

USING AI TO GENERATE PRACTICE CASES

Practicing cases and group simulations can be effective prep methods. You can create realistic cases like the exam format using tools like Copilot, ChatGPT, or Gemini, which use large language models (LLM).

Although AI-generated cases are helpful for exam preparation, LLMs rely on pattern matching rather than logical reasoning, so the outputs may need to be corrected. As optometrists, always verify AI-generated information and cross-check it with reliable sources before making any decisions or recommendations.

An exciting journal article, "[Applications of ChatGPT in the diagnosis, management, education, and research of retinal diseases: a scoping review](#)" concludes, "The issue of generating understandable outputs is particularly nuanced, **often depending on how prompts are crafted and specified**. Studies that have reported less understandable outputs may not have explicitly requested accessible responses, underscoring the importance of prompt engineering. Additionally, the consistent need for human supervision cannot be overstated. While AI can provide valuable support, it is crucial to ensure that the final decision-making remains in the hands of healthcare professionals."

The sections below give a sample prompt and the resulting practice case. To help you prepare, we have asked the prompt to provide more information you will receive on your exam cases.

If you develop more effective prompts than the draft prompt, please send them to exams@oebc.ca. We will include improvements in future updates of this guide.

GUIDELINES – HOW TO CREATE CASES

1. Select a Topic

- a) Choose a relevant topic for the case. Here are a few methods:
 - a. Select a topic from Appendix A – Topic Matrix in the OEBC Blueprint: <https://oebc.ca/resources/exam-blueprint/>. Focus on subtopics where your response isn't automatic, as these need more attention.
 - b. Select a topic from an enabling competency in the OEBC Blueprint: <https://oebc.ca/resources/exam-blueprint/>. See Table 1 - Case Selection by Prime Practice Area on page 1 for question distribution. Focus on areas requiring additional practice.
 - c. Identify a common condition or scenario that optometrists often encounter, such as Posterior Capsular Opacification or Laser Peripheral Iridotomy. This method is helpful for targeted follow-up on specific areas.

2. Varying the inputs

Adjust the prompt to introduce a different topic and alter the patient's demographics. Instead of using a topic state, say, "Draft a sample case for an optometry exam for a professional with an OD degree that necessitates using [identify competencies]. Include these elements . . ."

3. Use a Sample OSCE or Written Case Prompt

Copy and paste the sample prompt into an LLM. Generate the output.

You can then ask the LLM to:

- recreate the case with specific inputs that would change your diagnosis
- create a similar case for a person half the age, opposite gender, and with various medical conditions (i.e. high blood pressure, diabetes, etc.)

The draft prompt asks six questions for each case for the written exam prompts, while only four are on the exam to give you extra practice.

Many of the Written cases include digital media. LLMs could be better at selecting or creating realistic digital images of eyes. So, ask for a description and look up an image online.

For a study group, assign 4 or 5 topics to each member to create OSCE and written cases. Individually validate the information and then share the refined cases with your group. Score them together—a great way to get feedback.

PROMPT FOR GENERATING A PRACTICE OSCE CASE

Tailor each sample case prompt by varying the topic, identifying tasks that can be done within 8 minutes, and noting the patient's gender, age, medical and ocular history, and setting. Print the first seven sections for the candidate practicing the case. Use the rest of the information to prepare the simulated patient and support the examiner's scoring. Review together after attempting the case.

Create a comprehensive and practical OSCE case regarding cataracts and include the following key elements:

1. **Instructions to Candidate:** Provide clear instructions on what the candidate is expected to do during the 8-minute encounter. This could include two specific tasks, e.g., Taking a detailed history from the patient, resolving the patient's chief complaint, explaining the diagnosis, explaining the treatment and management options, performing procedures
2. **Time Limit:** Indicate that the time limit for the encounter is 10 minutes, 2 minutes to read the instructions and 8 minutes to perform the tasks. This helps simulate real-life time constraints and assesses the candidate's ability to manage time effectively.
3. **Type of Encounter:** Specify the type of encounter, such as a new patient visit, follow-up appointment, or emergency consultation. This helps the candidate understand the context and urgency of the situation.
4. **Setting:** Describe the setting where the encounter occurs, such as a clinic, hospital, or community health center. This helps create a realistic scenario.
5. **Patient Profile:** Include detailed information about the patient, such as name, age, gender, occupation, and chief complaint. This helps create a realistic and relatable scenario.
6. **Case Background Information:**
 - a) **Ocular History:** include relevant history
 - b) **Medical History:** include relevant history
 - c) **Family Medical History:** include relevant history
 - d) **Clinical Data:** Include any relevant clinical data such as Unaided Visual Acuity, Subjective Refraction, Tonometry, Pupils, Slit Lamp Examination, Fundas Examination, and OCT imaging results.
7. **Equipment and Props:** List any equipment or props that will be provided or that the candidate is expected to use during the encounter. This ensures that the candidate is prepared and knows what resources are available.
8. **Objective(s):** Clearly state the objectives of the case. What specific skills or competencies are being assessed? For example, diagnosing a condition, formulating a treatment plan, or demonstrating practical communication skills. Identify the enabling competencies required for the case.
9. **Case Synopsis:** Provide an overview of the case
10. **Score Sheet:** Provide a Checklist showing 12-15 indicators of successfully performing a competency in a table with five columns: Indicator ## Yes ## No ## competency ## Notes. In the Yes column, show (Y) centred in each row. Under No, show (N) centred in each row.

Reference the relevant enabling competency from [the Blueprint](#) corresponding to the knowledge or skills required to select the correct answer.

- Ensure that for **every competency**, you provide:
 - **Competency Code (e.g., 1.4.2):** Copy the exact, verbatim text from the OEBC Blueprint to describe the competency required for the correct answer.
 - **Competency Lookup:** If the competency is not known, search the **OEBC Exam Blueprint** for relevant terms (e.g., “functional impact on daily activities” or “low vision aids”) to find the most appropriate enabling competency. The indicators below an enabling competency have a letter code. The relevant term may be used as an indicator. Each enabling competency or related indicator should directly match the skill required for the case.
- Ensure the same process is followed for all six answers—i.e., the code and verbatim text must be consistently applied across all answers.

Place a Patient Interaction Scale table to the right of the Checklist: 3 columns and nine rows. The heading is Patient Interaction Item ## Score Per Rubric ### Notes The first column shows one of the following items per row: Empathy, Coherence, Non-verbal, Verbal, Trust, Honesty & Integrity, Focus on the Patient, Respect. The second column repeats ① ② ③ ④ ⑤ in each row.

- 11. Patient Questions:** Provide the six most likely questions an informed patient presenting these conditions would ask their optometrist, along with an appropriate answer.
- 12. Optometrist Questions:** Provide six questions the optometrist should ask a patient to help them confirm their diagnosis and explain why these questions may be relevant.
- 13. Patient Education:** Identify the areas that the Optometrist should educate the patient on so that the patient becomes a partner in their treatment.
- 14. Additional Information:** Provide the correct diagnosis and a detailed management plan, including necessary treatments, follow-up, risks, patient education, and possible ethical issues.
- 15. References:** Provide any relevant references or resources the candidate can use to prepare for the encounter. This could include textbooks, articles, or guidelines.

Note: The practice case that follows is the exact output from CoPilot based on the preceding prompt. It serves as an example of the case generated by the AI. Since large language models are constantly evolving, the content and formatting of the case may differ depending on the specific model used and the time of the entry. It is your responsibility to edit and verify the case for accuracy.

AI-GENERATED PRACTICE OSCE CASE — CATARACTS:

Instructions to Candidate

You have 2 minutes to read the instructions and 8 minutes to perform the tasks. During the encounter, you are expected to:

1. Take a detailed history from the patient, focusing on their ocular and medical history.
2. Explain the diagnosis of cataracts and discuss the treatment and management options with the patient.

Time Limit

Total time: 10 minutes

- 2 minutes to read instructions
- 8 minutes to perform tasks

Type of Encounter

New patient visit

Setting

Community health center

Patient Profile

- **Name:** John Smith
- **Age:** 68
- **Gender:** Male
- **Occupation:** Retired teacher
- **Chief Complaint:** Gradual worsening of vision over the past year

Case Background Information

- **Ocular History:**
 - Gradual decrease in vision, more noticeable in the right eye
 - Difficulty reading and recognizing faces
 - Increased glare and halos around lights, especially at night
- **Medical History:**
 - Hypertension, well-controlled with medication
 - Type 2 diabetes, diagnosed 10 years ago, managed with diet and oral hypoglycemics
- **Family Medical History:**
 - Father had cataracts, mother had glaucoma
- **Clinical Data:**
 - Unaided Visual Acuity: Right eye 20/60, Left eye 20/40
 - Subjective Refraction: Right eye -1.50 DS, Left eye -1.00 DS
 - Tonometry: Right eye 15 mmHg, Left eye 14 mmHg
 - Pupils: Equal and reactive to light, with no afferent pupillary defect

- Slit Lamp Examination: Nuclear sclerosis in both lenses, more pronounced in the right eye
- Fundus Examination: Mild non-proliferative diabetic retinopathy, no macular edema
- OCT Imaging: Normal macula, no signs of macular degeneration

Equipment and Props

- Snellen chart
- Slit lamp
- Tonometer
- OCT machine
- Patient medical records

Objectives

- Diagnose cataracts based on patient history and clinical findings
- Formulate a treatment plan, including discussing surgical options and postoperative care
- Demonstrate practical communication skills, including empathy and patient education

Case Synopsis

John Smith, a 68-year-old retired teacher, presents with a gradual worsening of vision over the past year. He has difficulty reading and recognizing faces and experiences increased glare and halos around lights. His medical history includes hypertension and type 2 diabetes. Clinical examination reveals nuclear sclerosis in both lenses, more pronounced in the right eye, and mild non-proliferative diabetic retinopathy.

Score Sheet

Indicator	Yes	No	Competency	Notes
Elicits chief complaint	Ⓨ	Ⓝ	1.1.1	
Takes comprehensive ocular history	Ⓨ	Ⓝ	1.1.1	
Takes comprehensive medical history	Ⓨ	Ⓝ	1.1.1	
Inquires about family history	Ⓨ	Ⓝ	1.1.3	
Performs visual acuity test	Ⓨ	Ⓝ	1.2.1	
Performs slit lamp examination	Ⓨ	Ⓝ	1.2.2	
Discusses diagnosis of cataracts	Ⓨ	Ⓝ	1.4.2	
Explains treatment options	Ⓨ	Ⓝ	1.4.3	
Addresses patient concerns	Ⓨ	Ⓝ	2.1.1	
Demonstrates empathy	Ⓨ	Ⓝ	2.1.2	
Provides clear instructions for follow-up	Ⓨ	Ⓝ	1.7.1	
Uses appropriate medical terminology	Ⓨ	Ⓝ	2.1.3	

Patient Interaction Scale

Patient Interaction Item	Score	Per Rubric	Notes
Empathy	① ② ③ ④ ⑤		

Patient Interaction Item Score Per Rubric**Notes**

Coherence	①	②	③	④	⑤
Non-verbal	①	②	③	④	⑤
Verbal	①	②	③	④	⑤
Trust	①	②	③	④	⑤
Honesty & Integrity	①	②	③	④	⑤
Focus on the Patient	①	②	③	④	⑤
Respect	①	②	③	④	⑤

Patient Questions

1. What are cataracts?
 - Cataracts are a clouding of the lens in the eye, leading to a decrease in vision.
2. What causes cataracts?
 - Cataracts can be caused by aging, diabetes, smoking, prolonged exposure to sunlight, and other factors.
3. How are cataracts treated?
 - The primary treatment for cataracts is surgical removal of the cloudy lens, replaced with an artificial lens.
4. Is cataract surgery safe?
 - Cataract surgery is generally safe and effective, with a high success rate.
5. How long is the recovery after cataract surgery?
 - Recovery typically takes a few weeks, with most patients experiencing significant improvement in vision within a few days.
6. Will I need glasses after cataract surgery?
 - Many patients still need glasses for reading or distance vision after surgery, depending on the type of lens implanted.

Optometrist Questions

1. When did you first notice the decrease in your vision?
 - To determine the onset and progression of the condition.
2. Do you experience glare or halos around lights?
 - To assess the impact of cataracts on night vision.
3. Have you had any previous eye surgeries or treatments?
 - To understand the patient's ocular history and any potential complications.
4. Do you have any other medical conditions, such as diabetes or hypertension?
 - To identify systemic conditions that may affect ocular health.
5. Are you currently taking any medications?
 - To check for medications that may have ocular side effects.
6. Do you have a family history of eye diseases?
 - To assess genetic predisposition to ocular conditions.

Patient Education

- Explain what cataracts are and how they affect vision.
- Discuss the importance of regular eye exams, especially for patients with diabetes.

- Educate the patient on the benefits and risks of cataract surgery.
- Provide information on postoperative care and what to expect during recovery.
- Emphasize the importance of managing systemic conditions like diabetes and hypertension to maintain ocular health.

Additional Information

- **Diagnosis:** Cataracts with mild non-proliferative diabetic retinopathy
- **Management Plan:**
 - Schedule cataract surgery for the right eye, followed by the left eye if needed.
 - Preoperative assessment and counseling.
 - Postoperative follow-up to monitor healing and visual acuity.
 - Manage diabetes and hypertension to prevent further ocular complications.
 - Educate the patient on lifestyle modifications to support overall eye health.

References

- Optometry textbooks and articles on cataracts and diabetic retinopathy.
- [OEBC Exam Blueprint 2022](#)