/fellow may be dismissed without an additional probationary period. Once performance continues to be satisfactory after the probationary period, the resident/fellow will be removed from probation. Dismissal and appeal processes will be handled in accordance with the Grievance Procedure of the Graduate Medical Education Committee outlined in the Graduate Medical Education Manual.

A minimum score of the 30th percentile on the annual OKAP examination has been established as one of the grounds for academic remediation. If the
resident’s clinical performance is unsatisfactory and the OKAP minimum is not met, full academic probation may be instituted. The Department Chair, Residency Director, and the resident’s/fellow’s faculty preceptor will assign a mentor for the resident and will designate a period of mentoring. The resident/fellow must satisfactorily correct the deficiencies during the period of mentoring or be placed on probation, as above.

9.9.0 COLORADO MEDICAL LICENSURE
According to Colorado law, residents will be required to obtain a training medical license unless they already have a medical license in Colorado. A shortened version of the complete medical license application is available online at www.dora.state.co.us/medical. A fellow is required to obtain a full medical license before the start of the fellowship program.

9.10.0 EDUCATIONAL MATERIALS
Residents/fellows may receive an annual educational/research fund or other educational support, the amount of which is determined annually. This “GME Book Fund” is to be used for research materials or purchase of educational materials. In many cases, interdepartmental vouchers are used so no currency is actually exchanged. Monies are allotted per year academic and cannot be carried over. All receipts must be submitted by May 31st of the academic year.

9.11.0 DUTY HOURS AND ON-CALL COVERAGE
Duty hours include patient care and didactic activities. Duty hours do not include reading and preparation time spent away from duty site. For residents/fellows, duty hours are limited to 80 hours per week averaged over a 4 week period. Residents/Fellows must have one day (continuous 24 hour period) in seven free from all educational and clinical responsibilities, averaged over a 4 week period. There should be a scheduled break of 10 hours between duty periods.

Continuous on-site duty, including in-house call, must not exceed 24 consecutive hours. If a resident or fellow has been on duty for 24 consecutive hours s/he may remain on duty for up to 6 additional hours to participate in didactic activities, transfer care of patients, conduct outpatient clinics, and maintain continuity of medical and surgical care. No new patients may be accepted after 24 hours of continuous duty. A new patient is defined as any patient for whom the resident has not previously provided care.

Residents/fellows are required to participate in scheduled didactic lectures and daily clinical duties. Typical work hours are 7:00 A.M. to 7:00 P.M., Monday through Friday, when scheduled lectures are held in the morning and after clinic. A monthly schedule of didactic activity is available on the ‘Master Event’ calendar in Outlook, and is also printed and distributed to all residents and fellows the last week of the month for the month following (appendix 9.10.0a).
On-Call coverage begins at 1630 Monday-Friday and continues until 0800 the next day. Residents share in on-call coverage groups for two hospital systems. One group of residents provides coverage for the UCH and the VAMC and another group of residents provides coverage for DHMC and TCH. Junior level residents (PGY2 and PGY3) on primary call may not cover all four hospitals simultaneously. The call coverage must be divided between the two groups so that there are two primary call residents available for each set of hospital systems at all times. Residents may not split weekend call duty with fellow residents, but must take Friday through Sunday call because of continuity of care issues. Residents typically devise their own call schedules and divide weeknight, weekend and holiday call coverage equitably among themselves. On average, residents are on-call no more than every third night. Senior level residents (PGY4) are on backup call and are expected to come in when requested by the junior level resident and for all surgical cases. An attending call coverage schedule is published monthly and distributed (appendix 9.10.0b). All call coverage is provided from home. All residents are required to respond to any request for coverage from an ED and must respond within thirty minutes. Fellows alternate faculty call with full-time faculty. This policy provides guidelines for call coverage and may be amended by the Residency Program Director. The ‘Attending on call’ must be called any time a resident goes into a hospital. Residents may not call other attendings; all communications to attendings other than the ‘Attending on call’ must be ‘attending to attending.’

Monthly Schedule
The Department of Ophthalmology On-Call Schedule at the University of Colorado will be issued by the 20th of the month for the following month. All residents on rotation will participate in the On-Call rotation (Appendix 9.10.0b). The on-call schedule is also available online by going to www.amion.com and using uco as the password.

Call Schedules
First-call schedule. A second-year resident, designated by his peers, will be responsible for preparing the first-call schedule. The schedule must be equally divided among the first- and second-year residents.

The first-year residents will shadow the second year residents for call issues until the end of July. First year residents will not take “solo” call until early August.

The RMLEI Chief resident prepares third-call schedules.

Schedules must be in the Administrative Office by the 10th of the month preceding the month being scheduled in order to be printed and distributed in a timely manner. Any changes in the schedule must be submitted, in writing, to the Administrative Assistant responsible for collating the schedule.
working days before the beginning of the month (Appendix 9.10.0c)
Schedules are subject to change by the Residency Director if inequities occur.

OKAP Exam
The Fellows will cover weekend call during the residents’ OKAP examination (mid-April), unless the fellow is taking the Board exam.

Changes to the call schedule

Changes in the call schedule should not be made after it has been distributed. **If a schedule is to be changed after distribution, the Residency Director or Chair must approve the change.** In cases of emergency in which a change must be made, the resident/fellow initiating the change will be responsible for notifying the residency coordinator. The administrative staff will make the change in AMION (www.amion.com use uco (small letters as it is case sensitive) as the password – as it is **always** the most current schedule.). The resident initiating the change is responsible for notifying:

(a) faculty member on call
(b) Chief Resident on call

9.12.0 SUBSTANCE ABUSE/IMPAIRED PHYSICIAN POLICY
The safe practice of medicine requires attentiveness between doctor and patient that can only come from a fully alert physician. An ‘impaired physician’ is one whose ability to practice medicine with skill and safety is compromised by medical or psychiatric (including substance abuse) problems. Impairment from drugs and alcohol is avoidable and will not be tolerated. The University, Department, and hospitals are committed, whenever possible, to assist such doctors in their rehabilitation, while assuring excellent patient care.

The University of Colorado (in compliance with the Drug-Free School and Communities Act) has an institutional policy on alcohol and drugs which states: “**it is a violation of University policy for any member of the faculty, staff, or student body to jeopardize the operation or interests of the University of Colorado through the use of alcohol or drugs. Sanctions that will be imposed by the University of Colorado for students and employees who are found to be in violation of this policy may include expulsion and/or termination of employment. Compliance with this policy is a condition of employment for all employees.**”

This Department requires that any physician found to abuse drugs either enter treatment or resign. The Department will assist the resident in obtaining rehabilitation. The treatment program will require the physician to demonstrate a drug free condition at any time and to obtain counseling in order to remain drug free. The physician will give the counselor written permission to report to the Chairman on a regular basis on the impaired physician’s ability to work and with
his/her compliance to treatment. The physician will provide urine and blood samples as required by the counselor. Failure to comply will be grounds for dismissal.

GME procedures for probation, remediation, suspension, termination and grievances state that any substance abuse violation requires a mandatory referral to the Colorado Physician Health Program (CPHP). The houseofficer shall sign a release of information from CPHP as a condition of probation. If the resident’s/fellow’s performance again becomes unsatisfactory during the length of his/her training, s/he may be dismissed without any additional remedial period.

If a houseofficer’s behavior is considered potentially dangerous to patients, immediate suspension of clinical responsibilities may be imposed at the discretion of the Program Director with a remedial or probation period.

9.13.0 SUPERVISION POLICY FOR EACH LEVEL OF TRAINING
The focus of our residency program is the development of competency and clinical excellence in ophthalmology. Residents in our program take on more responsibility and enjoy more independence in treating their patients than in most programs. While residents are always supervised in the operating rooms and clinics, they are expected to perform as their patient's primary physician, and to incrementally assume increasing responsibility for their care (Appendix 2.2.2a-g).

9.14.0 COMPLETION OF MEDICAL RECORDS
This policy has been adopted in accordance with UCH, TCH, VAMC, DHMC, the GME Office and the JCAHO. It is the duty of the Medical Records Departments to assure that all records are completed in compliance with hospital regulations as well as to the satisfaction of the accrediting body. It is the duty of the resident to complete such records for his patient in that manner. Medical Records will notify the responsible resident of any deficiencies. Residents, who fail to complete their charts within three weeks of the deficiency information being added to the computerized chart deficiency file will be referred to the responsible chief of service for punitive action.

Accurate and timely completion of medical records is essential in providing good medical care. **All visits including consults at the hospital must be dictated.** Ideally, all charts will be completed and dictated prior to the change of rotation. **If a resident/fellow fails to complete records at a particular hospital, s/he will be called back to complete the record.**

Prior to graduation, each resident/fellow must be cleared from Medical Records at all affiliated hospitals before their certificate and final paycheck will be issued.
All OR reports as well as consultations, should be dictated within 24 hours. Discharge dictations must be completed at the time of discharge in accordance with JCAHO guidelines. For further details regarding these policies, please refer to the Graduate Medical Education Manual.

9.15.0 PERQUISITES ("PERKS")
9.15.1 Resident Leave Policies
Residents/fellows are granted 15 (fifteen) work days of paid vacation and up to 5 (five) work days of paid educational leave per year. No vacation or educational leave may be taken on the days of the OKAP exam; Resident, Fellow, Faculty and Alumni Research Day; or the Annual Symposium, as attendance is required at each. Vacation and/or educational days not taken during the year (July-June) are forfeited on July 1. They cannot be carried over to the next year, nor paid out at termination.

To allow for scheduling and planning, all leaves and absences from the Residency Program must be authorized 10 weeks in advance using the Leave Request Form (Appendix 9.15.1). No leave request will be authorized if it interferes with the ability of the program to provide continuity of patient care. Five interview days are provided for PGY4 residents for jobs or fellowship. PGY3 residents applying for an ‘early’ subspecialty match may also have five interview days. Each day must be individually approved by the Program Director.

All leave beyond the basic annual leave (vacation, educational and interview) will be considered leave without pay and the resident must cover his own benefits during that time. Military leave will be considered leave without pay unless the resident elects to use vacation time. Leave beyond four weeks is limited by the Residency Review Committee and time may need to be made up at the end of the residency at the discretion of the Program Director and Department Chair.

All on-call duties must be shared equally on a quarterly basis to ensure an equal distribution of responsibility and level of educational experience; periods of leave must reflect this policy. Religious holidays must be taken as vacation unless they fall on a designated University holiday.

Vacation or educational leave may be taken according to the following guidelines:

1. The Leave Request Form must be submitted to the Residency/Fellowship Coordinator 10 weeks in advance of the first day of the requested leave. The Residency/Fellowship Coordinator will be responsible for obtaining the required signatures from the Program Director, Chief Resident, Director of Service and clinic manager. It is the resident’s responsibility to contact the Residency/Fellowship Coordinator if a copy of the Leave Request is not returned to the resident eight weeks in advance of the first day of the requested leave.
2. Leave request forms are available from the Residency/Fellowship Coordinator.
3. PGY2 residents may not take leave during their first three months of training.
4. In general, leave taken in July is disruptive to clinical services during the orientation of new residents and will not be granted.
5. No more than two PGY4 residents may be off during the last week of June except under unusual circumstances.
6. Attendance is mandatory at, and vacation leave time will not be granted during the Department Symposium in the fall, OKAP examination in mid-April (with allowances approved by the Board), or during Resident, Faculty, and Alumni Research Day in June.
7. Vacation leave time must be taken in a minimum of one-week block time so as to reduce disruption of clinical services. For extenuating circumstances, the one-week block leave time may be divided with prior approval from the Program Coordinator.
8. Normally, no more than one resident from any single service will be permitted to be on leave at the same time.
9. **No more than one week of leave should be taken from any single service.** With the exception of PGY2 residents who are not allowed to take leave during their first rotation, educational and vacation leave should not be taken in the same rotation. Two consecutive weeks of vacation may be taken only if the consecutive weeks are on separate services (i.e., one week at the end of a rotation with a week at the beginning of another rotation).
10. Five interview days will be provided for the PGY4 residents and for PGY3 residents applying for any early sub-specialty matches. One day per interview may be used. The resident should expect that any days in excess of that will come from vacation time. A copy of the itinerary must be provided to the supervising attending, Program Director, and Residency/Fellowship Coordinator. As we only allow one week of leave per rotation (with the exception of the Santo Domingo rotation) and most interviews occur in the fall rotation, additional vacation time requests will be handled on an individual basis.
11. The Department of Ophthalmology will pay up to $1,000 per meeting for each resident to present original research at two domestic meetings each year. The $1,000 per meeting will cover meeting registration, airfare, poster preparation costs and hotel. Requests for educational leave must be approved in advance by the Program Director. Acceptable educational leave activities include attendance at ARVO, AAO, ASCRS, and U.S. national subspecialty societies. Additionally, approved board preparation courses may be acceptable. The total number of educational leave days may not exceed five work days. **Residents must return from educational leave with proof of attendance at the course and be able to provide a research paper or oral presentation.**
12. Special requests such as leave for religious reasons will be handled on an individual basis by the Program Director and/or Chair of the Department.

Sick leave
Residents do not accrue an annual sick leave allotment. However, leaves of absence are granted as needed when approved by the Residency Director. Residents are encouraged to attend to their own medical needs as necessary so that they may best serve their patients and attend to assigned duties. Sick leave may not be used in lieu of vacation leave and such substitution is strictly prohibited.

Maternity/Paternity Leave
One-month maternity leave is provided consisting of one-week vacation and three weeks without pay but with continuation of healthcare benefits. The resident may choose to utilize more vacation time if she desires. If the resident chooses to take more than the allotted three weeks and has utilized all of her vacation and educational leave, the residency will be extended the appropriate amount of time. Schedule and rotation activities will be worked out on an individual basis. Special circumstances and situations will arise and they will be handled on an individual basis.

Seven calendar days of unpaid paternity leave, in addition to vacation and educational leave will be provided. If the resident chooses, he may use one week of paid vacation for his paternity leave. Although paternity leave is leave without pay, healthcare benefits are continued.

Holiday Leave
While the GME office does not officially recognize or grant holiday leave, the Department of Ophthalmology expects Residents and Fellows to take the official holidays of the hospital to which they are assigned at the time the holiday is observed. It is the responsibility of the Resident/Fellow to coordinate their on-call responsibilities with their hospital’s holiday schedule.

9.15.2 Travel Reimbursement for AAO Meeting
At the beginning of each academic year, two second-year and two third-year residents will be assigned to attend the annual American Academy of Ophthalmology meeting. In order to attend the meeting without a registration fee, the resident must be a member. To maximize membership benefits, residents must apply for membership one year in advance of the meeting they are scheduled to attend as AAO memberships are effective January to December. This also allows the Residency/Fellow Coordinator to obtain optimal housing for the residents as housing is only available to members for the first month.

The Department will sponsor each fellow to attend one meeting per year in their specialty.
All travel arrangements must be made in accordance with UCHSC policy and will be made by the Residency/Fellowship Coordinator. The Residency Director may assign hotels so that several residents will share a room. If a resident chooses not to share a room, then s/he will be reimbursed the cost based on the sharing arrangements. **No reimbursement will be made for incurred expenses without prior approval.**

9.15.3 Continuing Education
One set of books for the American Academy of Ophthalmology Basic and Clinical Science Course will be purchased by the Department and distributed to each first-year resident. The Department of Ophthalmology will pay the fee for the OKAP examination for each resident annually. Taking the examination is a requirement for all residents in the Department. If for religious reasons the resident is unable to take the examination on the specified day, the Program Director or Residency Coordinator must be notified by the middle of December and a letter from a religious official must be provided.

9.15.4 Insurance
Information on insurance is available from the Graduate Medical Education Office.

9.15.5 Parking
An application must be made at the start of the residency for UCH, TCH, DHMC, and VAMC parking. A non-refundable charge must be paid for a UCH parking card.

9.15.6 Senior Resident Elective Program
The senior resident elective program offers an opportunity for third year residents to participate in ophthalmologic practices in Santo Domingo under the preceptorship of Juan Batlle, M.D. The rotation consists of three weeks in the Dominican Republic of which **one week must be taken as vacation**. In order to minimize the economic impact on the hospitals, no more than two residents per academic year can go to Santo Domingo from any single rotation. The Department provides airfare to Santo Domingo. Housing is provided onsite by the host hospital. A faculty member or approved community-based faculty member will accompany the resident for the first week. Arrangements must be made through the Departmental office with prior approval required from the Program Director.

9.16.0 ADMINISTRATIVE ISSUES

9.16.1 Electronic mail
The University provides an electronic mail (e-mail) account for each resident and fellow. **All residents and fellows are required to read their University e-mail**
account at least once a day unless they are on vacation. All departmental communications made by e-mail will utilize the University-provided address.

9.16.2 Personal contact information
All residents and fellows are required to provide current home address and telephone and/or cell phone numbers to the Residency/Fellow Coordinator.
Section 10

EYE BANK AND DONOR EYE PROGRAM
10.0.0 EYE BANK AND DONOR EYE PROGRAM

10.1.0 Definition

The Rocky Mountain Lions Eye Bank (RMLEB) is a not-for-profit organization whose mission is to fulfill the wishes of eye donors and their families to help another overcome blindness through transplantation and research. RMLEB is one of the world’s largest and most respected eye banks, providing for nearly 2,000 cornea transplants each year. The eye bank is accredited by the Eye Bank Association of America and is regulated by the U.S. Food and Drug Administration. While the Eye Bank is housed in the Rocky Mountain Lions Eye Institute, it is a separate agency unrelated to the University. The eye bank’s medical directors are S. Lance Forstot, MD and Richard Davidson, MD. The executive director is Edmund Jacobs. More information is available at www.corneas.org.

10.2.0 Location and Notification

The eye bank is located in room EI-2049 of the RMLEI building. NO ACCESS IS AVAILABLE FROM THE BACK STAIRS AND ALL VISITORS MUST SIGN IN AND BE ESCORTED (FDA regulation)

Rocky Mountain Lions Eye Bank
PO BOX 6026
Aurora, CO  80045
Phone: 720-848-3937
Toll free: 800-444-7479
The RMLEB is staffed 24 hours a day throughout the year.

10.0.3 Resident Procedures

A Request for Ocular Tissue for Research and Training form (appendix 10.1.0) is available online at www.corneas.org. Research tissue is recovered as needed and is typically not banked. Place requests well in advance. Surgical tissue is provided on a first come, first served basis, except for emergent or urgent cases. Emergent cases are defined as a corneal perforation. An urgent case is usually a pending perforation or other condition where the integrity of the cornea is at risk. The eye bank charges a processing fee for corneas, sclera, as well as research and training globes.
Section 11

UCH DISASTER PREPAREDNESS PLAN
University of Colorado Hospital Policy and Procedure
Emergency Preparedness
Internal Disasters Plan Overview

Approved by: Safety and Disaster Plan Subcommittee
             Environment of Care Committee
             Effective: 6/97
             Revised: 3/08

Scope: Anschutz Medical Campus, and Off Site Clinics

Purpose: To ensure the continuation of care and the safety of our patients, staff and visitors, the
Emergency Preparedness Plan is provided as an institutional resource for responding to internal
emergency situations. This plan lists the incidents most likely to occur and presents a response
for each.

Internal Emergencies
If an emergency is declared, all personnel are required to remain on duty until released by their
manager.

<table>
<thead>
<tr>
<th>Description</th>
<th>Response</th>
</tr>
</thead>
<tbody>
<tr>
<td>Bomb Threat</td>
<td>Telephone 911</td>
</tr>
<tr>
<td>Communications Failure</td>
<td>Telephone (303) 724-5222, 911</td>
</tr>
<tr>
<td>Evacuation Plan</td>
<td>Refer to Evacuation Plan</td>
</tr>
<tr>
<td>Elevator Failure</td>
<td>Telephone 911 and 8-8351</td>
</tr>
<tr>
<td>Fire Plan (Mr. Gallagher)</td>
<td>Telephone 911</td>
</tr>
<tr>
<td>Hazardous (Chemical) Materials Spill</td>
<td>Telephone 911</td>
</tr>
<tr>
<td>Hostage Situation</td>
<td>Telephone 911</td>
</tr>
<tr>
<td>Infant/Child Abduction (Code Pink)</td>
<td>Telephone 8-5555 and 911</td>
</tr>
<tr>
<td>Infectious Agents (ie SARS, Anthrax)</td>
<td>Telephone 911 and Pager 303-266-2927</td>
</tr>
<tr>
<td>Medical Emergencies – Code Blue (UCH MAIN ONLY)</td>
<td>Telephone (Main) 8-5555 Fitzsimons 911</td>
</tr>
<tr>
<td>Medical Gas Failure</td>
<td>Telephone 8-8351</td>
</tr>
<tr>
<td>Radiation Accident</td>
<td>Telephone 911 and 8-8351</td>
</tr>
<tr>
<td>Utilities Failure</td>
<td>Telephone 8-8351</td>
</tr>
<tr>
<td>Weather (Snow Plan, Tornado Plan)</td>
<td>Refer to Severe Weather Plans</td>
</tr>
<tr>
<td>Work Place Violence Prevention</td>
<td>Telephone 911</td>
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Emergency Preparedness-Internal Disasters

I. Off-Campus Locations
Off-campus locations and departments that are located off-site, locations other than the North Pavilion, and the University of Colorado Hospital at the Anschutz Medical Campus must access municipal police and emergency medical services through the 911 network. A secondary call to the UCH Safety Officer and Engineering Office dispatch (720-848-8351), also must be initiated to notify UCH responders of the emergency.

Internal Call Down Process

I. Emergency Response Team
UCH has adopted the HICS (Hospital Incident Command System) command structure for responding to internal and external emergencies. Primary and secondary response teams have been formed, which respond to all declared emergencies.

Departments and staff members identified as primary and secondary responders to the command center are required to carry an alpha numeric pager which will be programmed for group call capability. It will be the responsibility of the indicated department to ensure response coverage seven days a week, 24 hours a day.

Anschutz Medical Campus
Incident Command Staff responders will be directed to one of two Command Centers:
- Primary, AIP 1070.6
- Secondary, AOP 2005
Staff will be notified and directed to initiate their departmental plans upon notification and details of the incident. Staff will be directed to call into a specified extension or to stand by. Secondary responders are directed to the command center based on the severity of the emergency and the resources required. This process focuses the response to those departments most likely to directly impact the corrective process.

Primary responders include single membership from the following areas:
- House Manager
- ED Attending
- Administration/Administrator On-Call
- Guest Services Manager (Fitzsimons Campus)
- Safety Officer/Representative
- UCH Security
- Environmental Services
- UCH Engineering Services
- Public Relations (PR)

Secondary responders include single membership from the following areas:
- UCHSC – Health and Safety Department (HSD)
- Nursing Administration
- Radiation Safety Officer/Radiology
- Food and Nutrition
Emergency Preparedness-Internal Disasters

- Spiritual Care
- Admissions
- Materials Management/Central Supply
- Employee Health Services

**Volunteer Responders** may include either internal employees who have responded to the need for increased support during a specific disaster, or external healthcare providers who are needed for specific roles in a disaster involving emergent patient care needs.

- Internal volunteers must bring their employee badge and be verified by review of current UCH employees identified in PeopleSoft by Human Resources personnel. Internal employee volunteers will be assigned a role according to their background and abilities, particularly in a support capacity.

- External health care provider volunteers, not privileged by the Medical Staff Office will also have their credentials processed by Human Resources personnel, and will be required to present their life support credential(s), have licensure verified using the State of Colorado Regulatory Agencies DORA on line website, and sign the proper confidentiality and other related documents prior to be assigned a role commensurate with their provider credentials.

**II. Notification**

Notification of response team members will be done utilizing various means and include alpha numeric pagers, and overhead announcements by calling the PBX 8-5555 and UCH Security dispatch at 911. A information will be broadcast indicating the disaster type and the response required. Depending on the severity of the disaster and its location, upon direction from the Incident Commander the off-campus locations will be notified.

Specific team responses are defined by policy and indicated by emergency type.

**Please refer to specific internal disaster policies for more detailed information.**

- Bomb Threats
- Communication Failures
- Elevator Failure
- Evacuation Plan
- Fire Plan
- Hazardous Material Spills
- Hostage Situation
- Infant Abduction
- Infectious Agents (Isolation/Transmission Based Precautions)
- Medical Emergencies
- Radiation Accident
- Utilities Failures
- Violence in the Work Place
- Weather Emergencies
Section 12

ACGME GUIDELINES
12.1.0 INSTITUTIONAL REQUIREMENTS
12.2.0 COMMON PROGRAM REQUIREMENTS FOR RESIDENCY EDUCATION IN OPHTHALMOLOGY
ACGME Institutional Requirements

Effective: July 1, 2007

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I. INSTITUTIONAL ORGANIZATION AND RESPONSIBILITIES

I.A. Sponsoring Institution

I.A.1. Residency programs accredited by the Accreditation Council for Graduate Medical Education (ACGME) must operate under the authority and control of one Sponsoring Institution. Institutional responsibility extends to resident assignments at all participating sites.

I.A.2. A Sponsoring Institution must be in substantial compliance with the ACGME Institutional Requirements and must ensure that its ACGME-accredited programs* are in substantial compliance with the Institutional, Common and specialty-specific Program Requirements, and the ACGME Policies and Procedures.

I.A.3. A Sponsoring Institution’s failure to maintain accreditation will jeopardize the accreditation of all its sponsored programs.

I.B. Commitment to Graduate Medical Education (GME)

I.B.1. The Sponsoring Institution must provide graduate medical education (GME) that facilitates residents’ professional, ethical, and personal development. The Sponsoring Institution and its GME programs, through curricula, evaluation, and resident supervision, must support safe and appropriate patient care.

I.B.2. A written statement must document the Sponsoring Institution’s commitment to provide the necessary educational, financial, and human resources to support GME. It must be reviewed, dated, and signed by representatives of the Sponsoring Institution’s governing body, administration, and GME leadership within at least one year prior to the institutional site visit.

I.B.3. An organized administrative system, led by a Designated Institutional Official (DIO) in collaboration with a Graduate Medical Education Committee (GMEC), must oversee all ACGME-accredited programs of the Sponsoring Institution.

I.B.4. The DIO and GMEC must have authority and responsibility for the oversight and administration of the Sponsoring Institution’s programs and responsibility for assuring compliance with ACGME Common, specialty/subspecialty-specific Program, and Institutional Requirements.

I.B.4.a) The DIO must establish and implement procedures to ensure that s/he, or a designee in the absence of the DIO, reviews and cosigns all program information forms and any documents or correspondence submitted to the ACGME by program directors (See III.B.10.a-k).

I.B.4.b) The DIO and/or the Chair of the GMEC must present an annual report to the Organized Medical Staff(s) (OMS) and the governing
body(s) of the Sponsoring Institution. This report must also be given to the OMS and governing body of major participating sites that do not sponsor GME programs. This annual report will review the activities of the GMEC during the past year with attention to, at a minimum, resident supervision, resident responsibilities, resident evaluation, compliance with duty-hour standards, and resident participation in patient safety and quality of care education.

I.B.5. The Sponsoring Institution must provide sufficient institutional resources to ensure the effective implementation and support of its programs in compliance with the Institutional, Common, and specialty/subspecialty-specific Program Requirements.

I.B.5.a) The Sponsoring Institution must ensure that the DIO has sufficient financial support and protected time to effectively carry out his/her educational and administrative responsibilities to the Sponsoring Institution.

I.B.5.b) The Sponsoring Institution must ensure that program directors have sufficient financial support and protected time to effectively carry out their educational and administrative responsibilities to their respective programs.

I.B.5.c) The Sponsoring Institution and the program must ensure sufficient salary support and resources (e.g., time, space, technology, supplies) to allow for effective administration of the GME Office and all of its programs.

I.B.6. Faculty and residents must have ready access to adequate communication resources and technological support.

I.B.7. Residents must have ready access to specialty/subspecialty-specific and other appropriate reference material in print or electronic format. Electronic medical literature databases with search capabilities should be available.

I.B.8. The Sponsoring Institution must have a policy that addresses administrative support for GME programs and residents in the event of a disaster or interruption in patient care. This policy should include assistance for continuation of resident assignments.

I.C. Institutional Agreements

I.C.1. The Sponsoring Institution retains responsibility for the quality of GME, including when resident education occurs in other sites.

I.C.2. Current master affiliation agreements must be renewed every five years and must exist between the Sponsoring Institution and all of its major participating sites. (See ACGME Glossary for definitions.)

I.C.3. The Sponsoring Institution must assure that each of its programs has
established program letters of agreement with its participating sites in compliance with the Common Program Requirements.

I.D. Accreditation for Patient Care in Sponsoring and Major Participating Sites that Are Hospitals

I.D.1. Sponsoring Institutions and/or Major Participating Sites that are hospitals should be:

I.D.1.a) accredited by The Joint Commission;

I.D.1.b) accredited by another entity with reasonably equivalent standards as determined by the Institutional Review Committee (IRC);

I.D.1.c) accredited by another entity granted “deeming authority” for participation in Medicare under federal regulations;

I.D.1.d) certified as complying with the conditions of participation in Medicare set forth in federal regulations; or,

I.D.1.e) recognized by another entity with reasonably equivalent standards as determined by the IRC.

I.D.2. When a Sponsoring Institution or Major Participating Sites that is a hospital and is not so accredited or recognized, the Sponsoring Institution must provide an explanation satisfactory to the IRC of why neither has been granted or sought.

I.D.3. When a Sponsoring Institution or a Major Participating Sites that is a hospital loses its accreditation or recognition, the Sponsoring Institution must notify and provide a plan of response to the IRC within 30 days of such loss. Based on the particular circumstances, the IRC may request the ACGME to invoke its “egregious or catastrophic” policy.

II. INSTITUTIONAL RESPONSIBILITIES FOR RESIDENTS

II.A. Eligibility and Selection of Residents: The Sponsoring Institution must have written policies and procedures for resident recruitment and appointment and must monitor each program for compliance. These eligibility requirements must address the following:

II.A.1. Resident eligibility: Applicants with one of the following qualifications are eligible for appointment to programs:

II.A.1.a) Graduates of medical schools in the United States and Canada accredited by the Liaison Committee on Medical Education (LCME).

II.A.1.b) Graduates of colleges of osteopathic medicine in the United States accredited by the American Osteopathic Association (AOA).
II.A.1.c) Graduates of medical schools outside the United States and Canada who meet one of the following qualifications:

II.A.1.c).(1) Have received a currently valid certificate from the Educational Commission for Foreign Medical Graduates prior to appointment, or,

II.A.1.c).(2) Have a full and unrestricted license to practice medicine in a US licensing jurisdiction in which they are training.

II.A.1.d) Graduates of medical schools outside the United States who have completed a Fifth Pathway** program provided by an LCME-accredited medical school.

II.A.2. Resident selection

II.A.2.a) The Sponsoring Institution must ensure that its ACGME-accredited programs select from among eligible applicants on the basis of residency program-related criteria such as their preparedness, ability, aptitude, academic credentials, communication skills, and personal qualities such as motivation and integrity. ACGME-accredited programs must not discriminate with regard to sex, race, age, religion, color, national origin, disability, or any other applicable legally protected status.

II.A.2.b) In selecting from among qualified applicants, it is strongly suggested that the Sponsoring Institution and all of its programs participate in an organized matching program, such as the National Resident Matching Program (NRMP), where such is available.

II.B. Financial Support for Residents: Sponsoring and participating sites must provide all residents with appropriate financial support and benefits to ensure that they are able to fulfill the responsibilities of their educational programs.

II.C. Benefits and Conditions of Appointment: Candidates for programs (applicants who are invited for an interview) must be informed, in writing or by electronic means, of the terms, conditions, and benefits of their appointment, including financial support; vacations; parental, sick, and other leaves of absence; professional liability, hospitalization, health, disability and other insurance provided for the residents and their families; and the conditions under which the Sponsoring Institution provides call rooms, meals, laundry services, or their equivalents.

II.D. Agreement of Appointment

II.D.1. The Sponsoring Institution and program directors must assure that residents are provided with a written agreement of appointment/contract outlining the terms and conditions of their appointment to a program.
II.D.2. The Sponsoring Institution must monitor programs with regard to implementation of terms and conditions of appointment by program directors.

II.D.3. The Sponsoring Institution and program directors must ensure that residents are informed of and adhere to established educational and clinical practices, policies, and procedures in all sites to which residents are assigned.

II.D.4. The resident agreement/contract must contain or provide a reference to at least the following institutional policies:

II.D.4.a) Residents’ responsibilities;

II.D.4.b) Duration of appointment;

II.D.4.c) Financial support; and,

II.D.4.d) Conditions for reappointment

II.D.4.d).(1) Non-renewal of appointment or non-promotion: In instances where a resident’s agreement will not be renewed, or when a resident will not be promoted to the next level of training, the Sponsoring Institution must ensure that its programs provide the resident(s) with a written notice of intent no later than four months prior to the end of the resident’s current agreement. If the primary reason(s) for the non-renewal or non-promotion occurs within the four months prior to the end of the agreement, the Sponsoring Institution must ensure that its programs provide the resident(s) with as much written notice of the intent not to renew or not to promote as circumstances will reasonably allow, prior to the end of the agreement.

II.D.4.d).(2) Residents must be allowed to implement the institution’s grievance procedures if they receive a written notice either of intent not to renew their agreement(s) or of intent to renew their agreement(s) but not to promote them to the next level of training.

II.D.4.e) Grievance procedures and due process: The Sponsoring Institution must provide residents with fair, reasonable, and readily available written institutional policies and procedures for grievance and due process. These policies and procedures must minimize conflict of interest by adjudicating parties in addressing:

II.D.4.e).(1) Academic or other disciplinary actions taken against residents that could result in dismissal, non-renewal of a resident’s agreement, non-promotion of a resident to the next level of training, or other actions that could significantly threaten a resident’s intended career.
II.D.4.e).(2) Adjudication of resident complaints and grievances related to the work environment or issues related to the program or faculty.

II.D.4.f) Professional liability insurance

II.D.4.f).(1) The Sponsoring Institution must provide residents with professional liability coverage and with a summary of pertinent information regarding this coverage.

II.D.4.f).(2) Liability coverage must include legal defense and protection against awards from claims reported or filed after the completion of the program(s) if the alleged acts or omissions of the residents are within the scope of the program(s).

II.D.4.g) Health and disability insurance: The Sponsoring Institution must provide hospital and health insurance benefits for the residents and their families. Coverage for such benefits should begin upon the first recognized day of their respective programs, unless statute or regulation requires a later date to begin coverage. The Sponsoring Institution must also provide access to insurance to all residents for disabilities resulting from activities that are part of the educational program.

II.D.4.h) Leaves of absence

II.D.4.h).(1) The Sponsoring Institution must provide written institutional policies on residents’ vacation and other leaves of absence (with or without pay) to include parental and sick leave; these policies must comply with applicable laws.

II.D.4.h).(2) The Sponsoring Institution must ensure that each program provides its residents with:

II.D.4.h).(2).(a) a written policy in compliance with its Program Requirements concerning the effect of leaves of absence, for any reason, on satisfying the criteria for completion of the residency program, and;

II.D.4.h).(2).(b) information relating to access to eligibility for certification by the relevant certifying board.

II.D.4.i) Duty Hours: The Sponsoring Institution must have formal written policies and procedures governing resident duty hours. (See Common Program Requirements, VI)
II.D.4.j) Moonlighting

II.D.4.j).(1) The Sponsoring Institution must have a written policy that addresses moonlighting. The policy must:

II.D.4.j).(1).(a) Specify that residents must not be required to engage in moonlighting;

II.D.4.j).(1).(b) Require a prospective, written statement of permission from the program director that is included in the resident’s file; and,

II.D.4.j).(1).(c) State that the residents’ performance will be monitored for the effect of these activities and that adverse effects may lead to withdrawal of permission.

II.D.4.j).(2) Sponsoring Institutions and program directors must closely monitor all moonlighting activities.

II.D.4.k) Counseling services: The Sponsoring Institution should facilitate residents’ access to confidential counseling, medical, and psychological support services.

II.D.4.l) Physician impairment: The Sponsoring Institution must have written policies that describe how it will address physician impairment, including that due to substance abuse.

II.D.4.m) Harassment: The Sponsoring Institution must have written policies covering sexual and other forms of harassment.

II.D.4.n) Accommodation for disabilities: The Sponsoring Institution must have a written policy regarding accommodation, which would apply to residents with disabilities. This policy need not be GME-specific.

II.D.5. Closures and Reductions: The Sponsoring Institution must have a written policy that addresses a reduction in size or closure of a residency program or closure of the Institution. The policy must include the following:

II.D.5.a) The Sponsoring Institution must inform the GMEC, the DIO, and the residents as soon as possible when it intends to reduce the size of or close one or more programs, or when the Sponsoring Institution intends to close; and,

II.D.5.b) The Sponsoring Institution must either allow residents already in the program(s) to complete their education or assist the residents in enrolling in an ACGME-accredited program(s) in which they can continue their education.
II.D.6. Restrictive Covenants: Neither the Sponsoring Institution nor its programs may require residents to sign a non-competition guarantee.

II.E. Resident Participation in Educational and Professional Activities

II.E.1. The Sponsoring Institution must ensure that each program provides effective educational experiences for residents that lead to measurable achievement of educational outcomes in the ACGME competencies as outlined in the Common and specialty/subspecialty-specific Program Requirements.

II.E.2. The Sponsoring Institution must ensure that residents:

II.E.2.a) Participate on committees and councils whose actions affect their education and/or patient care; and,

II.E.2.b) Participate in an educational program regarding physician impairment, including substance abuse and sleep deprivation.

II.F. Resident Educational and Work Environment

II.F.1. The Sponsoring Institution and its programs must provide an educational and work environment in which residents may raise and resolve issues without fear of intimidation or retaliation. Mechanisms to ensure this environment must include:

II.F.1.a) An organization or other forum for residents to communicate and exchange information on their educational and work environment, their programs, and other resident issues.

II.F.1.b) A process by which individual residents can address concerns in a confidential and protected manner.

II.F.2. The Sponsoring Institution must provide services and develop health care delivery systems to minimize residents’ work that is extraneous to their GME programs’ educational goals and objectives. These services and systems must include:

II.F.2.a) Patient support services: Peripheral intravenous access placement, phlebotomy, and laboratory and transporter services must be provided in a manner appropriate to and consistent with educational objectives and quality patient care.

II.F.2.b) Laboratory/pathology/radiology services: Laboratory, pathology, and radiology services must be in place to support timely and quality patient care.

II.F.2.c) Medical records: A medical records system that documents the course of each patient’s illness and care must be available at all times and must be adequate to support quality patient care, residents’ education, quality assurance activities, and provide a
II.F.3. The Sponsoring Institution must ensure a healthy and safe work environment that provides for:

II.F.3.a) Food services: Residents must have access to appropriate food services 24 hours a day while on duty in all institutions.

II.F.3.b) Call rooms: Residents on call must be provided with adequate and appropriate sleeping quarters that are safe, quiet, and private.

II.F.3.c) Security/safety: Appropriate security and personal safety measures must be provided to residents at all locations including but not limited to: parking facilities, on-call quarters, hospital and institutional grounds, and related facilities.

III. GRADUATE MEDICAL EDUCATION COMMITTEE (GMEC)

III.A. GMEC Composition and Meetings

III.A.1. The Sponsoring Institution must have a GMEC.

III.A.2. Voting membership on the committee must include the DIO, residents nominated by their peers, representative program directors, and administrators. It may also include other members of the faculty or other members as determined.

III.A.3. The GMEC must meet at least quarterly and maintain written minutes.

III.B. GMEC Responsibilities: The GMEC must establish and implement policies and procedures regarding the quality of education and the work environment for the residents in all programs. These policies and procedures must include:

III.B.1. Stipends and position allocation: Annual review and recommendations to the Sponsoring Institution regarding resident stipends, benefits, and funding for resident positions.

III.B.2. Communication with program directors: The GMEC must:

III.B.2.a) Ensure that communication mechanisms exist between the GMEC and all program directors within the institution.

III.B.2.b) Ensure that program directors maintain effective communication mechanisms with the site directors at each participating site for their respective programs to maintain proper oversight at all clinical sites.

III.B.3. Resident duty hours: The GMEC must:

III.B.3.a) Develop and implement written policies and procedures regarding resident duty hours to ensure compliance with the Institutional,
Common, and specialty/subspecialty-specific Program Requirements.

III.B.3.b) Consider for approval requests from program directors prior to submission to an RRC for exceptions in the weekly limit on duty hours up to 10 percent or up to a maximum of 88 hours in compliance with ACGME Policies and Procedures for duty hour exceptions.

III.B.4. Resident supervision: Monitor programs’ supervision of residents and ensure that supervision is consistent with:

III.B.4.a) Provision of safe and effective patient care;

III.B.4.b) Educational needs of residents;

III.B.4.c) Progressive responsibility appropriate to residents' level of education, competence, and experience; and,

III.B.4.d) Other applicable Common and specialty/subspecialty-specific Program Requirements.

III.B.5. Communication with Medical Staff: Communication between leadership of the medical staff regarding the safety and quality of patient care that includes:

III.B.5.a) The annual report to the OMS;

III.B.5.b) Description of resident participation in patient safety and quality of care education; and,

III.B.5.c) The accreditation status of programs and any citations regarding patient care issues

III.B.6. Curriculum and evaluation: Assurance that each program provides a curriculum and an evaluation system that enables residents to demonstrate achievement of the ACGME general competencies as defined in the Common and specialty/subspecialty-specific Program Requirements.

III.B.7. Resident status: Selection, evaluation, promotion, transfer, discipline, and/or dismissal of residents in compliance with the Institutional and Common Program Requirements.

III.B.8. Oversight of program accreditation: Review of all ACGME program accreditation letters of notification and monitoring of action plans for correction of citations and areas of noncompliance.

III.B.9. Management of institutional accreditation: Review of the Sponsoring Institution’s ACGME letter of notification from the IRC and monitoring of action plans for correction of citations and areas of noncompliance.
III.B.10. Oversight of program changes: Review of the following for approval, prior to submission to the ACGME by program directors:

III.B.10.a) All applications for ACGME accreditation of new programs;

III.B.10.b) Changes in resident complement;

III.B.10.c) Major changes in program structure or length of training;

III.B.10.d) Additions and deletions of participating sites;

III.B.10.e) Appointments of new program directors;

III.B.10.f) Progress reports requested by any Review Committee;

III.B.10.g) Responses to all proposed adverse actions;

III.B.10.h) Requests for exceptions of resident duty hours;

III.B.10.i) Voluntary withdrawal of program accreditation;

III.B.10.j) Requests for an appeal of an adverse action; and,

III.B.10.k) Appeal presentations to a Board of Appeal or the ACGME.

III.B.11. Experimentation and innovation: Oversight of all phases of educational experiments and innovations that may deviate from Institutional, Common, and specialty/subspecialty-specific Program Requirements, including:

III.B.11.a) Approval prior to submission to the ACGME and/or respective Review Committee;

III.B.11.b) Adherence to Procedures for “Approving Proposals for Experimentation or Innovative Projects” in ACGME Policies and Procedures; and,

III.B.11.c) Monitoring quality of education provided to residents for the duration of such a project.

III.B.12. Oversight of reductions and closures: Oversight of all processes related to reductions and/or closures of:

III.B.12.a) Individual programs;

III.B.12.b) Major participating sites; and,

III.B.12.c) The Sponsoring Institution.
III.B.13. Vendor interactions: Provision of a statement or institutional policy (not necessarily GME-specific) that addresses interactions between vendor representatives/corporations and residents/GME programs.

IV. INTERNAL REVIEW

IV.A. Process

IV.A.1. The GMEC must develop, implement, and oversee an internal review process as follows:

IV.A.1.a) An internal review committee(s) for each program must include at least one faculty member and at least one resident from within the Sponsoring Institution but not from within GME programs being reviewed. Additional internal or external reviewers may be included on the internal review committee as determined by the GMEC. Administrators from outside the program may also be included.

IV.A.1.b) A written protocol approved by the GMEC that incorporates, at a minimum, the requirements in this Section IV of the Institutional Requirements.

IV.A.2. Internal reviews must be in process and documented in the GMEC minutes by approximately the midpoint of the accreditation cycle. The accreditation cycle is calculated from the date of the meeting at which the final accreditation action was taken to the time of the next site visit. (See ACGME Policies and Procedures, II.B.4)

IV.A.3. When a program has no residents enrolled at the mid-point of the review cycle, the following circumstances apply:

IV.A.3.a) The GMEC must demonstrate continued oversight of those programs through a modified internal review that ensures the program has maintained adequate faculty and staff resources, clinical volume, and other necessary curricular elements required to be in substantial compliance with the Institutional, Common and specialty-specific Program Requirements prior to the program enrolling a resident.

IV.A.3.b) After enrolling a resident, an internal review must be completed within the second six-month period of the resident’s first year in the program.

IV.A.4. The internal review should assess each program’s:

IV.A.4.a) Compliance with the Common, specialty/subspecialty-specific Program, and Institutional Requirements;

IV.A.4.b) Educational objectives and effectiveness in meeting those objectives;
IV.A.4.c) Educational and financial resources;

IV.A.4.d) Effectiveness in addressing areas of non-compliance and concerns in previous ACGME accreditation letters of notification and previous internal reviews;

IV.A.4.e) Effectiveness of educational outcomes in the ACGME general competencies;

IV.A.4.f) Effectiveness in using evaluation tools and outcome measures to assess a resident’s level of competence in each of the ACGME general competencies; and,

IV.A.4.g) Annual program improvement efforts in:

IV.A.4.g).(1) resident performance using aggregated resident data;

IV.A.4.g).(2) faculty development;

IV.A.4.g).(3) graduate performance including performance of program graduates on the certification examination; and,

IV.A.4.g).(4) program quality. (see Common Program Requirements, V.C.)

IV.A.5. Materials and data to be used in the review process must include:

IV.A.5.a) The ACGME Common, specialty/subspecialty-specific Program, and Institutional Requirements in effect at the time of the review;

IV.A.5.b) Accreditation letters of notification from previous ACGME reviews and progress reports sent to the respective RRC;

IV.A.5.c) Reports from previous internal reviews of the program;

IV.A.5.d) Previous annual program evaluations; and,

IV.A.5.e) Results from internal or external resident surveys, if available.

IV.A.6. The internal review committee must conduct interviews with the program director, key faculty members, at least one peer-selected resident from each level of training in the program, and other individuals deemed appropriate by the committee.

IV.B. Internal Review Report

IV.B.1. The written report of the internal review for each program must contain, at a minimum:

IV.B.1.a) The name of the program reviewed;
IV.B.1.b) The date of the assigned midpoint and the status of the GMEC’s oversight of the internal review at that midpoint;

IV.B.1.c) The names and titles of the internal review committee members;

IV.B.1.d) A brief description of how the internal review process was conducted, including the list of the groups/individuals interviewed and the documents reviewed;

IV.B.1.e) Sufficient documentation to demonstrate that a comprehensive review followed the GMEC’s internal review protocol;

IV.B.1.f) A list of the citations and areas of non-compliance or any concerns or comments from the previous ACGME accreditation letter of notification with a summary of how the program and/or institution subsequently addressed each item.

IV.B.2. The DIO and the GMEC must monitor the response by the program to actions recommended by the GMEC in the internal review process.

IV.B.3. The Sponsoring Institution must submit the most recent internal review report for each training program as a part of the Institutional Review Document (IRD). If the institutional site visitor simultaneously conducts individual program reviews at the same time as the institutional review, the internal review reports for those programs must not be shared with the site visitor.

ACGME Approved: February 2007  Effective: July 1, 2007
ACGME Approved Minor Revision: June 14, 2009  Effective: July 1, 2009

Footnote for I.A.2

* Further use in this document of the term “program(s)” will refer to “ACGME-accredited program(s).”

Footnote for II.A.1.d

** A Fifth Pathway program is an academic year of supervised clinical education provided by an LCME-accredited medical school to students who meet the following conditions: (1) have completed, in an accredited college or university in the United States, undergraduate premedical education of the quality acceptable for matriculation in an accredited United States medical school; (2) have studied at a medical school outside the United States and Canada but listed in the World Health Organization Directory of Medical Schools; (3) have completed all of the formal requirements of the foreign medical school except internship and/or social service; (4) have attained a score satisfactory to the sponsoring medical school on a screening examination; and (5) have passed either the Foreign Medical Graduate Examination in the Medical Sciences, Parts I and II of the examination of the National Board of Medical Examiners, or Steps 1 and 2 of the United States Medical Licensing Examination (USMLE).
ACGME Program Requirements for Graduate Medical Education in Ophthalmology

Common Program Requirements are in BOLD

Effective: July 1, 2007

Introduction

A. Definition and Scope of the Specialty

Residency training programs in ophthalmology should provide a stable, well-coordinated, and progressive educational experience in the entire spectrum of ophthalmic diseases and ocular surgery. Residents in ophthalmology should develop diagnostic, therapeutic, and manual skills, as well as sound judgment in the application of such skills. Each resident must have major technical and patient care responsibilities in order to provide an adequate base for a comprehensive ophthalmic practice. That base must include: optics, visual physiology, and corrections of refractive errors; retina, vitreous, and uvea; neuro-ophthalmology; pediatric ophthalmology and strabismus; external disease and cornea; glaucoma, cataract, and anterior segment; oculoplastic surgery and orbital diseases; and ophthalmic pathology.

B. Duration and Scope of Education

1. The length of training in ophthalmology must be at least 36 calendar months, including appropriate short periods for vacation, special assignments, or exceptional individual circumstances approved by the program director.

2. Any program that extends the length of training beyond 36 calendar months must present an educational rationale that is consonant with the program requirements and the objectives for residency training. Approval for an extended curriculum must be obtained prior to implementation and at each subsequent review. Prior to entry in the program, each resident must be notified in writing of the required curriculum length.

3. The length of time of residency training for a particular resident may be extended by the program director if that resident needs additional training. If the extension is six months or less, the program director must notify the residency Review Committee of the extension, and must describe the proposed curriculum for that resident and the measures taken to minimize any impact on other residents. Any changes in rotation schedules should be included in
the notification. Express permission must be obtained in advance from the Review Committee if the extension is greater than six months. (See Section II. A. 4.r. below)

I. Institutions

A. Sponsoring Institution

One sponsoring institution must assume ultimate responsibility for the program, as described in the Institutional Requirements, and this responsibility extends to resident assignments at all participating sites.

The sponsoring institution and the program must ensure that the program director has sufficient protected time and financial support for his or her educational and administrative responsibilities to the program.

1. The majority of the required clinical and didactic educational experiences must occur and be coordinated by the program director at this institution.

B. Participating Sites

1. There must be a program letter of agreement (PLA) between the program and each participating site providing a required assignment. The PLA must be renewed at least every five years.

The PLA should:

a) identify the faculty who will assume both educational and supervisory responsibilities for residents;

b) specify their responsibilities for teaching, supervision, and formal evaluation of residents, as specified later in this document;

c) specify the duration and content of the educational experience; and,

d) state the policies and procedures that will govern resident education during the assignment.

e) outline the educational goals and objectives to be attained by the resident during the assignment.
2. The program director must submit any additions or deletions of participating sites routinely providing an educational experience, required for all residents, of one month full time equivalent (FTE) or more through the Accreditation Council for Graduate Medical Education (ACGME) Accreditation Data System (ADS).

3. The participating site should provide resources not otherwise available to the program.

4. Assignments at participating sites must be of sufficient length to ensure a quality educational experience, and should provide sufficient opportunity for continuity of care. Although the number of participating sites may vary with the specialties' needs, all participating sites must demonstrate the ability to promote the program goals, and educational and peer activities. Exceptions must be justified and approved in advance.

5. If the distance between participating sites and the sponsoring institution is great enough to prevent residents’ regular attendance at the didactic and clinical conferences, or if the rotation otherwise precludes attendance, the program director must demonstrate that each resident has a formal educational experience that fulfills the program requirements.

6. There should be formal teaching case presentations at each participating site to assure optimal utilization of patients for teaching purposes. Alternatively, cases should be brought from participating sites to the sponsoring institution for presentation if formal teaching case presentations are held only there.

7. Rotations to foreign countries shall not be used to meet minimum educational standards.

II. Program Personnel and Resources

A. Program Director

1. There must be a single program director with authority and accountability for the operation of the program. The sponsoring institution’s GMEC must approve a change in program director. After approval, the program director must submit this change to the ACGME via the ADS.

   a) The program director should be a member of the medical
staff of the sponsoring or integrated institution. The institution must ensure that the program director is given sufficient authority, financial support, and facilities by the governing body of the sponsoring institution to permit him or her to organize and supervise the following activities of the training program: resident selection and evaluation, resident instruction, patient management, research, and initiation of recommendations for staff recruitment.

b) The program director should have a term of at least three years.

2. The program director should continue in his or her position for a length of time adequate to maintain continuity of leadership and program stability.

3. Qualifications of the program director must include:
   a) requisite specialty expertise and documented educational and administrative experience acceptable to the Review Committee;
   b) current certification in the specialty by the American Board of Ophthalmology, or specialty qualifications that are acceptable to the Review Committee; and,
   c) current medical licensure and appropriate medical staff appointment.

4. The program director must administer and maintain an educational environment conducive to educating the residents in each of the ACGME competency areas. The program director must:
   a) oversee and ensure the quality of didactic and clinical education in all sites that participate in the program;
   b) approve a local director at each participating site who is accountable for resident education;
   c) approve the selection of program faculty as appropriate;
   d) evaluate program faculty and approve the continued participation of program faculty based on evaluation;
   e) monitor resident supervision at all participating sites;
f) prepare and submit all information required and requested by the ACGME, including but not limited to the program information forms and annual program resident updates to the ADS, and ensure that the information submitted is accurate and complete;

g) provide each resident with documented semiannual evaluation of performance with feedback;

h) ensure compliance with grievance and due process procedures as set forth in the Institutional Requirements and implemented by the sponsoring institution;

i) provide verification of residency education for all residents, including those who leave the program prior to completion;

j) implement policies and procedures consistent with the institutional and program requirements for resident duty hours and the working environment, including moonlighting, and, to that end, must:

(1) distribute these policies and procedures to the residents and faculty;

(2) monitor resident duty hours, according to sponsoring institutional policies, with a frequency sufficient to ensure compliance with ACGME requirements;

(3) adjust schedules as necessary to mitigate excessive service demands and/or fatigue; and,

(4) if applicable, monitor the demands of at-home call and adjust schedules as necessary to mitigate excessive service demands and/or fatigue.

k) monitor the need for and ensure the provision of backup support systems when patient care responsibilities are unusually difficult or prolonged;

l) comply with the sponsoring institution’s written policies and procedures, including those specified in the Institutional Requirements, for selection, evaluation and promotion of residents, disciplinary action, and
supervision of residents;

m) be familiar with and comply with ACGME and Review Committee policies and procedures as outlined in the ACGME Manual of Policies and Procedures;

n) obtain review and approval of the sponsoring institution’s GMEC/DIO before submitting to the ACGME information or requests for the following:

1. all applications for ACGME accreditation of new programs;
2. changes in resident complement;
3. major changes in program structure or length of training;
4. progress reports requested by the Review Committee;
5. responses to all proposed adverse actions;
6. requests for increases or any change to resident duty hours;
7. voluntary withdrawals of ACGME-accredited programs;
8. requests for appeal of an adverse action;
9. appeal presentations to a Board of Appeal or the ACGME; and,
10. proposals to ACGME for approval of innovative educational approaches.

o) obtain DIO review and co-signature on all program information forms, as well as any correspondence or document submitted to the ACGME that addresses:

1. program citations, and/or
2. request for changes in the program that would have significant impact, including financial, on the program or institution.
p) ensure that all residents have equivalent educational experiences;

q) seek approval from the Review Committee for a required rotation of six months or more to any site other than the primary teaching site;

r) seek approval from the Review Committee for any change in resident complement, either the total number or the number at any level. If the change in resident complement results from an extension of a single resident's training, and is not greater than six months, only prior notification of the Review Committee is required;

s) prepare explicit written descriptions of the lines of responsibility for the care of patient, and make these clear to all members of teaching teams. Residents must be provided with rapid, reliable systems for communication with and appropriate involvement of supervisory physicians in a manner appropriate for quality patient care and educational programs;

t) ensure that residents are educated in basic and clinical sciences through a structured and regularly-scheduled series of conferences and lectures, including but not limited to those topics included in Definition and Scope of Specialty, above. This series should include a minimum of 360 hours during the 36 month training program, at least 200 hours of which are intramural. In addition, a minimum of six hours per month should be devoted to case presentation conferences (e.g., Grand Rounds, Continuous Quality Improvement) attended by several faculty and a majority of residents. The program director or designee is responsible for documenting residents' attendance at conferences;

u) ensure the residents are entering their operative cases into the resident case log system; and,

v) verify the surgical experiences of each resident, including the number of cases in each category where the resident has served as the primary surgeon or the assistant surgeon. This documentation must be provided to the Review Committee on its program information forms; individual resident logs must be available at the time of the site visit.
B. Faculty

1. At each participating site, there must be a sufficient number of faculty with documented qualifications to instruct and supervise all residents at that location.

The faculty must:

a) devote sufficient time to the educational program to fulfill their supervisory and teaching responsibilities; and to demonstrate a strong interest in the education of residents, and

b) administer and maintain an educational environment conducive to educating residents in each of the ACGME competency areas.

2. The physician faculty must have current certification in the specialty by the American Board of Ophthalmology, or possess qualifications acceptable to the Review Committee.

a) The faculty must have subspecialty expertise across a broad range of ophthalmic disciplines, including those described in Introduction Section A. of these program requirements. Such expertise will usually be acquired by subspecialty fellowship training.

3. The physician faculty must possess current medical licensure and appropriate medical staff appointment.

4. The nonphysician faculty must have appropriate qualifications in their field and hold appropriate institutional appointments.

5. The faculty must establish and maintain an environment of inquiry and scholarship with an active research component.

a) The faculty must regularly participate in organized clinical discussions, rounds, journal clubs, and conferences.

b) Some members of the faculty should also demonstrate scholarship by one or more of the following:

(1) peer-reviewed funding;

(2) publication of original research or review articles
in peer-reviewed journals, or chapters in textbooks;

(3) publication or presentation of case reports or clinical series at local, regional, or national professional and scientific society meetings; or,

(4) participation in national committees or educational organizations.

c) Faculty should encourage and support residents in scholarly activities.

C. Other Program Personnel

The institution and the program must jointly ensure the availability of all necessary professional, technical, and clerical personnel for the effective administration of the program.

D. Resources

The institution and the program must jointly ensure the availability of adequate resources for resident education, as defined in the specialty program requirements.

1. Clinic

The outpatient area of each participating site must have a minimum of one fully-equipped examining lane for each resident in the clinic. There must be access to current diagnostic equipment. This should encompass equipment designed for ophthalmic photography (including fluorescein angiography), perimetry, ultrasonography, keratometry, and retinal electrophysiology, as well as other appropriate equipment.

2. Operating Room Facilities

The surgical facilities for ophthalmology resident training at each participating site must include at least one operating room fully-equipped for ophthalmic surgery, including an operating microscope.

3. Inpatient Facilities

There must be inpatient facilities with access to sufficient space and beds for good patient care. An eye examination room with a
slit lamp should be easily accessible.

4. Residents must have access to a surgical skills development facility (e.g., a wet lab, materials or simulators) and instruction within the program.

5. The volume and variety of clinical ophthalmological problems in children and adults must be sufficient to afford each resident a graduated and supervised experience with the entire spectrum of ophthalmic diseases, so that the resident may develop diagnostic, therapeutic, and manual skills and judgment as to their appropriate use.

E. Medical Information Access

Residents must have ready access to specialty-specific and other appropriate reference material in print or electronic format. Electronic medical literature databases with search capabilities should be available.

III. Resident Appointments

A. Eligibility Criteria

The program director must comply with the criteria for resident eligibility as specified in the Institutional Requirements.

1. All applicants entering ophthalmology training programs must have taken a post-graduate clinical year (PGY-1) in a program accredited by either the ACGME or the Royal College of Physicians and Surgeons of Canada. The PGY-1 year must include training in which the resident has primary responsibility for patient care in fields such as internal medicine, neurology, pediatrics, surgery, family medicine, or emergency medicine. At minimum, six months of this year must be a broad experience in direct patient care.

B. Number of Residents

The program director may not appoint more residents than approved by the Review Committee, unless otherwise stated in the specialty-specific requirements. The program’s educational resources must be adequate to support the number of residents appointed to the program.

1. A critical mass or minimum number of residents is essential to provide an opportunity for meaningful interaction throughout the
training period. Each program must be structured to have at least two residents in each year of training.

C. Resident Transfers

1. Before accepting a resident who is transferring from another program, the program director must obtain written or electronic verification of previous educational experiences and a summative competency-based performance evaluation of the transferring resident.

2. A program director must provide timely verification of residency education and summative performance evaluations for residents who leave the program prior to completion.

D. Appointment of Fellows and Other Learners

The presence of other learners (including, but not limited to, residents from other specialties, subspecialty fellows, PhD students, and nurse practitioners) in the program must not interfere with the appointed residents’ education. The program director must report the presence of other learners to the DIO and GMEC in accordance with sponsoring institution guidelines.

IV. Educational Program

A. The curriculum must contain the following educational components:

1. Overall educational goals for the program, which the program must distribute to residents and faculty annually;

2. Competency-based goals and objectives for each assignment at each educational level, which the program must distribute to residents and faculty annually, in either written or electronic form. These should be reviewed by the resident at the start of each rotation;

3. Regularly scheduled didactic sessions;

4. Delineation of resident responsibilities for patient care, progressive responsibility for patient management, and supervision of residents over the continuum of the program; and,
5. ACGME Competencies

The program must integrate the following ACGME competencies into the curriculum:

a) Patient Care

Residents must be able to provide patient care that is compassionate, appropriate, and effective for the treatment of health problems and the promotion of health. Residents:

(1) will understand, in particular, the care of the surgical patient, to have the medical and technical knowledge, as well as the skills, necessary to care for the surgical patient. Included here is the understanding of the preoperative ophthalmic and general medical evaluation and assessment of indications for surgery and surgical risks and benefits, informed consent, intraoperative skills, local and general anesthetic considerations, acute and longer-term postoperative care, and management of systemic and ocular complications that may be associated with surgery and anesthesia;

(2) should be responsible for the care of an adequate number of outpatients who represent a broad range of ophthalmic diseases. There must be appropriate faculty supervision of the residents in all outpatient clinic visits. Appropriate faculty supervision occurs when the faculty provides direct supervision (resident primarily sees the patient, faculty sees patient with resident, and collaborative effort determines management), or when the faculty is on site and readily available to see any patient upon request of the resident;

(3) should participate in a minimum of 3,000 outpatient visits in which the resident performs a substantial portion of the examination;

(4) should have access to a simulated operative setting (e.g., wet lab) to allow them to develop proficiency in basic surgical techniques;

(5) must perform and assist at a sufficient number of
surgeries to become skilled as comprehensive ophthalmic surgeons. While the total number of operative procedures to be performed is not specified, the Review Committee will consider a minimum number of key procedures as acceptable. (The minimum numbers are listed on the ACGME website); and,

(6) must have graduated technical and patient care responsibilities in the surgery (including laser surgery) of cataract, strabismus, cornea, glaucoma, retina/vitreous, oculoplastic, and trauma to provide an adequate base for a comprehensive ophthalmic practice.

b) Medical Knowledge

Residents must demonstrate knowledge of established and evolving biomedical, clinical, epidemiological and social-behavioral sciences, as well as the application of this knowledge to patient care. Residents:

(1) should have a minimum of 36 hours of experience in gross and microscopic examination of pathological specimens, including the residents' review of pathological specimens of their patients with a pathologist who has demonstrated expertise in ophthalmic pathology. The experience with such a pathologist may take place intramurally or extramurally at a laboratory considered by the Review Committee to be capable of providing such training, and

(2) should have documented experiences in practice management, ethics, advocacy, visual rehabilitation, and socio-economics.

c) Practice-based Learning and Improvement

Residents must 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 and life-long learning. Residents are expected to develop skills and habits to be able to meet the following goals:
(1) identify strengths, deficiencies, and limits in one’s knowledge and expertise;

(2) set learning and improvement goals;

(3) identify and perform appropriate learning activities;

(4) systematically analyze practice using quality improvement methods, and implement changes with the goal of practice improvement;

(5) incorporate formative evaluation feedback into daily practice;

(6) locate, appraise, and assimilate evidence from scientific studies related to their patients’ health problems;

(7) use information technology to optimize learning; and,

(8) participate in the education of patients, families, students, residents and other health professionals.

d) Interpersonal and Communication Skills

Residents must demonstrate interpersonal and communication skills that result in the effective exchange of information and collaboration with patients, their families, and health professionals. Residents are expected to:

(1) communicate effectively with patients, families, and the public, as appropriate, across a broad range of socioeconomic and cultural backgrounds;

(2) communicate effectively with physicians, other health professionals, and health related agencies;

(3) work effectively as a member or leader of a health care team or other professional group;
(4) act in a consultative role to other physicians and health professionals; and,

(5) maintain comprehensive, timely, and legible medical records, if applicable.

(6) receive experience in providing inpatient and outpatient consultation during the course of three years of education.

e) Professionalism

Residents must demonstrate a commitment to carrying out professional responsibilities and an adherence to ethical principles. Residents are expected to demonstrate:

(1) compassion, integrity, and respect for others;

(2) responsiveness to patient needs that supersedes self-interest;

(3) respect for patient privacy and autonomy;

(4) accountability to patients, society and the profession; and,

(5) sensitivity and responsiveness to a diverse patient population, including but not limited to diversity in gender, age, culture, race, religion, disabilities, and sexual orientation.

f) Systems-based Practice

Residents must 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. Residents are expected to:

(1) work effectively in various health care delivery settings and systems relevant to their clinical specialty;

(2) coordinate patient care within the health care system relevant to their clinical specialty;
incorporate considerations of cost awareness and risk-benefit analysis in patient and/or population-based care as appropriate;

advocate for quality patient care and optimal patient care systems;

work in interprofessional teams to enhance patient safety and improve patient care quality; and,

participate in identifying system errors and implementing potential systems solutions.

B. Residents’ Scholarly Activities

1. The curriculum must advance residents’ knowledge of the basic principles of research, including how research is conducted, evaluated, explained to patients, and applied to patient care.

2. Residents should participate in scholarly activity.

3. The sponsoring institution and program should allocate adequate educational resources to facilitate resident involvement in scholarly activities.

V. Evaluation

A. Resident Evaluation

1. Formative Evaluation
   
a) The faculty must evaluate resident performance in a timely manner during each rotation or similar educational assignment, and document this evaluation at completion of the assignment.

b) The program must:

   (1) provide objective assessments of competence in patient care, medical knowledge, practice-based learning and improvement, interpersonal and communication skills, professionalism, and systems-based practice;
(2) use multiple evaluators (e.g., faculty, peers, patients, self, and other professional staff);

(3) document progressive resident performance improvement appropriate to educational level; and,

(4) provide each resident with documented semiannual evaluation of performance with feedback.

c) The evaluations of resident performance must be accessible for review by the resident, in accordance with institutional policy.

d) Assessment will include the care of the surgical patient.

e) Assessment should include an annually required objective test as a component of evaluating the resident’s cognitive ability. While each program may utilize its own test instruments, the Ophthalmic Knowledge Assessment Program (OKAP) examination is an example. However, results of the OKAP examination should not be used as the only criterion of resident performance. An analysis of the results of these tests should guide the faculty in assessing the strengths and weaknesses of individual residents and of the program.

2. Summative Evaluation

The program director must provide a summative evaluation for each resident upon completion of the program. This evaluation must become part of the resident’s permanent record maintained by the institution, and must be accessible for review by the resident in accordance with institutional policy. This evaluation must:

a) document the resident’s performance during the final period of education, and

b) verify that the resident has demonstrated sufficient competence to enter practice without direct supervision.
B. Faculty Evaluation

1. At least annually, the program must evaluate faculty performance as it relates to the educational program.

2. These evaluations should include a review of the faculty’s clinical teaching abilities, commitment to the educational program, clinical knowledge, professionalism, and scholarly activities.

3. This evaluation must include at least annual written confidential evaluations by the residents.

C. Program Evaluation and Improvement

1. The program must document formal, systematic evaluation of the curriculum at least annually. The program must monitor and track each of the following areas:
   
   a) resident performance;
   
   b) faculty development;
   
   c) graduate performance, including performance of program graduates on the certification examination; and,

   d) program quality. Specifically:
      
      (1) Residents and faculty must have the opportunity to evaluate the program confidentially and in writing at least annually, and

      (2) The program must use the results of residents’ assessments of the program together with other program evaluation results to improve the program.

2. If deficiencies are found, the program should prepare a written plan of action to document initiatives to improve performance in the areas listed in section V.C.1. The action plan should be reviewed and approved by the teaching faculty and documented in meeting minutes.

3. The Review Committee for Ophthalmology will evaluate the overall effectiveness of the program director as an administrator and
VI. Resident Duty Hours in the Learning and Working Environment

A. Principles

1. The program must be committed to and be responsible for promoting patient safety and resident well-being and to providing a supportive educational environment.

2. The learning objectives of the program must not be compromised by excessive reliance on residents to fulfill service obligations.

3. Didactic and clinical education must have priority in the allotment of residents’ time and energy.

4. Duty hour assignments must recognize that faculty and residents collectively have responsibility for the safety and welfare of patients.

B. Supervision of Residents

The program must ensure that qualified faculty provide appropriate supervision of residents in patient care activities.

1. There should be direct faculty supervision of each resident in at least 1,000 outpatient visits. Direct faculty supervision occurs when faculty members also examine the patient with the resident and discuss the management of the patient with the resident before the patient leaves the clinic.

2. For emergency care, faculty must be readily available to see any patient upon request by the resident.

C. Fatigue

Faculty and residents must be educated to recognize the signs of fatigue and sleep deprivation and must adopt and apply policies to prevent and counteract its potential negative effects on patient care and learning.

D. Duty Hours (the terms in this section are defined in the ACGME Glossary and apply to all programs)
Duty hours are defined as all clinical and academic activities related to the program; i.e., patient care (both inpatient and outpatient), administrative duties relative to patient care, the provision for transfer of patient care, time spent in-house during call activities, and scheduled activities, such as conferences. Duty hours do not include reading and preparation time spent away from the duty site.

1. Duty hours must be limited to 80 hours per week, averaged over a four-week period, inclusive of all in-house call activities.

2. Residents must be provided with one day in seven free from all educational and clinical responsibilities, averaged over a four-week period, inclusive of call.

3. Adequate time for rest and personal activities must be provided. This should consist of a 10-hour time period provided between all daily duty periods and after in-house call.

E. On-call Activities

1. In-house call must occur no more frequently than every third night, averaged over a four-week period.

2. Continuous on-site duty, including in-house call, must not exceed 24 consecutive hours. Residents may remain on duty for up to six additional hours to participate in didactic activities, transfer care of patients, conduct outpatient clinics, and maintain continuity of medical and surgical care.

3. No new patients may be accepted after 24 hours of continuous duty.
   a) A new patient is defined as any patient for whom the resident has not previously provided care.

4. At-home call (or pager call)
   a) The frequency of at-home call is not subject to the every-third-night, or 24+6 limitation. However at-home call must not be so frequent as to preclude rest and reasonable personal time for each resident.
   b) Residents taking at-home call must be provided with one day in seven completely free from all educational and clinical responsibilities, averaged over a four-week period.
c) When residents are called into the hospital from home, the hours residents spend in-house are counted toward the 80-hour limit.

F. Moonlighting

1. Moonlighting must not interfere with the ability of the resident to achieve the goals and objectives of the educational program.

2. Internal moonlighting must be considered part of the 80-hour weekly limit on duty hours.

G. Duty Hours Exceptions

A Review Committee may grant exceptions for up to 10% or a maximum of 88 hours to individual programs based on a sound educational rationale.

1. In preparing a request for an exception the program director must follow the duty hour exception policy from the ACGME Manual on Policies and Procedures.

2. Prior to submitting the request to the Review Committee, the program director must obtain approval of the institution’s GMEC and DIO.

VII. Experimentation and Innovation

Requests for experimentation or innovative projects that may deviate from the institutional, common and/or specialty specific program requirements must be approved in advance by the Review Committee. In preparing requests, the program director must follow Procedures for Approving Proposals for Experimentation or Innovative Projects located in the ACGME Manual on Policies and Procedures. Once a Review Committee approves a project, the sponsoring institution and program are jointly responsible for the quality of education offered to residents for the duration of such a project.

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