

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

"AGREED"

at Methodical meeting  
of dental disciplines  
Protocol № 9  
from "24" 04 2024

Head of Methodical meeting,  
professor of HEI

 Serhii SHUVALOV

"APPROVED"

by Academic council  
Vinnytsya National Pirogov  
Memorial Medical University  
Protocol № 9  
from "25" 04 2024

Head of Academic council,  
professor of HEI

 Victoriia PETRUSHENKO

**Objective structured practical (clinical) exam on discipline**  
**“Orthopedic Dentistry”**  
**in 2023/2024 academic year**  
**specialty 221 "Dentistry"**

**Instructions for the station №5**

**«Clinical and technological stages of orthopedic dentures manufacturing »**

## Instructions for the station №5

### «Clinical and technological stages of orthopedic dentures manufacturing »

#### **Task:**

1. Be able to make the previous and the main diagnosis.
2. Carry out differential diagnosis of diseases.
3. Be able to evaluate the results of additional laboratorial and instrumental methods of examination.
4. Know the technique of dental preparation for fixed orthopedic constructions.
5. To determine the tactics of treatment of the patient on the basis of an objective method of examination.
6. Know the clinical and laboratorial stages of manufacturing of removable and non-removable dentures.

**Material and technical support of the station:** dental phantom of the patient, stomatological unit with handpeices and saliva ejector, diamond drills of various shapes and grains for preparation of teeth for the crowns, standard set of dental instruments, retraction cord, models of jaws and X-rays of patients , a set of standard impression trays, a set of alginate impression materials, a spatula for kneading, an antiseptic for hands, a pencil, tasks.

Equipment for remote form of OSCE and clinical tasks, conventional patients.

On the day of the exam, the secretary of the State Examination Commission joins to the meeting the examiner and the student which passes the exam according to the schedule. At the station, the student must greet and introduce himself and **show the ID card (passport)**. The student receives a practical task, which provides the ability to establish a preliminary and basic diagnosis, know the clinical and laboratory stages of manufacturing removable and non-removable dentures, determine the tactics of the patient`s treatment and choose a method of treatment.

The duration of the station is 10 minutes. At the end of the stay at the station, the examiner evaluates the answer.

Members of the examination commission do not interfere in the process of task performance, communicate with applicants only at the stage of information communication, monitor the correctness of performance and put in the checklist score for each criterion specified in a specially designed evaluation letter for a particular station OSCE.

Note that the examiner is an observer of your actions and does not provide instructions, comments or asking the questions.

#### **Requirements for passing the station:**

- Use a computer or laptop during the answer.

- the answer is accepted under the condition of the working camera, where the student who passes the exam is clearly visible, and the included microphone with a clear sound;

- video is recorded while working at the station.

**It is forbidden** to use a mobile phone and other electronic gadgets out of answer during the exam, to transmit, copy and take out any information related to the exam.

In context of distance learning (in order to prevent the spread of the respiratory disease COVID-19 caused by coronavirus SARS-CoV-2), the procedure for the conduct of objective structured clinical examination (OSCE) is determined by Regulation for the introduction of distance learning components in National Pirogov Memorial University, Vinnytsya, and it will take place on the online platforms Microsoft Teams or Google Meet .

Part of OSCE- in Orthopedic Dentistry and Implantology consists of two stations.

**Station №5:** «Clinical and technological stages of orthopedic dentures manufacturing »

**An example of evaluating of the answer of a higher education applicant (HEA) for the clinical task**

**Task: To obtain the working impression with the help of silicone rubber impression materials**

**The answer scheme includes:**

1. Choose a standard impression tray
2. To obtain the previous impression with a high-density silicone materials
3. To obtain final impression with a corrective silicone compound materials
4. Evaluate the impression for defects and explain your assessment
5. Suggest a method of disinfection of the impression

**Example of answer and points:**

Parameters that evaluate	Student answer	Point and traditional mark
Choose a standard impression tray;	The standard impression tray should be wider than the dentition and (or) the alveolar process by 3-5 mm on each side. the tray should cover the entire dentition, or, in the case of final defects, reach the retromolar area. The board of a tray should block necks of	0,93-1 / 5 0,8-0,92 / 4 0,6-0,79 / 3 <0,59 / 2

	teeth, or reach a transitional fold at defects of a dentition	
To obtain the previous impression with a high-density silicone materials	C-silicone kits usually have a high-density mass, which is pre-imprinted, a low-density mass, a corrective mass, and a universal activator for both masses. The manufacturer recommends using a measuring spoon and measuring scale for proper dosing of masses and activator. It is also necessary to adhere to the working time of the mass, during which it is necessary to mix the material, put it in the impression tray, place it in the mouth from back to front for the upper jaw, or front to back for the lower jaw, and decorate the edges of the impression with passive movements. After receiving the print, it is necessary to rinse it with running water, dry it, remove the areas of the insides with a special knife and cut grooves for decompression.	0,93-1 / 5 0,8-0,92 / 4 0,6-0,79 / 3 <0,59 / 2
To obtain final impression with a corrective silicone compound materials	C-silicone kits usually have a high-density mass, which is pre-imprinted, a low-density mass, a corrective mass, and a universal activator for both masses. The manufacturer recommends using a measuring spoon and measuring scale for proper dosing of masses and activator. It is also necessary to adhere to the working time of the mass, during which it is necessary to mix the material, put it in the impression tray, place it in the mouth from back to front for the upper jaw, or front to back for the lower jaw, and decorate the edges of the impression with passive movements	0,93-1 / 5 0,8-0,92 / 4 0,6-0,79 / 3 <0,59 / 2
Evaluate the impression for defects and explain your assessment	Disadvantages of the impression are: porosity, the separation of the corrective mass from the base, or the separation of the impression from the tray, the lack of mass, which led to impermeable areas, the delay of the materials, the area pushed to the tray materials	0,93-1 / 5 0,8-0,92 / 4 0,6-0,79 / 3 <0,59 / 2

Suggest a method of disinfection of the impression	Silicone rubber impression are washed with cold running water for 3 minutes. Disinfection - by immersion in a 0.5% solution of sodium hypochlorite with an exposure of 3-10 minutes, or in a 2% solution of glutaraldehyde with an exposure of 30 minutes. Storage of the impression in normal conditions. It is necessary to ensure a relaxation period of the imprint of 30-90 minutes. Transportation - in a rigid box with shockproof filler	0,93-1 / 5 0,8-0,92 / 4 0,6-0,79 / 3 <0,59 / 2
<b>The maximum number of points per station is 5</b>		

### List of clinical tasks

**Task 1: The choice of the method of the treatment for defects of the hard tissues of the tooth.**

**The answer scheme includes:**

1. Find the teeth with defect of hard tissues on the cast models;
2. Find the teeth on Xray with defects of the hard tissues;
3. Determine the index according to Milikevich for each tooth with a defect;
4. Determine which of the teeth are devital;
5. Suggest the method of of the treatment for defects in the hard tissues of the tooth depending on the value of index according to Milikevich and the state of vitality.

**Task 2: To make the dental preparation for cast metal crown.**

**The answer scheme includes:**

1. Name the main indications to using cast metal crown
2. Determine the purpose and suggest a method of anesthesia
3. Separate the proximal surfaces of the tooth
4. Make retraction of the gums
5. To make the dental preparation of all surfaces of 36 teeth for cast metal crown

**Task 3: To make the dental preparation for the metal-and-ceramic crown**

**The answer scheme includes:**

1. Name the main indications to using the metal-and-ceramic crown
2. Determine the pupose and suggest a method of anesthesia
3. Separate the proximal surfaces of the tooth
4. Make retraction of the gums
5. To make the dental preparation of all surfaces of 45 teeth for metal-and-ceramic crown

**Task 4: To make the dental preparation for zirconium crown.**

**The answer scheme includes:**

1. Name the main indications to using the zirconium crown
2. Determine the pupose and suggest a method of anesthesia
3. Separate the proximal surfaces of the tooth
4. Make retraction of the gums
5. To make the dental preparation of all surfaces with a cervical ledge (chamfer) of 24 tooth for zirconium crown

**Task 5: To obtain auxiliary impression with help of alginate impression material**

**The answer scheme includes:**

1. Choose a standard impression tray;
2. Prepare the alginate impression material according to the manufacturer's instructions
3. To obtain auxiliary impression with help of alginate impression material
4. Evaluate the impression for defects and explain your assessment
5. Suggest a method of disinfection, transportation and storage of the impression

**Task 6: To obtain the working impression with the help of silicone rubber impression materials.**

**The answer scheme includes:**

1. Choose a standard impression tray;
2. To obtain the previous impression with a high-density silicone materials
3. To obtain final impression with a corrective silicone compound materials
4. Evaluate the impression for defects and explain your assessment
5. Suggest a method of disinfection of the impression

### **Task 7: Permanent fixation of non-removable dentures.**

#### **The answer scheme includes:**

1. Check the denture on the working model and in relation to the auxiliary model.  
Fit the denture in the oral cavity.
2. Check the prosthesis for occlusion and articulation. Check the pontic.
3. Remove the denture from the oral cavity and prepare it for permanent fixation.
4. Prepare the material for fixation. Prepare the teeth in the oral cavity for fixation.
5. Mix the dental cement, put it in the crowns and fix the denture in the oral cavity.  
Remove excess cement.

### **Task 8: Evaluation of the quality of manufacturing and fitting of the arched removable denture with clasps on the upper jaw on a phantom.**

#### **The answer scheme includes:**

1. Evaluate the presence or absence of sharp edges of the denture elements
2. Determine the contact between the fixing elements and the abutment teeth (available, missing, non-uniform)
3. Determine the relationship between the arch of the prosthesis and the mucous membrane of the palate and alveolar process (presence of contact, lack of contact), evaluate the porosity of the base (presence, absence), evaluate the surface of the base (polished, unpolished);
4. Apply the denture to the tissues of the prosthetic bed
5. Evaluate the quality of fixation of the arched removable denture (fixed, not fixed).

### **Task 9: Determine and fix the position of central occlusion in the 3rd group of dental raw defects according to Betelman.**

#### **The answer scheme includes:**

1. Determine the central occlusion;
2. Prepare the base with occlusal rollers to fix the central occlusion;
3. Fix the central occlusion with wax bases with occlusal rollers on the phantom;
4. Check the correctness of the fixation of the central occlusion;

5. Apply guidelines for setting-up of artificial teeth.

**Task 10: Determine the borders of complete removable denture on the upper jaw.**

**The answer scheme includes:**

1. evaluate the quality of the cast model;
2. determine and draw with a pencil the level of the edge of the base of the denture from the vestibular side relative to the active movable zone of the mucous membrane;
3. identify and draw the anatomical areas that bypass the edge of the base of the denture from the vestibular side in the lateral and frontal areas;
4. determine and draw with a pencil the level of the edge of the base of the prosthesis from the distal part relative to the maxillary tubercles and line "A"
5. determine the ratio of the base of the denture with the torus.

**Task 11: Determine the borders of complete removable denture on the lower jaw.**

**The answer scheme includes:**

1. evaluate the quality of the cast model;
2. determine and draw with a pencil the level of the edge of the base of the denture from the vestibular side relative to the active movable zone of the mucous membrane;
3. identify and draw the anatomical areas that bypass the edge of the base of the denture from the vestibular side in the lateral and frontal areas;
4. determine and outline with a pencil the level of the edge of the base of the prosthesis in the distal area;
5. determine and outline with a pencil the level of the edge of the base of the prosthesis in the lingual area.

**Task 12: Determine the borders of the partial removable denture on the upper jaw.**

**The answer scheme includes:**



1. evaluate the quality of pouring of plaster model;
2. determine and outline with a pencil the level of the edge of the base of the prosthesis from the vestibular side relative to the active movable zone of the mucous membrane;
3. determine and outline with a pencil the anatomical areas that bypass (should not touch) the edge of the base of the prosthesis from the vestibular side in the lateral and frontal areas;
4. determine and outline with a pencil the level of the edge of the base of the prosthesis in the distal part relative to the maxillary tubercles and line "A";
5. determine and outline with a pencil the level of the edge of the base of the prosthesis from the palatal side relative to the natural teeth in the lateral and frontal areas.

**Task 13: Determine the borders of the partial removable denture on the lower jaw.**

**The answer scheme includes:**

1. evaluate the quality of pouring of plaster model;
2. determine and outline with a pencil the level of the edge of the base of the prosthesis from the vestibular side relative to the active movable zone of the mucous membrane;
3. determine and outline with a pencil the anatomical areas that bypass (should not touch) the edge of the base of the prosthesis on the vestibular side in the lateral and frontal areas;
4. determine and outline with a pencil the level of the edge of the base of the prosthesis in the distal part;
5. determine and outline with a pencil the level of the edge of the base of the prosthesis relative to the teeth in the lingual area.

**Task 14: To determine and to fix the interalveolar height in IIIrd group of defects of the dentition according to Betelman.**

**The answer scheme includes:**

1. determine the state of physiological rest position;
2. adjust the upper occlusal roller;
3. adjust the lower occlusal roller relative to the upper;

4. soften the occlusal surface of the rollers with a hot spatula, fix the interalveolar height on the phantom;
5. apply guidelines for the setting up of artificial teeth.

**Task 15: To determine and to fix the central occlusion in the case of IVth group of defects of the dentition according to Betelman.**

**The answer scheme includes:**

1. determine the central occlusion;
2. prepare a base with occlusal rollers to fix the central occlusion;
3. fix the central occlusion with wax bases with occlusal rollers on the phantom;
4. check the correctness of the fixation of the central occlusion;
5. apply guidelines for the installation of artificial teeth.