Ministry of Health of Ukraine National Pirogov Memorial Medical University, Vinnytsya

«APPROVED»	
by Methodical Council	
of dentistry disciplines	
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"AGREED" The head of the Examination Commission No. <u>4</u>

«27» 03 2025 y.

Professor of HEI Mariia SHINKARUK-DYKOVYTSKA

EXAMINATION MATERIALS

Station No. 2 "MAIN PATHOLOGICAL CONDITIONS IN THE CLINIC OF THERAPEUTIC DENTISTRY: DIAGNOSIS, TREATMENT (WITH PRACTICAL SKILLS)"

SPECIALTY

221 Dentistry

"Dentistry"

EDUCATIONAL PROGRAM

FACULTY

Faculty of Dentistry

APPENDICES TO THE EXAMINATION MATERIALS

- 1. Student Instructions at the Station (Appendix 1)
- 2. List of Practical Skills (Appendix 2)
- 3. Algorithms for Performing Practical Skills (Appendix 3)
- 4. Sample Task (Appendix 4)
- 5. Regulatory Documents (Appendix 5)

Appendix 1

STUDENT INSTRUCTIONS AT STATION No. 2: "MAIN PATHOLOGICAL CONDITIONS IN THE CLINIC OF THERAPEUTIC DENTISTRY: DIAGNOSIS, TREATMENT (WITH PRACTICAL SKILLS)"

The higher education applicant (HEA) must greet the examiner and present their identification number assigned during registration for the OSCE. The station includes video recording of the HEA's performance. The HEA is provided with a clinical scenario involving communication with a patient, history taking including complaints and anamnesis, performance of necessary diagnostic procedures, determination of clinical management and treatment strategy, and disease prevention.

Competencies to be assessed:

Communication skills: ability to introduce oneself, explain the purpose of the interaction, obtain informed consent for interview and examination, listen attentively and communicate in a language understandable to the patient.

Physical examination skills:

- 1. Skills in conducting an examination of a dental patient
- 2. Skills in substantiating and formulating a preliminary diagnosis
- 3. Skills in analyzing the results of a dental patient examination
- 4. Skills in establishing a clinical diagnosis of major dental, periodontal, and oral mucosal diseases
- 5. Skills in performing therapeutic and diagnostic dental procedures:
- Pulp amputation of permanent teeth
- Determination of enamel acid resistance
- Diagnostic use of dyes
- Pulp extirpation of permanent teeth
- Electroodontodiagnostics
- Medicinal treatment of affected areas of the oral mucosa and periodontium
- Placement and removal of temporary fillings and sealing dressings in the treatment of caries, pulpitis, apical periodontitis
- Filling of carious cavities in permanent teeth with various filling materials
- Root canal obturation of permanent teeth using different materials
- Instrumental and medicated treatment of root canals in permanent teeth
- Cavity preparation with consideration of the type of filling material
- Professional oral hygiene procedures
- Finishing and polishing of fillings made from all types of restorative materials

Cognitive Competencies:

- Clinical features of the anatomical and histological structure of teeth, periodontium, oral mucosa, and oral organs
- Classifications of dental, periodontal, and oral mucosal diseases
- Main methods of dental patient examination
- Clinical signs of dental diseases
- Principles and stages of treatment for dental patients
- Types, levels, and measures of prevention for dental, periodontal, and oral mucosal diseases.

Ethical and Legal Competencies: Ability to explain to the patient the purpose and process of the procedure, as well as the significance of the obtained results

List of Diseases:

- 1. Dental caries and its complications (pulpitis, apical periodontitis). Non-carious lesions of hard dental tissues (hypersensitivity, enamel hypoplasia, enamel hyperplasia, fluorosis, dental tissue erosion, wedge-shaped defects, pathological tooth wear, necrosis of hard dental tissues, discolorations, traumatic injuries of teeth).
- 2. Periodontal diseases (papillitis, gingivitis, periodontitis, periodontosis, idiopathic periodontal diseases).
- 3. Diseases of the oral mucosa (traumatic lesions, autoinfectious diseases, secondary bacterial infections, mucosal diseases associated with autoimmune dermatological conditions, allergic lesions, toxic lesions caused by heavy metal salts, symptomatic viral infections, systemic manifestations on the oral mucosa of internal diseases, diseases of the tongue and lips).

Material and Technical Support for the Station: dental units, instruments for oral cavity and periodontal screening examination, pulp testers, materials and medications used in therapeutic dentistry clinics, caries markers, cold spray, instruments for cavity preparation and filling, endodontic instruments, dental accessories, results of additional and laboratory diagnostic methods, checklists.

The clinical scenario involves interaction with a standardized patient and the completion of the tasks described in the instructions.

When working with a standardized patient:

- 1. The HEA must greet and introduce themselves.
- 2. Ask the patient how they prefer to be addressed.
- 3. After receiving the patient's name, inform them that you need to ask some questions and perform an examination. Ask for consent to proceed with the interview.
- 4. Ask the patient's age.
- 5. Ask for complaints (the patient will provide a main complaint that must be clarified according to the algorithm).
- 6. Clarify the complaint using the provided algorithm.
- 7. Before performing a physical examination, explain the purpose of the procedure (e.g., to determine the depth of a carious lesion).
- 8. Explain the process: for example, that you will perform probing of the carious cavity. Warn the patient about possible sensations during the procedure.
- 9. If necessary during the examination, ask the patient to inform you about any sensations (e.g., when using an electric pulp tester, instruct the patient to signal when they feel a sensation in the tooth).

- 10. Obtain informed consent from the patient for the objective examination or additional diagnostic methods.
- 11. Put on gloves and a mask.
- 12. Perform the objective examination or additional diagnostic procedures.
- 13. Before concluding the interaction with the patient, provide recommendations regarding treatment or disease prevention.

When performing the tasks specified in the clinical situation condition, you will need to perform a diagnostic skill (on a patient) or a treatment skill (on a phantom).

After completing the task or when the allotted time has expired, the student must return the task to the instructor, wait for the signal indicating the end of the station, and then leave the station. After the time expires, the examiner will not accept any responses. The examiner acts solely as an observer and does not give instructions, comments, or ask questions.

After completing the first station, the HEA must proceed to the next station according to the route sheet.

№	Actions	Time allocation (approximate)	
1.	Acquaintance with the task	1 min.	
2.	Completing the task	7 min.	
	Total:	8 min.	

Duration and Time Allocation at the Station:

It is **STRICTLY FORBIDDEN** to communicate with the examiner, use educational or supplementary materials, use gadgets, transmit, copy, or disseminate any information related to the exam that is not publicly available. In case of violation of the above-mentioned rules by the higher education applicant, the examination will be terminated, and the result will be recorded as "fail" (due to violation of academic integrity regulations).

MUST HAVE: gloves, face mask

Appendix 2

Section	Title of the section
Section 1.	General dentistry
1.1.	Communication with the patient
1.2.	Collection of complaints, anamnesis
1.3.	Objective examination of the patient
1.4.	Diagnosis of typical diseases
1.5.	Patient management tactics
1.6.	Treatment of typical diseases
1.7.	Prevention of typical diseases
1.8.	Ethical aspects
Section 2.	Therapeutic dentistry
2.1.	Clinical examination of teeth, dental arches, periodontal tissues, and the oral
	mucosa
2.2	Index assessment of oral hygiene status

LIST OF PRACTICAL SKILLS AT THE STATION

2.3	Periodontal screening (gingival contour, probing pocket depth, bleeding on
	probing, tooth mobility, periodontal indices)
2.4	Functional diagnostics of the oral cavity (cold test, electroodontodiagnostics,
	diagnostic use of dyes, interpretation of radiological findings of the oral
	cavity organs)
2.5	Patient preparation and collection of swabs for bacterioscopic,
	bacteriological, and cytological examination of oral tissues
2.6	Analysis of key laboratory findings (complete blood count, biochemical
	blood analysis, urinalysis, results of immunological, allergological,
	microbiological, and cytological tests in dental diseases)
2.7	Professional oral hygiene procedures for various dental diseases, taking into
	account the patient's general somatic status
2.8	Selection of oral hygiene items and products, patient hygiene education, and
	development of an individualized prevention plan
2.9	Application of therapeutic and preventive varnishes and gels on teeth
2.10	Local anesthesia for the treatment of dental diseases using various techniques
	(topical, infiltration, nerve block)
2.11	Cavity preparation of permanent teeth considering the topography of the
	carious lesion and type of filling material
2.12	Filling of carious cavities in permanent teeth using various restorative
	materials
2.13	Finishing and polishing of fillings made from all types of restorative
	materials
2.14	Pulp amputation and extirpation of permanent teeth
2.15	Instrumental and medicated treatment of root canals in permanent teeth
2.16	Root canal obturation of permanent teeth using various materials and
	techniques
2.17	Placement and removal of temporary fillings and sealing dressings during the
	treatment of caries, pulpitis, and apical periodontitis

LIST OF TASKS AND PRACTICAL SKILLS FOR COMPILING THE OSP(C)E FOR STATION No. 2

Nº	Diagnosis	Complaints , anamnesis (0.75 points)	Objective Examinati on (1.5 points)	Manipulati on (3.0 points)	Tactics and treatment (0.3 points)	Prevention (0.45 points)
	Caries –	Ask about	Main	Application	Depending	Provide the
	incipient,	pain,	diagnostic	of	on the stage	patient with
	superficial,	presence of	methods	therapeutic	of the	recommendatio
	middle, deep	a carious	(visual	and	process:	ns for
	(acute and	cavity /	inspection,	preventive	Remineralizi	individual care.
	chronic)	aesthetic	probing,	varnishes	ng therapy.	Diet therapy.
		defect.	percussion,	and gels to	Infiltration	Schedule a
		Clarify the	palpation –	the teeth.	treatment	follow-up
		complaints	assessment	Preparation	techniques.	preventive
		in detail.	of the depth	of carious	Cavity	examination.
		Collect the	of the	cavities of	preparation	
		history of	carious	Class I-V	and filling.	
		the disease.	cavity and	for different		
		Inquire	consistency	filling		

– localized, generalized (initial, stage I, stage II, stage III)	hygiene. Collect medical history. Ask about the presence of general somatic pathology.	pocket probing, assessment of bleeding tendency, degree of tooth mobility, detection of supra- and subgingival	Mühlemann bleeding index, interpretatio n of radiological examination results. Therapeutic skills: Removal of	therapy depending on the diagnosis and activity of the process. Surgical and prosthetic treatment if necessary.	ns for individual and professional oral hygiene. Diet therapy. Schedule a follow-up preventive examination.
		dental calculus).	dental deposits using manual and ultrasonic methods.		
Oral mucosal lesions in dermatoses with an autoimmune component	Identify the main complaints, detail them. Identify factors contributing to the developmen t of the disease. Collect anamnesis of the disease. Ask about the presence of general somatic pathology.	Examine the oral mucosa and vermilion border of the lips. Identify primary and secondary lesions (based on clinical photo). Palpate the lymph nodes and the oral mucosa.	Diagnostic skills: Sampling of materials for laboratory testing, evaluation of test results.	Referral to a dermatologis t, symptomatic treatment.	Regular professional check-ups and oral cavity sanitation.

Appendix 3

ALGORITHMS FOR PERFORMING PRACTICAL SKILLS

1. Collection of complaints (with details) and medical history (anamnesis)

Tooth pain

1. If the pain is triggered by stimuli or occurs spontaneously:

If the pain is triggered by stimuli:

- What stimuli cause the pain? (If necessary, clarify: sweet, cold, hot, biting, food getting into a carious cavity)

- What is the intensity of the pain when exposed to stimuli? (*If necessary, clarify: severe/intense pain or mild/dull/unpleasant sensations*)
- How long does the pain last after the stimulus is removed? (If necessary, clarify: disappears immediately, lasts for several minutes, persists for a long time – more than 5-10 minutes)
- What is the nature of the pain when exposed to stimuli? (If necessary, clarify: sharp, throbbing, dull, pulling, unpleasant sensations)
- Can you point out which specific tooth hurts?
- If the patient reports severe, intense pain did you try to relieve it yourself? (*If necessary, clarify: did you take analgesics/painkillers, rinse the tooth, etc.*)

If the pain is spontaneous:

- Is the pain constant or episodic?
- How long does a pain episode last? (If necessary, clarify: more than 1-2 minutes, more than 5-10 minutes, more than 30 minutes, almost constant)
- How long are the pain-free intervals? (If necessary, clarify: several hours, up to one hour, almost none)
- Are there any factors that worsen the pain? (If necessary, clarify: worsens from cold, hot, or biting)
- What is the nature of the pain? (If necessary, clarify: sharp, throbbing, shooting, dull, pulling)
- Can you point out which specific tooth hurts?
- Are there any factors that relieve the pain? (If necessary, clarify: relieved by cold, warm, or tooth clenching)
- If the patient reports severe, intense pain did you try to relieve it yourself? (*If necessary, clarify: did you take analgesics/painkillers, rinse the tooth, etc.*)

Medical history (anamnesis):

- When did this pain first occur?
- How has the character of the pain changed since it started?
- Have you experienced similar pain before?
- Did you try to manage the pain yourself?
- Has this tooth been treated before? Can you recall what kind of treatment was performed?

Presence of a carious cavity / aesthetic defect

- How long ago did you notice the defect?
- Do you experience any pain in the tooth?
- Have you previously experienced any pain in this tooth?
- Has this tooth been treated before? Can you recall what kind of treatment was performed?

Tooth hypersensitivity

- What kind of stimuli cause the pain? (Three degrees of hypersensitivity are distinguished: Grade I – response mainly to thermal stimuli, Grade II – pain also occurs from chemical stimuli, Grade III – pain from all types of stimuli: thermal, chemical, and tactile)
- Is the pain localized or generalized?
- How long have you been experiencing increased sensitivity?
- What triggered the onset of this sensitivity? (Possible causes: hard tissue defects, pathological tooth wear, tooth preparation for prosthetic restoration, exposure of tooth necks or roots, systemic diseases)
- Have you received any treatment before? What was the outcome?

Gum bleeding

- What kind of stimuli cause the bleeding? (Three degrees of bleeding are distinguished: Grade I – bleeding occurs during tooth brushing, Grade II – while eating, Grade III – spontaneous bleeding)
- How long have you been experiencing gum bleeding?
- Do you feel any pain in your gums?
- How do you maintain oral hygiene? What type of toothbrush do you use? What kinds of toothpaste?
- When was your last professional dental cleaning?
- Do you have any harmful habits? (e.g., smoking, alcohol use, drug use)
- Do you have any internal organ diseases? If yes, which ones? When did you last see the relevant specialists?
- Are you currently taking any medications?

Pain in the gums / oral mucosa

- What stimuli cause the pain?
- What is the nature of the pain? (If needed, clarify: sharp, throbbing, dull, pulling, unpleasant sensations)
- What is the intensity of the pain? (*If needed, clarify: strong/intense pain or mild/dull/unpleasant sensations*)
- Is the pain localized or does it radiate to other areas?
- Is the pain accompanied by fever or general malaise?
- How long have you been experiencing this pain?
- Can you recall what preceded the onset of pain?
- Have you experienced similar pain before?
- Did you try anything to relieve the pain?
 - (e.g., medication, mouth rinses, etc.)

During anamnesis taking, clarify the following information for all patients:

- Age, occupation, presence or absence of occupational hazards, dietary habits, past illnesses, stress conditions, environmental, social, and living conditions.
- How do you maintain oral hygiene? What type of toothbrush do you use? What kinds of toothpaste?
- When was your last professional dental cleaning?
- Do you have any harmful habits? (e.g., smoking, alcohol use, use of psychoactive substances, etc.)
- Do you have any internal organ diseases? If so, which ones? When did you last consult the relevant specialists?
- Are you currently taking any medications?
- Do you have a tendency toward allergic reactions?

2. Extraoral examination of the patient's face and palpation of the lymph nodes

- Position the patient ergonomically for the examination.
- Briefly explain the purpose of the procedure to the patient. Inform them that palpation of the skin or lymph nodes may cause pain or discomfort.
- Put on gloves and a mask.
- Perform an extraoral examination of the patient's face: assess facial proportions and symmetry; presence of swelling or masses; skin color; presence of lesions; prominence of

the nasolabial and labiomental folds; and the appearance of the vermilion border of the lips.

- Perform palpation of the lymph nodes: assess consistency, mobility, tenderness, size, and relation to surrounding tissues.

3. Clinical examination of a patient with odontopathology

- Briefly explain the procedure to the patient. Inform the patient that discomfort or pain may occur during probing, percussion, or palpation.
- Examine the affected tooth and assess the presence of a carious cavity or restoration.
- Inspect the teeth using a dental mirror and probe. The examination begins with the last tooth on the upper right side, proceeds through all upper teeth, then moves down to the last tooth on the lower left side, and concludes with the last tooth on the lower right side. During the examination, assess: number of teeth; position within the dental arch; mobility; color, shape, size; presence of lesions.
- Evaluate the condition of restorations:
- Marginal adaptation (by probing): a) no visible gap; b) visible gap; c) visible dentin and base material; d) defective filling, chipping, mobility, or loss of filling.
- Condition of contact point
- Degree of wear
- Presence of secondary caries
- Color stability
- Anatomical shape of the filling
- Color change between the filling and the tooth wall
- Color matching of the restoration to the tooth structure (color, translucency)
- Perform probing of the affected tooth, assessing the depth of the carious cavity, consistency of the hard tissues, tenderness, and whether there is communication between the cavity and the pulp chamber.
- Perform vertical, horizontal, and comparative percussion.
- Perform palpation of the oral mucosa in the projection area of the tooth root apex.

4. Periodontal screening

- Position the patient ergonomically for the examination.
- Briefly explain the procedure to the patient. Inform them that discomfort or pain may occur during the assessment.
- Put on gloves and a mask.
- Examine the gingiva: assess color, surface characteristics, texture, presence of hypertrophy or recession, and presence of periodontal pockets.
- Using a periodontal probe and explorer, assess the integrity of the dentoepithelial attachment.
- If a periodontal pocket is present, determine its depth:
- Isolate the tooth from saliva using cotton rolls and dry it.
- Insert the periodontal probe into the pocket along the vertical axis of the tooth until a slight resistance is felt. Make movements only perpendicular to the gingival margin, keeping the working part of the probe pressed against the tooth surface.
- Measure the depth of the periodontal pocket at four sites around the tooth: mesial, buccal (vestibular), distal, and lingual (oral). From the buccal and oral sides, take at least three measurements each: one at the center of the pocket and two at its periphery.
- When analyzing the results, record the maximum depth of the pocket at its deepest point.
- In the case of gingival hypertrophy, measure pocket depth from the level of the cementoenamel junction.

5. Clinical examination of a patient with oral mucosal disease

- Place the patient in an ergonomic position for examination.
- Briefly explain the procedure to the patient. Warn that unpleasant or painful sensations may occur during the examination.
- Put on gloves and a face mask.
- Perform an examination of the oral mucosa, evaluating the color, surface characteristics, and presence of pathological elements. The examination should be carried out in the following sequence:
 - Oral vestibule (depth, color);
 - Labial frenula (attachment site, density);
 - Lingual frenulum (attachment site, density);
 - Oral mucosa and tongue (color, glossiness, surface texture, turgor, vascular pattern, presence of lesions, plaque, tooth imprints).
- Perform palpation of the oral mucosa, evaluating tissue consistency, tenderness, and the presence of exudate from pathological elements.
- Identify primary lesions on the oral mucosa. These include macule, papule, nodule, tubercle, pustule, cyst, vesicle, blister, and abscess.
- Identify secondary lesions on the oral mucosa. These include erosion, aphtha, ulcer, fissure, scar, plaque, scale, crust, excoriation, and lichenification.
- When evaluating secondary lesions, pay attention to the following parameters: topography, size, shape, color, stage of development, nature of discharge, base and depth of the defect, tissue consistency, tenderness, appearance of surrounding tissues, and the presence of other lesion types.

6. Schiller-Pisarev Test

- Provide the patient with an ergonomic position for examination.
- Briefly explain the essence of the procedure to identify signs of gingival or oral mucosa inflammation.
- Ask the patient if they have any known allergy to iodine.
- Wear gloves and a mask.
- Using a cotton swab soaked in the Schiller-Pisarev solution, coat the gums.
- Assess the test result based on staining intensity:
- Negative light yellow coloration;
- Positive dark brown coloration.

7. Papillary Bleeding Index (PBI) by Saxer and Muhlemann

- Provide the patient with an ergonomic position for examination.
- Briefly explain the essence of the procedure to assess the degree of gingival bleeding. Inform the patient that discomfort may occur during the procedure.
- Wear gloves and a mask.
- Isolate the dental arch from saliva using cotton rolls and dry the gingival surface.
- Using a periodontal probe, gently probe the gingival papilla to assess bleeding after manipulation. Perform probing on the lingual surfaces of the first and third quadrants, and on the buccal (vestibular) surfaces of the second and fourth quadrants. Insert the probe at a 45° angle into the gingival sulcus to a depth of up to 5 mm and move it gently along the mesial and distal parts.

Assess the results as follows:

- Grade 0: no bleeding;
- Grade 1: isolated pinpoint bleeding;

- Grade 2: multiple pinpoint bleeding spots or linear bleeding;
- Grade 3: interdental papilla filled with blood;
- Grade 4: intense bleeding following probing; blood flows along the tooth or gums.
- Calculate the index value separately for each quadrant, then determine the average value for the entire dentition.

8. Evaluation of radiological examination results

- 1. Assess the quality of the radiograph
 - Examine the patient's periapical radiograph or orthopantomogram. Determine the image quality and its suitability for diagnostic use: the radiograph should be contrasty, clear, structured, and free from projection distortions.
- 2. Assess the dental arches and surrounding bony anatomical structures
- Evaluate the integrity of the dental arches, the position of individual teeth, and the presence of prosthetic or orthodontic appliances.
- Assess the surrounding anatomical structures. On maxillary radiographs, observe the floor of the nasal cavity, nasal septum, inferior nasal meatus, anterior nasal spine, intermaxillary suture, incisive foramen, floor of the maxillary sinus, and zygomatic bone. On mandibular radiographs, the anterior region reveals the mental protuberance, and the posterior region shows three structures: the mental foramen, mandibular canal, and external oblique ridge.
- Evaluate the condition of the alveolar bone:
 - In *chronic periodontitis*, identify destruction of the cortical plate in the area of the interdental septa apices, areas of osteoporosis in the alveolar bone, and a coarse trabecular pattern. Note uneven resorption of the alveolar process (vertical and horizontal types), the presence of bony pockets, and widening of the periodontal ligament space.
 In *periodontosis*, detect discontinuity of the cortical plate of the alveolar process, areas of osteosclerosis in the cancellous bone, uniform decrease in the height of the interdental septa (horizontal type of bone resorption), a fine trabecular pattern, hypercementosis at the root apices, pulp chamber sclerosis, and denticle formation.
- Determine the amount of resorption of the interdental septa to assess the severity of periodontal disease:

– Initial stage: osteoporosis of the apical part of the interdental septa, destruction of the compact bone plate, minor resorption.

- *Stage I:* resorption of up to 1/3 of the root length.
- *Stage II*: resorption from 1/3 to 2/3 of the root length.
- Stage III: resorption exceeding 2/3 of the root length.
- 3. Assess periapical changes for each tooth
- In *chronic apical fibrous periodontitis*, there is widening of the periodontal ligament space at the root apex and its deformation, while the compact bone plate of the alveolar bone retains clear contours.
- In *chronic apical granulating periodontitis*, there is rarefaction of the periapical tissues without clear borders in a "flame-shaped" pattern, along with resorption of the root cementum and dentin.
- In *chronic apical granulomatous periodontitis*, a round bone destruction focus up to 0.5 cm in diameter is seen, surrounded peripherally by condensed cancellous bone.

9. Cavity preparation of Class I-V carious lesions according to Black's classification

- 1. Prepare the necessary instruments for each stage of cavity preparation:
- Cavity opening and widening are performed using a high-speed handpiece and cylindrical or round diamond burs.

- Caries removal (necrotomy) is carried out using a sharp excavator or a round bur of appropriate size mounted in a contra-angle handpiece.
- Cavity shaping for cements and amalgam involves creating a box-shaped cavity with a right angle between the floor and the walls. A cylindrical bur is used for this. For composite materials, cavity shaping is done with a round bur, resulting in a free-form cavity.
- Finishing of enamel margins (beveling, chamfer) is performed with a fine-grain cylindrical or conical diamond bur.
- 2. Perform cavity opening and widening:
- Cavity opening and widening are performed using a high-speed handpiece with cylindrical or round diamond burs. Insert a round bur into the carious lesion and remove the overhanging enamel with intermittent movements. When using a fissure bur, remove the overhanging enamel margins with the lateral sides of the bur until the cavity walls become perpendicular.

Control criteria: All pathologically altered enamel must be removed, the cavity must be extended to healthy tissues, no overhanging enamel margins should remain, and the cavity must be clearly visible.

- 3. Perform caries removal and cavity shaping:
- Caries removal is carried out using a sharp excavator or a round bur of appropriate size. Remove all carious dentin from the walls and floor of the cavity. In cases where the lesion is near the pulp horns, proceed with extreme caution to avoid pulp exposure. Rinse the cavity with water.

Control criteria: Dentin surface should appear shiny, without pigmentation. On probing, the walls and floor should feel hard. A dye test should show no areas of demineralization.

- For cements and amalgam, shape the cavity in a box form using a cylindrical bur, ensuring right angles between the floor and walls. The cavity floor should be contoured according to the anatomical structure of the tooth crown. Control criteria: Box-shaped cavity form.
- For composite restorative materials, the cavity should have a free form. The angle between the floor and walls is not formed; transitions should be rounded. Control criteria: Free-form cavity shape.
- 4. Finish the cavity margins:
- Enamel margin finishing (beveling, chamfer) is performed using a fine-grain cylindrical or conical diamond bur at a 40-45° angle through the full enamel thickness. Control criteria: Enamel margin beveled at 40-45°, chamfer width 1.5-2 mm, and smoothed enamel edges.

10. Restoration of a carious cavity using light-cured composite material

- 1. Shade selection using the vita scale
- If possible, determine the shade in natural daylight or under daylight lamps rather than regular indoor lighting.
- Patients should be asked to remove lipstick or any cosmetics that may affect color perception. Brightly colored clothing should be covered with a gray-toned cloth.
- Make the selection quickly; your first impression is usually the most accurate, as eyes begin to tire after 5-7 seconds.
- Hold the shade guide at arm's length near the patient's mouth.
- Make your decision confidently by comparing the shades from groups A-D with the natural tooth color.
- Disinfect the shade guide after each procedure.
- If the selection is made based on tooth brightness, VITA recommends the following sequence: B1, A1, B2, D2, A2, C1, C2, D4, A3, D3, B3, A3.5, B4, C3, A4, C4.
- 2. Select instruments and accessories for the procedure
- Set of instruments for examination and treatment of teeth

- Cotton (or paper) rolls or rubber dam
- Sterile cotton pellets
- Antiseptic solutions (0.05% chlorhexidine solution)
- Retraction cord
- Celluloid matrices; light-transmitting wedges
- Light-cured composite filling material
- Curing light
- Protective glasses for the dentist
- Articulating paper
- Finishing diamond burs with red and yellow color codes, flame-shaped
- Rubber finishers and polishers, reverse cone-shaped; abrasive strips
- Polishing pastes
- 3. Perform the restoration of the carious cavity following all steps for light-cured composite material
- Using dental tweezers and sterile cotton pellets, treat the cavity with antiseptic solution. Remove any excess with a dry cotton pellet. Dry the cavity with an air stream.
- Perform total etching: apply etching gel into the cavity for 30 seconds on enamel and 15 seconds on dentin. Remove the gel and rinse the cavity with a water stream for 60 seconds, focusing on the enamel. Lightly dry the treated surface should appear slightly moist and chalky.
- Apply the adhesive system: use the supplied brush to apply the primer on both enamel and dentin. After 15-30 seconds, blow air over the cavity, then light-cure for 10-20 seconds. Apply a thin layer of bonding agent, spread it with a gentle air stream, and cure for 20-30 seconds. Check the cavity walls should appear glossy.
- Restore the cavity: transfer a portion of the composite material to a plastic pad. Use a plastic instrument to place a small increment into the cavity and condense with a plugger. Layer thickness should not exceed 2 mm. Cure each layer for 30-40 seconds, with the first 15-20 seconds directed from the side expected to have the most adhesion, then cure perpendicular to the surface. Apply subsequent layers in the same manner until the cavity is fully filled. Remove the matrix and retraction cord. Check the filling should restore the tooth's anatomical shape and contact point.
- 4. Restore the contact point
- Insert 2 cm of retraction cord into the interproximal space, and secure the matrix with light-transmitting wedges.
- 5. Perform final finishing of the light-cured composite filling
- Place articulating paper on the occlusal surface and check the bite. Use a red-marked bur to reduce any high spots. Recheck the bite with articulating paper. Remove the surface layer of composite and finish the filling with red and then yellow-marked burs. Polish the surface to a shine using rubber finishers and polishers at 2-3 rpm with polishing paste. Perform final occlusal check with articulating paper. Polish the proximal surface using abrasive strips of varying coarseness. Check even contact with antagonist teeth.

11. Collection of oral cavity samples for laboratory testing

- 1. Prepare the patient for the procedure
- Briefly explain the purpose and steps of the procedure.
- Ask the patient whether they arrived in the morning, on an empty stomach, and without performing oral hygiene.
- Rinse the oral cavity with saline solution to remove food debris and mucus. Using a sterile moistened cotton swab, gently clean the lesion surface from necrotic films. Prepare a microscope slide.

- 2. Collect material from the oral mucosa for cytological and microscopic examination using the imprint method
- Apply a sterile rubber marker to the target area and transfer the imprint to a microscope slide.
- Repeat the sample collection from the same area to examine the deeper layers of the lesion cytologically.
- 3. Collect material from the oral mucosa for cytological and microscopic examination using the scraping method
- Use a sterile dental spatula to scrape the sample from the affected area of the oral mucosa and spread it in a thin layer on a microscope slide.
- 4. Collect material from the oral mucosa for cytological and microscopic examination using the smear method
- With the right hand, remove the swab from the sterile test tube and gently insert it into the oral cavity without touching healthy tissues.
- Rub the surface of the mucosa at the junction between healthy and affected tissue, rotating the swab several times.
- Remove the swab from the mouth and carefully place the collected material into a sterile test tube without touching its rim.
- Complete the laboratory referral form and deliver the sample within 72 hours.
- 5. Analyze the obtained results
- Examine the cytological image and provide a description of the cellular characteristics.

12. Irrigation of the root canal system

- 1. Select the necessary instruments, accessories, and medicaments for irrigation and canal enlargement
- Choose endodontic instruments and accessories required for the procedure and determine their sizes K-reamers and K-files, endodontic syringe, endodontic needle, paper points or root canal swabs, gutta-percha points.
- Select appropriate antiseptic agents for irrigation during the procedure. The following antiseptics can be used for root canal irrigation:
- Halogen-containing agents (sodium hypochlorite solution, chloramine, iodinol);
- Quaternary ammonium compounds (chlorhexidine, decamine, decamethoxin solutions);
- Oxidizing agents (hydrogen peroxide solution, urea);
- Chelating agents.
- Select medicaments for canal enlargement and smear layer removal. The most commonly used agents are chelating compounds 15% EDTA solution, 10%-50% citric acid, and 7% maleic acid solutions.
- 2. Perform irrigation using an endodontic syringe in non-infected root canals
- The irrigation protocol for root canals with inflamed pulp includes alternating irrigation with 5.25% sodium hypochlorite solution and 17% EDTA solution. Between each solution, rinse the canal with distilled water. After the final rinse, dry the canal with a paper point.
- 3. Perform irrigation using an endodontic syringe in infected root canals
- The irrigation protocol for root canals with necrotic pulp includes alternating irrigation with 5.25% sodium hypochlorite solution and 17% EDTA solution. Then, sodium hypochlorite solution is left in the root canal for 5-10 minutes.

- Afterward, the canal is thoroughly rinsed with distilled water and the smear layer is removed using EDTA solution. Again, rinse the canal with distilled water, and apply 2% chlorhexidine solution for 1 minute. Finally, dry the root canal using a paper point.
- Irrigation procedure using an endodontic syringe:
- Fill the endodontic syringe with sodium hypochlorite solution and attach an endodontic needle. Place a rubber stopper on the needle to control insertion depth.
- Hold the syringe cylinder with all fingers of the right hand, pressing the plunger shield into the palm.
- Insert the needle into the root canal no deeper than two-thirds of its length, and perform slow in-and-out movements while gently pressing the syringe against the palm, watching the plunger move inside the cylinder.
- The antiseptic solution should be delivered under low pressure. About 10-20 ml of solution is required to irrigate one root canal.
- Repeat irrigation after mechanical instrumentation of the canal.
- Check irrigation effectiveness by observing the outflow of a clear sodium hypochlorite solution from the canal.

13. Temporary root canal filling

- 1. Select instruments for performing temporary root canal filling
- Choose the endodontic instruments and accessories required for the procedure: a set of dental tools (mirror, tweezers, probe, metal spatula, excavator, plugger-burnisher, mixing glass) and instruments/accessories for canal obturation (low-speed handpiece with adjustable rotation speed, mechanical root canal filler, root canal needles, paper points).

2. Select filling materials for temporary root canal obturation

- Choose the temporary filling material according to the clinical indications:
- In cases of pronounced periodontal inflammation use pastes based on antibiotics and corticosteroids (e.g., Septomixine Forte, Ledermix, Pulposeptin).
- For temporary filling of severely infected root canals with anaerobic infection use pastes based on metronidazole (e.g., Grinazole).
- In cases of severely infected root canals in teeth with chronic periodontitis that poorly tolerate sealing tests choose pastes with long-acting antiseptics (e.g., Tempoform, Iodent, Iodex, Cresodent, Pulpispad, Gangripulpe).
- For destructive forms of periodontitis or when endodontic treatment cannot be completed in a single visit use calcium hydroxide-based materials (e.g., Calasept, Sealapex, Multi-Cal, Tempkanal, Endokal, Vitapex, Metapex, Ultra Cal, Biocalex).

3. Perform temporary root canal obturation using an endocannula

- If needed, mix the filling material on a glass slab to achieve a homogeneous, sour creamlike consistency.
- Load the material into the endocannula.
- Insert the cannula with the material into the canal to the working depth and inject the required amount of material.
- Gradually fill the entire root canal in several increments.
- After filling, condense the material above the canal using a tightly packed cotton pellet.
- Place a temporary coronal filling.

14. Root canal obturation using the cold lateral condensation technique with gutta-percha

- 1. Select instruments for root canal obturation using the cold lateral condensation technique
- A basic set of instruments for dental examination and treatment
- Endodontic training phantom

- Cotton rolls and pellets
- Root canal sealer (e.g., Endofil, Endomethasone, Viedent, AH+ or equivalent)
- Assorted gutta-percha points
- Canal filler (canal plugger); finger spreaders
- 2. Select gutta-percha points for the procedure
- Select the size of the master cone: choose a gutta-percha point corresponding to the size of the final instrument (with the largest diameter) used to shape the canal to its full working length.
- Mark the gutta-percha point to match the tooth's working length.
 - Insert the gutta-percha point into the canal until resistance is met.
 - If the point does not reach the working length, replace it with a smaller size;
 - If it penetrates too deeply, choose a larger size.
- Perform radiographic control to check the fit of the master cone.
- Remove the cone after evaluation. *Control criteria:* The gutta-percha point should correspond to the pre-determined working length. On the X-ray, the cone should be positioned within the root canal, 1-1.5 mm short of the apex.
- Select a spreader with a length 1-2 mm shorter than the working length and a diameter equal to or slightly larger than the master file.
- **3.** Prepare the sealer

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- If necessary, mix the sealer on a paper pad to achieve a creamy, sour cream-like consistency.
- 4. Perform root canal obturation using the cold lateral condensation technique
- Introduce the prepared sealer into the root canal so that it evenly coats the canal walls.
- Dip the tip of the master cone in the sealer and insert it into the canal to full working length.
- Insert the spreader into the canal alongside the cone to displace it laterally against the canal wall and hold for 15-20 seconds.
- Select an accessory cone 1-2 mm shorter than the master cone.
- Dip the tip of the accessory cone in sealer and place it into the space created between the master cone and canal wall.
- Use the spreader to condense the accessory cone toward the master cone.
- Continue inserting additional accessory cones (pre-dipped in sealer) and condensing them with the spreader until the spreader can no longer penetrate the canal.
- Cut or remove the excess gutta-percha using a heated metal instrument.
- Perform vertical condensation of gutta-percha using a plugger or condenser.
- Take a radiograph to evaluate the quality of obturation. Expected result: The root canal is evenly filled with a radiopaque material up to the physiological apex.

15. Instrumental Removal of Dental Deposits

- 1. Select instruments and medicaments for the procedure
- Set of dental instruments for examination and treatment
- Hand instruments for calculus removal (hand scalers, universal and area-specific curettes)
- Disclosing agents for dental plaque and calculus (6% basic fuchsin solution, 4-5% erythrosine solution, potassium iodide solution, 3% iodine alcohol solution)
- Topical or infiltration anesthetics (2-10% lidocaine hydrochloride solution, Xylonor solution, gel, spray, Ubistesin)
- Antiseptic solutions (Givalex, Stomatidine, furacilin, Maraslavin, Salvine, 0.05% chlorhexidine, 3% hydrogen peroxide)

- Irrigation syringe with blunt needle
- Cotton rolls and pellets
- Polishing pastes and brushes
- Anti-inflammatory pastes (Cholisal, Paragel, Mefenat, etc.)
- 2. Perform supragingival calculus removal using instruments
- Apply topical anesthesia.
- Irrigate the oral cavity with antiseptic solution using a syringe.
- Isolate the gingiva with cotton rolls to prevent contamination with saliva.
- Moisten a cotton pellet with 3% iodine solution, squeeze out the excess, and use it to treat the gingival margin near the tooth surface. Apply a disclosing agent to the teeth for better visualization of deposits.
- Hold the instrument in the right hand using the "pen grasp", and stabilize the jaw and tooth with the fingers of the left hand. Place the working end of the instrument under the lower edge of the calculus and remove it from the tooth surface with a lever-like motion. Begin with supragingival calculus.
- Select the appropriate instrument for each surface of the tooth. Use scaling and lifting motions, and irrigate with antiseptic as needed.
- Thoroughly remove calculus from 6-8 teeth.
- 3. Perform subgingival calculus removal using instruments
- Use the same technique as for supragingival deposits, but more gently and carefully.
- After thorough removal of supra- and subgingival calculus, polish tooth surfaces using brushes and polishing pastes.
- Apply anti-inflammatory paste to the gingival surface.
- 4. Evaluate the effectiveness of the procedure
- Quality control of calculus removal is both visual (with a dental mirror) and tactile (using an explorer). The tooth root and crown surfaces should be smooth and shiny.

16. Determine the working length of the root canal using an apex locator

- Ensure that all parts of the device are properly connected.
- Thoroughly isolate the tooth from saliva, but do not overdry the canal it should remain slightly moist. If needed, insert a paper point moistened with distilled water.
- Attach the stainless steel hook (lip clip) to the corner of the mouth.
- Fix the endodontic instrument (reamer or file), which serves as the test electrode.
- Slowly insert the test electrode into the canal, avoiding contact with the soft tissues or gingiva.
- As the instrument approaches the apical constriction, the device will emit a sound or visual signal.
- Upon contact with the periapical tissues, a continuous signal will be produced. If this occurs, withdraw the instrument by 1-1.5 mm.
- Record the working length by placing a rubber stopper on the endodontic instrument.

17. Perform root canal instrumentation using the step-back technique

- Using an endodontic ruler, place stoppers on K-files No. 10 and 15 at the working length.
 For each subsequent file, reduce the working length by 1 mm: No. 25 2 mm shorter,
 No. 30 3 mm shorter, No. 35 4 mm shorter, No. 40 5 mm shorter
- Place a few drops of 3% sodium hypochlorite into the pulp chamber. To aid canal negotiation, use an EDTA-based gel lubricant.

- Insert K-file No. 10 into the canal, using gentle in-and-out and rotating movements (within a 90° sector), advancing to full working length. Use a watch-winding motion to enlarge the canal until the file moves freely.
- Repeat the same with file No. 15.
- Continue canal shaping with larger files, reducing the penetration depth step-by-step, according to stopper settings.
- After using file No. 25, return to file No. 20 to remove dentin debris. Recommended sequence:

 $10 \text{--} 15 \text{--} 20 \rightarrow 25 \text{--} 20 \rightarrow 30 \text{--} 25 \rightarrow 35 \text{--} 30 \rightarrow 40$

- Use H-files No. 25 and 30 with in-and-out movements to smooth out any ledges in the apical portion of the root canal walls.
- Control criteria: the canal should have a tapered shape, narrowing toward the apical foramen, with smooth walls and a distinct apical stop.

Appendix 4.

SAMPLE TASKS

Station No. 2: "Major Pathological Conditions in Therapeutic Dentistry: Diagnosis and Treatment (with Practical Skills)"

CLINICAL SCENARIO FOR THE HIGHER EDUCATION APPLICANT №1

You are a dentist in an endodontic appointment, managing a case of acute purulent pulpitis. Task: Diagnose the patient's condition and perform a treatment procedure – irrigation of the root canal system.

Available materials: On the doctor's table there is a tray with oral examination instruments, endodontic instruments and accessories, an endodontic syringe, medicaments, and an endodontic phantom.

Tasks for Clinical Scenario No. 1:

- 1. Interview the patient and determine the characteristics of the pain syndrome.
- 2. Perform the main objective examination methods that confirm the diagnosis.
- 3. Indicate the most rational treatment method for this patient.
- 4. Procedure 1: Select the necessary instruments and accessories for irrigation of the root canal system. Choose the appropriate medicaments for disinfection and canal enlargement.
- 5. Procedure 2: Perform root canal irrigation using an endodontic syringe (demonstrate the technique on the endodontic phantom and specify the criteria for proper performance).
- 6. Provide patient recommendations for preventing recurrence of this condition.

CLINICAL SCENARIO No. 1 – SCRIPT FOR THE STANDARDIZED PATIENT

You are simulating a 31-year-old patient with acute purulent pulpitis in tooth 35.

Only answer the questions asked by the applicant. If a question falls outside the scenario, respond with "I don't know" or "I don't remember."

Questions asked by the applicant:	Tutor's answers:
What are your complaints?	Severe throbbing pain in the teeth on the lower left
	jaw.
Can you point out which tooth hurts?	No, it feels like almost half of the jaw hurts.
Does the pain occur spontaneously or is it triggered by something?	Both spontaneously and triggered by warmth.
Is the pain constant or episodic?	At first, the pain came in episodes, but today it is almost constant – it just slightly weakens and then intensifies again.
What is the nature of the pain?	Severe, throbbing.
Have you tried to relieve the pain on your own?	Yes, I've been taking painkillers (Ketanov) for two days, and I also noticed that cold water reduced the pain yesterday.
When did the pain first appear?	It started four nights ago and has been getting worse ever since.
Have you experienced similar pain before?	No, it hurts like this for the first time.
Has this tooth been treated before?	No.
Do you have any internal organ diseases?	No, I don't have any health issues.

During the clinical examination, the pain intensified upon probing and vertical percussion of tooth 35. Gingival palpation was painless.

CHECKLIST

Assessment of skills at OSCE station Station №2: "Major pathological conditions in therapeutic dentistry: diagnosis and treatment (with practical skills)"

Clinical Scenario №1

N⁰	Practical skills	Number of points per skill	Number of points of the applicant
1	Taking complaints and medical history	0.75	
1.1	Identified constant, severe, throbbing, radiating pain in the tooth	0.3	
1.2	Identified that the pain is relieved by cold	0.3	
1.3	Identified that the pain first appeared four days ago	0.15	
2	Objective examination	1.5	5
2.1	Identified that the oral mucosa of the alveolar process in the area of the affected tooth shows no pathological changes	0.3	
2.2	Identified a deep carious cavity that does not communicate with the pulp chamber	0.3	

2.3	Identified that pain intensifies upon probing the floor of the carious cavity	0.3	
2.4	Identified that pain intensifies upon vertical percussion	0.3	
2.5	Identified that palpation of the gingiva does not cause pain	0.3	
3	Treatment strategy	0.3	8
3.1	Vital extirpation of the pulp followed		
	by restoration of the anatomical shape	0.3	
	of the tooth		
4	Procedure 1	1.5	5
4.1	Selected an endodontic syringe with a	0.2	
	needle	0.3	
4.2	Selected 15% EDTA solution	0.3	
4.3	Selected 5.25% sodium hypochlorite	0.2	
	solution	0.3	
4.4	Selected 2% chlorhexidine solution	0.3	
4.5	Selected distilled water	0.3	
5	Procedure 2	1.5	
5.1	Indicated the depth of insertion of the	0.2	
	endodontic syringe with a needle	0.5	
5.2	Demonstrated root canal irrigation on	1.0	
	the endodontic phantom	1.0	
5.3	Checked that the paper points were dry	0.2	
	and clean	0.2	
6	Prevention	0.45	
6.1	Advised taking an analgesic in case of	0.3	
	post-treatment pain	0.5	
6.2	Provided recommendations for	0.3	
	individual oral hygiene	0.5	
6.3	Recommended oral cavity sanitation	0.15	
	Maximum points per station	6.0	####
	The amount of points scored by the	####	
	applicant		

Appendix 5

REGULATORY DOCUMENTS ON THE BASIS OF WHICH CLINICAL CASES HAVE BEEN CREATED

(for the last 5 years)

- 1. Standard of medical care "Anesthesia support in outpatient dentistry" (Order of the Ministry of Health of Ukraine dated March 27, 2025 No. 555)
- 2. Evidence-based clinical guideline "Anesthesia support in outpatient dentistry" (Order of the Ministry of Health of Ukraine dated March 27, 2025 No. 555)
- 3. Standard of medical care "Dental caries" (Order of the Ministry of Health of Ukraine dated May 23, 2024 No. 869)
- 4. Evidence-based clinical guideline "Dental caries" (Order of the Ministry of Health of Ukraine dated May 23, 2024 No. 869)
- 5. Standards of medical care "Dentoalveolar trauma" (Order of the Ministry of Health of Ukraine dated February 17, 2023 No. 314)

- 6. Standard of medical care "Rational use of antibacterial and antifungal drugs for therapeutic and prophylactic purposes" (Order of the Ministry of Health of Ukraine dated 08/23/2023 No. 1513)
- Operative Dentistry. Endodontics: in 2 volumes. Volume 1: textbook edited by Prof. A.V. Borysenko / M.Yu. Antonenko, L.F. Sidelnikova, O.F. Nesyn et al. – 2nd edition, 2020, 384 p. ISBN: 978-617-505-788-9.
- Stomatology: textbook: in 2 books. Book 1 / M.M. Rozhko, Z.B. Popovych, V.D. Kuroiedova et.al.; edited by M.M. Rozhko. Kyiv: AUS Medicine Publishing, 2020. 792 p.
- Stomatology: textbook: in 2 books. Book 2 / M.M. Rozhko, Z.B. Popovych, V.D. Kuroiedova et.al.; edited by M.M. Rozhko. Kyiv: AUS Medicine Publishing, 2020. 792 p.
- 10. Preclinical Manual of Conservative Dentistry and Endodontics / 4th Edition, ed. by V. Gopikrishna / Elsevier Saunders, Mosby, Churchill, 2023.
- Textbook of Preclinical Conservative Dentistry: textbook edited by Nisha Garg, Amit Garg
 3rd edition. Jaypee Brothers Medical Publisher, 2022. 190 p.
- 12. Srikumar G.P.V., Wasule A. Non-Carious Lesions and Its Management: A Rollercoaster Ride, LAP Lambert Academic Publishing, 2023. 304 p.
- 13. Newman M. Newman and Carranza's. Clinical Periodontology and Implantology.1900 ed. [S.1.]: [s.n.], 2023.
- 14. Yussif N., Akarslan Z. Periodontal Disease: Diagnostic and Adjunctive Non-surgical Considerations. BoD–Books on Demand, 2020.
- 15. Gehrig, Jill S, and Daniel E Shin. Foundations of Periodontics for the Dental Hygienist. Sixth edition. Burlington, MA: Jones & Bartlett Learning, 2023.
- 16. Enno Schmidt. Diseases of the Oral Mucosa. 2021. 550 p. DOI: https://doi.org/10.1007/978-3-030-82804-2