

Corneo Fellow – curriculum

Clinical curriculum

The goal of the fellowship is to produce an ophthalmologist with subspecialty skills that allow independent medical and surgical management of cornea and external disease. The subspecialist should at a minimum be able to evaluate a patient with acute or chronic redness of the eye, diagnose acute or chronic loss of vision due to structural changes or anomalies of the anterior segment, be able to create a differential diagnosis for the typical corneal findings, for the specific anterior segment effects of various systemic and ocular medications, and for surgery of the cornea and conjunctiva, to delineate the risks and benefits for surgical procedures of the anterior segment. The subspecialist must be able to probe the patient's history for relevant review of systems and the social history including the details of the onset and course of the ocular condition. The subspecialist must be able to complete a detailed examination of the eyelids, orbits, conjunctiva, cornea, anterior chamber, iris, anterior chamber angle, lens, vitreous, retina and choroid. The subspecialist should recognize the various tests that are available to aid in the diagnosis of external disease patients including measurement of the tear film, use of the microbiology laboratory, information available from genetic analysis, special ophthalmic examination techniques including low and high frequency ultrasound, specular microscopy, wavefront analysis, and corneal topography. The subspecialist should be able to use all of these skills in order to diagnose and treat disorders relevant to the subspecialty.

1. Acute and chronic blepharitis to include both infectious and non-infectious etiologies, with emphasis on microbial blepharitis, meibomian gland dysfunction, and rosacea.
2. Acute and chronic conjunctivitis, with emphasis on neonatal conjunctivitis, Chlamydial disease, adenoviral conjunctivitis, allergic conjunctivitis, and bacterial conjunctivitis.
3. Acute and chronic infectious keratitis including bacterial, viral, fungal and parasitic, with emphasis on herpes simplex, herpes zoster, adenovirus, acanthamoeba, and contact lens associated problems.
4. Non-infectious keratitis including marginal keratitis, central ulcerative keratitis, epitheliopathies, endotheliopathies, and interstitial keratitis.
5. Anterior segment anomalies, including various anomalies associated with specific genetic abnormalities, corneal dystrophies, and corneal degenerations.
6. Autoimmune and immunologic diseases of the anterior segment including allergy, corneal graft rejection, and cicatrizing conjunctivitis; and familiarity with oral and topical immunosuppression and anti-allergy medications including mast-cell stabilizers and steroids.
7. Fundamentals of anterior segment anatomy, chemistry, physiology and wound healing including tear formation and function, corneal topography, endothelial cell function and maintenance of corneal clarity.
8. Fundamentals of refractive surgery* and its complications, with special emphasis on forms of keratorefractive surgery including incisional, excisional (such as stromal removal by mechanical and laser ablation), thermal keratoplasty, and alloplastic inserts. Emphasis should also be placed on correcting post-keratoplasty astigmatism and ametropia.
9. Principles of anterior segment pharmacology including antimicrobial, anti-inflammatory, ocular hypotensive and immunosuppressive agents, with emphasis on bioavailability, mechanism of actions, relative efficacy, safety, and potential complications.
10. Skill in anterior segment surgery including eyelid, conjunctival, scleral and corneal procedures, with emphasis on corneal protective procedures (such as tarsorrhaphy), reconstruction of the ocular surface, surgical management of corneal erosions, and phototherapeutic keratectomy.
11. Skill in penetrating and lamellar keratoplasty, with emphasis on patient selection, surgical technique, and postoperative care including recognition and management of graft

rejection and endophthalmitis and advanced techniques for lamellar and penetrating keratoplasty.

12. Examination and assessment of cornea, ocular surface, and anterior segment in a child
13. An insight into the diagnosis and management of paediatric/childhood cornea and ocular surface diseases including congenital cornea and anterior segment anomalies
14. Fundamental knowledge of contact lens physiology, design and materials, and complications for both cosmetic and therapeutic use.
15. Skill in diagnostic techniques including biomicroscopy, specular microscopy, corneal topography, vital stains of the ocular surface, corneal biopsy techniques and interpretation, and corneal pachymetry.
16. Medical and surgical management of corneal thinning and perforation, including techniques of pharmacological manipulation, office procedures such as application of tissue glue and therapeutic contact lenses.
17. An understanding of cornea and conjunctival pathology results and interpretation of ocular cultures; knowledge of eye banking procedures and donor selection.
18. Medical and surgical management of secondary glaucoma in patients with complex inflammatory ocular surface disease and post-keratoplasty.
19. Assessment and management of corneal limbal stem cell deficiency
20. Skills in use of reference material, including electronic searching and retrieval of relevant articles, monographs, and abstracts.
21. Skills in the use of information technology, video and picture editing.

Didactic curriculum

Demonstrate scholarly activity by participating in research and clinical conferences or their equivalent including seminars, lectures, basic science courses and hands-on skill courses. Each fellow should be actively engaged in at least one research project during the fellowship year and be lead author of three peer-reviewed publication and present his work at a nationally recognized meetings in corneal and external disease within one year of fellowship completion.

Directly evaluate and provide diagnosis and recommended plan in the unit under direct supervision during the course of the year. These patients must have corneal or external diseases.

The fellow must demonstrate that appropriate history was obtained, the examination was accurate, the use of the laboratory was directed by the history and physical examination, and that the differential diagnosis and management are logical.

Corneal fellows will participate in the teaching programs of the cornea service and of the institution.

1. Attendance at weekly grand rounds. The fellow is to actively participate in case presentations and discussions of patients with corneal and external disease.
2. Attendance at monthly unit conferences.
3. Attendance at lectures on corneal topics given by the faculty during the resident teaching program. The fellow must prepare and present at least six of these lectures.
4. Attendance and preparation of case presentations for at least one corneal conference per year.
5. Attendance and participation in courses on anterior segment surgery, corneal transplantation, external disease and refractive surgery.
6. The fellow must actively participate, along with the cornea faculty, in a journal club at least quarterly. The fellow and faculty should present and critically discuss selections from the current literature.

The fellow should attend local and regional conferences relevant to corneal and external disease surgery.