Curriculum of

MS in Pediatric Ophthalmology & Strabismus

LEVEL - IV

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1. LIST OF CONTRIBUTORS

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2. PROGRAM GENERAL OUTCOMES AND CORE COMPETENCIES

Childhood blindness is a significant yet preventable cause of lifelong disability in Pakistan. Visual impairment during early developmental years affects cognitive, emotional, educational, and social development, with long-term consequences for families and national productivity.

A structured, competency-based MS in Pediatric Ophthalmology & Strabismus (Level IV-degree Program) is essential to address this burden. The program aims to develop clinicians capable of delivering safe, ethical, evidence-based, child-centred care in collaboration with multidisciplinary teams to produce highly skilled Pediatric Ophthalmology & Strabismus surgeons who possess the in-depth clinical knowledge, advanced surgical expertise, and professional competencies required for independent, evidence-based, and ethical consultant-level practice in Pediatric Ophthalmology & Strabismus.

By the end of this training program a resident will be exhibiting the following competencies:

3. VISION & MISSION OF THE DISCIPLINE

Vision Statement: In alignment with the vision and mandate of the University of Health Sciences (UHS), the MS Program in Pediatric Ophthalmology and Strabismus (Level IV) aims to produce subspecialty-trained pediatric ophthalmologists who demonstrate clinical competence, surgical proficiency, ethical integrity, and academic rigor, and who are capable of providing leadership in the delivery of high-quality pediatric eye care services across Pakistan.

Mission Statement: Consistent with UHS postgraduate training policies and competency-based education principles, the MS in

Pediatric Ophthalmology & Strabismus (Level IV-degree Program) is designed to provide a structured, supervised, and outcomes-oriented training framework. The program integrates advanced clinical and surgical training with research, audit, and professional development, while fostering discipline, accountability, and ethical practice. The degree program seeks to train individuals with a strong sense of professional responsibility and integrity, enabling them to function effectively as clinicians, educators, and leaders in Pediatric eye care, and to contribute to national child eye health priorities, blindness prevention strategies, and academic excellence.

4. SUB SPECIALTY SCOPE AND DEFINITIONS

1. The subspecialty is known by several synonymous titles, including:
    i. Pediatric Ophthalmology / Pediatric Eye
    ii. Pediatric Ophthalmology & Strabismus

Scope of the Subspecialty

In the MS Pediatric Ophthalmology & Strabismus program, the subspecialty scope and definitions outline the academic, clinical, diagnostic, surgical, and research competencies expected from a degree program. This framework defines the scope of the program and the level of expertise it aims to develop.

The objective of the MS Pediatric Ophthalmology & Strabismus program is to provide a comprehensive and structured training in the discipline, at the end of which, the trainee will be able to manage cases of pediatric ophthalmology and strabismus with skill and competence.

The program covers a wide spectrum of eye pediatric disease, from early detection to complex surgical intervention, with an emphasis on evidence-based, patient-centred care.

Program General Outcomes

By the end of the two-year degree program, the trainee will be able to:

- Deliver comprehensive, age-appropriate clinical care for pediatric ocular diseases and strabismus.
- Perform essential pediatric ophthalmic surgeries safely and independently.
- Interpret advanced diagnostic imaging and electrophysiological tests.
- Apply evidence based medicine and contribute to research and publication.
- Communicate effectively with children, caregivers, and multidisciplinary teams.
- Demonstrate professionalism, ethical practice, and leadership in service delivery.
- Advocate for child eye health at the institutional, community, and national levels.
- Integrate emerging technologies, including tele ophthalmology and AI assisted tools, responsibly and ethically.

CORE COMPETENCIES

By the completion of the degree program, the trainee will have demonstrated proficiency in the following core competencies:

A. Clinical Competency

The trainee will demonstrate the ability to independently evaluate, diagnose, and manage Pediatric ocular disorders across the continuum of care, including Pediatric cataract, ROP, retinoblastoma, congenital glaucoma, strabismus & Binocular vision, neuro-ophthalmic disorders, Oculoplastic, Lid and adnexa, Orbit & Lacrimal system disorders, Cornea & External Diseases, Systemic Diseases with Ocular

Involvement, Ocular Trauma and Chemical Injuries, inherited retinal diseases, Low Vision & Rehabilitation and Research, Ethics & Professionalism and Leadership, Teaching & Health Advocacy.

Key Outcomes

- Perform age-appropriate visual assessment, cycloplegic refraction, binocular vision testing, and low-vision evaluation.
- Conduct comprehensive anterior and posterior segment examinations in infants and children.
- Interpret diagnostic investigations, including OCT, UBM, B-scan, fundus imaging, visual fields, HESS Screen Test, ORB Scan and electrophysiology.
- Manage common and complex Pediatric conditions such as:
  - Pediatric cataract
  - Retinopathy of prematurity
  - Retinoblastoma
  - Congenital glaucoma
  - Strabismus and amblyopia
  - Neuro-ophthalmic disorders
  - Inherited retinal diseases
  - Ocular trauma management
- Formulate individualised, evidence-based management plans.
- Integration of artificial intelligence and tele-Pediatric solutions, e.g., in ROP

B. Medical Knowledge

The trainee will acquire an in-depth understanding of:

- Embryology and development of the eye
- Normal and abnormal visual development
- Pharmacology relevant to Pediatric ophthalmology
- Systemic diseases with ocular manifestations

- Genetics and hereditary eye diseases
- Public health principles related to childhood blindness

C. Clinical Skills

The trainee will demonstrate proficiency in:

- History taking for Pediatric patients
- Pediatric (age appropriate) visual acuity assessment
- Cycloplegic refraction and retinoscopy
- Strabismus evaluation (cover tests, prism measurements, synoptophore)
- Anterior & posterior segment assessment (cornea, cataract, glaucoma, vitreo-retinal diseases, etc) & documentation
- Tonometry in infants and children
- ROP screening
- Neuro-ophthalmic assessment
- EUS (Examination Under Sedation)

D. Technical and Procedural Skills

Procedural & Surgical Skills

- EUA (Examination Under Anaesthesia)
- Probing and syringing
- Silicone intubation
- Pediatric cataract surgery in children
- Pediatric glaucoma surgeries (goniotomy, trabeculotomy, trabeculectomy)
- Strabismus surgery, e.g., horizontal as well as vertical, complex and patterned strabismus
- Enucleation and evisceration
- Ptosis surgery
- Basic oculoplastic procedures, e.g., biopsy

- Trauma management
- Laser & cryotherapy for ROP and retinoblastoma
- YAG laser (Capsulotomy)
- Diode Laser photocoagulation (DLCA)

Diagnostic Technology & Innovation

The trainee will be able to:

- Perform and interpret:
    - Optical coherence tomography (OCT)
    - UBM
    - A-scan/B-scan
    - Visual electrophysiology (ERG, VEP)
    - Corneal topography
    - Pachymetry
    - Visual field analysis
    - HESS Chart & Field Of BSV
    - Phoropter
    - Focimeter, Synoptophore
- Apply tele-ophthalmology and AI-assisted tools ethically and appropriately.

E. Communication, Teamwork and Collaboration

- Provide clear, empathetic communication with children and caregivers.
- Obtain informed consent in Pediatric settings.
- Work effectively within multidisciplinary teams (oncology, neurology, neonatology, genetics, rehabilitation).
- Coordinate comprehensive patient management within a spine care pathway.
- Demonstrate respect, collegiality, and collaborative decision-making.

F. Research and Academic Contribution

- Participate in clinical or basic science research related to Pediatric Ophthalmology & Strabismus.
- Design and conduct research aligned with UHS requirements.
- Demonstrate understanding of research design, data analysis, and scientific writing.
- Present findings at academic meetings and contribute to peer-reviewed publications.
- Publish of at least one research paper in PMDC/HEC/JCR-recognised journals (as per UHS Level IV Regulations 2024 updated 2026).
- Uphold publication ethics and integrity.

G. Professionalism, Ethics, and Leadership

- Adhere to professional and ethical standards in all clinical, academic, and research activities.
- Demonstrate integrity, accountability, and compassion.
- Exhibit leadership in clinical teams, quality improvement, and healthcare delivery.
- Demonstrate ethical decision-making in pediatric care.

H. Teaching and Lifelong Learning

- Engage in self-directed learning and continuous professional development.
- Participate in the teaching and mentorship of residents, medical students, and peers.
- Apply modern educational strategies, incorporating both formative and summative assessment principles.

- Lead pediatric ophthalmology services, especially in

underserved areas.

- Advocate for blindness prevention programs at national or regional levels.
- Demonstrate new teaching and learning strategies and assessment methodologies, with a crisp and achievable personal development plan
- Contribute towards faculty development.

I. Health Advocacy

- Understand epidemiology of childhood blindness.
- Advocate for the well-being of patients with pediatric eye disorders and their families.
- Design and implement screening programs.
- Contribute to national and institutional policy development.
- Promote awareness of eye health, injury prevention, and rehabilitation.
- Contribute to system-level improvements in access to safe and effective eye care.

A. PROGRAM OVERVIEW

i. Eligibility

- MS/MD/MDS/FCPS/MRCP/FRCS/American Board/ OR any other equivalent degree in Ophthalomology recognized by PM&DC as a level-III qualification.

- A valid permanent or provisional registration certificate issued by the Pakistan Medical & Dental Council (PM&DC) or Pakistan Medical Commission (PMC) at the time of application.

ii. Duration of program

The training duration will be of TWO (02) years

iii. Mandatory workshops

All postgraduate trainees will be required to undergo Mandatory Workshops for Postgraduate trainees Level IV/Supervisors (To be conducted by the Directorate of Postgraduate Studies).

iv. Paper publications requirement

One research papers published in Pakistan Medical and Dental Council (PMDC) / Higher Education Commission (HEC)/Journal Citation Reports (JCR) recognized journals in the relevant specialty.

v. Professional Portfolio

Each trainee is required to maintain a **comprehensive professional portfolio,** which serves as a longitudinal record of training progress and formative assessments.

The portfolio will include the following components:

- Workplace-Based Assessments (WPBA)
- Mini Clinical Evaluation Exercises (Mini-CEX)
- Direct Observation of Procedural Skills (DOPS)
- Internal and Supervisor Assessments
- Surgical Logbook (detailing operative exposure and level of participation)
- Record of Published Article(s) and Academic Presentations
- Certificates of Mandatory Workshops
- Case-Based Discussions (CBDs) and Summary Reports
- Final Supervisor / Consultant Evaluation and Signature

The portfolio must be regularly reviewed and signed by the designated supervisor or consultant and submitted as part of **the** final assessment requirement at program completion.

Training Program Objectives:

At the end of the training for degree program Pediatric Ophthalmology & Strabismus (MS), a candidate shall be able to:

1. Demonstrate detailed knowledge of anatomy, physiology and pathology of the eye.
2. Initially assess the patient seeking advice for symptoms relating to the eye by:
    - Obtaining pertinent history
    - Performing physical examination correctly
    - Formulating a working diagnosis
    - Deciding whether the patient requires ambulatory care versus admission
    - Referral to other health professionals
3. Manage patients requiring treatment by a pediatric ophthalmologist
    - Plan an enquiry strategy, i.e. order appropriate investigations and interpret the results
    - When required, perform surgical procedures independently and competently.
4. Deal effectively and promptly with any complication which may occur during the course of the disease
5. Maintain records of the patient.
6. Prescribe physical medication and rehabilitation/ orthoptics and low-vision aid where required.
7. Undertake research and publish findings.

8. Acquire new information, assess its utility and make appropriate applications.
9. Recognise the role of teamwork and function as an effective member/ leader of the team.
10. Advise the community on matters related to promoting health and preventing disease.

Train Paramedical professionals and other junior members of the team.

B. BASIC SCIENCES ESSENTIAL COURSE

During the training period, the trainee is expected to acquire in-depth knowledge of the outlined topics, complemented by extensive clinical and surgical exposure. By the end of the program, the trainee should be competent in formulating differential diagnoses, selecting and interpreting appropriate investigations, establishing accurate diagnoses, implementing effective treatment plans, and providing comprehensive patient counselling.

i. Topics & Objectives

S. No #	Theme/Topic/ Subject	Learning outcomes	Mode of teaching & learning methods	Assessment mode
Epidemiology, Growth & Development				
1.	Clinical embryology and development of the eye	Describe the anatomy and development of eye	Interactive lectures, 3D models, self study	MCQs
2.	Normal & abnormal visual developmental	Describe milestones of visual development	Interactive lectures, 3D models, self-study	MCQs
3.	Delayed Visual Maturation	Describe delayed visual maturation	Interactive lectures, 3D models, self-study	MCQs
4.	Postnatal Growth of the Eye and Emmetropization	Describe refractive errors at various ages and emmetropization	Interactive lectures, 3D models, self-study	MCQs
5.	Histopathology of Common ocular structures	Recognize microscopic changes in ocular and neural tissue	Pathology slides, discussion	TOACS, viva
i. Diagnostics & Evaluation				
1.	History, examination and special test in peads. Ophthalmology.	Take adequate history and perform an examination	Clinical demonstration and supervised practice	Mini CEX, DOPs
2.	Visual electrophysiology: how it can help you and your patient	Can interpret the electrophysiological test -ERG, VEP, and other tests	Lecture and case discussion	TOACS / CBD/ MCQs
3.	Imaging the child's eye, orbit and visual pathways	Can interpret various imaging studies of child's eye, orbit and visual pathways-	Interactive lecture and Small group discussion/MDTs	TOACS,CBD

		OCT, UBM, MRI/CT, B scan		
4.	Genetics and pediatric ophthalmology	Role of genetics in pediatric ophthalmology conditions	Interactive lecture and group discussion	CBD or viva/MCQs
		Pediatric Ophthalmology		
		Lacrimal System		
1.	Congenital NLDO	Diagnose; perform syringing & probing; counsel parents	Clinics, skills workshop	DOPS, Mini-CEX
2.	Acquired NLDO / Pediatric Dacryocystitis	Differentiate acute vs chronic manage medically/surgically	Clinics/CBD	Case-based assessment
3.	Probing & Intubation Techniques	Perform probing, silicone intubation, and complications management	Skills lab, OR	OSATS, logbook
4.	DCR (Endonasal/External) in Children	Know indications; observe surgical techniques; manage postop	OR exposure, videos	Viva/Logbook / TOACS
5.	Lacrimal Trauma	Identify canalicular injuries; plan repair; follow functional recovery	OR exposure	DOPS, logbook
6.	Epiphora Evaluation	Perform dye tests; irrigations; diagnose functional vs anatomical block	Clinics, workshops	Mini-CEX
		Lids		
1.	Congenital Ptosis	Diagnose simple vs syndromic; measure LPS function; plan surgery	Clinics, ptosis workshops	OSCE, DOPS
2.	Blepharophimosis & Congenital Lid Anomalies	Diagnose; plan staged surgeries; genetic implications	Clinics, MDT	Viva, case logs

3.	Pediatric Eyelid Trauma	Repair lid lacerations; manage margin/canalicular involvement	OR workshops	OSATS, logbook
4.	Chalazion / Hordeolum in Kids	Diagnose; manage medically; perform incision & curettage	Clinics, minor OR	DOPS
5.	Trichiasis / Distichiasis	Diagnose; plan epilation, electrolysis, or surgery	Clinics	Mini-CEX
6.	Lid Tumors (Benign & Malignant)	Identify lesions; plan excision & reconstruction	OR, clinics	OSATS, viva
7.	Lagophthalmos & Exposure Keratopathy	Diagnose; manage lubricants, tarsorrhaphy	Clinics, skills sessions	OSCE
Cornea & External Eye Diseases				
1.	Congenital Corneal Opacities	Diagnose Peters anomaly, sclerocornea; plan workup; understand surgical options	Clinics, imaging workshops	Mini-CEX, viva
2.	Keratoconus & Pediatric Ectasias	Diagnose early; interpret topography; plan CXL	Clinics, topography sessions	OSCE, case discussion
3.	Blephrokerato-Conjunctivitis (BKC)	Diagnose; manage chronic disease; amblyopia prevention	Clinics, case discussions	Mini-CEX, OSCE
4.	Allergic Keratoconjunctivitis (VKC/AKC)	Diagnose; stage severity; choose medical therapy; avoid complications	Clinics, workshops	OSCE, viva
5.	Ocular Surface Disorders (Dry Eye, Exposure)	Identify causes; manage lubrication, protection & surgery	Clinics, hands-on sessions	DOPS

6.	Trauma-Related Corneal Injuries	Manage abrasions, lacerations, FB, chemical injuries	OR exposure, simulation	OSATS, DOPS
7.	Congenital Anterior Segment Dysgenesis Syndromes	Recognize anomalies; plan workup; manage glaucoma risk	Genetics MDT, clinics	Case-based assessment
8.	Pediatric Keratitis Workup	Take scrapings; interpret cultures; start targeted therapy	Hands-on workshop	DOPS
9.	Corneal Degenerations & Dystrophies	Identify pediatric variants; plan monitoring & management	Imaging workshops	Viva, OSCE
10.	Corneal Transplantation in Children	Understand indications; manage postop complications	OR exposure, simulation	OSATS, logbook
11.	Contact Lens Use in Pediatrics (Aphakia, Keratoconus)	Fit lenses; manage complications; parental counselling	Skills workshop	Mini-CEX
		Orbit & Oculoplastics		
1.	Congenital Orbital Anomalies	Diagnose craniofacial/orbital malformations; plan imaging & MDT referral	Clinics, radiology sessions	Mini-CEX, viva
2.	Orbital Cellulitis & Preseptal Cellulitis	Differentiate both; order urgent imaging; start proper treatment	Clinics, emergency rounds	OSCE, case-based discussion
3.	Thyroid Eye Disease in Children	Recognize features; plan medical care; manage exposure issues	Clinics, MDT	Viva, Mini-CEX
4.	Orbital Tumors (Dermoid, Hemangioma, RMS)	Identify clinical signs; interpret imaging; plan surgery/referral	Radiology MDT, clinics	OSCE, viva

5.	Trauma (Blowout, F Foreign Bodies)	Diagnose fractures; manage acute trauma; plan OR repair	OR, simulation	DOPS, OSATS
6.	Orbital Inflammation / Pseudotumor	Recognize signs; order imaging; plan steroids/immunomod ulation	Clinics	Viva, case-based
7.	Enucleation /Evisceration	Know indications; prosthesis fitting; manage complications	OR exposure	TOACS / Viva / Logbook
8.	Ptosis management	Basic ptosis evaluation; simple eyelid surgeries	Wet labs, observation, supervised OR	DOPS, logbook
		Cataract		
1.	Congenital Cataract	Diagnose types; evaluate visual prognosis; plan timing of surgery; select IOL; manage post-op complications	Clinics, OR exposure, videos, simulation	DOPS, OSATS, logbook, viva
2.	Developmental/ Traumatic Cataract	Differentiate causes; plan surgery; manage inflammation/amblyo pia	Case discussions, clinics, OR	Mini-CEX, logbook
3.	Subluxated/Dislocated Lens/ Marfan Syndrome/ Homocysteinuria	Diagnose zonular weakness; plan scleral-fixated or glued IOL; manage aphakia	Clinics, surgical workshops, OR demos	DOPS, OSATS, viva
4.	Microspherophakia	Identify condition; assess angle; manage lens-induced glaucoma	Clinics, imaging, MDT	Case-based discussion, OSCE
5.	Aphakia Management	Choose between contact lenses, IOL implantation, long-term follow-up	Clinics, practical skills sessions	Mini-CEX, logbook

6.	Lens Coloboma	Identify associated ocular anomalies; plan refractive/surgical approach	Clinics, imaging workshops	Viva, OSCE
7.	Secondary IOL Planning	Evaluate capsular support; understand IOL options; manage complications	OR exposure, videos	OSATS, logbook
8.	Pre-Op Work-Up & Biometry in Kids	Accurate axial length; keratometry; IOL power selection in a growing eye	Clinics, hands-on biometry sessions	DOPS, Mini-CEX
9.	Post-Op Pediatric Cataract Care	Manage uveitis, glaucoma, visual rehab, and amblyopia	Clinics, case follow-up	OSCE, viva
		Glaucoma		
1.	Primary Congenital Glaucoma (PCG)	Diagnose classic triad; perform EUA; understand angle anomalies; plan goniotomy/trabeculotomy	Clinics, EUA workshops, OR exposure, videos	DOPS, OSATS, logbook, viva
2.	Infantile Glaucoma (Late-Onset PCG)	Identify signs; differentiate from secondary causes; manage medically & surgically	Clinics, case discussions	Mini-CEX, OSCE
3.	Juvenile Open-Angle Glaucoma (JOAG)	Recognize presentations; perform gonioscopy; plan long-term management	Clinics, imaging workshops	Viva, case-based discussion
4.	Secondary Glaucoma – Aphakia/Pseudophakia	Diagnose angle anomalies post-cataract surgery; choose medical vs surgical options	Clinics, OR exposure	DOPS, OSCE
5.	Secondary Glaucoma – Uveitic	Control inflammation; choose safe medications;	MDT clinics, case discussions	Mini-CEX, viva

		manage complications		
6.	Secondary Glaucoma – Trauma	Evaluate angle recession; manage acute pressure spikes; plan surgery if needed	Clinics, imaging	Case-based assessment
7.	Secondary Glaucoma – Peters Anomaly / Sclerocornea	Assess associated anomalies; plan surgical sequence; manage high-risk eyes	Tertiary clinic exposure, videos	Viva, OSATS
8.	Glaucoma in Sturge–Weber Syndrome	Recognize dual mechanisms; plan goniotomy vs trabeculotomy vs valves	Clinics, MDT rounds	OSCE, viva
9.	Glaucoma in Aniridia	Monitor angle closure progression; manage with combined approaches	Clinics, genetics MDT	Case discussion, logbook
10.	Glaucoma in Retinopathy of Prematurity	Detect angle-closure mechanisms; plan safe intervention	NICU/ROP rounds, clinics	Mini-CEX, viva
11.	Glaucoma in Systemic Syndromes (e.g., Marfan, Axenfeld–Rieger)	Recognize systemic associations; manage complex angles; plan lifelong follow-up	MDT sessions, clinics	Case-based discussion
12.	EUA Techniques in Pediatric Glaucoma	Measure IOP correctly; corneal diameter; axial length; optic nerve evaluation	Hands-on EUA workshops	DOPS
13.	Imaging – OCT, UBM, Gonioscopy	Interpret angle anatomy; evaluate optic nerve progression	Imaging workshops	OSCE, viva
14.	Surgical Management (Goniotomy, Trabeculotomy,	Understand indications; perform procedures under	OR teaching, simulation	OSATS, logbook

	Trabeculectomy, Valves)	supervision; manage complications		
15.	Long-Term Follow-Up & Visual Rehab	Monitor optic nerve; amblyopia therapy; manage refractive errors	Clinics, case follow-up	Mini-CEX, logbook
Neuro-Ophthalmology				
1.	Optic Neuritis	Diagnose demyelinating optic neuritis; interpret MRI; manage acute treatment	Clinics, imaging workshops, MDT rounds	Mini-CEX, viva
2.	Papilledema & Raised ICP	Identify true vs pseudopapilledema; perform workup; know urgent referral pathways	Clinics, neuro-imaging sessions	OSCE, case-based discussion
3.	Optic Disc Anomalies (Coloboma, Drusen, Hypoplasia)	Differentiate congenital vs acquired; plan follow-up and imaging	Clinics, OCT/ultrasound workshops	Mini-CEX, viva
4.	Visual Pathway Lesions (Chiasmal, Retro-chiasmal)	Interpret fields; understand neuroanatomy; link deficits to lesion location	Visual field workshops, case discussions	OSCE, viva
5.	Cranial Nerve Palsies (III, IV, VI)	Diagnose palsies; plan imaging; manage diplopia and strabismus	Clinics, motility workshops	OSCE / Mini-CEX
6.	Nystagmus (Infantile & Acquired)	Classify types; identify neurological causes; manage abnormal head posture	Clinics, video-based teaching	OSCE, viva
7.	Idiopathic Intracranial Hypertension (IIH)	Diagnose; interpret imaging; manage medically; follow progression	Clinics, MDT rounds	Case discussion, viva

8.	Neuro-cutaneous Syndromes (NF-1, Tuberous Sclerosis)	Recognize ocular manifestations; coordinate systemic workup	MDT clinics, genetics rounds	Case logs, viva
9.	Tumors Affecting Visual Pathway (Optic Glioma, Meningioma)	Identify imaging features; manage multidisciplinary care	Neuro-oncology MDT	OSCE, case-based assessment
10.	Cortical Visual Impairment (CVI)	Diagnose; differentiate from ocular causes; plan rehab	Clinics, occupational therapy MDT	Mini-CEX
11.	Pediatric Stroke & Visual Consequences	Recognize homonymous defects; plan low-vision rehab	Case discussions	Viva, OSCE
12.	Neuro-imaging Interpretation (MRI/CT/OCT/Fields)	Read pediatric neuro-imaging confidently; correlate with clinical findings	Imaging workshops	OSCE, viva
		Pediatric Ocular Tumours		
1.	Retinoblastoma (RB) – Fundamentals	Recognize signs (leukocoria, strabismus); classify (ICRB, TNM); know prognosis	Clinics, imaging review, videos	OSCE, case discussion, viva
2.	Retinoblastoma – Management	Plan chemo, laser, cryotherapy, enucleation; monitor systemic risk	MDT rounds, OR exposure	CBD / TOACS
3.	Medulloepithelioma (Ciliary Body Tumor)	Identify signs, plan biopsy or enucleation; manage complications	Clinics, imaging sessions	Case-based discussion, viva
4.	Rhabdomyosarcoma (Orbital Tumor)	Recognize acute orbital mass; interpret imaging; coordinate chemo/radiotherapy	MDT clinics, radiology workshops	Viva, OSCE
5.	Optic Nerve Glioma	Diagnose via MRI; recognize NF-1 associations;	Neuro-ophth clinics, MDT	Case discussion, OSCE

		counsel parents; monitor vision		
6.	Choroidal & Retinal Tumors (Hemangioma, CHRRPE, Osteoma)	Identify lesions; differentiate benign vs malignant; plan follow-up	Clinics, imaging workshops	Viva, OSCE
7.	Orbital Dermoid & Lipodermoid	Diagnose congenital orbital lesions; plan surgical excision	OR exposure, clinics	OSATS, logbook
8.	Ocular Surface Tumors (Conjunctival, Squamous, Nevi)	Recognize suspicious lesions; perform biopsy if indicated	Clinics, minor OR	DOPS, OSCE
9.	Systemic Syndromes with Ocular Tumors (NF-1, Tuberous Sclerosis, VHL)	Recognize ocular manifestations; coordinate systemic workup	MDT sessions, genetics rounds	Case-based assessment, viva
10.	Imaging in Pediatric Ocular Tumors	Interpret US, MRI, CT, fundus photos; assess tumor extent	Imaging workshops, clinics	OSCE, case discussion
11.	Treatment Modalities	Understand indications & complications of surgery, chemo, laser, plaque therapy	OR exposure, MDT	OSATS, logbook
12.	Long-Term Follow-Up & Survivorship	Monitor recurrence, manage amblyopia, counsel on second malignancy risk	Clinics, MDT	Mini-CEX, case logs
Fundamentals Of Strabismus & Amblyopia				
1.	Basic Ocular Motility & Anatomy	Understand EOM anatomy, actions & innervation; interpret versions & ductions	Clinics, simulation models	OSCE, viva
2.	Measurement of Deviation	Perform Hirschberg, Krimsky, cover–uncover, alternate cover tests; use prism bars	Skills lab, clinics	DOPS, Mini-CEX

3.	Sensory Physiology	Understand fusion, stereopsis, suppression, ARC	Tutorials, orthoptics sessions	Viva, case-based discussion
4.	Esotropia (All Types)	Diagnose infantile, accommodative, partially accommodative, microtropia	Clinics, videos, case sessions	OSCE, Mini-CEX
5.	Exotropia (All Types)	Diagnose intermittent, constant, sensory, consecutive exotropia	Clinics, case discussions	OSCE, DOPS
6.	Vertical Strabismus	Diagnose DVD, inferior oblique OA/UA, Brown syndrome	Clinics, orthoptics lab	Viva, OSCE
7.	Incomitant Strabismus	Differentiate paralytic vs restrictive; identify pattern strabismus	Clinics, imaging	Case discussion, viva
8.	Strabismus Syndromes	Recognize Duane, Möbius, CFEOM, Brown; plan investigation & management	MDT clinics, video library	OSCE, Mini-CEX
9.	Surgical Strabismus (Principles)	Understand indications; recession & resection; adjustable sutures; surgical planning	OR exposure, wet lab	OSATS, logbook
10.	Surgical Strabismus (Advanced)	Manage complex cases: transpositions, vertical offset, reoperations	OR mentorship, simulation	OSATS, viva
11.	Amblyopia – Types & Diagnosis	Diagnose refractive, strabismic, deprivation amblyopia	Clinics, refraction workshops	OSCE, Mini-CEX

12.	Amblyopia Management	Plan patching, atropine penalization, optical correction; monitor response	Clinics, tutorials	DOPS, case discussion
13.	Binocular Vision Assessment	Perform stereopsis tests, worth 4-dot, bagolini	Clinics, orthoptics lab	OSCE
14.	Pre-op Evaluation in Strabismus	Perform full orthoptic workup, surgical calculations	Clinics, workshops	OSCE, Mini-CEX
15.	Post-op Care	Manage complications: slipped muscle, over/under correction	OR + ward rounds	Logbook, viva
Retinopathy Of Prematurity (ROP)				
1.	ROP Screening	Perform screening; classify disease; identify plus disease	NICU rounds, clinics	Mini CEX
2.	ROP Imaging	Interpret wide field imaging	Imaging workshops	Viva
3.	ROP Laser Treatment	Perform indirect laser safely	OR exposure, simulation	OSATS
4.	Anti VEGF in ROP	Understand indications, risks, follow up	Case discussions	Viva
5.	ROP Follow Up	Monitor regression; detect late complications	Clinics	Case Logs
6.	Tele ROP & AI Tools	Understand indications, limitations, ethics	Workshops	Viva
Pediatric Ophthalmology & Related Critical Topics				
1.	Delivering Bad News	Communicate diagnosis/prognosis empathetically; counsel parents; handle emotions	Role-play, simulated patients, workshops	Mini-CEX, OSCE, feedback

2.	Dystaxia & Ataxic Visual Disorders	Identify neurologic vs ocular causes of visual-motor incoordination; plan investigations	Clinics, neuro-ophth rounds, case discussions	Viva, case-based assessment
3.	Visual Conversion Disorder	Recognize non-organic visual loss; differentiate from organic pathology; initiate counselling	Case discussions, simulation	Mini-CEX, OSCE
4.	Leukemia (Ocular Manifestations)	Identify ocular signs of leukemia (retinal hemorrhages, infiltrates); coordinate systemic care	Clinics, hematology MDT	Viva, case discussion
5.	Phacomatoses (NF-1, Tuberous Sclerosis, VHL)	Detect ocular manifestations (Lisch nodules, retinal hamartomas); coordinate systemic care	MDT clinics, imaging workshops	OSCE, case logs
6.	Child Abuse – Ocular Signs	Identify retinal hemorrhages, orbital fractures, conjunctival injuries; report appropriately	Case-based learning, MDT	OSCE, Mini-CEX, viva
		Pediatric Ocular Trauma		
1.	Trauma (Globe, Orbit, Lid, Adnexa)-Blunt/penetrating trauma/ Foreign body etc.,	Assess injury; perform primary repair; manage complications; plan follow-up	Clinics, OR, simulation	DOPS, OSATS, logbook
2.	Chemical Injuries	Immediate management; long term follow up	Simulation, clinics	DOPS
3.	Trauma – Emergency Protocols	Recognize open globe, chemical injuries, orbital fractures; initiate urgent care	Simulation, workshops	OSCE, Mini-CEX

4.	Trauma – Rehabilitation & Visual Recovery	Plan patching, amblyopia prevention, follow-up therapy	Clinics, OR observation	Case-based discussion, logbook
Systemic Diseases With Ocular Involvement				
1.	Metabolic Disorders	Recognize ocular signs (e.g., galactosemia cataract)	Clinics, MDT	Viva
2.	Genetic Syndromes	Identify ocular features in syndromes (Marfan, Down, Stickler)	Genetics MDT	Case based
3.	Autoimmune Diseases	Recognize uveitis patterns; plan management	Clinics	Mini CEX
4.	Endocrine Disorders	Recognize thyroid eye disease, diabetes related issues	Clinics	Viva
5.	Neuromuscular Disorders	Identify ocular motility involvement	MDT	OSCE
6.	Infectious Diseases	Recognize TORCH, TB, HIV ocular manifestations	Clinics	Viva
Low Vision & Rehabilitation				
1.	Low Vision Assessment	Perform age appropriate assessment	Clinics, workshops	Mini CEX
2.	Low Vision Aids	Prescribe and train in use of LVAs	Clinics, rehab sessions	Viva
3.	CVI Rehabilitation	Plan multidisciplinary rehabilitation	MDT	Case Logs
4.	Educational Integration	Counsel parents and teachers	Workshops	Viva
Public Health, Screening & Advocacy				
1.	Epidemiology of Childhood Blindness	Understand burden and causes	Lectures, self study	MCQs

2.	School Screening Programs	Design and implement screening	Field visits, workshops	Case based
3.	National Blindness Prevention	Understand national strategies	Seminars	Viva
4.	Community Engagement	Counsel communities; design awareness programs	Outreach clinics	Reflective entries
5.	Tele ophthalmology	Understand models, ethics, limitations	Workshops	Viva

Topics & Objectives – Research, Ethics & Professional Development

Sr.	Theme / Topic / Subject	Learning Outcomes	Mode of Teaching & Learning	Assessment Mode
i	Research Methodology and Biostatistics	Design, conduct, and analyze clinical studies	Workshop, ARMB course	Written assignment
ii	Scientific Writing and Publication	Prepare manuscripts, abstracts, and peer-reviewed papers	Seminar, journal club	Assignment
iii	Ethics in Pediatric Ophthalmology & Strabismus	Apply ethical principles in clinical decision-making	Seminar, case debates	Viva
iv	Leadership and Teamwork	Demonstrate leadership in the OR and multidisciplinary teams	Simulation, leadership workshop	Viva, peer review
v	Health Advocacy and Public Awareness	Promote spine health and patient education	Project work, outreach	Project report
vi	Teaching and Mentoring Skills	Develop competence in teaching residents and students	Microteaching sessions	OSCE, feedback
vii	Audit and Quality Improvement	Conduct surgical audits and apply QI methodologies	Workshop, audit project	Assignment

viii	Professionalism and Communication	Exhibit professionalism, integrity, and effective communication	Role play, feedback sessions	Peer assessment

ii. TEACHING METHODOLOGIES

Training methodologies should be structured to develop comprehensive expertise across clinical, surgical, diagnostic, academic, and research domains. A well-rounded program combines hands-on clinical experience, structured didactics, supervised surgery, academic activities, and research training.

The structured outline of Training Methodologies for Pediatric Ophthalmology program is as follows:

1. **Bedside/Clinic-Based Teaching** *(Emergency & Inpatient Care)*

    - Real-time patient evaluation
    - History taking and examination supervision
    - Discussion of differential diagnosis and management
    - Management of trauma, acute infections, and urgent neuro-ophthalmic conditions
    - Exposure to Pediatric systemic diseases with ocular involvement

2. **Outpatient Teaching Sessions**
    - Specialty clinics: (*Supervised Outpatient Clinics)*
        i. Pediatric ophthalmology clinics(Cataract, retina, glaucoma)
        ii. Strabismus clinics
        iii. ROP clinics (NICU)
        iv. Retinoblastoma MDT clinics
        v. Neuro ophthalmology clinics
        vi. Oculoplastics clinics
    - Supervised assessment and management of routine &

complex cases

3. **Operating Room (OR) Teaching**
   - Live surgical observation
   - Hands-on supervised surgery (cataract, strabismus, glaucoma, vitreoretinal procedures)
   - Stepwise skill acquisition (recession/resection, vitrectomy, DCR, enucleation)
   - Use of ICO OSCAR rubrics for structured feedback
   - Pre and post operative case discussions

4. **Simulation & Wet Lab Training**
   - Microsurgical skill practice *(Suturing techniques)*
   - Strabismus and cataract models
   - Vitreoretinal simulation platforms (AI-assisted, APPs)
   - Oculoplastic procedures
   - Surgical Simulators
     i. Virtual reality simulators (where available)
     ii. Model eyes/ goat eyes for practising steps of cataract, glaucoma, strabismus surgery

5. **Didactic Lectures / Seminars**
   - Core concepts, guidelines, disease pathophysiology
   - Case-based lectures for rare or complex conditions

6. **Case Discussions / Case-Based Learning (CBL)**
   - Interactive problem-solving
   - Multi-disciplinary case reviews

7. **Journal Clubs / Evidence-Based Sessions**
   - Critical appraisal of literature
   - Updates on latest clinical trials, guidelines

8. **Multidisciplinary Team (MDT) Meetings**
   - Collaboration with oncology, genetics, neurology, neonatology
   - Planning complex management (ROP, tumors,

syndromes)

9. **Video Demonstrations & E-Learning Modules**
    - Recorded surgeries, examination techniques
    - Online modules for rare cases and techniques
10. **Orthoptics & Vision Therapy Sessions**
    - Supervised amblyopia management
    - Strabismus assessment and exercises
11. **Workshops / Skills Labs**
    - Instrument handling, imaging interpretation, LASER skills
    - Biometry, OCT, fundus photography
12. **Community / Outreach Clinics**
    - Screening programs (ROP, school vision, congenital anomalies)
    - Teaching on resource-limited settings
13. **Self-Directed Learning / Portfolios**
    - Logbooks of cases and surgeries
    - Reflective practice, learning objectives tracking
14. **Assessment-Integrated Teaching**
    - DOPS, OSATS, Mini-CEX embedded in clinical sessions
15. **Interdepartmental Rounds / Neuro-Ophthalmology Rounds**
    - Collaboration with neurology, radiology, oncology for complex visual disorders
16. **Hands-On Diagnostic Training**

I. Imaging Workshops

- OCT, UBM, B-scan
- Wide-field imaging for ROP
- Neuro-imaging interpretation

II. Electrophysiology Workshops

- ERG, VEP, EOG

- Interpretation and clinical correlation

III. Refraction & Binocular Vision Training

- Cycloplegic refraction
- Synoptophore use
- Prism measurements
- Low-vision assessment

IV. Orthoptics & Vision Therapy Sessions

- Supervised amblyopia management
- Strabismus assessment and exercises

CLINICAL ROTATIONS

- Supervised management of outpatient and inpatient ocular cases.
- Longitudinal patient follow-up to understand disease progression and outcomes.
- Exposure to multidisciplinary teams (e.g., orthoptics/Low vision clinic, neurology, oncology, dermatology, radiology, pathology, Neonatology). - optional 2-3 for one to 2 weeks.

- ***SURGICAL TRAINING (STEPWISE PROGRESSION)***

From assisting in supervised performance to independent execution.

Core Surgical Areas	Key Procedures & Skills
Skill / Task	
History Taking (OPD Skills)	Obtain detailed pediatric ocular history; identify red flags; systemic associations
Visual Assessment	Measure VA in all age groups (Snellen, Lea, HOTV, preferential looking); detect amblyopia risk
Refraction & Retinoscopy	Perform cycloplegic and non-cycloplegic retinoscopy; detect refractive amblyogenic errors
Orthoptic	Assess ocular alignment, cover tests, prism

Assessment	measurements, stereopsis, fusion, AC/A ratio
Anterior Segment Examination	Slit-lamp evaluation of cornea, lens, anterior chamber; detect congenital anomalies
Posterior Segment Examination	Direct & indirect ophthalmoscopy; detect retinal, optic nerve pathology, ROP
Tonometry & IOP Measurement	Measure IOP in children; select appropriate technique
Imaging & Diagnostics	Interpret fundus photos, OCT, USG, MRI, CT; correlate with clinical findings
Amblyopia Therapy	Prescribe patching, penalization, optical correction; monitor treatment response
Strabismus Assessment	Diagnose esotropia, exotropia, vertical deviations, incomitant patterns
Strabismus Surgical Skills	Perform recession, resection, oblique surgery, adjustable sutures; manage complex strabismus
Lens & Cataract Surgery	Examine pediatric cataract; perform extraction, IOL implantation; manage complications
Glaucoma Surgical Skills	Perform goniotomy, trabeculotomy, filtration surgery in children
Retina & Vitreous Procedures	Laser for ROP, retinal photocoagulation, intravitreal injections, vitrectomy
Orbit & Lid Surgery	Tumor excision, orbital decompression, lid reconstruction
Trauma Management	Assess & manage globe, orbit, lid, adnexa injuries; prevent amblyopia
Delivering Bad News & Counseling	Communicate diagnosis/prognosis empathetically; counsel families; manage expectations
ROP Screening & Management	Detect ROP stage, plus disease; perform laser safely. Inject Anti VEGF
Pediatric Ocular Tumor Management	Diagnose & plan treatment for RB, medulloepithelioma, rhabdomyosarcoma
Neuro-Ophthalmology Skills	Diagnose optic neuritis, papilledema, cranial nerve palsies, cortical visual impairment
Non-Organic / Conversion Visual Disorders	Recognize functional visual loss, dystaxia; differentiate from organic pathology
Research Skills	Design, conduct, analyze clinical research; present findings

DIDACTIC AND ACADEMIC ACTIVITIES

- Weekly lectures, seminars, journal clubs, and case-based discussions.

- Topics include:
    - Ocular, orthoptics & optometry managements
    - Instrumentation principles
    - Imaging and navigation
    - Complications and their management
- Evidence-based surgical techniques
- Monthly mortality & morbidity meetings and surgical video review sessions.

- **Simulation & Skills Laboratory**

  - Goat eyes/ 3-D artificial eye models dissection workshops for:
    - Anterior segment procedures
    - Squint surgery
    - Orthoptic & optometry assessments

RESEARCH PROJECTS, CLINICAL AUDIT & QUALITY IMPROVEMENT

- One mandatory research project and publication.
- Identify gaps in practice, collect data, implement changes
- Monitor outcomes to improve patient care and service delivery
- Participation in clinical audits (e.g., postoperative outcomes, complications, etc.).
- Present findings in departmental meetings or conferences
- Supervised mentorship with faculty

TEACHING & LEADERSHIP

- Trainee must teach residents and students in clinics and operating theaters.
- Present cases and topics in departmental meetings and conferences.

C. CLINICAL TRAINING AND COMPETENCIES

Skill / Task	Learning Outcomes	Mode of Teaching / Learning	Assessment Tools
History Taking (OPD Skills)	Obtain detailed pediatric ocular history; identify red flags; systemic associations	Clinics, supervised practice, role-play	Mini-CEX, OSCE
Visual Assessment	Measure VA in all age groups (Snellen, Lea, HOTV, preferential looking); detect amblyopia risk	Clinics, skills lab	DOPS, OSCE
Refraction & Retinoscopy	Perform cycloplegic and non-cycloplegic retinoscopy; detect refractive amblyogenic errors	Clinics, refraction lab	DOPS, Mini-CEX
Orthoptic Assessment	Assess ocular alignment, cover tests, prism measurements, stereopsis, fusion, AC/A ratio	Clinics, orthoptics lab	OSCE, DOPS
Anterior Segment Examination	Slit-lamp evaluation of cornea, lens, anterior chamber; detect congenital anomalies	Clinics, supervised practice	OSCE, Mini-CEX
Posterior Segment Examination	Direct & indirect ophthalmoscopy; detect retinal, optic nerve pathology, ROP	Clinics, imaging workshops	OSCE, Mini-CEX

Tonometry & IOP Measurement	Measure IOP in children; select an appropriate technique	Clinics, skills lab	DOPS, OSCE
Imaging & Diagnostics	Interpret fundus photos, OCT, USG, MRI, CT; correlate with clinical findings	Workshops, case discussions	OSCE, Mini-CEX, viva
Amblyopia Therapy	Prescribe patching, penalisation, optical correction; monitor treatment response	Clinics, orthoptics sessions	Mini-CEX, OSCE, logbook
Strabismus Assessment	Diagnose esotropia, exotropia, vertical deviations, and incomitant patterns	Clinics, orthoptics lab	OSCE, DOPS
Strabismus Surgical Skills	Perform recession, resection, oblique surgery, and adjustable sutures; manage complex strabismus	OR, wet lab, simulation	OSATS, logbook
Lens & Cataract Surgery	Examine pediatric cataract; perform extraction, IOL implantation; manage complications	OR, wet lab, simulation	OSATS, logbook
Glaucoma Surgical Skills	Perform goniotomy, trabeculotomy, filtration surgery in children	OR, wet lab, simulation	OSATS, logbook
Retina & Vitreous Procedures	Laser for ROP, retinal photocoagulation, intravitreal injections, vitrectomy	OR, simulation	OSATS, logbook

Orbit & Lid Surgery	Tumor excision, orbital decompression, lid reconstruction	OR, supervised practice	OSATS, logbook
Trauma Management	Assess & manage globe, orbit, lid, adnexa injuries; prevent amblyopia	OR, clinics, simulation	DOPS, OSATS
Delivering Bad News & Counselling	Communicate diagnosis/prognosis empathetically; counsel families; manage expectations	Role-play, clinics, workshops	Mini-CEX, OSCE, feedback
ROP Screening & Management	Detect ROP stage, plus disease; perform laser safely	NICU rounds, OR, supervised practice	DOPS, logbook
Pediatric Ocular Tumor Management	Diagnose & plan treatment for RB, medulloepithelioma, rhabdomyosarcoma	MDT, clinics, OR	OSATS, case discussion, viva
Neuro-Ophthalmology Skills	Diagnose optic neuritis, papilledema, cranial nerve palsies, and cortical visual impairment	Clinics, neuro rounds, imaging review	OSCE, Mini-CEX, viva
Non-Organic / Conversion Visual Disorders	Recognise functional visual loss, dystaxia; differentiate from organic pathology	Clinics, case discussion, simulation	Mini-CEX, OSCE, viva
Research Skills	Design, conduct, and analyze clinical research; present findings	Workshops, supervised projects	Project report, presentation, logbook
Clinical Audit & Quality Improvement	Identify gaps in practice; implement & monitor improvements	Workshops, field data collection	Project report, logbook

Community Screening & Outreach	Detect ROP, congenital anomalies, school vision screening; implement public health strategies	Outreach clinics, field visits	Checklist assessment, Mini-CEX, logbook
Teamwork & MDT Collaboration	Work with orthoptists, anesthesiologists, neonatologists, and oncologists	MDT meetings, rounds	Case-based discussion, Mini-CEX

D. ASSESSMENTS

i. PORTFOLIO / LOGBOOKS AND NO. OF CASES/SKILLS

ii. YEARLY STUDY PLAN

Quarter	ACTIVITIES OVERVIEW			
	The resident will spend the entirety of his training in the department of Pediatric Ophthalmology and strabismus at the training institution/hospital in Punjab. Quarterly evaluations with annual end-of-year internal examination required for promotion.			**Continuous Internal Workplace Based Assessment**
Duration	**Focus**	**Key Academic & Clinical Components**	**Surgical Exposure & Skills**	
Months 1–6	Foundational knowledge, diagnostics, supervised clinical exposure	• Pediatric history taking and clinical examination • Cycloplegic refraction and retinoscopy • Basics of strabismus evaluation • Introduction to ROP screening • Pediatric cataract evaluation • Examination under anaesthesia (EUA) techniques • Ocular imaging (OCT, B-scan, UBM) • Basics of visual electrophysiology • Participation in multidisciplinary team (MDT) meetings • Research synopsis development	• Observation of Pediatric cataract, strabismus, and glaucoma surgeries • Hands-on wet-lab training • Minor procedures (chalazion incision & curettage, probing)	
Months 7–12	Intermediate clinical competence, supervised procedures	• Management of common Pediatric ocular diseases • Strabismus measurement and diagnostic work-up • Observation of ROP laser procedures • Participation in retinoblastoma MDTs • Exposure to Pediatric neuro-ophthalmology • Cornea and external eye disease management • Basics of Pediatric oculoplastics • Research data collection	• Assisting in Pediatric cataract surgery • Assisting in strabismus surgery • Performing probing and syringing • Performing EUA independently	

YEAR 2 — ADVANCED COMPETENCE & INDEPENDENT PRACTICE

Duration	Focus	Key Academic & Clinical Components	Surgical Exposure & Skills
	The resident will spend the entirety of his training in the department of Pediatric Ophthalmology and strabismus at the training institution/hospital in Punjab. Quarterly evaluations with annual end-of-year internal examination required for promotion		
Months 13–18	Advanced diagnostics, surgical competence, complex case management	• Evaluation and management of complex strabismus • Pediatric glaucoma diagnosis and management • ROP laser under supervision • Advanced Pediatric neuro-ophthalmology cases • Pediatric ocular trauma management • Low-vision assessment and rehabilitation • Research manuscript writing	• Performing steps of Pediatric cataract surgery • Performing strabismus surgery under supervision • Performing steps of goniotomy/trabeculotomy • Laser procedures (ROP, retinoblastoma) under supervision
Months 19–24	Independent practice readiness, leadership, examination preparation	• Independent management of routine Pediatric ophthalmology cases • Complex case discussions and decision-making • Leadership in Pediatric eye care services • Teaching and supervision of junior trainees • Completion of research publications • Portfolio completion and final review	• Independent Pediatric cataract surgery (as per ICO-OSCAR benchmarks) • Independent strabismus surgery • Independent glaucoma procedures (selected cases) • Selected Pediatric oculoplastic procedures

iii. DETAILED PLAN FOR PORTFOLIO

Skill / Task	Q1 (1–3 mo)	Competency (Q1)	Q2 (4–6 mo)	Competency (Q2)	Q3 (7–9 mo)	Competency (Q3)	Q4 (10–12 mo)	Total Cases
History & Visual Assessment	20	L2	20	L3	20	L3	20	80
Refraction & Retinoscopy	20	L2	20	L3	20	L3	20	80
Orthoptic Assessment	10	L2	10	L3	10	L3	10	40
Anterior Segment Exam	15	L2	15	L3	15	L3	15	60
Posterior Segment Exam	15	L2	15	L3	15	L3	15	60
Tonometry & IOP	10	L2	10	L3	10	L3	10	40
Counseling / MDT	5	L1	5	L2	5	L3	5	20
Minor Procedures	2	L2	2	L3	2	L3	2	8
Strabismus Assessment	–	–	5	L2	5	L3	5	15
Strabismus Surgery	–	–	3	L1	2	L1	2	7

Cataract / Lens Surgery	5	L1	5	L2	5	L2	5	20
Glaucoma Surgery	–	–	2	L1	2	L1	2	6
Retina / Vitreous Procedures	–	–	2	L1	2	L1	2	6
Trauma Cases	2	L1	2	L1	2	L1	2	8
ROP Screening & Laser	5	L2	5	L3	5	L3	5	20
Research / Audit	Start	L1	Data	L2	Analysis	L2	Draft	Completed

	Competency Levels
Level	**Definition**
Level 1	**Observer:** Understands surgical steps, anatomy, and instrumentation.
Level 2	**Assistant:** Assists actively and performs defined parts under direct supervision.
Level 3	**Performs under supervision:** Executes the majority of steps with consultant guidance.
Level 4	**Independent operator:** Performs safely and independently, with minimal supervision.

Table 1: Clinical, Orthoptic & Optometric Skills

Skill / Procedure	Q1 (1–3 m)	Level	Q2 (4–6 m)	Level	Q3 (7–9 m)	Level	Q4 (10–12 m)	Level	Total Cases
Pediatric history taking & counselling	30	L2	40	L3	40	L4	40	L4	150
Age-appropriate visual acuity testing	30	L2	40	L3	40	L4	40	L4	150
Cycloplegic refraction	25	L2	40	L3	40	L4	40	L4	145
Amblyopia assessment & planning	20	L2	30	L3	30	L4	30	L4	110
Orthoptic evaluation (Hess, cover tests, prism use)	20	L1	30	L2	40	L3	40	L4	130
Binocular vision assessment	20	L1	30	L2	40	L3	40	L4	130
Slit-lamp examination (child-friendly techniques)	25	L2	40	L3	40	L4	40	L4	145
Fundus examination (direct & indirect)	20	L2	30	L3	40	L4	40	L4	130
ROP screening (NICU)	10	L1	20	L2	30	L3	30	L4	90
Low-vision assessment & rehabilitation planning	10	L1	20	L2	25	L3	25	L4	80

Skill / Procedure	Q1 (1–3 m)	Level	Q2 (4–6 m)	Level	Q3 (7–9 m)	Level	Q4 (10–12 m)	Level	Total Cases
Interpretation of OCT / B-scan / UBM	15	L1	25	L2	30	L3	30	L4	100

Table 2: EUA & Laser-Based Procedures

Procedure	Q1	Level	Q2	Level	Q3	Level	Q4	Level	Total
Examination under anaesthesia (EUA)	10	L1	15	L2	20	L3	20	L4	65
YAG laser (Pediatric indications)	3	L1	5	L2	5	L3	5	L4	18
Argon / Diode laser for ROP	5	L1	10	L2	15	L3	15	L4	45
TTT (tumours)	2	L1	4	L2	4	L3	4	L4	14
DLCA	2	L1	4	L2	4	L3	4	L4	14

Table 3: Pediatric Cataract Procedures

Procedure	Q1	Level	Q2	Level	Q3	Level	Q4	Level	Total
Pediatric cataract (ECCE / phaco)	5	L1	8	L2	10	L3	12	L4	35
Primary posterior capsulotomy + AV	5	L1	8	L2	10	L3	12	L4	35
Secondary IOL implantation	2	L1	4	L2	5	L3	5	L4	16

Table 4: Pediatric Glaucoma Procedures

Procedure	Q1	Level	Q2	Level	Q3	Level	Q4	Level	Total
Goniotomy	2	L1	3	L2	4	L3	5	L4	14
Trabeculotomy	2	L1	3	L2	4	L3	5	L4	14
Trabeculectomy (Pediatric)	2	L1	3	L2	4	L3	5	L4	14

Table 5: Strabismus Procedures

Procedure	Q1	Level	Q2	Level	Q3	Level	Q4	Level	Total
Horizontal muscle surgery	5	L1	10	L2	15	L3	20	L4	50

Procedure	Q1	Level	Q2	Level	Q3	Level	Q4	Level	Total
Vertical / oblique muscle surgery	2	L1	4	L2	6	L3	8	L4	20
Adjustable sutures (where applicable)	2	L1	4	L2	5	L3	5	L4	16

Table 6: Miscellaneous Procedures

Procedure	Q1	Level	Q2	Level	Q3	Level	Q4	Level	Total
Probing & syringing	10	L2	15	L3	20	L4	20	L4	65
Ptosis surgery	2	L1	4	L2	6	L3	8	L4	20
Pediatric ocular trauma (primary repair)	5	L1	8	L2	10	L3	10	L4	33

Key Notes

- Each trainee should maintain a personal operative logbook with supporting case sheets and reflective notes.
- Quarterly audits should review the number and distribution of cases to ensure adequate exposure across all pediatric ophthalmology and strabismus procedures.
- A minimum of 20% of cases should include complex ocular surgeries (e.g., I/A with IOLs, Trabeculectomy with MMC or Glaucoma devices, Intravitreal chemotherapy for tumours, enucleation).
- Simulation workshops may supplement operative experience in early phases.
- Assessment should be integrated with direct observation (DOPS), operative performance evaluation (OPE), and case-based discussion (CBD) tools.

iv. CLINICAL CONFERENCES

The candidates will participate in institution / departmental-based conferences, including Journal clubs and multidisciplinary conferences. He/she will also be encouraged to participate in

National and International meetings with research paper/ poster, etc., presentations.

v. FORMATIVE ASSESSMENT

University of Health Sciences Lahore, to implement competency-based education in letter and spirit, is introducing Work-Place-Based Assessment (WPBA) in addition to institutional/departmental assessments. To begin with, Mini-CEX and DOPS are introduced to ensure that the graduates are fully equipped with the clinical competencies while getting on-time constructive feedback.

- WPBA tools are entirely formative tools of assessment and are to be accompanied with constructive feedback
- Each Mini-CEX / DOPS encounter extends for about 20 minutes with 05 minutes for feedback & further action plan
- In case of unsatisfactory performance of the resident, a remedial has to be completed within stipulated time frame
- The topics given below are to be covered accordingly (at least four Mini-CEX and four DOPS in each year).
- The resident has the onus to report to the supervisor when he/she is prepared to appear for either Mini-CEX or DOPS.
- The supervisor will arrange for the session of WPBA and after completing the session will retrieve online.
- Prescribed assessment form (sample given below), fill it and make entries online (e-portal).
- Non-compliance by the resident has to be reported in quarterly feedback.
- Attendance. Institutions shall send internal assessment

and attendance three monthly to Directorate of Post Graduate Studies, UHS.

Topics For MINI-CEX – (Case-Based and Clinical Evaluation Exercises) For Pediatric Ophthalmology & Strabismus degree program

Year 1 – Foundational & Core Pediatric Ophthalmology

Core Focus Area	Specific Topic / Theme
Pediatric history & communication	History taking in preverbal child with visual concerns
Visual development	Assessment of visual milestones in infancy
Refraction & amblyopia	Cycloplegic refraction and amblyopia management planning
Strabismus (basic)	Evaluation of infantile esotropia
Binocular vision	Cover–uncover and alternate cover test interpretation
Pediatric cataract	Clinical evaluation and pre-operative counselling
ROP	Screening eligibility, staging, and follow-up planning
Retinoblastoma	Recognition of leukocoria and referral pathways
Pediatric glaucoma	Initial assessment of suspected congenital glaucoma
Orthoptics	Orthoptic assessment and prism prescription
Low vision	Functional vision assessment in a child
Ocular trauma	Primary clinical assessment of Pediatric ocular trauma
Systemic disease	Ocular manifestations of childhood systemic disorders
Ethics & professionalism	Counselling parents for EUA or surgery

Year 2 – Advanced & Subspecialty-Focused

Core Focus Area	Specific Topic / Theme
Complex strabismus	Evaluation and management planning for re-operative squint
Pediatric cataract	Post-operative complications and visual rehabilitation
ROP (advanced)	Management decisions for Type 1 ROP
Retinoblastoma	Staging, imaging interpretation, and MDT discussion
Pediatric glaucoma	Long-term follow-up and surgical decision-making
Neuro-ophthalmology	Pediatric optic nerve disorders
Low vision rehabilitation	Prescription of low-vision aids and counselling
Inherited retinal disease	Clinical evaluation and genetic counselling principles
Tele-ophthalmology	Use of tele-screening in ROP / Pediatric outreach
AI-assisted diagnostics	Interpretation of AI-assisted retinal imaging
Trauma (complex)	Secondary management of Pediatric ocular trauma
Professionalism	Breaking bad news and shared decision-making
Leadership	Multidisciplinary team coordination in complex cases

DOPS (Direct Observation of Procedural Skills)

Year 1 – Basic & Essential Skills

Core Focus Area	Specific Procedure / Skill
Clinical examination	Age-appropriate visual acuity assessment
Refraction	Cycloplegic refraction in children
Orthoptics	Cover test and prism bar assessment
Fundus examination	Indirect ophthalmoscopy in child
EUA	Preparation and basic examination under anaesthesia
ROP	Bedside ROP screening (observer → assistant)
Lacrimal system	Probing and syringing
Imaging	OCT / B-scan interpretation

Core Focus Area	Specific Procedure / Skill
Slit-lamp skills	Pediatric anterior segment examination
Counselling	Pre-operative counselling for Pediatric cataract

Year 2 – Advanced Diagnostic & Surgical Procedures

Core Focus Area	Specific Procedure / Skill
EUA	Independent EUA with documentation
Lasers	Diode/Argon laser for ROP
Lasers	YAG laser capsulotomy (Pediatric indication)
Pediatric cataract	Primary cataract surgery (stepwise)
Pediatric cataract	Posterior capsulotomy + anterior vitrectomy
Strabismus	Horizontal muscle surgery
Strabismus	Vertical / oblique muscle surgery
Pediatric glaucoma	Goniotomy / trabeculotomy
Ptosis	Basic Pediatric ptosis surgery
Trauma	Primary repair of Pediatric ocular trauma
Low vision	Prescription and training of low-vision aids
Documentation	Operative notes and informed consent

DOPS (Direct Observation of Procedural Skills) Pediatric Ophthalmology & Strabismus degree program

During training in Ophthalmology, at least four DOPS in each year for the total two years are to be conducted from the list given below.

- DOPS is entirely a formative tool of assessment and is to be accompanied with constructive feedback
- Each DOPS encounter extends for about 15 minutes, with 05 minutes for feedback and a further action plan.
- In case of unsatisfactory performance of the trainee, a remedial action must be completed within the stipulated time frame.
- All topics/procedures given below are to be covered.
- Non-compliance by the trainee must be reported in six six-monthly feedback.
- The performance is reported online on the prescribed form

Year 1 – Core Clinical & Diagnostic Skills

Core Procedure / Skill	Q1 (1–3 m)	Q2 (4–6 m)	Q3 (7–9 m)	Q4 (10–12 m)
Comprehensive Pediatric eye examination (history, VA, slit lamp, fundus)	Observe / Assist	Supervised	Supervised	Independent
Cycloplegic refraction & amblyopia assessment	Observe	Supervised	Supervised	Independent
Orthoptic & binocular vision assessment	Observe	Assisted	Supervised	Independent
Indirect ophthalmoscopy & ROP screening	Observe	Assisted	Supervised	Independent
Examination under anaesthesia (EUA – basic)	Observe	Assisted	Supervised	Independent
Probing & syringing (Pediatric)	Observe	Assisted	Supervised	Independent

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Year 2 – Advanced Diagnostic, Laser & Surgical Skills

Core Procedure / Skill	Q1 (13–15 m)	Q2 (16–18 m)	Q3 (19–21 m)	Q4 (22–24 m)
Pediatric cataract surgery (including PPC + AV)	Assist	Stepwise under supervision	Supervised complete	Independent
Strabismus surgery (horizontal ± vertical)	Assist	Muscle isolation & suturing	Supervised complete	Independent
Laser procedures (ROP ± YAG where indicated)	Observe	Assist	Supervised	Independent
Pediatric glaucoma surgery (goniotomy / trabeculotomy / trabeculectomy)	Observe	Assist	Supervised	Independent (selected cases)
Examination under	Supervised	Supervised	Independent	Independent

Core Procedure / Skill	Q1 (13–15 m)	Q2 (16–18 m)	Q3 (19–21 m)	Q4 (22–24 m)
anaesthesia (EUA – complex)				
Pediatric ocular trauma (primary management)	Assist	Supervised	Supervised	Independent

OPHTHALMIC SURGICAL COMPETENCE ASSESSMENT RUBRIC (OSCAR)

Legend for Competence Levels:

- **Level 1:** Observed
- **Level 2:** Performs under supervision
- **Level 3:** Performs with minimal guidance
- **Level 4:** Fully independent

Pediatric Cataract Surgery Competence Rubric

Domain	Descriptors / Criteria	Competence Level 1 (Observed)	Competence Level 2 (Supervised)	Competence Level 3 (Assisted Independent)	Competence Level 4 (Independent)
Pre-operative Preparation	Patient assessment, consent, IOL calculation, anesthesia check	Observes pre-op assessment & IOL selection	Performs with guidance	Performs independently, seeks advice if needed	Performs fully independently
Sterile Technique & Setup	Draping, instrument handling, microscope positioning	Observes setup	Performs under supervision	Performs independently	Performs consistently and efficiently
Incision & Anterior Capsulotomy	Proper corneal incision, continuous curvilinear	Observes technique	Performs with supervision	Performs with minimal guidance	Performs independently with precision

	capsulorhexis				
Lens Aspiration / Phaco	Safe aspiration or phaco, avoid capsule rupture	Observes procedure	Performs under supervision	Performs with minimal guidance	Performs independently without complications
Posterior Capsulotomy & Vitrectomy	Necessary for children <6y; maintains posterior capsule integrity	Observes procedure	Performs with supervision	Performs with minimal guidance	Performs independently and safely
IOL Insertion	Proper lens placement, avoids sulcus/tilt issues	Observes procedure	Performs with guidance	Performs with minimal supervision	Performs independently with correct positioning
Wound Closure & Integrity	Suture placement or self-sealing, check for leaks	Observes procedure	Performs under supervision	Performs independently	Performs consistently and efficiently
Post-operative Management	Eye drops, follow-up plan, recognize complications	Observes counseling	Performs under guidance	Performs independently with review	Performs fully independently, anticipates complications
Overall Efficiency & Safety	OR workflow, patient safety, time management	Observes	Performs safely with guidance	Performs efficiently and safely	Performs independently with excellent workflow

Pediatric Glaucoma Surgery Competence Rubric (e.g., Trabeculotomy / Trabeculectomy)

Domain	Descriptors / Criteria	Level 1	Level 2	Level 3	Level 4
Pre-op Assessment	IOP measurement, corneal diameter, optic nerve, anaesthesia	Observes	Performs with guidance	Performs independently	Fully independent
Sterile Technique & Setup	Microscope, instruments, draping	Observes	Performs under supervision	Performs independently	Efficient and consistent
Conjunctival Flap	Proper flap creation, avoid buttonholes	Observes	Performs with supervision	Performs with minimal guidance	Independently, safely
Scleral Dissection & Trabecular Opening	Correct plane, avoid perforation	Observes	Performs with supervision	Performs with minimal guidance	Independently and safely
Trabeculotomy / Trabeculectomy Procedure	Accurate angle surgery, avoid complications	Observes	Performs with supervision	Performs with minimal guidance	Fully independent

Wound Closure	Conjunctiva, scleral flap closure, leak-free	Observes	Performs under supervision	Performs independently	Fully independent
Post-op Management	IOP monitoring, medications, follow-up	Observes	Performs under guidance	Performs independently	Fully independent
Overall Safety & Efficiency	OR workflow, patient safety	Observes	Performs safely	Performs efficiently and safely	Independently

Strabismus Surgery Competence Rubric

Domain	**Descriptors / Criteria**	**Level 1 (Observed)**	**Level 2 (Supervised)**	**Level 3 (Assisted Independent)**	**Level 4 (Independent)**
Pre-op Assessment	Deviation measurement, surgical plan, anesthesia check	Observes assessment	Performs with guidance	Performs independently, seeks advice if needed	Performs fully independently
Sterile Technique & Setup	Draping, instruments, microscope, patient positioning	Observes setup	Performs under supervision	Performs independently	Performs consistently and efficiently

Muscle Dissection & Isolation	Correct muscle identification and handling	Observes technique	Performs with supervision	Performs with minimal guidance	Performs independently with precision
Muscle Recession / Resection	Correct measurement, suture placement	Observes procedure	Performs with supervision	Performs with minimal guidance	Performs independently without complications
Scleral Bite Placement	Secure suturing, avoid perforation	Observes procedure	Performs with supervision	Performs with minimal guidance	Performs independently with correct placement
Wound Closure & Integrity	Conjunctival closure, check for bleeding	Observes procedure	Performs under supervision	Performs independently	Performs consistently and safely
Post-op Management	Eye drops, follow-up, recognize complications	Observes counseling	Performs under guidance	Performs independently	Performs fully independently
Overall Efficiency & Safety	OR workflow, patient safety	Observes	Performs safely with guidance	Performs efficiently and safely	Performs independently

ROP Laser Competence Rubric

Domain	Descriptors / Criteria	Level 1	Level 2	Level 3	Level 4
Pre-op Assessment	Indirect ophthalmoscopy, staging ROP, consent	Observes	Performs with guidance	Performs independently	Fully independent
Sterile Technique & Setup	Laser machine, lens, speculum	Observes	Performs with supervision	Performs independently	Consistent and safe
Laser Application	Proper burn spacing, avoid fovea, treat entire avascular zone	Observes	Performs with supervision	Performs with minimal guidance	Independently, safely and accurately
Handling Pediatric Patient	Eye speculum insertion, cooperation, anesthesia	Observes	Performs with supervision	Performs independently	Fully independent
Post-op Care	Drops, follow-up, recognize complications	Observes	Performs under guidance	Performs independently	Fully independent
Efficiency & Safety	OR workflow, minimize exposure time	Observes	Performs safely	Performs efficiently and safely	Independently

The implementation process:

1. Before the OCEX, DOPS or OSCAR encounter:
   - These tools are trainee-driven. The trainee must own and start the WBA tools as per the time frame with the supervisor. Both trainee and supervisor to arrange for the appropriate setting to conduct OCEX, DOPS and OSCAR.
   - Both supervisor and trainee to have access to the forms
   - OCEX 15 min Observation + 5 min feedback
   - DOPS 15 mins + 5 min feedback
   - OSCAR variable depending upon the procedure with feedback.
2. During the OCEX, DOPS or OSCAR encounter:
   - Trainee to get consent of the patient.
   - Supervisor to document observations on the electronic form.
3. After the OCEX, DOPS or OSCAR encounter:
   - The supervisor and trainee discuss the scenario of OCEX, DOPS or OSCAR and document developmental feedback on the form.
   - The trainee and supervisor document a collaborative action plan based on the feedback and document on the form.
   - The supervisor completes and submits the electronic OCEX, DOPS or OSCAR form and signs off the trainee as competent or remedial if required. The remedial must be successfully completed within two to four weeks and signed off as competent by the supervisor.

E. CONTINUOUS INTERNAL ASSESSMENT

i. The cumulative score of years (collected in each quarter) will be added together to provide a final cumulative score of Continuous Internal Assessments of all the trainees by the Head of the department(s) to the Principal/HOI for forwarding it to the University.

ii. Internal Assessment shall be conducted throughout the duration of training to evaluate the candidate's procedural competence,

clinical skills, academic participation, professional conduct, and attendance.

iii. The total marks for Internal Assessment shall be **100 marks**, distributed as follows:

Sr. No.	Component	Marks
i	DOPS / Mini-CEX	60
ii	Attendance	10
iii	Journal Club / Seminar Presentations/Quiz	20
iv	Supervisor Assessment	10
Total		**100**

iv. DOPS / Mini-CEX

There shall be at least one (01) Direct Observation of Procedural Skills (DOPS) or one (01) Mini Clinical Evaluation Exercise (Mini-CEX) after every three months during the training period.

The minimum number of assessments shall be as follows:

Program Duration	Number of Assessments
Two-Year Program	8
Three-Year Program	12

The cumulative marks obtained under this component shall be converted proportionately to **60 marks** at the end of training. Failure to complete the prescribed number of assessments may render the candidate deficient in Internal Assessment unless otherwise condoned by the University.

v. **Attendance**

Attendance shall be determined on the basis of departmental duty rosters, academic sessions, and other official training activities.

Marks for attendance shall be awarded as follows:

Attendance Percentage	Marks
86% – 90%	5
91% – 95%	8
Above 95%	10

vi. **Journal Club / Seminar Presentations**

Every candidate shall deliver at least four (04) Journal Club and/or Seminar presentations during the training period.

Each presentation shall carry 05 marks, to be awarded by the Supervisor / Head of Department.

The total marks under this component shall be 20 marks.

Presentations may be assessed on the basis of subject knowledge, literature review, critical appraisal, presentation skills, and response to questions.

vii. **Supervisor's Assessment for General Attitude during training.**

The Supervisor shall award **10 marks** on the basis of:

Professional conduct

Discipline and punctuality

Communication skills

Ethical behavior

Teamwork

Overall progress during training

viii. **Submission of Internal Assessment**

The Supervisor shall submit Internal Assessment of each candidate to the Directorate of Postgraduate Studies of the University **after every three (03) months** in the prescribed format through Head of Institution.

Each quarterly submission shall be treated as final for the relevant assessment period.

Marks once submitted shall not be altered, revised, or withdrawn.

Failure of the Supervisor to submit assessment within the prescribed timeline may be dealt with in accordance with University rules.

ix. **Passing Criteria**

A candidate must secure **not less than 75 marks out of 100** in Internal Assessment.

Internal Assessment shall form part of eligibility for appearing in the final examination, subject to fulfillment of other requirements prescribed by the University.

x. **Record and Submission**

The concerned department shall maintain complete record of Internal Assessment in the prescribed format.

F. EXIT EXAMINATION

Exit examination shall be conducted for the candidates getting training in all MD/MS/MDS Level-IV courses at the end of course.

i. To appear in Level-IV Exit Examination, a candidate shall be required to submit following through his/her head of institution:

   a. Certificate of achieving 85% attendance in the training program.
   b. Certificate of achieving 75% Internal Assessment score. The score once submitted can neither be revoked nor revised.
   c. Candidate remained on institution roll during the period approved for appearing in examination.
   d. Certificate of completion of mandatory workshops.
   e. Certificate of completion of 2 years training programs signed by Supervisor, Head(s) of parent department and that department where rotations were done (if prescribed in the curriculum).
   f. Evidence of payment of examination fees as prescribed by the University from time to time.
   g. Certificates submitted through Principal/Dean/Head of academic institution shall be accepted as valid towards the candidature of an applicant.

ii. The examination fee once deposited cannot be refunded / carried over to the next examination under any circumstances.

iii. Exit Examination will be held twice a year i.e. at least six months apart.

iv. There will be a minimum period of 30 days between last date for submission of application for the examination and the conduct of examination.

v. The total marks of Exit Examination shall be 600.

S#	Examination	Maximum Marks
1	Written Examination	200
2	Clinical Examination	300
3	Internal Assessment	100
	Total	**600**

G. WRITTEN EXAMINATION (200 Marks)

Written examination shall be based on prescribed curriculum

a. The written examination will consist of 200 “single best answer” type Multiple Choice Questions, each carrying 01 mark. It shall consist of 100 MCQs in Paper I and 100 MCQs in Paper II.

b. The candidates scoring 75% marks shall be declared pass and shall be eligible to appear in the clinical examination.

c. Candidates who pass the written examination shall be allowed a maximum of four consecutive attempts whether availed or unavailed to pass the Clinical examination. However, in case of failure to pass the Clinical examination within stipulated attempts the credit of passing the written examination shall stand withdrawn and the candidate shall have to take the entire examination including written examination, afresh.

H. TOACS/ OSCE AND CLINICAL EXAMINATION (200 Marks)

After Passing theory examination candidate shall be eligible for TOACS. TOACS shall consist of 10 observed/interactive stations of 10 marks each. Candidates shall be eligible for Clinical Examination after passing the TOACS with 65% marks. A candidate who has successfully passed the TOACS examination but was unsuccessful in the Clinical Examination (Long Case/Short Cases/Table Viva) shall not be required to reappear in the TOACS to regain eligibility for the Clinical Examination,

The Clinical Examination will evaluate patient care competencies in detail. A panel of examiners will be appointed by the Vice Chancellor. The examination will be based on

a. One Long Case of 100 marks
   Total = 100 Marks
b. Two/Four Short Cases of 50/25 marks each respectively
   Total = 100 Marks

ii. The candidates scoring 60% marks in aggregate of Long Case / Short Case will be declared pass in the clinical examination.
iii. Each long case shall be examined by at least two examiners.

TABLE OF SPECIFICATIONS

Topic	Weightage (%)	Number of MCQs
Lids & Adnexa (congenital anomalies, ptosis, infections)	8%	8
Conjunctiva & External Diseases	7%	7
Cornea & Sclera (congenital, dystrophies, infections)	7%	7
Lens / Pediatric Cataract	**12%**	**12**
Glaucoma (Primary & Secondary)	**10%**	**10**
Retina & Vitreous (including ROP)	**12%**	**12**
Refractive Errors & Low Vision	6%	6
Strabismus & Amblyopia	**14%**	**14**
Pediatric Ocular Tumours (Retinoblastoma & others)	6%	6
Neuro-ophthalmology & Visual Pathway Disorders	7%	7
Trauma, Emergencies & Child Abuse (NAI)	6%	6
Systemic & Syndromic Associations	5%	5
Total	**100%**	**100**

CLINICAL EXAMINATION 100 MARKS

i. List of short & Long (divided in to part A&B) cases to be examined

(Direct patient-based examination; focused history, examination, diagnosis & management)

Lids & Adnexa

- Chalazion / hordeolum
- Congenital or acquired ptosis
- Lid coloboma
- Dermoid cyst (orbital/periocular)

Conjunctiva & External Eye

- Allergic / bacterial conjunctivitis
- Conjunctival nevus / benign tumour
- Pterygium / pinguecula in children

Cornea & Sclera

- Pediatric corneal ulcer / keratitis
- Corneal dystrophies
- Band keratopathy
- Sclerocornea

Lens & Cataract

- Congenital cataract
- Traumatic cataract
- Lens subluxation / ectopia lentis
- Lens coloboma

Glaucoma

- Congenital glaucoma
- Juvenile open-angle glaucoma
- Secondary glaucoma (e.g. Sturge-Weber, Peters anomaly)

Retina & Vitreous

- Retinopathy of prematurity (ROP)
- Coats disease
- Familial exudative vitreoretinopathy (FEVR)

- Pediatric retinal detachment

Strabismus & Binocular Vision

- Esotropia / exotropia
- Duane syndrome
- Brown syndrome
- Amblyopia assessment

Ocular Tumours

- Retinoblastoma (anterior segment / fundus signs)
- Medulloepithelioma
- Orbital tumours (e.g. dermoid, rhabdomyosarcoma)

Neuro-ophthalmology

- Optic nerve hypoplasia
- Papilledema / optic atrophy
- Nystagmus
- Cranial nerve palsies

Trauma & Emergencies

- Corneal / scleral laceration
- Hyphema
- Intraocular / extraocular foreign body
- Orbital trauma / fracture

Systemic & Syndromic Disorders

- Phacomatoses (NF-1, Sturge-Weber)
- Leukemia-related ocular manifestations
- Congenital syndromes affecting the eye

I. DECLARATION OF RESULT & AWARD OF DEGREE

- A candidate passing all the components of examination i.e. Written, and Clinical shall be declared successful.
- Issuance of degree in prescribed manner is subjected to submission of evidence regarding acceptance of a research paper as first author in a HEC recognized journal of the specialty.

J. SUPERVISOR

- Only those faculty members shall be eligible to supervise or examine a candidate who holds Level IV Qualification i.e. FCPS, MS/MD/MDS or equivalent qualification as determined by PM&DC/Relevant Authority in Glaucoma. OR
- Level-Ill Qualification MS/MD/MDS, FCPS or equivalent qualification as determined by PM&DC/Relevant Authority in glaucoma.
- For individuals holding a Level IV qualification, a minimum of three years of post-qualification teaching experience in the relevant specialty is required. For individuals holding a Level III qualification, a minimum of five years of post-qualification teaching experience in the relevant specialty is required.
- Have successfully attended the prescribed workshops as notified from time to time by the University
- Have submitted required number of quality evaluation items as notified from time to time by the University (currently 25 MCQs and 10 TOACS station)

K. EXAMINER

- A pool of examiners shall be developed on the recommendation of Specialty Advisory Committee of each specialty as specified in TORs of the Specialty Advisory Committee issued vide Section I(iii), UHS/DPS-24/SAC/2227. Preference shall be given to faculty members who are registered with University as Clinical Postgraduate Supervisor as per criteria mentioned at Section 13(i). For each exam, a panel of examiners shall be appointed from the respective pool by Competent Authority.
- The pool of the examiners shall be a dynamic body and shall be revised as and when needed by Competent Authority/Relevant Statutory Authority based on feedback of Controller of Examination, Chief Examiner/Convener, examiners and examinees.

- All the appointments of examiners shall be confidential, and examiners shall be bound to keep it confidential.
- In the case of discrepancy of more than 50% among the awards by two independent examiners, an additional / third examiner appointed by the Competent Authority will assess the candidate and the result shall be considered as mean of awards by all three examiners.
- No examiner shall be allowed to examine the trainee who is working/have worked under his supervision. It includes but is not limited to Clinical examinations, Thesis examination, etc. In such cases, the examiner/supervisor shall immediately declare the matter in writing to Convener in order to have alternate assessors for his/her trainee(s).

L. MONITORING

- The institute shall forward list of admitted students to Directorate of Postgraduate Studies (DPS), UHS within 15 days of induction with documentary evidence of fulfillment of pre-requisites along with proposed supervisors.
- The institute shall forward list of available supervisors having UHS supervisory certificate and number of their presently enrolled/registered trainees in each specialty within 15 days of induction as per format attached as annexure "I".
- Allocation of the supervisor shall be done through the University Supervisory Allocation Committee (USAC), UHS. The combined workflow for allocation of supervisor and synopsis approval, to be followed is attached as annexure "II". The list of proposed supervisors as per format attached as annexure "III" shall be presented by DPS, UHS to University Supervisory Allocation Committee (USAC) for recommendation of allocation. Final approval of allocation shall be granted by Competent Authority.

- Any change in the institute of already registered candidates shall be dealt as per migration regulations of UHS (available on website) and prevailing policy of Government of the Punjab.
- Academic and clinical domains of the training programs shall be monitored through DPS, UHS.
- Logbook shall be mandatory and it should be maintained throughout the training (to be evaluated as part of Exit Examination). It should be made as per academic roster according to para 3 (Section-VI). Patients/Cases seen/examined/operated/managed in ER, OPD and IPD according to allocated module should be mentioned in logbook with hospital slip and registration number.
- Rotation schedule of every postgraduate trainee should be made on an annual basis and shared with DPS, UHS till 15th January of each year for approval. Status of elective and mandatory rotations should be notified to DPS, UHS by Head of Department through Head of Institute at the end of three months.
- Skill set targets for each rotation should be defined, assessed, and mentioned in the above-mentioned report to be submitted to the DPS, UHS.
- Any leave requests, disciplinary issues, grievances, or requests to freeze training shall be handled according to UHS regulations and prevailing Government Policy from time to time.

M. EVALUATION OF RESIDENT/POST-GRADUATING STUDENT

Evaluation of Trainee/Post-Graduating Student

Hospital/Program:

____

Evaluator

First Name:

Last Name:

Trainee

First Name:

Last Name:

Review Period:____________________ to ____________________

mm/yyyy mm/yyyy

Rating Scale

1 = **Unsatisfactory.** Falls far short of performance expectations and is deficient relative to an "average" rating.

2 = **Below average.** Strives to meet performance expectations but falls short. With a small effort, could achieve a rating of "average."

3 = **Average.** Meets performance expectations. Sits in the middle of a field of candidates.

4 = **Above average.** Performs beyond expectations but is still not considered a "standout."

5 = **Excellent**. Exceeds all performance parameters by a wide margin. Stands out above "average."

NA = Not applicable. The evaluator cannot comment on particular criteria.

Patient Care	**1**	**2**	**3**	**4**	**5**	**NA**
Actively gathers essential information about patient from medical record						
Follows patient management plans through to implementation						
Effectively adapts patient communication style to maximize accurate understanding						
Shows interest in and concern for patients in daily interactions						
Demonstrates sensitivity and responsiveness to patients' culture, age, gender, and disabilities						
Comments about patient care:						

Leadership of Patient Care Team	**1**	**2**	**3**	**4**	**5**	**NA**
Shares relevant information with patient care staff in a timely fashion						
Actively fosters collaboration among treatment team members as well as with outside disciplines						
Is clear with patient care staff about expectations						
Asks others on patient care team to share ideas and viewpoints						
Relates effectively and professionally to all levels of patient care staff						
Comments about leadership of patient care team:						

Medical Knowledge	**1**	**2**	**3**	**4**	**5**	**NA**
Keeps up to date in his/her knowledge						
Makes informed decisions about diagnostic and therapeutic interventions based on patient						

information and preferences, up-to-date scientific evidence, and clinical judgment						
Gathers pertinent information for important clinical decisions						
Works to incorporate technical advances in surgical technique into skill base and clinical practice						
Synthesizes clinical and scientific information in logical ways						
Comments about medical knowledge:						

Patient-Based Learning and Improvement	**1**	**2**	**3**	**4**	**5**	**NA**
Learns from experience						
Uses information technology to manage information and access the latest in online medical information						
Facilitates the learning of students and other health care providers						
Advocates for patients in a positive and professional manner						
Effectively counsels and educates patients and families						
Comments about patient-based learning and improvement:						

Interpersonal and Communication Skills	**1**	**2**	**3**	**4**	**5**	**NA**
Demonstrates respect and compassion for patients and staff regardless of pressure						
Handles conflict constructively						
Attempts to understand others’ reasoning when they disagree with him/her						
Listens to and hears others						

Expresses ideas clearly						
Comments about interpersonal and communication skills:						

Professionalism	**1**	**2**	**3**	**4**	**5**	**NA**
Actively works toward obtaining the skills of a fully qualified and capable surgeon						
Maintains personal energy and drive, even during times of stress and anxiety						
Keeps set-backs and unsuccessful experiences in perspective						
Demonstrates flexibility and adapts to different situations						
Strives to maintain professional, responsive, and mutually respectful working relationships with both peers and subordinates						
Comments about professionalism:						

Systems-Based Practice	**1**	**2**	**3**	**4**	**5**	**NA**
Demonstrates an investigatory and analytic thinking approach to clinical situations						
Uses knowledge of hospital system to get things done						
Knows how to partner with health care and resource allocation without compromising quality of care						
Practices cost-effective health care and resource allocation without compromising quality of care						
Applies knowledge of established guidelines and procedures to his/her practice						
Comments about systems-based practice:						

Practice-Based Learning and Improvement	**1**	**2**	**3**	**4**	**5**	**NA**
Explores multiple options when making decisions						
Actively encourages the patient care team to generate new ideas						
Challenges the system to improve service						
Locates, appraises, and assimilates evidence from scientific studies related to his/her patients' health problems						
Applied knowledge of study designs and statistical methods to the appraisal of clinical studies and other information on diagnostic and therapeutic effectiveness						
Comments about practice-based learning and improvement:						

Integrity	**1**	**2**	**3**	**4**	**5**	**NA**
Acts in a trustworthy way						
Addresses tense issues and is willing to discuss controversial topics						
Tells the truth						
Stands firm when needed						
Openly gives credit to those to whom it is due						
Comments about integrity						

Surgical Skills	**1**	**2**	**3**	**4**	**5**	**NA**
Planning technical aspects of operations						
Respect for handling of tissue						
Time and motion of instrument handling						
Knowledge of surgical anatomy						
Knowledge of procedure components						

Flow of operation; functions as primary surgeon						
Evaluation of operative procedure						
Interaction with OR personnel						
Comments about surgical skills:						

Designation/Signature/Date

N. BOOK RESOURCES

i. Books

- Wills Eye Institute Atlas: Pediatric Ophthalmology
- Pediatric Ophthalmology and Strabismus by Wright & Strube
- Pediatric Ophthalmology: Current Thought and a Practical Guide
- The Eye in Pediatric Systemic Disease
- Handbook of Pediatric Eye and Systemic Disease
- Fundamentals of Pediatric Neuro-Ophthalmology

ii. Websites / Online Resources

- American Association for Pediatric Ophthalmology & Strabismus — aapos.org
- PubMed / NCBI — for latest research articles
- SpringerLink — for access to many ophthalmology textbooks & articles
- EyeWiki — for quick reference summaries and clinical pearls in ophthalmology
- Ophthalmic Educators - International Council of Ophthalmology https://share.google/DgZV0f9uDQvOXFY8J

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15. Long-term outcome and determinants of primary pediatric cataract surgery. *J AAPOS*. 2023;27:100–110.
16. Review of Pediatric Glaucoma Following Cataract Surgery and Progress in Treatment. *Prog Retin Eye Res*. 2023;92:101117.

i. Clinical Guidelines / Standards

1. American Academy of Ophthalmology (AAO) Preferred Practice Patterns – Pediatric Cataract, Pediatric Glaucoma, Strabismus, Amblyopia.
2. American Association for Pediatric Ophthalmology & Strabismus (AAPOS) Clinical Guidelines – ROP, Strabismus, Pediatric Cataract, Amblyopia.
3. Royal College of Ophthalmologists (RCOphth) – Pediatric Ophthalmology Surgical Training Guidelines and Standards.

ANNEXURE:

I. Pediatric Cataract Surgical Competency Assessment Rubric-ICO-OSCAR

International Council of Ophthalmology's Ophthalmology Surgical Competency Assessment Rubric (ICO-OSCAR)

The International Council of Ophthalmology's "Ophthalmology Surgical Competency Assessment Rubrics" (ICO-OSCARs) are designed to facilitate assessment and teaching of surgical skill. Surgical procedures are broken down to individual steps and each step is graded on a scale of novice, beginner, advanced beginner and competent. A description of the performance necessary to achieve each grade in each step is given. The assessor simply circles the observed performance description at each step of the procedure. The ICO-OSCAR should be completed at the end of the case and immediately discussed with the student to provide timely, structured, specific performance feedback. These tools were developed by panels of international experts and are valid assessments of surgical skill.

ICO-OSCAR Instructor Directions

1. Observe resident cataract surgery.
2. Ideally, immediately after the case, circle each rubric description box that you observed. Some people like to let the resident circle the box on their own first. If the case is videotaped, it can be reviewed and scored later but this delays more effective prompt feedback.
3. Record any relevant comments not covered by the rubric.
4. Review the results with the resident.
5. Develop a plan for improvement (e.g. wet lab practice/tips for immediate next case).

Suggestions:

- If previous cases have been done, review ICO-OSCAR data to note areas needing improvement.
- If different instructors will be grading the same residents, it would be good that before starting using the tool they grade together several surgeries from recordings, so they make sure they are all grading in the same way.

ICO-Ophthalmology Surgical Competency Assessment Rubric: Pediatric Cataract Surgery (ICO-OSCAR: Pediatric Cataract Surgery)

Date ______ Resident ___________ Evaluator ___________		Novice (score = 2)	Beginner (score = 3)	Advanced Beginner (score = 4)	Competent (score = 5)	Not applicable. Done by preceptor (score= 0)
1	Draping:	Unable to start draping without help.	Drapes with minimal verbal instruction. Incomplete lash coverage.	Lashes mostly covered, drape at most minimally obstructing view.	Lashes completely covered and clear of incision site, drape not obstructing the view.	
2	Incision (corneal or corneo-scleral) &Paracentesis: Formation& Technique	Inappropriate incision architecture, location, and size.	Leakage and/or iris prolapse with local pressure, provides poor surgical access to and visibility of capsule and bag.	Incision either valvular or of good internal length not both.	Incision parallel to iris, valvular and of good internal length provides good access for surgical maneuvering.	
3	Staining of the anterior capsule	Unsure about the technique of injecting 0.1%Trypan Blue dye, the amount to be injected and the waiting time before washing off the dye to stain the anterior capsule.	Knows the technique but requires instruction on injecting, waiting time. Anterior chamber fluctuates while injecting the dye. Does not use sterile air to protect the corneal endothelium. Administers incorrect amount or washes off the dye too quickly.	Requires no instruction. Uses adequate sterile air bubble to protect the corneal endothelium. Administers adequate amount and waits for adequate time. Washes off the dye with saline a little too early causing improper and patchy staining of the capsule. May cause endothelial staining due to excess trypan or inadequate air bubble.	Administers adequate amount. . Uses adequate sterile air bubble to protect the corneal endothelium Waits for one minute and or wait for the dye to stain the anterior capsule uniformly and then washes away the dye with saline. The anterior chamber remains stable during the whole process. There is no staining of the corneal endothelium.	
4	Viscoelastic: Appropriate Use and Safe Insertion	Unsure of when, what type and how much OVDto use. Has difficulty accessing anterior chamber through paracentesis. .	Requires minimal instruction. Knows when to use but administers incorrect amount or type.	Requires no instruction. Uses at appropriate time. Administers adequate amount and type. Cannula tip in good position. Unsure of correct OVD if multiple types available.	OVDs are administered in appropriate amount and at the appropriate time with cannula tip clear of lens capsule and endothelium. Appropriate OVDs used if multiple types of OVD are available.	

2

5	Anterior Capsulorrhexis: Commencement of Flap& follow-through.	With Forceps: Instructionrequired, tentative, chases rather than controls rhexis, lens matter disruption may occur. With Vitrector: Instruction required for initiation of capsulorrhexis, unsure of vitrectomy settings, anterior chamber (AC) fluctuates frequently.	With Forceps: Minimal instruction, predominantly in control with occasional loss of control of rhexis, lens matter disruption may occur. With Vitrector: Minimal instruction needed, has knowledge of machine settings for capsulotomy, AC is stable throughout.	With Forceps: In control, few awkward or repositioning movements, no lens matter disruption. With Vitrector: In control, No lens matter disruption or AC fluctuation, Few awkward movements noticed.	With Forceps: Delicate approach and confident control of the rhexis, no lens matter disruption. With Vitrector: Has a sound knowledge of vitrector machine settings for capsulotomy, well controlled initiation and completion of rhexis.	
6	Anterior Capsulorrhexis: Formation and Circular Completion	With Forceps or vitrector: Size and position are inadequate for a pediatric cataract.	With Forceps or vitrector: Size and position are barely adequate, difficulty achieving circular rhexis, tear may occur.	With Forceps or vitrector: Size and position are almost exact, shows control, and requires only minimal instruction. Nearly all of the optic edge covered by the capsule edge.	With Forceps or vitrector: Adequate size (5-6 mm) and position for pediatric cataract, no tears, rapid, unaided control of radialization, maintains control of the flap and AC depth throughout the capsulorrhexis.	
7	Hydrodissection:	Hydrodissection fluid not injected in sufficient quantity or place to achieve desired displacement of the soft nucleus. Unaware of contraindications to hydrodissection such as posterior polar cataract or a suspected preexisting posterior capsule dehiscence.	Multiple attempts required to achieve the desired displacement of the soft nucleus.	Fluid injected in appropriate location, has sound knowledge of contraindications to hydrodissection.	Adequate if free nuclear rotation with minimal resistance is achieved or adequate separation of nucleus and epinucleus from the cortex is obtained. Aware of contraindications to hydrodissection.	
8(a)	Aspiration Probe and Second Instrument: Insertion Into Eye	Has great difficulty inserting the probe or second instrument, AC collapses, may damage wound, capsule or Descemet's membrane	Inserts the probe or second instrument after some failed attempts, may damage wound, capsule or Descemet's membrane.	Inserts probe and second instrument on first attempt with mild difficulty, no damage to wound, capsule or Descemet's membrane.	Smoothly inserts instruments into the eye without damaging the wound or Descemet's membrane.	
8(b)	Aspiration Probe and Second Instrument: Effective Use and Stability	Tip frequently not visible, has much difficulty keeping the eye in primary position and uses excessive force to do so.	Tip often not visible, often requires manipulation to keep eye in primary position.	Maintains visibility of tip at most times, eye is generally kept in primary position with mild depression or pulling on the globe.	Maintains visibility of instrument tips at all times, keeps the eye in primary position without depressing or pulling up the globe.	

9	Management of Lens: Aspiration Technique	Great difficulty in aspirating the nucleus, introducing the tip under the capsulorrhexis border, position of aspiration hole not controlled, cannot regulate aspiration flow as needed, cannot peel cortical material adequately, and engages capsule or iris with aspiration port.	Moderate difficulty introducing aspiration tip under capsulorrhexis and maintaining hole up position, attempts to aspirate without occluding tip, shows poor comprehension of aspiration dynamics, cortical peeling is not well controlled, jerky and slow, capsule potentially compromised. Prolonged attempts result in minimal residual cortical material.	Minimal difficulty introducing the aspiration tip under the capsulorrhexis, aspiration hole usually up, cortex well engaged for 360 degrees, cortical peeling slow, few technical errors, minimal residual cortical material.	Aspiration tip is introduced into the nucleus to aspirate and then under the free border of the capsulorrhexis in irrigation mode with the aspiration hole up, Aspiration is activated in just enough flow as to occlude the tip, efficiently removes all cortex, The cortical material is peeled gently towards the center of the pupil, tangentially in cases of zonular weakness	
10	Primary Posterior Capsulorrhexis (PPC) initiation	Tentative, needs instructions, unable to clearly visualize the posterior capsule. **With Forceps:** Not sure if a nick has been made in the posterior capsule. Unable to grasp the lifted posterior capsule with forceps. **With Vitrector:** Struggles while making a sclerotomy site and inserting the irrigating cannula, Anterior chamber (AC) keeps fluctuating. Wrong site for initiating posterior capsulotomy.	Requires minimal instructions **With Forceps:** Able to clearly appreciate the posterior capsule and nick made with a cystitome and initiate PPC, moderate vitreous disturbance. Able to grasp the posterior capsule with minimal difficulty. **With Vitrector:** Needs minimal instructions while deciding the site and technique of sclerotomy, AC remains stable. Site of initiating the capsulotomy is correct.	**With Forceps:** In control, few awkward movements while making the nick and trying to grasp the posterior capsule, no vitreous disruption. **With Vitrector:** Performs proper sclerotomy and inserts infusion cannula with ease, AC does not fluctuate, visualizes the vitrector probe in the centre before starting capsulotomy, requires minimal instructions for initiating capsulotomy.	**With Forceps:** Able to grasp the posterior capsule with ease and at will. Delicate approach and confident control of the rhexis, no vitreous disruption. **With Vitrector:** Understands the difference in surgical anatomy of pars plana for age, makes a proper sclerotomy at the desired distance with an MVR blade, properly places the infusion port to maintain the AC, Starts posterior capsulotomy from the centre.	

11	Primary Posterior Capsulorrhexis(PPC) formation and completion	**With Forceps:** Poor control when proceeding with the capsulotomy. Vitreous disturbance occurs. Inadequate size and position of PPC. **With Vitrector:** Does not have knowledge of machine settings while performing capsulotomy and vitrectomy. Improper technique and inadequate size of capsulotomy. Peripheral extension of posterior capsular tear may occur.	**With Forceps:** predominantly in control with occasional loss of control of rhexis. Size and position are barely adequate, difficulty achieving circular rhexis, tear may occur. **With Vitrector:** Moderate difficulty in performing capsulotomy and vitrectomy, unable to decide if size of capsulotomyis adequate. Knowledge on machine settings not complete. Difficulty in achieving circular rhexis and may cause peripheral tears.	**With Forceps:** Able to proceed and complete capsulotomy with minimal instructions. Size and position are almost exact, shows good control. Needs minimal instructions if capsulotomystarts extendingperipherally. Able to use appropriate OVD to help facilitate PPC at appropriate stage **With Vitrector:** Able to perform adequate capsulotomy with ease. Has a sound knowledge on the change in settings while performing capsulotomy. Needs minimal instructions if capsulotomy starts extending peripherally.	**With Forceps:** Adequate size and position for age, no tears, rapid, unaided control of radialization, maintains control throughout. Able to manage independently if posterior capsulotomy starts extending peripherally.Able to use appropriate OVD to help facilitate PPC at appropriate stage **With Vitrector:** Adequate size (4-5 mm) and position for age, no tears. Has a sound knowledge on the change in settings while performing capsulotomy. Able to manage independently if posterior capsulotomy starts extending peripherally.	
12	Anterior Vitrectomy	Needs Instruction, Difficulty in appreciating vitreous in anterior chamber or the bag, Technique of holding the bimanual irrigationcannula andvitrector is wrong, not sure of settings for vitrectomy. May cut the posterior capsule inadvertently.	Requires minimal instructions, holds the vitrector properly, minimal fluctuation in the anterior chamber during vitrectomy, able to appreciate the presence of vitreous. Unable to perform complete vitrectomy, stays too anterior in vitreous cavity. May cut the posterior capsule inadvertently.	Performs anterior vitrectomy with control, able to clear the anterior and posterior chamber free of vitreous but unable to judge if adequate vitrectomy has been performed, maintains the anterior chamber during vitrectomy. Maintains the posterior Capsulorrhexis margins intact. Peaking of posterior capsule due to inadequate vitrectomy may be noted.	Knows the goals of performing anterior vitrectomy in pediatric age. Knows the end point of complete anterior vitrectomy, Anterior and posterior chamber completely cleared of vitreous, adequate depth of vitrectomy performed in vitreous cavity all around the posterior Capsulorrhexis. Maintains the anterior chamber throughout.	

13	IOL Insertion, Rotation, and Final Position of Intraocular Lens	Unable to insert IOL, unable to produce adequate incision for implant **FOLDABLE:** unable to load IOL into injector or forceps, no control of lens injection, doesn't control tip placement, lens is not in the capsular bag or is injected upside down.	Insertion and manipulation of IOL is difficult, eye handled roughly, anterior chamber not stable, repeated attempts result in borderline incision for implant type **FOLDABLE:** difficulty loading IOL into injector or forceps, hesitant, poor control of lens injection, difficulty controlling tip placement, excessive manipulation required to get both haptics into capsular bag.	Insertion and manipulation of IOL is accomplished with minimal anterior chamber instability, incision just adequate for implant **FOLDABLE:** minimal difficulty loading IOL into injector of forceps, hesitant but good control of lens injection, minimal difficulty controlling tip placement, both haptics are in the capsular bag.	Insertion and manipulation of IOL is performed in a deep and stable anterior chamber and capsular bag, with incision appropriate for implant type. **FOLDABLE**: Able to load IOL into injector or forceps, lens is injected in a controlled fashion, fixation of IOL is symmetric; the optic and both haptics are inside the capsular bag.	
14	Wound Closure (Including Suturing, Hydration, and Checking Securityas Required)	When suturing is needed, instruction is required and stitches are placed in an awkward, slow fashion with much difficulty, astigmatism, bent needles, incomplete suture rotation and wound leakage may result, unable to remove OVDs thoroughly. Unable to make incision water tight or does not check wound for seal. Improper final chamber depth IOP	When suturing is needed, stitches are placed with some difficulty, resuturing may be needed, questionable wound closure with probable astigmatism, instruction may be needed, questionable whether all viscoelastics are thoroughly removed, Extra maneuvers are required to make the incision water tight at the end of the surgery. May have improper IOP.	When suturing is needed, stitches are placed with minimal difficulty tight enough to maintain the wound closed, may have slight astigmatism, viscoelastics are adequately removed after this step with some difficulty,The incision is checked and is water tight or needs minimal adjustment at the end of the surgery.May have improper IOP.	When suturing is needed, stitches are placed tight enough to maintain the wound closed, but not too tight as to induce astigmatism, OVDs are adequately removed, and the incision is checked and is water tight at the end of the surgery. Proper final IOP.	
	Global Indices					
15	Wound Neutrality and minimizing Eye Rolling and Corneal Distortion	Nearly constant eye movement and corneal distortion.	Eye often not in primary position, frequent distortion folds.	Eye usually in primary position, mild corneal distortion folds occur.	The eye is kept in primary position during the surgery. No distortion folds are produced. The length and location of incisions prevents distortion of the cornea.	
16	Use of dilating agents and devices	Does not have knowledge of dilating agents or devices	Has a good knowledge of dilating agents or devices but unsure of dose and technique.	Has adequate knowledge of dilating agents, of dose and devices but needs minimal instructions while usage	Has adequate knowledge of dilating agents, of dose and devices. Needs no instructions while performing the technique.	

17	Eye Positioned Centrally Within Microscope View	Constantly requires repositioning.	Occasional repositioning required.	Mild fluctuation in pupil position.	The pupil is kept centered during the surgery.	
18	Conjunctival and corneal Tissue Handling	Tissue handling is rough and damage occurs.	Tissue handling borderline, minimal damage occurs.	Tissue handling decent but potential for damage exists.	Tissue is not damaged nor at risk by handling.	
19	Intraocular Spatial Awareness	Instruments often in contact with capsule, iris and corneal endothelium,	Occasional accidental contact with capsule, iris and corneal endothelium.	Rare accidental contact with capsule, iris and corneal endothelium	No accidental contact with capsule, iris and corneal endothelium, when appropriate,	
20	Iris Protection	Iris constantly at risk, handled roughly.	Iris occasionally at risk. Needs help in deciding when and how to use hooks, ring or other methods of iris protection.	Iris generally well protected. Slight difficulty with iris hooks, ring, or other methods of iris protection.	Iris is uninjured. Iris hooks, ring, or other methods are used as needed to protect the iris.	
21	Overall Speed and Fluidity of Procedure	Hesitant, frequent starts and stops, not at all fluid.	Occasional starts and stops, inefficient and unnecessary manipulations common, case duration about 60 minutes.	Occasional inefficient and/or unnecessary manipulations occur, case duration about 45 minutes.	Inefficient and/or unnecessary manipulations are avoided, case duration is appropriate for case difficulty. In general, 30 minutes should be adequate.	
22	Communication with surgical team	Does not know role of surgical team members. Lacks confidence or has too much. Does not establish good rapport with team. Unable to request instruments from scrub nurse using proper instrument and suture names and/or instructions to surgical assistant are vague or nonexistent.	Knows role of most surgical team members. Lacks confidence. Has difficulty establishing good rapport with team members. Able to request most instruments from scrub nurse using proper instrument and suture names but instructions to surgical assistant are inadequate to perform procedure safely.	Knows role of each surgical team member. Is somewhat confident and usually treats team with respect. Establishes good working relationship. Able to request most instruments from scrub nurse using proper instrument and suture names in correct order. Instructions to surgical assistant are adequate for a skilled assistant but inadequate for an unskilled assistant.	Knows role of each surgical team member. Is confident and treats team with respect. Establishes good working relationship. Able to efficiently request instruments from scrub nurse using proper names in correct order. Able to consistently give clear instructions to surgical assistant.	

Comments:

Swaminathan M, Ramasubramanian S, Pilling R, Li J, Golnik KC. ICO-OSCAR for pediatric cataract surgical skill assessment. J AAPOS 2016; 20(4):364-5.

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II. Strabismus Surgical Competency Assessment Rubric-ICO-OSCAR

International Council of Ophthalmology's Ophthalmology Surgical Competency Assessment Rubric (ICO-OSCAR)

The International Council of Ophthalmology's "Ophthalmology Surgical Competency Assessment Rubrics" (ICO-OSCARs) are designed to facilitate assessment and teaching of surgical skill. Surgical procedures are broken down to individual steps and each step is graded on a scale of novice, beginner, advanced beginner and competent. A description of the performance necessary to achieve each grade in each step is given. The assessor simply circles the observed performance description at each step of the procedure. The ICO-OSCAR should be completed at the end of the case and immediately discussed with the student to provide timely, structured, specific performance feedback. These tools were developed by panels of international experts and are valid assessments of surgical skill.

ICO-OSCAR Instructor Directions

1. Observe resident strabismus surgery.
2. Ideally, immediately after the case, circle each rubric description box that you observed. Some people like to let the resident circle the box on their own first. If the case is videotaped, it can be reviewed and scored later but this delays more effective prompt feedback.
3. Record any relevant comments not covered by the rubric.
4. Review the results with the resident.
5. Develop a plan for improvement (e.g. wet lab practice/tips for immediate next case).

Suggestions:

- If previous cases have been done, review ICO-OSCAR data to note areas needing improvement.
- If different instructors will be grading the same residents, it would be good that before starting using the tool they grade together several surgeries from recordings, so they make sure they are all grading in the same way.

ICO-Ophthalmology Surgical Competency Assessment Rubric: Strabismus (ICO-OSCAR: Strabismus)

Resident: ________________ Evaluator: __________________ Date: ___________

	SurgicalStep	Novice (score = 2)	Beginner (score = 3)	Advanced Beginner (score = 4)	Com pete nt (score = 5)	Not applicable. Done by preceptor (score= 0)
1	Draping	Is unable to prepare or drape the patient using sterile technique without instruction. Unaware of importance of identifying correct eye and muscle prior to draping.	Is able to prepare and drape the patient but sterile technique is inconsistent. Difficulty attaining proper head position.	Is able to consistently prepare and drape patients using sterile technique however steps are performed inefficiently. Attains proper head position.	Is able to consistently and efficiently prepare and drape patients with appropriate head position.	
2	Forced duction test	Is unaware of forced duction testing for muscle restriction.	Is familiar with the test but is unaware of its relevance, timing and is unable to perform it.	Is able to state the purpose of the test and is able to perform the test at the appropriate time(s) and detect moderate to severe restriction.	When appropriate, is able to consistently detect and describe all degrees of rectus muscle restriction and comment on relevance to surgical options.	
3	Globe stabilization	Is able to describe one method of globe stabilization but is unable to perform it.	Is able to describe one method of globe stabilization but needs assistance to perform it.	Is able to perform one method of globe stabilization with minimal verbal supervision.	Is able to perform one method of globe stabilization without verbal supervision and with ease.	
4	Conjunctival incision & Tenon's dissection	Is unable to describe limbal or fornix conjunctival incision for rectus muscle surgery.	Is able to describe but not able to perform limbal or fornix conjunctival incision for rectus muscle surgery.	Is able to perform limbal or fornix conjunctival incisions but is inefficient and requires guidance.	Is able to efficiently perform either limbal or fornix conjunctival incision.	
5	Hooking rectus muscle	Is unable to describe proper technique of hooking the muscle and is unable to perform technique.	Is able to describe proper technique but unable to hook muscle on first attempt.	Usually hooks the muscle on first attempt but is inefficient.	Is able to efficiently and precisely hook the muscle on first attempt.	
6	Exposure of rectus muscle	Is unable to describe proper dissection technique to expose rectus muscle.	Is able to describe dissection technique for muscle exposure but requires constant guidance to perform the basic steps.	Is able to perform basic exposure but is inefficient and/or occasionally disrupts multiple tissue planes or branches of the anterior ciliary arteries.	Is able to efficiently expose muscle using a combination of sharp and blunt dissection as appropriate and avoids branches of anterior ciliary arteries.	

7	Placement of suture in muscle	Is unable to accurately describe muscle suture technique.	Is able to describe muscle suture technique. Multiple attempts required to load or unload the needle-holder. Suture placement inaccurate. Requires assistance to properly place suture.	Is able to safely secure muscle with suture but is inefficient. May cause bleeding and muscle fiber cuts. Needs supervision for locking bites at two ends of muscle.	Is able to safely, efficiently and accurately secure the muscle with minimal tissue trauma without supervision.	
8	Disinsertion of rectus muscle	Is unable to describe technique for rectus muscle disinsertion.	Is able to describe but attempts to disinsert the muscle results in inadvertently cutting or nearly cutting the muscle suture or sclera.	Is able to perform disinsertion but occasionally causes inappropriate bleeding or leaves muscle tissue attached to sclera. Requires some verbal instruction.	Is able to safely and efficiently disinsert rectus muscle.	
9	Use of caliper/scleral ruler	Is unable to mark the sclera with calipers or does not check the caliper setting to confirm planned action or is too aggressive with indenting the sclera with caliper. Does not understand the potential discrepancy between arc-length and chord-length measurement.	Is able to mark sclera with calipers or scleral ruler but measurement is often not perpendicular to the original rectus insertion. Checks caliper for correct measurement. Understands arc-length vs. chord length measurements.	Is able to accurately mark sclera with calipers and/or scleral ruler but marks fade because not prepared to make needle pass.	Is able to efficiently and accurately mark sclera with calipers and/or scleral ruler and is prepared to make needle pass immediately after marking sclera.	
10	Reattachment of muscle: Intrascleral needle pass.	Is unable to describe safe technique for intrascleral pass.	Is able to describe safe technique for intrascleral pass but does not approach the globe with needle directed tangentially or does not unlock needle holder before starting the intrascleral pass. Unable to accurately obtain correct needle depth or length.	Safely approaches the globe with needle tip directed tangential to the globe. Visualizes needle tip after entering the sclera and has no difficulty exiting the sclera but intrascleral passes are frequently too short or too shallow. Minimal muscle belly sagging.	Approaches the globe with needle directed tangentially and intrascleral passes are consistently of correct length and depth. No muscle belly sagging.	

11	Conjunctival closure (when appropriate)	Is unable to close conjunctiva. Unable to differentiate Tenon's capsule from conjunctiva.	Is able to perform basic conjunctival closure technique but is inefficient and requires significant guidance. Additional sutures are required.	Is able to safely close conjunctiva with good tissue approximation but is inefficient. .	Is able to safely and efficiently close conjunctiva with good tissue approximation.	
	GlobalIndices					
12	Maintaining hemostasis	Is unable to describe proper rectus muscle dissection, suture placement and disinsertion to avoid bleeding and/or unable to describe electrocautery technique.	Can describe techniques for avoiding and controlling bleeding but requires significant guidance to perform proper dissection, suture placement, muscle disinsertion and electrocautery to minimize bleeding.	Usually applies proper tissue technique to avoid bleeding and is able to control bleeding using electrocautery but requires multiple attempts to cauterize and may leave burnt carbon marks.	Consistently applies proper tissue technique to avoid bleeding and is able to efficiently control bleeding using electrocautery.	
13	Tissue handling	Is excessively aggressive or timid in manipulating tissue. Inadvertent tissue damage occurs (including significant corneal epithelium disruption).	Aware of techniques for avoidance of tissue damage and bleeding but needs supervision to accomplish proper handling. Mild corneal epithelium disruption may occur.	Tissue handling is safe but sometimes requires multiple attempts to achieve desired manipulation of tissue. Minimal corneal epithelium disruption may occur.	Tissue handling is efficient, fluid and almost always achieves desired tissue manipulation on first attempt.	
14	Knowledge of instruments	Can only identify instruments in simple terms such as "muscle hook" and "forceps" but no knowledge of necessary sutures or needle types.	Can identify some but not most of the surgical instruments by proper names and can identify necessary suture sizes and materials but not needle types.	Can identify most but not all of the surgical instruments by proper name and can identify necessary suture sizes/materials but not needle types.	Can identify all surgical instruments by proper names and can identify necessary suture sizes/materials and needle types.	
15	Technique of holding suture needle in needle holder	Frequently loads needle incorrectly.	Loads needle in proper direction for a forehand pass but sometimes loads incorrectly for backhand pass. Loads too close or too far from the swaged end of the needle.	Loads needle properly for forehand and backhand needle pass but is inefficient and often requires multiple attempts.	Loads needle properly and efficiently for forehand and backhand needle passes.	
16	Technique of surgical knot tying	Unable to tie knots.	Require multiple extra hand maneuvers to make first throw lay flat and/or loosens first throw while attempting to perform the second throw.	Is able to tie a flat surgeon's knot first throw but second and third throws are inefficient. Does not inadvertently loosen the first throw.	Is able to efficiently tie a flat, square surgeon's knot.	
17	Communication with surgical team	Does not know role of surgical team members. Lacks confidence or has too much. Does not establish good rapport with team. Unable to request instruments from scrub nurse using proper instrument and suture names and/or instructions to surgical assistant are vague or nonexistent.	Knows role of most surgical team members. Lacks confidence. Has difficulty establishing good rapport with team members. Able to request most instruments from scrub nurse using proper instrument and suture names but instructions to surgical assistant are inadequate to perform procedure safely.	Knows role of each surgical team member. Is somewhat confident and usually treats team with respect. Establishes good working relationship. Able to request most instruments from scrub nurse using proper instrument and suture names in correct order. Instructions to surgical assistant are adequate for a skilled assistant but inadequate for an unskilled assistant.	Knows role of each surgical team member. Is confident and treats team with respect. Establishes good working relationship. Able to efficiently request instruments from scrub nurse using proper names in correct order. Able to consistently give clear instructions to surgical assistant.	

Overall difficulty of procedure (circle): Simple Intermediate Difficult

Good points:

____

Suggestions for development:

____

Agreed action:

____

Signature of Assessor: ______________________ Signature of Trainee: ______________________

Golnik KC, Motley WW, Atilla H, Pilling R, Reddy A, Sharma P, Yadarola MB, Zhao K. The ophthalmology surgical competency assessment rubric for strabismus surgery. J AAPOS 2012; 16(4):318-21.

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III. Pediatric Glaucoma (Trabeculectomy) Surgical Competency Assessment Rubric-ICO-OSCAR

International Council of Ophthalmology's Ophthalmology Surgical Competency Assessment Rubric (ICO-OSCAR)

The International Council of Ophthalmology's "Ophthalmology Surgical Competency Assessment Rubrics" (ICO-OSCARs) are designed to facilitate assessment and teaching of surgical skill. Surgical procedures are broken down to individual steps and each step is graded on a scale of novice, beginner, advanced beginner and competent. A description of the performance necessary to achieve each grade in each step is given. The assessor simply circles the observed performance description at each step of the procedure. The ICO-OSCAR should be completed at the end of the case and immediately discussed with the student to provide timely, structured, specific performance feedback. These tools were developed by panels of international experts and are valid assessments of surgical skill.

ICO-OSCAR Instructor Directions

1. Observe resident trabeculectomy surgery.
2. Ideally, immediately after the case, circle each rubric description box that you observed. Some people like to let the resident circle the box on their own first. If the case is videotaped, it can be reviewed and scored later but this delays more effective prompt feedback.
3. Record any relevant comments not covered by the rubric.
4. Review the results with the resident.
5. Develop a plan for improvement (e.g. wet lab practice/tips for immediate next case).

Suggestions:

- If previous cases have been done, review ICO-OSCAR data to note areas needing improvement.
- If different instructors will be grading the same residents, it would be good that before starting using the tool they grade together several surgeries from recordings, so they make sure they are all grading in the same way.

ICO-Ophthalmology Surgical Competency Assessment Rubric: Trabeculectomy (ICO-OSCAR:Trabeculectomy)

Resident: ________________ Assessor: __________________ YearofTraining: _________ Date:___________

	Surgical Step	Novice (score = 2)	Beginner (score= 3)	AdvancedBeginner (score= 4)	Competent (score = 5)	Not applicable. Done by preceptor (score= 0)
1	Universal precautions	Has not heard of universal precautions.	Aware of time-out process but not confident to perform. May perform with guidance/ prompting, but misses some information.	Able to perform team time-out but needs prompting to do so.	Independently initiates team time-out at beginning of case, identifies correct patient, procedure and side. Team members have been introduced. Alerts / allergies noted.	
2	Draping and placement of speculum	Unable to start draping without help.	Drapes with minimal verbal instruction. Incomplete lash coverage.	Lashes mostly covered, drape at most minimally obstructing view. Attains proper head position.	Lashes completely covered and clear of incision site, drape not obstructing view.	
3	Corneal Traction Suture	Unable to describe purpose and method of inserting corneal traction suture.	Difficulty loading needle, needs instruction for correct needle placement and completion of suture placement.	Able to load and handle needle appropriately. Some difficulty in finding correct depth of suture, needs instruction, needle track too deep or too shallow or bite not of ideal size.	Is able to consistently perform the step with the appropriate length of bite, depth of suture and achieve the desired rotation of the eye for exposure.	
4	Conjunctival incision and dissection	Is able to describe but not able to perform limbal or fornix conjunctival incision for trabeculectomy surgery.	Is able to perform limbal or fornix conjunctival incision but is inefficient and requires guidance. Has difficulty with judging appropriate length of incision, dissection down to sclera of both conjunctiva and Tenon's and the necessary force to apply to the tissue. Has difficulty avoiding damage to the superior rectus muscle with limbal-based conjunctival flap.	Is able to perform limbal or fornix conjunctival incisions but is inefficient or tentative and requires guidance with technique and/or position and size of incision.	Performs conjunctival incision without creating buttonholes and with no disruption of adjacent tissues. Incision is of correct size (i.e. enough to give proper exposure for performance of posterior subTenon's dissection and formation of scleral flap.	
5	Hemostasis	Is unable to describe the need for hemostasis, type of cautery required, appropriate technique. Is unable to perform.	Is able to describe the need for hemostasis, type of cautery required, appropriate technique. Has difficulty performing proper technique.	Is able to apply cautery but has difficulty with scleral burns, shrinkage of tissue, obtaining hemostasis.	Is able to efficiently and precisely apply hemostasis without significant scleral burns, shrinkage of tissues and obtains hemostasis. Understands advantages and disadvantages of different types of cautery tips.	
6	Application of antimetabolite	Is unable to accurately describe role of antimetabolites in trabeculectomy, types of antimetabolites and the relative indication for use of each type, safety considerations and use of pledget material.	Is able to accurately describe role of antimetabolites in trabeculectomy, types of antimetabolites and the relative indication for use of each type, safety considerations and use of pledget material. Needs guidance for choice of anti-metabolite and exposure time. Needs guidance for fashioning of sponges. Inefficient or inappropriate placement of sponges. Needs to be reminded to keep surgical count. Does not protect conjunctival edge. Inefficient removal of sponges and /or irrigation.	Is able to safely apply antimetabolite onto eye but may have difficulty creating pledget material to appropriate size and thickness. Appropriately discards materials into toxic waste and rinses eye of residual antimetabolite material.	Is able to safely, efficiently and accurately, apply antimetabolite onto eye and has no difficulty creating pledget material to appropriate size and thickness. Appropriately discards materials into toxic waste and thoroughly rinses eye of residual antimetabolite material. Keeps surgical count of pledgets used.	
7	Creation of scleral flap	Is unable to describe dissection technique for flap creation.	Is able to describe dissection technique for flap creation but requires constant guidance to perform the basic steps. Needs reminding to grasp sclera outside flap construction area.	Is able to perform basic flap creation but is inefficient and/or creates flaps that may be too thin, deep, small, or posterior or at risk of avulsion.	Is able to efficiently create flap to the appropriate size and depth without constant guidance. Able to describe the complications and management of faulty scleral flap creation including buttonholing and avulsion of the flap.	
8	Paracentesis	Puts anterior lens capsule or iris at risk when entering anterior chamber Inappropriate incision architecture, location, and size.	Needs instruction on how to perform. Leakage and/or iris prolapse with local pressure, provides poor surgical access.	Incision not in correct position or leaks.	Incision parallel to iris, self-sealing, adequate size, provides good access for surgical maneuvering.	
9 (a)	Sclerostomy (with Kelly punch)	Has difficulty with entry into anterior chamber, either ineffective or trauma to ocular tissue. Uncontrolled entry into AC. Difficulty using Kelly punch.	Is able to create an entry plane into anterior chamber but has significant difficulty with using Kelly punch. Damages scleral flap. Makes sclerostomy too large /small or too anterior/posterior for appropriate filtration.	Is able to use the Kelly punch, but may be prone to creating a shelving wound with the punch. Makes sclerostomy too large or too small for appropriate filtration.	Is able to create an appropriate entry plane into the anterior chamber and is able to use Kelly punch with dexterity. Sclerostomy appropriate size for filtration.	
9 (b)	Sclerostomy (without Kelly punch)	Needs constant direction. Size of sclerostomy inappropriate or not in correct position	Difficulty outlining and dissecting deep scleral flap. There may be damage to surrounding tissues.	Able to outline deep scleral flap and perform dissection, but has difficulty performing this smoothly, needs direction, unable to cleanly remove deeper scleral tissue.	Outlines deep scleral flap with ease, dissects flap sclera from underlying tissue without trauma to other structures, excises deep scleral flap cleanly. Deep scleral flap/ sclerostomy of appropriate size and correctly positioned. Avoids damage to the underlying ciliary body.	

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10	Peripheral iridectomy (PI)	Cannot grasp iris tissue, damages surrounding structures.	Needs direction in grasping iris tissue and performing iridectomy. Unable to control size of PI.	Able to grasp iris tissue without damage to intraocular structures, but PI either too large or too small. May is need more than one attempt	Able to grasp iris tissue without damage to surrounding structures, PI of correct size.	
11	Scleral flap suturing	Instruction is required and stitches are placed in an awkward, slow fashion with multiple passes to sclera or tear of flap, bends needles, incomplete suture rotation.	Stitches are placed with some difficulty, re-suturing may be needed, instruction needed. Difficulty achieving proper IOP at end of case.	Stitches are placed with minimal difficulty; tight enough to achieve wound closure and allow for appropriate filtration.	Stitches are placed with correct tension to allow for appropriate filtration. Able to place both fixed and releasable sutures proficiently. Appropriate final IOP.	
12	Anterior chamber reformation	Cannot cannulate anterior chamber via paracentesis. Unable to assess whether anterior chamber of appropriate depth. Unable to assess whether IOP is satisfactory to proceed to next step.	Has difficulty cannulating anterior chamber via paracentesis to reform anterior chamber. Needs guidance.	Cannulates anterior chamber with ease to reform anterior chamber, but has difficulty assessing ideal AC depth/IOP.	Cannulates AC with ease and is able to assess correct AC depth/ IOP for eye	
13	Conjunctival closure	Is unable to close conjunctiva. Unable to differentiate Tenon's capsule from conjunctiva.	Is able to perform basic conjunctival closure technique but is inefficient and requires significant guidance. Additional sutures are required. Significant bleb leak at the end of surgery with unstable, shallow anterior chamber. May have buttonhole of conjunctiva.	Is able to safely close conjunctiva with good tissue approximation but is inefficient. Requires guidance to ensure closure is effective without a leak. Placement of additional sutures or replacement of loose sutures required before closure is complete and Seidel negative.	Is able to safely and efficiently close conjunctiva with good tissue approximation, no bleb leak and stable anterior chamber. Has good understanding of various suture types, appropriate needles and different closure techniques.	
	Global Indices					
1	Maintaining hemostasis	Is unable to describe types of cautery, settings for cautery and/or unable to describe electrocautery technique.	Can describe techniques for avoiding and controlling bleeding but requires significant guidance to perform proper cautery to minimize bleeding.	Usually applies proper tissue technique to avoid bleeding and is able to control bleeding using cautery but requires multiple attempts to cauterize and may leave burnt carbon marks.	Consistently applies proper tissue technique to avoid bleeding and is able to efficiently control bleeding using cautery.	
2	Tissue handling	Is excessively aggressive or timid in manipulating tissue. Inadvertent tissue damage occurs to conjunctiva or sclera. Needs direction to grasp sclera outside margins of intended scleral flap.	Aware of techniques for avoidance of tissue damage and bleeding but needs supervision to accomplish proper handling. Needs direction to grasp sclera outside margins of intended scleral flap. Conjunctival buttonholes present.	Tissue handling is safe but sometimes requires multiple attempts to achieve desired manipulation of tissue. No direction required to avoid grasping sclera within margins of intended scleral flap. Conjunctiva is intact but manipulated aggressively/unsafely e.g. toothed forceps.	Tissue handling is efficient, fluid and almost always achieves desired tissue manipulation on first attempt. No conjunctival buttonholes present.	

3	Knowledge of instruments	Can only identify instruments in simple terms such as "scissors" and "forceps" but no knowledge of necessary sutures or needle types.	Can identify some but not most of the surgical instruments by proper names and can identify necessary suture sizes and materials but not needle types.	Can identify most but not all of the surgical instruments by proper name and can identify necessary suture sizes/materials but not needle types.	Can identify all surgical instruments by proper names and can identify necessary suture sizes/materials and needle types.	
4	Technique of holding suture needle in needle holder	Frequently loads needle incorrectly.	Loads needle in proper direction for a forehand pass but sometimes loads incorrectly for backhand pass. Loads too close or too far from the swaged end of the needle.	Loads needle properly for forehand and backhand needle pass but is inefficient and often requires multiple attempts.	Loads needle properly and efficiently for forehand and backhand needle passes.	
5	Technique of surgical knot tying	Unable to tie knots.	Require multiple extra hand maneuvers to make first throw lay flat and/or loosens first throw while attempting to perform the second throw.	Is able to tie a flat surgeon's knot first throw but second and third throws are inefficient. Does not inadvertently loosen the first throw.	Is able to efficiently tie a flat, square surgeon's knot.	
6	Communication with surgical team	Does not know role of surgical team members. Lacks confidence or has too much. Does not establish good rapport with team. Unable to request instruments from scrub nurse using proper instrument and suture names and/or instructions to surgical assistant are vague or nonexistent.	Knows role of most surgical team members. Lacks confidence. Has difficulty establishing good rapport with team members. Able to request most instruments from scrub nurse using proper instrument and suture names but instructions to surgical assistant are inadequate to perform procedure safely.	Knows role of each surgical team member. Is somewhat confident and usually treats team with respect. Establishes good working relationship. Able to request most instruments from scrub nurse using proper instrument and suture names in correct order. Instructions to surgical assistant are adequate for a skilled assistant but inadequate for an unskilled assistant.	Knows role of each surgical team member. Is confident and treats team with respect. Establishes good working relationship. Able to efficiently request instruments from scrub nurse using proper names in correct order. Able to consistently give clear instructions to surgical assistant. Communicates with anesthetist, if present.	

Overall difficulty of case (circle): Standard Intermediate Difficult

Comments: ____

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Signature of Assessor: ____________________ Signature of Trainee: ____________________

Green CM, Salim S, Edward DP, Mudumbai RC, Golnik KC. The Ophthalmology Surgical Competency Assessment Rubric for Trabeculectomy. J Glaucoma. 2017 Sep; 26(9):805-809.

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