

Objective Structured Clinical Examination (OSCE) in Ophthalmology

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Objective Structured Clinical Examination (OSCE) in Ophthalmology for medical students is aimed to test competencies and skills which include history taking, examination skills, diagnosing, and management of common ophthalmic conditions. Preparing an OSCE consists of several key steps:

- Defining Learning Objectives
- Designing OSCE Stations
- Developing Checklists and Marking Schemes
- Examiners Recruitment and Training
- Arranging for Equipment and Logistics:
- Preparing Standardized Patients (SPs)
- Pilot Testing
- Briefing and Debriefing Sessions
- Feedback and Evaluation
- Ethical and Legal Considerations
- Logistics

1. Learning Objectives:

Basic Knowledge and Understanding:

Anatomy and Physiology:

Understand the anatomy of the eye and orbit, including structures like the cornea, sclera, lens, uvea, retina, optic nerve, and extraocular muscles.

Comprehend the basic physiology of vision, including visual pathways and ocular movements.

Common Ophthalmic Conditions:

Identify, describe and understand the basic pathophysiology underlying common eye diseases such as conjunctivitis, keratitis, keratoconus, uveitis, cataracts, glaucoma, optic neuropathies, optic neuritis, age-related macular degeneration, retinal detachment, central retinal artery occlusion, central retinal vein occlusion, diabetic retinopathy, retinal dystrophies, eye trauma, ocular tumors, strabismus and common eyelid, lacrimal system and orbital disorders.

Pharmacology:

Recognize commonly used ophthalmic medications, their indications, mechanisms of action, and potential side effects.

History Taking:

Skillful taking of focused ophthalmic history, including:

1. **Chief Complaint:** Understanding the primary reason why the patient is seeking care. This includes the main symptoms or concerns about their vision or eyes.
2. **History of Present Illness:** Detailed exploration of the chief complaint. This should include the onset, duration, and progression of symptoms, any associated factors, and what, if anything, alleviates or worsens them.
3. **Past Ocular History:** Information about previous eye conditions, surgeries, injuries, or treatments. This also includes the patient's history of eyeglasses or contact lens use.
4. **Medical History:** Information about the patient's overall health, including chronic illnesses (e.g., diabetes, hypertension), allergies, and any relevant surgeries or hospitalizations.
 - **General Health:** Inquire about recent weight loss, fever, fatigue, or energy levels.
 - **Neurological:** Ask about headaches, migraines, dizziness, vertigo, seizures, or any history of strokes.
 - **Endocrine:** Check for history or symptoms of diabetes, thyroid disorders, or other hormonal issues.
 - **Cardiovascular:** Inquire about chest pain, palpitations, high blood pressure, history of heart attacks, or other cardiovascular issues.
 - **Respiratory:** Ask about shortness of breath, chronic cough, asthma, or a history of lung diseases.
 - **Gastrointestinal:** Check for any history of liver disease, frequent nausea, vomiting, diarrhea, constipation, or abdominal pain.
 - **Musculoskeletal:** Inquire about joint pain, muscle weakness, or history of arthritis.

- Skin: Ask about skin rashes, lesions, or history of skin diseases that might be associated with systemic diseases.
 - Allergies/Immunological: Check for history of allergies or autoimmune diseases.
 - Psychiatric: Inquire about depression, anxiety, or other mental health issues.
5. **Medication History:** A list of all medications the patient is currently taking, including prescription drugs, over-the-counter medications, herbal supplements, and eye drops.
 6. **Family History:** Information about the eye health and general health of the patient's immediate family, particularly if there are any hereditary eye conditions.
 7. **Social History:** Lifestyle factors that can impact eye health, such as smoking, alcohol consumption, occupation, and hobbies. It's important to assess exposure to potential hazards, like UV radiation or chemicals.

Basic Ophthalmic Examination:

Perform basic eye examinations, including:

1. Visual Acuity Testing:

- **Purpose:** To assess the clarity or sharpness of vision.
- **Procedure:** Use a Snellen chart or similar tool. Test each eye separately, with and without corrective lenses if the patient wears them.
- **Interpretation:** Normal visual acuity is typically 20/20. A result like 20/40 indicates that the patient sees at 20 feet what a person with normal vision sees at 40 feet.

2. Pupillary Light Reflex:

- **Purpose:** To evaluate the reflex pathway of the pupils.
- **Procedure:** Shine a light into each eye and observe the direct and consensual pupillary response (the reaction of both pupils).
- **Interpretation:** Normally, pupils constrict promptly and equally in response to light.

3. Extraocular Movements:

- **Purpose:** To assess the function of the six extraocular muscles and cranial nerves controlling eye movements.
- **Procedure:** Ask the patient to follow a target (like a pen) with their eyes without moving their head.
- **Interpretation:** Look for smooth tracking and any nystagmus, strabismus, or restrictions in movement.

4. Confrontational Visual Field Testing:

- **Purpose:** To check for gross visual field deficits.
- **Procedure:** Sit directly in front of the patient. Ask them to cover one eye and look at your nose. Wiggle your fingers in each quadrant of their visual field and ask them to tell you when they see the movement.
- **Interpretation:** Compare the patient's visual field with your own to detect any gross field cuts or deficits.

5. Anterior Segment Examination:

- **Purpose:** To examine the front part of the eye including the eyelids, sclera, conjunctiva, iris, and lens.
- **Procedure:** Use a slit lamp or handheld penlight and magnification if necessary. Look for abnormalities like eyelid disorders, corneal scratches or ulcers, cataracts, etc.
- **Interpretation:** Normal structures should appear clear and without inflammation or lesions.

6. Intraocular Pressure Measurement:

- **Purpose:** To screen for glaucoma.
- **Procedure:** Typically performed using a tonometer or if one not available perform digital method
- **Interpretation:** Normal intraocular pressure typically ranges between 10 and 21 mmHg. Elevated pressure may indicate glaucoma.

7. Fundoscopic (Ophthalmoscopic) Examination:

- **Purpose:** To view the internal structures of the eye, including the retina, retinal vessels, and optic nerve.
- **Procedure:** Use an ophthalmoscope to look through the pupil. It may be necessary to dilate the pupil with drops for a better view.
- **Interpretation:** Identify the optic disc, vessels, macula, and peripheral retina. Look for abnormalities like retinal hemorrhages, exudates, vessel changes, or optic disc edema.

Tips for Performing the Examination:

- **Good Communication:** Explain each step to the patient to ensure comfort and cooperation.
- **Adequate Lighting:** Ensure proper lighting for external and internal examinations.
- **Systematic Approach:** Follow the same order each time to ensure a thorough examination and avoid missing any steps.
- **Refer When Necessary:** If any abnormalities are detected, or if you're uncertain about your findings, refer the patient to an ophthalmologist for a more detailed examination.

Diagnostic Techniques:

In ophthalmology, several diagnostic techniques are used to evaluate and diagnose eye conditions. These techniques range from simple tests that can be performed in a general practitioner's office to more complex examinations requiring specialized equipment. Here's an overview of some key diagnostic techniques used in ophthalmology:

1. Tonometry:

- **Purpose:** To measure intraocular pressure (IOP), which is crucial in diagnosing and managing glaucoma.
- **Common Methods:**
 - **Goldmann Applanation Tonometry:** Considered the gold standard. It involves numbing the eye and then applying a probe to the cornea to measure the force required to flatten a part of it.
 - **Non-contact Tonometry:** Uses a puff of air to flatten the cornea, measuring the IOP indirectly.
 - **Schiotz Tonometry:** An older method where a weighted plunger indents the cornea. The degree of indentation correlates with IOP. It's less commonly used now due to lower accuracy compared to applanation methods.

2. Perimetry (Visual Field Testing):

- **Purpose:** To map the visual field of each eye, aiding in the diagnosis of glaucoma, stroke, brain tumors, and other neurological deficits.
- **Procedure:** Patients look straight ahead and indicate when they see light spots in different areas of their peripheral vision.
- **Types:**
 - **Standard Automated Perimetry:** The most common method.
 - **Goldmann Perimetry:** A manual method where the examiner controls the movement of the light.

3. Slit-Lamp Examination:

- **Purpose:** To examine the anterior and posterior segments of the eye in detail.
- **Procedure:** A special microscope with a bright light (the slit lamp) is used to view the eye under high magnification.
- **Applications:** Can evaluate the eyelids, sclera, conjunctiva, cornea, iris, lens, and even the anterior vitreous.

4. Fundoscopy (Ophthalmoscopy):

- **Purpose:** To examine the back of the eye, including the retina, retinal vessels, macula, and optic nerve.
- **Procedure:** An ophthalmoscope is used to look through the pupil. Dilation of the pupil may be necessary for a comprehensive view.
- **Types:** Direct and indirect ophthalmoscopy.

5. Fluorescein Angiography:

- **Purpose:** To visualize blood flow in the retina and choroid.
- **Procedure:** A fluorescent dye is injected into a vein and photographs are taken as the dye passes through the blood vessels in the back of the eye.
- **Indications:** Useful in diagnosing conditions like diabetic retinopathy, macular degeneration, and retinal vessel occlusions.

6. Optical Coherence Tomography (OCT):

- **Purpose:** To obtain high-resolution cross-sectional images of the retina.
- **Applications:** Essential in diagnosing and monitoring diseases like macular degeneration, diabetic eye disease, and glaucoma.

7. Corneal Topography:

- **Purpose:** To map the curvature of the cornea's surface.
- **Applications:** Useful in diagnosing and managing conditions like keratoconus, and in planning refractive surgery such as LASIK.

8. Gonioscopy:

- **Purpose:** To examine the anterior chamber angle of the eye, crucial for diagnosing and managing glaucoma.
- **Procedure:** A special contact lens with a mirror is used to visualize the angle where the iris meets the cornea.

9. Pachymetry:

- **Purpose:** To measure corneal thickness.
- **Applications:** Important in glaucoma management, as corneal thickness can affect IOP readings, and in assessing suitability for refractive surgery.

10. B-scan Ultrasonography:

- **Purpose:** To view the internal structures of the eye when the view is obscured, e.g., by cataracts.
- **Applications:** Useful for detecting retinal detachments, tumors, or other abnormalities behind the lens.

11. Electrophysiological Tests:

- **Types:** Electroretinography (ERG), Visual Evoked Potentials (VEP), and Electro-Oculography (EOG).
- **Purpose:** To assess the function of the retina and optic nerve.

Communication and Professionalism:

1. Patient Communication:

Demonstrate effective communication skills, including explaining diagnoses, management plans, and procedures to patients.

2. Interprofessional Collaboration:

Collaborate with other healthcare professionals in managing ophthalmic conditions, especially in cases requiring multidisciplinary care (e.g., diabetic retinopathy).

3. Problem-Solving and Clinical Reasoning:

- **Differential Diagnosis:**

Develop the ability to formulate a differential diagnosis for common ophthalmic presentations.

- **Management Plans:**

Propose basic management strategies for common ophthalmic conditions, including when to refer to an ophthalmologist.

4. Ethical and Legal Considerations:

Understand and apply ethical principles in ophthalmological practice, including issues related to consent, confidentiality, and patient autonomy.

5. Integration with General Medicine:

Systemic Implications: Understand the systemic implications of ophthalmic conditions and vice versa, recognizing the importance of a holistic approach to patient care.

6. Research, Evidence-Based Practice and Lifelong Learning:

Developing an appreciation for research and evidence-based practice in ophthalmology, understanding the importance of staying current with advances in the field.

2. OSCE Stations:

Each student will have to pass at least one station which will be randomly assigned. A guide for students during the preparation for OSCE in Ophthalmology may be found at the end of this elaborate.

History Taking Stations:

Scenario: A patient presents with a complaint such as decreased vision, eye pain, or redness.

Skills Assessed: Ability to take a focused ophthalmic history, including chief complaint, history of present illness, past ocular history, medical history, medication history, family history, social history.

Vision and Eye Examination Stations:

Scenario: Patient presents with certain ophthalmological complaint.

INSTRUCTIONS FOR STUDENTS AND EXAMINERS

Introduction and Orientation

- Greet the patient and introduce yourself.
- Verify the patient's identity and record basic information.
- Review the patient's medical history, past vision problems, and current therapy (if any).

Visual Acuity Testing Using the Snellen Chart

- Ask if the patient has a refractive error. If they have glasses or contact lenses, request them to wear them.
- Have the patient sit or stand 6 meters (20 feet) away from the chart.
- Test each eye separately: ask the patient to cover one eye with their hand.
- Instruct the patient to read the letters shown (ensure they do not obscure letters with their finger or pointer). Start from the largest letters and proceed to smaller ones. Confirm accuracy by testing additional letters in the smallest readable row.
- Check visual acuity using a pinhole occluder.
- Repeat the procedure for the other eye.

Anterior Segment Examination with Focal Light

- Use a handheld flashlight to illuminate the eye area, preferably with a magnifier placed in front of the eye.

Pupillary Reflex Testing

- **Direct pupillary reflex:** Cover one eye and direct light into the other eye, observing the reaction of the illuminated pupil.
- **Consensual reflex:** Place a vertical hand barrier at the nasal bridge and direct light into one eye while observing the response in the other pupil.
- **Swinging flashlight test:** Move the light moderately fast between both eyes while checking for signs of relative afferent pupillary defect (RAPD).

Confrontation Visual Field

- Stand about 1 meter (3 feet) in front of the patient.
- Instruct the patient to look directly at your nose.
- Test each eye separately. The patient covers one eye while the examiner covers the corresponding eye.
- Move fingers from the peripheral quadrants toward the center and ask the patient to indicate when they first see them.
- Compare with your own visual field.

Digital Assessment of Intraocular Pressure

- Ask the patient to look downward.
- Gently press on the closed upper eyelid with alternating index fingers.
- Assess resistance (soft, normal, or firm globe).

Cover-Uncover Test

- Ask the patient to fixate on a distant object.
- Cover one eye and observe if there is any movement in the uncovered eye.
- Uncover the eye and check if it re-aligns to fixation.
- Repeat for the other eye.
- This test helps detect strabismus (tropia or phoria).

Eye Movement and Nystagmus Testing

- Ask the patient to follow your finger in all directions.
- Check for:
 - Movement restrictions.
 - Pain during eye movements.
 - Diplopia in specific gaze directions.
 - Presence of nystagmus.

Fundoscopy Examination

1. Preparation:

- Dim the room lights.
- Instruct the patient to focus on a distant object.
- If possible, the patient's pupils should be dilated (mydriasis).

2. Red Reflex:

- Direct the ophthalmoscope light toward the eye and observe the red reflex.
- A diminished or absent red reflex may indicate cataract, vitreous hemorrhage, or retinoblastoma (in children).

3. Fundus Examination:

- Hold the ophthalmoscope to your right eye while examining the patient's right eye, and vice versa.
- Move closer to the patient to visualize the retina.

Completion of the Examination

- Ask the patient if they have any questions or concerns.
- Summarize the findings.
- Offer a differential diagnosis and further recommendations.
- Thank the patient for their cooperation.

Communication Stations:

Scenario: Explain a diagnosis or treatment plan to a patient (e.g., cataract surgery, glaucoma management).

Skills Assessed: Effective communication, patient education, and empathy.

These communication stations generally cover common key areas. These areas assess student's ability to communicate effectively with the patient, provide clear and concise information about the diagnosis, and outline an appropriate treatment plan. During the exam the student will be evaluated for:

- **Introduction and Rapport Building:** Greets the patient warmly and introduces self clearly; Establishes rapport with the patient; Ensures patient comfort and privacy.
- **Patient Assessment and Understanding:** Checks the patient's understanding of their current condition; Asks about the patient's concerns and expectations; Demonstrates active listening skills.
- **Explaining the Diagnosis:** Clearly and accurately explains the diagnosis; Uses language appropriate to the patient's level of understanding (avoids medical jargon); Checks patient's understanding of the diagnosis.
- **Treatment Plan Explanation:** Provides a clear explanation of the proposed treatment plan; Discusses various treatment options, if applicable; Explains the benefits and potential risks/side effects of the treatment; Includes information about any lifestyle modifications or self-care measures.
- **Patient Involvement:** Involves the patient in decision-making; Respects patient autonomy and preferences; Addresses any patient questions or concerns regarding the treatment plan.
- **Consent and Compliance:** Discusses the importance of adherence to the treatment plan; Ensures the patient is informed and consents to the proposed treatment; Discusses follow-up arrangements.
- **Empathy and Support:** Shows empathy and understanding towards the patient's condition and concerns; Offers emotional support and reassurance; Provides resources for additional information or support (e.g., leaflets, support groups).

- Closure: Summarizes the main points of the discussion; Asks if the patient has any further questions or concerns; Ends the consultation on a positive note, ensuring the patient knows the next steps.
- Professionalism and Communication Skills: Maintains eye contact and appropriate body language; Demonstrates confidence and professionalism; Speaks clearly and at an appropriate pace.
- Time Management: Manages the consultation time effectively, covering all key points without rushing.

Interpretation Station:

Scenario: A patient brings printed ophthalmic investigation findings (OCT, visual field, VEP) and asks for explanation of a diagnosis or treatment.

Skills Assessed: Reading and interpreting ophthalmic investigations like OCT scans, visual fields or VEP.

- General Approach and Professionalism: Approaches the station with confidence and professionalism; Demonstrates systematic and methodical inspection of the investigations.
- Understanding of Investigations: Demonstrates knowledge of the purpose and principles of OCT scans, visual field tests, and VEP; Recognizes the normal and abnormal findings in these investigations.
- Interpretation of OCT Scans, visual fields or VEP: Accurately interprets OCT scans, identifying key features such as retinal layer integrity, macular thickness, and any signs of pathology (e.g., macular degeneration, glaucoma, diabetic retinopathy); Comments on the quality of the scan and recognizes artifacts; Correctly interprets visual field plots; Identifies patterns indicative of glaucomatous damage, neurological defects, or other ocular conditions; Assesses reliability indices (e.g., fixation losses, false positives, false negatives); Understands and interprets VEP results, recognizing normal and abnormal waveforms; Links VEP findings with clinical context (e.g., demyelinating diseases, optic neuropathies).
- Clinical Correlation: Correlates the findings from the investigations with clinical history and examination; Identifies when additional testing or referral is necessary.
- Communication Skills: Explains the findings of the investigations to the patient in an understandable manner; Uses appropriate and clear language, avoiding medical jargon.
- Patient Management: Discusses potential management strategies based on the investigation findings; Considers and respects patient preferences and values in management decisions.
- Discussion of Limitations and Next Steps: Discusses the limitations of the investigations; Describes next steps in terms of further investigations, treatment, or referral.
- Time Management: Effectively manages time to ensure all aspects of the task are completed.
- Ethical and Patient-Centered Approach: Ensures patient confidentiality and ethical considerations in discussing investigation results.

- Response to Patients' Questions: Answers any follow-up questions from the patient clearly and accurately.

All stations will be peer-reviewed by other ophthalmologists for validity.

3. Checklists and Marking Schemes:

Checklists and marking schemes are useful both for examiners and students. For the examiner it is a tool to keep score of the student's performance and for students it is a guide to what must be done during the clinical examination of the eyes and its's adnexa.

Different checklists specific to each station can be found in the table below.

OSCE station checklists:	
History Taking	Appendix 1
Vision and eye examination	Appendix 2
Communication station	Appendix 3
Reading and interpreting ophthalmic investigations	Appendix 4

In each checklist both critical steps (must-do for passing the station indicated with *) and non-critical steps are indicated. Final vote obtained at the OSCE station will be calculated according to a total number of points collected as shown in Table 1.

Table 1 OSCE final vote	
Points	Vote
0-7	1
8-15	2
16-22	3
23-29	4
30-36	5

4. Examiners Recruitment and Training:

The recruitment of examiners for OSCE in ophthalmology will involve selecting experienced members from our department's teaching staff. These individuals, known for their clinical expertise and pedagogical skills, are ideal for the role of examiners in the OSCE. Their primary responsibility will be to objectively assess student performance during the examination.

To prepare for this role, our selected examiners will undergo specialized training. This will include familiarization with the specific evaluation criteria and marking schemes of the OSCE stations. Additionally, they will be trained in effective communication skills to provide constructive and unbiased feedback to students. This training aims to ensure consistency in scoring and enhance the overall reliability of the examination process.

By involving our experienced teaching staff in this capacity, we not only uphold the standard of assessment but also reinforce our commitment to delivering high-quality medical education. Their involvement is expected to bring depth and rigor to the evaluation process, contributing significantly to the students' learning experience."

5. Equipment and Logistics:

We are meticulously planning the equipment and logistics to ensure a smooth and effective examination process. Our strategy involves utilizing the existing ophthalmology examination rooms, which are already equipped with the necessary clinical instruments and tools. This setting provides a realistic environment that mimics actual clinical scenarios, offering students a practical and immersive experience.

Each examination room will be set up with essential ophthalmic equipment such as:

1. slit lamp
2. direct ophthalmoscope
3. visual acuity chart
4. color vision test
5. magnifying glass
6. fluoresceine dye
7. anesthetic eyedrops
8. Schirmer test strips

This arrangement ensures that students are tested in a setting that closely resembles their future professional environment.

Furthermore, we plan to use prepared anonymized examination finding plots, including visual field plots, OCT scans, and fundus photographs. These plots will be key in evaluating the students' ability to interpret ophthalmic investigations accurately. Anonymizing these findings ensures patient confidentiality while providing a wide range of real case scenarios for assessment.

Logistically, the flow of the OSCE will be carefully managed to maintain efficiency and minimize disruptions. Students will be randomly assigned to a station in a timed and organized manner, with clear instructions provided for the station. Staff and faculty will be on hand to manage the process, ensuring that all equipment is functional and that each station is properly reset for the next student.

Overall, the use of specialized ophthalmology examination rooms and prepared anonymized examination plots is central to our approach. This setup not only enhances the realism of the examination but also allows for a comprehensive assessment of the students' diagnostic and clinical management skills in ophthalmology.

6. Standardized Patients (SPs):

We are looking to engage our younger colleagues, who are assistants in the Department of Ophthalmology, in the roles of SPs for our OSCE. This strategy aims to leverage their dynamism and adaptability to bring a

high degree of realism to the clinical scenarios presented to the students. As SPs, these assistants will be tasked with simulating various medical conditions and portraying patient behaviors in a consistent and credible manner.

Their training as SPs will involve comprehensive instructions on the specificities of each clinical case they are to represent. This will include detailed guidance on the accurate depiction of symptoms, the emotional and psychological state of the patients, and appropriate responses to the interactions initiated by the students.

This experience is expected not only to enhance the authenticity of the OSCE scenarios but also to contribute significantly to the professional growth of these individuals. Serving as SPs offers them a unique perspective on patient care, deepening their empathy and improving their communication skills within a clinical context. By stepping into the shoes of patients, they gain a deeper appreciation of the patient experience, which is essential in shaping well-rounded healthcare professionals."

This approach of involving assistant-level colleagues as SPs enriches the learning environment by adding depth to the clinical scenarios and fostering an atmosphere of collaborative learning and professional development.

7. Pilot Testing:

Pilot testing is an essential preliminary step in the development and refinement of our OSCE. Before the actual OSCE is conducted, a pilot test will be carried out with a small group of participants who closely represent our target examinee population. This trial run serves multiple purposes: it allows us to evaluate the clarity and appropriateness of the OSCE stations, assess the feasibility and timing of each section, and identify any logistical issues. Feedback from this pilot group is critical, as it provides insights into areas that may need adjustments, whether in station design, flow of the examination, or clarity of instructions. The pilot test also offers a valuable opportunity to train and calibrate examiners and Standardized Patients (SPs), ensuring consistency and reliability in the actual examination. Incorporating the findings and feedback from this pilot phase is crucial for enhancing the overall quality and effectiveness of the OSCE."

This approach to pilot testing ensures that any potential issues are identified and addressed prior to the actual examination, contributing significantly to the smooth and successful execution of the OSCE.

8. Briefing and Debriefing Sessions:

The briefing sessions are designed to ensure that students are well-prepared and informed about what to expect during the examination. The initial briefing will take place during the first introductory lesson. In this session, we will outline the objectives, format, and expectations of the OSCE. Students will receive detailed information on the various stations, including the types of skills and knowledge they will be assessed on, such as diagnostic procedures, patient interaction, and interpretation of ophthalmic investigations.

To reinforce this information and address any emerging questions or concerns, the briefing will continue throughout the clinical practical sessions. These ongoing briefings will provide students with more context and clarity, helping them to understand how their practical sessions tie into the OSCE assessment. By

integrating briefing content into the clinical practicals, we aim to enhance students' preparedness and confidence, ensuring they are well-equipped to tackle the challenges of the OSCE."

After the completion of the OSCE, debriefing sessions will be conducted. These sessions are crucial for providing feedback and reflection opportunities for the students. During the debriefing, we will discuss the overall performance of the students, highlighting both the areas of strength and areas needing improvement. Specific feedback from the different stations will be shared, offering students insights into their clinical reasoning, diagnostic accuracy, and patient communication skills.

The debriefing is not just a feedback session but also a learning opportunity. It will be structured to encourage students to reflect on their experiences, understand the rationale behind their assessments, and internalize lessons learned. This reflective practice is essential in medical education as it fosters continuous learning and professional growth. Additionally, students will have the opportunity to share their own perspectives and experiences, allowing for a comprehensive and engaging discussion that benefits all participants."

By conducting thorough briefing and debriefing sessions, we ensure that students are not only prepared for the OSCE but also able to learn and grow from the experience, aligning with the educational goals of the program.

9. Feedback and Evaluation:

As part of our commitment to continuous improvement and excellence in our OSCE process, we place a strong emphasis on feedback and evaluation from all participants. To facilitate this, we will be asking every participant involved in the OSCE to contribute their insights and suggestions for enhancements. To streamline this feedback process, we have developed two distinct feedback forms: one specifically designed for students (as detailed in Appendix 5) and the other tailored for examiners and Standardized Patients (SPs), which can be found in Appendix 6. These forms have been thoughtfully crafted to gather relevant and constructive feedback, covering aspects such as organization, clarity of instructions, effectiveness of communication, and overall experience. The insights gathered from these forms will be invaluable in guiding future improvements to our OSCE format, ensuring that it remains a robust and effective tool for assessing and enhancing the clinical skills of our students.

10. Ethical and Legal Considerations:

Ethical and legal considerations are paramount in the planning and execution of an Objective Structured Clinical Examination (OSCE), especially in a field as sensitive as healthcare. Here are key points which we covered:

- **Confidentiality and Data Protection:** We will ensure the confidentiality of student and patient data. All personal information will be handled in compliance with data protection laws and institutional policies, including secure storage of examination results and any personal data.
- **Informed Consent:** In OSCEs involving standardized patients (SPs), informed consent will be obtained from these individuals. They will be fully briefed on their roles and the nature of the interactions with students. Consent will also be secured if any recording equipment is used.

- **Fairness and Non-Discrimination:** The OSCE will be designed to provide equal opportunities for all participants, including accommodation for students with disabilities. The examination content will be free from bias and avoid perpetuating stereotypes or discrimination.
- **Student Welfare:** Acknowledging the stress associated with assessments, we will support students throughout the process. Clear information about the OSCE format, expectations, and preparation resources will be provided. Post-examination feedback and support will also be available.
- **Standardization and Transparency:** OSCE stations will be thoroughly standardized to ensure consistent assessment conditions for every student. The criteria for evaluation will be transparent and made known to students in advance.
- **Legal Compliance:** The OSCE will comply with all relevant educational, professional, and health and safety regulations. This includes ensuring that all clinical procedures performed are in line with current medical guidelines and standards.
- **Ethical Use of Simulated Scenarios:** When creating simulated clinical scenarios, we will avoid content that could be deemed offensive or distressing to students or SPs. Scenarios will be educationally relevant and ethically sound.

By considering these ethical and legal aspects, the OSCE will be conducted in a manner that respects, is fair to all participants, and complies with legal standards, thereby upholding the integrity of the examination process and the educational institution.

11. Logistics:

Logistical details are essential for the successful execution of an OSCE in ophthalmology and we focused on:

- **Venue Preparation:** We will prepare ophthalmology examination rooms in advance, ensuring that each room is equipped with the necessary ophthalmic instruments and tools. Rooms will be checked for adequate lighting, space, and seating to facilitate an optimal examination environment.
- **Scheduling and Timing:** The OSCE will be carefully scheduled to ensure a smooth flow of students through the examination stations. Adequate time will be allocated for each station, including time for students to read instructions and complete the tasks.
- **Equipment and Materials:** All necessary equipment, such as slit lamps, ophthalmoscopes, and tonometers, will be provided and set up in the examination rooms. Additionally, we will prepare anonymized examination plots and other diagnostic tools required for the assessments.
- **Staffing and Roles:** Staff members, including examiners and coordinators, will be assigned specific roles and responsibilities. Standardized Patients (SPs) will be briefed and stationed as per the requirements of each scenario.
- **Signage and Directions:** Clear signage will be placed to guide students through the OSCE circuit. This includes directions to each station, as well as to waiting areas, restrooms, and emergency exits.
- **Communication Systems:** Efficient communication systems will be established to manage the timing and flow of the examination. This may include timers, buzzers, or announcements to signal the start and end of each station.

- **Emergency Protocols:** Emergency protocols will be in place in case of any unforeseen incidents. Staff will be briefed on these protocols to ensure student safety at all times
- **Refreshments and Facilities:** Facilities for refreshments and breaks will be made available to students and staff, considering the duration of the OSCE.
- **Documentation and Record Keeping:** Proper documentation will be maintained for each student's performance. This includes preparing score sheets, feedback forms, and any other necessary records.
- **Post-OSCE Processing:** Plans will be in place for the efficient processing of results and feedback, ensuring timely and confidential communication with students.

By meticulously planning these logistical details, we aim to ensure a seamless and efficient OSCE process, providing a conducive environment for both the assessors and the students.

Appendix 1

History Taking Examination checklist:

Time allowed: 6 minutes.

1.	*Introduction and orientation	0	1	2
2.	*Chief Complaint	0	1	2
3.	*History of Present Illness	0	1	2
4.	*Past Ocular History	0	1	2
5.	*Medical History	0	1	2
6.	General Health	0	1	-
7.	Neurological	0	1	-
8.	Endocrine	0	1	-
9.	Cardiovascular	0	1	-
10.	Respiratory	0	1	-
11.	Gastrointestinal	0	1	-
12.	Musculoskeletal	0	1	-
13.	Skin	0	1	-
14.	Allergies/Immunological	0	1	-
15.	Psychiatric	0	1	-
16.	*Medication History	0	1	2
17.	*Family History	0	1	2
18.	*Social History	0	1	2

*Must-do for passing the station

Examiner's global score:

0 1 2 3 4 5

Actor's global score:

0 1 2 3 4 5

Examiner's comments:

Total marks possible: 36

Appendix 2

Vision and eye examination checklist:

Time allowed: 6 minutes.

1.	*Introduction and orientation	0	1	2
2.	*Testing visual acuity in each eye using the Snellen chart	0	1	2
3.	Did not forget to correct refractive error (pinhole test)	0	1	-
4.	* Examination of the anterior segment with focal light and special attention to pupils	0	1	2
5.	*Tests direct and consensual pupillary reflex and swinging flashlight test	0	1	2
6.	Confrontation visual field	0	1	-
7.	*Digital assessment of intraocular pressure	0	1	-
8.	Performs Cover and Uncover test or indicates the need for it	0	1	-
9.	*Examines eye movements, pain, and diplopia	0	1	2
10.	States that they checked for nystagmus	0	1	-
11.	Dims the room	0	1	-
12.	Asks the patient to fixate on a distant object during fundoscopy	0	1	-
13.	States that ideally, the patient should have dilated pupils	0	1	-
14.	Tests the red reflex using an ophthalmoscope	0	1	-
15.	*Examines the fundus with an ophthalmoscope	0	1	2
16.	Asks the patient if they have any questions or concerns	0	1	-
17.	*Summarizes findings and offers a differential diagnosis	0	1	2

*Must-do for passing the station

Examiner's global score:

0 1 2 3 4 5

Actor's global score:

0 1 2 3 4 5

Examiner's comments:

Total marks possible: 34

Appendix 3

Explaining a diagnosis and treatment plan examination checklist:

Time allowed: 6 minutes.

1.	*Introduction and rapport building	0	1	2
2.	*Patient assessment and understanding	0	1	2
3.	*Explaining the diagnosis	0	1	2
4.	*Treatment plan explanation	0	1	2
5.	Checks patient's understanding of the diagnosis and treatment plan	0	1	2
6.	Involves patient in decision-making	0	1	2
7.	Addresses any patient questions or concerns regarding treatment plan	0	1	2
8.	Discusses the importance of adherence to the treatment plan	0	1	2
9.	Discusses follow-up arrangements	0	1	2
10.	Shows empathy and understanding	0	1	2
11.	Asks if the patient has any further questions or concerns	0	1	2
12.	Speaks clearly and at an appropriate pace	0	1	2
13.	Ends the consultation on a positive note, ensuring the patient knows the next step	0	1	2

*Must-do for passing the station

Examiner's global score:

0 1 2 3 4 5

Actor's global score:

0 1 2 3 4 5

Examiner's comments:

--

Total marks possible: 36

Appendix 4

Interpretation station examination checklist:

Time allowed: 6 minutes.

1.	*Introduction and rapport building	0	1	2
2.	*Systematic and methodical inspection of the investigations	0	1	2
3.	*Recognition of normal and abnormal findings	0	1	2
4.	*Addresses quality and reliability of obtained plots	0	1	2
5.	Correlates findings with clinical history	0	1	2
6.	Identifies when additional finding or referral is necessary	0	1	2
7.	Explains the findings to the patient in an understandable manner	0	1	2
8.	Discusses potential management strategies based on the investigation findings	0	1	2
9.	Discusses the limitations of the investigation	0	1	2
10.	Shows empathy and understanding	0	1	2
11.	Asks if the patient has any further questions or concerns	0	1	2
12.	Speaks clearly and at an appropriate pace	0	1	2
13.	Ends the consultation on a positive note, ensuring the patient knows the next step	0	1	2

*Must-do for passing the station

Examiner's global score:

0 1 2 3 4 5

Actor's global score:

0 1 2 3 4 5

Examiner's comments:

Total marks possible: 36

Appendix 5

OSCE Feedback Form for Students

Date:

Student Name: [Optional]

OSCE station:

Instructions:

Please provide your honest feedback about the OSCE you have just completed. Your responses will help us improve future examinations and the overall learning experience. Circle the vote from 1 to 5 where 1 is the worst vote and 5 is the best best vote.

1.	Rate your overall experience of the OSCE	1	2	3	4	5
2.	Organization and Instructions	1	2	3	4	5
3.	How clear and organized were the instructions and the flow of the OSCE?	1	2	3	4	5
4.	Was the OSCE station reflective of what you learned during the course?	1	2	3	4	5
5.	How would you rate the difficulty level of the OSCE station from 1-5, where 1 means very easy and 5 very difficult?	1	2	3	4	5
6.	Was there sufficient time to complete the tasks at the station? 1 means very short time and 5 plenty of time	1	2	3	4	5
7.	How effective were the SPs in portraying their roles?	1	2	3	4	5
8.	Were the equipment and resources provided adequate and functional?	1	2	3	4	5
9.	How helpful did you find the feedback and debriefing session?	1	2	3	4	5
10.	How effective was the OSCE in enhancing your learning experience?	1	2	3	4	5
	Please provide any other comments or suggestions you have about the OSCE:					

Thank you for your feedback!

Appendix 6

OSCE Feedback Form for Examiners and Standardized Patients

Date:

Name: [Optional]

OSCE Station:

Instructions: Your feedback is invaluable in enhancing the quality and effectiveness of our OSCE. Please provide your honest opinions and observations.

1.	How would you rate your overall experience participating in the OSCE? (1 = Very Poor, 5 = Excellent)	1	2	3	4	5
2.	How well-organized and smoothly run did you find the OSCE? (1 = Very Poor, 5 = Excellent)	1	2	3	4	5
3.	Were the instructions and expectations provided to you clear and sufficient? (1 = Not Clear, 5 = Very Clear)	1	2	3	4	5
4.	For SPs: How adequate was the training provided for your role? For Examiners: How adequate was the briefing on assessment criteria and procedures? (1 = Insufficient, 5 = Very Adequate)	1	2	3	4	5
5.	How did you find the level of student preparedness and interaction during the OSCE? (1 = Very Poor, 5 = Excellent)	1	2	3	4	5
6.	How appropriate and effective did you find the assessment criteria for the OSCE stations? (1 = Ineffective, 5 = Very Effective)	1	2	3	4	5
7.	How comfortable and equipped did you feel providing feedback to students? (1 = Not Comfortable, 5 = Very Comfortable)	1	2	3	4	5
8.	Were the equipment and resources at the stations adequate and functional? (1 = Poor, 5 = Excellent)	1	2	3	4	5
9.	How effective do you believe the OSCE was in contributing to the students' learning? (1 = Not Effective, 5 = Very Effective)	1	2	3	4	5
	Please provide any other comments or suggestions you have about the OSCE:					

Thank you for your feedback!

Appendix 7

OSCE in Ophthalmology

Guide for students

Before starting

- Introduce yourself to the patient.
- Confirm his name and date of birth.
- Explain the examination and obtain his consent.
- Ensure that he is comfortable.

The vision and eye examination

1. Visual acuity

- Snellen chart. Assess each eye individually, correcting for any refractive errors (glasses, pinhole). If the patient cannot read the Snellen chart, either move him closer or ask him to count fingers. If he fails to count fingers, test whether he can see hand movements and, if he cannot, test whether he can see light.
- Ishihara plates. indicate that you could use Ishihara plates to test color vision specifically.

2. Visual fields

- Confrontation test. Test the visual fields by confrontation. Sit directly opposite the patient, at the same level as him. Ask him to look straight at you and to cover his right eye with his right hand. Cover your left eye with your left hand and test the visual field of his left eye with your right hand. Bring a wiggly finger into the upper left quadrant, asking the patient to say when he sees the finger. Repeat for the lower left quadrant. Then swap hands and test the upper and lower right quadrants. Now ask the patient to cover his left eye with his left hand. Cover your right eye with your right hand and test the visual field of his right eye with your left hand. Bring a wiggly finger into the upper right quadrant, asking the patient to say when he sees the finger. Repeat for the lower right quadrant. Then swap hands and test the upper and lower left quadrants.

3. Eye Surface and Adnexa Examination:

- Prior to assessing the internal structures of the eye, a thorough examination of the eye surface and adnexa is crucial. Inspect the eyelids, eyelashes, and lacrimal apparatus for any abnormalities using diffuse light. A magnifying glass can enhance the view if finer detail is needed. Additionally, the cornea, conjunctiva, and sclera should be examined for signs of infection, inflammation, or other pathologies. If any abnormalities such as corneal abrasions or foreign bodies are suspected, students should indicate the potential use of fluorescein dye to highlight these defects. The use of local anesthetic eyedrops may also be warranted to facilitate further examination or removal of

foreign bodies. This initial external examination sets the stage for more detailed internal assessments and helps guide subsequent diagnostic steps.

4. Pupillary reflexes

- Inspection. inspect the eyes, paying particular attention to the size and symmetry of the pupils, and excluding a visible ptosis or squint.
- Test the direct and consensual pupillary light reflexes. Explain that you are going to shine a bright light into the patient's eye and that this may feel uncomfortable. Bring the light in onto his left eye and look for pupil constriction. Bring the light in onto his right eye once again, but this time look for pupil constriction in his left eye (consensual reflex). Repeat for the right eye.
- Perform the swinging flashlight test. Swing the light from one eye to another and look for sustained pupil constriction in both eyes. Intermittent pupil constriction in one eye (Marcus Gunn pupil) suggests a lesion of the optic nerve anterior to the optic chiasm.
- Test the accommodation reflex. Ask the patient to follow your finger in to his nose. As the eyes converge, the pupils should constrict.

5. Tonometry:

- Assessing intraocular pressure (IOP) is critical, especially if there is a suspicion of acute glaucoma. In such cases, one should perform digital tonometry as a preliminary measure. It's important for students to recognize the signs of acute glaucoma and to be prepared to take appropriate measures, including referral for immediate ophthalmological evaluation.

6. Eye movements

- Perform the cover test. Ask the patient to fixate on a point and cover one eye. Observe the movement of the uncovered eye. Repeat the test for the other eye.
- Examine eye movements. Ask the patient to keep his head still and to follow your finger with his eyes. Ask him to report any pain or double vision at any point.
- Nystagmus. Look out for nystagmus at the extremes of gaze. You can do this as part of eye movements or separately by fixing the patient's head and asking him to track your finger through a cross pattern.

7. Fundoscopy

Explain the procedure, mentioning that it may be uncomfortable. Darken the room and ask the patient to fixate on a distant object (or to 'look over my shoulder'). State to the examiner that, ideally, the pupils should have been dilated using a solution of 1% cyclopentolate or 0.5% tropicamide.

- Red reflex. Test the red reflex in each eye from about 10 cm. An absent red reflex is usually caused by a cataract.

- Fundoscopy. Use your right eye to examine the patient's right eye, and your left eye to examine the patient's left eye. Look at the optic disc, the blood vessels, and the macula. To find the macula, ask the patient to look directly into the light.

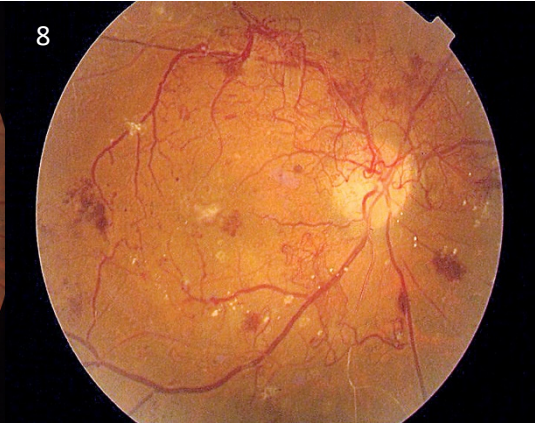
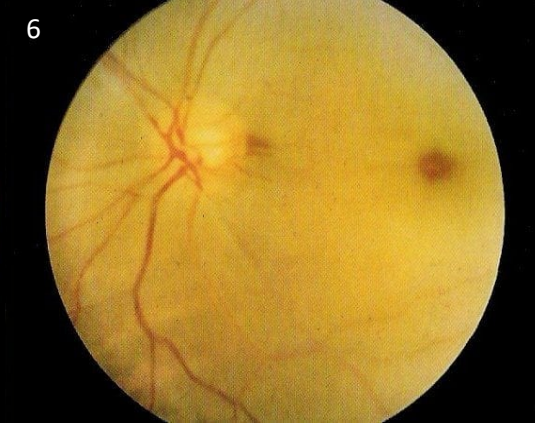
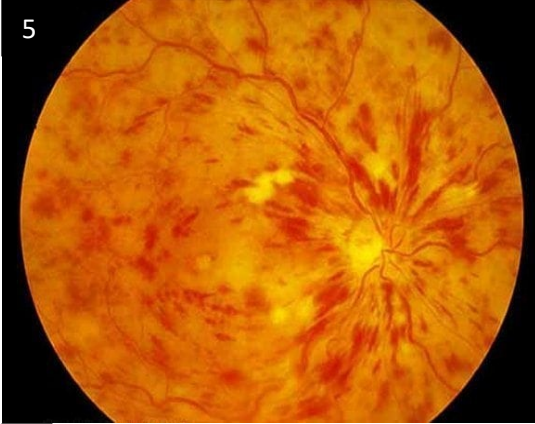
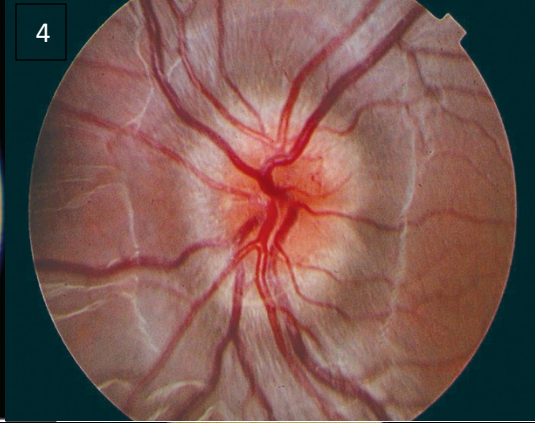
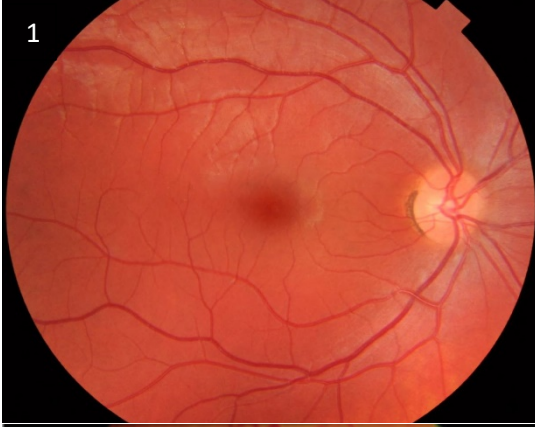
Describe any features according to protocol, e.g. "There are soft exudates at 3 o'clock, two disc diameters away from the disc."



Fundoscopy

Pictures:

1. Normal fundus
2. Senile macular degeneration
3. Hypertensive retinopathy
4. Optic nerve oedema
5. Central retinal vein occlusion
6. Central retinal artery occlusion
7. Nonproliferative diabetic retinopathy
8. Proliferative diabetic retinopathy



After the examination

- Ask the patient if he has any questions or concerns.
- Thank the patient.
- Summarize your findings and offer a differential diagnosis.

Conditions most likely to come up in Vision and Eye Examination Station
Cataract <ul style="list-style-type: none">• Absent red reflex; on approaching ophthalmoscope the lens may look like cracked ice
Senile macular degeneration <ul style="list-style-type: none">• Drusen (characteristic yellow deposits) in the macula, exudative changes resulting from blood and fluid under the macula
Hypertensive retinopathy <ul style="list-style-type: none">• Stage I: arteriolar narrowing and tortuosity• Stage II: AV nicking, silver-wiring• Stage III: dot, blot, and flame hemorrhages, microaneurysms, soft exudates (cotton wool spots), hard exudates• Stage IV: papilledema
Diabetic retinopathy <ul style="list-style-type: none">• Background: microaneurysms, macular oedema, hard exudates, hemorrhages• Pre-proliferative: cotton-wool spots, venous beading• Proliferative: neovascularization, vitreous hemorrhage
Glaucoma <ul style="list-style-type: none">• Increased cup-to-disc ratio (> 0.5), hemorrhages
Central retinal artery occlusion <ul style="list-style-type: none">• Pale retina with swelling or oedema, markedly decreased vascularity, cherry red spot in the central fovea
Central retinal vein occlusion <ul style="list-style-type: none">• Widespread hemorrhages throughout the retina with swelling and oedema, sometimes described as a 'fireworks'
Papilledema <ul style="list-style-type: none">• Blurring of disc margins, cupping, and swelling of the optic disc, hemorrhages, exudates, distended veins