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INTRODUCTION

The Loyola University Medical Center (LUMC) - Hines Veteran’s Administration Hospital (HVAH) Ophthalmology Residency Program provides a joint education opportunity offered by the two institutions. The physician members of the department are all faculty members of the Stritch School of Medicine (SSOM), Loyola University, Chicago. The training program utilizes both LUMC and HVAH to provide the formal instruction and patient care experience needed to prepare a physician to successfully complete the examination process offered by the American Board of Ophthalmology. Successful completion of the examination process gains for the physician certification and benefits of such recognition. Appended to this document you will find a specific, detailed statement of the “Goals and Objectives” of each area of study.

The residency makes available to the physician access to the body of knowledge required to competently handle a wide variety of clinical problems related to the eye. This is accomplished by recommending the appropriate textbooks, periodicals, slide teaching sets, hands-on experience, consultation and professional development through interaction with the faculty in a one-to-one or small group setting. Research activities together with and under the supervision of the faculty, introduce the resident to the procedures and techniques necessary to carry on meaningful and productive exploration of the frontiers of ophthalmology. This effort also enables the resident to experience the satisfaction of completing these efforts, presenting the results at national meetings, and ultimately and publishing the work in refereed journals.
ATTENDANCE

Conferences:
- All residents are required to attend the conferences scheduled for the month. (Sample schedule follows.) Be on time for all lectures.
  NOTE: Under no circumstances is routine patient care or consultation a valid excuse to be late or miss a conference or lecture.
- You are required to attend the Chicago Curriculum at the University of Illinois held on Saturday mornings as scheduled. The number of required lectures varies depending on your class standing as follows:
  - First year residents: 75%
  - Second year residents: 50%
  - Third year residents: 33%
- The Chicago Ophthalmological Society (COS) holds 4 dinner meetings each year in the fall and spring (one Monday/month), in addition to the Clinical Conference held for 2 days in May. It is mandatory for all residents to attend each dinner meeting. Residents are excused from 1 dinner meeting per year.
- All residents are required to sign in for all lectures and conferences. Attendance logs are kept on file.
- If there are 3 unexcused absences from morning lectures, or if a resident does not attend 50% of the CCO lectures or if the resident is not complying with the rules set forth in this manual as interpreted by the program director the following penalties could apply (THIS IS NOT AN EXHAUSTIVE LIST WHICH CAN AND MAY BE MODIFIED). Being more than 10 minutes late to a lecture three times counts as 1 unexcused absence.
  - any resident could be assigned more frequent grand rounds topics
  - first year residents could be assigned weekday call
  - second year residents could be assigned weekend call
  - third year residents could be assigned primary call
  - any resident could be re-assigned to Holiday call
  - the department reserves the right to withdraw department-granted benefits, such as reimbursement for travel expenses or educational leave
  - if the resident continues to not comply with these rules, the program can put the resident on probation or suspend the resident, which remains on the resident’s permanent record

Loyola Outpatient Clinics:
Resident coverage of outpatient clinics is a high priority. Morning clinics begin at 8:00 am and afternoon clinics begin at 1:00 p.m. Residents assigned to the clinic should be present at the start of all clinics. It is the resident’s responsibility to find out if the attending clinic begins at a time other than 8:00 or 1:00. If there is a morning lecture, all residents are required to attend the lecture unless the resident is in surgery. No resident should be in the ophthalmology department office building while patients are being seen unless the resident has spoken to the clinic attending.

When attending clinics are canceled, the assigned resident must help in another clinic or see consults if the number is 3 or more.

The third year resident is expected to cover unstaffed clinics when not in surgery.
**CALL**

**Clinical Experience:**

Each first and second year resident has responsibility for taking call from home with a pager. When called, the resident is expected to handle the question on the telephone or come directly and quickly to the location in the medical center when the patient needs evaluation. This means that the resident must be available and reachable for the time he/she is on call. If a resident is at the hospital the entire time on call and has reached the 30-hour time limit as set by the ACGME, the resident is excused from clinical duties the following day.

Per the ACGME website ([www.ACGME.org](http://www.ACGME.org)) concerning At-home call (or pager call)

1) 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.

2) 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.

3) When residents are called into the hospital from home, the hours residents spend in-house are counted toward the 80-hour limit. For call taken from home (pager call), the time the resident spends in the hospital after being called in is counted toward the weekly duty hour limit.

4) The only other numeric duty hour standard that applies is that one day in seven must be free of all patient care responsibilities, which includes home call. The ACGME also requires that programs monitor the intensity and workload resulting from home call, through periodic assessment of the frequency of being called into the hospital and the length and intensity of the in-house activities.

Each first year resident is assigned to one weekend (Friday at 5pm through Monday at 7am) call every 4 weeks. Each second year resident covers one weekday call per week (Monday through Thursday). When on call, the resident provides care at both hospitals. It is the responsibility of the resident seeing the patient on call to make appropriate recommendations for follow up evaluation by an Attending. The resident also must personally inform the Attending faculty or the consult resident at Loyola about the identification and location of patients. The consult resident at Loyola is in charge of having the appropriate attending staff the patients if they remain in-house.

The senior residents take back-up call every four weeks for one week at a time or 1 weekday per week. They are available by telephone to advise the resident on call, and should be called when any patient is admitted. During the first two months of providing back-up for the first year residents, the senior resident must be especially available for helping the first year residents see even basic problems including non-surgical patients. An Attending faculty member is always available to consult by telephone and will come to evaluate any patient the resident determines needs such attention. The senior resident on call can contact the Attending directly at any time. A complete schedule of attending physician coverage is determined for the succeeding six months and is posted in the department. This also shows the best way to contact the Attending. Any disposition of a patient with respect to admission and/or surgery should be made only after consultation with the Attending. In situations where the decision to admit is not that of ophthalmology (e.g. patient with poly-trauma with eye injury,) the Attending should be
notified if surgery is thought to be indicated for the eye injury and should indicate the action to be taken by the resident. All patients seen in the emergency room must be recorded on their personal consultation/emergency room log sheet. This can be done by creating a list in EPIC. This list should be provided to the chief resident periodically for ACGME purposes.

The attending on call is ultimately responsible for patients seen by the residents. The patients seen on call may provide welcome educational experience for the senior resident. It is important therefore that first and second year residents on call contact their third year back-up for all surgical and non-surgical cases that they are uncomfortable or unsure about the appropriate diagnosis, management, or follow-up, or if there will be a surgical intervention planned. It is the senior back-up resident’s responsibility for any on-call surgical cases. For after-hours or weekend scheduled cases, it is the responsibility of the resident on that service to be in the OR. **For example, a plastics surgery case that is added on at the end of the day at 11pm is the responsibility of the plastics resident. This would include a weekend planned in-patient case in which an oculoplastics attending was to take a patient to the OR and the resident on the plastics service was not scheduled to be out of town.**

**Add-on cases in which the senior resident would be the operating resident that begin prior to 5p on a weekday will be the responsibility of the Loyola senior. If the case does not begin prior to 5p, then it becomes the responsibility of the senior back-up for that weekday.**

Any surgical and non-surgical case which includes a patient requiring a minor surgical procedure, must be discussed with the on call attending by the **THIRD YEAR RESIDENT.**

**EMERGENCY EYE CARE:**

- Familiarize yourself with the Hines Eye Clinic, the Loyola Emergency Room, and the Burn Unit.
- All patients examined in the Consult Room should be documented. Each resident must keep a log of the patients seen while on call in EPIC—“create a list.”
- All residents will need a valid Hines ID (with a magnetic strip) and a key to the eye clinic to allow access to the VA after hours.
- All patients seen in the Emergency Room should have a complete and fully documented eye exam (with x-rays if metallic foreign body or fracture is suspected.)
- All patients must have follow-up appointments the next day or Monday. It is a good idea to compile your own emergency eye kit including: Diamox tablets, Timoptic, Fluorescein strips, antibiotics, tetracaine and dilating drops, lid speculum, cotton tip swabs, eye patches, etc. You may be called to the floor and have nothing available otherwise. (All are available in Resident Room.) Make sure you have your own direct, indirect ophthalmoscope working with a good penlight with blue filter with you on call. (All available in Resident Room at LUMC and at Clinic at Hines.)
- Completed consults are filed by you in EPIC at Loyola or are left at the secretary’s front desk at Hines. At Loyola, you must sign-out to the consult resident so he can then staff
the consult with the appropriate attending. At Hines, make sure appropriate follow-up is scheduled—tell patient what time to return.

- Complete eye exam includes:
  - History, medications, allergies, previous eye history, family eye history.
  - Vision with/without glasses and pinhole near and distance vision.
  - Glasses prescriptions - not on call.
  - Pupils.
  - Extraocular muscles/motility.
  - Visual fields
  - External eye exam - lids, lashes, conjunctiva
  - Slit lamp exam cornea, anterior chamber, iris, lens.
  - Tonometry and time of exam.
  - Fundus - type of dilation used, if any, and description of vitreous, disc, macula, vessels and periphery.
  - Imaging studies as indicated.
  - Complete EPIC “consult/new patient” template. Complete patient encounter on
    the computer at Hines in addition to a paper patient encounter form.

HOLIDAY CALL POLICY: LOYOLA/HINES:

When Loyola has a holiday and Hines does not, the Hines resident on call is not responsible for call at Loyola.
1) Residents at Loyola take call.
2) The name of the resident(s) on call at Loyola must be listed on the monthly call
   schedule.
3) When Hines has a holiday and Loyola does not, the Loyola resident on call is not
   responsible for call at Hines.
4) Residents at Hines take call (1st year covers call unless scheduled for vacation, whereby a 2nd year will then be responsible for call coverage).
5) The name of the resident(s) on call at Hines must be listed on the monthly call
   schedule.

June specific details:
1) Current 2nd years serve as own surgical back-up during the weeknights
2) Weekend surgical back-up is to be divided amongst the current 2nd years
3) A current 2nd year will be responsible for the medical and surgical back-up the
   weekend of the graduation event

*** It is responsibility of the resident on-call to forward the call pager to their pager at 5p
   and then forward it back to the consult resident’s pager at 7a.

For follow-up appointments for patients from call:
1) Always provide patients with triage phone number 708.216.4705
2) Residents are not to give patients specific times/clinic appointments
3) Resident is responsible for calling triage and leaving message to include:
   a. Name of patient
   b. MRN
   c. Date of consultation
d. Patient phone number  
e. Reason for consultation/follow-up (i.e corneal abrasion)  
f. Suggested time interval to follow-up (i.e next day, within 2 days)  
g. May include suggested attending
CONSULTATION SERVICE

Introduction:
The patient examinations which occur as consultations take place as service/teaching opportunities. The patients are all inpatient at Foster G. McGaw Hospital, which includes those patients who are seen in the Emergency Department. Each request for consultation constitutes a learning experience for the referring physician as well as the consultant. For this reason, the program is set up to maximize the opportunity for the residents to act as primary evaluators of each patient. An attending physician must see all consultations performed by a resident. Such examination will take place concurrently with the resident’s exam or within a reasonable time period after that examination is completed. The primary goal remains to make the resident comfortable in the performance of consultations and to provide useful, clear and concise interpretation of the ocular findings as they may assist the requestor in diagnosing and treating the patient.

In writing the formal consult report remember that you are not communicating to yourself or a fellow ophthalmologist. The use of abbreviations should be limited to those common to generally understood parlance. Every attempt should be made to express information and suggestions clearly. The use of IP ophthalmology consult template in EPIC permits you to fully and clearly supply all the information required. It does no good to make an accurate assessment of the patient and know how to treat the condition if you cannot communicate the information to other professionals caring for the patient. Unless specifically requested, you should not write orders for diagnostic or therapeutic intervention. These recommendations should clearly appear at the end of the consult form or in a separate progress note in the chart. The requesting physician can then act on the recommendation. If you feel that treatment should start immediately or before the patient may next be seen, call the service following the patient and inform them of the findings and the need for prompt treatment. If you are not requested to do so, you need to call the service with the results of your examination.

Specific Consult Responsibilities:
All consults are seen outside of clinic hours unless:

- You have been given permission by the attending to leave the assigned clinic
- At Loyola, the consult resident is allowed to leave clinic under these circumstances
it is an emergency room patient or an emergent floor patient
○ once 3 consults have been accumulated
○ the consult resident can ask that the ED send the patient to the eye clinic to be seen in the clinic being worked by the consult resident only if this is allowed by the attending working with the consult resident

Other Consults Specific Rules

- All consults are to be seen the day they are received.
- If you are going to surgery, it is your responsibility to make sure someone is covering consultations for you.
- At Loyola, returning calls from the “triage room” to pharmacies/patients for medicine refills, or to answer questions at Loyola is the responsibility of the three 1st year residents at Loyola. There will be a stack of these charts stacked in the triage room. 1st year residents should check and complete these tasks daily.
- If another resident sees a consult for the consult resident, the consult resident is responsible for any necessary follow up.
- If you wish for Dr. McDonnell to see a pediatric or strabismus consult, call Dr. McDonnell promptly after you see the patient. Try to arrange a time when you both may see the patient.
- Follow all consults as long as they are in the hospital. We do not “sign off” cases, however following peripherally is permitted.
- In the event that a clinic is canceled or an opening exists for research or consult blocks, the resident doing consults has first priority to be excused from clinic. The other residents should cover the consult resident’s clinic so that he/she will be free to see consults and follow-ups.
- An attending physician is available and should be called immediately under the following circumstances; (1) when the resident needs assistance in evaluating or treating a patient; (2) when the requesting physician specifically asks that the attending be called; (3) under any circumstances where the presence of an attending appears to make the performance of the consultation easier and more rewarding to the consultant residents.
- While it is mandatory to contact an attending for backup and follow up as you see the patient, notification of the attending can occur through forwarding the note to the
attending’s EPIC inbox along with notifying the attending. The consults seen overnight and over the weekend must be made known to the attending. This requires the resident to make certain that this information is available to the attending. The information on patients seen overnight or over the weekend must also be given to the resident assigned to consultations by 8:00 a.m. the next day or Monday after the weekend. This provides notification of patients in the hospital who will require follow up by the consult resident or the attending. If there are problems with any of the referring physicians or indications for the consult, the resident should complete the consult and then discuss the specific problem with the attending. Residents should never question the consult with the referring attending. All matters should be between the attendings only.

- **Sign-out of patients from either the previous night of call or from the weekend must be made to the consult resident by 8am the following day by means of either verbal or email communication.**

- The consult attending is ultimately responsible for the care of the referred patient. Residents should never forward a consult to an attending’s EPIC inbox without notifying the attending.
TRANSFER GUIDELINES
If a hospital is requesting a transfer, residents should obtain the following information:

1. Ask “Why is a transfer being requested?”
2. Ask “Does the hospital have an ophthalmologist on call and has that person evaluated the patient?”
3. Obtain the outside ophthalmologist’s direct contact number and the transferring ER attending’s direct contact number.

- It is the on call attending’s discretion to accept or deny a transfer.
- Residents cannot accept a transfer, however, they can deny a transfer in the case where a transferring hospital has eye coverage but no ophthalmologist has examined the patient.
- *If the transfer is refused, the on call resident should also contact our trauma service and ER to let them know that we have refused accepting a transfer.
- In the case where an ophthalmology exam has been done or there is no eye coverage, the resident should contact the senior and the attending on call with the outside contact numbers available. It is the responsibility of the on call attending to contact the outside ophthalmologist and/or the ER attending for further information such as exam findings and insurance status.
- *If a transfer is accepted, an ophthalmology subspecialist should be called if his or her expertise is anticipated or needed, but until the possibility of a globe rupture has been ruled out, it is the responsibility of the on call attending to assume care for the patient’s eye needs. All other surgical interventions and possible transfer of care between ophthalmologists may occur after the on call ophthalmologist manages the possible or existing globe rupture.
EVALUATIONS

Faculty Evaluation of Residents:
The first year residents will be given special attention by the program director during the first several months to assure appropriate orientation to the program and provide the resident with the opportunity for questions regarding any aspect of the program.

Each faculty member provides feedback to each resident on their service on a daily basis. The clinical and surgical management skills are assessed and appropriate support and encouragement of quality care is provided. Resident have opportunity to discuss different approached to management.

Formal faculty evaluations of all residents take place every 3 months on the New Innovations system. Evaluation forms are completed for each resident by the supervising subspecialist in conjunction with the program director and comments from a general faculty meeting with all the full time attendings. The resident is given the opportunity to discuss the evaluation on the formal basis with the Program Director. The program director and resident then sign the evaluation form.

Each resident takes the Ophthalmic Knowledge Assessment Program (OKAP) exam in March. The residents discuss the results of the exam with the Program Director. If the results are unsatisfactory, the resident will be given additional help in the areas of weakness. Scores are kept confidential.

Any resident who has not achieved a satisfactory status as determined by the faculty after 18 months will be placed on academic probation and may be required to complete an additional 3-6 months of training in order to successfully complete their residency training.

Resident Evaluation of Faculty:
All full and part time faculty will be evaluated by the residents every 3 months on New Innovations. A copy of the evaluation will be given to each Attending and a second copy kept by the Department Chairman.
Resident Evaluation of Program:
Each resident evaluates the program on an annual basis. The program director addresses the general areas of deficiency and tries to make changes to address the deficiencies. Evaluations are kept on file.

Resident Evaluation of Rotation:
The residents will evaluate their experience in the following subspecialty rotations in order to improve the training in these areas by the New Innovations system.

- Cornea
- Glaucoma
- Oculoplastics
- Pediatrics
- Retina/Uveitis
- Various VA rotations
**FLUORESCIN ANGIOGRAPHY (FA)**

- At both Loyola and Hines you will have the opportunity to perform FA as a first year resident. If a nurse is not available for fluorescein injection, the responsibility is the first year working in the retina clinic.
- **Loyola** – Dr. De Alba reviews fundus photos and FA’s after his clinics. It is very educational to read the FA’s with him. At Loyola, the ophthalmic photographer is responsible for the camera, film and development.
- **Hines** - You are responsible for learning how to perform an FA, from injecting dye to taking the photos. Slides are processed by Hines Medical Media.

**FA Protocol**

1. Educate the patient on the reason for doing an FA.

2. List the risks and potential side effects of FA (listed below).

   - 10% get nausea, vomiting, vasovagal response
   - 1% get anaphylactoid (urticarial) reaction – can be treated with antihistamines and/or corticosteroids
   - <1/100,000 get an anaphylactic reaction (abnormal breathing, confusion, palpitations, hives, CV shock)

   *Most common side effects:*
   - Lasting 6-12h after injection → yellowing of skin and conjunctiva
   - Lasting 24-36h after injection → orange-yellow urine

   Occasionally, some dye leaks out of the injection site in the arm → can sting and stain the skin yellow.

3. Get signed consent.

4. Send patient to Imaging.

5. Once color fundus photos and red-free photos are taken by the photographer, begin injection:
   a. Place tourniquet, identify a large stable vessel, then insert butterfly needle
   b. Pull back on syringe to ensure good blood return and intravascular needle position
   c. Remove tourniquet, then inject 5cc of fluorescein 10% solution over roughly 5 seconds and make sure that it is not extravasating
   d. Remove the butterfly from the arm and hold pressure for several seconds to achieve hemostasis; place a bandage to the venipuncture site.

**Troubleshooting:**

In case of urticarial reaction, try diphenhydramine 25-50mg PO, repeatable up to q2hours
In case of anaphylactic reaction, give EpiPen 1 injection (0.3mg of 1:1000 epinephrine solution) IM x 1, and call for help. The patient needs to be taken to the Emergency Department in a timely fashion.
MEDICAL STUDENTS
Rotations
One to three medical students rotate at Loyola and Hines VA. Each medical student should experience several clinical services as well as observe in the operating room. Each medical student will receive his/her own schedule and a handout about the objectives and goals at the beginning of the rotation. They will also have an one hour lecture about the basic eye exam during the first week of their rotation given by the medical student coordinator, Dr. Khanna, designee.

Evaluations
It is the responsibility of the residents to help assess the medical student rotation. This is in conjunction with Dr. Anu Khanna who is in charge of Medical Student Rotations. There will be an informal mid-rotation evaluation and a final evaluation. The attending is to meet with the student during his/her final week to review the final evaluation. Both must sign this form at that meeting.

QUALITY ASSURANCE
There are many aspects of the quality assurance program at Loyola.

First, during the morbidity and mortality section of Grand Rounds, a review of any surgical complications or medical issues that arise are presented by the residents. This is primarily a video conference where the third year residents (and occasionally a second or first year) present a video clip of a surgical complication or specific technique which they feel would benefit the other residents.

Secondly, all faculty in their subspecialty clinics engage in regular discussions with the residents in appropriate patient care and with surgical patients, they discuss any unusual and or complex challenges which may have occurred intraoperatively.

Faculty also regularly discuss how to enhance patient care leading to better outcomes for patients and how to avoid unwanted ones. This may take the form of didactic sessions with the residents, hands-on supervision and demonstrations, use of audio-visual instruction and objective review of the material covered in the appropriate time frame.

The residents each have a “skills transfer manual” which covers all of the surgical subspecialties. More specifically, residents must have an attending sign off in the manual on the
resident’s specific knowledge of potential complications which may occur during a wide variety of surgical and laser procedures. The resident must also be able to adequately discuss the specific management of the complication if it were to occur as well as methods to avoid the complication.

In addition, the program director on a quarterly basis checks the ACGME surgical logs of each resident. Each resident is required to provide class I or 3 surgical experience for all surgical and laser procedures. This assures the accurate documentation of adequate surgical experience of the resident. The Loyola program generally has a high volume of cases and most residents feel they obtain more than adequate surgical experience to practice safe and effective ophthalmology following their graduation from the program.

Finally, a benefit to the resident will occur in the recognition of the form and content which review and approval bodies require of practicing physicians. The resident will acquire comfort in self-evaluation and learn the easy ways to establish a record of activity such that, should it be necessary to ever demonstrate competence, objective materials are available to substantiate that competence.

**Refractive Surgery**

- The third year resident gains refractive surgery experience by
  - Rotating with Dr. Bruce Larson at the Hinsdale Surgery Center the 1st and 3rd Friday afternoon’s of the month and Dr. David Lubeck at Arbor Eye Care.
  - Discussing surgical techniques and management of refractive surgery complications with Bruce Larson
  - Participating in Dr. Larson’s Saturday morning Refractive surgery clinic when possible
  - Participating in a refractive surgery Grand Rounds
  - Assisting/observing all of Dr. Bouchard’s refractive surgery procedures
  - Rotating through Dr. Bouchard’s refractive surgery clinics when available
  - Attending the many refractive surgery didactic presentations throughout the year
RESEARCH

INTRODUCTION
Prior to completion of the second residency year, each resident is required to complete an approved research project and prepare an acceptable manuscript suitable for publication. The projects are to be pursued with the sponsorship and guidance of a faculty member of the Department of Ophthalmology or, pending approval, an appropriately qualified advisor from another department within Loyola University Medical Center, or in certain circumstances, outside of the Loyola-Hines system. Residents who fully complete the required research requirement in an appropriate and timely manner may elect to complete an optional second research project.

PURPOSE
The research requirement is intended to serve the purpose of familiarizing the resident with the procedure for preparing a substantive research proposal and the preparation of a scientifically acceptable publication quality manuscript report. While it is hoped that results worth disseminating to the medical literature will be obtained, the main goal is for the resident to learn the logic and thought process involved in scientific research. It is expected that residents will understand and apply concepts of conducting research such as formulating hypothesis driven study, establishing appropriate experimental methodology and developing a critical approach to data analysis as part of their learning experience.

CONDUCTING RESEARCH AT LOYOLA AND THE HINES VA MEDICAL CENTER
Loyola University Medical Center and Edward Hines Jr. VA Hospital endorse strict policies regarding protection of human subjects or use of animals in research studies. Prior to initiating any type of research endeavor as part of your residency training, it is imperative that all research action be approved by the appropriate local institutional review board (IRB) or animal use committee (IACUC), depending on the nature of the study. Both Loyola University as well as the Hines VA Medical Center endorses strict policy regarding protection of human subjects or use of animals for research purposes. It is incumbent upon the resident to become familiar with IRB and IACUC policy and IRB/IACUC meeting dates during the first month of residency training. Moreover, prior to conducting research each resident is required to undergo training in appropriate use of human subjects for research as well as in the correct use of animals for research at both Loyola and Hines. Information and links to pertinent course work in regard to IRB and IACUC respective human subject and animal training is available online from the Loyola Department of Ophthalmology Research website. All required human and animal training coursework must be completed no later than August 31 of the first residency year.

SELECTING A RESEARCH TOPIC
It is the department’s intention to provide the resident with sufficient latitude in the selection of a project to accommodate various interests, knowledge, and prior skills. The proposal may include laboratory investigations, analysis of clinically derived data, such as from therapeutic trials, or the acquisition of data documenting the natural history of various disorders. Research studies involving humans conducted at Loyola University Medical Center/Hines VA typically include clinical case studies, retrospective chart reviews, or prospective hypothesis driven experimental protocols. Other currently unanticipated categories for proposals could...
also be feasible although the project should not be a continuation of research begun prior to residency. Regardless of the project category, the proposal must be presented to and approved by the Ophthalmology Research Committee.

Residents are encouraged to select a research project that not only accommodates intellectual interests but will expand ones knowledge base and allow for acquisition of new technical skills. The research project must be original and may involve pre-clinical laboratory investigations, analyses of clinically-derived data sets as often used in retrospective chart reviews, or may involve a prospective study designed to evaluate efficacy of a given treatment or therapeutic strategy of a vision-related disorder. These options are not mutually exclusive and may include research projects that extend beyond the norm such as previously un-reported clinical case studies.

**DEVELOPMENT OF A RESEARCH PROJECT**

During the first several months of first residency year the resident should peruse the research website to identify potential research topics of interest. The resident is also encouraged to choose an appropriate research advisor and obtain guidance regarding establishment of an appropriate research topic of mutual interest. Alternatively, a resident may consult with the Research Director regarding potential topics for study. It is essential the resident secure a suitable research advisor no later than September 1 of the first residency year. By October 1 of the first residency year it is essential that a detailed written proposal describing the intended research project be submitted to the Research Committee for approval. In addition an oral presentation of the planned research study is to be presented to the faculty at the October Research Grand Rounds. The format of both the written proposal and oral presentation is noted below. Exceptions to this deadline will be recognized only in special circumstances and upon prior approval. The committee will constructively counsel the resident as to the overall suitability of the proposal; suggestions are intended to optimize the scientific and educational quality of the proposal. At this time, projects will be approved, deferred for revision or disapproved.

Residents are strongly encouraged to work closely with their faculty mentor and research advisor during the entire research effort. Members of the Research Committee are available to facilitate resident efforts with the anticipation that research projects will be a constructive academic experience. Proposed projects may initially be approved on a probationary basis pending the acquisition of preliminary data. A period of time will be designated by the Research Committee during which the acquisition of preliminary data will help determine the suitability of a proposal.

If an initially approved project is subsequently found to be unsuitable, it is the responsibility of the resident to expeditiously consult with the chairman of the Research Committee so that preparations can be made for the resident to select another project. This, in turn, will require approval by the Research Committee.

If a resident would like to initiate a project at any point in the residency program, the protocol may be submitted to the Research Committee at any time for approval. This should be done prior to beginning the project to avoid expenditure of effort on a project that may be determined unsuitable. Residents who desire advanced training in research methodology in areas such as biostatistics or clinical trials methodology are encouraged to contact the Research Director.

**ALL REQUIRED RESEARCH PROJECTS MUST BE SUBMITTED TO EITHER THE IRB OR IACUC BY JANUARY OF THE FIRST RESIDENCY YEAR. OPTIONAL STUDIES ALSO MUST ADHERE TO THE JANUARY IRB/IACUC DEADLINE OF THE SECOND**
RESIDENCY YEAR. IT IS THE RESPONSIBILITY OF THE RESIDENT TO CHECK
WITH RESPECTIVE THE IRB/IACUC FOR SPECIFIC DEADLINE DATES

RESEARCH PROPOSAL CONTENT OUTLINE

COVER PAGE:
Title of project and all individuals associated with the research project.

ABSTRACT:
The abstract should include a brief introductory statement, the purpose and/or hypothesis to be tested, the overall goals of the project, the methods to achieve these goals including the type of study, i.e. retrospective or longitudinal, the sample size and the approach to statistical analysis.

RATIONALE/HYPOTHESIS (1-3 pages):
The research proposal should begin with a one page statement of the research problem to be addressed. Establish within this section a strong rationale for the problem to be studied and include current knowledge related to the research concern. Emphasize the novel aspect of the study and state what new knowledge will be gained from performing the study. Begin page two with a succinct hypothesis. This may include a primary question or questions being addressed by the proposed study. This should be followed by one or two Specific Objectives that will directly test your stated hypothesis. Well designed objectives will comprehensively test the stated hypothesis using available methods/techniques.

SPECIFIC AIMS (up to 1 page):
The proposal should state succinctly the primary question or questions being addressed, the importance of the questions, and the approach to be taken toward its resolution. Normally, this would include an explicit hypothesis to be tested. The approach of “trying something to see what happens” is to be discouraged. Instead, more thought should be used to identify an approach whereby the project would be expected to settle a significant issue, one way or the other.

BACKGROUND INFORMATION (2-4 pages):
In this section expand in greater detail the purpose of the proposal as well as previous reports (key references) that address the topic of the project under consideration. The write-up should not be encyclopedic but rather should provide background information and justification as to why the project should be considered meritorious. The Title, Specific Aims, and Background Information together should be approximately one or two pages in length, except in unusual circumstances.

RESEARCH PLAN (1-3 pages):
1. CLINICAL/HUMAN STUDIES: This section of your proposal should describe, in detail, how you plan to conduct your study. Specifics of the research plan include the overall study design, e.g. prospective, retrospective, case control, cross-sectional or cohort. When appropriate the plan should clearly address how patients will be randomly assigned to control and experimental groups. Discuss patient availability, recruitment procedures, suitability of controls as well as sensitivity and reproducibility of test procedures. Clearly state the number of subjects required to obtain adequate study power to prove or disprove the hypothesis. State where subjects will be recruited and who will consent the subject. Primary and secondary outcome variables and/or study aims should be stated if applicable as well as a description of
how they will be evaluated and quantified. Specifics need to be included that pertain to availability of subjects or patient records, suitability of controls and overall study logistics. Indicate how the selected approach will answer the question under study. Describe the outcome variables to be obtained and how they will be evaluated. The time frame of study conduct should also be noted. Human studies of any form cannot be conducted without IRB approval.

2. ANIMAL STUDIES: Animal studies by design are prospective or less often cross-sectional in nature. Clearly state in a succinct manner the methodology outlined to achieve the study aims. List the number of animals required to achieve adequate study power. Describe the use of controls and how long animals will be treated and/or studied. Animal studies of any form required cannot be conducted without approval of the applicable IACUC committee.

DATA ANALYSIS (Up to 1 page):
Specific comments as to how results will be statistically analyzed (when relevant) are vital in this section. Explicitly state how the results of all of the analyses will prove or disprove the initial hypotheses and/or settle the question being addressed. If necessary, consultation should be sought with selected members of the faculty and/or the Research Director for advice on statistical procedures and data analysis. It is imperative that prior to initiating research an adequate power analysis is conducted to determine adequate sample size for the particular project.

SUMMARY/CONCLUSION (1-2 pages):
Outline the significance of potential findings. Explain the study results and relevance to the work. How will the project resolve unanswered clinical questions? Does the study establish the efficiency of a treatment modality or address a fundamental question in visual science?

ACKNOWLEDGEMENTS:
State what individual(s) or group(s) assisted in the study design.

FINANCIAL DISCLOSURE:
State what group is responsible for support of the study in terms of funding.

REFERENCES:
Arrange references as presented in the text of the study. Format should be consistent with the specific journal selection for manuscript submission.

ORAL PRESENTATION
Required research projects of first year residents must be presented to the faculty during the October Research Grand Rounds. The presentation should be no longer than 10 minutes during which the introduction can be stated in a succinct manner with a brief review of relevant prior investigations. Endeavor to define the issues under consideration for study in a logical and organized fashion. The majority of the presentation should discuss those issues pertaining to the methods employed and the data analysis that will be implemented.
COMPLETION OF RESEARCH MANUSCRIPT

Manuscripts for the intended submission journal are due to the Research Committee by January 14th of the second residency year. The manuscript format should be based from the research proposal pertinent to the study. In coming first year residents are required to submit a completed, scientifically acceptable manuscript to the Research Committee by January 16 of the second residency year. Residents completing optional research projects are also required to submit a completed manuscript no later than January 14th of the third residency year. The resident is expected to meet with their respective research advisor to determine the most suitable journal for publication. The final document should be in a format with references compatible with the intended journal submission. The Research Committee will review the manuscript, if aspects of the document are considered incomplete; the resident will be notified promptly of any deficiencies that need to be addressed. Manuscripts deemed acceptable by the Research Committee will be recommended for revision for publication consideration. Each resident is expected to submit their manuscript to 1) the Chicago Ophthalmologic Society Beem Fisher Award competition and 2) the intended publication journal. Residents are strongly encouraged to work closely with and meet periodically with the faculty mentor member supervising their research project during the entire research effort. The resident should also discuss their research project during quarterly meetings with their assigned faculty mentor. Members of the Research Committee are available to facilitate resident efforts with the anticipation that their research projects will be a constructive academic experience. Additional information regarding appropriate preparation of the research manuscript is found in Appendix 1.

2010-2013 Research Calendar-Timeline (THIS IS AN EXAMPLE?)

Academic Year 2010-2011/PGY2
July 2010: Lecture (Research Director): Introduction to Research Methodology, Introduction to Loyola/Hines Research Mentoring Program and research requirements/expectations. Lecture (Dr. Walter Jay): Writing and editing a research manuscript. Select research advisor.
August 31: Deadline for completing all mandatory Loyola and Hines IRB and IACUC research training programs.
September 1: Deadline for selection of research advisor.
October 1: Deadline for submission of written research proposal to Research Committee
October 27: Oral presentation of required research proposal at Research Grand Rounds.
December 28: Deadline for IACUC submission of required project.
January 7, 2011: Deadline for IRB submission of required project.
February/March: Revise and resubmit IRB/IACUC submission.
April: OKAP, Deadline for required ISPB research grant submission.
January-March: Obtain summer student assignment for research assistance.
May 18: Provide interim study report at Research Grand Rounds.
June: Conduct required study.

Academic Year 2011-2012/PGY3
July-September: Conduct required study.
September 21, 2012: Provide interim study report of required study at Research Grand
Rounds.

**October:** Prepare for St. Albert’s day project presentation – required study.

**October 1:** Deadline to present written proposal of optional project to Research Committee.

**October 24:** Oral presentation of optional research proposal at Research Grand Rounds.

**November:**
- a) St. Albert’s day Symposium; b) submit required project abstract to ARVO.

**November-December:** Write manuscript for required research project.

**December 18:** Deadline for IACUC submission of optional project.

**January 6, 2012:** Deadline for IRB submission of optional project.

**January 16, 2012:** Required research project manuscript due to Research Committee.

**February:** Revise and submit required research project manuscript to a) Beem Fisher competition and b) intended publication journal. Revise optional study IRB/IACUC submission.

**March-June:** Required research project manuscript revision and journal resubmission.

**January-March:** Obtain summer student assignment for research assistance for optional study.

**April:** OKAP, Deadline for optional ISPB research grant submission.

**May:** ARVO presentation for required study.

**June:** Present findings of required study at Alumni Day Symposium.

**May-June:** Conduct optional study.

**Academic Year 2012-2013/PGY4**

**July-September:** Conduct optional study

**September 26:** Provide interim study report of optional study at Research Grand Rounds.

**October:** Prepare for St. Albert’s day presentation-optional study.

**November:** St. Albert’s day Symposium; submit optional project abstract to ARVO.

**January 14, 2013:** Optional research project manuscript due to Research Committee.

**February:** Submit optional research project manuscript for Beem Fisher competition.

**March:** OKAP

**May:** ARVO presentation of optional study.

**June:** Present findings of optional study at Alumni Day Symposium.

**Resident Progress and Skills Transfer Notebooks:**

Each resident will be given a 1) Resident Progress and a 2) Resident Skills Transfer Notebook developed by the Baylor College of Medicine. The resident progress notebook provides the attending and resident with a specific check-off list of training-year appropriate skills and knowledge. The resident works with the faculty member in checking off specific areas for which the resident has demonstrated a certain benchmark level of knowledge that the faculty member feels is appropriate. This serves as an ongoing record of medical knowledge gained and recognized by the attending. This also serves as a list of areas in which the resident may feel he/she lacks sufficient experience or knowledge and so provides a basis for improving the resident’s competency in a variety of areas.
The Skills transfer manual is another notebook which contains forms to document the resident’s meeting certain benchmark competencies and understanding of surgical skills and recognition and management of complications associated with a wide variety of intraoperative and laser procedures. This serves as documentation of surgical competency for each resident which the residents can monitor themselves. These skills are monitored by the subspecialty attendings during the resident rotations. These will serve as a basis for the oral evaluation given by the subspecialty attending following the completion of the rotations.

The resident is expected to have a surgical evaluation form filled out for surgeries in which the resident was the primary surgeon. The resident should also, during each 3-month rotation have two patient evaluation forms included in his progress notebook.

**CORE COMPETENCIES**

This is a listing of the core competencies as outlined by ACGME which you are expected to mature in during residency.

**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 are expected to:

- communicate effectively and demonstrate caring and respectful behaviors when interacting with patients and their families
- gather essential and accurate information about their patients
- make informed decisions about diagnostic and therapeutic interventions based on patient information and preferences, up-to-date scientific evidence, and clinical judgment
- develop and carry out patient management plans
- counsel and educate patients and their families
- use information technology to support patient care decisions and patient education
- perform competently all medical and invasive procedures considered essential for the area of practice
- provide health care services aimed at preventing health problems or maintaining health work with health care professionals, including those from other disciplines, to provide patient-focused care
Medical Knowledge

- This includes knowledge about established and evolving biomedical, clinical, and cognate (e.g. epidemiological and social-behavioral) sciences and the application of this knowledge to patient care.
- Investigatory and analytic thinking approach to clinical situations
- Knowledge and application of the basic and clinically supportive sciences which are appropriate to their discipline

Practice-based Learning & Improvement

- Investigate and evaluate patient care practices; appraise and assimilate scientific evidence; and improve patient care practices. This includes:
- analyze practice experience and perform practice-based improvement activities using a systematic methodology.
- locate, appraise, and assimilate evidence from scientific studies related to patients’ health problems.
- obtain and use information about the practitioner's own population of patients and the larger population from which their patients are drawn.
- apply knowledge of study designs and statistical methods to the appraisal of clinical studies and other information on diagnostic and therapeutic effectiveness.
- use information technology to manage information and access on-line medical information.
- facilitate the learning of students and other health care professionals.

Interpersonal and Communication Skills

- Competent interpersonal and communication skills result in effective information exchange and teaming with patients, their patients families, and professional associates. To this effect, practitioners should:
- create and sustain a therapeutic and ethically sound relationships with patients.
- use effective listening skills and elicit and provide information using effective nonverbal, explanatory, questioning, and writing skills.
- work effectively with others as a member or leader of a health care team or other professional group.
Professionalism

- A commitment to carrying out professional responsibilities.
  - Respect compassion and integrity
  - Responsiveness to the needs of patients and society that supercedes self-interest
  - Accountability to patients, society, and the profession
  - Commitment to excellence and on-going professional development.

- Sensitivity to a diverse patient population; sensitivity and responsiveness to patients' culture, age, gender, and disabilities.

- A commitment to ethical principles pertaining to providing or withholding clinical care, confidentiality of patient information, informed consent, and business practices.

Systems-Based Practice

- Practitioners need an awareness of and responsiveness to the larger context and system of health care and the ability to effectively call on system resources to provide care that is of optimal value. To this end, the practitioner should:
  - understand how their patient care and other professional practices affect other health care professionals, the health care organization, and the larger society and how these elements of the system affect their own practice
  - know how types of medical practice and delivery systems differ from one another, including methods of controlling health care costs and allocating resources
  - practice cost-effective health care and resource allocation that does not compromise quality of care
  - advocate for quality patient care and assist patients in dealing with system complexities
  - know how to partner with health care managers and health care providers to assess, coordinate, and improve health care and know how these activities can affect system performance.

*As listed previously, if there are issues that develop during residency with any of these competencies (for instance professionalism), several ways of dealing with these problems include but are not limited to:

- assignment of more frequent grand rounds topics
- additional call responsibilities
- withdrawal of department-granted benefits, such as reimbursement for travel expense or educational leave
-additional faculty mentoring or additional classes on the issue at hand
-if the resident continues to not comply, a written warning will be sent to
the resident with the chance to comply otherwise the program can
place the resident on probation, suspend, remediate, or terminate the
resident, and this noncompliance stays on the resident’s permanent
record

RESIDENT PROMOTION

Residents are promoted to the next year of training if they satisfactorily complete their
previous year of training as judged by the faculty.

RESIDENT DISMISSAL

If the resident’s clinical and educational performance, conduct, or eligibility to continue in
Loyola’s Graduate Medical Educational Program is unsatisfactory, the resident may receive
corrective disciplinary action. For continued unresponsiveness to the corrective disciplinary
action, the resident may then receive a written warning based on corrective disciplinary
action. Failure to satisfactorily meet the corrective action by the resident may then cause
suspension. The resident may be also be terminated from the program based on continued
failure of corrective disciplinary action, educational performance or clinical performance.

The resident has specific rights for appealing the department’s disciplinary actions and a
specific policy for the fair resolution of grievances exists at Loyola and is included below.

See the following
GMEC Form III.C. Appeal Procedure (attached at end of manual).
GMEC Form III.K Policy for academic probation
GMEC Form III.L Policy for Corrective Disciplinary Action
RESIDENT SELECTION
Residents are selected from a pool of candidates that demonstrate superior clinical skills, dedication to ethical patient care, strong interpersonal skills, and commitment to service throughout their premedical and medical training. They should also have demonstrated a genuine interest in the subspecialty of Ophthalmology by specific clinical and/or research experience which they have found to be satisfying. Interviews are conducted in the fall months the full time faculty. A final ranking list is compiled in January.

FIRST YEAR RESIDENT (PGY-2) RESPONSIBILITIES
First Year Resident at Loyola: Cornea/Contact Lens (3 months) and Glaucoma (3 Months)
- Attend all assigned clinics and lectures.
- Review cases with the attending at the end of the day and during the day as time allows.
- Help out in other scheduled clinics if your assigned clinic is canceled or another clinic is not staffed.
- Complete appropriate (year-dependent) topics in Progress Notebook with the attending
- Present interesting patients at the Grand Rounds on Wednesday afternoons when your team is presenting at Grand Rounds; the attending should give adequate preparation time in advance. The presentation should include the patient’s history, eye exam and a brief discussion of the significant findings. Any relevant literature provided by the attending should be reviewed.
- Follow-up with the consult resident on all patients seen during weekend call who remain in the hospital. For ER patients seen over the weekend who have follow-up with an attending later in the week, it is valuable to discuss the patient with that attending to determine whether the resident’s initial treatment plan was correct. This is a helpful way of checking one’s clinical judgment and treatment plan.
- Meet with Dr. Bouchard at the end of the rotation – oral exam.

First Year Resident at Loyola: Retina/Uveitis (3 Months)
- Workup fluorescein angiogram patients:
  a) Obtain a consent form for fundus photography and fluorescein angiogram from the patient.
  b) Inject the fluorescein dye and help the photographer as needed.
d) Review the fundus photos and fluorescein angiograms with Dr. DeAlba and Dr. Daily following clinic.

- Follow-up with the consult resident on all patients seen during weekend call who remain in the hospital. For ER patients seen over the weekend who have follow-up with an attending later in the week, it is valuable to discuss the patient with that attending to determine whether the resident’s initial treatment plan was correct. This is a helpful way of checking one’s clinical judgment and treatment plan.
- Present patients at Grand Rounds as above
- Surgery-all retina cases are staffed by the 1st year resident on the retina/uveitis rotation. It is this resident’s responsibility to write the pre- and post-op orders, history and physical, and operative note.
- Attend a one-day orientation at the Hines Blind Rehab center to familiarize the resident with the services offered by low-vision rehabilitation

First Year Comprehensive Hines Rotation-(3 Months):

- Attend all assigned lectures and conferences.
- This resident works with Dr. Perlman performing signouts on all pathology cases.
- Assist 2nd or 3rd year resident with cataract surgeries on Mondays.
- Coordinate all inpatient admissions for surgery. These patients will have “Eye Pre-op” appointments in the eye clinic. A surgical schedule is used to track which components have been completed for each patient’s successful surgical experience. Each patient must have the following:
  - History and physical in the CPRS system: This must be performed within 30 days of the patient’s surgery.
  - IOL master or A-scan calculation for BOTH eyes
  - Pre-op scheduling worksheet in the CPRS system
  - IMED consent form signed by the patient within 30 days before surgery
  - Attending note approving the specific scheduled surgery
  - Admission orders in the CPRS system
  - Template to follow includes discharge orders and post-op eye drops.
  - Pre-op medications including antibiotic and NSAID drops.
• Pre-admissions testing date (PAT) within 30 days before surgery

• Special Considerations must also be noted:

• If the patient is scheduled for cataract surgery, calculations for the intraocular lens must be noted. If not completed, contact the operating senior resident.

• Occasionally patients are complicated and require cardiology
  consults, pre-op heparinization, special transportation orders, etc.
  Try to anticipate problems by looking ahead in the scheduling book
  and paperwork.

• Some surgeries require donor tissue such as cornea transplants, scleral grafts for Krupin
  valves, etc. The senior resident should order the necessary tissue; it is your responsibility to
  be sure this order has been placed and the tissue has arrived.

• Patients on aspirin, NSAIDs and Coumadin may need to stop medications pre-operatively as
  able. Any questions should be directed to the operating resident.

• Occasionally unscheduled admissions for emergency surgery, etc.
  require similar admission work up and these admissions are your
  responsibility.

• Most of our cataract patients are scheduled for same day 10W outpatient surgery. These
  patients go from recovery to 10W, then home after surgery. Discharge orders are completed
  as part of the admission orders at the eye pre-op appointment. At times, these patients will
  experience minor problems and must be admitted.

• h) If you are unfamiliar with a particular surgery and unsure of what
  preparations to make, check with the senior ahead of time to a
  anticipate problems.

• After arranging surgeries, responsibilities at time of surgery include:

• Preparing the patient in the OR. Once the patient is comfortable, prepare a retrobulbar block
  if case is to be done under a local. We usually use 2 mL’s 2% lidocaine and 2 mL’s of
  0.75% bupivacaine along with 1mL Vitrase. A senior resident will show you the preferred
  technique for injecting the retrobulbar anesthesia. After the block is placed, notify the
  attending that the patient is ready.

• b) Help during the surgery as needed.

• c) At the conclusion of the case, place any needed ointment, patch and
  shield on the operated eye.
• Accompany the patient to the recovery room.
• Post-operative patients are seen the next day by the operating resident. Occasionally, a patient will be seen later in the day on the day of surgery. Generally, these patients must be seen at least 4 hours following surgery.
• The surgical report must be dictated within 24 hours of surgery. This is done by the operating resident.
• When not in the operating room, you will also have clinical responsibilities.
• You will have clinics of your own and will be expected to assist with subspecialty clinics.
• If a consult is received regarding a patient unable to be seen in the eye clinic, you are responsible for seeing that patient on the floor. You must then provide any needed follow-up care.
• You will perform minor procedures under attending supervision Friday mornings.
• Meet with Dr. Yoo at the end of the rotation.

SECOND YEAR RESIDENT (PGY-3) RESPONSIBILITIES
Second Year Residents at Loyola: Second year residents are assigned to Loyola for two three-month periods.

Second Year Resident – Plastics/Consult/Neuro (3 Months):
• Work closely with Dr. Yoo, Dr. Jay and Dr. Price in their clinics
• Assist in most major and minor surgeries depending on the clinic demand
• Complete Resident progress notebook and skills transfer manual for Plastics and Neuro.
• Work up and review with appropriate attending both inpatient and ED consults
• It is the plastics/consult resident’s responsibility to follow-up any consults seen over the weekend and weeknights and staff them with the appropriate attending.
• Maintain active current ACGME surgical log

Second Year - Pediatric Resident (3 Months):
• Staff Drs. McDonnell and Cronin
• First in line to assist all strabismus surgeries and post operative follow ups of Drs. McDonnell and Cronin. Unique pediatric cases (i.e., pediatric cataracts or pediatric glaucoma procedures) may be done by the senior resident if they choose. All pediatric cases not covered by the senior resident should be covered by the pediatric resident.
- Maintain active current ACGME surgical log
- Meet with Dr. McDonnell for oral exam at the end of the rotation

Second Year Resident - Hines Consult Rotation (3 months):
- Triage calls and determine appropriate clinical follow-up.
- See all walk-in clinic patients.
- Complete Progress notebook/skills transfer manual
- Assist directly in the neuro-ophthalmology, strabismus, cornea and glaucoma clinic attending staff.
- Complete cataract surgeries as the primary surgeon every other week under the supervision of Dr. Perlman.
- Meet with Dr. Yoo at the end of the rotation.

Second Year Resident – Hines Comprehensive Rotation (3 months):
- Complete cataract surgeries as the primary surgeon every other week under the direct supervision of Dr. Perlman.
- Complete any laser procedures delegated by the senior residents.
- Evaluate patients in clinic on days when you are not in the OR
- Complete Progress notebook/skills transfer manual
- Maintain surgical ACGME log.
- Assume the responsibilities of the Consult second year resident if he is not in clinic.
- Meet with Dr. Yoo at the end of the rotation

THIRD YEAR RESIDENT (PYG-4) RESPONSIBILITIES
The third year is primarily responsible for the follow up care of all his/her surgical patients. If one third year is away then the other third year must cover all post operative care for that resident. He/she is also primarily responsible as team leader for Grand Rounds.

Third Year Resident- Loyola (3 months)
- If you do surgery on a patient, you are responsible for following that patient after surgery through discharge or transfer.
This resident also gains refractive surgery experience by
  - Rotating with Dr. David Lubeck at Arbor Eye Care on Friday PM’s as available.
  - Discussing surgical techniques and management of refractive surgery complications with Bruce Larson
  - Participating in a refractive surgery Grand Rounds
  - Assisting/observing all of Dr. Bouchard’s refractive surgery procedures
  - Rotating through Dr. Bouchard’s refractive surgery clinics when available

Third Year Resident - Hines (9 months):

- Three senior residents equitable share all surgical cases generated in the clinic.
- The senior resident is responsible for seeing all of his post-ops through the 1 month dilated exam (for cataract surgeries).
- If senior residents operate the week before a scheduled vacation, arrangements must be made to see the post-operative patients around this vacation or, if unable to manage this, that senior resident should not operate the week before a vacation.
- Senior residents should see all of their own laser post-ops as well. For instance, the resident who performs an LPI or YAG-capsulotomy is responsible for seeing that patient at the 1-week visit.
- ACGME surgical logs should be maintained for major and minor surgeries
GUIDELINES FOR VA

RESIDENT RESPONSIBILITIES

Daily caring for patients in the Junior Clinic is the highest priority for all residents. This includes visual fields, emergencies and consults.

- Residents should work as a team to see that all patients are seen in a timely fashion. All AM clinic patients should be completed before any resident eats lunch. Each resident should complete his scheduled list of patients and then check if other patients need to be seen at the end of both the AM and PM clinics.

- Caring for patients is done prior to other administrative responsibilities such as discharge summaries, IOL orders, operative reports, reading fluorescein angiograms, etc.

- No resident should leave the clinic at the end of the day until all patients have been seen. Junior residents should check out with the Chief Senior before leaving.

- When the first year is finished with surgery, seeing remaining second-year clinic patients is his/her next priority.

- Preparation for IVFA rounds with Dr. Daily should be done after or before all patients have been seen in the Junior clinic, not during clinic.

- Morning clinic should begin at 8:30 a.m. or as soon as possible after a morning lecture. Afternoon clinic should start as close to 1:00 p.m. as possible.

Grand Rounds is a High Priority on Wednesdays.

- First year residents have first priority in attending Grand Rounds. Residents presenting cases have the next highest priority in attending the Grand Rounds on time. The remaining residents should take care of any other urgent problems/patients.

- First year residents should never be late for Grand Rounds because of patient or other administrative responsibilities. The second or third year should cover for him/her.

- Each resident who had been assigned a case to present is responsible for preparing any other material (slides, handouts, etc.) for the Grand Rounds

Daily progress notes should be systematically recorded.

- All progress notes should include a specific numerical list of the patient’s ophthalmic and general problems.
• Dates of diagnostic examinations should be recorded and readily available (visual fields, FA’s CT/MRI, disc photos, etc.) Dates and descriptions of previous ophthalmic surgery should be recorded and readily available.

• All visual acuity’s of less than 20/30 must be explained and documented on the chart.

• Obtain attending signature (or document attending input) whenever an attending examined the patient or discussed the patient’s care.

SUPERVISION
The Program Director, David Yoo, M.D. accepts responsibility for overseeing the patient care activities of the residents at all levels of training. In accordance with the existence of a multispecialty department, the Program Director delegates to other members of the faculty supervision of the resident training according to a specified schedule. The faculty member observes and directs the resident in practicing that area of ophthalmology in which the faculty member specializes. Almost all of the attendings practice some general ophthalmology as part of their recognized activities in the department. Therefore, the faculty member has responsibility for assisting the residents with any general ophthalmological problems or questions which may arise.

The department maintains a schedule of resident assignments for the rotation through Loyola. This schedule is posted in the department, and in all the clinics. It indicates where each resident is assigned. In all these settings, the resident is expected to take a history, perform a thorough physical exam of the eye and ocular system, summarize and interpret these findings for the attending physician as a numerical list of problems. They should also formulate a plan for future evaluations and define a specific treatment regimen. The attending physician then evaluates the patient and reviews and approves or changes the plan as needed.

All patients treated in the Loyola University Outpatient Center are private patients of the attending physician. All surgical cases performed on Loyola patients are attending cases. The attending surgeon performs the essential parts of the case and may allow the resident to participate under direct hands-on supervision.
The Loyola faculty also provide consultative clinical care at the Hines VA Hospital. The opportunity for the attending faculty to handle general ophthalmology problems in addition to their area of sub-specialty interest enables each faculty member to supervise all of the activity which takes place in the ophthalmology clinic. The attending physician supervises all the activities ongoing during the time assigned. In addition, a full time VA ophthalmologist or a Loyola sub-specialist supervises all surgical procedures as second assistant unless the case calls for sub-specialty assistance. When this physician is not in the operating room, he/she supervises the clinic and is available to evaluate any patient seen. In the unusual circumstance where the full time VA ophthalmologists are unavailable, the Chairman of the Department and the Program Director are available for supervision of the residents.

The other area where direct supervision occurs is that of consultations. At Loyola, where all activities are those of the attending physician, the residents rotate responsibility for examining patients as consultants. Each patient must be evaluated by an attending physician and this occurs within twenty-four hours of the request for consultation. The resident initially interview and examines the patient and completes a “consult form.” This information is delivered to the Consult Attending who then visits the patient and confirms the findings and recommendations.

The patients at the VA who required consultation are brought to the clinic for examination. A faculty member is always available to answer questions and suggest evaluation or treatment for the patient.

A special type of consultation request occurs when the resident is called upon to evaluate a patient after hours and in the emergency department. At these times, the senior residents are the first level of consultation. If questions remain or the calling resident is uncertain as to the proper disposition of the patient, the faculty member on call is available to advise the resident. That faculty member is also available for personal examination of the patient if the residents are not comfortable with any aspect of the evaluation or recommended care. Any patient requiring surgical intervention or having a problem with potential for compromise of vision or the integrity of the eye requires the direct, personal observation by the Attending physician on call. In the event that the Attending physician does not evaluate the patient in person, the patient will be referred to an Attending physician in the outpatient center within twenty-four to forty-eight
hours. If the Attending physician determines that the patient requires evaluation in the shorter time frame then the Attending is available, he/she will direct the resident to make arrangements for the patient to be seen and call the Attending with a report as to the status of the patient and his/her recovery.

In addition to the consult Attending’s daily or weekly reviews of the cases seen by the residents, the resident and Attending see the patients on rounds. Interesting patients are discussed as part of weekly Grand Rounds where the entire faculty meets to evaluate the care given to patients. The consult Attending follows the patient as an outpatient and determines the response to therapy and resolution of the problem. The resident at the VA provides the same follow up under the supervision of the assigned faculty member.

Under any circumstance, the residents always have immediate access to an Attending physician for advice and recommendation as to the way to evaluate and treat any patient who presents with ocular or visual problems.

**Minimum Hines Surgical Experience**

Surgical procedures by first and second year residents. Satisfactory completion of these requirements will take precedence over the third year cases.

First year residents will perform 2 cataract procedures under attending supervision. Both will take place during the third month of their Hines surgical rotation. No surgery will occur during the last 7 days of the rotation.

Each second year resident will also perform one to two cataract surgeries on the assigned day while at Hines V.A. hospital if possible. The resident who is at Hines during the spring, will perform even more cataract surgeries per week in order to gain significant surgical experience prior to starting at Loyola in July – the goal for that resident is about 10-15 cataract surgeries by the end of the year.
The three third year residents at Hines about to finish the program will assist their second year residents with their experiences concerning the procedure and management of complications.

**FORMAL TEACHING STRUCTURE**

**The Didactic Program** for the residents utilizes all the years of training to impart knowledge. The “Basic and Clinical Science Course” of the American Academy of Ophthalmology forms the backbone of the education effort. This is a series of self-educational units dealing with the various areas of ophthalmology. Each resident is expected to study the units thoroughly and become intimately familiar with the information. The “Course” explains pertinent information and refers the physician to textbooks, journals, monographs and other recognized general and subspecialty sources. The didactic lecture series will utilize this outline as the framework for the weekly lecture/discussion sessions provided by the members of the clinical faculty. Efforts will be made to provide the specific pages of material taken from the BCSC, which will be covered for each lecture. This will allow ample time for each resident to prepare for the discussions. The first year residents are **required** to attend all didactic sessions unless they are sick or on vacation. The second and third year residents may assume clinical responsibilities during lecture time.

**Optics Course** - All first year residents will have a basic course in optics and refraction given by Peter Russo during the first week of the residency program. This program will introduce efficient skills of refraction an essential part of the eye exam. Theoretical optics and optical principles of all ophthalmic instrumentation will also be presented.

**Grand Rounds** - Every Wednesday a different subspecialty presents patients for instruction and discussion from 4:30 – 6:00 p.m. in a designated room. All residents are required to attend. One of the four “teams” will be assigned to present the cases as well as a short presentation on a particular topic. A first year resident will present a case, the second year resident will present a case and a journal article, and the third year resident will present a clinical M&M case. On days when there is a guest lecturer, there will be a case presented by a senior resident only. Residents should plan ahead to make sure adequate time is taken to prepare for the conference. If a resident is going to be absent when that resident’s team is presenting grand rounds, it is the absent resident’s responsibility to find a replacement presenter. All presentations should be put
on the computer in the resident room following Grand Rounds. This is the most important clinical program in the residency and efforts are made constantly to maintain the highest quality educational experience.

**Wet Labs** - Once a month a wet-lab is scheduled from 4:30-6:00pm in place of Grand Rounds. This gives the residents an opportunity to learn about new equipment as well as refine surgical techniques using pig eyes feet along with synthetic eyes. A “morning report” style conference will follow the surgical wet labs which will largely consist of the resident from the previous weekend of call presenting interesting cases.

**The Chicago Curriculum in Ophthalmology** - Lectures are held in the auditorium at the Illinois Eye and Ear Infirmary on Saturday mornings from 9 a.m. - 11 a.m. and cover many topics of clinical interest. Residents are required to attend. Attendance is documented and sent to the Program Director.

**Ophthalmic Pathology** - For three months during the first year, the first year comprehensive VA resident works with Dr. Jay Perlman on Tuesday and Thursday afternoons (3:30-5:00 p.m.) at the Hines Department of Pathology. Dr. Perlman also provides regular lectures and clinical pathological conferences in Ophthalmic Pathology throughout the year.

**The Chicago Ophthalmological Society (COS)** - meets 6 times a year on the third Monday evening of the months of September, October, November, February, March and April. All 12 residents are required to attend each conference, which is held downtown. A schedule will be provided with assigning teams to each meeting.

**The Annual Meeting of the Chicago Ophthalmological Society** – This is a one-day regional meeting held in downtown Chicago, typically on Navy Pier. Residents are required to attend. The registration fee is covered by the Department of Ophthalmology. The call schedule for this conference will be arranged by the Chief Resident. One resident on site and one resident backup will be assigned for each half day of the conference.

**Educational Leave**: Each resident is allotted 5 work days (7 including weekend) for educational leave. As part of the training program, third year residents attend the American Academy of Ophthalmology Annual Meeting which counts towards educational leave. In addition, all residents may attend the annual meeting of the Association of Research in Vision and Ophthalmology (ARVO) if they are first author on an accepted abstract which does not count against educational leave or vacation time. The resident is allotted the day before, the day
of, and the day after for the conference. Any additional days are counted toward vacation. If any resident attends an OKAPS review course, this is counted towards educational leave. Other Conferences may be attended depending on the circumstances.

**OKAP Preparation:** Second and third year residents lead morning lectures that strictly follow the topics in the BCSC books. There are OKAPS review courses in both the Chicago area and throughout the country in the spring before OKAPS that the residents may attend. These conferences count for educational leave.

**Journal Club** - is held each month as part of Grand Rounds. Relevant and recent articles are assigned to a resident by the attending in charge of Grand Rounds that day. Articles are evaluated not only for their design and content but also as a primary source for assessing the standard of care in ophthalmology. 36 months of Journal club is designed to create habits of lifelong learning as an integral part of resident education.

**Library:** The department at Loyola and the patient exam area at HVA each have a library. Very extensive sections of the SSOM and HVA main libraries contain the most recent textbooks on ophthalmology. Both libraries have extensive ophthalmic journal bibliographies and access to library loan mechanisms.
PART II: GOALS AND OBJECTIVES

***These topics are meant to serve as a framework for comprehensive training in ophthalmology not a checklist. The goal is to try to cover all of these subjects during residency as much as possible. Some of these topics will be covered at different stages of training rather than that listed. You will see that some of the educational goals are separated by topic rather than by rotation. However, again, this is meant as a framework of medical knowledge/patient care so this manual should be looked at as a whole***

*These goals and objectives are broken down by PGY level (2-4) and by competency (Medical Knowledge, Patient Care, Practice-Based Learning and Improvement, Interpersonal and Communication Skills, Professionalism, Systems-Based Practice)

CONTACT LENS/OPTICS & REFRACTION SECTION
Residents Obtain The Experience In Contact Lenses/Optics & Refraction (Patient Care/Medical Knowledge) By:

- Having structured seminars on contact lenses/optics & refraction which all residents attend and which covers the material in the Home Study Course of the American Academy and additionally covers all the material in the Contact Lens manual.
- Attending a weekly teach contact lens clinic for Loyola residents during which they examine patients and fit them with contact lenses. This clinic handles all of the contact lens referrals from outside the University of Loyola Clinics and from Hines.
- Refracting patients in the general clinics at Loyola where each patient examined by a resident is then, subsequently, examined by the attending physician. The residents at Loyola are assigned to the supervised clinics each morning.
- Examining and refracting patients seen each year at the Hines Eye Clinic. Regular supervision is done by the senior resident and by the Attending staff.

GOALS
The PGY-2 Resident Should Be Able To:

- Demonstrate the use of the keratometer in phakic and aphakic patients.
- Describe components of the refraction and/or keratometer readings with respect to the type of material (hard or soft) which can be used, the need for a special design to the lens and the limits of a material to meet the needs of a cornea of certain curvature and refractive ability.
- Select an initial lens to place on a patient’s eye.
- Evaluate the position and movement of the lens.
- Make changes in base curve and/or diameter to affect centration of the lens.
- Determine the physiological well being and comfort of the cornea.
- Assess patient compliance.
- Evaluate a patient who has worn lenses and now needs a routine check or new fit.
- Explain the basic aspects of light energy, including mensuration, propagation, polarization, diffraction, refraction, photoelectric effect, Planck’s constant, fluorescence and phosphorescence.
- Demonstrate, qualitatively and quantitatively by diagrams and calculations, reflection by plane and curved mirrors, refraction by spherical lens, by astigmatic lenses, including understanding the conoid of Sturm.
- Diagram various aberrations of lenses.
- Diagram the schematic eye.
- Solve problems relating to the reduced schematic eye.
- Show understanding of the emmetropic, hyperopic, myopic and astigmatic eyes.
- Refract by objective and subjective means including keratometry and retinoscopy, ordinary cases of ametropia.

**The PGY-3 Resident Should Be Able To:**
- Carry out fitting of both hard and soft lenses.
- Select the properly designed lens for a patient.
- Evaluate and correct factors which lead to patient symptoms and dissatisfaction with hard or soft lenses.
- Design a lens with special parameters.
- Select trial contact lenses of special design and the use of same to provide the patient with well fitting lenses.
- Follow up a contact lens patient on a routine basis.
- Use modification tools to solve patient complaints.
- Clean and polish lenses.
- Describe the limits of in-office modifications.
- Demonstrate all the above with increased facility.
- Solve more complex optical problems.
• Demonstrate a facility in the art of prescribing glasses.

The PGY-4 Resident Should Be Able To:
• Examine, evaluate and recommend appropriate lenses for all patients regardless of reason for seeking care.
• Diagnose and correct contact lens-induced problems.
• Use contact lenses for supplemental purposes including toric, keratoconus, bifocal, cosmetic.
• Modify lenses for patients with problems.
• Describe the large number of products and techniques for fitting lens materials and uses of care products.
• Know when available techniques are inadequate and consultation is required.
• Teach junior residents.
• Handle all the above and be able to show and explain most optical problems of the eye and their solutions with state-of-the-art management.
• Present to the attending faculty person the complaints of patients who are dissatisfied with their glasses and to recommend remedial action.

An alternative schema is as follows (from the International Council of Ophthalmology):
Optics
General Educational Objectives:
Understand the principles, concepts, instruments, and methods of optics outlined below and be able to apply them in clinical practice.

PGY-2 Level Goals
A. Physical optics
• Properties of light
  - Electromagnetic spectrum, Wave theory, Photon-particle theory
  - Diffraction
  - Interference and coherence
• Resolution
• Polarization
• Scattering
• Transmission and absorption
• Photometry
• Lasers
• Illumination
• Image quality
• Brightness and radiance
• Light propagation – optical media and refractive index

B. Geometric optics
• Reflection (mirrors)
  - Laws of reflection
    - Reflection at a plane surface (image and field of a plane mirror)
    - Reflection at curved surfaces (focal point and focal length of a spherical mirror)
  - Images and objects as light sources
  - Refractive index
  - Multiple lens system
• Refraction
  - Laws of refraction (Snell’s law)
    - Passage of light from one medium to another
    - Absolute index of refraction
    - Total internal reflection
  - Refraction at a plane surface
  - Refraction at curved surfaces
  - Critical angle and total internal reflection
  - Image jump and displacement
• Prisms
  - Definition
  - Notation of prisms (e.g., prism diopters)
  - Uses in ophthalmology (diagnostic and therapeutic)
  - Types of prisms (plane, parallel, plate)
  - Prentice’s rule
  - Fresnel prism
  - Refraction of light through a prism
  - Thin prisms
  - Prismatic effect of lenses
• Spherical lenses
  - Cardinal points
  - Thin lens formula
  - Thick lens formula
  - Formation of the image
  - Vergence of light (diopter, convergence, divergence, vergence formula)
  - Concave and convex
  - Magnification (linear, angular, relative size, electronic)
  - Spherical decentration and prism power
  - Lens form
  - Binocular balancing
  - Refracting the basic low vision patient
• Astigmatic lenses
- Cylindrical lenses
  - spherocylinder lenses and surfaces
  - cross cylinders (e.g., Jackson cross cylinder)
- Maddox rod
- Toric lenses
- Conoid of Sturm

- Notation of lenses
  - Spectacle prescribing
  - Simple transposition
  - Toric transposition

- Identification of unknown lenses
  - Neutralization
  - Focimeter
  - Geneva lens measure

- Aberrations of lenses
  - Correction of aberrations relevant to the eye (spherical, coma, astigmatism, distortion, pantoscopic tilt)

- Duochrome test
- Lens materials

C. Clinical optics

- Optics of the eye
- Transmittance of light by the optic media
- Schematic and reduced eye
- Pupillary response and its effect on the resolution of the optical system (Styles-Crawford effect)
- Visual acuity
  - Distance and near acuity measurement
  - Minimal (visible, perceptible, separable, legible)
  - Vernier acuity

- Contrast sensitivity
- Catoptric images
- Emmetropia
- Accommodation
- Purkinje shift
- Pinhole shift
- Ametropia
  - Myopia
  - Hypermetropia (hyperopia)
  - Astigmatism
  - Anisometropia
  - Aniseikonia (Knapp’s rule)
  - Aphakia
  - Optical parameters affecting retinal image size

- Accommodative problems
  - Insufficiency
  - Excess

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- AC/A ratio
- Refractive errors
  - Prevalence
  - Inheritance
  - Changes with age
  - Surgically induced
- Correction of ametropia
  - Spectacle lenses
  - Contact lenses
  - Intraocular lenses
  - Principles of refractive surgery
- Problems of spectacles in aphakia
- Effect of spectacles and contact lens correction on accommodation and convergence (amplitude, near point, far point)
- Effective power of lenses
- Back vertex distance
- Spectacle magnification
- Calculation of intraocular lens power
- Presbyopia (measuring for near adds)
- Low vision aids
  - High reading addition
  - Magnifying lenses
  - Telescopic aids – Galilean telescope, Keplerian telescope

D. Clinical refraction
- Retinoscopy
- Subjective refraction
- Measurement of back vertex distance (BVD)
- Muscle balance tests
- Accommodative power
- Measurement of interpupillary distance (IPD)
- Decentration of lenses and prismatic effect
- Best form lens
- Prescribing multifocal lenses
- Prescribing for children
- Cycloplegic refraction

E. Instruments and tests
- Direct ophthalmoscope
- Indirect ophthalmoscope
- Retinoscope
- Focimeter
- Simple magnifying glass (loupe)
- Lensmeter
- Glare and contrast testing
- Potential acuity meter
- Automated refractor
- Slit lamp biomicroscope (including methods of examination)
- Stereo tests
- Corneal topographic measurements (placido disc, keratometer, automated corneal topography)
- Applanation tonometer
- Specular microscope
- Operating microscope
- Zoom lens principle
- Corneal pachymeter
- Lens screen/Hess chart
- Synoptophore
- Lenses used for fundus biomicroscopy (panfunduscope, Goldmann lens, Hruby lens, 90 diopter lens, etc.)
- Fundus camera
- Gonioscope
- Tonometers
- Color vision tests (Ishihara color plates; Hardy-Rand-Rittler plates, Farnsworth-Munsell testing)

**PGY-3 Level Goals**
Improve proficiency in above skills.

**PGY-4 Level Goals**
Apply, at the highest level of understanding, the relevant optics information (above) in the following situations:
- Refraction and prescribing of spectacles and contact lenses
- Intraocular lens calculation
- Cataract surgery
- Use of prisms for diplopia
- Low vision aid prescribing

**Retinoscopy and Refraction**

**General Educational Objectives:**
- Identify the principles and indications for retinoscopy.
- Perform the technique of retinoscopy.
- Identify media opacities with retinoscopy.
- Perform an integrated refraction based upon retinoscopic results.

**PGY-2 Level Goals**
- Describe the major types of refractive errors.
- Describe basic ophthalmic optics and optical principles of refraction and retinoscopy.
- Perform retinoscopy for detecting simple refractive errors.
- Describe the indications for and use trial lenses or a phoropter for simple refractive error.
- Perform objective and subjective refraction techniques for simple refractive error.
• Perform elementary refraction techniques (e.g., for myopia, hyperopia, near-vision add).
• Describe the basic principles of a keratometer.

PGY-3 Level Goals
• Describe more complex types of refractive errors, including postoperative refractive errors.
• Perform more advanced refraction techniques (e.g., astigmatism, complex refractions, asymmetric accommodative add).
• Describe the more advanced ophthalmic optics and optical principles of refraction and retinoscopy (e.g., postkeratoplasty, post-cataract extraction).
• Perform objective and subjective refraction techniques for more complex refractive errors, including astigmatism and postoperative refractive error.
• Perform more advanced techniques of retinoscopy for detecting simple and complex refractive error.
• 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 and more complex refractive errors (e.g. advanced and irregular astigmatism, vertex distance).
• Use the keratometer for detection of more advanced refractive error.

PGY-4 Level Goals
• Describe the most complex types of refractive errors, including postoperative refractive errors, postkeratoplasty, and refractive surgery.
• Perform the most advanced refraction techniques (e.g., irregular astigmatism, pre- and post-refractive surgery).
• Describe the most advanced ophthalmic optics and optical principles of refraction and retinoscopy, including higher order aberrations.
• Utilize the most advanced ophthalmic optics and optical principles for refraction and retinoscopy, including higher order aberrations.
• Perform objective and subjective refraction techniques in the most complex refractive error, including astigmatism and postoperative refractive error.
• Perform the most advanced techniques using trial lenses or the phoropter for more complex refractive errors, including modification and refinement of subjective manifest refractive error, cycloplegic retinoscopy and refraction, and post-cycloplegic refraction, irregular astigmatism, post-keratoplasty, and refractive surgery cases.
• Use the keratometer for detection of subtle or complex advanced refractive error.
• Use more advanced refraction instruments and techniques (e.g., distometer, automated refractor, automated corneal topography).

Contact Lens
PGY-2 Level Goals
A. General Educational Objectives
• 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.
• Perform the techniques of retinoscopy, refraction, and over-refraction in the routine CL patient.
• 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.
• Describe conversion of a spectacle prescription (Rx) to a CL Rx, including method of converting from plus to minus cylinder.
• Describe basic CL design, using appropriate terminology.
• Describe techniques for and perform basic CL fitting.
• Describe selection of CL candidates with non-complex needs.
• Use auxiliary CL instruments and tests (e.g., trial set, fluorescein testing).
• Perform CL verification for vision correction, fit, and comfort.
• Describe contraindications for contact lens use.

B. Cognitive Skills
• Describe fundamentals of ophthalmic optics in CL management (e.g., CL choices, techniques for fitting individuals).
• List indications for contact lenses in non-complex cases.
• Describe CL choices and techniques for fitting individuals with non-complex CL needs.

C. Technical/Surgical Skills
• Perform advanced retinoscopy techniques in a CL patient.
• Perform advanced refraction techniques in a CL patient, including diagnostic fitting.
• Perform techniques to verify and inspect contact lenses.
• Utilize appropriate teaching skills to instruct patients in the safe insertion, removal, and care of contact lenses.

PGY-3 Level Goals
A. General Educational Objectives
• Perform a more advanced CL history and examination, employing additional tests and questions appropriate for patients with more complex CL needs (e.g., keratoconus, difficult CL fittings).
• Perform retinoscopy and refraction in the CL patient with more complex needs (e.g., keratoconus, postkeratoplasty).
• 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.
• Describe more advanced CL design (e.g., special lenses and special CL shapes or materials).
• Describe and perform more advanced CL fitting (e.g., postkeratoplasty).
• Describe selection of CL candidates with more complex needs (e.g., postsurgical).
• Use auxiliary CL instruments in patients with more complex needs (e.g., post-surgical topography).
• Perform CL verification for vision, fit, and comfort in therapeutic CL cases.

B. Cognitive Skills
• Describe more advanced concepts of ophthalmic optics in CL.
• Describe indications for more advanced CL (e.g., therapeutic lenses).

C. Technical/Surgical Skills
• Perform more advanced retinoscopy techniques in a CL patient.
• Perform more advanced refraction techniques in CL patient, including diagnostic fitting.
• Perform advanced techniques to verify and inspect contact lenses in patients with complex CL needs.
• Perform more advanced CL fitting in patients with complex needs (e.g., keratoconus, CL in children, active corneal disease).
• Describe and use the CL instruments in more complex cases.
• Describe the more advanced CL complications. (e.g. microbial keratitis, sterile corneal infiltrates, preservative toxicity)
• Perform appropriate CL selection (e.g., material selection, CL modification).
• Perform corneal topography to fit contact lenses.

PGY-4 Level Goals
A. General Educational Objectives
• Perform the most advanced techniques in CL history and examination, and understand what additional tests and questions are needed during the most complex CL examination (e.g., postkeratoplasty, multiple surgery, post-refractive, complex keratoconus fitting, active corneal disease).
• 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).
• Describe the most advanced optics and applications of soft contact lenses and hard contact lenses (e.g., piggyback CL).
• Describe the most advanced CL design, using appropriate terminology (e.g., special fittings, special lenses for difficult-to-fit patients).
• Describe indications for and to perform the most advanced CL fitting (e.g., post-multiple keratoplasty or traumatic corneal repair).
• Describe indications for and apply the most complex CL in special circumstances or for candidates presenting increased level of difficulty (e.g., postsurgical patients, children)
• Use the auxiliary CL instruments in patients with the most complex needs (e.g., topography, fluorescein testing, diagnostic lenses).

B. Cognitive Skills
• Describe the differences among CL material choices.
• Describe methods of modifying a contact lens to improve comfort, vision, or physiological response.
• Evaluate and to manage CL-induced complications.
• Perform and interpret corneal topography in CL fitting.

C. Technical/Surgical Skills
• Perform CL modification in complex cases.
• Select the appropriate CL in more complex cases.
Practice-Based Learning and Improvement

The PGY-2 Resident Should Be Able To:

- Identify and read about contact lens fittings in textbooks and journals
- Using above sources, begin to locate, appraise and assimilate evidence from scientific studies to improve patient care
- Critically read and analyze relevant literature in preparation for lectures, case conferences, and presentations
- Incorporate formative evaluation feedback into daily practice
- Participate actively in case conferences and be able to present patients on the clinical service
- Learn basic principles of statistics and evidence-based medicine
  - Be compliant with required evaluations

The PGY-3 Resident Should Be Able To (In addition to the goals listed in the previous PGY level(s)):

- Critically evaluate clinical studies with regards to methods, design, statistics and validity of conclusion and use to improve patient care
- Continue to read and analyze relevant literature in preparation for lectures, case conferences, and presentations

The PGY-4 Resident Should Be Able To (In addition to the goals listed in the previous PGY level(s)):

- Participate in the education of co-residents, medical students, nurses, technicians or other staff.
- Understand the relevant literature and begin to master the salient points which can be used in daily ophthalmology practice.

Interpersonal and Communications Skills

The PGY-2 Resident Should Be Able to:

- Document consultation notes and follow up notes effectively and efficiently
- Involve the patient and patient’s family in decisions regarding care using clear communication and empathetic behavior with respect to emotional needs, intellectual capacity, and ethnic/racial backgrounds
- Develop a relationship with the patient as a health care provider that begins with the initial visit and continues through any treatment and follow-up

The PGY-3 Resident Should Be Able To (In addition to the goals listed in the previous PGY level(s)):
- Demonstrate the ability to communicate and coordinate care between disciplines
- Understand the importance of a neat and complete ophthalmic chart and be able to defend in patient case conferences

The PGY-4 Resident Should Be Able To (In addition to the goals listed in the previous PGY level(s)):
- Learn to communicate directly and personally with referring physicians/disciplines
- Communicate with all staff and other pertinent medical disciplines independently with indirect attending physician supervision

Professionalism

Professionalism objectives remain the same throughout the PGY2 - 4 years although the expectations of proficiency increase over the 3 years.

The PGY-2-4 Resident Should Be Able To:
- Demonstrate compassion, integrity, and respect for patients, families, medical colleagues, and staff
- Demonstrate sensitivity and responsiveness to a diverse patient population, including but not limited to diversity in gender, age, culture, race, religion, national origin, disabilities, and sexual orientation
- Respect patient confidentiality and autonomy
- Demonstrate the ability to comply with medical records and charting requirements specific to the rotation.
- Demonstrate a commitment to learning the fundamentals of contact lens fittings by attending lectures and clinic/surgery on time and keeping up with assigned readings
- Demonstrate accountability to patients, society and the profession
**Systems-based Practice**

Systems-based Practice objectives remain the same throughout the PGY2 - 4 years although the expectations of proficiency increase over the 3 years.

**The PGY-2-4 Resident Should Be Able To:**
- Practice cost-effective health care that does not compromise the quality of care
- Understand that an ophthalmologist works as an integral part of a team to effectively care for patients alongside physician colleagues, co-residents, photographers, etc.
- Advocate for quality patient care and assist patients in dealing with system complexities
- Understand that the practice of ophthalmology is an interdependent part of the health care system and society at large
- Consider how your practice affect other healthcare professionals and the hospital system
- Know what resources are available for patient care, within or outside the institution and make referrals as appropriate

**ATTAINMENT OF GOALS**

**Goal Attainment Can Be Measured In Contact Lenses/Optics & Refraction By:**
- Observation and questioning of the residents by faculty, clinics and seminars. Residents are evaluated by the faculty following each rotation, more frequently if indicated.
- Reviewing with the resident patients who return with problems or for routine checks.
- Completion of the Progress Notebook section on Contact Lenses
- Oral exam by Dr. Russo at the end of the first year Cornea/contact lens rotation.
- Completion of the Progress Notebook section on Optics
- Analysis of appropriate results on the OKAP examination.
CORNEA AND EXTERNAL DISEASES SECTION
Residents Obtain Experience In Cornea, External Disease, and Refractive Surgery (Patient Care/Medical Knowledge) By:

- Attending a series of monthly seminars attended by all ten of the residents. These follow the structure of the Home Study course of the American Academy of Ophthalmology. Some additional problems not mentioned in the manual are also discussed.
- Reading the Cornea and refractive surgery BCSC books during the cornea/contact lens rotation and throughout the residency.
- The participation of one or two different Loyola residents in regularly scheduled weekly Cornea and External Disease Clinics. The corneal clinics take patients that are referred from Loyola and Hines, as well as outside ophthalmologists.
- Residents also participate in Refractive Surgery Clinics and observe/assist in laser refractive surgical procedures at the Hinsdale Surgical Center every other Friday afternoon.
- Attending a weekly consultation External Disease Clinic held at Hines VA Hospital attended by all of the Hines residents.
- Examining patients under faculty supervision in general clinics at Loyola and Hines.
- Performing Corneal Disease consultations in the Emergency Room as well as in the hospital on a regular basis.
- Working up and assisting in refractive, corneal, and ocular surface surgery at Loyola and at Hines.
- Teaching junior residents and medical students during the clinic rotations.
- Performing a variety of diagnostic tests, procedures and exams and interpreting the results with consultation of the attending.
- Participation in 6 corneal and refractive “Grand Rounds” Conferences presented throughout the year.
- Understanding the principle conclusions and recommendations of all National Eye Institute sponsored clinical trials in Corneal/External disease.
- Studying the American Academy of Ophthalmology sponsored Preferred Practice Patterns in Corneal and External Disease.
GOALS
The PGY-2 Resident Should Be Able To:
1. Perform an accurate and appropriate refraction
   a. Manifest
   b. Cycloplegic
   c. Fogging
   d. Binocular balancing
   e. Anisometropia considerations
   f. Bifocal lenses
   g. Accomodative amplitude
   h. Aphakia considerations
   i. Indications, use and measurement of vertex distance
2. Perform a variety of examination techniques including:
   a. Slit lamp biomicroscopy
      i. Specular reflection
      ii. Sclerotic scatter
      iii. Indirect illumination
      iv. Retroillumination
      v. Differentiate various punctate abnormalities of the corneal surface
      vi. Slit lamp photography (Hines)
   b. Perform and interpret results of:
      i. Fluorescein and vital dye staining
      ii. Schirmer’s I and II tests
      iii. Dye disappearance test
   c. Measure corneal disease dimensions using slit lamp
   d. Perform and interpret results of:
      i. Hand held keratoscopy
      ii. Computerized and manual keratometry
      iii. Corneal pachymetry
      iv. Computerized topography
      v. Corneal aesthesiometry
      vi. Potential acuity assessment
vii. Interferometry
viii. Potential acuity measurement
ix. Pinhole PAM
x. Pupillometry

3. Describe and interpret the results of:
   a. Confocal microscopy
   b. Specular microscopy
   c. Contrast sensitivity
d. Glare/Brightness acuity (BAT) testing
   e. Laser interferometry

4. Describe normal anatomy of:
   a. Lids and meibomian glands
   b. Tear film layers: composition source of layers
c. Conjunctiva, palpebral and bulbar
d. Cornea, limbus
e. Neuroanatomic integration/reflex pathways

5. Evaluate pathological responses of the ocular surface:
   a. Differentiate follicles and papillae
   b. Recognize normal and abnormal conjunctival vasculature
c. Recognize abnormal vessels, scars and infiltrates of the cornea
d. Evaluate lid reactions and collarettes, scruff, etc.

6. Describe components of the ocular immune response

7. Adequately work up patients according to the AAO “Preferred Practice Patterns” with the following:
   a. Dry eye syndrome.
b. Blepharitis
c. Conjunctivitis
d. Corneal Opacification and Ectasia
e. Bacterial keratitis

8. Perform and understand indications/complications for office procedures
   a. Punctal occlusion (plugs)
b. Punctal occlusion (cautery)
c. Lacrimal irrigation
d. Diagnostic scraping of cornea, stain and differentiate cell type
e. Conjunctival biopsy
f. Corneal foreign body removal
g. Corneal suture removal
h. Epilation (manual, electrocautery)
i. Subconjunctival/subtenon’s injection
j. Anterior stromal puncture
k. Application of histoacrylic adhesive
l. Corneal epithelial debridement
m. Pressure patch
n. Placement of bandage contact lens

9. List:
a. Normal flora of the ocular surface
b. Antibiotic preparations and microorganism coverage.

The PGY-3 Resident Should Be Able To:

1. Correlate abnormalities in the external eye with correct diagnosis.
2. Discuss principles of ocular pharmacology
3. Discuss diagnosis and management of Infectious conjunctivitis
   a. Bacterial
   b. Viral
   c. Chlamydial
4. Describe important principles for the diagnosis and management of infectious keratitis including:
   a. Bacterial
   b. Viral
      i. Herpes simplex keratitis
         1. Infectious epithelial keratitis
         2. Immune stromal keratitis
         3. Endothelial keratitis
      ii. Herpes Zoster keratitis
iii. Adenoviral keratoconjunctivitis
c. Chlamydial keratoconjunctivitis
d. Fungal
e. Parasitic
   i. acanthamoebic
f. Others.

5. Discuss manifestations of systemic disease and the external eye.
6. Describe immunologic disease of the anterior segment including:
   i. Contact eczematous dermatitis
   ii. Rosacea blepharitis
   iii. Corneal graft rejection.
   iv. Atopic keratoconjunctivitis (AKC)
   v. Vernal keratoconjunctivitis VKC)
   vi. Ligneous conjunctivitis
   vii. Giant papillary conjunctivitis (GPC)
   viii. Seasonal allergic conjunctivitis (SAC)
   ix. Steven’s Johnson Syndrome (SJS)
   x. Ocular cicatricial pemphigoid (OCP)
   xi. Peripheral and paracentral ulcerative keratitis (PUK)

7. Describe noninfectious diseases of the cornea and conjunctiva including:
   a. Thygeson’s superficial punctate keratitis (TSPK)
   b. Interstitial keratitis (IK)
   c. Cogan’s interstitial keratitis
   d. Neurotrophic keratitis
   e. Recurrent corneal erosion (RES)
   f. Floppy eyelid syndrome (FES)
   g. Terrien’s marginal keratitis
   h. Mooren’s Ulcer
   i. Peripheral ulcerative keratitis (PUK)
   j. Marginal keratitis
   k. Band keratopathy
   l. Bullous keratopathy PBK, ABK)
m. Deep lamellar keratitis (DLK)

n. Exposure keratopathy

o. Contact lens induced keratitis (CLIK)

p. Toxic/anaesthesia keratitis

8. Discuss classification, clinical findings and management of diseases of the sclera and episclera:
   a. Scleritis
   b. Episcleritis

9. Discuss diagnosis and management of neoplastic diseases of the cornea and conjunctiva
   a. Conjunctival intraepithelial neoplasia (CIN)
   b. Primary acquired melanosis (PAM)

10. Discuss congenital abnormalities of the cornea and anterior segment
    a. Globe
    b. Corneal size and shape
    c. Anterior segment dysgenesis

11. Discuss diagnosis, pathology and clinical evaluation of corneal dystrophies, degenerations and ectasias
    a. Epithelial
    b. Stromal
    c. Endothelial
    d. Ectatic

12. Discuss metabolic disorders of the cornea

13. Discuss corneal and conjunctival degenerations

14. Discuss diagnosis, grading, and management of toxic and traumatic injury to the ocular surface
    a. Thermal injury
    b. Chemical injury
       i. Acute
       ii. Chronic
       iii. Grading system
    c. Concussive
    d. Non-perforating
e.  Perforating

The PGY-4 Resident Should Be Able To:

15. Discuss anterior segment surgery other than cataract surgery including:
   c.  Pterygium surgery: primary, recurrent
       i.  Indications
       ii. Procedures/techniques
   d.  Corneal transplantation - penetrating and lamellar
       i.  Indications
       ii. Evaluation
       iii. Surgical techniques
       iv. Postoperative management
       v.  Complications
           1.  Intraoperative
           2.  Postoperative
   e.  Corneal laceration repair
   f.  Biopsy of the cornea
   g.  Conjunctival flap: free, rotational
   h.  Tarsorrhaphy
   i.  Triple procedure (penetrating keratoplasty, cataract extraction and lens implant)
   j.  Anterior segment reconstruction
   k.  Anterior chamber tap
   l.  Superficial keratectomy
   m.  Keratolimbal grafts: autografts (KLAU) and allografts (KLAL)
   n.  Amniotic membrane transplantation (AMT)
   o.  Mucus membrane grafting
   p.  Deep lamellar endothelial keratoplasty (DLEK)

10. Refractive Surgery
    a.  Optics
    b.  Biomechanics
    c.  Wound healing
    d.  Laser physics
e. Refractive accuracy and stability
f. Visual disturbances
g. Surgical techniques and guidelines
   i. Radial keratotomy
   ii. Epikeratoplasty
   iii. Astigmatic keratotomy
   iv. Limbal relaxing incisions
   v. LASIK
   vi. LASEK
   vii. Lamellar thermokeratoplasty (LTK)
   viii. Conductive keratoplasty
   ix. Intracorneal ring segments (INTACS)
   x. Intraocular lens implantation
   xi. Bioptics

h. Equipment/Instrumentation
   i. Diamond blades
   ii. Keratomes
   iii. Excimer lasers
   iv. LTK

i. Indications for above techniques

j. Complications associated with above procedures
   i. Intraoperative
      1. Sight threatening
      2. Non sight threatening
   ii. Postoperative
      1. Early
      2. Late

11. Assist on the above procedures and perform some as primary surgeon under attending supervision.

An alternative schema is as follows (from the International Council of Ophthalmology):
Cornea, External Diseases and Refractive Surgery
PGY-2 Level Goals
A. Cognitive Skills
- Describe the basic anatomy, embryology, physiology, pathology, microbiology, immunology, genetics, epidemiology, and pharmacology of the cornea, conjunctiva, sclera, eyelids, lacrimal apparatus, and ocular adnexa.
- Describe congenital abnormalities of the cornea, sclera, and globe (e.g., Peter’s anomaly, microphthalmos, birth trauma, buphthalmos).
- Describe characteristic corneal and conjunctival degenerations (e.g., pterygium, pinguecula, senile plaques of the sclera, keratoconus).
- Recognize the common corneal dystrophies and degenerations (e.g., map-dot-fingerprint dystrophy, Meesman dystrophy, Reis-Buckler's dystrophy, Francois syndrome, Schnyder's crystalline dystrophy, congenital hereditary stromal dystrophy, lattice dystrophy, granular dystrophy, macular dystrophy, congenital hereditary endothelial dystrophy, Fuchs’ dystrophy, posterior polymorphous dystrophy, Salzmann’s degeneration).
- Recognize the common corneal inflammations and infections (e.g., herpes simplex, herpes zoster, syphilis, interstitial keratitis).
- Understand the fundamentals of corneal optics and refraction (e.g., keratoconus).
- Describe the fundamentals of ocular microbiology and recognize corneal and conjunctival inflammations and infections (e.g., Staphylococcal hypersensitivity, simple microbial keratitis, trachoma, ophthalmia neonatorum, herpes zoster ophthalmicus, herpes simplex keratitis and conjunctivitis).
- Recognize the basic presentations of ocular allergy (e.g., phlyctenules, seasonal hay fever, vernal conjunctivitis, allergic and atopic conjunctivitis, giant papillary conjunctivitis).
- Recognize and treat lid margin disease (e.g., Staphylococcal blepharitis, meibomian gland dysfunction).
- Describe the features of, diagnose, and treat (or refer) vitamin A deficiency (e.g., Bitot's spot, dry eye, slowed dark adaptation) and neurotrophic corneal disease.
- Describe the basic differential diagnosis of acute and chronic conjunctivitis or "red eye" (e.g., sleritis, episcleritis, conjunctivitis, orbital cellulitus, gonococcal and chlamydial conjunctivitis).
- Describe the basic mechanisms of traumatic and toxic injury to the anterior segment (e.g., alkali burn, lid laceration, orbital fracture, etc.).
- Understand the mechanisms of ocular immunology and recognize the external manifestations of anterior segment inflammation (e.g., red eye associated with acute and chronic iritis).
- Describe the basic principles of ocular pharmacology of anti-infective, anti-inflammatory and immune modulating agents (e.g., indications and contraindications for topical corticosteroids, non-steroidal anti-inflammatory agents, and antibiotics).
- Recognize corneal lacerations (perforating and non-perforating), pterygia that may require surgery, corneal and conjunctival foreign bodies.
- Diagnose and treat corneal exposure (e.g., lubrication, temporary tarsorrhaphy).
- Describe the epidemiology, differential diagnosis, evaluation and management of common benign and malignant lid lesions, including pigmented lesions of the conjunctiva and lid (e.g., nevi, melanoma, primary acquired melanosis)
• Describe the epidemiology, classification, pathology, indications for surgery, and prognosis of common malpositions of the eyelids (e.g., blepharoptosis, trichiasis, distichiasis, essential blepharospasm, entropion, ectropion) and understand their relationship to secondary diseases of the cornea and conjunctiva (e.g., exposure keratopathy).
• Recognize and describe the treatment for a chemical burn (e.g., types of agents, medical therapy).
• Recognize and describe the etiologies of hyphema and microhyphema.
• Describe the etiologies and treatment of superficial punctate keratitis (e.g., dry eye, Thygeson's superficial punctate keratopathy), blepharitis, toxicity, ultraviolet photokeratopathy, contact lens related).
• Describe the symptoms and signs, testing and evaluation for, and treatment of exposure keratopathy and dry eye (e.g., Schirmer testing).
• Recognize the anterior segment manifestations of systemic disease (e.g., Wilson's disease) and pharmacologic side effects (e.g., amiodarone vortex keratopathy).
• Recognize, list the differential diagnosis, and evaluate aniridia and other developmental anterior segment abnormalities (e.g., Axenfeld's, Rieger's, Peters' anomalies and related syndromes).
• Recognize and treat pyogenic granuloma.

B. Technical/Surgical Skills
• Perform external examination (illuminated and magnified) and slit lamp biomicroscopy, including drawing of anterior segment findings.
• Administer topical anesthesia, as well as special topical stains of the cornea (e.g., fluorescein dye and rose bengal).
• Perform simple tests for dry eye (e.g., Schirmer test).
• Perform punctal occlusion (temporary or permanent) or insert plugs.
• Perform simple corneal sensation testing (e.g., cotton tip swab).
• Perform tonometry (e.g., applanation, tonopen, Schiotz, pneumotonometry).
• Perform techniques of sampling for viral, bacterial, fungal, and protozoal ocular infections (e.g., corneal scraping and appropriate culture techniques).
• Perform and interpret simple stains of the cornea and conjunctiva (e.g., culture techniques, culture media, Gram stain, Giemsa stain, calcofluor white, acid fast).
• Manage corneal epithelial defects (e.g., pressure patching and bandage contact lenses).
• Perform removal of a conjunctival or corneal foreign body (e.g, rust ring).
• Perform primary pterygium excision.
• Perform an isolated lid laceration repair.
• Perform an isolated corneal laceration repair (e.g., linear laceration not extending to limbus).
• Perform epilation.
• Perform a lateral tarsorrhaphy.
• Incise/drain or remove a primary chalazion/stye.
• Perform a simple incisional or excisional biopsy of a lid lesion.
• Perform irrigation of chemical burn to the eye.
• Treat hyphema and microhyphema (e.g., and the complications of increased intraocular pressure and rebleeding).

PGY-3 Level Goals
A. Cognitive Skills
• 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.
• Describe the more complex congenital abnormalities of the cornea, sclera, and globe (e.g., hamartomas and choristomas).
• Describe, recognize, evaluate, and treat peripheral corneal thinning (e.g., inflammatory, degenerative, dellen-related, infectious, immunologic).
• Recognize common conjunctival neoplasms (e.g., benign, malignant tumors).
• Recognize and treat less common corneal or conjunctival presentations of degenerations (e.g., inflamed, atypical or recurrent pterygium, band keratopathy).
• Describe the epidemiology, differential diagnosis, evaluation, and management of Bitot's spots.
• Describe the differential diagnosis, evaluation, and management of Thygeson's superficial punctate keratopathy.
• Understand more complex corneal optics and refraction (e.g., irregular astigmatism).
• 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 findings from examination of the media.
• Describe more complex ocular microbiology and describe the differential diagnosis of more complicated corneal and conjunctival infections (e.g., complex, mixed or atypical bacterial fungal, Acanthamoeba, viral, or parasitic keratitis).
• Describe differential diagnosis, evaluation, and treatment of interstitial keratitis (e.g., syphilis, viral diseases, non-infectious, immunologic, inflammation).
• Describe more complex differential diagnosis of the "red eye" (e.g., autoimmune and inflammatory disorders causing scleritis, episcleritis, conjunctivitis, orbital cellulitis).
• Describe key features of trachoma, including epidemiology, clinical features and staging, and its 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).
• Describe 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).
• Describe the differential diagnosis and the external manifestations of more complex anterior segment inflammation (e.g., acute and chronic iritis with and without systemic disease).
• 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).
• Recognize and treat corneal lacerations (perforating and non-perforating).
• Recognize and treat large, recurrent, or atypical pterygia that may require surgery.
• Describe and treat corneal and conjunctival foreign bodies.
• Diagnose and treat severe corneal exposure (e.g., lubrication, temporary tarsorrhaphy)
• Recognize and treat common and uncommon benign and malignant lid lesions.
• Recognize and treat common malpositions of the eyelids (e.g., entropion, ectropion, and ptosis) as they apply to secondary corneal disease.
• Recognize and treat recurrent corneal erosions.
• Recognize and treat foreign body, animal, and plant substance injuries.
• Recognize and treat more complex hyphemas (e.g., surgical indications).
• Recognize, evaluate, and treat chronic conjunctivitis (e.g., chlamydia, trachoma, molluscum contagiosum, Parinaud's oculoglandular syndrome, ocular rosacea).
• Describe the clinical features, pathology, evaluation, and treatment of ocular cicatricial pemphigoid.
• Recognize, evaluate, and treat the ocular complications of severe diseases, such as chronic exposure keratopathy, contact dermatitis, and Stevens-Johnson syndrome.
• 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).

B. Technical/Surgical Skills
• Perform more advanced techniques, including keratometry, keratoscopy, endothelial cell count and evaluation, specular microscopy, and pachymetry.
• Perform stromal micropuncture.
• Perform application of corneal glue.
• Assist in more complex corneal surgery (e.g., penetrating keratoplasty and phototherapeutic keratectomy).
• Perform more advanced tests for dry eye (e.g., modified Schirmer tests, Examination of tear break-up time, fluorescein dye testing, rose bengal dye).
• Perform more complex pterygium excision, including conjunctival grafting.
• Perform more complex lid laceration repair.
• Perform manual superficial or lamellar keratectomy.
• Perform more complex corneal laceration repair (e.g., stellate perforating laceration).
• Repair simple lacerations of the lacrimal drainage apparatus (e.g., perform intubations and primary closure).

PGY-4 Level Goals
A. Cognitive Skills
• 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.
• Describe the most complex and less common congenital abnormalities of the cornea, sclera, and globe (e.g., cornea plana, keratoglobus).
• Recognize common and uncommon corneal and conjunctival neoplasms, dystrophies and degenerations (e.g., lattice dystrophy).
• Understand the most complex corneal optics and refraction (e.g., post-keratoplasty).
• Describe less common and rare ocular infections and describe the differential diagnosis of the most complicated corneal and conjunctival infections (e.g., amoebas, leishmaniasis, nematodes).
• In non-endemic areas, describe the basic features of onchocerciasis.
• In endemic areas, define the etiology, vector (e.g., black fly), and incidence, diagnostic features (e.g., microfiliariae, 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) of oncocerciasis.
• Describe the most complex differential diagnosis of the “red eye” (e.g., pemphigoid, pemphigus, Stevens Johnson syndrome).
• Diagnose and treat the most complex traumatic and toxic injuries to the anterior segment (e.g., total lid avulsion, severe alkali burn).
• Describe the differential diagnosis and the external manifestations of the most complex or uncommon anterior segment inflammations (e.g., syphilitic keratouveitis).
• 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).
• Recognize and treat complex corneal lacerations (e.g., lacerations extending beyond the limbus).
• Diagnose and treat the most severe corneal exposure cases (e.g., conjunctival flap).
• Understand ocular surface transplantation, including conjunctival autograft/flap, amniotic membrane transplantation, limbal stem cell transplantation.
• Understand the surgical indications (e.g., Fuchs' dystrophy, aphakic/pseudophakic bullous keratopathy), surgical techniques, and recognition and management of postoperative complications (especially immunologically-mediated rejection) of corneal transplantation (e.g. penetrating, lamellar).
• Understand the preoperative Examination, patient selection, surgical management, and postoperative care of refractive surgical techniques, including keratotomy (radial, astigmatic), photoablation (photorefractive, phototherapeutic, LASIK), corneal wedge resection, thermokeratoplasty, intracorneal rings, phakic intraocular lens and clear lens extraction.

B. Technical/Surgical Skills
• Perform and interpret the most advanced corneal techniques (e.g., pachymetry, endothelial microscopy, computerized corneal topography).
• Understand and perform specialized and complicated contact lens fitting (e.g., post-keratoplasty).
• Perform more complex corneal surgery (e.g., penetrating or lamellar keratoplasty, keratorefractive procedures and phototherapeutic keratectomy).
• Repair complex entropion and ectropion.
• Perform a thin conjunctival flap (e.g., Gunderson flap).
• Perform other complex conjunctival surgery (e.g., autograft, stem cell transplant).
• Perform basic non-laser refractive surgery techniques (e.g., relaxing keratotomy).
• Manage and treat more complex neoplasms of the conjunctiva (e.g., carcinoma, melanoma).

Practice-Based Learning and Improvement

The PGY-2 Resident Should Be Able To:
• Identify and read about major disease (above) in ophthalmology textbooks and journals
• Using above sources, begin to locate, appraise and assimilate evidence from scientific studies to improve patient care
• Critically read and analyze relevant literature in preparation for lectures, case conferences, and presentations
• Incorporate formative evaluation feedback into daily practice
• Participate actively in case conferences and be able to present patients on the clinical service
• Learn basic principles of statistics and evidence-based medicine
• Start and maintain ACGME web-based procedural log
• Be compliant with required evaluations

The PGY-3 Resident Should Be Able To (In addition to the goals listed in the previous PGY level(s):
• Critically evaluate clinical studies with regards to methods, design, statistics and validity of conclusion and use to improve patient care
• Continue to read and analyze relevant literature in preparation for lectures, case conferences, and presentations
• Participate in the education of co-residents, medical students, nurses, technicians or other staff.

The PGY-4 Resident Should Be Able To (In addition to the goals listed in the previous PGY level(s):
• Understand the relevant literature and begin to master the salient points which can be used in daily ophthalmology practice.

Interpersonal and Communications Skills

The PGY-2 Resident Should Be Able To:
• Document consultation notes, follow up notes, and procedure notes effectively and efficiently
• Understand the importance of informed consent and be able to obtain informed consent from patients
• Use personal and electronic communication (EPIC/VA GUI) to communicate with other staff i.e. nurses and technicians, with regards to patient care
• Involve the patient and patient’s family in decisions regarding care using clear communication and empathetic behavior with respect to emotional needs, intellectual capacity, and ethnic/racial backgrounds
• Develop a relationship with the patient as a health care provider that begins with the initial visit and continues through any treatment and follow-up

The PGY-3 Resident Should Be Able To (In addition to the goals listed in the previous PGY level(s)):
• Demonstrate the ability to communicate and coordinate care between disciplines i.e. general medicine, rheumatology, endocrinology, etc.
• Understand the importance of a neat and complete ophthalmic chart and be able to defend in patient case conferences

The PGY-4 Resident Should Be Able To (In addition to the goals listed in the previous PGY level(s)):
• Learn to communicate directly and personally with referring physicians/disciplines
• Communicate with all staff and other pertinent medical disciplines independently with indirect attending physician supervision

Professionalism

Professionalism objectives remain the same throughout the PGY2 - 4 years although the expectations of proficiency increase over the 3 years.

The PGY-2-4 Resident Should Be Able To:
• Demonstrate compassion, integrity, and respect for patients, families, medical colleagues, and staff
• Demonstrate sensitivity and responsiveness to a diverse patient population, including but not limited to diversity in gender, age, culture, race, religion, national origin, disabilities, and sexual orientation
• Respect patient confidentiality and autonomy
• Demonstrate the ability to comply with medical records and charting requirements specific to the rotation.
Demonstrate a commitment to learning the fundamentals of ophthalmology by attending lectures and clinic/surgery on time and keeping up with assigned readings. Demonstrate accountability to patients, society and the profession.

**Systems-based Practice**

Systems-based Practice objectives remain the same throughout the PGY2 - 4 years although the expectations of proficiency increase over the 3 years.

The PGY-2-4 Resident Should Be Able To:

- Practice cost-effective health care that does not compromise the quality of care
- Understand that an ophthalmologist works as an integral part of a team to effectively care for patients alongside physician colleagues, co-residents, nurses, technicians, photographers, administrative and secretarial staff, etc.
- Advocate for quality patient care and assist patients in dealing with system complexities
- Understand that the practice of ophthalmology is an interdependent part of the health care system and society at large
- Consider how your practice affect other healthcare professionals and the hospital system
- Know what resources are available for patient care, within or outside the institution and make referrals as appropriate

**ATTAINMENT OF GOALS**

Goal Attainment Can Be Measured In Cornea By:

- Observations and interrogation of residents by attendings
  - During and at the end of the cornea and external disease clinic
  - In the operating room
  - During lectures/seminars
- Throughout the rotation the faculty works with the resident in completing the Resident Progress Notebook and Skills Transfer Manual checklists.
• Halfway through and following each rotation, (more frequently if indicated) the faculty evaluates resident core competency including subspecialty patient care topics included in this Corneal Section of the manual.
• By analysis of results in the Corneal Section of the OKAP examination.
FLUORESCEIN ANGIOGRAPHY SECTION

Residents Obtain The Experience In Fluorescein Angiography By (Patient Care/Medical Knowledge):

- Assignment to the Fluorescein Angiography Clinic one half day per week for a three month period during the first year at Hines VA and a three month period during the first year Retina/Uveitis rotation. During this experience, the resident examines the patients scheduled for angiography, injects them with the fluorescein, learns to understand the technique and equipment used, and subsequently discusses the interpretation of the angiogram with attending physician.
- Presentation and discussion of fluorescein angiogram during the course of retinal presentations.

Practice-Based Learning and Improvement

The PGY-2 Resident Should Be Able To:

- Identify and read about major diseases in ophthalmology textbooks and journals
- Critically read and analyze relevant literature in preparation for lectures, case conferences, and presentations
- Incorporate formative evaluation feedback into daily practice
- Participate actively in case conferences and be able to present patients on the clinical service
- Learn basic principles of statistics and evidence-based medicine
- Start and maintain ACGME web-based procedural log
- Be compliant with required evaluations
- Understand the relevant literature and begin to master the salient points which can be used in daily ophthalmology practice.

Interpersonal and Communications Skills

The PGY-2 Resident Should Be Able To:

- Document consultation notes, follow up notes, and procedure notes effectively and efficiently
- Understand the importance of informed consent and be able to obtain informed consent from patients
• Involve the patient and patient’s family in decisions regarding care using clear communication and empathetic behavior with respect to emotional needs, intellectual capacity, and ethnic/racial backgrounds
• Develop a relationship with the patient as a health care provider that begins with the initial visit and continues through any treatment and follow-up
• Understand the importance of a neat and complete ophthalmic chart and be able to defend in patient case conferences
• Learn to communicate directly and personally with referring physicians/disciplines
• Communicate with all staff and other pertinent medical disciplines

Professionalism

The PGY-2 Resident Should Be Able To:
• Demonstrate compassion, integrity, and respect for patients, families, medical colleagues, and staff
• Demonstrate sensitivity and responsiveness to a diverse patient population, including but not limited to diversity in gender, age, culture, race, religion, national origin, disabilities, and sexual orientation
• Respect patient confidentiality and autonomy
• Demonstrate the ability to comply with medical records and charting requirements specific to the rotation.
• Demonstrate accountability to patients, society and the profession.

Systems-based Practice

The PGY-2 Resident Should Be Able To:
• Practice cost-effective health care that does not compromise the quality of care
• Understand that an ophthalmologist works as an integral part of a team to effectively care for patients alongside physician colleagues, co-residents, nurses, technicians, photographers, administrative and secretarial staff, etc.
• Advocate for quality patient care and assist patients in dealing with system complexities
• Understand that the practice of ophthalmology is an interdependent part of the health care system and society at large
• Consider how your practice affect other healthcare professionals and the hospital system
• Know what resources are available for patient care, within or outside the institution and make referrals as appropriate

GOALS
At The End Of The Training Period The Resident Should Be Able To:
• Administer fluorescein and perform fluorescein angiography.
• Interpret angiography to the satisfaction of the Attending.

GOAL ATTAINMENT
Goal Attainment Can Be Measured in Fluorescein Angiography By:

• Observation and interrogation by Attending during clinical sessions and seminars. Residents are evaluated by the faculty following each rotation, more frequently if indicated.
• Observation and interrogation by retinal specialists and other faculty during the course of patient care.
• Analysis of the results of the OKAP examination.

COMPREHENSIVE OPHTHALMOLOGY
Residents Obtain The Experience In Comprehensive Ophthalmology By (Patient Care/Medical Knowledge) :
• Participating in the comprehensive ophthalmological clinics to which they are assigned both at Loyola and at Hines. At Loyola and Hines these clinics are all supervised by attending faculty.
• Interviewing patients, assessing their pathology during a general eye examination including refraction, determining a plan of action and executing this plan and, where appropriate, referring these patients to the specialty subsection. At all times the resident has available to him/her the advice of faculty who usually has direct supervision in each case.
• Working up patients for general surgical conditions as described under general ophthalmology surgical goals.
GOALS

The PGY-2 Resident Should Be Able To:

- Take an appropriate history, do a good general eye examination under supervision and work out a plan of action for patients with common ophthalmic conditions.

The PGY-3 Resident Should Be Able To:

- A good work up to the satisfaction of his/her supervisor on more complicated ophthalmic conditions, recommend appropriate tests and procedures to diagnose and manage all of the common types of eye conditions.
- Recognize when and where to refer.

The PGY-4 Resident Should Be Able To:

- Examine any ophthalmologic patient, properly assess the patient and his/her condition, make an ophthalmological diagnosis with an appropriate differential diagnosis and explain to the patient his condition and his/her recommendations. All this should be to the satisfaction of the attending staff.

Practice-Based Learning and Improvement

The PGY-2 Resident Should Be Able To:

- Incorporate formative evaluation feedback into daily practice
- Participate actively in case conferences and be able to present patients on the clinical service
- Learn basic principles of statistics and evidence-based medicine
- Be compliant with required evaluations

The PGY-3 Resident Should Be Able To (In addition to the goals listed in the previous PGY level(s)):

- Participate in the education of co-residents, medical students, nurses, technicians or other staff.

The PGY-4 Resident Should Be Able To (In addition to the goals listed in the previous PGY level(s)):
• Understand the relevant literature and begin to master the salient points which can be used in daily ophthalmology practice.

Interpersonal and Communications Skills

The PGY-2 Resident Should Be Able To:
• Document consultation notes, follow up notes, and procedure notes effectively and efficiently
• Understand the importance of informed consent and be able to obtain informed consent from patients
• Use personal and electronic communication (EPIC/VA GUI) to communicate with other staff i.e. nurses and technicians, with regards to patient care
• Involve the patient and patient’s family in decisions regarding care using clear communication and empathetic behavior with respect to emotional needs, intellectual capacity, and ethnic/racial backgrounds
• Develop a relationship with the patient as a health care provider that begins with the initial visit and continues through any treatment and follow-up

The PGY-3 Resident Should Be Able To (In addition to the goals listed in the previous PGY level(s)):
• Demonstrate the ability to communicate and coordinate care between disciplines i.e. general medicine, rheumatology, endocrinology, etc.
• Understand the importance of a neat and complete ophthalmic chart and be able to defend in patient case conferences

The PGY-4 Resident Should Be Able To (In addition to the goals listed in the previous PGY level(s)):
• Learn to communicate directly and personally with referring physicians/disciplines
• Communicate with all staff and other pertinent medical disciplines independently with indirect attending physician supervision

Professionalism

Professionalism objectives remain the same throughout the PGY2 - 4 years although the expectations of proficiency increase over the 3 years.

The PGY-2-4 Resident Should Be Able To:
• Demonstrate compassion, integrity, and respect for patients, families, medical colleagues, and staff
• Demonstrate sensitivity and responsiveness to a diverse patient population, including but not limited to diversity in gender, age, culture, race, religion, national origin, disabilities, and sexual orientation
• Respect patient confidentiality and autonomy
• Demonstrate the ability to comply with medical records and charting requirements specific to the rotation.
• Demonstrate a commitment to learning the fundamentals of ophthalmology by attending lectures and clinic/surgery on time and keeping up with assigned readings
• Demonstrate accountability to patients, society and the profession.

**Systems-based Practice**

*Systems-based Practice objectives remain the same throughout the PGY2 - 4 years although the expectations of proficiency increase over the 3 years.*

**The PGY-2-4 Resident Should Be Able To:**
• Practice cost-effective health care that does not compromise the quality of care
• Understand that an ophthalmologist works as an integral part of a team to effectively care for patients alongside physician colleagues, co-residents, nurses, technicians, photographers, administrative and secretarial staff, etc.
• Advocate for quality patient care and assist patients in dealing with system complexities
• Understand that the practice of ophthalmology is an interdependent part of the health care system and society at large
• Consider how your practice affect other healthcare professionals and the hospital system
• Know what resources are available for patient care, within or outside the institution and make referrals as appropriate

**GOAL ATTAINMENT**

*Goal Attainment Can Be Measured In General Ophthalmology By:*
• Evaluation by his/her superiors of oral case presentation. Residents are evaluated by the faculty after each rotation, more frequently if indicated.
• Evaluation of knowledge and skills during the informal interaction in the General Clinics.
• By analysis of OKAP scores.

SURGERY SECTION
Residents Obtain The Experience In Ophthalmic Surgery By (Patient Care/Medical Knowledge):
• Participation in the preoperative evaluation of the patient in the clinic and in the hospital.
• Assisting in surgery on all ocular cases in addition to those included in the subspecialty areas.
• Performing surgery under faculty supervision in the inpatient and outpatient
• Operating rooms both at Loyola and at Hines.
• Participation in the post operative care of patients, both on an inpatient and outpatient basis.
• Participation in animal research experiences that call for surgical procedures.

GOALS
The PGY-2 Resident Should Be Able To:
• Do an adequate preoperative evaluation and prepare a patient for ophthalmic surgery.
• List the indications for cataract surgery.
• List all indications for all commonly performed ophthalmic procedures.
• Assist under the supervision of the attending staff in all types of general ophthalmological procedures.
• Discuss the complications of any type of surgery that he/she assists on.

The PGY-3 Resident Should Be Able To:
• Do all the above with increased finesse.
• Perform under supervision all common types of muscle surgery, cataract surgery and lid surgery.
• Discuss the indications and contraindications, morbidity and mortality of all types of motility surgery, cataract surgery and lid surgery.
The PGY-4 Resident Should Be Able To:

- Perform under supervision common types of cataract extraction including intracapsular and extracapsular techniques both with and without implants, and to be proficient in the use of all lasers for the treatment of eye diseases.
- Perform under supervision all common types of eye and adnexal surgery that is not reserved to the subspecialty area.
- Discuss to the Attending’s satisfaction with the patient the pros and cons of a given procedure.

Practice-Based Learning and Improvement

The PGY-2 Resident Should Be Able To:

- Identify and read about surgeries (above) in ophthalmology textbooks, journals, and videos
- Using above sources, begin to locate, appraise and assimilate evidence from scientific studies to improve patient care
- Critically read and analyze relevant literature in preparation for lectures, case conferences, and presentations
- Incorporate formative evaluation feedback into daily practice
- Participate actively in case conferences and be able to present patients on the clinical service
- Learn basic principles of statistics and evidence-based medicine
- Start and maintain ACGME web-based procedural log
- Be compliant with required evaluations

The PGY-3 Resident Should Be Able To (In addition to the goals listed in the previous PGY level(s)):

- Critically evaluate clinical studies with regards to methods, design, statistics and validity of conclusion and use to improve patient care
- Continue to read and analyze relevant literature in preparation for lectures, case conferences, and presentations
- Participate in the education of co-residents, medical students, nurses, technicians or other staff.
The PGY-4 Resident Should Be Able To (In addition to the goals listed in the previous PGY level(s)):
- Understand the relevant literature and begin to master the salient points which can be used in daily ophthalmology practice.

**Interpersonal and Communications Skills**

**The PGY-2 Resident Should Be Able To:**
- Document consultation notes, follow up notes, and procedure notes effectively and efficiently
- Understand the importance of informed consent and be able to obtain informed consent from patients
- Use personal and electronic communication (EPIC/VA GUI) to communicate with other staff i.e. nurses and technicians, with regards to patient care
- Involve the patient and patient’s family in decisions regarding care using clear communication and empathetic behavior with respect to emotional needs, intellectual capacity, and ethnic/racial backgrounds
- Develop a relationship with the patient as a health care provider that begins with the initial visit and continues through any treatment and follow-up

**The PGY-3 Resident Should Be Able To (In addition to the goals listed in the previous PGY level(s))**:
- Demonstrate the ability to communicate and coordinate care between disciplines i.e. general medicine, rheumatology, endocrinology, etc.
- Understand the importance of a neat and complete ophthalmic chart and be able to defend in patient case conferences

**The PGY-4 Resident Should Be Able To (In addition to the goals listed in the previous PGY level(s))**:
- Learn to communicate directly and personally with referring physicians/disciplines
- Communicate with all staff and other pertinent medical disciplines independently with indirect attending physician supervision

**Professionalism**

Professionalism objectives remain the same throughout the PGY2 - 4 years although the expectations of proficiency increase over the 3 years.
The PGY-2-4 Resident Should Be Able To:

- Demonstrate compassion, integrity, and respect for patients, families, medical colleagues, and staff
- Demonstrate sensitivity and responsiveness to a diverse patient population, including but not limited to diversity in gender, age, culture, race, religion, national origin, disabilities, and sexual orientation
- Respect patient confidentiality and autonomy
- Demonstrate the ability to comply with medical records and charting requirements specific to the rotation.
- Demonstrate a commitment to learning the fundamentals of ophthalmology by attending lectures and clinic/surgery on time and keeping up with assigned readings
- Demonstrate accountability to patients, society and the profession.

**Systems-based Practice**

Systems-based Practice objectives remain the same throughout the PGY2 - 4 years although the expectations of proficiency increase over the 3 years.

The PGY-2-4 Resident Should Be Able To:

- Practice cost-effective health care that does not compromise the quality of care
- Understand that an ophthalmologist works as an integral part of a team to effectively care for patients alongside physician colleagues, co-residents, nurses, technicians, photographers, administrative and secretarial staff, etc.
- Advocate for quality patient care and assist patients in dealing with system complexities
- Understand that the practice of ophthalmology is an interdependent part of the health care system and society at large
- Consider how your practice affect other healthcare professionals and the hospital system
- Know what resources are available for patient care, within or outside the institution and make referrals as appropriate
ATTAINMENT OF GOALS

Goal Attainment Can Be Measured In General Surgery By:

- Observation and interrogation of supervision surgeon in the operating room.
- Observation and interrogation by attending staff during the course of patient care.
- Residents are evaluated every three months by faculty, or more frequently as indicated.
- Analysis of appropriate questions in the OKAP examination, especially with respect to glaucoma, lens and anterior segment trauma.

An alternative schema is as follows (from the International Council of Ophthalmology) for Comprehensive Ophthalmology and Surgery (and separating out the appropriate subspecialty surgeries):

**Cataract and Lens**

General Educational Objectives:

- Describe the evaluation and management, indications for and intraoperative and postoperative complications of cataract surgery and related anterior segment procedures.
- Perform the complete preoperative ophthalmologic examination of cataract patients.
- Formulate the differential diagnoses of cataract and evaluate the normal and abnormal lens.
- Perform optimum refraction of the post-cataract surgery patient.
- Develop and exercise clinical and ethical decision-making in cataract patients.
- Develop good patient communication techniques regarding cataract surgery.
- Perform routine and advanced cataract surgery and intraocular lens (IOL) placement.
- Manage basic and advanced clinical and surgical cataract problems.
- Effectively diagnose and manage intraoperative and postoperative complications of cataract surgery.
- Work effectively as a member of the medical care team.
- Develop teaching skills about cataracts for instructing junior trainees and students.

**PGY-2 Level Goals**

A. Cognitive Skills

- Identify the most common causes and types of cataract (e.g., anterior polar, cortical nuclear sclerotic, posterior subcapsular).
- List the basic history and examination steps for pre-operative cataract evaluation.
- Describe the steps in cataract surgical procedures.
- Define the elementary refraction or contact lens fitting techniques to obtain best corrected vision prior to considering cataract extraction.
- Describe the major etiologies of dislocated or subluxated lens (e.g., trauma, Marfan's syndrome, homocystinuria, Weill-Marchesani syndrome, syphilis).
- Familiarity with the techniques of intracapsular cataract extraction, extracapsular cataract extraction, and phacoemulsification.
- Describe the following:
  - Basic ophthalmic optics as related to cataracts
- Types of refractive error in cataract
- Retinoscopy techniques for cataracts
- Subjective refraction techniques for cataract patients
- Types of IOLs; IOL power calculation

- Identify and describe the principles and mechanisms of the following instruments in the evaluation of cataracts:
  - Lensometer
  - Autorefractor
  - Retinoscope
  - Phoropter
  - Keratometer
  - Slit lamp biomicroscope
  - Glare and contrast testing devices
  - Potential acuity meter

**B. Technical/Surgical Skills**

- Perform basic slit lamp biomicroscopy, retinoscopy, and ophthalmoscopy.
- Evaluate and classify common types of lens opacities.
- Perform subjective refraction techniques and retinoscopy in patients with cataract.
- Perform direct and indirect ophthalmoscopy pre- and post-cataract surgery.
- Perform basic steps of cataract surgery (e.g., incision, wound closure) in the practice lab.
- Assist at cataract surgery and perform patient preparation, sterile draping, anesthesia.
- Perform the following steps of cataract surgery in the practice lab or under direct supervision, including any or all of the following:
  - Wound construction
  - Anterior capsulotomy/capsulorrhesis
  - Instillation and removal of viscoelastics
  - Extracapsular and phacoemulsification techniques (e.g., sculpting, divide & conquer, phaco - chop)
  - Irrigation and aspiration
  - Cortical clean-up
  - IOL implantation (e.g., anterior and posterior)

**PGY-3 Level Goals**

**A. Cognitive Skills**

- Describe the less common causes of lens abnormalities (e.g., spherophakia, lenticous, ectopia lentis).
- Describe the preoperative evaluation of the cataract patient, including:
  - The systemic diseases of interest or relevance to cataract surgery.
  - The relationship of external and corneal diseases of relevance to cataract and cataract surgery (e.g., lid abnormalities, dry eye).
  - The relationships of glaucoma, uveitis and capsular opacities related to cataract surgery.
- Describe glare analysis testing for cataract surgery.
- Describe the use of A- and B-scan ultrasonography in cataract surgery.
Describe the instruments and techniques of cataract extraction, including extracapsular surgery and phacoemulsification (e.g., trouble-shooting the phacoemulsification machine, altering the machine parameters).

Describe the types, indications and techniques of anesthesia for cataract surgery (e.g., topical, local, general).

Describe indications, techniques, and complications of surgical procedures, including:
- Extracapsular surgery
- Intracapsular surgery
- Phacoemulsification
- Paracentesis
- IOL placement

Describe history and techniques of basic IOL implantation.

Correlate the level of visual acuity with the lens or capsular opacities.

Describe the common complications of cataract and anterior segment surgery (e.g., intraocular pressure elevation, hyphema, endophthalmitis, cystoid macular edema, retinal detachment, intraocular lens dislocation, lens-induced glaucoma and uveitis).

Describe the indications for, principles of, and techniques of YAG laser capsulotomy, and to understand the proper timing of YAG laser capsulotomy.

B. Technical/Surgical Skills

Perform local injections of corticosteroids, antibiotics, and anesthetics.

Implement the basic preparatory procedures for cataract surgery (e.g., obtaining informed consent, identification of instruments, sterile technique, gloving and gowning, prep and drape, other preoperative preparation).

Use the operating microscope for basic cataract surgery.

Perform extracapsular surgery in a practice setting (e.g., animal or practice lab) and then in the operating room under supervision, including mastery of the following skills:
- Wound construction
- Anterior capsulotomy/capsulorrhexis
- Instillation and removal of viscoelastics
- Extracapsular technique
- Beginning phacoemulsification techniques (e.g., sculpting, divide & conquer, phaco-chop)
- Irrigation and aspiration
- Cortical clean-up
- IOL implantation (e.g., anterior and posterior, special IOLs)

Perform paracentesis of the anterior chamber.

Perform the appropriate steps in cataract surgery, assist in cataract surgery, and perform more advanced steps in patient preparation and anesthesia.

Describe the more advanced applications of viscoelastics in surgery (e.g., control of iris prolapse, elevation of dropped nucleus, viscodissection, aspiration of residual/retained viscoelastic).

Perform basic postoperative evaluation of the cataract patient.

Recognize and refer or treat common postoperative complications of cataract surgery (e.g., endophthalmitis, elevated intraocular pressure, cystoid macular edema, wound leak, uveitis).
PGY-4 Level Goals

A. Cognitive Skills

- Define the more complex indications for cataract surgery (e.g. better view of posterior segment), describe the performance of and describe the complications of more advanced anterior segment surgery (e.g., pseudoexfoliation, small pupils, mature cataract, hard nucleus, black cataract, post-traumatic, zonular dehiscence), including more advanced procedures (e.g., secondary IOLs and indications for specialized IOLs, capsular tension rings, iris hooks, use of indocyanine green staining of the anterior capsule).
- Describe the instruments and techniques of cataract extraction, including extracapsular surgery and phacoemulsification (e.g., trouble-shooting the phacoemulsification machine, altering the machine parameters).
- Describe the indications for, techniques of, and complications of cataract extraction 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 prior 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).
- Independently evaluate complications of cataract and IOL implant surgery (e.g., posterior capsular tears, vitreous prolapse, intravitreal dislocation of cataractous fragments, choroidal effusions).
- Understand indications for and technique of intracapsular surgery (e.g., rare cases may require this procedure; or patients may have had the procedure performed previously).
- Describe indications for and instrumentation and techniques used to implant foldable and non-foldable IOLs.
- Describe the evaluation and management of common and uncommon causes of postoperative endophthalmitis.
- Perform repositioning, removal, or exchange of IOLs.
- Assist in the teaching and supervision of basic and standard level learners (i.e., first and second year residents).
- Describe the government and hospital regulations that apply to cataract surgery.

B. Technical/Surgical Skills

- Describe the principles, indications for, mechanics of, and performance of A-scan ultrasonography and calculation of IOL power.
- Perform phacoemulsification in a practice setting (e.g., animal or practice lab) and then in the operating room, including mastery of the following skills:
  - Wound construction
  - Anterior capsulotomy/capsulorrhexis
  - Viscoelastics
  - Intracapsular, extracapsular and phacoemulsification techniques (e.g., sculpting, divide & conquer, phaco-chop, stop and chop)
  - Instrumentation and techniques of irrigation and aspiration
- IOL implantation (e.g., anterior and posterior, special IOLs)
- IOL repositioning, removal or exchange

- Perform implantation of foldable and non-foldable IOLs.
- Perform intraoperative and postoperative management of any event that may occur during or as a result of cataract surgery, including:
  - Vitreous loss
  - Capsular rupture
  - Anterior or posterior segment bleeding
  - Positive posterior pressure
  - Choroidal detachments
  - Expulsive hemorrhage
  - Loss of anesthesia
  - Elevated intraocular pressure
  - Use of topical and systemic medications
  - Astigmatism
  - Postoperative refraction (simple and complex)
  - Corneal edema
  - Wound dehiscence
  - Hyphema
  - Residual cortex
  - Dropped nucleus
  - Uveitis
  - Cystoid macular edema (CME)
  - Elevated intraocular pressure and glaucoma
  - Postoperative early and late intraocular infection

**GLAUCOMA SECTION**

**Residents Obtain The Experience In Glaucoma By (Patient Care/Medical Knowledge) :**

- Examining and treating glaucoma patients in the office under the supervision of the staff ophthalmologists.
- Consultation at Hines on patients with glaucoma. These sessions are for Hines residents.
- Working with the attending physician in the operating room while doing glaucoma cases.
- Participation in the Problem Case Conferences given throughout the year in glaucoma and attended by all the residents.
- Attendance at Basic Science Course and glaucoma lectures.

**GOALS**

**The PGY-2 Resident Should Be Able To:**

- Take a good history with respect to glaucoma.
- Describe the “risk factors” in glaucoma.
- Evaluate and draw the optic nerve head.
- Accurately measure IOP by applanation, Tonopen and Schiotz and pneumotonometry.
- Assess visual fields by perimeter, tangent screen and automated instruments.
- Discuss the classification of glaucoma.

**The PGY-3 Resident Should Be Able To:**
- Explain the differential diagnosis of various types of optic nerve appearance.
- Describe various field defects of glaucoma and related conditions.
- Interpret tonography.
- Assist on surgical procedures for glaucoma.
- Discuss the multiple forms of treatment for glaucoma and their indications.

**The PGY-4 Resident Should Be Able To:**
- Work up any glaucoma patient and provide a rational differential diagnosis and plant of treatment.
- Do any of the common types of glaucoma surgery under supervision.
- Perform laser iridectomy and trabeculoplasty.
- Manage a patient with combine cataracts and glaucoma.

An alternative schema is as follows (from the International Council of Ophthalmology):

**Glaucoma**

**PGY-2 Level Goals**

**A. Cognitive Skills**
- Describe the epidemiology and genetics of primary open angle glaucoma (POAG).
- Perform evaluation of POAG.
- Describe the mechanics of aqueous humor dynamics and the anatomy of the anterior chamber and its angle, and of the ciliary body.
- Describe basic tonometry and understand the principles of tonography.
- Describe optic nerve and nerve fiber layer anatomy in glaucoma.
- Describe fundamentals of perimetry, including kinetic and automated static perimetry.
- Describe principles, indications, and basic techniques of gonioscopy, including normal and abnormal findings.
- Describe 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).
- Describe and recognize normal tension glaucoma ("low tension glaucoma").
• Describe the features of and recognize primary and secondary angle closure glaucoma and aqueous misdirection.
• Recognize hypotony and describe the clinical features (e.g., Seidel test for transconjunctival leakage).
• 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, etc)

**B. Technical/Surgical Skills**

- Perform basic tonometry (e.g., applanation, Schiotz [if applicable], tonopen, airpuff) and recognize the pitfalls and artifacts of the testing.
- Perform basic gonioscopy (e.g., recognize angle structures, identify angle closure).
- Perform stereo examination of the optic nerve, using 90 diopter or other lens.
- Interpret manual (e.g., Goldmann) and automated (e.g., Humphrey, Octopus) visual fields in routine glaucoma.
- Perform corneal pachymetry and relate the findings to interpretation of intraocular pressure.

**PGY-3 Level Goals**

**A. Cognitive Skills**

- Describe the epidemiology and perform screening for routine and more advanced primary and secondary open angle glaucoma.
- Describe the treatment of disturbances of aqueous humor dynamics.
- Describe the more complex etiologies for, evaluation of, and treatment of glaucoma (e.g., angle recession, inflammatory, steroid-induced, pigmentary, pseudoexfoliative, phacolytic, neovascular, postoperative, malignant, lens particle glaucomas; plateau iris; glaucomatocyclitic crisis; iridocorneal endothelial syndromes; aqueous misdirection).
- Describe more advanced tonometric and tonographic (if applicable) methods (e.g., diurnal curve).
- Describe more advanced optic nerve and nerve fiber layer anatomy in primary and secondary glaucoma and 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).
- Describe 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).
- Describe the principles, indications, and more advanced anatomic findings and gonioscopic features of primary and secondary glaucomas (e.g., plateau iris, appositional closure).
- Describe the principles of medical management of more advanced glaucomas (e.g., advanced POAG, secondary open and closed angle glaucomas, normal tension glaucoma)
- Describe the features of, recognize, and treat primary angle closure glaucoma and aqueous misdirection.
- Describe the clinical features of, recognize, and treat less common etiologies of ocular hypotony.
• 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, etc).
• Recognize and treat the various adult secondary glaucomas.
• Describe the features of primary infantile and juvenile glaucomas.
• Describe and apply specific medical treatments of more advanced glaucoma.
• Describe the principles of laser treatments of glaucoma (e.g., indications, techniques, and complications, and use of various types of laser energy, spot size, laser wavelengths).
• Describe the surgical treatment of glaucoma: (e.g., trabeculectomy, combined cataract and trabeculectomy, setons, and cyclodestructive procedures, including indications, techniques, and complications).

B. Technical/Surgical Skills

• Perform YAG laser posterior capsulotomy for uncomplicated posterior capsule opacity.
• Perform argon or YAG laser peripheral iridotomy for routine angle closure glaucoma.
• Perform argon laser trabeculoplasty.
• Perform cyclophotocoagulation.
• Perform routine first trabeculectomy with or without antimetabolites.
• Describe and manage a flat anterior chamber.
• Perform routine revision of filtering blebs.

PGY-4 Level Goals

A. Cognitive Skills

• Describe the features of the most complex and most advanced forms of primary and secondary open angle glaucoma.
• 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 or inflammatory glaucoma, pigmentary dispersion glaucoma).
• Apply in clinical practice tonometric and topographic methods (e.g., diurnal curve) in complicated or atypical cases of glaucoma.
• Apply the most advanced knowledge of optic nerve and nerve fiber layer anatomy and describe techniques, methods, and tools for analyzing the nerve fiber layer.
• Recognize and evaluate atypical or multifactorial glaucomatous cupping (e.g., rim pallor).
• 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.
• Describe the principles and indications, and apply to clinical practice the findings of gonioscopy in the most complex primary and secondary glaucomas.
• 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).
• 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).
• Describe the features of, recognize, and treat the most advanced cases of primary angle closure glaucoma and complex glaucomas (e.g., postoperative cases, secondary angle closure, aqueous misdirection).
• Describe the clinical features of ocular hypotony, and recognize and treat common and uncommon etiologies (e.g., choroidal detachment, leaking trabeculectomy bleb).
• 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 other publications in the management of glaucoma patients (see Appendix 1).
• Recognize and treat uncommon adult secondary glaucomas.
• Describe the features of and treat or refer the primary infantile and juvenile glaucomas.
• Describe and apply specific medical treatments in the most complex and most advanced glaucoma cases (e.g., refractory glaucoma, monocular patients, non-compliant patients).
• Describe the principles, indications, and complications of laser treatment of more advanced or complex glaucoma (repeat procedures).
• Describe the more advanced surgical treatment of glaucoma: (e.g., trabeculectomy, combined cataract and trabeculectomy, setons, and cyclodestructive procedures, including indications, techniques, and complications).

B. Technical/Surgical Skills
• Perform YAG or argon laser procedures in glaucoma patients (e.g., monocular patient, repeat laser, vitreous lysis, suture lysis).
• Perform laser peripheral iridotomy for more advanced glaucoma (e.g., monocular patient, acute angle closure, hazy cornea).
• Perform laser treatments (e.g., argon laser trabeculoplasty, iridoplasty) for more advanced glaucoma cases (repeat treatments, monocular patient).
• Perform cyclophotocoagulation for more advanced cases (e.g., prior surgery, monocular).
• Perform routine and repeat trabeculectomy with or without antimetabolites.
• Describe, manage, and treat surgically, if necessary, a flat anterior chamber.
• Perform more advanced techniques for the revision of filtering blebs (e.g., failing bleb, leaking bleb)
• Recognize and treat complications of glaucoma surgery blebs.

Practice-Based Learning and Improvement

The PGY-2 Resident Should Be Able To:
• Identify and read about major disease sites (above) in ophthalmology textbooks and journals
• Using above sources, begin to locate, appraise and assimilate evidence from scientific studies to improve patient care
• Critically read and analyze relevant literature in preparation for lectures, case conferences, and presentations
• Incorporate formative evaluation feedback into daily practice
• Participate actively in case conferences and be able to present patients on the clinical service
• Learn basic principles of statistics and evidence-based medicine
• Start and maintain ACGME web-based procedural log
• Be compliant with required evaluations

The PGY-3 Resident Should Be Able To (In addition to the goals listed in the previous PGY level(s)) :
• Critically evaluate clinical studies with regards to methods, design, statistics and validity of conclusion and use to improve patient care
• Continue to read and analyze relevant literature in preparation for lectures, case conferences, and presentations
• Participate in the education of co-residents, medical students, nurses, technicians or other staff.

The PGY-4 Resident Should Be Able To (In addition to the goals listed in the previous PGY level(s)) :
• Understand the relevant literature and begin to master the salient points which can be used in daily ophthalmology practice.

Interpersonal and Communications Skills

The PGY-2 Resident Should Be Able To :
• Document consultation notes, follow up notes, and procedure notes effectively and efficiently
• Understand the importance of informed consent and be able to obtain informed consent from patients
• Use personal and electronic communication (EPIC/VA GUI) to communicate with other staff i.e. nurses and technicians, with regards to patient care
• Involve the patient and patient’s family in decisions regarding care using clear communication and empathetic behavior with respect to emotional needs, intellectual capacity, and ethnic/racial backgrounds
• Develop a relationship with the patient as a health care provider that begins with the initial visit and continues through any treatment and follow-up

The PGY-3 Resident Should Be Able To (In addition to the goals listed in the previous PGY level(s)) :
• Demonstrate the ability to communicate and coordinate care between disciplines i.e. general medicine, rheumatology, endocrinology, etc.
• Understand the importance of a neat and complete ophthalmic chart and be able to defend in patient case conferences

The PGY-4 Resident Should Be Able To (In addition to the goals listed in the previous PGY level(s)) :
• Learn to communicate directly and personally with referring physicians/disciplines
• Communicate with all staff and other pertinent medical disciplines independently with indirect attending physician supervision

Professionalism

Professionalism objectives remain the same throughout the PGY2 - 4 years although the expectations of proficiency increase over the 3 years.

The PGY-2-4 Resident Should Be Able To:
• Demonstrate compassion, integrity, and respect for patients, families, medical colleagues, and staff
• Demonstrate sensitivity and responsiveness to a diverse patient population, including but not limited to diversity in gender, age, culture, race, religion, national origin, disabilities, and sexual orientation
• Respect patient confidentiality and autonomy
• Demonstrate the ability to comply with medical records and charting requirements specific to the rotation.
• Demonstrate a commitment to learning the fundamentals of ophthalmology by attending lectures and clinic/surgery on time and keeping up with assigned readings
• Demonstrate accountability to patients, society and the profession.
**Systems-based Practice**

Systems-based Practice objectives remain the same throughout the PGY2 - 4 years although the expectations of proficiency increase over the 3 years.

**The PGY-2-4 Resident Should Be Able To:**
- Practice cost-effective health care that does not compromise the quality of care
- Understand that an ophthalmologist works as an integral part of a team to effectively care for patients alongside physician colleagues, co-residents, nurses, technicians, photographers, administrative and secretarial staff, etc.
- Advocate for quality patient care and assist patients in dealing with system complexities
- Understand that the practice of ophthalmology is an interdependent part of the healthcare system and society at large
- Consider how your practice affect other healthcare professionals and the hospital system
- Know what resources are available for patient care, within or outside the institution and make referrals as appropriate

**ATTAINMENT OF GOALS**

**Goal Attainment Can Be Measured In Glaucoma By:**
- Observations and interrogation during the clinical and seminar sessions. Residents are evaluated by faculty following each rotation, more frequently if indicated.
- Observation of the resident during assisting in and performing of glaucoma surgery in the operating room.
- Observation and interrogation by other faculty members during the course of patient care.
- Completion of the Progress Notebook and Skills Transfer Manual section on Glaucoma
- Evaluation of the OKAP examination with respect to glaucoma.

**INPATIENT CONSULTATION SECTION**

Residents Obtain The Experience In Evaluating Hospital Inpatient Consultations By (Patient Care/Medical Knowledge):
- Examination and work up of inpatients at Foster McGaw Hospital and discussion of the case with Consultation Attending.
• Examination and work up of inpatients at Hines Hospital and discussion of the patient when indicated with faculty.

• Examination of inpatients at either Foster McGaw Hospital or Hines Hospital and discussion with appropriate subspecialists in Glaucoma, Retina, Contact Lenses, Pediatric Ophthalmology, Neuro-Ophthalmology, Uveitis, Cornea, or Low Vision, etc.

• Presentation and discussion of the most interesting of these cases at Grand Rounds.

GOALS

The PGY-2 Resident Should Be Able To:

• Obtain an appropriate history and do an examination and recognize common ocular conditions.

• Recommend, under supervision, an appropriate diagnosis, work up and interpretation of the findings.

The PGY-3 Resident Should Be Able To:

• Recognize the ethical aspects of serving as a consultant and abide by them.

• Interpret for the referring physician the significance of ocular findings.

• Select the appropriate subspecialist to provide the care needed by the patient.

The PGY-4 Resident Should Be Able To:

• Manage the examination work up and recommendations for all ophthalmological consultations.

• Recognize when subspecialty help is indicated.

• Explain in an accurate and understandable manner the significance of his/her findings to the patients.

• Educate less senior residents in all aspects of performing consultations.

• Develop relationships with the more senior residents in the Departments requesting our consultations.

Practice-Based Learning and Improvement

The PGY-2 Resident Should Be Able To:

• Identify and read about major disease in ophthalmology textbooks and journals
• Using above sources, begin to locate, appraise and assimilate evidence from scientific studies to improve patient care
• Critically read and analyze relevant literature in preparation for lectures, case conferences, and presentations
• Incorporate formative evaluation feedback into daily practice
• Participate actively in case conferences and be able to present patients on the clinical service
• Learn basic principles of statistics and evidence-based medicine
• Start and maintain ACGME web-based procedural log
• Be compliant with required evaluations

The PGY-3 Resident Should Be Able To (In addition to the goals listed in the previous PGY level(s)) :
• Critically evaluate clinical studies with regards to methods, design, statistics and validity of conclusion and use to improve patient care
• Continue to read and analyze relevant literature in preparation for lectures, case conferences, and presentations
• Participate in the education of co-residents, medical students, nurses, technicians or other staff.

The PGY-4 Resident Should Be Able To (In addition to the goals listed in the previous PGY level(s)) :
• Understand the relevant literature and begin to master the salient points which can be used in daily ophthalmology practice.

Interpersonal and Communications Skills

The PGY-2 Resident Should Be Able To :
• Document consultation notes, follow up notes, and procedure notes effectively and efficiently
• Understand the importance of informed consent and be able to obtain informed consent from patients
• Use personal and electronic communication (EPIC/VA GUI) to communicate with other staff i.e. nurses and technicians, with regards to patient care
• Involve the patient and patient’s family in decisions regarding care using clear communication and empathetic behavior with respect to emotional needs, intellectual capacity, and ethnic/racial backgrounds
• Develop a relationship with the patient as a health care provider that begins with the initial visit and continues through any treatment and follow-up
• Demonstrate the ability to communicate and coordinate care between disciplines i.e. general medicine, rheumatology, endocrinology, neurology, surgical subspecialties, etc.

The PGY-3 Resident Should Be Able To (In addition to the goals listed in the previous PGY level(s)) :
• Understand the importance of a neat and complete ophthalmic chart and be able to defend in patient case conferences

The PGY-4 Resident Should Be Able To (In addition to the goals listed in the previous PGY level(s)) :
• Learn to communicate directly and personally with referring physicians/disciplines
• Communicate with all staff and other pertinent medical disciplines independently with indirect attending physician supervision

Professionalism

Professionalism objectives remain the same throughout the PGY2 - 4 years although the expectations of proficiency increase over the 3 years.

The PGY-2-4 Resident Should Be Able To :
• Demonstrate compassion, integrity, and respect for patients, families, medical colleagues, and staff
• Demonstrate sensitivity and responsiveness to a diverse patient population, including but not limited to diversity in gender, age, culture, race, religion, national origin, disabilities, and sexual orientation
• Respect patient confidentiality and autonomy
• Demonstrate the ability to comply with medical records and charting requirements specific to the rotation.
• Demonstrate a commitment to learning the fundamentals of ophthalmology by attending lectures and clinic/surgery on time and keeping up with assigned readings

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Demonstrate accountability to patients, society and the profession.

**Systems-based Practice**

Systems-based Practice objectives remain the same throughout the PGY2 - 4 years although the expectations of proficiency increase over the 3 years.

The PGY-2-4 Resident Should Be Able To:
- Practice cost-effective health care that does not compromise the quality of care
- Understand that an ophthalmologist works as an integral part of a team to effectively care for patients alongside physician colleagues, co-residents, nurses, technicians, photographers, administrative and secretarial staff, etc.
- Advocate for quality patient care and assist patients in dealing with system complexities
- Understand that the practice of ophthalmology is an interdependent part of the healthcare system and society at large
- Consider how your practice affect other healthcare professionals and the hospital system
- Know what resources are available for patient care, within or outside the institution and make referrals as appropriate

**ATTAINMENT OF GOALS**

Goal Attainment Can Be Measured In Inpatient Consultation By:
- Observation and interrogation of the resident by the consulting ophthalmologists.
  Residents are evaluated by faculty following each rotation, more frequently if indicated.
- Observation and interrogation of the resident by other faculty ophthalmologists.
- Passing appropriate questions on the OKAP examination.

**LOW VISION SECTION**

Residents Obtain The Experience In Low Vision By (Patient Care/Medical Knowledge):
- Attendance at three seminars per year concerning the conduct of the Low Vision Clinic, the optics and use of low vision optical aids and the discussion of particular cases and diseases.
Attendance at approximately 10 Low Vision Clinics which would expose them to approximately 25 new patients. These consist of age related macular degeneration, diabetic retinopathy and a variety of other disabling diseases such as retinitis pigmentosa, albinism, toxoplasmosis, congenital cataracts and the like.

Assignment of one day of his/her residency to Hines Blind Center.

Attendance at lectures given to cover topics of telescopes, loupes and magnifiers and contrast sensitivity.

GOALS

The PGY-2 Resident Should Be Able To:

- Identify the low vision patient and know conditions leading to low vision status. This includes the ophthalmic manifestation of diabetes mellitus, albinism, retinitis pigmentosa, congenital nystagmus, senile macular degeneration and advanced glaucoma.
- Conduct a low vision examination, including history taking.

The PGY-3 Resident Should Be Able To:

- Recognize the low vision needs and recommend aids for:
  - Grooming and personal hygiene
  - Mobility
  - Meal preparation
  - Sewing
  - Self administration of medicine
  - Reading
  - Hobbies and occupational needs
  - Explain the use of various low vision aids to the patient and his/her relatives.

The PGY-4 Resident Should Be Able To:

- Do special refractive techniques such as the use clip-on the lenses for over refracting the patient’s present spectacles.
- Discuss the optics of hand magnifiers and telescope and should be able to recognize these particular low vision situations where these aids are most useful.
• Demonstrate low vision aids to the patient in an orderly way as to present these devices which are felt to be most useful without confusing the patient.
• Intelligently refer low vision patients to sources of low vision aids, special spectacles, large print reading material, mobility training, occupational rehabilitation and other community services.

An alternative schema is as follows (from the International Council of Ophthalmology):
Low Vision
PGY-2 Level Goals
A. Cognitive Skills
• Describe low vision Examination techniques (e.g., Early Treatment of Diabetic Retinopathy Study charts, Sloane charts).
• Describe significant co-morbidities that impact low vision rehabilitation
• Describe various low vision aids.
• Describe the optics of low vision devices.
• Be sensitive to psychological and emotional aspects of visual impairment.
• Describe challenges commonly encountered by individuals with visual impairments.
• Prescribe simple but appropriate rehabilitative therapies and optical devices to help the patient meet their goals. (e.g., magnification, illumination).
• Describe functional implications of various visual system pathologies and diseases.
• Describe visual field enhancing techniques for hemianopic field loss.
• Describe the difference between visual acuity testing at both distance and near and contrast sensitivity testing.
• Describe the evaluation of and rationale for licensing automobile drivers who are visually impaired; understand the local licensing regulations.
• Describe evaluation of visual acuity and visual field for determination of disability.

PGY-3 Level Goals
A. Cognitive Skills
• Recognize significant co-morbidities that impact low vision rehabilitation.
• Recognize and describe clinical applications, indications, and limitations of the various low vision aids (e.g., closed circuit television, magnification, large print, Braille, computers with artificial speech).
• Describe the more advanced optics of low vision devices.

B. Technical/Surgical Skills
• Prescribe more complex rehabilitative therapies and optical devices to help the patient meet their goals.
• Apply and prescribe visual field enhancing techniques for hemianopic field loss.
• Perform evaluation of vision Examination in licensing drivers who are visually impaired.
• Evaluate visual acuity and visual field for determination of disability (for legal and insurance purposes).
Demonstrate low vision devices and educate low vision patients on the uses and limitations of these devices.

PGY-4 Level Goals
A. Cognitive Skills
- Treat significant co-morbidities that impact low vision rehabilitation.
- Describe indications for the most complex low vision aids.
- Apply more complex principles of optics of low vision devices.

B. Technical/Surgical Skills
- Prescribe the most complex rehabilitative therapies and optical devices to help the patient meet their goals.
- Apply and prescribe the most complex visual field enhancing techniques for hemianopic field loss.

Practice-Based Learning and Improvement

The PGY-2 Resident Should Be Able To:
- Identify and read about low vision issues in ophthalmology textbooks and journals
- Using above sources, begin to locate, appraise and assimilate evidence from scientific studies to improve patient care
- Incorporate formative evaluation feedback into daily practice
- Participate actively in case conferences and be able to present patients on the clinical service
- Learn basic principles of statistics and evidence-based medicine
- Start and maintain ACGME web-based procedural log
- Be compliant with required evaluations

The PGY-3 Resident Should Be Able To (In addition to the goals listed in the previous PGY level(s)):
- Critically evaluate clinical studies with regards to methods, design, statistics and validity of conclusion and use to improve patient care
- Continue to read and analyze relevant literature in preparation for lectures, case conferences, and presentations
- Participate in the education of co-residents, medical students, nurses, technicians or other staff.

The PGY-4 Resident Should Be Able To (In addition to the goals listed in the previous PGY level(s)):
• Understand the relevant literature and begin to master the salient points which can be used in daily ophthalmology practice.

**Interpersonal and Communications Skills**

The PGY-2 Resident Should Be Able To:
- Document consultation notes, follow up notes, and procedure notes effectively and efficiently
- Understand the importance of informed consent and be able to obtain informed consent from patients
- Use personal and electronic communication (EPIC/VA GUI) to communicate with other staff i.e. nurses and technicians, with regards to patient care
- Involve the patient and patient’s family in decisions regarding care using clear communication and empathetic behavior with respect to emotional needs, intellectual capacity, and ethnic/racial backgrounds
- Develop a relationship with the patient as a health care provider that begins with the initial visit and continues through any treatment and follow-up

The PGY-3 Resident Should Be Able To (In addition to the goals listed in the previous PGY level(s)):
- Demonstrate the ability to communicate and coordinate care between disciplines i.e. general medicine, rheumatology, endocrinology, etc.
- Understand the importance of a neat and complete ophthalmic chart and be able to defend in patient case conferences

The PGY-4 Resident Should Be Able To (In addition to the goals listed in the previous PGY level(s)):
- Learn to communicate directly and personally with referring physicians/disciplines
- Communicate with all staff and other pertinent medical disciplines independently with indirect attending physician supervision

**Professionalism**

Professionalism objectives remain the same throughout the PGY2 - 4 years although the expectations of proficiency increase over the 3 years.

The PGY-2-4 Resident Should Be Able To:
• Demonstrate compassion, integrity, and respect for patients, families, medical colleagues, and staff
• Demonstrate sensitivity and responsiveness to a diverse patient population, including but not limited to diversity in gender, age, culture, race, religion, national origin, disabilities, and sexual orientation
• Respect patient confidentiality and autonomy
• Demonstrate the ability to comply with medical records and charting requirements specific to the rotation.
• Demonstrate a commitment to learning the fundamentals of ophthalmology by attending lectures and clinic/surgery on time and keeping up with assigned readings
• Demonstrate accountability to patients, society and the profession.

**Systems-based Practice**

**Systems-based Practice objectives remain the same throughout the PGY2 - 4 years although the expectations of proficiency increase over the 3 years.**

The PGY-2-4 Resident Should Be Able To:
• Practice cost-effective health care that does not compromise the quality of care
• Understand that an ophthalmologist works as an integral part of a team to effectively care for patients alongside physician colleagues, co-residents, nurses, technicians, photographers, administrative and secretarial staff, etc.
• Advocate for quality patient care and assist patients in dealing with system complexities
• Understand that the practice of ophthalmology is an interdependent part of the health care system and society at large
• Consider how your practice affect other healthcare professionals and the hospital system
• Know what resources are available for patient care, within or outside the institution and make referrals as appropriate

**ATTAINMENT OF GOALS**

**Goal Attainment Can Be Measured In Low Vision By:**

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• Observation and interrogation by faculty during Low Vision Clinic. Residents are evaluated by faculty following each rotation, more frequently if indicated.
• Observation and interrogation by members of the faculty during the course of patient care.
• Completion of the Progress Notebook section on Low Vision
• Evaluation of results of OKAP examination with special reference to the Optics, Refraction and Contact Lens section.

NEURO-OPHTHALMOLOGY SECTION

Residents Obtain The Experience In Neuro-Ophthalmology By (Patient Care/Medical Knowledge):

• Structured seminars in Neuro-ophthalmology attended by all the residents one time per month following the structure of the Basic Science Course.
• Attending the Neuro-ophthalmology Clinic held three times per week at Loyola which receives outside consultations for neuro-ophthalmology and also internal consultations from Loyola and Hines.
• Examination of inpatients and outpatients with neuro-ophthalmological problems at Hines and Loyola under the supervision of the Attending physician.
• Participation in Grand Rounds given by the Section of Neuro-ophthalmology and attended by all the residents.

GOALS

The PGY-2 Resident Should Be Able To:

• Describe the basic anatomy of the visual system.
• Make a clinical presentation of the neuro-ophthalmological entities.
• Discuss the pathophysiology of common neuro-ophthalmological entities.
• Perform a basic neuro-ophthalmological examination on a patient with these disturbances including the technique of visual field testing and motility disturbance testing.
• List morbidity of common neuro-ophthalmological tests.
• Order appropriate views of the skull for various neurological conditions and determine when other radiology examinations are needed.
The PGY-3 Resident Should Be Able To:

- Describe normal neuroimaging of the head.
- Indicate abnormalities in skull films of neuro-ophthalmological patients.
- Describe normal and abnormal CAT scans of the skull.
- Discuss the pathophysiology of more unusual neuro-ophthalmological conditions.

The PGY-4 Resident Should Be Able To:

- Do a complete neurologic examination and formulate a diagnostic plan for the patient.
- Recommend a treatment plan for such a patient in practical terms.
- Discuss morbidity and mortality of the disease and of its treatment.

An alternative schema is as follows (from the International Council of Ophthalmology):

**Neuro-Ophthalmology**

**PGY-2 Level Goals**

**A. Cognitive Skills**

- Describe the neuro-anatomy of the visual pathways.
- Describe the neuro-anatomy of the cranial nerves.
- Describe the pupillary and accommodative neuro-anatomy.
- Describe ocular motility and related neuronal pathways.
- Describe the typical features, evaluation, and management of the most common optic neuropathies (e.g., demyelinating optic neuritis, ischemic optic neuropathy [arteritic and non-arteritic], toxic or nutritional optic neuropathy, Leber's hereditary optic neuropathy, ethambutol toxicity, neuroretinitis, and compressive, inflammatory, infiltrative, and traumatic optic neuropathies).
- Describe the typical features, evaluation, and management of the most common ocular motor neuropathies (e.g., third, fourth, sixth nerve palsy).
- Describe the typical features of cavernous sinus and superior orbital fissure syndromes (e.g., infectious, vascular, neoplastic, inflammatory etiologies).
- 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).
- Describe the typical features, evaluation, and management of the most common pupillary abnormalities (e.g., relative afferent pupillary defect, anisocoria, Horner's syndrome, third nerve palsy, Adie's tonic pupil).
- Describe the typical features, evaluation, and management of the most common visual field defects (e.g., optic nerve, optic chiasm, optic radiation, occipital cortex).
- Describe the clinical features, evaluation, and management of ocular myasthenia gravis.
- Describe the clinical features, evaluation, and management of carotid-cavernous fistula.
• Describe the differential diagnosis, evaluation and management of congenital optic nerve abnormalities (e.g., optic pit, disc coloboma, papillorenal syndrome, morning glory syndrome, tilted disc, optic nerve hypoplasia, myelinated nerve fiber layer, melanocytoma, disc drusen, Bergmeister's papilla).

B. Technical/Surgical Skills
• Perform a basic pupillary examination:
• Describe indications for and perform basic pharmacologic pupillary testing for Horner's syndrome, pharmacologic dilation, and Adie's tonic pupil.
• List the differential diagnosis of anisocoria (e.g., sympathetic or parasympathetic lesion, "physiologic" or normal).
• Describe, detect, and quantitate a relative afferent pupillary defect.
• List the causes for light-near dissociation (e.g., Argyll-Robertson pupils, diabetic neuropathy, tonic pupil).
• Perform a basic ocular motility examination:
• Assess ocular alignment using simple techniques (e.g., Hirschberg test, Krimsky method).
• Describe and perform basic cover/uncover testing for tropia.
• Describe and perform alternate cover testing for phoria.
• Perform simultaneous prism and cover testing.
• Perform measurement of deviations with prisms.
• Describe the indications for and apply Fresnel and grind-in prisms.
• Describe the indications for and perform forced duction and forced generation testing.
• Perform an Examination of saccade accuracy and pursuit and optokinetic testing.
• Perform a measurement of eyelid function (e.g., levator function, lid position).
• Describe the indications for visual field testing and to perform and interpret perimetry studies:
• Perform confrontational field testing (static and kinetic, central and peripheral, red and white targets).
• Perform and interpret a tangent screen test.
• Describe the indications for and perform basic Goldmann perimetry, and interpret results.
• Describe the indications for and perform basic automated perimetry, and interpret results.
• Perform basic direct, indirect, and magnified ophthalmoscopic examination of the optic disc (e.g., recognize optic disc swelling, optic atrophy, neuroretinitis).
• Describe the anatomy and indications for, order appropriately, and interpret basic radiology studies of the brain and orbits, demonstrating the ability to communicate with radiologists in order to maximize both choice of proper diagnostic test and accuracy of interpretation.
• Describe the indications for and interpret basic echography of orbits.

PGY-3 Level Goals
A. Cognitive Skills
• Describe typical and atypical features, evaluation, and management of the most common optic neuropathies (e.g., papilledema, optic neuritis, ischemic, inflammatory, infectious, infiltrative, compressive, and hereditary optic neuropathies).
Describe typical and atypical features, evaluation, and management of the more complex supranuclear and internuclear palsies and less common ocular motor neuropathies (e.g., progressive supranuclear palsy and internuclear ophthalmoplegia).

Describe typical and atypical features, evaluation, and management of the more complex and less common forms of nystagmus (e.g., rebound, convergence, retraction).

Describe typical and atypical features, evaluation, and management of the more complex and less common pupillary abnormalities (e.g., light-near dissociation, pharmacologic miosis).

Describe typical and atypical features, evaluation, and management of the more complex and less common visual field defects (e.g., lateral geniculate, monocular temporal crescent).

Describe more advanced aspects of visual field indications, selection, and interpretation (e.g., artifacts of automated perimetry, testing and thresholding strategies).

Describe neuro-ophthalmic aspects of common systemic diseases (e.g., hypertension, diabetes, thyroid disease, myasthenia gravis, temporal arteritis, systemic infections and inflammation).

Describe neuro-ophthalmologic findings in trauma (e.g., traumatic optic neuropathy, traumatic brain injury).

Describe typical features of inherited neuro-ophthalmologic diseases (e.g., Leber's hereditary optic neuropathy, autosomal dominant optic atrophy, spinocerebellar degenerations).

Recognize, evaluate, and treat ocular myasthenia gravis.

B. Technical Skills

Describe the indications for, administer, and interpret the results of intravenous edrophonium (Tensilon) and Prostigmin tests for myasthenia gravis.

Perform a detailed cranial nerve evaluation (e.g., testing of oculomotor, trochlear, trigeminal and facial nerve function).

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).

Describe the evaluation, management, and specific testing (e.g., stereopsis, mirror test, red-green testing) of patients with "functional" (non-organic) visual loss (e.g., recognize non-organic spiral or tunnel visual fields).

Describe the indications for, perform, and list the complications of temporal artery biopsy.

PGY-4 Level Goals

A. Cognitive Skills

Describe 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).

Describe 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).
• Describe 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 either prism or surgical therapy).
• Describe 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).
• Describe 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).
• 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).
• Describe, evaluate, and treat the neuro-ophthalmic aspects of systemic diseases (e.g., malignant hypertension, diabetic papillopathy, toxicity of systemic medications, pseudotumor cerebri).
• Describe, evaluate, and treat the neuro-ophthalmologic manifestations of trauma (e.g., corticosteroid or surgical therapy in traumatic optic neuropathy).
• Describe, evaluate, and provide appropriate genetic counseling for neuro-ophthalmologic diseases (e.g., Leber's hereditary optic neuropathy, chronic progressive external ophthalmoplegia, von Hippel-Lindau syndrome).
• Recognize, evaluate, and treat (or refer) more complex forms of nystagmus.
• Recognize, evaluate, and treat (or refer) transient monocular or binocular visual loss.

B. Technical/Surgical Skills
• Perform and interpret the results of the intravenous edrophonium (Tensilon) and prostigmine tests for myasthenia gravis, and recognize and treat the complications of the procedures.
• Perform and interpret the complete cranial nerve evaluation and basic neurologic examination in the context of neuro-ophthalmic localization and disease.
• 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, in advance of testing, the localizing clinicoradiologic features with the neuroradiologist in order to obtain the best study and interpretation of the results.
• Recognize patients with "functional" visual loss (non-organic visual loss) and provide appropriate counseling and follow-up.

Practice-Based Learning and Improvement

The PGY-2 Resident Should Be Able To:
• Identify and read about major disease sites (above) in ophthalmology textbooks and journals
• Using above sources, begin to locate, appraise and assimilate evidence from scientific studies to improve patient care
• Critically read and analyze relevant literature in preparation for lectures, case conferences, and presentations
• Incorporate formative evaluation feedback into daily practice
• Participate actively in case conferences and be able to present patients on the clinical service
• Learn basic principles of statistics and evidence-based medicine
• Start and maintain ACGME web-based procedural log
• Be compliant with required evaluations

The PGY-3 Resident Should Be Able To (In addition to the goals listed in the previous PGY level(s)) :
• Critically evaluate clinical studies with regards to methods, design, statistics and validity of conclusion and use to improve patient care
• Continue to read and analyze relevant literature in preparation for lectures, case conferences, and presentations
• Participate in the education of co-residents, medical students, nurses, technicians or other staff.

The PGY-4 Resident Should Be Able To (In addition to the goals listed in the previous PGY level(s)) :
• Understand the relevant literature and begin to master the salient points which can be used in daily ophthalmology practice.

Interpersonal and Communications Skills

The PGY-2 Resident Should Be Able To :
• Document consultation notes, follow up notes, and procedure notes effectively and efficiently
• Understand the importance of informed consent and be able to obtain informed consent from patients
• Use personal and electronic communication (EPIC/VA GUI) to communicate with other staff i.e. nurses and technicians, with regards to patient care
• Involve the patient and patient’s family in decisions regarding care using clear communication and empathetic behavior with respect to emotional needs, intellectual capacity, and ethnic/racial backgrounds
• Develop a relationship with the patient as a health care provider that begins with the initial visit and continues through any treatment and follow-up

The PGY-3 Resident Should Be Able To (In addition to the goals listed in the previous PGY level(s)):
• Demonstrate the ability to communicate and coordinate care between disciplines i.e. general medicine, rheumatology, endocrinology, etc.
• Understand the importance of a neat and complete ophthalmic chart and be able to defend in patient case conferences

The PGY-4 Resident Should Be Able To (In addition to the goals listed in the previous PGY level(s)):
• Learn to communicate directly and personally with referring physicians/disciplines
• Communicate with all staff and other pertinent medical disciplines independently with indirect attending physician supervision

Professionalism

Professionalism objectives remain the same throughout the PGY 2 - 4 years although the expectations of proficiency increase over the 3 years.

The PGY-2-4 Resident Should Be Able To:
• Demonstrate compassion, integrity, and respect for patients, families, medical colleagues, and staff
• Demonstrate sensitivity and responsiveness to a diverse patient population, including but not limited to diversity in gender, age, culture, race, religion, national origin, disabilities, and sexual orientation
• Respect patient confidentiality and autonomy
• Demonstrate the ability to comply with medical records and charting requirements specific to the rotation.
• Demonstrate a commitment to learning the fundamentals of ophthalmology by attending lectures and clinic/surgery on time and keeping up with assigned readings
• Demonstrate accountability to patients, society and the profession.
Systems-based Practice

Systems-based Practice objectives remain the same throughout the PGY2 - 4 years although the expectations of proficiency increase over the 3 years.

The PGY-2-4 Resident Should Be Able To:

- Practice cost-effective health care that does not compromise the quality of care
- Understand that an ophthalmologist works as an integral part of a team to effectively care for patients alongside physician colleagues, co-residents, nurses, technicians, photographers, administrative and secretarial staff, etc.
- Advocate for quality patient care and assist patients in dealing with system complexities
- Understand that the practice of ophthalmology is an interdependent part of the health care system and society at large
- Consider how your practice affect other healthcare professionals and the hospital system
- Know what resources are available for patient care, within or outside the institution and make referrals as appropriate

ATTAINMENT OF GOALS

Goal Attainment Can Be Measured in Neuro-ophthalmology By:

- Observation and interrogation during the course of case presentations and seminars. Residents are evaluated by the faculty following each rotation, more frequently as indicated.
- Observation and interrogation during weekly Neuro-ophthalmology clinics.
- Observation and interrogation by members of the faculty during the course of patient care.
- Completion of the Progress Notebook section on Neuro-ophthalmology.
- Evaluation of scores of the OKAP examination with emphasis on Neuro-ophthalmology.

OCULOPLASTIC SURGERY AND ORBIT SECTION

Residents Obtain The Experience In Ophthalmic Plastic Surgery By (Patient Care/Medical Knowledge) :
• Attending structured lectures in ophthalmic plastic surgery which follow the structure of the American Academy of Ophthalmology Basic Science Course.
• Assignment to the Ophthalmic Plastic Surgery Clinic at Loyola.
• Participation in the work up and surgery of ophthalmic plastic surgery patients both in the outpatient and inpatient surgery at Hines and Loyola.
• Participation in the Ophthalmic Plastic Surgery Clinic on Wednesday mornings at Hines and attended by Hines Residents.
• Participation in presenting patients at Grand Rounds.

GOALS

The PGY-2 Resident Should Be Able To:
• Describe the various types of ocular plastic conditions and describe the pertinent anatomy.
• Recognize these conditions and discuss initial management.
• Examine, under supervision, such patients.
• Assist in the operating room in the surgical correction of these patients.
• Discuss the pathology pertinent to the case.
• Assist in surgery and perform surgery at their capable level.

The PGY-3 Resident Should Be Able To:
• Discuss various types of conditions which might be helped by ophthalmic plastic surgery.
• Describe the techniques of treatment.
• Discuss the complications of this treatment.
• Work up an ophthalmic plastic case for surgery.

The PGY-4 Resident Should Be Able To:
• Manage, to the satisfaction of the attending, the examination, documentation, work up, treatment and follow up of ocular plastic cases.
• Satisfactorily perform common ophthalmic plastic surgical operations under supervision such as laceration repair, tumor excision and repair, entropion repair, ectropion repair, blepharoplasty and tarsorrhaphy, ptosis and dacryocystorhinostomy.
• Be able to recognize pitfalls in some of the cases and be able to indicate which cases should be referred to a subspecialist.

An alternative schema is as follows (from the International Council of Ophthalmology): Oculoplastic Surgery and Orbit
PGY-2 Level Goals

A. Cognitive Skills

- Describe basic eyelid, lacrimal, and orbital anatomy and physiology (e.g., eyelid, orbicularis, orbital structures, meibomian glands, lacrimal glands, Zeis glands, Whitnall's ligament, Muller's muscle, Lockwood's ligament, canaliculi, puncta, orbital bones, orbital foramina, paranasal sinuses, annulus of Zinn, arterial and venous vascular supply, lymphatics, nerves, extraocular muscles).
- Describe basic mechanisms and indications for treatment of eyelid, orbital, and lacrimal trauma.
- Describe epidemiology, clinical features, evaluation, and management of fetal alcohol syndrome.
- Perform preoperative and postoperative Examination of patients with common oculoplastic disorders.
- Recognize simple orbital trauma (e.g., orbital foreign body, retrobulbar hemorrhage).
- Recognize and treat floppy eyelid syndrome.
- Recognize and treat localized trichiasis.
- Recognize blepharospasm and hemifacial spasm.
- Describe the differential diagnosis of common orbital tumors in children and adults.
- Describe the differential diagnosis of lacrimal gland mass (e.g., inflammatory, neoplastic, congenital, infectious).
- Identify normal orbital anatomy on imaging studies (e.g., magnetic resonance imaging, computed tomography, ultrasound).
- Describe the differential diagnosis of proptosis in children and adults.
- Describe techniques and complications of minor operating room procedures (e.g., incision and drainage of chalazia, excision of small eyelid lesions).
- Describe typical features of orbital cellulitis.

B. Technical/Surgical Skills

- Describe indications for and perform the basic office examination techniques for the most common oculoplastic and orbital abnormalities.
- Perform the basic Examination of the eyelids, eyebrows and eyelashes (e.g., eversion, double eversion, margin to reflex distance, lid crease, levator function, eyelid/brow malpositions).
- Identify indications for and to perform the basic lacrimal Examination (e.g., dye testing, punctal dilation, canalicular probing, lacrimal irrigation).
- Identify indications for and perform the basic Examination of the orbit (e.g., Hertel exophthalmometry, inspection, palpation, auscultation).
- Identify indications for and perform the basic socket Examination (e.g., types of implants, socket health).
- Perform minor lid and conjunctival procedures (e.g., removal of benign eyelid skin lesions, chalazion curettage or excision, conjunctival biopsy).
- Treat complications of minor operating room procedures (e.g., incision and drainage of chalazia, excision of small eyelid lesions).
- Perform punctal plug insertion or removal.
- Recognize and treat trichiasis (e.g., epilation, cryotherapy, surgical therapy).
- Perform a simple enucleation or evisceration under supervision.
PGY-3 Level Goals

A. Cognitive Skills

- Describe more advanced eyelid, lacrimal, and orbital anatomy and physiology (e.g., lacrimal apparatus, orbital vascular anatomy).
- Describe the genetics (where known), clinical features, evaluation, and treatment of congenital eyelid deformities (e.g., coloboma, distichiasis, epicanthus, telecanthus, blepharophimosis, ankyloblepharon, epiblepharon, euryblepharon, and Goldenhar syndrome, Treacher-Collins syndrome, Waardenburg syndromes).
- Describe the clinical features, evaluation and management of congenital orbital deformities (e.g., synophthalmia, anophthalmia, microphthalmia, cryptophthalmia, hypertelorism, hypotelorism).
- Describe the genetics, clinical features, evaluation, and management of common craniosynostoses and other congenital malformations (e.g., Crouzon and Apert syndromes).
- Treat (or refer for treatment) congenital eyelid abnormalities (see Basic Level, above).
- Perform preoperative and postoperative Examination of patients with simple and more serious oculoplastic disorders (e.g., multi-disciplinary procedures).
- Describe the mechanisms and indications for treatment of more advanced eyelid, orbital, and lacrimal trauma (e.g., full thickness lid laceration, chemical burns to the face).
- Describe features of, evaluate, and treat more complicated cases of nasolacrimal duct obstruction, canaliculitis, dacryocystitis, acute and chronic dacryoadenitis, preseptal cellulitis, and orbital cellulitis.
- Recognize, evaluate and treat thyroid ophthalmopathy (e.g., epidemiology, symptoms and signs, associated systemic diseases, orbital imaging, differential diagnosis, surgical, medical and radiation indications side effects of treatment).
- Recognize, evaluate, and treat orbital inflammatory pseudotumor (e.g., symptoms and signs, orbital imaging, differential diagnosis, biopsy indications, choice of treatments).
- Recognize, treat, or refer blepharospasm or hemifacial spasm.
- Recognize less common orbital tumors (e.g., metastatic lesions).

B. Technical/Surgical Skills

- Describe indications for and perform more advanced examination techniques for less common oculoplastic and orbital abnormalities (e.g., measurement of levator function, orbital ultrasound interpretation).
- Identify indications for and perform more advanced Examination of eyelids and eyebrows (e.g., hypoglobus, facial asymmetry, brow ptosis).
- Identify indications for and to perform more advanced lacrimal Examination (e.g., interpretation of dye testing, canalicular probing in trauma).
- Identify indications for and to perform more advanced Examination of the orbit (e.g., enophthalmus, interpretation of orbital ultrasound in common conditions).
- Identify indications for and to perform more advanced socket Examination (e.g., extrusion of implants, anophthalmic socket complications).
- Perform more complicated minor lid procedures (e.g., larger benign skin lesions) or surgery (e.g., recurrent or multiple chalazion).
• Recognize the indications and complications and perform more complex minor operating room or limited operating room procedures (e.g., incision and drainage of recurrent or larger chalazia, excision of moderate sized benign eyelid lesions).
• Recognize and treat orbital trauma (e.g., intraorbital foreign body, retrobulbar hemorrhage, fracture).
• Identify common orbital pathology (e.g., orbital fractures, orbital tumors) on imaging studies (e.g., magnetic resonance imaging, computed tomography, ultrasound).
• Treat common presentations of preseptal or orbital cellulitis.
• Describe, recognize the indications for and complications of, and perform the basic lacrimal procedures below:
  • Lacrimal drainage testing (irrigation, dye disappearance test)
  • Lacrimal intubation
  • Dacryocystorhinostomy (external)

PGY-4 Level Goals
A. Cognitive Skills
• Describe the most advanced eyelid, lacrimal, and orbital anatomy and physiology.
• Evaluate and treat simple and more advanced eyelid, orbital, and lacrimal trauma (e.g., full thickness lid laceration, chemical burns to the face).
• Perform preoperative and postoperative Examination and coordination of care of patients with more advanced or complex oculoplastic disorders (e.g., systemically ill patients, multi-disciplinary procedures).
• Describe the etiology, evaluation, and medical and surgical treatment of the following eyelid diseases:
  • Complex ectropion (e.g., congenital, paralytic, involutional, cicatricial, mechanical, allergic).
  • Complex entropion (e.g., involutional, cicatricial, spastic, congenital).
  • Complex myogenic ptosis (e.g., chronic progressive external ophthalmoplegia).
  • Complex differential diagnosis for dermatochalasis (e.g., blepharochalasis).
  • Benign, pre-malignant, or malignant eyelid tumors (e.g., papilloma, keratoacanthoma, seborrheic keratosis, epidermal inclusion cyst, molluscum contagiosum, verruca vulgaris, actinic keratosis, basal cell carcinoma, squamous cell carcinoma, sebaceous cell carcinoma, melanoma).
  • Single or recurrent inflammatory lesions (e.g., recurrent chalazion or its mimics).
  • Facial dystonia (e.g., blepharospasm, hemifacial spasm).
  • Facial nerve palsy with exposure keratopathy (e.g. tarsorrhaphy, gold weights).
  • Complex lid and orbital trauma cases.

B. Technical/Surgical Skills
• Describe the indications for and perform more complicated and advanced "in office" examination techniques for less common but important oculoplastic and orbital abnormalities.
• Perform preoperative and intraoperative Examination of the eyelids and eyebrows (e.g., intraoperative adjustments).
• Recognize and treat more complex or difficult socket-related problems and complications (e.g., extrusion of implants, anophthalmic socket complications).
• Perform more complicated lid procedures (e.g., larger benign, recurrent, or multiple skin lesions).
• Perform more advanced lacrimal Examination (e.g., intraoperative and postoperative testing, more complex trauma to lacrimal system).
• Describe management of and treat lacrimal system abnormalities, including:
  - More complex congenital disorders (e.g., canalicular stenosis)
  - More complex acquired disorders and their treatment (e.g., conjunctivodacryocystorhinostomy with Jones tube)
  - Complex moderate trauma (e.g., requiring lacrimal intubation)
  - Recognize typical and atypical features and to describe the differential diagnosis, clinical features, and treatment of more complicated orbital disease, including:
    - More complex orbital infections (e.g., preseptal and orbital cellulitis, mucormycosis, aspergillosis)
    - Congenital tumors (e.g., dermoid)
    - Fibro-osseous disorders and tumors (e.g., fibrous dysplasia, osteoma, chondrosarcoma, osteosarcoma, Paget's disease)
    - Vascular tumors (e.g., capillary hemangioma, cavernous hemangioma, hemangiopericytoma, lymphangioma, Kaposi's sarcoma)
    - Xanthomatous tumors (e.g., xanthelasma, juvenile xanthogranuloma)
    - Lacrimal gland tumors (e.g., benign mixed tumor, adenoid cystic carcinoma, malignant mixed tumor, lymphoma)
    - Neural tumors (e.g., optic nerve glioma/meningioma, neurofibromatosis, neuroblastoma)
    - Rhabdomyosarcoma
    - Orbital pseudotumor
    - Lymphoid lesions (e.g., lymphoid hyperplasia, lymphoma, leukemia)
    - Thyroid-related orbitopathy
    - Metastatic tumors (e.g., from breast, lung, prostate, colon, melanoma)
    - Trauma (e.g., orbital fractures, traumatic optic neuropathy)
    - Anophthalmic socket - implant exposure, volume augmentation
• Describe, recognize the indications for and complications of, and perform the eyelid procedures listed below:
  - Basic biopsy techniques
  - Lateral tarsal strip
  - Specialized lid suture procedures (e.g., Quickert sutures)
  - Medial spindle
  - Retractor reinsertion
  - Levator advancement
  - Eyelid laceration/margin repair
  - Tarsorrhaphy
  - Lateral canthoplasty (canthotomy and cantholysis)
  - Blepharoplasty
  - Facial nerve palsy – gold weight placement in the lid
Simple eyelid reconstruction
Orbital approaches and incisions (e.g., Kronlein, Caldwell-Luc, transconjunctival, transnasal)
- Describe, recognize the indications for and complications of, and perform basic orbital skills and procedures, including:
  - Anterior orbitotomy for tumor biopsy/excision
  - Orbital floor fracture repair
- Describe the indications for and interpret CT and MRI scans (e.g., orbital trauma, orbital lesions and tumors).
- Perform botulinum toxin injections (e.g., blepharospasm).
- Identify more advanced orbital pathology (e.g., complex orbital fractures, orbital tumors) on imaging studies (e.g., magnetic resonance imaging, computed tomography, ultrasound).

Practice-Based Learning and Improvement

The PGY-2 Resident Should Be Able To:
- Identify and read about major disease sites (above) in ophthalmology textbooks and journals
- Using above sources, begin to locate, appraise and assimilate evidence from scientific studies to improve patient care
- Critically read and analyze relevant literature in preparation for lectures, case conferences, and presentations
- Incorporate formative evaluation feedback into daily practice
- Participate actively in case conferences and be able to present patients on the clinical service
- Learn basic principles of statistics and evidence-based medicine
- Start and maintain ACGME web-based procedural log
- Be compliant with required evaluations

The PGY-3 Resident Should Be Able To (In addition to the goals listed in the previous PGY level(s)):
- Critically evaluate clinical studies with regards to methods, design, statistics and validity of conclusion and use to improve patient care
- Continue to read and analyze relevant literature in preparation for lectures, case conferences, and presentations
- Participate in the education of co-residents, medical students, nurses, technicians or other staff.

**The PGY-4 Resident Should Be Able To (In addition to the goals listed in the previous PGY level(s))**:
- Understand the relevant literature and begin to master the salient points which can be used in daily ophthalmology practice.

**Interpersonal and Communications Skills**

**The PGY-2 Resident Should Be Able To**:
- Document consultation notes, follow up notes, and procedure notes effectively and efficiently
- Understand the importance of informed consent and be able to obtain informed consent from patients
- Use personal and electronic communication (EPIC/VA GUI) to communicate with other staff i.e. nurses and technicians, with regards to patient care
- Involve the patient and patient’s family in decisions regarding care using clear communication and empathetic behavior with respect to emotional needs, intellectual capacity, and ethnic/racial backgrounds
- Develop a relationship with the patient as a health care provider that begins with the initial visit and continues through any treatment and follow-up

**The PGY-3 Resident Should Be Able To (In addition to the goals listed in the previous PGY level(s))**:
- Demonstrate the ability to communicate and coordinate care between disciplines i.e. general medicine, rheumatology, endocrinology, etc.
- Understand the importance of a neat and complete ophthalmic chart and be able to defend in patient case conferences

**The PGY-4 Resident Should Be Able To (In addition to the goals listed in the previous PGY level(s))**:
- Learn to communicate directly and personally with referring physicians/disciplines
- Communicate with all staff and other pertinent medical disciplines independently with indirect attending physician supervision
**Professionalism**

Professionalism objectives remain the same throughout the PGY2 - 4 years although the expectations of proficiency increase over the 3 years.

The PGY-2-4 Resident Should Be Able To:

- Demonstrate compassion, integrity, and respect for patients, families, medical colleagues, and staff
- Demonstrate sensitivity and responsiveness to a diverse patient population, including but not limited to diversity in gender, age, culture, race, religion, national origin, disabilities, and sexual orientation
- Respect patient confidentiality and autonomy
- Demonstrate the ability to comply with medical records and charting requirements specific to the rotation.
- Demonstrate a commitment to learning the fundamentals of ophthalmology by attending lectures and clinic/surgery on time and keeping up with assigned readings
- Demonstrate accountability to patients, society and the profession.

**Systems-based Practice**

Systems-based Practice objectives remain the same throughout the PGY2 - 4 years although the expectations of proficiency increase over the 3 years.

The PGY-2-4 Resident Should Be Able To:

- Practice cost-effective health care that does not compromise the quality of care
- Understand that an ophthalmologist works as an integral part of a team to effectively care for patients alongside physician colleagues, co-residents, nurses, technicians, photographers, administrative and secretarial staff, etc.
- Advocate for quality patient care and assist patients in dealing with system complexities
- Understand that the practice of ophthalmology is an interdependent part of the health care system and society at large
- Consider how your practice affect other healthcare professionals and the hospital system
- Know what resources are available for patient care, within or outside the institution and make referrals as appropriate
ATTAINMENT OF GOALS

Goal Attainment Can Be Measured In Ophthalmic Plastic Surgery By:

- Observation and interrogation by attending during the course monthly seminars. Residents are evaluated by faculty following each rotation, more frequently, if indicated.
- Observation and interrogation during Ophthalmic Plastic Surgery Clinic.
- Evaluation by attending while assisting in the operating room.
- Observation and interrogation by faculty members during patient care.
- Completion of the Progress Notebook and Skills Transfer Manual section on Oculoplastics.
- Evaluation of the results of the OKAP examination.
- Correlation of ocular pathology of conditions to clinical situations.

OPHTHALMIC PATHOLOGY SECTION

Residents Obtain The Experience In Ophthalmic Pathology By (Patient Care/Medical Knowledge):

- An ongoing didactic program which is given over a three year period will encompass all the major fields of ophthalmic pathology. In addition, a study slide set is provided at Hines and Loyola with which the residents can work on their own time. Finally, the residents participate singly and as a group in discussion slides at the monthly slide conference. This last exercise gives them the opportunity to describe microscopic changes in selected cases to arrive at a diagnosis; and finally relate these changes to the clinical aspects of the case.
- The projection slide study set, available to all residents, consists of fifty (50) cases, encompassing the entire spectrum of ocular pathology: illustrative examples of congenital anomalies, tumor, vascular glaucoma, optic nerve pathology and traumatic effects on the eye and adnexa are all included. It serves as an important adjunct to the formal lecture series and gives the resident the opportunity to interpret slides with the help of a detailed protocol available for each case. The ultimate interpretation of histopathologic changes occurs in the slide conference series where unknown cases are discussed and diagnosed by the more advanced second and third year residents.
- During one 3 month rotation each first year resident participates two half days a week in gross/microscopic Ocular Pathology. Specimens from Loyola are reviewed as they arise with Dr. Perlman in the Pathology Department.
Residents attend a bimonthly Clinical Pathology Conference supervised by an Attending ophthalmologist and pathologist. Specimens from Loyola are discussed at this conference.

Dr. Jay Perlman will conduct monthly sessions in microscopic pathology with all residents to evaluate clinical specimens.

GOALS
The PGY-2 Resident Should Be Able To:

- Identify the right or left eye by external gross examination.
- Do a gross examination of an eye, including identification of external and internal abnormalities via direct inspection and transillumination.
- Participate in slide conferences to level of training to the satisfaction of the Attending.

The PGY-3 Resident Should Be Able To:

- Demonstrate basic understanding of common slides in the study set.

The PGY-4 Resident Should Be Able To:

- Demonstrate to the faculty his/her recognition and comprehension of all slides in the study set.
- Actively and accurately participate in slide conferences to the satisfaction of Dr. Perlman.

An alternative schema is as follows (from the International Council of Ophthalmology):
Ophthalmic Pathology
PGY-2 Level Goals
A. Cognitive Skills
- Describe basic ocular anatomy and to identify the histology of the major structures of the eye (e.g., conjunctiva, sclera, cornea, anterior chamber angle, iris, ciliary body, lens, vitreous, retina, retinal pigment epithelium, choroid, optic nerve).
- Describe basic pathophysiology of the common disease processes of the eye and to identify the major histologic findings of each (e.g., infection, inflammation, neoplasm).
- Identify the histology of important intraocular and adnexal diseases (e.g., endophthalmitis, retinoblastoma, choroidal melanoma, microbial keratitis).

B. Technical Skills (for an ocular pathology laboratory, as available)
- Describe 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.
• Describe specific information necessary for communication with the pathologist regarding special handling of specimens for special stains or studies.
• Describe indications for frozen sections in ocular pathology.
• Perform cutting and gross examination of whole globes.
• Participate under supervision in the microscopic examination of ophthalmology specimens from active cases.

PGY-3 Level Goals
A. Cognitive Skills
• Describe more advanced ocular anatomy and identify the histology of the major and minor structures of the eye (e.g., conjunctival glands, normal pigment, common variants).
• Describe 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).
• Identify 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).
• Describe more advanced techniques in ocular histopathology (e.g., electron microscopy, cytology, immunohistochemistry, flow cytometry, tumor free margins).

B. Technical/Surgical Skills
• Describe appropriate steps in the more advanced handling and special processing of gross specimens in the ocular pathology laboratory.
• Describe 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, cytology).
• Describe indications and to perform and prepare a biopsy specimen for frozen section in ocular pathology.
• Prepare of a basic histologic specimen for review by the pathologist.
• Participate as an "at-the-elbow" observer during microscopic examination of active ophthalmology cases and to perform microscopic examination of a specimen with and without direct supervision.

PGY-4 Level Goals
A. Cognitive Skills
• Describe the most advanced ocular anatomy and identify histology of the major and minor structures of the eye and their less common "normal" variants (e.g., pars plana cysts, iris heterochromia, cobblestone degeneration of the retina).
• Describe the most advanced, less common, or more complex pathophysiology of the disease processes of the eye and identify major histologic findings of each (e.g., inflammatory pseudotumor, lymphoma, artifacts of processing).
• 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, uncommon benign and malignant neoplasms).

B. Technical/Surgical Skills
- Describe and to perform appropriate steps for handling gross or cytologic specimens in the ocular pathology laboratory.
- Perform postoperative consultation with the pathologist, regarding specific indications for special stains or processing (e.g., orientation of specimen, special handling).
- Perform the preparation of basic and more advanced histologic specimens for review by the pathologist (e.g., simple or special stains or fixation methods).
- Participate as an "at-the-elbow" observer during the microscopic examination of active ophthalmology cases.
- Perform microscopic examination of a specimen with direct supervision and provide a relevant differential diagnosis.

Practice-Based Learning and Improvement

The PGY-2 Resident Should Be Able To:
- Identify and read about major disease sites (above) in ophthalmology textbooks and journals
- Incorporate formative evaluation feedback into daily practice
- Participate actively in case conferences and be able to present patients on the clinical service
- Start and maintain ACGME web-based procedural log
- Be compliant with required evaluations

The PGY-3 Resident Should Be Able To (In addition to the goals listed in the previous PGY level(s)):
- Continue to read and analyze relevant literature in preparation for lectures, case conferences, and presentations

The PGY-4 Resident Should Be Able To (In addition to the goals listed in the previous PGY level(s)):
- Understand the relevant literature and begin to master the salient points which can be used in daily ophthalmology practice.

Interpersonal and Communications Skills

The PGY-2 Resident Should Be Able To:
• Document consultation notes, follow up notes, and procedure notes effectively and efficiently
• Use personal and electronic communication (EPIC/VA GUI) to communicate with other staff i.e. nurses and technicians, with regards to patient care

The PGY-3 Resident Should Be Able To (In addition to the goals listed in the previous PGY level(s)) :
• Understand the importance of a neat and complete ophthalmic chart and be able to defend in patient case conferences

The PGY-4 Resident Should Be Able To (In addition to the goals listed in the previous PGY level(s)) :
• Learn to communicate directly and personally with referring physicians/disciplines

Professionalism

Professionalism objectives remain the same throughout the PGY2 - 4 years although the expectations of proficiency increase over the 3 years.

The PGY-2-4 Resident Should Be Able To :
• Respect patient confidentiality and autonomy
• Demonstrate the ability to comply with medical records and charting requirements specific to the rotation.
• Demonstrate a commitment to learning the fundamentals of ophthalmology by attending lectures and clinic/surgery on time and keeping up with assigned readings

Systems-based Practice

Systems-based Practice objectives remain the same throughout the PGY2 - 4 years although the expectations of proficiency increase over the 3 years.

The PGY-2-4 Resident Should Be Able To :
• Practice cost-effective health care that does not compromise the quality of care
• Understand that an ophthalmologist works as an integral part of a team to effectively care for patients alongside physician colleagues, co-residents, nurses, technicians, photographers, administrative and secretarial staff, etc.
• Advocate for quality patient care and assist patients in dealing with system complexities
• Understand that the practice of ophthalmology is an interdependent part of the health care system and society at large
• Consider how your practice affect other healthcare professionals and the hospital system
• Know what resources are available for patient care, within or outside the institution and make referrals as appropriate

ATTAINMENT OF GOALS
Goal Attainments Can Be Measured In Ophthalmic Pathology By:
• Observation and interrogation by Dr. Perlman during the course of their training sessions. Residents are evaluated by faculty following each rotation, more frequently as indicated.
• Completion of the Progress Notebook section on Pathology
• Evaluation of the results of the OKAP examination.

PEDIATRIC OPHTHALMOLOGY & STRABISMUS SECTION
Residents Obtain The Experience In Pediatric Ophthalmology By (Patient Care/Medical Knowledge):
• Participating in structured seminars and case presentations in Pediatric Ophthalmology.
• Attendance at all Pediatric Ophthalmology Clinics.
• Work up and evaluation of all motility cases at Hines by the first year comprehensive resident.
• Work up and participation in the surgery, both outpatient and inpatient, at Loyola and Hines.
• Examination and work up of all pediatric ophthalmic consultations and review of the findings with the attending.
• Resident will accompany pediatric Attending on ROP rounds once a month.

GOALS
The PGY-2 Resident Should Be Able To:
• Describe muscle anatomy and physiology including the action of muscles and vascular supply and the anatomy of surrounding tissues.
- Discuss the classification of strabismus including paretic vs. non paretic types of comitant horizontal deviations and its most frequent characteristics, restrictive motility disturbances types and causes.
- List the types of amblyopia. Describe the principles of treatment of amblyopia. Explain the diagnosis of amblyopia.
- Explain the dangers of various therapeutic regimens,
- Discuss the methods and drugs used in refraction, including advantages and mode of action of each of these medicines.
- Take an accurate history with respect to the age at onset, birth and developmental problems and family history of strabismus.
- Assess visual acuity by fixation patterns, HOTV test, child’s near card test, E game and Snellen Chart. To refract with loose lenses and give appropriate directions and warnings to the parents for atropine refractions.
- Accurately perform a Hirschberg and prism measurement in the primary position.
- Explain the basic concepts of sensory physiology including suppression, diplopia, confusion and retinal correspondence.
- Classify patients with deviations into comitant and incomitant deviation by versions and ductions and by history.
- Assess ductions and versions and accurately perform version reflex test.

**The PGY-3 Resident Should Be Able To:**
- Discuss the various types of vertical muscles and disturbances.
- Observe abnormal head positions and variability of deviations.
- Measure patients in the nine cardinal positions for evaluation of vertical deviations.

**The PGY-4 Resident Should Be Able To:**
- Explain the indications and rationale for surgical and nonsurgical treatment in the following conditions: congenital esotropia, accommodative esotropia, intermittent exotropias, constant exotropias, paretic strabismus, DVD and restrictive syndromes, including Duane syndrome, Brown syndrome, thyroid myopathy and blow out fractures.
- Classify and discuss the surgical and nonsurgical treatments for nystagmus.
Each resident should perform a minimum of 10 surgical cases during the three year residency.

Evaluate the sensory factions with the stereo test and suppression test utilizing Worth 4 dot, 4 diopter base out test, Bagolini lenses, after image test.

Discuss the evaluation and treatment of patients with nasolacrimal duct obstruction, congenital cataract, congenital glaucoma, JRA, retinoblastoma, leukocoria.

Discuss the evaluation of an infant with poor vision.

An alternative schema is as follows (from the International Council of Ophthalmology):

**Pediatric Ophthalmology and Strabismus**

**PGY-2 Level Goals**

**A. Cognitive Skills**

- Describe basic examination techniques for strabismus (e.g., ductions and versions, cover and uncover testing, alternate cover testing, prism cover testing).
- Describe basic visual development and visual Examination of the pediatric ophthalmology patient (e.g., central, steady, maintained fixation; illiterate E, Allen cards, Landolt C rings).
- Describe basic anatomy and physiology of strabismus (e.g., innervation of extraocular muscles, primary actions, comitant and incomitant deviations, overaction and underaction, restrictive and paretic saccades and pursuit movements).
- Describe basic sensory adaptations for binocular vision (e.g., normal and anomalous retinal correspondence, suppression, horopter, Panum's area, fusion, stereopsis).
- Describe and recognize pseudostrabismus.
- Describe different etiologies of amblyopia (e.g., deprivation, ametropic, strabismic, anisometropic, organic).
- Describe 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).
- Describe etiologies of exotropia (e.g., congenital, comitant and incomitant, decompensated, sensory, neurogenic, myogenic, neuromuscular junction, restrictive, basic, divergence excess, exophoria, convergence insufficiency).
- Describe various strabismus patterns (e.g., A or V pattern).
- Describe etiologies, evaluation, and management of vertical strabismus (e.g., neurogenic, myogenic, neuromuscular junction, oblique overaction or underaction, dissociated vertical deviation, restrictive).
- Describe non-surgical treatment of strabismus.
- Describe different forms of childhood nystagmus.
- Describe features, classification, and treatment indications for retinopathy of prematurity.
- Describe etiologies and types of pediatric cataract.
- Describe and recognize ocular findings in child abuse (e.g., retinal hemorrhages) and appropriately refer to child protective services or other authorities.
- Describe common hereditary or congenital ocular motility or lid syndromes (e.g., Duane's syndrome, Marcus Gunn jaw-winking, Brown syndrome).
- Describe typical features of retinoblastoma.
- Describe basic features of dyslexia.
- Describe basic evaluation of decreased vision in infants and children (e.g., retinopathy of prematurity, hereditary retinal disorders, congenital glaucoma, measles, vitamin A deficiency).
- Describe identifiable congenital ocular anomalies (e.g., microphthalmia, persistent fetal vasculature).
- Describe ocular findings in inherited, metabolic disorders
  - Mucopolysaccharidoses (e.g., Hurler syndrome, Scheie syndrome, Hunter syndrome, Sanfilippo syndrome, Morquio syndrome, Sly syndrome).
  - Lipidoses (e.g., Tay-Sachs disease, Sandhoff, Niemann-Pick, Krabbe's, Fabry's disease, metachromatic leukodystrophy).
  - Aminoacidurias (e.g., homocystinuria, cystinosis, Lowe and Zellweger syndromes).
- Describe ocular findings in chromosomal abnormalities (e.g., trisomy 21; trisomy 13; trisomy 18; deletion of the short arm of chromosome 11; deletion of the long arm of chromosome 13; Cri du Chat syndrome, Turner’s syndrome).

**B. Technical/Surgical Skills**

- Perform an extraocular muscle examination based on knowledge of the anatomy and physiology of ocular motility.
- Assess ocular motility using testing of ductions and versions.
- Apply Hering's and Sherrington's laws.
- Perform basic measurement of strabismus (e.g., Hirschberg test, Krimsky method, cover testing, prism cover testing, simultaneous prism cover testing, alternate cover testing, Parks-Bielschowsky three-step test, Lancaster red-green test, Maddox rod testing, double Maddox rod testing).
- Perform Examination of vision in the neonate, infant, and child.
- Recognize and apply in a clinical setting the following skills in the ocular motility examination:
  - Stereoacuity testing
  - Accommodative convergence/accommodation ratio (e.g., heterophoria method, gradient method)
  - Tests of binocularity and retinal correspondence
  - Cycloplegic refraction (retinoscopy)
  - Anterior and posterior segment examination
  - Basic and advanced measurement of strabismus
  - Cover test measurement
  - Examination of vision
  - Teller acuity cards
  - Fixation preference test
  - Standard subjective visual acuity tests
• -Induced tropia test
• Assist a primary surgeon in performing extraocular muscle surgery including:
• -Recession
• -Resection
• -Muscle weakening (e.g., tenotomy) and strengthening (e.g., tuck) procedures
• -Transposition
• -Use of adjustable sutures

PGY-3 Level Goals
A. Cognitive Skills
• Describe basic and more advanced strabismus examination techniques (e.g., combined vertical and horizontal prism cover testing, double Maddox rod testing).
• Describe basic and more advanced visual development and visual examination of the pediatric ophthalmology patient (e.g., blink to light or threat, measures of fixation and following behavior, objective measures of visual acuity).
• Describe more advanced anatomy and physiology of strabismus (e.g., torsion, tertiary actions, consecutive deviations).
• Describe more advanced sensory adaptations (e.g., anomalous head position).
• Describe basics of binocular sensory testing (e.g., Titmus stereo testing, Randot stereo testing, Worth four-dot, Bagolini lenses, afterimage testing).
• Describe and recognize different etiologies of amblyopia.
• Describe and recognize etiologies of esotropia.
• Describe and recognize etiologies of exotropia.
• Describe and recognize various strabismus patterns (e.g., A or V pattern).
• Describe and recognize the etiologies of vertical strabismus.
• Describe and utilize the non-surgical treatment of strabismus and amblyopia (e.g., patching, atropine penalization, Fresnel and grind-in prism therapy).
• Describe and recognize the different forms of childhood nystagmus (e.g., sensory, motor, congenital, acquired).
• Describe and recognize retinopathy of prematurity (e.g., stages, treatment indications).
• Describe and recognize etiologies and types of pediatric cataract (e.g., congenital, traumatic, hereditary, idiopathic).
• Describe and recognize less common hereditary or malformative ocular anomalies and syndromes (e.g., Mobius, Goldenhar syndrome).
• Describe and recognize typical features of retinoblastoma (e.g., differential diagnosis, evaluation, treatment indications and types).
• Describe the main features of dyslexia and its relationship to vision.
• Describe basic evaluation and differential diagnosis of decreased vision in infants and children (e.g., retinal and optic nerve etiologies, amblyopia).
• Describe recognizable causes of blindness in infants (e.g., albinism, optic nerve hypoplasia, achromatopsia, Leber's congenital amaurosis, retinal dystrophy, congenital optic atrophy).
• Describe etiology, evaluation, and management of congenital infections (e.g., toxoplasmosis, rubella, cytomegalovirus, syphilis, herpes).
• Describe and recognize the common causes of pediatric uveitis.

B. Technical Skills

• Perform a more advanced extraocular muscle examination based on knowledge of the anatomy and physiology of ocular motility
• Assess more advanced ocular motility problems (e.g., bilateral or multiple cranial neuropathy, myasthenia gravis, thyroid eye disease).
• Apply Hering's and Sherrington's laws in more advanced cases (e.g., pseudoparesis of the contralateral antagonist, enhancement of ptosis in myasthenia gravis)
• Perform more advanced measurements of strabismus (e.g., double Maddox rod testing, Lancaster red green testing, use of synoptophore or amblyoscope).
• Perform Examination of vision in more difficult strabismus patients (e.g., uncooperative child, mentally impaired, nonverbal or preverbal).
• Perform basic extraocular muscle surgery:
  o -Exercise surgical judgement for the indications and contraindications for strabismus surgery
  o -Perform preoperative Examination, intraoperative techniques, and describe intraoperative and postoperative complications of strabismus surgery
  o -Perform the following strabismus surgeries:
    o -Recession
    o -Resection
    o -Muscle weakening (e.g., tenotomy) and strengthening (e.g., tuck) procedures
    o -Transposition
    o -Use of adjustable sutures
• Manage the complications of strabismus surgery (e.g., slipped muscle, anterior segment ischemia)

PGY-4 Level Goals

A. Cognitive Skills

• Describe and perform the most advanced strabismus examination techniques (e.g., complicated prism cover testing in multiple cranial neuropathies, patients with nystagmus, dissociated vertical deviation, double Maddox rod testing).
• Perform the most advanced techniques for Examination of visual development in complicated or non-cooperative pediatric ophthalmology patients (e.g., less common objective measures of visual acuity, electrophysiologic testing).
• 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.
• Describe clinical application of the most advanced sensory adaptations (e.g., anomalous head position, anomalous retinal correspondence).
• Recognize and treat the most complicated etiologies of amblyopia (e.g., refraction non-compliance, patching failures, pharmacologic penalization).
• Recognize and treat the most complex etiologies of esotropia (e.g., optical, prism-induced, postsurgical/consecutive).
Recognize and treat the most complex etiologies of exotropia (e.g., supranuclear, paralytic pontine exotropia, consecutive).

Recognize and treat the most complex strabismus patterns (e.g., aberrant regeneration, postsurgical, thyroid ophthalmopathy and myasthenia gravis).

Recognize and treat the most complex etiologies of vertical strabismus (e.g., skew deviation, postsurgical, restrictive).

Apply non-surgical treatment (e.g., patching, atropine penalization) of more complicated forms of amblyopia (e.g., non-compliant, patching failures).

Recognize, evaluate, and treat the most complex forms of childhood nystagmus (e.g., sensory, spasmus nutans, associated with neurologic or systemic diseases).

Recognize and treat (or refer for treatment) complex retinopathy of prematurity (e.g., stages, treatment indications, retinal detachment).

Recognize and treat (or refer for treatment) uncommon etiologies and types of pediatric cataracts (e.g., congenital, traumatic, metabolic, inherited).

Recognize and appropriately evaluate the more complex hereditary ocular syndromes (e.g., bilateral Duane syndrome, Mobius syndrome).

Recognize and treat (or refer for treatment) patients with complicated retinoblastoma (e.g., bilateral cases, monocular patient, treatment failure, pineal involvement).

Recognize and evaluate the less common congenital ocular anomalies (e.g., unusual genetic syndromes).

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).

Recognize and treat complex pediatric retinal disease (e.g., inherited retinopathies).

Recognize and treat complex pediatric glaucoma.

Recognize and treat complex pediatric cataract and anterior segment abnormalities (including surgical implications, techniques, and complications).

Recognize and treat complex pediatric eyelid disorders (e.g., congenital deformities, lid lacerations, lid tumors).

Recognize and treat (or refer) pediatric orbital disease (e.g., orbital tumors, orbital fractures, rhabdomyosarcoma, severe congenital orbital malformations).

B. Technical/Surgical Skills

- Perform more complex extraocular muscle surgery (e.g., vertical and horizontal muscle surgery; reoperations).
- Describe indications and contraindications for more complex strabismus surgery.
- Describe and perform the preoperative Examination, intraoperative techniques and to describe postoperative complications for more complicated strabismus surgery (e.g., reoperations, slipped muscle).
- Describe indications for and to perform adjustable sutures in more complicated cases (e.g., thyroid ophthalmopathy).
- Describe and manage more complex complications of strabismus surgery (e.g., globe perforation, endophthalmitis, overcorrection).

Practice-Based Learning and Improvement

The PGY-2 Resident Should Be Able To:
• Identify and read about major disease sites (above) in ophthalmology textbooks and journals
• Using above sources, begin to locate, appraise and assimilate evidence from scientific studies to improve patient care
• Critically read and analyze relevant literature in preparation for lectures, case conferences, and presentations
• Incorporate formative evaluation feedback into daily practice
• Participate actively in case conferences and be able to present patients on the clinical service
• Learn basic principles of statistics and evidence-based medicine
• Start and maintain ACGME web-based procedural log
• Be compliant with required evaluations

The PGY-3 Resident Should Be Able To (In addition to the goals listed in the previous PGY level(s)):
• Critically evaluate clinical studies with regards to methods, design, statistics and validity of conclusion and use to improve patient care
• Continue to read and analyze relevant literature in preparation for lectures, case conferences, and presentations
• Participate in the education of co-residents, medical students, nurses, technicians or other staff.

The PGY-4 Resident Should Be Able To (In addition to the goals listed in the previous PGY level(s)):
• Understand the relevant literature and begin to master the salient points which can be used in daily ophthalmology practice.

Interpersonal and Communications Skills

The PGY-2 Resident Should Be Able To:
• Document consultation notes, follow up notes, and procedure notes effectively and efficiently
• Understand the importance of informed consent and be able to obtain informed consent from patients
• Use personal and electronic communication (EPIC/VA GUI) to communicate with other staff i.e. nurses and technicians, with regards to patient care
• Involve the patient and patient’s family in decisions regarding care using clear communication and empathetic behavior with respect to emotional needs, intellectual capacity, and ethnic/racial backgrounds
• Develop a relationship with the patient as a health care provider that begins with the initial visit and continues through any treatment and follow-up

The PGY-3 Resident Should Be Able To (In addition to the goals listed in the previous PGY level(s)):
• Demonstrate the ability to communicate and coordinate care between disciplines i.e. general medicine, rheumatology, endocrinology, etc.
• Understand the importance of a neat and complete ophthalmic chart and be able to defend in patient case conferences

The PGY-4 Resident Should Be Able To (In addition to the goals listed in the previous PGY level(s)):
• Learn to communicate directly and personally with referring physicians/disciplines
• Communicate with all staff and other pertinent medical disciplines independently with indirect attending physician supervision

Professionalism

Professionalism objectives remain the same throughout the PGY2 - 4 years although the expectations of proficiency increase over the 3 years.

The PGY-2-4 Resident Should Be Able To:
• Demonstrate compassion, integrity, and respect for patients, families, medical colleagues, and staff
• Demonstrate sensitivity and responsiveness to a diverse patient population, including but not limited to diversity in gender, age, culture, race, religion, national origin, disabilities, and sexual orientation
• Respect patient confidentiality and autonomy
• Demonstrate the ability to comply with medical records and charting requirements specific to the rotation.
• Demonstrate a commitment to learning the fundamentals of ophthalmology by attending lectures and clinic/surgery on time and keeping up with assigned readings

• Demonstrate accountability to patients, society and the profession.

**Systems-based Practice**

*Systems-based Practice objectives remain the same throughout the PGY2 - 4 years although the expectations of proficiency increase over the 3 years.*

**The PGY-2-4 Resident Should Be Able To:**

• Practice cost-effective health care that does not compromise the quality of care

• Understand that an ophthalmologist works as an integral part of a team to effectively care for patients alongside physician colleagues, co-residents, nurses, technicians, photographers, administrative and secretarial staff, etc.

• Advocate for quality patient care and assist patients in dealing with system complexities

• Understand that the practice of ophthalmology is an interdependent part of the health care system and society at large

• Consider how your practice affect other healthcare professionals and the hospital system

• Know what resources are available for patient care, within or outside the institution and make referrals as appropriate

**ATTAINMENT OF GOALS**

*Goal Attainment Can Be Measured In Pediatric Ophthalmology By:*

• Evaluation and interrogation of the resident by attending in clinic. Residents are evaluated by faculty following each rotation, more frequently if indicated.

• Observation and interrogation of the residents by attending during the consultations and in the operating rooms.

• Completion of the Progress Notebook and Skills Transfer Manual sections on Pediatric Ophthalmology

• Evaluation of the scores in the Pediatric part of the OKAP examination.

• Completion of an oral exam at the end of the rotation
REFRACTIVE SURGERY SECTION

Residents Obtain Their Experience In Refractive Surgery By (Patient Care/Medical Knowledge):

- Attending a series of refractive surgery seminars provided for all residents. These follow the structure of the Home Study course of the American Academy of Ophthalmology. Some additional problems not mentioned in the manual are also discussed.
- The participation of one Loyola resident in regularly scheduled weekly refractive surgery Clinics.
- Examining patients under faculty supervision in general clinics at Loyola and Hines.
- Working up and assisting in refractive surgery cases both at Loyola and at Hines.
- Participation in refractive surgery “Problem Case Conferences” presented during the year.

GOALS

To Develop a Comprehensive Refractive Surgery Training Program (Lectures, Clinical Rotations, OR Experience, "Wet Labs", Certifications, etc.) at Loyola (including certain Pre-Requisites) leading to actual Resident Refractive Surgical Cases (Surface Ablation Treatments initially) for the PGY2 and PGY4 residents.

1. BASIC EDUCATION:

   a. Morning Lecture Series at Loyola (6 lectures/year; Adapted from BSCS Text)
      a. Corneal Topography and Orbscan Corneal Analysis (Larson)
      b. Science of Refractive Surgery (Bouchard)
      c. Patient Evaluation/Role of the FDA (Larson)
      d. Photoablation: PRK/LASEK/ Epi-LASIK/LASIK/Wavefront (Larson)
      e. Incisional Corneal Surgery, Onlays and Inlays, Thermokeratoplasty (Bouchard)
      f. Intraocular Surgery, Accommodation and Non-Accommodative Treatment of Presbyopia (Larson)
      g. Refractive Surgery in Ocular and Systemic Disease: Considerations after Refractive Surgery (Bouchard)

   b. Periodic Grand Rounds/Visiting Professors for Refractive Surgery/Other Opportunities
c. AAO Basic and Clinical Science Course Book on Refractive Surgery (Basic Text)
   a. Explain contribution of cornea’s shape and tissue layers to the optics of the eye and how these components are affected biomechanically by different types of keratorefractive procedures.
   b. Outline the basic concepts of wavefront analysis and its relationship to different types of optical aberrations.
   c. Review the general types of lasers used in refractive surgeries.
   d. Describe the role of the FDA in the development and approval of ophthalmic devices used in refractive surgery.
   e. Outline the stops—including medical and social history, ocular examination, and ancillary testing—in evaluating whether a patient is an appropriate candidate for refractive surgery.
   f. For incisional keratorefractive surgery (radial keratotomy, transverse keratotomy, arcuate keratotomy, and limbal relaxing incisions), review the history, patient selection, surgical techniques, outcomes, and complications.
   g. List the various types of corneal onlays and inlays that have been used for refractive correction.
   h. For photorefractive keratotomy (PRK) and laser subepithelial keratomileusis (LASEK), review patient selection, epithelial debridement, laser calibration and techniques, refractive outcomes, and complications.
   i. Describe the different methods for creating a LASIK flap using a microkeratome or a femtosecond laser as well as instrumentation and possible complications associated with each.
   j. Review patient selection, surgical techniques, outcomes, and complications for laser in situ keratomileusis (LASIK).
   k. For conductive keratoplasty, provide a brief overview of history, patient selection, and safety issues.
   l. Discuss how intraocular surgical procedures, including clear lens extraction with IOL implantation or phakic IOL implantation, can be used in refractive correction, with or without corneal intervention.
   m. Discuss the different types of IOLs used for refractive correction.
   n. Explain the leading theories of accommodation and how they relate to potential treatment of presbyopia.
   o. Describe nonaccommodative and accommodative approaches to the treatment of presbyopia.
   p. Discuss considerations for, and possible contraindications to, refractive surgery in the setting of preexisting ocular and systemic disease.
   q. List some of the effects of prior refractive procedures on later IOL calculations, contact lens wear, and ocular surgery.

   d. VISX "Physician Certification Program" Books and Materials from Course (provided for second and third year residents, certification for 3rd year residents only)
2. CLINICAL TRAINING

   e. Pre-Op Refractive Surgery Clinical Training and Experience (Actual Patients)
   f. Intra-Op Refractive Surgery Training and Observation
      a. (Actual Cases)... >20 Cases.
      b. Documentation by resident
   g. Post-Op LASIK/PRK Patient Instruction experience with patients (Actual Patients)
   h. Post-Op Patient Management, Training and Experience (Actual Patients)
   i. Assist with Actual Post-Op Patient Visits, discuss with Surgeon.
   j. Must establish competency in this area to the satisfaction of Proctor.

3. CERTIFICATION AND TESTING

   k. Complete VISX Official Certification Course, during Senior Year.
   l. Complete Clinical Rotation in "Refractive Surgery" at Loyola (2x6 wk clinical rotations)
   m. Complete and Pass an Oral "Post-Test" on Refractive Surgery Rotation, including:
      a. VISX Laser Questions...Software, Hardware, FDA Approvals, etc.
      b. Micro-Keratome Questions...Assembly, Testing, Options, Pre-Op Check List, etc.
      c. Pre-Op Screening Questions
      d. "Best Practices" Techniques (including rational)
      e. Intra-Op Complications... anticipation, prevention, treatment techniques
      f. Post-Op Management Questions, including Complications Management

4. SURGICAL SKILL AND COMPETENCY

   n. Complete numerous cataract surgeries and establish surgical competency in general
   o. Perform LASIK and PRK procedures on pig eyes and establish specific competencies
   p. Obtain certification on the Hansatome Microkeratome

5. INFORMED CONSENT PROCESS:

   q. Identify appropriate Surgical Candidate(s) for initial PRK/Epi-LASIK procedure(s)
   r. Obtain a full and honest Informed Consent with patient(s) (Explain = 1st Case, etc.)
   s. In exchange for agreeing to be a Resident's First Case, special pricing will be offered

6. RISK MANAGEMENT CONSIDERATIONS

   u. Recommendations from Risk Management Dept. at Loyola must be adhered to.
   v. Comprehensive Informed Consent Document must be used...including "Pt. Quiz", 136
etc.
w. Patient must sign written statement agreeing to be a "First Case"
x. Initial resident surgical cases will be "surface ablation" only, to eliminate most risks
y. ...future cases may include LASIK only if/when the proctor determines competency.
z. The role of the proctor/attending will be to ensure good technique/competency/etc.

Practice-Based Learning and Improvement

The PGY-2 Resident Should Be Able To:
- Identify and read about major disease sites (above) in ophthalmology textbooks and journals
- Using above sources, begin to locate, appraise and assimilate evidence from scientific studies to improve patient care
- Critically read and analyze relevant literature in preparation for lectures, case conferences, and presentations
- Incorporate formative evaluation feedback into daily practice
- Participate actively in case conferences and be able to present patients on the clinical service
- Learn basic principles of statistics and evidence-based medicine
- Start and maintain ACGME web-based procedural log
- Be compliant with required evaluations

The PGY-4 Resident Should Be Able To (In addition to the goals listed in the previous PGY level(s)):
- Critically evaluate clinical studies with regards to methods, design, statistics and validity of conclusion and use to improve patient care
- Continue to read and analyze relevant literature in preparation for lectures, case conferences, and presentations
- Participate in the education of co-residents, medical students, nurses, technicians or other staff.
- Understand the relevant literature and begin to master the salient points which can be used in daily ophthalmology practice.

Interpersonal and Communications Skills
The PGY-2 Resident Should Be Able To:
- Document consultation notes, follow up notes, and procedure notes effectively and efficiently
- Understand the importance of informed consent and be able to obtain informed consent from patients
- Use personal and electronic communication (EPIC/VA GUI) to communicate with other staff i.e. nurses and technicians, with regards to patient care
- Involve the patient and patient’s family in decisions regarding care using clear communication and empathetic behavior with respect to emotional needs, intellectual capacity, and ethnic/racial backgrounds
- Develop a relationship with the patient as a health care provider that begins with the initial visit and continues through any treatment and follow-up

The PGY-4 Resident Should Be Able To (In addition to the goals listed in the previous PGY level(s)):
- Understand the importance of a neat and complete ophthalmic chart and be able to defend in patient case conferences
- Learn to communicate directly and personally with referring physicians/disciplines

Professionalism
Professionalism objectives remain the same throughout the PGY2 - 4 years although the expectations of proficiency increase over the 3 years.

The PGY-2-4 Resident Should Be Able To:
- Demonstrate compassion, integrity, and respect for patients, families, medical colleagues, and staff
- Demonstrate sensitivity and responsiveness to a diverse patient population, including but not limited to diversity in gender, age, culture, race, religion, national origin, disabilities, and sexual orientation
- Respect patient confidentiality and autonomy
- Demonstrate the ability to comply with medical records and charting requirements specific to the rotation.
- Demonstrate a commitment to learning the fundamentals of ophthalmology by attending lectures and clinic/surgery on time and keeping up with assigned readings
• Demonstrate accountability to patients, society and the profession.

**Systems-based Practice**

*Systems-based Practice objectives remain the same throughout the PGY 2-4 years although the expectations of proficiency increase over the 3 years.*

**The PGY-2-4 Resident Should Be Able To :**

• Practice cost-effective health care that does not compromise the quality of care
• Understand that an ophthalmologist works as an integral part of a team to effectively care for patients alongside physician colleagues, co-residents, nurses, technicians, photographers, administrative and secretarial staff, etc.
• Advocate for quality patient care and assist patients in dealing with system complexities
• Understand that the practice of ophthalmology is an interdependent part of the health care system and society at large
• Consider how your practice affect other healthcare professionals and the hospital system
• Know what resources are available for patient care, within or outside the institution and make referrals as appropriate

**ATTAINMENT OF GOALS**

*Goal Attainment Can Be Measured In Refractive Surgery By:*

• Observations and interrogation of residents by supervisors during the refractive surgery clinic, operating room and seminars. Residents are evaluated by the faculty following each rotation, more frequently if indicated.
• By analysis of results in the refractive surgery section of the OKAP examination.

**RETINA AND VITREOUS SECTION**

*Residents Obtain The Experience In Retina And Vitreous By (Patient Care/Medical Knowledge) :*
• Attending structured seminars given each month and attended by all residents which cover the American Academy Basic Science Course in a complete and systematic presentation held each month. All residents attend both of these exercises.

• Participating in the weekly Retinal Clinic. One Loyola resident is assigned to the clinic. Residents work up the patients and make diagnoses and recommendations to the Attending.

• The attendance of Hines residents to the Retinal Clinic at Hines each Monday and Tuesday afternoon. This clinic consists of presentation of patients seen during the previous week.

• Observing and participating in Outpatient retinal procedures (laser photocoagulation and transscleral cryopexy) at Loyola Outpatient Clinics.

• Performing retinal outpatient procedures (laser photocoagulation, transscleral cryopexy and pneumatic retinopexy) at Hines Veterans Hospital as seen fit by the retina faculty.

• Actively participating in the preoperative and postoperative care of retinal and vitreous inpatients at Loyola and Hines. Hines patients also include those who are referred from other V. A. Centers around the country for retinal procedures.

GOALS

The PGY-2 Resident Should Be Able To:

• Use the direct and indirect ophthalmoscope, Hruby lens and fundus contact lens.

• Discuss and recognize the overall categories of retinal diseases and the signs and symptoms of each.

• Describe the indications for retinal and vitreous surgery and participate in the care of those patients.

• Examine patients with retinal detachments and make an acceptable drawing.

The PGY-3 Resident Should Be Able To:

• Demonstrate skills of direct and indirect ophthalmoscopy, Hruby lens examination and fundus contact lens examination.

  • Participate in the inpatient care and surgery of patients with retinal and vitreous diseases.
The PGY-4 Resident Should Be Able To:

- Demonstrate appropriate skills of the retinal and vitreous examination.
- Participate in the inpatient care and surgery of patients with retinal and vitreous diseases; i.e., perform transscleral cryopexy, laser photocoagulation and retinal detachment surgery under supervision and perform/assist in vitrectomy surgery.

An alternative schema is as follows (from the International Council of Ophthalmology): Retina and Vitreous
PGY-2 Level Goals
A. Cognitive Skills
- Describe basic principles of retinal anatomy and physiology (layers of the retina, retinal physiology).
- Describe fundamentals and demonstrate basic understanding of fluorescein angiography as applied to retinal vascular diseases (e.g., indications, phases of the angiogram).
- Describe etiologies and mechanisms of retinal detachment.
- Describe macular anatomy and function and describe typical features of common macular disease (e.g., age-related macular degeneration, macular hole, macular dystrophies, macular pucker).
- Describe basic principles of laser photocoagulation.
- Describe and recognize features of commotio retinae, traumatic choroidal rupture, and Purtscher's retinopathy.
- Describe common forms of retinal vascular diseases (e.g., branch, hemi- or central retinal vein and artery occlusion).
- Describe typical features of retinitis pigmentosa.
- Describe features of, recognize, and evaluate posterior vitreous detachments and retinal detachments.

B. Technical/Surgical Skills
- Perform direct ophthalmoscopy.
- Perform indirect ophthalmoscopy.
- Perform slit lamp biomicroscopy with the Hruby, +78, +90 lenses, 3-mirror contact lens, or other contact lenses (e.g., TransEquator).
- Interpret basic fluorescein angiography in common retinal disorders (e.g., diabetic retinopathy, cystoid macular edema).

PGY-3 Level Goals
A. Cognitive Skills
- Describe more advanced retinal anatomy and physiology.
- Describe more advanced concepts of fluorescein/indocyanine green (ICG) angiography as applied to retinal vascular and other diseases (e.g., indications, phases of the angiogram).
• Describe principles of retinal detachment recognition, various types of retinal detachment (e.g., exudative, rhegmatogenous, tractional), and their evaluation, management and repair (e.g., identify retinal break).

• Describe and recognize typical features of less common macular disease (e.g., parafoveal telangiectasias, cone dystrophies, inherited macular dystrophies, fundus flavimaculatus, toxic maculopathies).

• Describe indications for and complications of laser photocoagulation.

• Describe the findings of major studies in retinal diseases, including but not limited to the following:
  - Diabetic Retinopathy Study (DRS)
  - Diabetic Vitrectomy Study (DVS)
  - Early Treatment of Diabetic Retinopathy Study (ETDRS)
  - Macular Photocoagulation Study (MPS)
  - Diabetes Control and Complications Trial (DCCT)
  - Branch Vein Occlusion Study (BVOS)
  - Central Vein Occlusion Study (CVOS)
  - United Kingdom Prospective Diabetes Study (UKPDS)
  - Age-Related Eye Disease Study (AREDS)
  - Verteporfin in Photodynamic Therapy Study (VIP)
  - Treatment of Age-Related Macular Degeneration with Photodynamic Therapy Study (TAP)

• Describe the fundamentals of, evaluate, and treat (or refer) peripheral retinal diseases and vitreous pathology (e.g., vitreous hemorrhage, retinal breaks).

• Describe, evaluate, and treat choroidal detachments, uveal effusion syndrome.

• Identify and evaluate retinoschisis (e.g., juvenile, senile).

• Diagnose, treat, and recognize the complications of retinopathy of prematurity (e.g., retinal detachment).

• Diagnose, evaluate, and treat the following retinal vascular diseases:
  - Arterial and venous obstructions
  - Diabetic retinopathy
  - Hypertensive retinopathy
  - Peripheral retinal vascular occlusive disease
  - Acquired retinal vascular diseases
  - Ocular ischemic syndrome
  - Sickle cell retinopathy
  - Retinal pigment epithelial detachment

• Describe and recognize common and uncommon macular disorders:
  - Age-related macular degeneration (ARMD)
  - Choroidal neovascularization (e.g., ARMD, histoplasmosis)
  - High myopia
  - Macular dystrophies
  - Macular pucker (e.g., epiretinal membrane)
  - Macular holes
  - Cystoid macular edema
  - Central serous choroidopathy (retinopathy)
  - Optic pit and secondary serous detachment
  - Retinal pigment epithelial detachment
Describe the fundamentals of retinal electrophysiology.

- Describe, recognize, and evaluate hereditary retinal and choroidal diseases (e.g., gyrate atrophy, choroideremia, retinitis pigmentosa, cone dystrophies, Stargardt's disease, Best's disease, congenital stationary night blindness).

- Recognize, evaluate, and treat (or refer) retinal and choroidal toxicity (e.g., phenothiazine, hydroxychloroquine/chloroquine toxicity, tamoxifen).

- Describe the techniques for retinal detachment repair (e.g., pneumatic retinopexy, scleral buckling, vitrectomy).

- Describe the basics of surgical vitrectomy (e.g., indications, mechanics, instruments, and technique).

- Describe the indications for and perform basic laser treatment for diabetic retinopathy (e.g., panretinal photocoagulation, macular grid).

- Describe the fundamentals of special vitreoretinal techniques:
  - Macular hole repair
  - Epiretinal membrane peeling
  - Complex vitrectomy for proliferative vitreoretinopathy
  - Use of heavy liquids and intraocular gases (e.g., perfluorocarbons)

- Describe, evaluate, and treat posterior uveitis syndromes and endophthalmitis.

B. Technical/Surgical Skills

- Perform indirect ophthalmoscopy with scleral indentation.

- Perform ophthalmoscopic examination with contact lenses, including panfundusopic lenses.

- Interpret fluorescein and ICG angiography.

- Describe the indications for and interpret retinal imaging technology (e.g., ocular coherence tomography, retinal thickness analysis).

- Perform posterior segment photocoagulation.


- Perform peripheral scatter photocoagulation (panretinal).

- Perform laser retinopexy (demarcation) for isolated retinal breaks.

- Describe the indications for and interpret basic electrophysiological tests (e.g., electroretinogram [ERG], electro-oculogram [EOG], visual evoked potential [VEP], dark adaptation).

- Interpret basic ocular imaging techniques (e.g., B-scan echography, nerve fiber layer analysis).

- Perform fundus drawings of the retina, showing complex vitreoretinal relationships and findings.

- Perform cryotherapy of retinal holes and other pathology.

- Perform scleral buckling.

- Describe indications, techniques, and complications of pars plana vitrectomy and assist in a retinal surgery or perform the procedure under supervision.

PGY-4 Level Goals

A. Cognitive Skills

- Apply in clinical practice the most advanced knowledge of retinal anatomy and physiology (e.g., surgical anatomy).
• Apply in clinical practice the most advanced concepts of fluorescein/ICG angiography in complex retinal vascular and other diseases (e.g., occult choroidal neovascular membranes, recurrent neovascularization, vascular tumors, diseases of choroid and retinal pigment epithelium).

• Evaluate, treat or refer the most complex retinal detachments (e.g., recurrent retinal detachment, proliferative vitreoretinopathy).

• Evaluate, treat or refer the most complex macular disease (e.g., subfoveal or recurrent neovascular membranes).

• Describe the indications for laser photocoagulation, including photodynamic therapy for the most complex retinal pathology (e.g., subfoveal neovascular membranes).

• Describe the findings of the major studies in retinal diseases and describe the indications and exceptions for application to individual patients (not limited to only these):
  - Diabetic Retinopathy Study (DRS)
  - Diabetic Vitrectomy Study (DVS)
  - Early Treatment of Diabetic Retinopathy Study (ETDRS)
  - Macular Photocoagulation Study (MPS)
  - Diabetes Control and Complications Trial (DCCT)
  - Branch Vein Occlusion Study (BVOS)
  - Central Vein Occlusion Study (CVOS)
  - United Kingdom Prospective Diabetes Study (UKPDS)
  - Treatment of Age-related Macular Degeneration with Photodynamic Therapy (TAP; VIP)

• Apply in clinical practice understanding of the most complex peripheral retinal disease and vitreous pathology (e.g., Goldmann-Favre disease, incontinentia pigmenti, familial exudative vitreoretinopathy).

• Evaluate and treat complications of retinal photocoagulation (e.g., vitreous hemorrhage, chorioretinal anastomoses).

• Recognize and treat complex retinal detachments (e.g., giant tear).

• Evaluate, treat or refer the more complex cases of retinopathy of prematurity (e.g., tractional retinal detachment).

• Evaluate, treat or refer the most complex forms of retinal vascular diseases:
  - Combined arterial and venous obstructions
  - Advanced diabetic retinopathy
  - Advanced hypertensive retinopathy
  - Peripheral retinal vascular occlusive disease
  - Acquired retinal vascular diseases

• Evaluate and treat or refer the uncommon manifestations or presentations of the following macular diseases:
  - Age-related macular degeneration (ARMD)/choroidal neovascularization, (e.g., recurrent subfoveal neovascularization).
  - Uncommon macular dystrophies
  - Refractory cystoid macular edema
  - Recurrent central serous choroidopathy (retinopathy)
  - Acute posterior multifocal placoid pigment epitheliopathy (choroidopathy)
- Multiple evanescent white dot syndromes
- Serpiginous choroiditis
- Acute zonal outer retinopathy
- Triangular syndrome
- Polypoidal choroidopathy

- Apply in clinical practice the more complex retinal electrophysiology (e.g., multifocal electroretinography).
- Apply in clinical practice the more complex techniques for retinal detachment repair:
  - Repeat scleral buckling
  - Pars plana vitrectomy (e.g., diagnostic tap; core vitrectomy, extensive vitrectomy)
  - Repair of uveal effusion
- Apply in clinical practice the more complex principles of surgical management of diabetic retinopathy (e.g., vitrectomy, membrane release).
- Apply in clinical practice complex vitreoretinal techniques:
  - Macular hole repair
  - Epiretinal membrane peeling
  - Complex vitrectomy for proliferative vitreoretinopathy
  - Use of heavy liquids
- Evaluate and treat or refer the etiologically more complex or uncommon cases of posterior uveitis (e.g., sympathetic ophthalmia) and endophthalmitis (e.g., endogenous).

B. Technical/Surgical Skills

- Perform indirect ophthalmoscopy with scleral indentation in complex retinal cases (e.g., multiple holes, documented with detailed retinal drawing).
- Perform ophthalmoscopic examination with panfundusoscopic or other lenses in complex retinal conditions (e.g., giant retinal tears, proliferative vitreoretinopathy).
- Interpret and apply in clinical practice the results of fluorescein and ICG angiography and optical coherence tomography (OCT) in complex retinal or choroidal pathology (e.g., occult subretinal neovascular membrane).
- Perform posterior segment photocoagulation in more complicated retinal cases:
  - Diabetic focal/grid macular treatment (e.g., monocular patient, repeat treatment)
  - Repeat peripheral scatter photocoagulation (panretinal)
  - Laser retinopexy (demarcation) of large or multiple breaks; cryotherapy
- Interpret and apply in clinical practice electrophysiology (e.g., ERG, EOG, VEP, dark adaptation) in more complicated retinal pathology.
- Interpret and apply in clinical practice ocular imaging techniques (e.g., B-scan echography) in more complex cases (e.g., choroidal osteoma).
- Perform detailed fundus drawings of the retina with vitreoretinal relationships in the most complex retinal cases (e.g., recurrent retinal detachment, retinoschisis with and without retinal detachment).
- Perform laser therapy or cryotherapy of retinal holes and other more complex retinal pathology.
- Perform scleral buckling in complex retinal detachment.
- Perform advanced pars plana vitrectomy
Practice-Based Learning and Improvement

The PGY-2 Resident Should Be Able To:
- Identify and read about major disease sites (above) in ophthalmology textbooks and journals
- Using above sources, begin to locate, appraise and assimilate evidence from scientific studies to improve patient care
- Critically read and analyze relevant literature in preparation for lectures, case conferences, and presentations
- Incorporate formative evaluation feedback into daily practice
- Participate actively in case conferences and be able to present patients on the clinical service
- Learn basic principles of statistics and evidence-based medicine
- Start and maintain ACGME web-based procedural log
- Be compliant with required evaluations

The PGY-3 Resident Should Be Able To (In addition to the goals listed in the previous PGY level(s)):
- Critically evaluate clinical studies with regards to methods, design, statistics and validity of conclusion and use to improve patient care
- Continue to read and analyze relevant literature in preparation for lectures, case conferences, and presentations
- Participate in the education of co-residents, medical students, nurses, technicians or other staff.

The PGY-4 Resident Should Be Able To (In addition to the goals listed in the previous PGY level(s)):
- Understand the relevant literature and begin to master the salient points which can be used in daily ophthalmology practice.

Interpersonal and Communications Skills

The PGY-2 Resident Should Be Able To:
- Document consultation notes, follow up notes, and procedure notes effectively and efficiently
• Understand the importance of informed consent and be able to obtain informed consent from patients
• Use personal and electronic communication (EPIC/VA GUI) to communicate with other staff i.e. nurses and technicians, with regards to patient care
• Involve the patient and patient’s family in decisions regarding care using clear communication and empathetic behavior with respect to emotional needs, intellectual capacity, and ethnic/racial backgrounds
• Develop a relationship with the patient as a health care provider that begins with the initial visit and continues through any treatment and follow-up

The PGY-3 Resident Should Be Able To (In addition to the goals listed in the previous PGY level(s)) :
• Demonstrate the ability to communicate and coordinate care between disciplines i.e. general medicine, rheumatology, endocrinology, etc.
• Understand the importance of a neat and complete ophthalmic chart and be able to defend in patient case conferences

The PGY-4 Resident Should Be Able To (In addition to the goals listed in the previous PGY level(s)) :
• Learn to communicate directly and personally with referring physicians/disciplines
• Communicate with all staff and other pertinent medical disciplines independently with indirect attending physician supervision

Professionalism
Professionalism objectives remain the same throughout the PGY2 - 4 years although the expectations of proficiency increase over the 3 years.

The PGY-2-4 Resident Should Be Able To :

• Demonstrate compassion, integrity, and respect for patients, families, medical colleagues, and staff
• Demonstrate sensitivity and responsiveness to a diverse patient population, including but not limited to diversity in gender, age, culture, race, religion, national origin, disabilities, and sexual orientation
• Respect patient confidentiality and autonomy
Demonstrate the ability to comply with medical records and charting requirements specific to the rotation.

Demonstrate a commitment to learning the fundamentals of ophthalmology by attending lectures and clinic/surgery on time and keeping up with assigned readings.

Demonstrate accountability to patients, society and the profession.

**Systems-based Practice**

Systems-based Practice objectives remain the same throughout the PGY2 - 4 years although the expectations of proficiency increase over the 3 years.

The PGY-2-4 Resident Should Be Able To:

- Practice cost-effective health care that does not compromise the quality of care
- Understand that an ophthalmologist works as an integral part of a team to effectively care for patients alongside physician colleagues, co-residents, nurses, technicians, photographers, administrative and secretarial staff, etc.
- Advocate for quality patient care and assist patients in dealing with system complexities
- Understand that the practice of ophthalmology is an interdependent part of the health care system and society at large
- Consider how your practice affect other healthcare professionals and the hospital system
- Know what resources are available for patient care, within or outside the institution and make referrals as appropriate

**ATTAINMENT OF GOALS**

**Goal Attainment Can Be Measured In Retina and Vitreous By:**

- Observation and interrogation by attendings during the course of the structured seminars, case presentations and clinics. Residents are evaluated by faculty following each rotation, more frequently as indicated.
- Observation and interrogation by attendings during the course of their retinal surgery.
- Observation and interrogation by members of the Faculty during the course of patient care.
- Completion of the Progress Notebook and Skills Transfer Manual sections on Retina
- Evaluation of the results of the Retinal part of the OKAP examination.
ULTRASONOGRAPHY SECTION

Residents Obtain The Experience In Ultrasonography By (Patient Care/Medical Knowledge):

- Attending monthly didactic seminars, scheduled for a one hour period for all residents, during which time basic principles are taught and different ultrasonograms are demonstrated to the residents.
- Residents may take measurements using A- and B-scan ultrasound at Hines with ultrasonography equipment in the Hines Eye Clinic. The residents also perform Diagnostic ultrasound at Hines on their own patients.

GOALS

The PGY-2 Resident Should Be Able To:

- Work A and B scan units, adjust and calibrate.
- Explain the basic principles of the physics of ultrasound.
- Explain the indications of an ultrasonographic exam.
- Measure axial length of the eye and calculate power of intraocular lenses. Demonstrate knowledge of common sources of error in axial length measurement.
- Do a basic exam of eye and place the probes.
- Recognize normal ocular structures of echographs.

The PGY-3 Resident Should Be Able To:

- Detect abnormalities of the eye with the A and B scans.
- Do special examination techniques of ocular ultrasound, including kinetic, topographic and quantitative echography (to differentiate abnormalities).
- Correlate the histopathologic findings with echographic findings.

The PGY-4 Resident Should Be Able To:

- Do a basic examination of the orbit with ultrasound.
- Detect orbital abnormalities with A and B scan.
- Differentiate orbital abnormalities, using the techniques of quantitative, topographic and kinetic echography.
- Detect and locate foreign bodies using A and B scans.
Practice-Based Learning and Improvement

The PGY-2 Resident Should Be Able To:
- Identify and read about major disease sites (above) in ophthalmology textbooks and journals
- Critically read and analyze relevant literature in preparation for lectures, case conferences, and presentations
- Incorporate formative evaluation feedback into daily practice
- Participate actively in case conferences and be able to present patients on the clinical service
- Learn basic principles of statistics and evidence-based medicine
- Start and maintain ACGME web-based procedural log
- Be compliant with required evaluations

The PGY-3 Resident Should Be Able To (In addition to the goals listed in the previous PGY level(s)):
- Continue to read and analyze relevant literature in preparation for lectures, case conferences, and presentations
- Participate in the education of co-residents, medical students, nurses, technicians or other staff.

The PGY-4 Resident Should Be Able To (In addition to the goals listed in the previous PGY level(s)):
- Understand the relevant literature and begin to master the salient points which can be used in daily ophthalmology practice.

Interpersonal and Communications Skills

The PGY-2 Resident Should Be Able To:
- Document consultation notes, follow up notes, and procedure notes effectively and efficiently
- Use personal and electronic communication (EPIC/VA GUI) to communicate with other staff i.e. nurses and technicians, with regards to patient care
• Involve the patient and patient’s family in decisions regarding care using clear communication and empathetic behavior with respect to emotional needs, intellectual capacity, and ethnic/racial backgrounds

• Develop a relationship with the patient as a health care provider that begins with the initial visit and continues through any treatment and follow-up

The PGY-3 Resident Should Be Able To (In addition to the goals listed in the previous PGY level(s)):
• Understand the importance of a neat and complete ophthalmic chart and be able to defend in patient case conferences

The PGY-4 Resident Should Be Able To (In addition to the goals listed in the previous PGY level(s)):
• Learn to communicate directly and personally with referring physicians/disciplines
• Communicate with all staff and other pertinent medical disciplines independently with indirect attending physician supervision

Professionalism

Professionalism objectives remain the same throughout the PGY2 - 4 years although the expectations of proficiency increase over the 3 years.

The PGY-2-4 Resident Should Be Able To:

• Demonstrate compassion, integrity, and respect for patients, families, medical colleagues, and staff
• Demonstrate sensitivity and responsiveness to a diverse patient population, including but not limited to diversity in gender, age, culture, race, religion, national origin, disabilities, and sexual orientation
• Respect patient confidentiality and autonomy
• Demonstrate the ability to comply with medical records and charting requirements specific to the rotation.
• Demonstrate a commitment to learning the fundamentals of ophthalmology by attending lectures and clinic/surgery on time and keeping up with assigned readings
• Demonstrate accountability to patients, society and the profession.
**Systems-based Practice**

Systems-based Practice objectives remain the same throughout the PGY2 - 4 years although the expectations of proficiency increase over the 3 years.

**The PGY-2-4 Resident Should Be Able To:**
- Practice cost-effective health care that does not compromise the quality of care
- Understand that an ophthalmologist works as an integral part of a team to effectively care for patients alongside physician colleagues, co-residents, nurses, technicians, photographers, administrative and secretarial staff, etc.
- Advocate for quality patient care and assist patients in dealing with system complexities
- Understand that the practice of ophthalmology is an interdependent part of the health care system and society at large
- Consider how your practice affect other healthcare professionals and the hospital system
- Know what resources are available for patient care, within or outside the institution and make referrals as appropriate

**ATTAINMENT OF GOALS**

**Goal Attainment Can Be Measured In Ultrasonography By:**

- Observation and interrogation by Attending during the course of monthly seminars and also during his/her Ultrasonography Clinic. Residents are evaluated by faculty following each rotation, more frequently, as indicated.
- Observation and interrogation of other members of the faculty during the course of patient care.
**UVEITIS SECTION**

Residents Obtain The Experience In Uveitis By (Patient Care/Medical Knowledge):

- Participating in didactic seminars in Uveitis held one time per month for all residents. These cover the materials in the American Academy Basic Science Course and additional material as indicated by the schedule.
- Training in the Uveitis Clinic which is held one half a day at Loyola each week. This clinic receives consultation patients from Hines, from Loyola general clinics and from outpatient referrals.
- Examining and evaluating less complicated uveitis cases in the general clinics. The residents participate in these under supervision of the general ophthalmologist.

**GOALS**

The PGY-2 Resident Should Be Able To:

- Discuss the signs and symptoms of uveitis as outlined in the BCSC books.
- Explain the reasons behind the components of the uveitis questionnaire.
- Do a slit lamp exam of the cornea, sclera, anterior chamber, iris and lens with respect to uveitis.

The PGY-3 Resident Should Be Able To:

- Work up a new patient in the Uveitis Clinic.
- Organize and transcribe a complete exam to the medical record.
- Describe the tailored lab approach to diagnosis.
- Become proficient in the use of the indirect ophthalmoscope including depressed exam of pars plana.
- Do a contact lens examination of the macula.
- Discuss the three routes of steroid use as well as other therapy.
- Recognize complications of uveitis.
- Recognize individual uveitis entities (i.e. Sarcoid, pars planitis, Fuchs…).
- Classify patients by chronicity and anatomical location of inflammation.

The PGY-4 Resident Should Be Able To:

- Formulate a summarizing statement that includes classification, differentiation, complications, activity, treatment and work up.
- Deal with the special psychological problems of these chronically ill patients.
An alternative schema is as follows (from the International Council of Ophthalmology):

Uveitis

PGY-2 Level Goals

A. Cognitive Skills

• Describe basic principles of history taking and examination of patients with uveitis, and related diseases (e.g., scleritis, pemphigus).

• List 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).

• Describe the different types of uveitis (e.g., acute and chronic uveitis, granulomatous and non-granulomatous uveitis, anterior, intermediate, and posterior uveitis).

• Describe 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), postsurgical, post-traumatic, Fuchs' heterochromic uveitis, juvenile rheumatoid arthritis.

• Describe typical features and differential diagnosis of the following posterior segment uveitis:
  o Toxoplasmosis
  o Sarcoidosis
  o Pars planitis
  o Acute retinal necrosis
  o Vogt-Koyanagi-Harada syndrome
  o Large cell lymphoma
  o Postoperative uveitis

• Endophthalmitis (e.g., postoperative, traumatic, endogenous, fungal, phacoanaphylactic, sympathetic ophthalmia)

• Unusual infectious etiologies for uveitis (e.g., human immunodeficiency virus, herpes simplex virus, herpes zoster virus, pneumocystis carinii, Lyme disease)
  o Acquired and congenital ocular syphilis
  o Cytomegalovirus retinitis
  o Multiple sclerosis

B. Technical/Surgical Skills

• 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, retinal, choroidal, and pars plana evaluations).

• Describe indications for ancillary testing in the evaluation of uveitis (e.g., fluorescein angiography, ultrasound, laboratory testing, radiologic testing).

PGY-3 Level Goals

A. Cognitive Skills

• Describe more advanced principles of history taking and examination of patients with uveitis (e.g., review of systems for Wegener’s granulomatosis, polyarteritis nodosa, lupus erythematosus, rheumatoid arthritis, inflammatory bowel disease, systemic
necrotizing vasculitis; evaluation of skin, cardiac, respiratory, renal, pulmonary, musculoskeletal systems).

- List less common signs and symptoms of anterior and posterior uveitis.
- List differentiating signs of less common forms of uveitis (e.g., iris nodules, conjunctival ulcer or granuloma).
- 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; masquerade syndromes, including large cell lymphoma).
- Evaluate and treat common causes of anterior and posterior uveitis.

B. Technical/Surgical Skills

- Perform a directed examination of the anterior and posterior segments for uveitis (e.g., slit lamp biomicroscopy, scleral depression, magnified posterior segment exam, vitreous evaluation for cells).
- Perform ancillary testing in the evaluation of uveitis (e.g., fluorescein angiography, ultrasound, laboratory testing, radiologic testing).

PGY-4 Level Goals

A. Cognitive Skills

- Recognize, evaluate and treat uveitis associated with immunosuppressed individuals (e.g., active and recovered acquired immune deficiency syndrome, pharmacologic immunosuppression).
- Recognize, evaluate and treat acquired and congenital ocular syphilis.
- Recognize, evaluate and treat (or refer) less common, rare, or tropical conditions associated with uveitis (e.g., Leishmaniasis).
- Describe indications and contraindications for corticosteroid treatment of uveitis (e.g., topical, local, systemic), including risks and benefits of therapy.
- Describe indications and contraindications for immunosuppressive therapy in uveitis, use of antimetabolites, cyclosporine, alkylating agents.

B. Technical/Surgical Skills

- Administer steroids in the treatment of uveitis by various routes.
- Administer immunosuppressive agents in uveitis (or refer for administration).
- Evaluate and treat the complications of uveitis therapy (e.g., cataract, glaucoma).

Practice-Based Learning and Improvement

The PGY-2 Resident Should Be Able To:

- Identify and read about major disease sites (above) in ophthalmology textbooks and journals
- Using above sources, begin to locate, appraise and assimilate evidence from scientific studies to improve patient care
• Critically read and analyze relevant literature in preparation for lectures, case conferences, and presentations
• Incorporate formative evaluation feedback into daily practice
• Participate actively in case conferences and be able to present patients on the clinical service
• Learn basic principles of statistics and evidence-based medicine
• Start and maintain ACGME web-based procedural log
• Be compliant with required evaluations

The PGY-3 Resident Should Be Able To (In addition to the goals listed in the previous PGY level(s)) :
• Critically evaluate clinical studies with regards to methods, design, statistics and validity of conclusion and use to improve patient care
• Continue to read and analyze relevant literature in preparation for lectures, case conferences, and presentations
• Participate in the education of co-residents, medical students, nurses, technicians or other staff.

The PGY-4 Resident Should Be Able To (In addition to the goals listed in the previous PGY level(s)) :
• Understand the relevant literature and begin to master the salient points which can be used in daily ophthalmology practice.

Interpersonal and Communications Skills

The PGY-2 Resident Should Be Able To :
• Document consultation notes, follow up notes, and procedure notes effectively and efficiently
• Understand the importance of informed consent and be able to obtain informed consent from patients
• Use personal and electronic communication (EPIC/VA GUI) to communicate with other staff i.e. nurses and technicians, with regards to patient care
• Involve the patient and patient’s family in decisions regarding care using clear communication and empathetic behavior with respect to emotional needs, intellectual capacity, and ethnic/racial backgrounds
• Develop a relationship with the patient as a health care provider that begins with the initial visit and continues through any treatment and follow-up

The PGY-3 Resident Should Be Able To (In addition to the goals listed in the previous PGY level(s)) :

• Demonstrate the ability to communicate and coordinate care between disciplines i.e. general medicine, rheumatology, endocrinology, etc.
• Understand the importance of a neat and complete ophthalmic chart and be able to defend in patient case conferences

The PGY-4 Resident Should Be Able To (In addition to the goals listed in the previous PGY level(s)) :

• Learn to communicate directly and personally with referring physicians/disciplines
• Communicate with all staff and other pertinent medical disciplines independently with indirect attending physician supervision

Professionalism

Professionalism objectives remain the same throughout the PGY2 - 4 years although the expectations of proficiency increase over the 3 years.

The PGY-2-4 Resident Should Be Able To :

• Demonstrate compassion, integrity, and respect for patients, families, medical colleagues, and staff
• Demonstrate sensitivity and responsiveness to a diverse patient population, including but not limited to diversity in gender, age, culture, race, religion, national origin, disabilities, and sexual orientation
• Respect patient confidentiality and autonomy
• Demonstrate the ability to comply with medical records and charting requirements specific to the rotation.
• Demonstrate a commitment to learning the fundamentals of ophthalmology by attending lectures and clinic/surgery on time and keeping up with assigned readings
• Demonstrate accountability to patients, society and the profession.
Systems-based Practice

Systems-based Practice objectives remain the same throughout the PGY2 - 4 years although the expectations of proficiency increase over the 3 years.

The PGY-2-4 Resident Should Be Able To:

- Practice cost-effective health care that does not compromise the quality of care
- Understand that an ophthalmologist works as an integral part of a team to effectively care for patients alongside physician colleagues, co-residents, nurses, technicians, photographers, administrative and secretarial staff, etc.
- Advocate for quality patient care and assist patients in dealing with system complexities
- Understand that the practice of ophthalmology is an interdependent part of the health care system and society at large
- Consider how your practice affect other healthcare professionals and the hospital system
- Know what resources are available for patient care, within or outside the institution and make referrals as appropriate

ATTAINMENT OF GOALS

Goal Attainment Can Be Measured In Uveitis By:

- Observation and interrogation by Attending during the course of monthly seminars and by observation and interrogation by Attending during the course of weekly Uveitis Clinics. Residents are evaluated by faculty following each rotation, more frequently, as indicated.
- Observation and interrogation by members of the Faculty during the course of patient care.
- Completion of the Progress Notebook and Skills Transfer Manual sections on Uveitis
- Evaluation of the appropriate questions on the OKAP examination.
PART III: GENERAL INFORMATION:
RESIDENT ROTATION SCHEDULE

YEAR 1

3 Months at Loyola: Retina/Uveitis Rotation
  Assist retina surgery: one day a week
  Retina clinics
  IVFA: ½ day per week

3 Months at Loyola: Cornea/Contact Lens/Optics/Refractive Surgery
  Subspecialty clinics

3 Months at Loyola: Glaucoma
  Subspecialty clinics

3 Months at Hines VA: Comprehensive Rotation
  Preoperative evaluations
  Minor procedures Friday mornings
  Assist senior residents in surgery Mondays and perform 2 cataract surgeries as primary surgeon
  IVFA/Fundus photography: ½ day per week
  Inpatient Consult Service

YEAR 2

3 Months at Loyola - Pediatrics
  Pediatrics/Strabismus: surgical rotation
  Subspecialty Clinics
  Dr. Fishman/ electrophysiology clinic (UIC) one day per month

3 Months at Loyola – Oculoplastics/Neuro/Consults
  Subspecialty Clinic
  Consults

3 Months at Hines VA – Consult Rotation
  Walk-ins and consults
  General/Subspecialty Clinics
  Surgery Mondays

3 Months at Hines VA – Comprehensive Rotation
  General/Subspecialty Clinics
  Surgery Mondays
YEAR 3

3 Months at Loyola
   Primary/secondary surgeon all days of week
   Subspecialty clinics
   Refractive Surgery every other Friday at Hinsdale

9 Months at Hines VA
   Primary surgeon
   Laser clinic
   General/subspecialty clinics

MISSIONS
Dedication to serve the less fortunate is a high priority at Loyola. Currently, mission trips are
arranged by 2nd or 3rd year residents in a country or area of interest. The chairman approves
all trips and an agreement of support is obtained through the department. Vacation and/or
educational leave is used for these service trips which range from 2-3 weeks in duration. The
goal of this program is to provide care in an underserved community and to promote a
commitment to lifelong service among the residents and faculty.

TRAVEL EXPENSES
For authorized out of town meetings with Department will pay:
$95.00 per day (hotel, meals and transportation, NO CAR RENTALS)

Airfare - Reservations should be made as early as possible to ensure the lowest possible fare.

Make your own reservations. Double occupancy on hotel stays.

Meeting Registration - NOTE: Preregistration saves money. You will be reimbursed for
preregistration fee only.

REIMBURSEMENT WILL BE AT ACTUAL COST AND MUST BE SUPPORTED BY A RECEIPT.
VACATION POLICY
Each resident is provided 4 weeks (20 working days) of vacation and one week (up to 5 working days) education leave. PGY 2 & 3S WILL BE EXPECTED TO ATTEND THE UIC EYE REVIEW FOR THEIR EDUCATIONAL LEAVE; PGY 4S WILL BE EXPECTED TO ATTEND THE AMERICAN ACADEMY OF OPHTHALMOLOGY MEETING AND THE JOINT IAO/COS MEETING WITH USE OF THE EDUCATIONAL LEAVE FOR THESE MEETINGS.

Vacation schedules for the year are due to the Chief Resident at least 60 days ahead of the requested date.

NO VACATIONS DURING THE FIRST TWO WEEKS OF JULY FOR SECOND AND THIRD YEAR RESIDENTS
NO VACATIONS DURING THE MONTH OF JULY FOR FIRST YEAR RESIDENTS
NO VACATIONS DURING THE LAST TWO WEEKS OF JUNE
NO VACATIONS THE WEEK BEFORE OKAPs (April)
NO MORE THAN ONE RESIDENT PER YEAR PER INSTITUTION MAY BE GONE AT ANY GIVEN TIME — pending Chief resident approval
ONLY ONE WEEK OF VACATION WITHIN ONE ROTATION*

ADDITIONAL DAYS for fellowship/job interviews are at the discretion of the Program Director and Chair.

SENIOR RESIDENTS, PLEASE NOTE: PLAN AHEAD!!! If you think you will need additional time off at the end of the year for hospital interviews, etc., take this into consideration when scheduling your vacation during the year. Also, if time during the last week of the year is needed for moving purposes, note that this time needs to be deducted from your total vacation time — it will not be assumed as time off

LEAVE OF ABSENCE FORMS MUST BE COMPLETED FOR ALL LEAVE TIME (vacation, educational or sick) and must be submitted to the Darlene Dement or e-mailed to the Chief Resident giving as much notice as possible for fellowship/job interview days.

Residents who are rotating at Hines (whether paid by Loyola or Hines) are required to fill out a schedule change memo GREATER THAN 60 DAYS IN ADVANCE of any time off, so that their patient appointments can be rescheduled.

Discuss your plans with your colleagues!

All resident vacation at Hines VA must be discussed with the front desk so that the appropriate clinics can be cancelled or rescheduled. If this is not done within 60 days of the anticipated time off it is the resident’s responsibility to reschedule these patients in a timely manner or to find appropriate coverage for the days missed.

*Under certain circumstances a resident may take 2 weeks off consecutively. If a resident takes two weeks off consecutively, he may not take the third week of vacation within that same rotation.
**The Chief resident may approve exceptions to any of the above regulations on a case-by-case basis.**

**PROFESSIONALISM**
The residents should act as a team. Colleagues must be treated with respect. Special department meetings, outings, and events for residents, faculty, and staff only unless otherwise specified.

**LIBRARY**
The department maintains an up-to-date library. Books, journals, slide sets are catalogued and a card file is available for reference. Do not take books or slides out of the department without signing the card and giving it to Darlene Dement. Audio tapes are kept in the resident room and are available without a sign out.

**SECRETARIAL SUPPORT**
Each resident can and will receive help from Kim Bergen, Residency Coordinator, in his/her research efforts.

**KEYS**
You will be given one key which will open the library and room 2609 (conference room). You will also receive a keypad code for the resident room.

**PROFESSIONAL MEMBERSHIPS/JOURNAL SUBSCRIPTIONS**
You are required to become a member of the American Academy of Ophthalmology. This membership allows you to attend the American Academy of Ophthalmology Annual Meeting as a “Resident in Training” free. With your membership to the Academy, you will receive the journal *Ophthalmology*. You will also receive the *American Journal of Ophthalmology* and *Archives of Ophthalmology*.

**OTHER**
Graduate Medical Education holds a one day orientation session before July 1st where they will acquaint you with the Loyola system, hospital, parking, campus facilities, etc.

**LAB COATS**
The Department provides each resident with four lab coats at the beginning of his/her residency. As they become soiled, place them in the hamper located in the common area housing the copier. The soiled lab coats are picked up each week by a laundry service.

**BASIC AND CLINICAL SCIENCE COURSE BOOKS**
The first year residents will be provided with a complete set. You may elect to purchase the subsequent individual sections as they are updated by the Academy.

**LOCKERS**
There are lockers in the Eye Clinic at Hines. Obtain keys from the Hines’ secretaries. At Loyola, there are file cabinets for your belongings and/or journal articles.
HEALTH AND FITNESS CENTER
Residents may join the health and fitness center and have the membership fee deducted from their paycheck. Residents may not use the fitness center during normal working hours unless all other clinical activities have been cancelled for that day.

BENEFITS ADDENDUM
***Please see the Graduate medical education office for the most up to date summary of benefits***
Telephone: (708) 216-9000
http://www.meddean.luc.edu/depts/gme/benefits.html

Loyola University Medical Center Resident Handbook
The Department of Ophthalmology adheres to all policies as stated in the Loyola Graduate Medical Education Resident Handbook.

To access on-line:
> Intranet
> Loyola Wired
> Clinical Resources
> Policies & Procedures
> The Resident Handbook is next to the last link in the right hand column