Ministry of Health of the Russian Federation

federal state budgetary educational institution
higher education
"North-Western State Medical University named after I.I. Mechnikov"

Ministry of Health of the Russian Federation

(Federal State Budgetary Educational Institution of Higher Education North-Western State Medical University named after I.I. Mechnikov of the Ministry of Health of the Russian Federation)

DISCIPLINE WORK PROGRAM

«Immunology»

Specialty: 31.05.01 General Medicine

Specialization: **Organization and provision of primary health care to the adult population in medical organizations**

Implementation language: Russian, English

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Approved by the Methodological Commission for the specialty 31.05.01 General Medicine
May 11, 2021

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1. The purpose of mastering the discipline

the purpose of the discipline is «Immunology» is formation understanding ob organization immune system as odnoy from integrativnykh sistem, its biological funktsiyakh, stroenii and funktsionirovanii its osnovnykh elements, a also formation professional competencies student for provision qualified care patients with disorders immune system.

2. The place of discipline in the structure of the educational program

The discipline “Immunology” refers to the mandatory part of Block 1 “Disciplines (modules)” of the main professional educational program in the specialty 31.05.01 General Medicine (specialty level of education), Focus: Organization and provision of primary health care to the adult population in medical organizations. The discipline is mandatory to study.

3. List of planned learning outcomes in the discipline, correlated with the planned results of mastering the educational program

Code and name of competency	Code and name of the competency achievement indicator
OPK-5 Sposoben assess morphofunctional, physiological conditions and pathological processy in organizme human for resheniya professional zadach	ID-3 OPK-5.3. Opredelyaet principal pokazateli fizicheskogo development and funktsionalnogo conditions patsienta with uchetom anatomo-fiziologicheskikh osobennostey in raznykh vozrastnykh periodakh detstva
OPK-7. Sposoben naznachat treatment and osushchestvlyat kontrole its effektivnosti and bezopasnosti	ID-1 OPK-7.1. Naznachaet lechebno-okhranitelnyy rezhim, opredelyaet mesto and types lecheniya with uchetom tyazhesti conditions patsienta
	ID-2 OPK-7.2. Osushchestvlyaet podbor lekarstvennykh sredstv, vybor opredelennoy lekarstvennoy forms, routes vvedeniya and ratsionalnuyu zamenu preparatov with uchetom conditions patsienta
PK-2 Sposoben to provedeniyu examination patsienta with purpose identifying osnovnykh patologicheskikh sostoyaniy, simptomov, syndromeov diseases, nozologicheskikh form	ID-1 PK-2.1. Osushchestvlyaet opros and examination patsienta (sbor zhalob, anamneza zhizni and diseases patsienta, osmotr, palpatsiya, perkussiya, auskultatsiya)
	ID-2 PK-2.2 Formuliruet predvaritelnyy diagnoz, sostavlyaet plan and napravlyaet patsienta on laboratornoe and/or instrumentalnoe examination in nalichii medical indications in sootvetstvii with deystvuyushchimi poryadkami provision meditsinskoy care, clinical guidelines for voprosam provision meditsinskoy care with uchetom standards of medical care
	ID-3 PK-2.3 Napravlyaet patsienta on konsultatsiyu to vracham- spetsialistam and/or for provision spetsializirovannoy meditsinskoy care in statsionarnykh usloviyakh or in usloviyakh dnevnogo statsionara in nalichii medical indications in accordance with current procedures for the provision of medical care, clinical guidelines for voprosam provision meditsinskoy care with uchetom standards of medical care

	ID-4 PK-2.4 Provodit differential diagnosis with drugimi diseasesmi/ conditionsmi
	ID-5 PK-2.5. Ustanavlivaet diagnoz with uchetom klinicheskikh klassifikatsiy and deystvuyushchey mezhdunarodnoy statisticheskoy klassifikatsii bolezney and problem, svyazannykh with zdorovem (MKB)

Competency achievement indicator code	Learning outcomes (assessment indicators)	Evaluation tools
ID-3 OPK-5.3	**knows morphofunctional, physiological, pathological features immunnoy, serdechno-sosudistoy, dykhatelnoy, endokrinnoy, pishchevaritelnoy, vydelitelnoy sistem, tsentralnoy and perifericheskoy nervnoy sistem**	Test tasks Security questions Situatsionnye zadachi presentation/ doklad Abstract
	is able to assess morphofunctional, physiological, pathological conditions body human for identifying immune deficiency	
	has skill analysis hemogram, immunogram, opredeleniya group typing blood	
ID-1 OPK-7.1	**knows immunological reactions, requiring urgent and emergency meditsinskoy care, their clinical manifestations, stages and pathogenesis**	Test tasks Security questions Situatsionnye zadachi presentation/ doklad Abstract
	Is able to opredelyat indications to provedeniyu primary vrachebnoy mediko-sanitarnoy care and pervichnuyu spetsializirovannuyu mediko-sanitarnuyu pomoshch in emergency and urgent settings in immunologicheskikh reaktsiyakh	
	has skill algoritma primary vrachebnoy mediko-sanitarnoy care and primary spetsializirovannoy mediko-sanitarnoy care in emergency and urgent settings in immunologicheskikh reaktsiyakh	
ID-2 OPK-7.2	**knows immunotropnye preparaty, their types, indications and protivoindications to their primeneniyu, adverse effects; otsenku effektivnosti or neeffektivnosti.**	Test tasks Security questions Situatsionnye zadachi presentation/ doklad Abstract
	is able to opredelyat indications and protivoindications to medikamentoznoy and nemedikamentoznoy therapy with uchetom vozrasta patsienta, diagnoza, clinical kartiny diseases	
	has skill naznacheniya lecheniya, rezhima, diety	
ID-1 PK-2.1	**knows printsipy examination patsientov with immune deficiency, strukturu and functions immune system human, its vozrastnye features, kletochno-moleculesyarnye mechanisms its development and funktsionirovaniya immune system; principal etapy, typey, geneticheskiy kontrole immune response**	Test tasks Security questions Situatsionnye zadachi presentation/ doklad Abstract
	is able to sobrat zhaloby (vydelyat kharakternye for immunnoy nedostatochnosti) and anamnez diseases and zhizni.	
	has skill algoritma performing physical examination organov immune system (condition mindalin, kozhi, slizistykh, lymph nodes, liver and spleen).	

ID-2 PK-2.2	**knows metody assessment immune status, indications and printsipy its assessment; diagnostic methods osnovnykh diseases immune system human; clinical rekomendatsii and standarty meditsinskoy care patients with immunnymi diseasesmi.**	Test tasks Security questions Situatsionnye zadachi presentation/ doklad Abstract
	is able to formulirovat predvaritelnyy diagnoz, sostavlyat plan examination and obosnovat neobkhodimost kliniko-immunologicheskogo examination bolnogo; interpretirovat results assessment immune status for testam 1-go level.	
	has skill postanovki predvaritelnogo immunologicheskogo diagnoza, in sootvetstvii with deystvuyushchimi poryadkami provision meditsinskoy care, clinical guidelines for voprosam provision meditsinskoy care with uchetom standards of medical care	
ID-3 PK-2.3	**knows types immunnykh patologiy their etiologiyu, pathogenesis, klassifikatsiyu and indications for napravleniya on konsultatsiyu to vrachu-immunologu**	Test tasks Security questions Situatsionnye zadachi presentation/ doklad Abstract
	is able to interpretirovat results assessment immune status for rezultatam laboratornykh dannykh, vklyuchaya immunogrammu and instrumentalnykh metodov examination	
	has skill postanovki and obosnovaniya preliminary diagnosis with posleduyushchim napravleniem to vrachu allergologu-immunologu, in sootvetstvii with deystvuyushchimi poryadkami provision meditsinskoy care, clinical guidelines for voprosam provision meditsinskoy care with uchetom standards of medical care	
ID-4 PK-2.4	**knows principal prichiny narusheniy immune system, features klinicheskikh proyavleniy, «stigmaty» immunodeficiencies and pathological diseases/conditions with kotorymi necessary provesti differential diagnosis**	Test tasks Security questions Situatsionnye zadachi presentation/ doklad Abstract
	is able to vyyavlyat obshchie and spetsificheskie priznaki immunnoy patologii, provodit differential diagnosis with drugimi diseasesmi/conditionsmi	
	has skill algoritma performing differentsialnoy diagnostiki with drugimi diseasesmi/ conditionsmi	
ID-5 PK-2.5	**knows klinicheskuyu klassifikatsiyu immune deficiency and deystvuyushchuyu International Statistical Classification of Diseases and Related Health Problems (MKB)**	Test tasks Security questions Situatsionnye zadachi presentation/ doklad Abstract
	Is able to interpretirovat poluchennye results physical examination bolnogo and results provedennykh laboratory and instrumental investigations	
	has skill on basis obtained dannykh osmotra, laboratory and instrumental investigations, ustanavlivat immunological diagnosis with uchetom klinicheskikh klassifikatsiy and deystvuyushchey mezhdunarodnoy statisticheskoy klassifikatsii bolezney and problem, svyazannykh with zdorovem (MKB)	

4. Scope of discipline and types of academic work

Type of educational work	Labor intensity	Semesters	
		VII	**VIII**
Contact work between students and teachers	**72**	**36**	**36**
Classroom work:	**70**	**36**	**34**
Lectures (L)	24	12	12
Practical exercises (PP)	46	24	22
Independent work:	**36**	**18**	**18**
during the period of theoretical training	32	18	14
preparation for the test	4	-	4
Intermediate assessment: test, including delivery and group consultations	**2**	**-**	**2**
Total workload: academic hours	**108**		
credit units	**3**		

5. The content of the discipline, structured by sections (topics) indicating the number of academic hours and types of training sessions

5.1.Content of discipline sections

item no.	Name of discipline section	Annotated content of the discipline section	List of competencies formed in the process of mastering the section
1.	General Immunology	Razdel vklyuchaet osnovnyy ponyatiya immunologii, types immunitya, anatomo-physiological features immune system, zakonomernosti development vrozhdennogo and adaptive immune response, klassifikatsiyu hypersensitivity, methods for assessing the immune system, a also principal printsipy immunotropnoy therapy.	OPK 5, PK 2
2.	Specialized Immunology	In razdele izuchayutsya principal kharakteristiki narusheniy immune system, in tom chisle in autoimmunnykh diseaseskh and razlichnykh typekh hypersensitivity, classification immunodeficiencies, vozmozhnosti primeneniya medikamentoznoy and nemedikamentoznoy immonomoduliruyushchey therapy in razlichnykh boleznyakh.	OPK 7, PK 2.

5.2.Thematic plan of lectures

item no.	Name of discipline section	Lecture topics	Active forms of learning	Labor intensity (academic hours)
1.	General Immunology	Vvedenie in immunologiyu, istoricheskie aspekty	LB	2
2.		structural organization of the immune system. Ponyatiya ob antigenkh and patternakh	LB	2
3.		innate immunity	LB	2
4.		adaptive immune response: cell-mediated and humoral	LB	2
5.		Vozrastnye features immune system in raznye vozrastnye periody	LB	2
6.		methods for assessing the immune system	LB	2
7.		Protivoinfektsionnyy immunity	LB	2
8.	Specialized Immunology	types hypersensitivity. Allergiya and allergodiagnosis	LB	2
9.		Autoimmunity and self-tolerance, autoimmune diseases and their immunodiagnosis	LB	2
10.		immunodeficiency disorders and algoritmy their diagnostiki	LB	2
11.		Immunomodulyatory	LB	2
12.		Immunologicheskie aspekty vaccinesatsii	LB	2
			TOTAL:	24

LB- lektsiya –beseda

5.3.Thematic plan for practical classes

№ p/p	Name of discipline section	Topics of practical classes	Active forms of learning	Current control forms	Labor intensity (academic hours)
1.	General Immunology	Vvedenie in immunologiyu istoricheskie aspekty	GD	Test tasks Security questions presentation/ doklad	2
2.		structural organization of tl immune system. Ponyatiya ob antigenkh and patternak	GD	Test tasks Security questions presentation/ doklad	4

№ p/p	Name of discipline section	Topics of practical classes	Active forms of learning	Current control forms	Labor intensity (academic hours)
3.		innate immunity	GD	Test tasks Security questions presentation/ doklad	4
4.		concept ob antigenkh and patternakh	GD	Test tasks Security questions presentation/ doklad	4
5.		adaptive immune response: cell-mediated and humoral	GD AC	Test tasks Security questions presentation/ doklad	4
6.		Vozrastnye features immune system in raznye vozrastnye periody Test work	GD AC	Test tasks Security questions presentation/ doklad	4
7.		methods for assessing the immune system	GD	Test tasks Security questions Situatsionnye zadachi presentation/ doklad	4
8.	Specialized Immunology	Protivoinfektsionnyy immunity	GD AC	Testy Situatsionnye zadachi Security questions Doklad	4
9.		types hypersensitivity. Allergiya and allergodiagnosis	GD AC	Test tasks Security questions Situatsionnye zadachi presentation/ doklad	4

№ p/p	Name of discipline section	Topics of practical classes	Active forms of learning	Current control forms	Labor intensity (academic hours)
10.		Autoimmunity and self-tolerance, autoimmune diseases and their immunodiagnosis	GD AC	Test tasks Security questions Situatsionnye zadachi presentation/ doklad	4
11.		immunodeficiency disorders and algoritmy their diagnostiki	GD AC	Test tasks Security questions Situatsionnye zadachi presentation/ doklad	4
12.		Immunomodulyatory Immunologicheskie aspekty vaccinesatsii Test work	GD AC	Test tasks Security questions Situatsionnye zadachi presentation/ doklad	4
				TOTAL:	46

GD - group discussion
AS – analiz situatsii

5.4. Thematic plan of seminars is not provided

5.5. Thematic plan of laboratory work is not provided

5.6. Independent work:

item no.	Name of discipline section	Types of independent work	Current control forms	Labor intensity (academic hours)
	General Immunology	Working with lecture material, working with educational literature.	Security questions Test tasks presentation/ doklad Abstract	14
	Specialized Immunology	Working with lecture material, working with educational literature.	Security questions Test tasks presentation/ doklad Situatsionnye zadachi Abstract	18
			Preparation for taking the test:	4
			TOTAL:	36

5.6.1. Abstract topics:

1. central organs of the immune system, functions, role in immune response
2. peripheral organs of the immune system, functions, role in immune response
3. B-cell differentiation
4. T-cell differentiation
5. cells innate immunity.
6. Gumoralnye factors innate immunity.
7. complement system: classical activation pathway
8. complement system: alternative activation pathway
9. complement system: lectin activation pathway
10. inflammatory mediators
11. In-cell-mediated receptor
12. T-cell-mediated receptor
13. major histocompatibility complex – structure
14. processing molecules MNS 1
15. processing molecules MNS 2
16. antibacterial immunity
17. antiviral immune response
18. antifungal immunity
19. antiparasitic immunity
20. antitumor immunity
21. transplantation immunity
22. vaccination. types vaccines
23. immediate-type hypersensitivity. stages of development GNT I type.clinical manifestations GNT I type.
24. II type hypersensitivity, mechanisms, stages and clinical manifestations.
25. III type hypersensitivity, immune-complex mechanism, stages and clinical manifestations.
26. delayed-type hypersensitivity, stages.
27. clinical manifestations zamedlennogo type, immunopathogenesis.
28. Autoimmunity and mechanisms immunological tolerance.

5.6.2. Temy prezentatsiy/dokladov:

1. antigen-independent differentiation B lymphocytes
2. antigen-dependent differentiation B lymphocytes
3. thymus: structure and its role in immunity
4. T-cell differentiation
5. Vtorichnye organy immune system. L/uzly: structure, functions in immunity
6. Selezenka: structure, functions red and white pulp
7. Pechen: structure and functions. role in immunnoy sisteme.
8. peripheral lymphoid tissue. Struktura and functions in immunity.
9. basophils and mast cells. origin, functions in IO.
10. neutrophils. origin, functions in IO.
11. eosinophils. origin, functions in IO.
12. dendritic cells. origin, functions in IO.
13. lymphocytes. origin, functions in IO.
14. monocytes. macrophages
15. factors innate immunity: mekhanicheskie and physiological defense factors.
16. Gumoralnye factors innate immunity
17. secretory IgA (SIgA)

18. Ostrofaznye belki (OFB)
19. complement system: classical activation pathway
20. complement system: alternative activation pathway
21. complement system: lectin activation pathway
22. inflammatory mediators
23. interferons: 1 type IFN – biological effects.
24. cells nespetsificheskoy defense: EK (NK)-cells. Sekretornyy and nesekretornyy lizis.
25. antibody-dependent cellular cytotoxicity
26. Kislorodzavisimyy and kislorodnezavisimyy killing. NST-test.
27. antigens and their types. Svoystva AG.
28. In-cell-mediated receptor, structure, features
29. T-cell-mediated receptor, structure, features
30. major histocompatibility complex: concept, functions
31. major histocompatibility complex MNS1– structure
32. major histocompatibility complex MNS2– structure
33. processing molecules MNS 1
34. processing molecules MNS 2
35. Superantigens: concept superantigen, its features, role in immune response
36. receptory, raspoznayushchie stressornye moleculesy/ DAMP-receptory
37. moleculesy kletochnogo stressa: concept, classification, gde obrazuyutsya, obshchie functions
38. Alarminy: belki teplovogo shoka, functions
39. Alarminy: mochevaya kislota, bakteritsidnye belki, functions
40. Alarminy: defenziny and katelitsidiny, functions
41. Kalretikulin, gde obrazuetsya, functions
42. Ubikvitin, functions
43. typey adaptive immune response, cells-uchastniki and kakov effektornyy mechanism IO.
44. phases adaptive immune response, principal cytokines.
45. monocytes and macrophages as uchastniki adaptive immune response: functions, markery, principal cytokines.
46. dendritic cells as uchastniki adaptive immune response: functions, markery, principal cytokines
47. T-helper-cell differentiation: which cytokines obuslavlivayut dif-ku and which typey T helper cells uchastvuyut in IO
48. Predstavlenie antigen in komplekse with MNS
49. immunological synapse: stages formation,
50. Struktura zrelogo immunological synapse
51. process raspoznavaniya antigenic peptide by a cytotoxic T lymphocyte
52. humoral IO: cells, cytokines, phases IO.
53. cell-mediated IO: cells, cytokines, phases IO.
54. factors, opredelyayushchie type immune response
55. factors patogennosti mikroorganizmov (bakterii, virusy, griby, parazity)
56. factors invazii
57. Toksiny
58. defense factors from phagocytosis and cytolysis
59. Sposoby ukloneniya from immune response
60. defense factors makrobody (povtorit from temy «innate immunity»)
61. Vospalenie and inflammatory mediators
62. classification testov assessment immune system human. Testy assessment immune system human 1 level and 2 level. determination, what to nim belongs. indications to naznacheniyu.

63. determination otnositelnogo and absolyutnogo chisla leukocytes and lymphocytes in periphericheskoy blood; leukocyte differential. Sdvigi leukocyte differential. determination In and T –lymphocytes – kolichestvennye testy
64. Immunofenotypeirovanie – kharakteristika metoda, opisanie metoda. Production MAT.
65. Klaster differentsirovki – what eto takoe. principal klastery differentsirovki T and B lymphocytes
66. determination proliferativnoy sposobnosti lymphocytes: morfologicheskiy,
67. Kolorometricheskiy, mikrotsitofluorometricheskiy, radiometricheskiy metody
68. Otsenka tsitotoksicheskoy aktivnosti T lymphocytes, NK-cells
69. Metody kolichestvennogo opredeleniya immunoglobulinov
70. Metody issledovaniya funktsiy fagotsitov
71. Metody opredeleniya khemotaksisa leukocytes. Kamera Boydena
72. determination fagotsitarnoy sposobnosti. Fagotsitarnyy indeks. Fagotsitarnoe number. Otsenka bakteritsidnoy aktivnosti
73. Issledovanie sistemy komplementa
74. Serologicheskie immunologicheskie metody – reaktsii osnovannye on reaktsii antigen-antibodieso – agglyutinatsii, pretsipitatsii, neytralizatsii, svyazyvaniya komplementa, RIF, IFA (enzyme-linked immunosorbent assay)
75. Metody issledovaniya tsitokinov
76. Protivoinfektsionnyy immunity. Forms immunnogo reagirovaniya.
77. Infektsionnyy process. concept. Infektsionnost. factors patogennosti. factors invazii. Toksiny.
78. antibacterial immunity
79. antiviral immune response
80. antifungal immunity
81. antiparasitic immunity
82. antitumor immunity
83. transplantation immunity
84. concept hypersensitivity, allergii and sensibilizatsii.
85. Allergeny their types and svoystva
86. immediate-type hypersensitivity. stages of development GNT I type.
87. clinical manifestations GNT I type.
88. II type hypersensitivity, mechanisms, stages and clinical manifestations.
89. III type hypersensitivity, immune-complex mechanism, stages and clinical manifestations.
90. delayed-type hypersensitivity, stages.
91. clinical manifestations zamedlennogo type, immunopathogenesis.
92. Autoimmunity and mechanisms immunological tolerance.
93. pathogenesis revmatoidnogo artrit.
94. pathogenesis sistemnoy krasnoy volchanki.
95. pathogenesis psoriaza.
96. immunotropic medicinal products, concept. classification immunomodulatory therapy
97. determination immunomodulators and iimmunodepresantov. Osnovaniya for performing immunokorrektsii
98. principal ponyatiya immunoprevention
99. Natsionalnyy kalendar profilakticheskikh privivok
100. Kalendar profilakticheskikh privivok for epidemicheskim indicationsm
101. Skhemy vaccinesatsii
102. Protivoindications to vaccinesatsii: istinnye, lozhnye, absolyutnye, otnositelnye and t.d.
103. Postvaccinesalnye reaktsii and oslozhneniya
104. immunodeficiencyy, concept, classification, prichiny pervichnykh immunodeficiencies

105. Tyazhelaya kombinirovannaya immunologicheskaya nedostatochnost. Kh-stseplennyy TKIN/TKID
106. syndrome Omenna
107. syndrome Di-Dzhorzhi
108. syndrome Lui-Bar
109. syndrome Viskotta-Oldricha
110. General variabelnaya gipogammaglobulinemiya + OVIN and defekty T-sistemy
111. Selektivnyy defitsit IgA
112. Giper-IgE-syndrome
113. Agammaglobulinemiya- bolezn Brutona
114. Khronicheskaya granulematoznaya bolezn
115. syndrome Chediaka-Khigasi
116. Cindrom «golykh lymphocytes»
117. KhKKS
118. Defitsit sistemy komplementa (Defitsit With1-ingibitora, Defitsit With1, With2, With4, Defitsit With3-komponenta, Defitsit With6, With7, With8, With9)

6. Guidelines for students on mastering the discipline

Focus program is praktiko-orientirovannoy. Eto podrazumevaet sovershenstvovanie and formation in student competencies, napravlennykh on reshenie konkretnykh zadach, predusmotrennykh professionalnym standartom vracha-lechebnika.

system obucheniya osnovyvaetsya on ratsionalnom sochetanii neskolkikh vidov uchebnykh zanyatiy (lektsiy, prakticheskikh zanyatiy and samostoyatelnoy raboty), kazhdyy from kotorykh obladaet opredelennoy spetsifikoy.

FOR EFFEKTIVNOGO IZUCHENIYA RAZDELOV DISCIPLINE NECESSARY SAMOSTOYATELNO IZUCHIT UCHEBNO-METODICHESKIE MATERIALY, RAZMESHCHENNYE IN SISTEME MOODLE, PROYTI TESTIROVANIE FOR VSEM PREDLOZHENNYM TEMAM; AKTIVNO UCHASTVOVAT IN OBSUZHDENII ON PRAKTICHESKIKH ZANYATIYAKH, IN NEOBKHODIMOSTI – POLUCHIT KONSULTATIVNUYU POMOSHCH PREPODAVATELYA. FOR RABOTY WITH REFERATOM NECESSARY PODOBRAT NEOBKHODIMUYU LITERATURU IN BIBLIOTEKE UNIVERSITETA OR DRUGIKH ISTOCHNIKAKH, PROANALIZIROVAT MATERIAL, VYDELIT KLYUCHEVYE PONYATIYA AND PODGOTOVIT REFERAT IN SOOTVETSTVII WITH TREBOVANIYAMI; FOR DEFENSE REFERATA PODGOTOVIT KRATKOE SOOBSHCHENIE AND VYSTUPIT ON PRAKTICHESKOM ZANYATII.

To successfully pass the intermediate assessment in the form of a test, it is necessary to study and work through all assessment tools: interview questions, a list of tasks.

Planning and organizing the time needed to study the discipline

Vazhnym usloviem uspeshnogo mastering discipline is sozdanie sistemy pravilnoy organization truda, pozvolyayushchey raspredelit uchebnuyu nagruzku ravnomerno in sootvetstvii with grafikom obrazovatelnogo processa. Bolshuyu pomoshch in etom may okazat sostavlenie plana raboty on semestr, mesyats, nedelyu, den. Its presence pozvolit podchinit svobodnoe vremya tselyam ucheby, truditsya bolee uspeshno and effektivno. With vechera vsegda nado raspredelyat rabotu on zavtrashniy den.

In kontse kazhdogo dnya tselesoobrazno podvesti itog raboty: tshchatelno proverit, vse li vypolneno for namechennomu planu, not was li kakikh-libo otstupleniy, a esli were, for which prichine oni proizoshli. Nuzhno osushchestvlyat samokontrole, kotoryy is neobkhodimym usloviem uspeshnoy ucheby. Esli what-to ostalos nevypolnennym, necessary

izyskat vremya for zaversheniya etoy part raboty, not umenshaya obema nedelnogo plana. Vse zadaniya to prakticheskim zanyatiyam, a also zadaniya, vynesennye on samostoyatelnuyu rabotu, rekomenduetsya vypolnyat neposredstvenno after sootvetstvuyushchey temy lektsionnogo kursa, what sposobstvuet luchshemu usvoeniyu materiala, pozvolyaet svoevremenno vyyavit and ustranit «probely» in znaniyakh, systemtizirovat ranee proydennyy material, on its osnove pristupit to ovladeniyu novymi znaniyami and navykami.

The university education system is based on a rational combination of several types of training sessions (primarily lectures and practical classes), the work of which has certain specifics.

Rabota nad konspektom lektsii

Rabotu nad konspektom should nachinat with its dorabotki, zhelatelno in tot zhe den, poka material eshche legko vosproizvodim in pamyati (after 10 chasov after lektsii in pamyati ostaetsya not bolee 30-40 % materiala). With purpose dorabotki necessary prochitat zapisi, vosstanovit tekst in pamyati, a also ispravit opiski, rasshifrovat not prinyatye ranee sokrashcheniya, zapolnit propushchennye mesta, ponyat tekst, vniknut in its smysl. Dalee prochitat material for rekomenduemoy literature, razreshaya in khode chteniya voznikshie ranee zatrudneniya, questions, a also dopolnyaya and ispravlyaya svoi zapisi. Zapisi dolzhny byt naglyadnymi, for chego should primenyat razlichnye sposoby vydeleniy. In khode dorabotki konspekta uglublyayutsya, rasshiryayutsya and zakreplyayutsya znaniya, a also dopolnyaetsya, ispravlyaetsya and sovershenstvuetsya konspekt.

Rabota with rekomendovannoy literaturoy

In rabote with osnovnoy and dopolnitelnoy literaturoy tselesoobrazno priderzhivatsya takoy posledovatelnosti. Snachala prochitat ves zadannyy tekst in bystrom tempe. Zatem prochitat vtorichno, bolee medlenno, chtoby in khode chteniya ponyat and zapomnit smysl kazhdoy frazy, kazhdogo polozheniya and voprosa in tselom, zatem sdelat konspekt. In processe izucheniya materiala istochnika and sostavleniya konspekta nuzhno obyazatelno primenyat razlichnye vydeleniya, podzagolovki, sozdavaya blochnuyu strukturu konspekta.

Podgotovka dokladov

Doklad predstavlyaet publichnoe, razvernutoe soobshchenie (informirovanie) for opredelennomu voprosu or kompleksu voprosov, osnovannoe on privlechenii dokumentalnykh dannykh, rezultatov issledovaniya, analysis deyatelnosti and t.d. In podgotovke to dokladu on prakticheskom zanyatii for teme, ukazannoy prepodavatelem, obuchayushchiysya dolzhen oznakomitsya not tolko with osnovnoy, no and dopolnitelnoy literaturoy, a also with poslednimi publikatsiyami for etoy tematike in seti Internet. Necessary podgotovit tekst doklada and illyustrativnyy material in vide prezentatsii. Doklad dolzhen vklyuchat vvedenie, osnovnuyu chast and zaklyuchenie. On doklad otvoditsya 10-15 minut uchebnogo vremeni. On dolzhen byt nauchnym, konkretnym, opredelennym, gluboko raskryvat problemu and routes its resheniya.

Podgotovka referatov

Referat predstavlyaet pismennyy material for opredelennoy teme, in kotorom sobrana informatsiya from odnogo or neskolkikh istochnikov. In nem in obobshchennom vide predstavlyaetsya material on opredelennuyu temu, vklyuchayushchiy obzor sootvetstvuyushchikh literaturnykh and drugikh istochnikov. Referaty may yavlyatsya izlozheniem soderzhaniya which-libo nauchnoy raboty, stati and t.p. Referat pishetsya from ruki or pechataetsya, obem 15-25 str., in kontse dolzhen byt ukazan spisok literatury.

7. Evaluation materials

Assessment materials for the discipline for ongoing monitoring of progress and intermediate certification of students include examples of assessment tools (Appendix A to the work program of the discipline), procedure and assessment criteria.

8. List of educational literature and Internet resources necessary for mastering the discipline

8.1. Educational literature:

1. Khaitov R.M., Immunology [Elektronnyy resurs]: uchebnik / R.M. Khaitov. - 3-e izd., pererab. and dop. - M.: GEOTAR-Media, 2018. - 496 with. - ISBN 978-5-9704-4655-3 - Rezhim dostupa: http://www.studmedlib.ru/book/ISBN9785970446553.html.
2. Kovalchuk, L. In. Klinicheskaya Immunology and allergologiya with osnovami obshchey immunologii: uchebnik / Kovalchuk L. In., Gankovskaya L. In., Meshkova R. Ya. - Moskva: GEOTAR-Media, 2014. - 640 with. - ISBN 978-5-9704-2910-5. - Tekst: elektronnyy // URL: http://www.studmedlib.ru/book/ISBN9785970429105.html.
3. Burmester, G.R. Naglyadnaya Immunology = Color Atlas of Immunology: spravochnik / G.-R. Burmester, A. Petsutto. - 6-e izd. - M.: Laboratoriya znaniy, 2020. - 320 c.: tsv. il. - (Naglyadnaya meditsina). - Predm. ukaz.: with. 308-318. - ISBN 978-5-00101-275-7
4. Khaitov, R. M. Allergologiya and Immunology / under red. R. M. Khaitova, N. And. Ilinoy - Moskva: GEOTAR-Media, 2014. - 656 with. (Seriya "Natsionalnye rukovodstva") - ISBN 978-5-9704-2830-6. - Tekst: elektronnyy // URL: https://www.rosmedlib.ru/book/ISBN9785970428306.html
5. Fundamentalnye fundamentals vrozhdennogo immunitya: uchebnoe posobie/ Shabashova N.In. SPb: SZGMU im. And.And. Mechnikova, 2019. – 76 with.
6. complement system uchebnoe posobie/ N.N. Klimko, N.B. Serebryanaya, E.P.Kiseleva, Yu.E. Melekhina. SPb: SZGMU im. And.And.Mechnikova, 2018. – 52 with.
7. Moskalev, A. In. General Immunology with osnovami clinical immunologii: ucheb. posobie / A. In. Moskalev, In. B. Sboychakov, A. With. Rudoy. - Moskva: GEOTAR-Media, 2015. - 352 with. - ISBN 978-5-9704-3382-9. - Tekst: elektronnyy // URL: http://www.studmedlib.ru/book/ISBN9785970433829.html
8. Khaitov, R. M. Immunogenomika and genodiagnosis human / R. M. Khaitov, L. P. Alekseev, D. Yu. Trofimov - Moskva: GEOTAR-Media, 2017. - 256 with. - ISBN 978-5-9704-4139-8. - Tekst: elektronnyy // URL: https://www.rosmedlib.ru/book/ISBN9785970441398.html.
9. Zemskov A.M., Klinicheskaya Immunology [Elektronnyy resurs]: uchebnik / Zemskov A.M., Zemskov In.M., Karaulov A.In.; Under red. A.M. Zemskova. - M.: GEOTAR-Media, 2008. - 432 with. - ISBN 978-5-9704-0775-2 - Rezhim dostupa: http://www.studmedlib.ru/book/ISBN9785970407752.html.
10. Chepel E., Fundamentals clinical immunologii [Elektronnyy resurs] / Chepel E., Kheyni M., Misbakh With., Snovden N. Perevod with angl. Under red. R.M. Khaitova. - 5-e izd. - M.: GEOTAR-Media, 2008. - 416 with. - ISBN 978-5-9704-0645-8 - Rezhim dostupa: http://www.studmedlib.ru/book/ISBN9785970406458.html
11. Nikulin B.A. Otsenka and korrektsiya immune status./B. A.Nikulin. –M.: GEOTAR-Media, 2008. –376 with.: il.
12. Lektsii for clinical immunologii. Chast pervaya. Fundamentalnye fundamentals clinical immunologii and immunodiagnostiki: 2-e izd., dop./ Shabashova N.In. - SPb: Izd-in SZGMU im. And.And.Mechnikova, 2014. – 76 with.
13. Lektsii for clinical immunologii. Chast vtoraya. immunodeficiencyy and immunoreabilitatsiya: 2-e izd., dop./ Shabashova N.In. - SPb: Izd-in SZGMU im. And.And.Mechnikova, 2014. – 76 with.
14. Lektsii for clinical immunologii. Chast tretya. Izbrannye lektsii for naibolee chasto vstrechayushchimsya immunozavisimymi syndromeam and diseasesm: 2-e izd., dop./ Shabashova N.In. - SPb: Izd-in SZGMU im. And.And. Mechnikova, 2014. – 84 with.

15. Kolkhir, P. In. Dokazatelnaya allergologiya-Immunology: rukovodstvo / P. In. Kolkhir. - M.: Prakticheskaya meditsina, 2010. - 527 c.: tsv.il. - Bibliogr. in kontse razd. - ISBN 978-5-98811-169-6.
16. Khaitov, R. M. Immunology: textbook / Rakhim M. Khaitov. - 2nd updated edition. - Moscow: GEOTAR-Media, 2022. - 272 p. - 272 with. - ISBN 978-5-9704-7089-3. - Tekst: elektronnyy // EBS "Konsultant studenta": [sayt]. - URL: https://www.studentlibrary.ru/book/ISBN9785970470893.html
17. 2.Khaitov, R. M. Immunology: uchebnik / R. M. Khaitov. - 4-e izd., pererab. and dop. - Moskva: GEOTAR-Media, 2023. - 520 with. - ISBN 978-5-9704-7752-6, DOI: 10.33029/9704-6398-7-IMM-2021-1-520. - Elektronnaya versiya dostupna on sayte EBS "Konsultant studenta": [sayt]. URL: https://www.studentlibrary.ru/book/ISBN9785970477526.html

8.2. Resources of the Internet information and telecommunications network:

Name of Internet resource	Email address of the resource
Cambridge University Press	https://www.cambridge.org/core
EastView Meditsina and zdravookhranenie in Rossii	https://dlib.eastview.com/
The National Center for Biotechnology Information	https://pubmed.ncbi.nlm.nih.gov/
MEDLINE Complete EBSCOhost Web	http://web.b.ebscohost.com/ehost/
ScienceDirect - zhurnaly with 2014 g., knigi for spisku	https://www.sciencedirect.com/
Scopus	https://www.scopus.com/search/form.uri?display=basic
Web of Science	https://apps.webofknowledge.com/
Springer Materials	https://materials.springer.com/
Springer Protocols	https://experiments.springernature.com/springer-protocols-closure
Nauchnaya elektronnaya biblioteka eLIBRARY.RU	https://elibrary.ru/project_orgs.asp
Nature	https://www.nature.com/
EBS “Student Consultant”	http://www.studmedlib.ru/
Elektronnye resursy SDO MOODLE	https://moodle.szgmu.ru/login/index.php
EMB “Doctor Consultant”	http://www.rosmedlib.ru/

9. List of information technologies used to master the discipline, including a list of software, professional databases and information reference systems

9.1. List of information technologies used in the educational process:

item no.	Name of discipline section	Information technology
1	General Immunology	razmeshchenie uchebnykh materialov in EIOS FGBOU In SZGMU im. And.And. Mechnikova Minzdrava Rossii, https://moodle.szgmu.ru/course/view.php?id=93&notifyeditingon=1
2	Specialized Immunology	

9.2. List of software used in the educational process (licensed and freely distributed software, including domestically produced):

item no.	Software product name	License validity period	Documents confirming right to use software products
licensed software			
1.	ESET NOD 32	21.10.2020 - 20.10.2021	Government contract № 07/2020
2.	MS Windows 8 MS Windows 8.1 MS Windows 10 MS Windows Server 2012 Datacenter - 2 Proc MS Windows Server 2012 R2 Datacenter - 2 Proc MS Windows Server 2016 Datacenter Core	Unlimited	State contract No. 30/2013-O; Government contract No. 399/2013-OA; Government contract No. 07/2017-EA.
3.	MS Office 2010 MS Office 2013	Unlimited	Government contract No. 30/2013-OA; Government contract No. 399/2013-OA.
4.	Academic LabVIEW Premium Suite (1 User)	Unlimited	Government contract № 02/2015
licensed software of domestic production			
1.	Anti-plagiarism	Subscription for 1 year. Deadline until 06/01/2021	Government contract No. 2409 dated 06/26/2020
2.	“WEBINAR (WEBINAR)” VERSION 3.0	1 year	Contract 347/2020-M from 05/06/2020 VitaSoft LLC
3.	"3KL e-learning environment"	1 year	Contract 348/2020-M from 05/07/2020 VitaSoft LLC
4.	TrueConf Enterprise	1 year	Contract 396/2020-EA from 08/10/2020 OOO "TDYUS"
free software			
1.	Google Chrome	Unlimited	Open License Agreement GNU GeneralPublicLicense
2.	NVDA	Unlimited	Open License Agreement GNU GeneralPublicLicense
freely distributed software of domestic production			
1.	Moodle	Unlimited	Open License Agreement GNU GeneralPublicLicense

9.3. List of professional databases and information reference systems:

item no.	Name software product	License validity period	Documents confirming right to use software products	Mode access for disabled students and persons with limited health

				capabilities
1.	Consultant Plus	Podpiska on 1 god. Srok before 31.12.2021	Government contract No. 655/2020-EA	-
2.	EBS “Student Consultant”	With «16» iyunya 2020 g. for «15» iyunya 2021 g.	Kontrakt № 307/2020-EA from 15.06.2020 g.	http://www.studmedlib.ru/
3.	EMB “Doctor Consultant”	With «08» iyunya 2020 g. for «07» iyunya 2021 g.	Kontrakt № 281/2020-EA from 08.06.2020 g.	http://www.rosmedlib.ru/
4.	EBS "Ibooks.ru/ibooks.ru"	With «11» August 2020 g. for «10» August 2021 g.	Kontrakt № 06/2020 from 03.08.2020 g.	https://ibooks.ru
5.	EBS “IPRBooks”	With «11» August 2020 g. for «10» August 2021 g.	Kontrakt № 08/2020-ZK from 06.08.2020 g.	http://www.iprbookshop.ru/special
6.	Electronic library system “Bukap”	With «29» iyulya 2020 g. for «28» iyulya 2021 g.	Kontrakt № 05/2020 from 29.07.2020 g.	https://www.books-up.ru/
7.	EBS "Lan Publishing House"	With «17» August 2020 g. for «16» August 2021 g.	Kontrakt № 395/2020-EA from 17.08.2020 g.	https://e.lanbook.com/

10. Material and technical support of discipline

Uchebnye auditorii for performing uchebnykh lektsionnykh and prakticheskikh zanyatiy, gruppovykh and individualnykh konsultatsiy, tekushchego kontrolya uspevaemosti and promezhutochnoy attestatsii obuchayushchikhsya, raspolagayutsya for adresu Sankt-Peterburg, ul. Santyago- de- Kuba 1/28, lit. A - 2 etazh:
- auditoriya №94 (№227 for PIB),
- auditoriya №100 (№240 for PIB)
- kompyuternyy klass, auditoriya №100 (№240 for PIB

Oborudovanie: doska (melovaya); stol prepodavatelya, stul prepodavatelya, stoly studencheskie, stulya studencheskie.;
Technical teaching aids: multimedia projector, teacher’s laptop, system unit, monitor.
Special technical teaching aids: Roger Pen (Roger personal wireless transmitter in the form of a pen), Roger MyLink (Roger Pen system signal receiver) (for students with hearing impairments); IntelliKeys (wired keyboard with Russian Braille with a matte black finish), (St. Petersburg, Piskarevsky Prospekt, 47, lit. R (building 9), room No. 18.19, Federal State Budgetary Educational Institution of Higher Education North-Western State Medical University named after I.I. Mechnikov of the Ministry of Health of the Russian Federation).

Uchebnye auditorii for performing uchebnykh zanyatiy seminarskogo type, gruppovykh and individualnykh konsultatsiy, tekushchego kontrolya uspevaemosti and promezhutochnoy attestatsii obuchayushchikhsya, osnashchennye oborudovaniem and tekhnicheskimi sredstvami obucheniya: Sankt-Peterburg, ul. Santyago- de- Kuba 1/28, lit. A - 2 etazh:
Technical teaching aids: multimedia projector, teacher’s laptop, system unit, monitor.

Special technical teaching aids: Roger Pen (Roger personal wireless transmitter in the form of a pen), Roger MyLink (Roger Pen system signal receiver) (for students with hearing impairments); IntelliKeys (wired keyboard with Russian Braille with a matte black finish), (St. Petersburg, Piskarevsky Prospekt, 47, lit. R (building 9), room No. 18.19, Federal State Budgetary Educational Institution of Higher Education North-Western State Medical University named after I.I. Mechnikov of the Ministry of Health of the Russian Federation).

Premises for independent work of students, equipped with computer equipment with the ability to connect to the Internet and provided with access to the electronic information and educational environment of the University: St. Petersburg, Piskarevsky Prospekt, 47, lit. AE (building 32),
aud. No. 1, lit. R (building 9), room. No. 18.19 FSBEI HE North-Western State Medical University named after. I.I. Mechnikov of the Russian Ministry of Health.

Appendix A

Ministry of Health of the Russian Federation

federal state budgetary educational institution
higher education
"North-Western State Medical University
named after I.I. Mechnikov"
Ministry of Health of the Russian Federation

(Federal State Budgetary Educational Institution of Higher Education North-Western State Medical University named after I.I. Mechnikov of the Ministry of Health of the Russian Federation)

EVALUATION MATERIALS

(for ongoing monitoring of progress and intermediate certification of students)

Specialty:	31.05.01 General medicine
Direction:	Organization and provision of primary health care to the adult population in medical organizations
Name of discipline:	Immunology

St. Petersburg – 2021

1. List of planned learning outcomes in the discipline

Competency achievement indicator code	Learning outcomes (assessment indicators)	Evaluation tools
ID-3 OPK-5.3	**knows morphofunctional, physiological, pathological features immunnoy, serdechno-sosudistoy, dykhatelnoy, endokrinnoy, pishchevaritelnoy, vydelitelnoy sistem, tsentralnoy and perifericheskoy nervnoy sistem**	Test tasks Security questions Situatsionnye zadachi presentation/ doklad Abstract
	is able to assess morphofunctional, physiological, pathological conditions body human for identifying immune deficiency	
	has skill analysis hemogram, immunogram, opredeleniya group typing blood	
ID-1 OPK-7.1	**knows immunological reactions, requiring urgent and emergency meditsinskoy care, their clinical manifestations, stages and pathogenesis**	Test tasks Security questions Situatsionnye zadachi presentation/ doklad Abstract
	Is able to opredelyat indications to provedeniyu primary vrachebnoy mediko-sanitarnoy care and pervichnuyu spetsializirovannuyu mediko-sanitarnuyu pomoshch in emergency and urgent settings in immunologicheskikh reaktsiyakh	
	has skill okazyvat pervichnuyu vrachebnuyu mediko-sanitarnaya pomoshch and pervichnuyu spetsializirovannuyu mediko-sanitarnaya pomoshch in emergency and urgent settings in immunologicheskikh reaktsiyakh	
ID-2 OPK-7.2	**knows immunotropnye preparaty, their types, indications and protivoindications to their primeneniyu, adverse effects; otsenku effektivnosti or neeffektivnosti.**	Test tasks Security questions Situatsionnye zadachi presentation/ doklad Abstract
	is able to opredelyat indications and protivoindications to medikamentoznoy and nemedikamentoznoy therapy with uchetom vozrasta patsienta, diagnoza, clinical kartiny diseases	
	has skill naznacheniya treatment, rezhima, diety	
ID-1 PK-2.1	**knows printsipy examination patsientov with immune deficiency, strukturu and functions immune system human, its vozrastnye features, kletochno-moleculesyarnye mechanisms its development and funktsionirovaniya immune system; principal etapy, typey, geneticheskiy kontrole immune response**	Test tasks Security questions Situatsionnye zadachi presentation/ doklad Abstract
	is able to sobrat zhaloby (vydelyat kharakternye for immunnoy nedostatochnosti) and anamnez diseases and zhizni.	
	has skill performing fizikalnoe examination organov immune system (condition mindalin, kozhi, slizistykh, lymph nodes, liver and spleen).	
ID-2 PK-2.2	**knows metody assessment immune status,**	Test tasks

	indications and printsipy its assessment; diagnostic methods osnovnykh diseases immune system human; clinical rekomendatsii and standarty meditsinskoy care patients with immunnymi diseasesmi.	Security questions Situatsionnye zadachi presentation/ doklad Abstract
	is able to formulirovat predvaritelnyy diagnoz, sostavlyat plan examination and obosnovat neobkhodimost kliniko-immunologicheskogo examination bolnogo; interpretirovat results assessment immune status for testam 1-go level.	
	has skill postanovki predvaritelnogo immunologicheskogo diagnoza, in sootvetstvii with deystvuyushchimi poryadkami provision meditsinskoy care, clinical guidelines for voprosam provision meditsinskoy care with uchetom standards of medical care	
ID-3 PK-2.3	**knows types immunnykh patologiy their etiologiyu, pathogenesis, klassifikatsiyu and indications for napravleniya on konsultatsiyu to vrachu-immunologu**	Test tasks Security questions Situatsionnye zadachi presentation/ doklad Abstract
	is able to interpretirovat results assessment immune status for rezultatam laboratornykh dannykh, vklyuchaya immunogrammu and instrumentalnykh metodov examination	
	has skill postanovki and obosnovaniya preliminary diagnosis with posleduyushchim napravleniem to vrachu allergologu-immunologu, in sootvetstvii with deystvuyushchimi poryadkami provision meditsinskoy care, clinical guidelines for voprosam provision meditsinskoy care with uchetom standards of medical care	
ID-4 PK-2.4	**knows principal prichiny narusheniy immune system, features klinicheskikh proyavleniy, «stigmaty» immunodeficiencies and pathological diseases/conditions with kotorymi necessary provesti differential diagnosis**	Test tasks Security questions Situatsionnye zadachi presentation/ doklad Abstract
	is able to vyyavlyat obshchie and spetsificheskie priznaki immunnoy patologii, provodit differential diagnosis with drugimi diseasesmi/conditionsmi	
	has skill algoritma performing differentsialnoy diagnostiki with drugimi diseasesmi/ conditionsmi	
ID-5 PK-2.5	**knows klinicheskuyu klassifikatsiyu immune deficiency and deystvuyushchuyu International Statistical Classification of Diseases and Related Health Problems (MKB)**	Test tasks Security questions Situatsionnye zadachi presentation/ doklad Abstract
	Is able to interpretirovat poluchennye results physical examination bolnogo and results provedennykh laboratory and instrumental investigations	
	has skill on basis obtained dannykh osmotra, laboratory and instrumental investigations, ustanavlivat immunological diagnosis with uchetom klinicheskikh klassifikatsiy and deystvuyushchey mezhdunarodnoy statisticheskoy klassifikatsii bolezney and problem, svyazannykh with zdorovem (MKB)	

2. Examples of assessment tools and assessment criteria for ongoing monitoring

2.1. Primery voprosov vkhodnogo kontrolya.

1. enzyme-linked immunosorbent assay, immunoblotting, mechanism, komponenty, application.
2. Nagruzochnye serologicheskie reaktsii. Reaktsiya nepryamoy gemagglyutinatsii. Komponenty. Application.
3. Patogennost and virulentnost bakteriy. factors virulentnosti. Their materialnaya osnova.
4. Production, titrovanie and application diagnosticheskikh agglyutiniruyushchikh syvorotok.
5. concept ob infektsii. 3 uchastnika infektsionnogo processa. 3 zvena epidemicheskoy tsepi.

Evaluation Criteria

Rating	Description
zachteno	Demonstrates a thorough understanding of the problem. All requirements for the task have been met
nezachteno	Demonstrates a lack of understanding of the problem. Many requirements for the assignment have not been met. No answer.

2.2. Examples of test tasks:

ID-3 OPK-5.3
Question name:Question No. 1
Which cells sinteziruyut komponenty komplementa:
1)T lymphocytes
2)cells liver, macrophages and cells endoteliya
3)mast cells, plazmaticheskie cells
4)Neytrofilnye granulotsity
5)cells resnitchatogo epiteliya
ID-1 OPK-7.1
Question name:Question No. 2
In kakikh zashchitnykh reaktsiyakh uchastvuyut NTo-cells:
1)In tsitotoksicheskikh reaktsiyakh innate immunity
2)In vospalitelnykh reaktsiyakh
3)In reaktsiyakh adaptatsii
4)Prepyatstvuyut popadaniyu virusov in cells
5)Vse perechislennoe verno
ID-2 OPK-7.2
Question name:Question No. 3
Which immunologicheskiy pokazatel otsenivaetsya monoklonalnymi antibodiesmi to SD3-antigenin:
1)Number B lymphocytes
2)Subpopulyatsiya T helper cells
3)Number T lymphocytes
4)Number T-tsitotoksicheskikh cells
5)Number monotsitov
ID-1 PK-2.1
Question name:Question No. 4
What takoe immunological tolerance:
1)Absence obrazovaniya effektorov in otvete on antigen
2)Ustoychivost to infektsionnym diseasesm

3)Ustoychivost to autoimmunnym diseasesm
4)Vse perechislennoe verno
5)Vse perechislennoe neverno
ID-2 PK-2.2
Question name:Question No. 5
By which obrazom indutsiruetsya priobretennaya immunological tolerance:
1)Kontaktom nezreloy immune system with antigenom
2)Under vliyaniem vysokoy dozoy antigen
3)Under vliyaniem immunosuppressants
4)After anafilakticheskogo shoka
5)After beremennosti
Question name:Question No. 6
Kakimi mechanismami fagotsity razrushayut antigens:
1)Belkami ostroy phases
2)Stimuliruya adaptive immune response
3)Kislorodzavisimymi and kislorodnezavisimymi
4)Privtreatmentm antibodies
5)cytokines
ID-3 PK-2.3
Question name:Question No. 7
Which autoantibodies were obnaruzheny in human vpervye:
1)Kholodovye gemagglyutininy
2)Izoagglyutininy
3)Komplement svyazyvayushchie antibodies
4)antibodies to tireoglobulinu
5)Tsitofilnye antibodies
Question name:Question No. 48
Kakuyu role igrayut autoantibodies in zdorovom organizme:
1)Supressornuyu
2)Diagnosticheskuyu
3)Ochishchenie from starykh cells
4)Nachinayut autoimmunnyy process
5)Vse perechislennoe verno
ID-4 PK-2.4
Question name:Question No. 9
disorders kakikh immunnykh cells are naibolee znachimymi for development khronicheskogo autoimmunnogo vospaleniya:
1)Killerov
2)macrophages
3)Regulyatorov antibodiesogeneza
4)T-regulyatornykh cells
5)T helper cells 2
ID-5 PK-2.5
Question title: Question No. 10
What voznikaet in soprikosnovenii "sekvestrirovannykh" antigens with immunnymi kletkami khozyaina:
1)Razrushenie antigen
2)phagocytosis
3)autoimmune process
4)Vse perechislennoe verno
5)Vse perechislennoe neverno

Evaluation criteria, grading scale for test tasks

Rating		Description
"excellent"	5	Completed in full – 90%-100%
"good"	4	Not fully implemented – 80%-89%
"satisfactory"	3	Completed with deviation – 70%-79%
"unsatisfactory"	2	Partially completed – 69% or less correct answers

2.3. Sample checklist:

ID-3 OPK-5.3

1. mechanisms innate immunity.
2. structural and functional organization of the immune system.

ID-1 OPK-7.1

1. III type hypersensitivity, immune-complex mechanism, stages and clinical manifestations. delayed-type hypersensitivity, stages. clinical manifestations zamedlennogo type, immunopathogenesis.

ID-2 OPK-7.2

1. Production monoclonal antibodies (gibridomnaya tekhnologiya)
2. types vaccines (Zhivye vaccines, Ubitye vaccines, Khimicheskie vaccines, Anatoksiny, Iskusstvennye vaccines, Gennoinzhenernye vaccines)

ID-1 PK-2.1

1. determination fagotsitarnoy sposobnosti. Fagotsitarnyy indeks. Fagotsitarnoe number. Otsenka bakteritsidnoy aktivnosti
2. Issledovanie sistemy komplementa

ID-2 PK-2.2

1. immune response. antigen recognition. antigen-presenting cells.
2. cell-mediated immune response, principal cytokines.

ID-3 PK-2.3

1. concept hypersensitivity, allergii and sensibilizatsii.
2. immediate-type hypersensitivity. stages of development GNT I type.

ID-4 PK-2.4

1. Selektivnyy defitsit IgA
2. GIPER-IgE-syndrome

ID-5 PK-2.5

1. Vrozhdennye IDS. classification, clinical varianty, problemy diagnostiki and lecheniya.
2. Vtorichnye IDS, razlichnye clinical forms, diagnosis, printsipy lecheniya.

Evaluation criteria, assessment scale for control questions

Rating		Description
"excellent"	5	Knows all the educational material, understands it perfectly and has thoroughly mastered it. Gives correct, conscious and confident answers to questions (within the program). In oral answers he uses literary correct language and does not make mistakes.
"good"	4	Knows all the required educational material, understands it

Rating		Description
		well and has mastered it firmly. Answers questions (within the program) without difficulty. In oral answers he uses literary language and does not make gross mistakes
"satisfactory"	3	Knows basic educational material. Answers questions (within the limits of the program) with difficulty. In oral answers, he makes mistakes when presenting the material and in constructing his speech.
"unsatisfactory"	2	Does not know most of the educational material, answers, as a rule, only to the teacher's leading questions, hesitantly. Makes frequent and serious mistakes in oral answers

2.4. Examples of essay topics

ID-3 OPK-5.3
1.central organs of the immune system, functions, role in immune response
2.peripheral organs of the immune system, functions, role in immune response
3.B-cell differentiation
ID-1 OPK-7.1
4.T-cell differentiation
5.cells innate immunity.
6.Gumoralnye factors innate immunity.
7.complement system: classical activation pathway
8.complement system: alternative activation pathway
ID-2 OPK-7.2
9.complement system: lectin activation pathway
10.inflammatory mediators
11.In-cell-mediated receptor
ID-1 PK-2.1
12.T-cell-mediated receptor
13.major histocompatibility complex – structure
14.processing molecules MNS 1
15.processing molecules MNS 2
ID-2 PK-2.2
16.antibacterial immunity
17.antiviral immune response
18.antifungal immunity
ID-3 PK-2.3
19.antiparasitic immunity
20.antitumor immunity
21.transplantation immunity
22.vaccination. types vaccines
ID-4 PK-2.4
23.immediate-type hypersensitivity. stages of development GNT I type. clinical manifestations GNT I type.
24.II type hypersensitivity, mechanisms, stages and clinical manifestations.
25.III type hypersensitivity, immune-complex mechanism, stages and clinical manifestations.

ID-5 PK-2.5
26.delayed-type hypersensitivity, stages.
27.clinical manifestations zamedlennogo type, immunopathogenesis.
28.Autoimmunity and mechanisms immunological tolerance.

Evaluation criteria, abstract grading scale

Rating		**Description**
"excellent"	5	All requirements for writing and defending an abstract are met: the problem is identified and its relevance is justified, a brief analysis of various points of view on the problem under consideration is made and one's own position is logically presented, conclusions are formulated, the topic is fully disclosed, the scope is maintained, requirements for external design are met, correct answers to additional questions are given
"good"	4	The basic requirements for the abstract and its defense have been met, but there are some shortcomings; in particular, there are inaccuracies in the presentation of the material; there is no logical consistency in judgments; the scope of the abstract is not maintained; there are omissions in design; Incomplete answers were given to additional questions during the defense
"satisfactory"	3	There are significant deviations from the abstracting requirements; in particular: the topic is only partially covered; there were factual errors in the content of the abstract or in answering additional questions; no output during protection
"unsatisfactory"	2	The topic of the abstract is not disclosed, a significant misunderstanding of the problem is revealed, or the abstract is not presented at all

2.5. Primernye temy prezentatsiy/dokladov

ID-3 OPK-5.3

1. Vtorichnye organy immune system. L/uzly: structure, functions in immunity
2. Selezenka: structure, functions red and white pulp
3. Pechen: structure and functions. role in immunnoy sisteme.

ID-1 OPK-7.1

1. concept hypersensitivity, allergii and sensibilizatsii.
2. Allergeny their types and svoystva
3. immediate-type hypersensitivity. stages of development GNT I type.
4. clinical manifestations GNT I type.

ID-2 OPK-7.2

1. immunotropic medicinal products, concept. classification immunomodulatory therapy
2. determination immunomodulators and iimmunodepresantov. Osnovaniya for performing immunokorrektsii
3. principal ponyatiya immunoprevention

ID-1 PK-2.1

1. determination proliferativnoy sposobnosti lymphocytes: morfologicheskiy,
2. Kolorometricheskiy, mikrotsitofluorometricheskiy, radiometricheskiy metody
3. Otsenka tsitotoksicheskoy aktivnosti T lymphocytes, NK-cells
4. Metody kolichestvennogo opredeleniya immunoglobulinov

ID-2 PK-2.2

1. Struktura zrelogo immunological synapse
2. process raspoznavaniya antigenic peptide by a cytotoxic T lymphocyte
3. humoral IO: cells, cytokines, phases IO.
4. cell-mediated IO: cells, cytokines, phases IO.

ID-3 PK-2.3

1. antibacterial immunity
2. antiviral immune response
3. antifungal immunity
4. antiparasitic immunity

ID-4 PK-2.4

1. delayed-type hypersensitivity, stages
2. principal ponyatiya immunoprevention
3. Kalendar profilakticheskikh privivok for epidemicheskim indicationsm
4. Protivoindications to vaccinesatsii: istinnye, lozhnye, absolyutnye, otnositelnye and t.d.

ID-5 PK-2.5

1.immunotropic medicinal products, concept. classification immunomodulatory therapy
2.determination immunomodulators and iimmunodepresantov. Osnovaniya for performing immunokorrektsii
3.immunodeficiencyy, concept, classification, prichiny pervichnykh immunodeficiencies

Evaluation criteria, report grading scale

Rating		**Description**
"excellent"	5	Presents own point of view (position, attitude) when disclosing the problem: the problem is fully disclosed at the theoretical level, in connections and justifications, with the correct use of social science terms and concepts in the context of the answer; provided arguments for your opinion based on facts of public life or personal social experience
"good"	4	One's own point of view (position, attitude) is presented when disclosing the problem: the problem is disclosed at a theoretical level, using social science terms and concepts in the context of the answer, theoretical connections are not present or are not clearly traced; provided evidence for your opinion based on personal social experience
"satisfactory"	3	One's own point of view (position, attitude) when disclosing a problem is poorly represented: the problem is revealed through the formal use of social science terms; provided an argument for your opinion based on facts of public life or personal social experience without theoretical justification
"unsatisfactory"	2	One’s own point of view (position, attitude) is not presented when disclosing the problem: the problem is revealed at the everyday level; the argumentation of one’s opinion is weakly connected with the facts of social life

2.6. Primery situatsionnykh zadach:

ID-3 OPK-5.3

1. In rebenka 12-ti let ezhegodno in vesenniy period with marta and before serediny iyunya voznikayut sleduyushchie proyavleniya: chikhanie, vydeleniya from polosti nosa, zatrudnenie nosovogo dykhaniya, zud and zhzhenie under vekami, slezotechenie.
Questions:
1. Predpolozhite naibolee veroyatnyy diagnoz.
2. Plan dopolnitelnogo examination patsienta (ukazhite vse pravilnye answers):

A. determination in syvorotke blood level obshchego IgE;
B. determination IgM specific to infektsionnym agentam
C. determination allergen-specific IgE;
D. geneticheskoe examination for isklyucheniya pervichnogo/secondary immunodeficiency
E. kozhnye testy (prick-test/skarifikatsionnyy test)
F. tsitologicheskoe issledovanie otdelyaemogo from glaz and nosa on presence in mazkakh uvelichennogo kolichestva eozinofilov;

ID-1 OPK-7.1

1. In bolnogo after parenteralnogo vvedeniya antibiotika after 20 minut otmechali slabost, toshnotu, zatrudnenie dykhaniya, serdtsebienie, on kozhe poyavilis vysypaniya in vide voldyrey. Kakaya stadiya allergicheskoy reaktsii otmechaetsya in bolnogo? (vyberite odin pravilnyy answer)
    1) type hypersensitivity
    2) stadiya allergicheskoy reaktsii
    3) perechislite mediatory, uchastvuyushchie in razvitii klinicheskikh proyavleniy

ID-2 OPK-7.2

Bolnaya 59 let postupila in statsionar with zhalobami on kashel with otdeleniem mokroty slizisto-gnoynogo kharaktera, odyshku in fizicheskoy nagruzke, vyrazhennuyu slabost, diareya (stul before 10 raz in sutki). From anamneza izvestno, what patsientka with 18 let stradaet khronicheskim gnoynym gaymoritom. In 20 let perenesla ostruyu dvustoronnyuyu pnevmoniyu. Povtornye pnevmonii otmechaet raz in 2-3 year, protekayut tyazhelo, trebuyut gospitalizatsii and vnutrivennogo vvedeniya antibiotikov. Posledniy epizod pnevmonii okolo year nazad, after chego poyavilsya diareynyy syndrome, terapiya antidiareynymi sredstvami and probiotikami bez effekta. In immunologicheskom obsledovanii vyyavleno decrease kontsentratsii immunoglobulinov G and M, polnoe absence immunoglobulina A; number B lymphocytes in norme; obshchiy belok syvorotki – 50 g/l; on KT OGK vyyavleny priznaki bronkhoektazov.
Questions:

1. Which primary immunodeficiency in this patsientki?

2. Kakoe treatment pokazano patients with dannym variantom PIN?

A. antibakterialnaya terapiya
B. transplantatsiya stvolovykh cells bone marrow
C. zamestitelnaya terapiya
D. immunosuppressive therapy

3. Which prognoz in patsientov with this disorders?

ID-1 PK-2.1

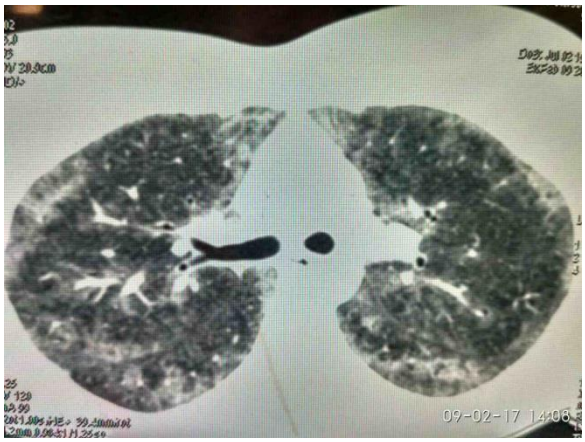
1. Patsientka 24 g., postupila in otdelenie pulmonologii with zhalobami on increase temperatury before febrilnykh tsifr, kashel with mokrotoy svetlo-zheltogo tsveta, vyrazhennuyu slabost, odyshku, usilivayushchuyusya in fizicheskoy nagruzke.
From anamneza izvestno, what likhoradka and kashel poyavilis okolo mesyatsa nazad. In techenie this infektsionnogo epizoda patsientka prinimala zharoponizhayushchie preparaty, mukolitiki, antibiotiki (amoksitsillin 1 gr/sutki in techenie nedeli) bez klinicheskogo effekta. On dogospitalnom etape vypolnena rentgenografiya organov grudnoy cells, vyyavleno dvustoronnee porazhenie legkikh, mnozhestvo raznokalibernykh ochagov. Patsientka gospitalizirovana in pulmonologicheskoe otdelenie. In sbore anamneza vyyasnili, what in techenie poslednikh 6 mesyatsev patsientka otmechaet narastanie obshchey slabosti, pokhudela on 9 kg.

Semeynyy anamnez: mat – 54 year, stradaet AG, IBS; otets – 59 let, stradaet yazvennoy boleznyu zheludka.

In osmotre: condition sredney tyazhesti. Ves tela 43 kg. Rost – 159 sm. Kozhnye pokrovy chistye, obychnoy okraski. In legkikh dykhanie zhestkoe, in sredne-nizhnikh otdelakh legkikh with obeikh storon oslablennoe, with dvukh storon vyslushivayutsya vlazhnye krepitiruyushchie khripy. ChD 24/min. Tony serdtsa ritmichnye. ChSS – 70 ud.in min., AD – 110/60 mm rt.st. Zhivot myagkiy, in palpatsii bezboleznennyy in vsekh otdelakh. Pechen and selezenka not uvelicheny. Dizuriy no. Simptom pokolachivaniya for poyasnichnoy oblasti otritsatelnyy. In analize blood: leykotsity – 3,2kh109/l; neutrophils – 81%; lymphocytes – 15%; gemoglobin – 86 g/l; trombotsity – 231kh109/l; SOE – 35 mm/ch. In immunogramme uroven CD4+ 0,19kh109/l.

Issledovanie gazov blood: rO2=68 mm.rt.st.

KT OGK: alveolyarno-interstitsialnaya infiltratsiya oboikh legkikh, mnozhestvennye ochagovye izmeneniya legkikh, dvustoronniy plevrit.



Questions:

1) Predpolozhite naibolee veroyatnyy diagnoz and etiologiyu?
2) Kakoe dopolnitelnoe examination necessary provesti patsientke
3) Neobkhodima li izolyatsiya patsientki from drugikh bolnykh?

ID-2 PK-2.2

1. Obshchiy analiz blood podrostka vyyavil increase protsentnogo soderzhaniya yunykh and palochkoyadernykh neytrofilov and umenshenie segmentoyadernykh form.

Questions:

1) As nazyvaetsya takoe condition leukocyte differential?
2) O chem may svidetelstvovat eti izmeneniya in blood?

2. In provedenii analysis blood on gematologicheskom analizatore polucheny sleduyushchie results: WBC 12,13*103 / uL; RBC 5,05*106 / uL; HGB 15,2 g/ dL; HCT 43,4 %; MCV 85,9 fL; MCH 30,1 pg; MCHC 35,0 g/dL; PLT 310*103 / uL; NEUT 78 %; LYMPH 12%; MONO 10% EO 0 %; BASO 0 %
Questions:

1) Otsenite poluchennyy rezultat with pozitsii «norma-patologiya».
2) Why in dannom sluchae necessary poschitat leykotsitarnuyu formulu?
3) What takoe «sdvig vlevo»?

ID-3 PK-2.3

1. Vyberite odin pravilnyy answer.
Patsient perenes anafilakticheskiy shok after ukusa pchely. When emu necessary provodit allergy evaluation with purpose identifying prichinno-znachimogo allergena:

1) after perevoda from reanimatsionnogo otdeleniya;
2) after 1 mesyats after development anafilakticheskogo shoka;
3) nikogda
4) srazu after stabilizatsii conditions bolnogo;
5) after vypiski from statsionara

2. In medsestry after 15 let raboty in protsedurnom kabinete poyavilis priznaki kontaktnogo dermatita in oblasti kistey ruk.
Questions:

1. Predpolagaemyy diagnoz?
2. To kakomu typein immunnykh narusheniy belongs dannoe zabolevanie?

Vyberite odin pravilnyy answer.

A. primary immunodeficiency
In. In-cell-mediated immunodeficiency
With. allergic reaction nemedlennogo type
D. allergic reaction zamedlennogo type
E. T-cell-mediated immunodeficiency

ID-4 PK-2.4

Zhenshchina, 24-kh let, obratilas in otdelenie skoroy care and travmpunkt.

In vremya prosmotra televizora ona pochuvstvovala sudorogi in oblasti verkhnikh and nizhnikh konechnostey, nevozmozhnost razzhat chelyusti and vydelenie peny izo rta. Pripadok prodolzhalsya neskolko minut. Was diagnostirovan perelom proksimalnoy part levoy plechevoy kosti. Ranee sudorog not was. Izvestno, what patsientka rodila rebenka 2 mesyatsa nazad, kotoryy neozhidanno umer. Vskrytie pokazalo, what in rebenka was truncus arteriosus.

From anamneza izvestno, what in detstve in patsientki was retsidiviruyushchiy otit. Also ey byla vypolnena tonzillektomiya/adenoidektomiya. Its mat soobshchila, what in detstve in nee were trudnosti with obucheniem, no teper ona polnostyu nezavisima, zamuzhem and rabotaet polnyy rabochiy den. Roditeli stradali glukhotoy, oba in rezultate detskogo meningita, no in ostalnom were zdorovy.

In obsledovanii byla vyyavlena gipokaltsiemiya (syvorotochnyy kaltsiy - 1,32 mmol/l; norma: 2,15–2,60). Posleduyushchie issledovaniya vyyavili povyshennyy uroven syvorotochnogo fosfata (1,51 mmol/l; norma:0,8–1,5), povyshennyy uroven shchelochnoy fosfatazy (118 Ed/l; norma: 30-95) and nizkiy uroven paratgormona (0,5 pmol / l; norma: 0-6,). Klinicheskiy

analiz blood, syvorotochnye vitaminy D, B12 and folat were in norme. Tkanevaya transglutaminaza okazalas otritsatelnoy. In postuplenii on EKG obnaruzhili udlinenie intervala QT. In provedenii fluorestsentnoy gibridizatsii in situ, vyyavili submikroskopicheskuyu deletsiyu khromosomy 22q11. Transtorakalnaya ekhokardiografiya not vyyavila nikakikh anomaliy serdtsa or dugi aorty. Skanirovanie plotnosti kostnoy tkani also was in norme. Immunologicheskie testy pokazali normalnoe number T-cells and sootnoshenie CD4:CD8. Khromosomnyy analiz oboikh roditeley not vyyavil nikakikh otkloneniy.

Predpolozhite diagnoz? Which oslozhneniya vozmozhny in takikh patsientov? Kakoe treatment necessary?

ID-5 PK-2.5

Bolnoy 25 let, voditel, obratilsya to uchastkovomu terapevtu with zhalobami on poyavlenie epizodov udushya with zatrudnennym vydokhom, kashel with trudno otdelyaemoy mokrotoy prakticheski ezhednevno. Pristupy udushya voznikayut 2-3 raza in nedelyu chashche nochyu and prokhodyat spontanno after chas with ischeznoveniem vsekh simptomov. Neznachitelnaya odyshka in fizicheskoy nagruzke. Lekarstva not prinimal. Schitaet sebya bolnym okolo 3 mes. Za meditsinskoy pomoshchyu obratilsya vpervye. With detstva chastye bronkhity with obostreniyami in vesenne-osenniy periody. Drugie khronicheskie diseases otritsaet. Operatsiy, travm not was. Kurit for 1,5 pachki in den 5 let. In materi bronkhialnaya astma, in ottsa gipertonicheskaya bolezn.

Allergologicheskiy anamnez not otyagoshchen. Professional vrednostey not has. In fizikalnom osmotre: condition bolnogo legkoy stepeni tyazhesti.

Temperatura tela 36,7°With. Kozhnye pokrovy chistye, vlazhnye. Rost 175 sm, ves 81 kg. peripheral l/uzly not uvelicheny. Shchitovidnaya zheleza not uvelichena. Grudnaya kletka normostenicheskaya. In palpatsii grudnaya kletka bezboleznenna. ChD - 18 in minutu. In perkussii - yasnyy legochnyy zvuk. Granitsy otnositelnoy tuposti serdtsa: in predelakh normy. In auskultatsii - dykhanie vezikulyarnoe, provoditsya in vse otdely, vyslushivaetsya nebolshoe number sukhikh, rasseyannykh, vysokodiskantnykh khripov. Tony serdtsa yasnye, ritmichnye. Puls 80 ud/min udovletvoritelnogo napolneniya and napryazheniya. AD -120/80 mm rt.st. In palpatsii zhivot myagkiy, bezboleznennyy.

Razmery liver for Kurlovu: 10x9x7 sm. Dizuricheskikh yavleniy no.

Questions:

1. Predvaritelnyy diagnoz.
2. Sostavte plan laboratorno-instrumentalnogo examination.
3. Plan lechebnykh meropriyatiy.
4. Provedenie vrachebno-trudovoy ekspertizy (VTE), protivopokazannye types truda.
5. Ukazhite indications to urgent gospitalizatsii in patsienta.

Assessment criteria, situational task assessment scale

Rating		**Description**
"excellent"	5	The explanation of the solution to the task is detailed, consistent, competent, with theoretical justifications, with the necessary schematic images and visual demonstrations, with correct and fluent use of terminology; answers to additional questions are correct and clear
"good"	4	Obyasnenie khoda resheniya situatsionnoy zadachi podrobnoe, no nedostatochno logichnoe, with edinichnymi oshibkami in detalyakh, nekotorymi zatrudneniyami in teoreticheskom obosnovanii, skhematicheskikh izobrazheniyakh and naglyadnykh demonstratsiyakh, answers on dopolnitelnye questions vernye, no

		nedostatochno chetkie
"satisfactory"	3	Obyasnenie khoda resheniya situatsionnoy zadachi nedostatochno polnoe, neposledovatelnoe, with oshibkami, slabym teoreticheskim obosnovaniem, with znachitelnymi zatrudneniyami and oshibkami in skhematicheskikh izobrazheniyakh and naglyadnykh demonstratsiyakh, answers on dopolnitelnye questions nedostatochno chetkie, with oshibkami in detalyakh
"unsatisfactory"	2	Obyasnenie khoda resheniya situatsionnoy zadachi dano nepolnoe, neposledovatelnoe, with grubymi oshibkami, bez teoreticheskogo obosnovaniya, bez umeniya skhematicheskikh izobrazheniy and naglyadnykh demonstratsiy or with bolshim kolichestvom oshibok, answers on dopolnitelnye questions nepravilnye or otsutstvuyut

3. Current control procedure

Tekushchiy kontrole uspevaemosti for distsipline provoditsya in forme: dokladov, kontrolenykh voprosov, testovykh zadaniy, resheniya situatsionnykh zadach, podgotovki referata.

4. Examples of assessment tools and assessment criteria for intermediate certification

4.1. Sample checklist:

ID-3 OPK-5.3

3. mechanisms innate immunity.
4. structural and functional organization of the immune system.
5. Ontogenez immune system human
6. antigens. classification. routes postupleniya. Metabolizm antigens in organizme.
7. In-cell-mediated receptor, structure, funktsiya

ID-1 OPK-7.1

2. immediate-type hypersensitivity. stages of development GNT I type. clinical manifestations GNT I type.
3. II type hypersensitivity, mechanisms, stages and clinical manifestations.
4. III type hypersensitivity, immune-complex mechanism, stages and clinical manifestations. delayed-type hypersensitivity, stages. clinical manifestations zamedlennogo type, immunopathogenesis.

ID-2 OPK-7.2

3. types immunokorrektsii.
4. immunoglobulins.
5. Production monoclonal antibodies (gibridomnaya tekhnologiya)
6. types vaccines (Zhivye vaccines, Ubitye vaccines, Khimicheskie vaccines, Anatoksiny, Iskusstvennye vaccines, Gennoinzhenernye vaccines)

ID-1 PK-2.1

3. Metody kolichestvennogo opredeleniya immunoglobulinov
4. Metody issledovaniya funktsiy fagotsitov
5. Metody opredeleniya khemotaksisa leukocytes. Kamera Boydena
6. determination fagotsitarnoy sposobnosti. Fagotsitarnyy indeks. Fagotsitarnoe number. Otsenka bakteritsidnoy aktivnosti
7. Issledovanie sistemy komplementa

ID-2 PK-2.2

3. immune response. antigen recognition. antigen-presenting cells.
4. cell-mediated immune response, principal cytokines.
5. humoral immune response. principal cytokines.
6. antibodies. types, structure, svoystva. Formation immunnykh kompleksov.
7. Tsitotoksichekie reaktsii.
8. regulation immune response. hormones and cytokines immune system

ID-3 PK-2.3

3. concept hypersensitivity, allergii and sensibilizatsii.
4. immediate-type hypersensitivity. stages of development GNT I type.
5. clinical manifestations GNT I type.
6. II type hypersensitivity, mechanisms, stages and clinical manifestations.
7. III type hypersensitivity, immune-complex mechanism, stages and clinical manifestations.

ID-4 PK-2.4

3. Selektivnyy defitsit IgA
4. GIPER-IgE-syndrome
5. Agammaglobulinemiya- bolezn Brutona
6. Khronicheskaya granulematoznaya bolezn
7. Cindrom «golykh lymphocytes»
8. KhKKS
9.

ID-5 PK-2.5

3. autoimmune diseases. Teorii autoimmunitya.
4. Revmatoidnye porazheniya sustavov. mechanisms development. Immunodiagnosis. Printsipy patogeneticheskoy therapy and prevention.
5. immunodeficiency disorders (IDS). classification.
6. Vrozhdennye IDS. classification, clinical varianty, problemy diagnostiki and lecheniya.
7. Vtorichnye IDS, razlichnye clinical forms, diagnosis, printsipy lecheniya.

Evaluation criteria, assessment scale for control questions

Rating	Ball	Description
"excellent"	20	Knows all the educational material, understands it perfectly and has thoroughly mastered it. Gives correct, conscious and confident answers to questions (within the program). In oral answers he uses literary correct language and does not make mistakes.
"good"	15	Knows all the required educational material, understands it well and has mastered it firmly. Answers questions (within the program) without difficulty. In oral answers he uses literary language and does not make gross mistakes
"satisfactory"	10	Knows basic educational material. Answers questions (within

Rating	Ball	Description
		the limits of the program) with difficulty. In oral answers, he makes mistakes when presenting the material and in constructing his speech.
"unsatisfactory"	5	Does not know most of the educational material, answers, as a rule, only to the teacher's leading questions, hesitantly. Makes frequent and serious mistakes in oral answers

4.2. Examples of a situational task:

ID-3 OPK-5.3

In rebenka 12-ti let ezhegodno in vesenniy period with marta and before serediny iyunya voznikayut sleduyushchie proyavleniya: chikhanie, vydeleniya from polosti nosa, zatrudnenie nosovogo dykhaniya, zud and zhzhenie under vekami, slezotechenie.
Questions:
1. Predpolozhite naibolee veroyatnyy diagnoz.
2. Plan dopolnitelnogo examination patsienta (ukazhite vse pravilnye answers):

G. determination in syvorotke blood level obshchego IgE;

H. determination IgM specific to infektsionnym agentam

I. determination allergen-specific IgE;

J. geneticheskoe examination for isklyucheniya pervichnogo/secondary immunodeficiency

K. kozhnye testy (prick-test/skarifikatsionnyy test)

tsitologicheskoe issledovanie otdelyaemogo from glaz and nosa on presence in mazkakh uvelichennogo kolichestva eozinofilov

ID-1 OPK-7.1, ID-2 OPK-7.2

Bolnaya 59 let postupila in statsionar with zhalobami on kashel with otdeleniem mokroty slizisto-gnoynogo kharaktera, odyshku in fizicheskoy nagruzke, vyrazhennuyu slabost, diareya (stul before 10 raz in sutki). From anamneza izvestno, what patsientka with 18 let stradaet khronicheskim gnoynym gaymoritom. In 20 let perenesla ostruyu dvustoronnyuyu pnevmoniyu. Povtornye pnevmonii otmechaet raz in 2-3 year, protekayut tyazhelo, trebuyut gospitalizatsii and vnutrivennogo vvedeniya antibiotikov. Posledniy epizod pnevmonii okolo year nazad, after chego poyavilsya diareynyy syndrome, terapiya antidiareynymi sredstvami and probiotikami bez effekta. In immunologicheskom obsledovanii vyyavleno decrease kontsentratsii immunoglobulinov G and M, polnoe absence immunoglobulina A; number B lymphocytes in norme; obshchiy belok syvorotki – 50 g/l; on KT OGK vyyavleny priznaki bronkhoektazov.
Questions:

4. Which primary immunodeficiency in this patsientki?

5. Kakoe treatment pokazano patients with dannym variantom PIN?

E. antibakterialnaya terapiya

F. transplantatsiya stvolovykh cells bone marrow

G. zamestitelnaya terapiya

H. immunosuppressive therapy

6. Which prognoz in patsientov with this disorders?

ID-1 PK-2.1, ID-2 PK-2.2, ID-3 PK-2.3, ID-4 PK-2.4, ID-5 PK-2.5

Obshchiy analiz blood podrostka vyyavil increase protsentnogo soderzhaniya yunykh and palochkoyadernykh neytrofilov and umenshenie segmentoyadernykh form.
Questions:

3) As nazyvaetsya takoe condition leukocyte differential?
4) O chem may svidetelstvovat eti izmeneniya in blood?

In provedenii analysis blood on gematologicheskom analizatore polucheny sleduyushchie results: WBC 12,13*103 / uL; RBC 5,05*106 / uL; HGB 15,2 g/ dL; HCT 43,4 %; MCV 85,9 fL; MCH 30,1 pg; MCHC 35,0 g/dL; PLT 310*103 / uL; NEUT 78 %; LYMPH 12%; MONO 10% EO 0 %; BASO 0 %
Questions:

1) Otsenite poluchennyy rezultat with pozitsii «norma-patologiya».
2) Why in dannom sluchae necessary poschitat leykotsitarnuyu formulu?
3) What takoe «sdvig vlevo»?

Assessment criteria, situational task assessment scale

Rating		**Description**
"excellent"	5	The explanation of the solution to the task is detailed, consistent, competent, with theoretical justifications, with the necessary schematic images and visual demonstrations, with correct and fluent use of terminology; answers to additional questions are correct and clear
"good"	4	Obyasnenie khoda resheniya situatsionnoy zadachi podrobnoe, no nedostatochno logichnoe, with edinichnymi oshibkami in detalyakh, nekotorymi zatrudneniyami in teoreticheskom obosnovanii, skhematicheskikh izobrazheniyakh and naglyadnykh demonstratsiyakh, answers on dopolnitelnye questions vernye, no nedostatochno chetkie
"satisfactory"	3	Obyasnenie khoda resheniya situatsionnoy zadachi nedostatochno polnoe, neposledovatelnoe, with oshibkami, slabym teoreticheskim obosnovaniem, with znachitelnymi zatrudneniyami and oshibkami in skhematicheskikh izobrazheniyakh and naglyadnykh demonstratsiyakh, answers on dopolnitelnye questions nedostatochno chetkie, with oshibkami in detalyakh
"unsatisfactory"	2	Obyasnenie khoda resheniya situatsionnoy zadachi dano nepolnoe, neposledovatelnoe, with grubymi oshibkami, bez teoreticheskogo obosnovaniya, bez umeniya skhematicheskikh izobrazheniy and naglyadnykh demonstratsiy or with bolshim kolichestvom oshibok, answers on dopolnitelnye questions nepravilnye or otsutstvuyut

Evaluation criteria, final grading scale pass/fail

Rating	**Description**
"passed"	Demonstrates a thorough understanding of the problem. Knows the basic concepts within the framework of the issue under discussion, methods of study and their relationship with each other, practical problems and has an idea of promising directions for developing the issue under consideration
"not accepted"	Demonstrates a lack of understanding of the problem. Does not know the basic concepts, methods of study, within the framework of the issue being discussed, has no idea about the main practical problems

5. Intermediate assessment procedure

Intermediate assessment in the discipline is carried out in the form of a credit test. The test includes: an interview on test questions and solving a situational problem.