



UČNI NAČRT PREDMETA / COURSE SYLLABUS

Ime predmeta:	Infekcijske bolezni
Course title:	Infectious diseases

Študijski program in stopnja Study programme and cycle	Študijska smer Study option	Letnik Year of study	Semester Semester
Splošna medicina, enovit magistrski študijski program		Peti	9.
General medicine, Uniform master's degree study program		Fifth	9th

Vrsta predmeta (obvezni ali izbirni) /
Course type (compulsory or elective)

obvezni

compulsory

Univerzitetna koda predmeta / University course code:

Predavanja Lectures	Seminar Seminar	Vaje Tutorial			Klinične vaje Clinical training	Druge oblike študija Other forms of study	Samost. delo Individual work	ECTS
15	30	AV	LV	RV	15		60	4

Nosilec predmeta / Course coordinator:

doc.dr. Nina Gorišek Miksić, dr. med.

Jeziki /Languages:

Predavanja / Lectures: slovenski/slovene

Vaje / Tutorial: slovenski/slovene

Pogoji za vključitev v delo oz. za opravljanje študijskih obveznosti:

Prerequisites for enrolling in the course or for performing study obligations:

Vsebina (kratek pregled učnega načrta):

Uvod v infekcijske bolezni, klinični in laboratorijski znaki vnetja.

Bakterijske okužbe: stafilokokne, streptokokne, pertusis, tetanus, botulizem, davica, leptospiroze, lymska borelijoza.

Virusne okužbe, ki jih povzročajo: enterični virusi, respiratorni sincicijski virusi, adenovirusi, herpes virusi, varicela-zoster virus, citomegalovirus, Epstein-Barr virus, virus influence in parainfluence, virusi hepatitisa, ošpice, rdečke, exanthema subitum, exanthema infectiosum, AIDS, klamidijske okužbe, rikecioze. Parazitarne bolezni: trihineloz, malarija, tripanosomioza. Zoonoze: antraks,

Content (syllabus outline):

Introduction to infectious diseases, clinical and laboratory signs of inflammation.

Bacterial infections: staphylococcal, streptococcal, pertusis, tetanus, botulism, diphtheria, leptospirosis, Lyme boreliosis.

Viral infections cause by enteroviruses, sintitial respiratory viruses, adenoviruses, herpes viruses, varicella-zoster virus, cytomegalovirus, Epstein-Barr virus, influenza and parainfluenza virus, hepatitis, rubeola, rubella, exanthema subitum, exanthema infectiosum, AIDS; chlamidia, rickettsia infections.

bruceloza, lišmanioza, tularemija. Bolezenski sindromi: bakterijski meningitisi, serozni meningitisi, encefalitis, bakterijske in atipične pljučnice, črevesne okužbe, hemoragične mrzlice, nejasna vročinska stanja, sepsa, izpuščajne bolezni, sindrom utrujenosti.

Tematsko posodabljanje predavanj zahteva dodatek ali razširitev poglavij s spoznanji o vse bolj aktualnih infekcijskih (okužbe pri imunsko oslabljenih osebah, transplantiranih, nosilcih umetnih materialov, bolnišnične okužbe, okužbe v tropskih razmerah oz. na potovanjih, bioterorizem).

Novo poglavje: pandemija covid-19, narava bolezni, klinični potek, zdravljenje, zapleti. Preprečevanje in ukrepi za zamejevanje covid-19. Spoznavanje novih cepiv na področju preprečevanja covid-19.

Infektologija za odrasle bolnike

Študent mora spoznati in obvladati diagnostični in terapevtski pristop pri bolniku s sumom na infekcijsko bolezen oziroma pri vročičnem bolniku, spoznati mora značilnosti okužb glede na prizadeti organski sistem (npr. okužb osrednjega živčevja, dihal, prebavil, sečil, spolovil, mišic, kosti in sklepov, kože in podkožja), značilnosti nekaterih bolezni oziroma bolezenskih stanj (npr. virusni hepatitis, AIDS, lymska borelijoza, infekcijski endokarditis, sepsa, septični šok, pogostejše tropske bolezni), značilnosti okužb pri bolnikih z ohranjeno ali okvarjeno imunostjo in/ali vgrajenimi umetnimi materiali, ukrepe za preprečevanje nalezljivih bolezni, doktrino racionalne uporabe antibiotikov, protivirusnih, protiglivičnih in protiparazitnih zdravil, kakor tudi pristope za odkrivanje, dokazovanje, zdravljenje in preprečevanje bolnišničnih okužb.

Študent mora poznati problematiko pandemije covid-19, obravnavo bolnika s covid-19, uporabo zaščitne opreme in poznavanje ukrepov za preprečevanje širjenja.

Pediatrična infektologija

Študent spozna značilnosti in osvoji znanje o etiologiji, epidemiologiji, kliničnih simptomih in znakih, zdravljenju in preprečevanju okužb pri otrocih v različnih starostnih obdobjih. Usposobi se tudi za interpretacijo rezultatov laboratorijskih testov, še posebej tistih, ki se razlikujejo od ugotovitev pri odraslih bolnikih.

Intenzivna in urgentna infektologija

Študent se seznani s prepoznavanjem, diagnostiko in zdravljenjem akutnih infekcijskih bolezni, ki ogrožajo življenje in ki potrebujejo intenzivno zdravljenje, kakor tudi s preprečevanjem okužb in pravili bolnišnične higiene na oddelku za intenzivno terapijo.

Parasitic infestations: trihinelosis, malaria, trypanosomiasis. Zoonoses: anthrax, brucellosis, leishmaniasis, tularemia. Disease syndromes: bacterial meningitis, serous meningitis, encephalitis, bacterial and atypical pneumoniae, intestinal infections, hemorrhagic fever, unexplained fever conditions, sepsis, cutaneous rash, fatigue syndrome.

Tematsko posodabljanje predavanj zahteva dodatek ali razširitev poglavij s spoznanji o vse bolj aktualnih infekcijskih (okužbe pri imunsko oslabljenih osebah, transplantiranih, nosilcih umetnih materialov, bolnišnične okužbe, okužbe v tropskih razmerah oz. na potovanjih, bioterorizem). Updating of lecture themes requires an addition or extension of chapters with new findings on nowadays topical infections (in immune-deficient persons, transplant recipients, recipients of artificial materials, hospital infections, tropical areas- or travel-related infections, bioterrorism).

New topic: covid-19 pandemic, etiology of covid-19 disease, clinical course, treatment and complications of the covid-19. Covid-19 preventive measures and mitigation measures. New covid-19 vaccine production technologies.

Infectology in adult patients

Students shall learn and become proficient in the diagnostic and therapeutic approach to patients with suspected infectious disease or febrile condition, learn about infection characteristics with respect to organ system affected (e.g. infections of the central nervous-, respiratory-, gastrointestinal-, urinary system, reproductive organs, muscles, bones and joints, skin and subcutaneous tissues), the characteristics of certain diseases or pathologic conditions (e.g. viral hepatitis, AIDS, Lyme borreliosis, infectious endocarditis, sepsis, septic shock, more frequent tropical diseases), characteristics of infections in patients with preserved or damaged immunity and/or inserted artificial materials, measures for prevention of infectious diseases, doctrine of rational use of antibiotics, antiviral, antifungal and anti-parasitic medications, as well as approaches for the detection, verification, treatment and prevention of hospital infections.

Students shall learn about covid-19 disease, diagnostics and new treatments, usage of personal protective equipment and about preventive measures in covid-19 mitigation.

Paediatric infectology

Students learn and acquire knowledge of etiology, epidemiology, clinical symptoms and signs, treatment and prevention of infection in children in different age periods. They become proficient in the interpretation of the

Sklopi naslovnih tem predavanj:

STREPTOKOKNE OKUŽBE:

- streptokokno vnetje žrela (tonsillopharyngitis)
- škrlatinka (scarlatina)
- šen (erysipelas)
- impetigo – pyoderma
- pnevmokokne okužbe
- druge

STAFILOKOKNE OKUŽBE

- stafilokokne okužbe kože
- stafilokokna pljučnica
- stafilokokni meningitis
- stafilokokna sepsa
- stafilokokni endokarditis
- stafilokokni perikarditis
- stafilokokni osteomielitis
- stafilokokni artritis
- sindrom toksičnega šoka

OKUŽBE Z ANAEROBI

- tetanus
- botulizem
- druge klostridijske bolezni
- davica

OKUŽBE S HERPES VIRUSI

- s herpes simplex virusom tip 1, 2, 6
- s citomegalovirusom
- z varicela – zoster virusom (varicella, herpes zostere)
- z Epstein Barrovim virusom (mononucleosis infectiosa)

ČREVESNE OKUŽBE:

Salmoneloze

- trebušni tifus
- paratifus A, B
- akutni enterokolitis

Griža (dysentaria)

Kampilobakterioza

Zastrupitev s hrano – stafilokokna

- Clostridium perfringens
- Bacillus cereus

Jersinioza

findings of laboratory tests, particularly the ones that differ from those in adult patients.

Intensive and emergency infectology

Students become acquainted with the identification, diagnosis and treatment of acute life-threatening infectious diseases, which require intensive therapy, as well as with the prevention of infections and rules of hospital hygiene in the unit of intensive therapy.

Sets of lecture title themes:

STREPTOCOCCAL INFECTIONS:

- streptococcal inflammation of the pharynx (tonsillopharyngitis);
- Scarlet fever (scarletina)
- Erysipelas
- Impetigo – pyoderma
- Pneumococcal infections
- Others

STAPHYLOCOCCAL INFECTIONS

- staphylococcal infections of the skin
- staphylococcal pneumonia
- staphylococcal meningitis
- staphylococcal sepsis
- staphylococcal endocarditis
- staphylococcal pericarditis
- staphylococcal osteomyelitis
- staphylococcal arthritis
- toxic shock syndrome

ANAEROBIC INFECTIONS

- tetanus
- botulism
- other clostridial diseases
- diphtheria

HERPES VIRUS INFECTIONS

- with herpes simplex virus types 1, 2 and 6
- with cytomegalovirus
- with varicella, herpes zoster virus
- with Epstein-Barr virus (mononucleosis infectiosa)

INTESTINAL INFECTIONS:

Salmonellosis

- typhoid fever
- paratyphoid fever A, B
- acute enterocolitis

Kolera Virusni enterokolitisi - rotavirusni - norwalk virusni - adenovirusni - astrovirusni Driske na potovanjih Driske pri imunsko motenih bolnikih Driske povzročene z E. coli Driske povzročene z aeromonas sp. Driske povzročene s Clostridium difficile OKUŽBE OSREDNJEGA ŽIVČEVJA Gnojni (bakterijski) meningitisi - meningokokni meningitis - Pneumokokni meningitis - Hemofilusni meningitis - Listerijski meningitis - Stafilokokni meningitis - Gramnegativni bacilarni meningitis Serozni meningitisi, meningoencefalitisi - tuberkulozni meningitis - leptospirozni meningitis - borelijski meningitis - brucelozni meningitis - mikoplazmatski meningitis - klopni meningoencefalitis - herpetični (HSV tip 1, 2) meningoencefalitis - enterovirusni meningoencefalitisi - glivični meningoencefalitis - parazitni meningoencefalitis OKUŽBE DIHAL Tonsilofaringitis Bakterijske pljučnice Atipične pljučnice: - klamidijske okužbe - mikoplazemske okužbe - legioneloze - Q mrzlica Oslovski kašelj (pertussis) Influenca Parainfluenca	Bloody diarrhea (dysentery) Campylobacteriosis Food poisoning - staphylococcal - Clostridium perfringens - Bacillus cereus Yersiniosis Cholera Viral enterocolitis infections - rotaviral infections - Norwalk virus infections - adenoviral - astroviral Travel-related diarrheas Diarrheas in immune-deficient patients E. coli-caused diarrheas Aeromonas sp.-caused diarrheas Clostridium difficile -caused diarrheas CENTRAL NERVOUS SYSTEM INFECTIONS Purulent (bacterial) meningitis - meningococcal meningitis - pneumococcal meningitis - Haemophilus influenzae-caused meningitis - listerial meningitis - staphylococcal meningitis - gram-negative bacterial meningitis Serous meningitis, meningoencephalitis - tuberculous meningitis - leptospirosis-caused meningitis - Borellia-caused meningitis - brucelous meningitis - mycoplasma meningitis - tick-borne meningoencephalitis - herpetic (HSV type 1, 2) meningoencephalitis - enteroviral meningoencephalitis - fungal meningoencephalitis - parasitic meningoencephalitis RESPIRATORY INFECTIONS
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Virusna prehladna obolenja	Tonsilopharyngitis
Adenoviroze	Bacterial pneumonias
Covid-19	Atypical pneumonias
	- chlamydial infections
	- mycoplasmic infections
	- legionelloses
	- Q fever
IZPUŠČAJNE BOLEZNI	Whooping cough (pertussis)
Ošpice (morbili)	Influenza
Rdečke (rubella)	Parainfluenza
Erythema infectiosum	Viral cold-related diseases
Exanthema subitum	Adenoviroses
Norice (varicella) – herpes zoster	Covid-19
Rikecioze	
	RASH DISEASES
VIRUSNI HEPATITISI – A, B, C, D,E, G, H	Measles (morbili)
	German measles (rubella)
PARAZITNE BOLEZNI	Infectious erythema
Toksoplazmoza	Exanthema subitum
Lamblioza	Varicella - herpes zoster
Tenioza – cisticerkoza	Rickettsioses
Ehinokokoza	
Trihineloz	VIRAL HEPATITISES – A, B, C, D,E, G, H
Filarioza	
Okužbe s pnevmocistis carinii	PARASITIC DISEASES
	Toxoplasmosis
ZOONOZE	Lambliosis
Listerioza	Teniosis – cysticercosis
Bruceloza	Echinococcosis
Tularemija	Trichinosis
Lymska borelioz	Filarosis
Erlihioza	Pneumocystis carinii infections
Vranični prasad (antraks)	
Bolezni mačke opraskanine	ZOONOSES
Steklina (rabies)	Listeriosis
	Brucellosis
TROPSKE BOLEZNI	Tularaemia
Malaria	Lyme borreliosis
Amebiza	Ehrlichiosis
Lišmanioza	
Tripanosomoza	

Shistosomoza Hemoragične mrzlice: - rumena mrzlica - Denga - Hantan mrzlica - Lassa mrzlica - Marburg mrzlica - Ebola Leptospiroze Kuga GLIVIČNE OKUŽBE NOZOKOMIALNE (BOLNIŠNIČNE) OKUŽBE HIV okužba – AIDS OKUŽBE PRI IMUNSKO OSLEBELIH BOLNIKI OKUŽBE PRI NOSILCIH UMETNIH MATERIALOV OKUŽBE PRI TRANSPLANTIRANCIH VROČINA NEZNANEGA IZVORA (STATUS FEBRILIS) NAJPOMEMBNEJŠI SIMPTOMI IN ZNAKI PRI OPISOVANJU IN DIAGNOSTICIRANJU INFEKCIJSKIH BOLEZNI: Razen opisov klasičnih infekcijskih bolezni in okužb posameznih organov bomo od študentov zahtevali tudi poznavanje patofiziološkega razumevanja in diferencialno diagnostiko komatoznih stanj, septičnega šoka, ARDS, dehidracije in akutne ledvične odpovedi ter razumevanje pojmov medsebojnih odnosov med makro in mikro organizmom (saprofit – komerzal – parazit – patogen; infekt – infekcijska bolezen; virulenca; rezistenca; imunost).	Anthrax Cat-scratch diseases Rabies TROPICAL DISEASES Malaria Amebiasis Leishmaniasis Trypanosomiasis Schistosomiasis Haemorrhagic fevers: - yellow fever - Dengue fever - Hantan fever - Lassa fever - Marburg fever - Ebola Leptospiroses Plague FUNGAL INFECTIONS NOSOCOMIAL (HOSPITAL) INFECTIONS HIV infection – AIDS INFECTIONS IN IMMUNE-DEFICIENT PATIENTS INFECTIONS IN ARTIFICIAL MATERIAL RECIPIENTS INFECTIONS IN TRANSPLANT RECIPIENTS FEBRILE CONDITION OF UNKNOWN ORIGIN (STATUS FEBRILIS) MOST IMPORTANT SIGNS AND SYMPTOMS IN DESCRIBING AND DIAGNOSING INFECTIOUS DISEASES: Besides being able to describe classical infectious diseases and individual organ infections, the students will be expected to understand patho-physiology and differential diagnosis of comatous conditions, septic shock, ARDS, dehydration and acute renal failure; they should also be able to explain the terms associated with relationship between macro- and microorganism (saprophyte – commensal – parasite – pathogen; infectant – infectious disease; virulence; resistance; immunity).
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Temeljni literatura in viri / Reading materials:

Temeljna - Tomažič J, Strle F. Infekcijske bolezni, Ljubljana, Združenje za infektologijo. Slovensko zdravniško društvo. 2014/2015

Dopolnilna

- Mayhall CG. Hospital epidemiology and Infection Control. Lippincott Williams and Wilkins. 4. izdaja. Philadelphia, 2012
- Beović, Strle, Čizman, Tomažič, Infektološki simpoziji, Medicinski razgledi. Ljubljana, v l. 1995-2016
- Gorišek-Reberšek J. in sod. Bedjaničevi simpoziji, SB Maribor, Maribor, v l. 1997-2016
- Lešničar G., Infektološki Lešničarjev simpozij, Laško 2012
- E-gradivo: Gorišek Miksić Nina: Covid-19
- E-gradivo: Gorišek Miksić Nina: Preprečevanje okužbe z virusom SARS-CoV-2: aktivna in pasivna zaščita

Cilji in kompetence:

Študent pri pouku spoznava epidemiološke, patofiziološke, etiopatogenetske in klinične značilnosti infekcijskih bolezni, lastnosti povročiteljev (patogenost, virulenca, itd.) in gostiteljev (dovzetnost, nagnjenost, itd.) ter njihove medsebojne odnose. Spozna in zna razlikovati bolezenska dogajanja pri različnih patogenetskih oblikah infekcijskih bolezni, (tako lokalnih, kot sistemskih). Seznan se s posebnostmi anamneze in klinične preiskave pri infekcijskih boleznih, mikrobiološkim in serološkim dokazovanjem povzročiteljev, osnovami racionalne uporabe antibiotikov, kemo- in imunoprofilakse ter z aktualnim epidemiološkim stanjem infekcijskih bolezni pri nas in v svetu. Tako razume bolezenska dogajanja in je sposoben samostojno ocenjevati načine preprečevanja in zdravljenja teh bolezni. Študent razume in opazuje pandemijo covida-19.

Objectives and competences:

Students learn about epidemiological, patho-physiological, etio-pathogenetic and clinical characteristics of infectious diseases, causative agent (pathogenic potential, virulence, etc.) and host (susceptibility, inclination, etc.) properties and their interrelations. They learn to distinguish between different pathogenetic forms of infectious diseases (local as well as systemic). They get acquainted with specificity of anamnesis and clinical examination in infectious diseases, microbiological and serological verification of causative agents, basics of rational use of antibiotics, chemo- and immunoprophylaxis, and with current epidemiological situation in the area of infectious diseases in the country and abroad. Thus, they understand pathological occurrences and are able to independently consider possible preventive measures and treatment of these diseases. Students learn about covid-19 pandemic and is actively observing the course of the pandemic.

Predvideni študijski rezultati:

Znanje in razumevanje:

- prepoznavanje klinične slike
- uvajanje diagnostičnih preiskav
- diferencialno-diagnostična presoja
- zdravljenje bolezni

Prenesljive/ključne spretnosti in drugi atributi:

- poznavanje osnovnih higienskih principov
- obvladovanje antibiotične profilakse in zdravljenja

Intended learning outcomes:

Knowledge and Understanding:

- recognition of clinical picture
- implementation of diagnostic investigations
- differential-diagnostic evaluation
- treatment of diseases

Transferable/Key Skills and other attributes:

- knowledge of the basic principles of hygiene
- knowledge of antibiotic prophylaxis and treatment

Metode poučevanja in učenja:

- predavanja z avdio-vizuelno podporo
- seminarji
- klinične vaje

Learning and teaching methods:

- lectures with audio-visual support
- seminars
- clinical work

Delež (v %) /

Načini ocenjevanja:

Share (in %)

Assessment methods:

- opravljen kolokvij je pogoj za pristop na izpit

100 %

Passing the colloquium is a prerequisite for taking the exam

- pisni izpit

- written examination

ŠTUDIJSKE OBVEZNOSTI ŠTUDENTOV: predavanja in seminarji POGOJI ZA PRISTOP K POSAMEZNEMU PREVERJANJU ZNANJA: opravljeni seminarji in prisotnost na predavanjih	50% prisotnost na predavanjih 80% prisotnost na seminarjih in vajah	ACADEMIC OBLIGATIONS OF STUDENTS: lectures and coursework REQUIREMENTS FOR ACCESS TO INDIVIDUAL KNOWLEDGE CHECKING: completed coursework assignments and attendance at lectures
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Reference nosilca / Course coordinator's references:

1. HORVAT, Matjaž, ROBNIK, Barbara, BIZJAK, Katarina, VUZEM, Sanja, GORIŠEK MIKSIČ, Nina. Audit of post-splenectomy prophylaxis in a single tertiary center in Slovenia : where are we and what should be done?. *Surgical infections*, ISSN 1557-8674, 2021, vol. 22, no. 3, str. 292-298. <https://doi.org/10.1089/sur.2020.038>, <https://www.liebertpub.com/doi/10.1089/sur.2020.038>, doi: [10.1089/sur.2020.038](https://doi.org/10.1089/sur.2020.038). [COBISS.SI-ID [37859843](https://www.cobiss.si/id/37859843)]
2. PERC, Matjaž, GORIŠEK MIKSIČ, Nina, SLAVINEC, Mitja, STOŽER, Andraž. Forecasting COVID-19. *Frontiers in physics*, ISSN 2296-424X, Apr. 2020, vol. 8, art. no. 127, str. 1-5. <https://dk.um.si/lzpisGradiva.php?id=78160>, doi: [10.3389/fphy.2020.00127](https://doi.org/10.3389/fphy.2020.00127). [COBISS.SI-ID [25194760](https://www.cobiss.si/id/25194760)]
3. GORIŠEK MIKSIČ, Nina, KLJAIČ-DUJIC, Milka, REJC-MARKO, Jana, VORŠIČ, Matjaž, BUT, Igor. Bacteroides fragilis sacral spondylodiscitis and epidural abscess after sacrocolpopexy : a case report and literature review. *JIMR on-line*, ISSN 1473-2300, 2019, vol. 47, iss. 9, str. 4568-4574, ilustr. <https://journals.sagepub.com/doi/pdf/10.1177/0300060519866270>, doi: [10.1177/0300060519866270](https://doi.org/10.1177/0300060519866270). [COBISS.SI-ID [6761023](https://www.cobiss.si/id/6761023)]
4. ANTONIČ, Miha, DJORDJEVIĆ, Anže, JURIČ, Peter, PIRNAT, Maja, GORIŠEK MIKSIČ, Nina. Mycoplasma hominis ascending aortic graft infection successfully treated with graft preservation using negative pressure wound therapy with instillation and dwell time. *Wounds*, ISSN 1943-2704, Dec. 2020, vol. 32, no. 12, str. E67-E70, ilustr. <https://www.woundsresearch.com/article/mycoplasma-hominis-ascending-aortic-graft-infection-successfully-treated-graft-preservation>. [COBISS.SI-ID [44335363](https://www.cobiss.si/id/44335363)]