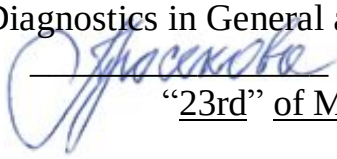
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Federal State Budget Educational Institution
of Higher Education
Pacific State Medical University
of the Ministry of Health of the Russian Federation

APPROVED BY

Head of the Department of Laboratory
Diagnostics in General and Clinical Practice

_____ / Prosekova E.V./
"23rd" of May 2025

COLLECTION OF ASSESSMENT TOOLS
Б1.О.13 Immunology - Immunology in clinical practice
of the basic educational program
of Higher Education

Specialty	**31.05.03 Dentistry** **for international students (in English)** (code, name)
Degree	Specialist's degree
Profile	02 "Healthcare" (in the field of providing health care in patients with dental pathology)
Mode of study	**Full-time**
Period of mastering the BEP	**5 years** (nominal length of study)
Department	of Laboratory Diagnostics in General and Clinical Practice

Vladivostok, 2025

1. INTRODUCTION

1.1. Collection of Assessment Tools is a document that regulates the format, content, and types of assessment tools for continuous assessment, interim examination and final (state final) examination, and graded criteria for each type of assessment tools.

1.2. Assessment tools allows to evaluate the development of universal, general professional, and professional competencies (UCs, GPCs and PCs respectively) outlined in Federal State Educational Standard of Higher Education and defined in the basic educational program of higher education for the specialty 31.05.03 Dentistry for international students (in English), profile 02 "Healthcare" (in the field of providing health care in patients with dental pathology).

(BEP HE for the 31.05.03 Dentistry for international students (in English) specialty, section 3 Learning Outcomes Requirements of the Basic Educational Program of Higher Education)

2. DOCUMENT BODY

2.1. Types of Assessment, Formats of Assessment Tools

No.	Types of assessment	Assessment Tools Format
1	**Continuous assessment**	**Tests**
		Report topics
2	**Interim assessment**	**Tests**
		Interview Questions
		Notes quality assessment

3. The contents of assessment tools for continuous and interim examination are prepared by the teacher of the course

Tests for continuous and interim assessment

	Code	Competence description / name of labor function / name of work activity / text
S	31.05.03	Dentistry for international students (in English)
C	GPC-9	Is able to assess morphofunctional status, physiological states, and pathological processes in the human body when working to achieve objectives of professional activity
I		**ANSWER LEVEL 1 TEST QUESTIONS (ONE CORRECT ANSWER)**
	Continuous assessment	1. THE FUNCTION OF C-REACTIVE PROTEIN IS +A) regulation of the inflammation process B) opsonization (binding) C) specific immune defense D) transport of gases 2. THE KEY CHARACTERISTICS OF AN ADAPTIVE IMMUNE RESPONSE ARE +A) immunological memory and strict antigen specificity B) cytotoxicity and phagocytosis C) complement activation and recognition of pathogen-associated molecules D) recognition of tumor cells and production of pro-

		inflammatory cytokines 3. PHENOTYPIC CHARACTERISTICS OF CYTOTOXIC T-LYMPHOCYTES ARE A) CD4+CD8- +B) CD4-CD8+ C) CD4- CD8- D) CD3- CD16+ 4. IN ALLERGIC REACTIONS OF IMMEDIATE TYPE, THE TYPE OF THE IMMUNE RESPONSE IS A) Th-1 type +B) Th-2 type C) Th -17 type D) Th – type 3 5. EFFECTOR HUMORAL FACTORS OF INNATE IMMUNITY ARE +A) immunoglobulins B) proteins of the main histocompatibility complex C) complement components D) pathogen-associated molecules 6. THE MAIN PLACE OF DIFFERENTIATION AND ONTOGENESIS OF B-LYMPHOCYTES IS A) spleen B) thymus C) lymph nodes +D) bone marrow 7. THE FINAL STAGE OF PHAGOCYTOSIS IS A) chemotaxis B) attraction (adhesion) +C) digestion D) absorption 8. MACROPHAGE CYTOTOXICITY IS RELATED TO THE PRODUCTION OF A) IFN-γ B) IL-10 C) TGF-β +D) TNF-α 9. EFFECTORS OF CELLULAR IMMUNITY ARE +A) T-killers, macrophages B) B-lymphocytes, plasma cells C) stem hematopoietic cells D) T-helpers 10. THE MOLECULAR BASIS OF HEREDITARY PATHOLOGY IS DEFECTS IN A) cell ribosomes B) mitochondria of the cell +C) DNA molecule

		D) RNA molecule 11. IMMUNOGLOBULIN E IS INVOLVED IN A) allergic reactions B) immunocomplex allergic reactions C) formation of delayed hypersensitivity reactions +D) formation of protection against helminthes and formation of immediate cytotoxic immune reactions 12. IMMUNOGLOBULIN A IS INVOLVED IN A) immediate allergic reactions B) delayed sensitivity reactions C) immunocomplex allergic reactions +D) formation of local immunity 13. IMMUNOGLOBULINS CHARACTERIZING THE SECONDARY IMMUNE RESPONSE ARE A) Ig M +B) Ig G C) Ig E D) Ig A 14. THE CLASSICAL COMPLEMENT ACTIVATION PATHWAY IS INITIATED BY A) bacteria +B) antigen-antibody complex C) CRP D) IL-1 15. THE MAIN DIFFERENTIATION RECEPTOR OF NK CELLS IS +A) CD 16 B) CD 3 C) CD 8 D) CD 19
	Interim assessment	1. HISTAMINE A) reduces heart rate +B) increases vascular permeability C) reduces smooth muscle contraction D) increases blood pressure 2. CONTRAINDICATION FOR VACCINATION IS A) unwillingness of parents +B) acute infectious or non-infectious disease C) child crying during vaccination D) redness in the injection area during previous vaccinations 3. FOR IMMUNODIAGNOSTICS _____ INDICATORS OF THE COMPLETE BLOOD COUNT ARE EVALUATED A) monocyte count B) granulocyte count C) lymphocyte count +D) all of the above

4. CAUSES OF PRIMARY IMMUNODEFICIENCIES INCLUDE
A) malnutrition
B) X-ray irradiation
C) chronic recurrent infections
+D) genetic disorders

5. INSUFFICIENCY OF CELLULAR IMMUNITY IS CHARACTERIZED BY
A) is manifested by impaired proliferation of T-lymphocytes
B) accounts for 5—10% of all primary immunodeficiencies
C) is manifested by impaired differentiation of T-lymphocytes
+D) all of the above

6. TYPE I HYPERSENSITIVITY REACTIONS INCLUDE
A) cytotoxic
B) immunocomplex
+C) anaphylactic
D) cellular

7. PRIMARY SKIN LESIONS IN URTICARIA
A) leave flaky skin
+B) disappear without a trace
C) leave flaky skin and pigmentation
D) leave scars

8. THE IMMUNODEFICIENCY MARKER IS
+A) lymphadenopathy, weight loss
B) dyspnea
C) weight gain
D) edema

9. SYMPTOMS OF DRUG ALLERGY
A) depend on the dose
+B) do not depend on the dose and the method of administration
C) depend on the method of administration and the frequency of administration
D) do not depend on the method of administration

10. IN PATIENTS WITH HEREDITARY ANGIOEDEMA, THERE IS A DEFICIT OF
A) C3 complement component
+B) C1 inhibitor
C) C9 complement component
D) all of the above

11. ABSENCE OF ANTIBODIES TO THE CAUSATIVE AGENT OF HIV INFECTION
A) always indicates the absence of infection
+B) is typical for the seronegative period of infection
C) is observed at the initial stage of AIDS
D) indicates a false negative result

12. THE INCUBATION PERIOD FOR HIV INFECTION LASTS FROM
A) 6 weeks to 8 months
B) 2 to 4 weeks
+C) 3 weeks to 3 months
D) 4 to 8 weeks

13. LEVEL 2 TESTS FOR ASSESSING A PERSON'S IMMUNE STATUS INCLUDE DETERMINING
A) percentage of T- and B-lymphocytes
+B) ratios of T-lymphocyte subpopulations (CD4+ and CD8+)
C) absolute number of T- and B-lymphocytes
D) phagocytic activity of blood leukocytes

14. THE PHAGOCYTIC INDEX IS
A) percentage of phagocytic cells
B) average number of blood phagocytes
+C) the average number of particles absorbed by one phagocyte
D) total blood phagocyte count

15. DETERMINATION OF _____ IS NOT A DIAGNOSTIC CRITERION FOR HIV INFECTION
A) specific antibodies
B) viral antigens
C) proviral DNA
+D) the number of T- and B- lymphocytes

16. THE PHYSIOLOGICAL CAUSES OF IMMUNODEFICIENCY STATES DO NOT INCLUDE
A) neonatal period
B) pregnancy and lactation
C) aging
+D) blood transfusion

17. SKIN TESTS WITH ALLERGENS CAN BE CARRIED OUT
A) during the period of exacerbation of allergic disease
B) during a period of subsiding exacerbation
C) at any time
+D) during the period of stable remission

18. ANAPHYLAXIS IS CHARACTERIZED BY
+A) reduction of blood pressure to 90-60/40 mmHg or by 30% of the initial
B) a decrease in blood pressure of 10% from the initial
C) reduction in blood pressure to 50/30 mmHg or 50% of the initial
D) reduction of blood pressure to 90-70/50 mmHg or by 10% of the initial

19. ACUTE TOXIC-ALLERGIC REACTIONS TO A MEDICATION ARE BASED ON
A) Type 1 allergic reactions
B) Type 2 allergic reactions

		C) TYPE 3 allergic reactions +D) both immune and non-immune mechanisms 20. THE MAIN CAUSE OF DEATH IN PATIENTS WITH ACUTE TOXIC-ALLERGIC REACTIONS IS A) asphyxia B) anorexia +C) sepsis D) iatrogenic diabetes mellitus 21. DRUG SUBSTANCES THAT CAUSE CROSS-ALLERGIC REACTIONS ARE +A) penicillin and all natural, synthetic, semi-synthetic penicillins, cephalosporins, carbapenems B) metronidazole and clotrimazole C) Novocain and euphylline D) all of the above 22. MANDATORY ANTI-SHOCK MEASURES INCLUDE THE USE OF +A) adrenaline B) rheopolyglucin C) NSAIDS D) antibacterial agents 23. TYPE I OF ALLERGIC REACTIONS UNDERLIE A) hemolytic anemia B) contact dermatitis +C) anaphylactic shock D) nodular periarteritis 24. WHAT DISEASES OF THE ORAL CAVITY CAN BE ASSOCIATED WITH IMPAIRED LOCAL IMMUNITY? A) caries B) periodontitis C) stomatitis +D) all of the above 25. THE HUMORAL FACTORS OF NONSPECIFIC PROTECTION OF THE BODY ACTING IN THE ORAL CAVITY INCLUDE A) lysozyme B) lactoferrin C) complement proteins +D) all of the above

Assessment criteria

“Very good” - more than 90% correct answers of questions of every level
“Good” - 80-88% correct answers of questions of every level
“Satisfactory” - 70-79% correct answers of questions of every level
“Unsatisfactory” - less than 69% correct answers of questions of every level

Report topics

	Code	Competence description / name of labor function / name of work activity / text
S	31.05.03	Dentistry for international students (in English)
C	GPC-9	Is able to assess morphofunctional status, physiological states, and pathological processes in the human body when working to achieve objectives of professional activity
I	Module 1 General immunology	1. The role of Russian scientists in the development of immunology. 2. The contribution of L. Pasteur and E. Jenner to the development of immunology. 3. The structure of the thymus gland and its significance. 4. The role of stem cells in the development of immunity. 5. Lymphoid tissue associated with the mucosa of the respiratory tract. Waldeyer's (Pirogov's) tonsillar ring. 6. MALT (Mucosa-Associated Lymphoid Tissue) system. Lymphoid tissue associated with the intestinal mucosa. 7. Mucous tissues and skin, their role in the immune system. The concept of "immune solidarity of mucous membranes". 8. T-lymphocyte subpopulations and their role in the immune response. 9. Disorders of the complement system and their consequences for the body. 10. Monoclonal antibodies and their use in research and medicine. 11. The role of secretory IgA in the pathology of the maxillofacial region. 12. Apoptosis, the role in pathology and the significance of its assessment in the clinical and immunological examination of patients. 13. Medications based on extracts from immune organs. 14. Clinical significance of hormones and mediators of the immune system, their effect on the nervous, endocrine, and other organ systems. 15. The role of interferons in the antiviral and antitumor immunity. 16. Cytokines and tissue regeneration, their role in the healing of skin wounds, mucous membranes. 17. Cytokine therapy: scope of application, advantages and disadvantages. 18. Influence of age and sex on the immune response to infectious diseases. 19. Pathologies caused by age-related changes in the immune system: immunodeficiencies, autoimmune, metabolic disorders. 20. Antiviral medications and their role in the treatment of viral diseases. 21. Features of antibacterial immune response in children. 22. Modern ideas about the mechanisms of maintaining immunity in the oral cavity. 23. Autoimmune diseases of the oral cavity and their effect on the condition of the teeth. 24. Modern methods of studying the immune aspects of stomatitis.

		25. The importance of the main histocompatibility complex for transplantology, identification of individuals, forensic and veterinary medicine, anthropology. 26. Immunological methods in the selection of donors and recipients. 27. Methods of overcoming tissue incompatibility between donor and recipient. 28. Relationship between periodontitis and autoimmune inflammation.
	Module 2 Clinical immunology	1. Modern immunoassay methods. 2. Methods used for assessment of the processes of recognition, activation of proliferation, differentiation, and regulation. 3. History of the discovery of the HIV. 4. Manifestations of HIV infection in the oral cavity, in the maxillofacial area. 5. Immunodeficiency conditions in the oral cavity: causes, symptoms, diagnosis, and treatment. 6. Xenobiotics and their role in the development of secondary immunodeficient states. 7. Diseases "masking" secondary immunodeficiency: basic forms, differential diagnosis. 8. Differential diagnosis of allergic and pseudo-allergic reactions. 9. Specific and nonspecific markers of allergic inflammation. 10. Antihistamines: classification, mechanism of action, side effects. 11. Allergic reactions of the oral cavity in dental practice. 13. Clinical manifestations of pseudo-allergic reactions to medications. 14. Methods of specific diagnosis of drug allergy in vivo. Indications for the procedure. Evaluation of the results. 15. Differential diagnosis of anaphylaxis and anaphylactoid reaction. 16. Algorithm for emergency care in case of anaphylaxis in dental practice. 17. Indications and contraindications for vaccination. 18. Mucosal vaccines.

Assessment criteria:

No.	**Assessment criterion**	**Point given per criterion met**		
		Criterion not met	**Criterion partially met**	**Criterion met**
1.	Slides presentation for the report is formatted in accordance with the template	0	1	2
2.	Required volume and visual clarity of the information	0	1	2
3.	Deep insight in the topic is present	0	1	2
4.	The student is knowledgeable on the material	0	1	2
5.	The student answers the questions	0	1	2

Notes quality assessment

Assessment criteria:

"Very good" grade is given to a student who has fully completed all the assignments without any mistakes. Their notes contain full, coherent, and logical written answer on all posed questions.

"Good" is given to a student who has fully completed all the assignments making only minor mistakes. Their notes contain full, overall correct, and generally logical written answer on all posed questions with minor deviations.

"Satisfactory" is given to a student who has fully completed all the assignments but made significant mistakes, or made no mistakes but did not complete the assignment fully. Their notes contain full, coherent, and logical written answer on some questions for every topic.

"Unsatisfactory" is given to a student who did not complete the assignments. There are no answers to majority of or all of the questions.

Interview questions

	Code	**Competence description / name of labor function / name of work activity / text**
S	31.05.03	Dentistry for international students (in English)
C	GPC-9	Is able to assess morphofunctional status, physiological states, and pathological processes in the human body when working to achieve objectives of professional activity
I		**ANSWER THE QUESTIONS**
	Module 1 General immunology	1. Definition of immunology as a scientific discipline. Main sections and doctrines. Subject and objectives of immunology. Methods used in immunology. The main directions of modern immunology. 2. The concept of immunity. Types of immunity. Innate and acquired immunity. Definition and distinction. The concept of an immune reaction. The concept of the immune response, its forms. 3. Immune system: definition, levels of organization. Central organs of the immune system. Their biological role. Peripheral organs of the immune system. Their biological role. 4. Cells of the immune system (neutrophils, eosinophils, basophils, mast cells, monocytes/macrophages, lymphocytes, natural killer cells). 5. Membrane receptors and cell markers (CD classification). 6. Components of cellular innate, humoral innate, cellular adaptive, and humoral adaptive immunity. 7. Anatomical and physiological protective barriers. 8. Phagocytosis. Cells carrying out phagocytosis. The main stages of phagocytosis. 9. Antigens. Chemical nature, antigenicity, immunogenicity, specificity. Antigen-presenting cells. 10. T-lymphocytes, functions and subpopulations. The processes of activation of T-lymphocytes and the choice of an immune response option (CD8+- or CD4+-dependent). 11. Complement system. Activation pathways. Formation of the membrane-attacking complex and its role in cell lysis.

		12. B-lymphocytes: classification, functions. 13. Antibodies: determination, chemical nature, structure. The role of antibodies in the elimination of antigens. 14. Immunoglobulins: definition, classification. The mechanism of interaction between the antibody and the antigen. Features of IgG, IgA, IgM, IgD, IgE. 15. The role of neuropeptides and hormones in the regulation of immune system function. Age-related changes in the production of hormones of the immune system. Cytokines: definition, classification, basic properties of cytokines. Cytokine network. 16. Critical age stages in the formation and development of the immune system. 17. Chemical and enzyme composition of saliva. Immunological components of saliva. 18. Factors affecting the state of the oral immune system. Influence of immunological mechanisms of the oral cavity on the occurrence and course of dental diseases. 19. Signs of immunopathological processes in oral diseases. 20. Caries: immune mechanisms of development, pathogenesis, development of complications and chronic course. 21. Periodontitis: immune mechanisms of development, pathogenesis, development of complications and chronic course. 22. Chronic recurrent aphthous stomatitis: pathogenesis, immune factors of development. 23. Changes in the cellular composition of the oral cavity in dental diseases. 24. Main histocompatibility complex (MHC): definition, main functions, types. 25. Immunological tolerance: definition, mechanisms, basic forms. The difference between immunological tolerance and immunodeficiency. Artificial tolerance.
	Module 2 Clinical immunology	1. Subject and objectives of clinical immunology. 2. The concept of immune status. Immunodiagnostics. Biological materials used for diagnostic purposes. 3. Immunodeficiency states. Definition and classification. Genetic basis of primary immunodeficiencies. 4. General features of the clinical maniseftation of primary immunodeficiencies. 5. Definition and classification of secondary immunodeficiency states. 6. Main damaging factors leading to secondary immunodeficiency. The main clinical signs of secondary immunodeficiency. 7. Allergy as a form of immunopathology. Types of allergic reactions. 8. Pseudoallergic reactions. Definition, incidence, classification. 9. Classification of allergic reactions. 10. Pathogenesis and mechanism of development of reactive type of allergic reactions. 11. Pathogenesis and mechanism of the development of delayed-type allergic reactions. 12. Angioedema (Quincke's edema): pathogenesis, clinical

		manifestation, principles of diagnosis. 13. Medications as allergens. The main groups of medications used in dentistry that cause allergic reactions. 14. Mechanisms of drug allergy development. 15. Cytotoxic reactions behind drug allergy. Pathogenesis, clinical manifestations, treatment. 16. Acute toxic-allergic reactions. Etiology, pathogenesis, classification, clinical manifestations, treatment. 17. Etiology and pathogenesis of anaphylaxis. 18. Features of the immunological stage of anaphylaxis. 19. Features of the pathochemical stage of anaphylaxis shock, the role of histamine and other mediators. 20. Features of the pathophysiological stage of anaphylaxis. 21. Variants of the clinical course of anaphylactic shock depending on the severity and main symptoms; complications. 22. Emergency therapy for acute allergic reactions. 23. HIV infection: etiology, epidemiology. Pathogenesis 24. Features of the immune response and mechanisms of immunosuppression in HIV infection. 25. HIV infection in the practice of a dentist.

Assessment criteria

"Very good" grade is given to a student who possesses knowledge of the subject in full scope outlined in the curriculum, has a sufficiently deep insight into the subject; is able to answer all questions clearly, exhaustively, and with no outside help; structures their answers logically, with emphasis on the most important information; is able to analyze, compare, classify, summarize, refine, and structure the course content, giving particular attention to cause-and-effect relationships.

"Good" is given to a student whose knowledge of the subject is almost in full scope outlined in the curriculum (gaps are only present in the knowledge of some especially complex aspects); is able to answer questions exhaustively with little to no outside help; does not always put emphasis on the most important information, but does not make significant mistakes.

"Satisfactory" is given to a student who possesses the bulk of knowledge on the subject; has difficulties answering questions with no outside help, uses imprecise wording; makes mistakes in substantial number of their answers.

"Unsatisfactory" is given to a student who does not have the mandatory minimum of knowledge on the subject, is not able to give an answer even with additional guiding questions.

4. Assessment criteria for learning outcomes

"Pass" is given to a student who has earned at least ***61*** credit points; shown a sufficiently strong knowledge of the basic concepts of the subject; is able to complete specific practical tasks outlined in the program with no outside help, use recommended reference material, and correctly evaluate the results.

"Fail" is given to a student who has earned less than ***61***credit points; shown significant gaps in knowledge of the basic concepts of the subject, is not able reach the correct solution to a specific practical task outlined in the curriculum even with outside help.

Appendix 1

Practical Skills Assessment Checklist

Practical Skill Name “Emergency medical care No 1”

C	GPC-9	Is able to assess morphofunctional status, physiological states, and pathological processes in the human body when working to achieve objectives of professional activity		
F	A/02.7	Prescribing pharmacological and non-pharmacological treatment and monitoring its efficiency and safety		
WA	Providing primary health care in case of sudden onset of an acute dental disease/condition or exacerbation of a chronic disease that do or do not threaten life of the patient			
	Action		Performed	Not Performed
1.	Stop introduction of the allergen		1 point	-1 point
2.	Immediately administer epinephrine		1 point	-1 point
3.	Administer systemic glucocorticosteroids		1 point	-1 point
4.	Establish venous access		1 point	-1 point
5.	Call an intensive care team or ambulance		1 point	-1 point
6.	Place the patient horizontally on the back with the lower limbs raised and the head turned sideways		1 point	-1 point
7.	Measure blood pressure, pulse, respiratory rate		1 point	-1 point
8.	Refer the patient referred to an allergist-immunologist		1 point	-1 point
	Total		8 points	

Final grade:

"Pass" - at least 75% of required actions performed
"Fail" - 74% of required actions or less performed