



**THE AMERICAN BOARD OF ORTHODONTICS
SCENARIO-BASED ORAL CLINICAL EXAMINATION
STUDY GUIDE
2019**

The American Board of Orthodontics
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ABOUT THE AMERICAN BOARD OF ORTHODONTICS

Founded in 1929 as the first specialty board in dentistry, The American Board of Orthodontics (ABO) is the only orthodontic specialty board recognized by the American Dental Association and in affiliation with the American Association of Orthodontists.

The ABO sets the standard for the highest level of patient care and promotes excellence in orthodontics for all of its certified orthodontists. As a specialty board, we serve to protect the orthodontic specialty and encourage orthodontists to achieve certification, demonstrating their commitment to lifelong learning and excellent care.

As advocates for the orthodontic specialty, the ABO is a resource for orthodontists, orthodontic residents, as well as anyone looking for the best in orthodontic care.

MISSION

The mission of The American Board of Orthodontics is to elevate the quality of orthodontic care for the public by promoting excellence through certification, education and professional collaboration.

CERTIFICATION PROCESS OVERVIEW

An orthodontist may become board certified by the American Board of Orthodontics by successfully completing a written examination and a clinical examination. Once this has been completed, the orthodontist will be awarded a time-limited certificate. By the end of the time-limited certificate, a Board Certified orthodontist must have taken the appropriate renewal examination to remain board certified.

ELIGIBILITY REQUIREMENTS

Examinees are eligible to take the ABO Written Examination once they have completed at least 18 months of a CODA-accredited orthodontic program.

All examinees that have graduated from a CODA accredited orthodontic program and have successfully completed the ABO Written Examination are then eligible for the ABO Scenario-based Oral Clinical Examination.

Examinees participating in extended programs will be required to complete their program prior to being eligible to take the Clinical Examination.

CONFIDENTIALITY AGREEMENT

All examinees are required to agree to the following Confidentiality Agreement as part of the registration process for both the Written Examination and the Scenario-based Oral Clinical Examination:

I understand that the content of all ABO Examinations, and each of its items contained therein, is proprietary and strictly confidential, and that the unauthorized retention, possession, copying, distribution, disclosure, discussions, or receipt of any examination question, in whole or in part, by written, electronic, oral or other form of communication, including but not limited to texting, e-mailing, social media outlets, copying or printing of electronic files, and reconstruction through memorization and/or dictation, before, during, or after an examination, is strictly prohibited. I further understand that, in addition to constituting irregular behavior subject to disciplinary action such as revocation of certification, revocation of eligibility for future certification, and disciplinary fines, such activities violate the rules and regulations governing ABO certification.

SPECIAL ACCOMMODATIONS

In compliance with the Americans with Disabilities Act, reasonable and appropriate accommodations are provided for qualified individuals with a disability who supply appropriate documentation. Reasonable accommodations provide disabled candidates with a fair and equal opportunity to demonstrate their knowledge in the essential functions being measured by the examination. Reasonable accommodations are decided on the basis of the individual's specific request, disability, documentation submitted, and the appropriateness of the request. Reasonable accommodations do not include steps that fundamentally alter the purpose or nature of the examination.

NONDISCRIMINATION STATEMENT

ABO certification decisions do not discriminate against applicants on the basis of race, color, religion, sex (including pregnancy), national origin, age, disability, or genetic information.

RE-EXAMINATION POLICY

Examinees that do not successfully pass the Clinical Examination will have the opportunity to retake the examination during the next available testing window. If an examinee fails the examination 3 times and wishes to take the examination again, the examinee must petition the board before registration will be accepted.

EXAMINATION SCHEDULE

Online registration and the current fee schedule for all future examinations may be found on the ABO website:

<https://americanboardortho.com/orthodontic-professionals/about-board-certification/exam-dates-fees-and-registration/>

SCENARIO-BASED ORAL CLINICAL EXAMINATION

Purpose of Examination

The new Scenario-based Oral Clinical Examination is designed to objectively evaluate an orthodontist's knowledge, abilities, and critical thinking skills so that certification decisions can be made for orthodontists based on proficiency and clinical expertise. This format allows for testing a large amount of material in a relatively short period of time, and allows for questions to be graded objectively based on pre-determined desired responses.

Exam Development Process

Scenarios, questions, and model responses are developed in collaboration with program directors/chairs, examiners, leaders in the industry and the ABO Board of Directors. During this item writing process, the ABO works closely with Castle Worldwide, a certification and licensure testing company with 30+ years of experience.

Scenario cases, questions and model responses are sent through a thorough process to be reviewed, edited, refined, and validated prior to being used in an examination.

Examination Administration

All clinical examinations are held in St. Louis, Missouri at the ABO Examination Center.

The Scenario-based Oral Clinical Examination is presented as an Objective Structured Clinical Examination (OSCE), through which candidates testing at the same time begin in different rooms and progress from room to room until all of these candidates have completed the scenario-based questions at each station. The time allowed is the same for every room.

Each examinee will visit a total of 6 rooms during the examination. Each room will have a different set of examiners. The cases and scenario questions presented by these sets of examiners will change for each exam window offered. When first presented with scenario case records, candidates will be given a predetermined amount of time to familiarize themselves before the examiners begin asking the questions that have been developed for the scenario. These questions will measure proficiency related to the tasks and skills required in each of the domains that the scenario is intended to test. Responses will all be oral, and the examiners will assess the responses as they are given. Examinees should respond with evidence based answers and cite references to support answers as appropriate.

Clinical Examination Rules

The dress code for the exam is business attire. Examinees are expected to use the ABO provided transportation shuttle to and from the designated hotel. Personal items and electronic devices are expected to be left at the hotel and will not be permitted in the exam rooms. The ABO will not be held liable for any personal items that are required to be stored at the test site.

Communication with other candidates during the examination is prohibited. Bottles of water are provided.

Preparation Resources

- Review [AAO Clinical Guidelines for Orthodontics and Dentofacial Orthopedics](#)
- Keep current through contemporary textbooks, journals including [AJODO](#), and CE courses
- [CDABO](#) preparation courses
- Utilize [CMF, CR-EVAL](#) scoring methodologies with patient cases
 - [ABO videos](#)
 - [Calibration kits](#) are available for purchase and contain three sets of pre-measured casts with scoring keys, the grading system instructional manual, and a measuring gauge.
- [ABO superimposition videos and tracing guidelines](#)
- Buschang PH, Roldan SI, Tadlock LP: Guidelines for assessing the growth and development of orthodontic patients. [Seminars in Orthodontics 23\(4\): 321-335, December 2017.](#)
- Oral examination role-play with colleagues and mentors
 - Presenting own cases in ABO format
 - Asking critical thinking clinical questions about unfamiliar cases
- Continue to complete cases using ABO format for consistency and familiarity

As part of preparation for the Scenario-based Oral Clinical Examination, the ABO highly recommends that examinees gain as much experience as possible working through patient cases completing an objective analysis of the facts to form their own judgment. These critical thinking exercises will strengthen an examinee's skills as he or she prepares for the scenario-based oral examination. The practice of presenting an examinee's own clinical cases to fellow residents, colleagues, educators, and/or mentors will also aid an individual to become more comfortable with the oral examination format. This process also promotes the opportunity for self-evaluation and reflection on case outcomes.

The tools previously created by the ABO to assess case outcomes will be utilized within the scenario-based examination process. These tools include the cast- radiograph evaluation (CRE),

case management form (CMF), and cephalometric superimposition technique and interpretation.

- Examinees should be fluent in the CRE measurement technique.
- The CMF / Treatment objectives should be thought of in three planes of space
- Set objectives should be determined by what is best for the patient, not by what the patient/family wants to hear
- Examinees should be able to determine correct landmark placement for cephalograms
- Examinees should be able to identify appropriate regional anatomy for Cranial case, maxillary and mandibular Superimpositions
- Examinees should be able to interpret superimpositions and know how to differentiate changes due to growth vs. treatment mechanics

Examination Model Responses, Number of Questions, and Possible Question Topics

The number of scored scenario cases an examinee is being tested on will remain the same for each candidate. As a quality assurance step, field test questions have been added to some cases. The field test items, which will not be counted in scoring or identified to examinees, are on the test for trial purposes. The statistics generated for the field test items will be used to ensure they perform well when, in the future, they will be scored.

Some rooms may include a scenario case with a full set of records and associated questions. Some rooms may include multiple scenario cases with partial records and associated questions. Finally, some rooms may include single unrelated records that require individual analysis.

The following list includes some examples of case records and information that may be provided for cases presented:

- Patient history
- Chief complaint
- Patient records
- Tracings and superimpositions
- Cast-radiograph Evaluation (CRE)
- Case Management Form (CMF)
- Hypothetical patient situations

Examination Components

The examination will be composed of four domains for assessment:

Domain	Weighted % of Exam
1. Data Gathering and Diagnosis	25%
2. Treatment Objectives and Planning	25%

3. Treatment Implementation and	25%
4. Critical Analysis and Outcomes	25%

The cases and questions presented will represent typically standard situations that would be dealt with within residency programs or orthodontic practice. Examinees will be expected to demonstrate an understanding of the tasks performed by an orthodontist and the related decision-making skills that may be verbally assessed in the examination. Some of these may include:

Domain 1 - Data Gathering and Diagnosis

Task 1

Perform a screening examination using established guidelines to determine if and when treatment is indicated.

Cognitive skills:

- Interviewing patients and guardians
- Interpreting medical and dental histories
- Determining the need for radiographs
- Interpreting radiographs
- Identifying pathology and deviations from normal
- Determining if and when treatment is indicated

Psychomotor skills:

- Performing intra- and extra-oral examinations

Task 2

Gather pertinent records using established guidelines to diagnose the nature of orthodontic and dentofacial problems and determine their etiologies.

Cognitive skills:

- Deciding which data are needed for a thorough diagnosis
- Interviewing patients and guardians
- Evaluating data gathered from the intra- and extra-oral examinations and all other records to differentiate normal occlusion from malocclusion
- Obtaining and analyzing serial records
- Selecting and using indicated diagnostic technology

Psychomotor skills:

- Taking essential radiographs

- Extracting 2-D images from cone-beam computerized tomography
- Tracing radiographs for cephalometric analysis
- Taking impressions for study casts
- Intra-oral scanning
- Recording inter-occlusal registration
- Taking intra- and extra-oral photographs
- Documenting periodontal status

Task 3

Develop a comprehensive diagnosis based on the patient's chief concerns, medical and dental history, dentofacial condition, growth and neuromuscular status, and psychosocial concerns to serve as the basis for treatment planning.

Cognitive skills:

- Analyzing records in the sagittal, vertical, and transverse dimensions for facial, dental, and skeletal diagnostic considerations
- Establishing a comprehensive and differential diagnosis

Domain 1 Sample Questions

1. What is the etiology of this patient's malocclusion?
2. What additional information is needed from the patient or parent during the initial examination?
3. What additional information is needed prior to the start of orthodontic treatment?
4. What additional records are needed to assist in this patient's diagnosis?
5. What diagnostic tools could be used to assess this patients....?
6. What is the facial / soft tissue diagnosis?
7. Describe the skeletal diagnosis in detail.
8. List all of the dental problems.
9. What is the growth assessment for this patient?
10. What is the rationale for the growth assessment?
11. What is the rationale for treating this patient at this time?
12. What additional records / referrals are required for interdisciplinary treatment planning?

Domain 2 - Treatment Objectives and Planning

Task 1

Develop evidence-based facial, skeletal, and dental treatment objectives based on the patient and guardian's chief concerns and diagnosis to optimize dentofacial health, neuromuscular function, esthetics, and post-treatment stability.

Cognitive skills:

- Determining deviation from normal and its extent
- Establishing treatment objectives based on knowledge of dentofacial growth and development

- Determining achievable outcomes based on the most relevant evidence
- Evaluating research literature and other information critically
- Developing and documenting treatment plans based on sound principles of appliance design and biomechanics and on patient concerns

Psychomotor skills:

- Creating a visualized treatment objective, dental diagnostic setup, and surgical treatment objectives when applicable.

Task 2

Develop evidenced-based treatment plan(s) by selecting the most appropriate options in consultation with and in the best interests of the patient to address the identified concerns and achieve specific objectives.

Cognitive skills:

- Assessing the necessity and efficacy of dentofacial orthopedics and orthognathic surgery
- Identifying treatment options
- Differentiating the efficacy and efficiency of appliance options
- Selecting the most appropriate treatment plan
- Planning all phases of orthodontic treatment, including initiation, completion and retention
- Planning appropriate biomechanical techniques
- Working effectively in an interdisciplinary treatment environment
- Educating patients and guardians effectively on treatment options and recommendations
- Documenting treatment plans

Task 3

Obtain informed consent in accordance with established documentation procedures in order to enhance the patient and guardian's understanding of treatment options, recommendations, benefits, limitations, and risks.

Cognitive skills:

- Communicating with and educating patients and guardians

Domain 2 Sample Questions

1. What are the skeletal treatment objectives?
2. What are the skeletal treatment objectives for the maxilla?
3. What are the skeletal treatment objectives for the mandible?
4. What are the specific treatment objectives for the maxillary dentition?
5. Assuming an ideal treatment plan, what are the specific treatment objectives for the mandibular dentition?
6. What are the facial treatment objectives?
7. Assuming a non-surgical treatment option, what are the objectives _____?

8. What is the primary treatment plan for this patient?
9. What treatment should be provided for this patient at this time?
10. What treatment options will you consider for this patient?
11. What skeletal and dental changes are necessary to correct this patient's Class II malocclusion?
12. What dental changes are necessary to correct this patient's Class II malocclusion?
13. Assuming a _____ treatment plan, what is the plan for retention?
14. What are the limitations with a _____ treatment plan? (non-extraction/extraction) (non-surgical/surgical)
15. What compromised results would you expect from an extraction / non-extraction approach?

Domain 3 - Treatment Implementation and Management

Task 1

Manage dentofacial problems in accordance with the treatment plan using orthodontic appliances and technology to achieve treatment objectives efficiently.

Cognitive skills:

- Using appliances effectively and efficiently in the treatment of all types of malocclusions
- Identifying and interpreting the cause of problems

Psychomotor skills:

- Taking impressions and scans for appliances
- Placing fixed and/or removable appliances
- Activating fixed and/or removable appliances
- Fabricating appliances
- Maintaining fixed and/or removable appliances
- Removing fixed appliances
- Performing enameloplasty

Task 2

Evaluate the progress of treatment and its relationship to the objectives and timeline based on appropriate records to maximize treatment efficiency and outcomes.

Cognitive skills:

- Comparing pre-treatment and progress conditions
- Analyzing treatment progress with appropriate imaging, accepted periodontal diagnostic protocols, and neuromuscular examination
- Assessing treatment progress with dental casts, imaging, and cephalometric analysis
- Interpreting treatment progress occlusion and treatment efficacy
- Comparing patient progress with treatment objectives
- Communicating with and educating patients and guardians

Psychomotor skills:

- Tracing and superimposing calibrated radiographs for cephalometric analysis
- Taking intra- and extra-oral photographs
- Taking essential radiographs
- Documenting neuromuscular function
- Extracting 2-D images from cone-beam computerized tomography
- Taking impressions for study casts
- Intra-oral scanning
- Recording inter-occlusal registration
- Documenting dental, periodontal, skeletal, and facial status
- Recording and resolving deviations from expected treatment

Task 3

Collaborate in providing interdisciplinary treatment using effective communication and documentation procedures to enhance treatment outcomes.

Cognitive skills:

- Communicating with patients, guardians, and professional colleagues
- Consulting and coordinating treatment with professional colleagues

Domain 3 Sample Questions

1. What is the treatment sequence
2. Identify all of the significant problems occurring in the mechanics for this patient?
3. Identify the treatment mechanics that caused the dental changes observed in this case.
4. List the concerns for the progress of this patient's treatment.
5. What steps are appropriate to regain control of this patient's treatment?
6. What are the anticipated effects of class II / class III mechanics on this patient?
7. What specific treatment changes / mechanics are necessary to achieve an ideal occlusion?
8. How did growth influence this patient's treatment at this time?
9. How could anchorage be effectively utilized to support this patient's outcome?
10. What are the steps to recover from the adverse effects on facial aesthetics due to treatment?
11. What are the anticipated benefits of surgical treatment at this point?
12. How would you modify your treatment based on existing periodontal condition?
13. How would you modify your treatment based on existing enamel condition?
14. Analyze the progress superimposition.
15. How would you alter treatment based on the progress superimposition?
16. What additional diagnostic information is needed to reassess this case?
17. Based on the current diagnostic information, how would you alter your treatment plan?

Domain 4 - Critical Analysis and Outcomes Assessment

Task 1

Assess post-treatment facial esthetics using appropriate guidelines to evaluate form, symmetry, and soft tissue harmony.

Cognitive skills:

- Analyzing treatment outcomes with appropriate imaging and accepted normal values
- Comparing pre- and post-treatment conditions

Psychomotor skills:

- Tracing and superimposing calibrated radiographs for cephalometric analysis
- Taking intra- and extra-oral photographs

Task 2

Assess dental, periodontal, and neuromuscular health using appropriate guidelines to identify post-treatment complications.

Cognitive skills:

- Interpreting post-treatment dental, periodontal, and neuromuscular treatment outcomes
- Analyzing treatment outcomes with appropriate imaging, accepted periodontal diagnostic protocols, and neuromuscular examination

Psychomotor skills:

- Taking essential radiographs
- Documenting dental, periodontal, and neuromuscular status

Task 3

Evaluate post-treatment occlusion using accepted standards to enhance stability and dental health and assess the overall efficacy of treatment.

Cognitive skills:

- Interpreting post-treatment occlusion and treatment efficacy
- Analyzing treatment outcomes with dental casts and appropriate imaging

Psychomotor skills:

- Taking essential radiographs
- Extracting 2-D images from cone-beam computerized tomography
- Tracing and superimposing calibrated radiographs for cephalometric analysis
- Taking impressions for study casts
- Intra-oral scanning
- Recording inter-occlusal registration
- Taking intra- and extra-oral photographs
- Documenting dental, periodontal, and neuromuscular status
- Performing post-treatment cast and radiograph evaluations

Task 4

Evaluate treatment outcomes comparing pre-treatment and post-treatment records to assess dental and skeletal changes.

Cognitive skills:

- Comparing the treatment outcomes to the treatment objectives
- Analyzing serial treatment records for understanding and planning treatment and retention procedures
- Interpreting treatment outcomes with appropriate imaging, dental casts, and cephalometric analysis
- Communicating outcomes with patients and guardians

Psychomotor skills:

- Taking essential radiographs
- Extracting 2-D images from cone-beam computerized tomography
- Tracing and superimposing calibrated radiographs for cephalometric analysis
- Taking impressions for study casts
- Intra-oral scanning
- Recording inter-occlusal registration
- Taking intra- and extra-oral photographs
- Documenting dental, periodontal, and skeletal status
- Performing post-treatment cast and radiograph evaluations including tracings that an examinee is asked to superimpose

Domain 4 Sample Questions

1. Critique the superimposition.
2. What dental changes occurred as a result of treatment?
3. What dental changes occurred as a result of growth?
4. What skeletal changes occurred as a result of treatment?
5. What skeletal changes occurred as a result of growth?
6. What was the score for the alignment/rotations? (or any other CRE parameter)
7. Give the rationale for the observed skeletal changes.
8. Give the rationale for the observed dental changes.
9. Critique the final occlusion.
10. What is the score for root angulation?
11. What are the consequences of accepting a compromised treatment result?
12. Critique the final facial aesthetic outcome.
13. Critique the final smile aesthetic outcome.
14. Critique the final dental aesthetic outcome.
15. Describe an appropriate retention protocol for this patient?
16. Give your rationale for the management of third molars.
17. How would future growth affect treatment results?

18. What would you advise a patient to do concerning an adverse final outcome (e.g., periodontal/demineralization/root resorption, etc.)?
19. Give your rationale for the management of an adverse final outcome.
20. What could have been done differently to improve the final outcome?

Rating Scales and Examiner Training

During the examination, responses are independently scored by a total of 12 trained examiners who use an anchored rating scale to ensure consistency in scoring. The scales to be used in a case address the function of the case (e.g., diagnosis, implementation, critical analysis) and are standardized for all cases serving the specified function. Each unit of the scale is anchored with language that helps to ensure that the ABO's standards are applied by all examiners.

The ABO's examiner training program educates examiners in the intended application of the scales to candidate responses. The examiner training program provides practice opportunities as well as a required assessment of agreement with criterion ratings for a selection of responses. Examiners are recalibrated by means of an abbreviated refresher (calibration) training immediately prior to each testing and scoring cycle.

During the examination, each exam room is assigned an observer who takes records in real time focusing on the process of the examination. Direct feedback is given to the examiners after exam sessions in order to ensure consistency, objectivity, and fairness.

Results

The rating scales for the clinical examination are weighted to achieve 25% allocations to each of the four domains covered in the examination. Points awarded to candidates are determined as a function of the ratings assigned and the weight of the question. Psychometric analyses are performed after each testing cycle.

Exam results are presented in a pass/fail format. If an examinee is unsuccessful on the examination, he or she will be provided with feedback outlining their level of success on the four main domains of the examination. Examinees must re-take the entire examination in order to pass, and will not have the ability to be re-tested on individual sections. Reliability, validity and objectivity are assessed by an independent psychometric examination consulting company.

Release of Clinical Examination Results

Clinical Examination results will be emailed to all examinees within a two month period. Official results letters including Diplomate certificates and pins for passing examinees and will be mailed within a two month period.