MEDICAL UNIVERSITY
"Prof. Dr. Paraskev Stoyanov" - Varna

FACULTY OF DENTISTRY

FC 01/12.2021г. №43

APPROVED BY:
DEAN_____
(Prof. St. Peev, MD, PhD, MSc)

CURRICULUM ON HYGIENE AND EPIDEMIOLOGY

for students of Dental medicine

Specialty "DENTAL MEDICINE"

Degree "MASTER"

Professional qualification "Master in Dental medicine"

Activities	Semester	Weekly hours	Total hours
Lectures	**VI**	**2**	**38**
Practice seminars	**VI**	**2**	**22**
Total hours			**60**
Extracurricular workload – total hours			**60**
Evaluation	**Tests**		**Final exam – VI semester**
Credits (ECTS)			3

Lecturers: Assoc. Prof. Tsonko Paunov, MD, PhD
Assoc. Prof. Rouzha Pancheva, MD, PhD
Dr Stanislava Hadzhieva, MD, PhD
Dr Rozalina Brajkova, MD
Dr. Miglena Kolarova, MD, PhD
Dr. Dimitar Marinov, MD, PhD
Dr. Hikaru Iwata, MD

Varna, 2021

ANNOTATION

The curriculum in hygiene and epidemiology is oriented towards teaching multidisciplinary knowledge, skills, and competencies necessary for the practical activity of dentists in the field of health prevention. The training of students is based on the situational approach. It follows the specific requirements of the speciality in the field of preventive medicine and the current problems of modern hygiene and epidemiology. The curriculum covers the main areas of hygiene and epidemiology. Environmental and health issues, hospital hygiene, nutrition and health, occupational medicine, applied ergonomics, theoretical and applied epidemiology are included. An essential part of the lecture course and practical exercises is dedicated to the questions from the module on hygiene, related to the health norms and requirements to the devices, equipment, and hygienic-technical facilities of the outpatient clinics for primary and specialized dental care, specialized wards and hospitals for oral and facial maxillofacial surgery, risk assessment at the workplace of the dentist, etc. The influence of certain environmental and occupational factors on the pathology of the oral cavity and the relationship between nutrition and dental health is considered. The environmental, landscape, and spatial epidemiology and the epidemiology of emerging and recurrent infections (emerging diseases) are also presented in the curriculum. Applied epidemiology covers issues of decontamination, susceptibility management with immunoprophylaxis, epidemiology and prevention of infections of the respiratory tract, intestinal, blood-borne (AIDS, viral hepatitis C, B, D), and infectious diseases related to medical care (HCAI - HAI; NCI). Implementation of epidemiological control in the conditions of dental practice is included. The teaching covers modern concepts and principles of the considered problems, the new normative documents in the field of the State Health Control. The curriculum is adapted to the speciality, complies with other disciplines, and meets the state requirements for training in hygiene and epidemiology.

FORMS OF TEACHING, CONTROL AND ASSESSMENT

Form of teaching – lectures, practical exercises and seminars.

Form of control - continuous assessment (tests), semestrial examination in Hygiene and Epidemiology at the end of the 6th semester.

Criteria for assessment:

- Excellent (6): Independent orientation of the student in the recommended literature on the specific topic. Original interpretation and logical presentation of the topic. Adequate conclusions on the specific topic.
- Very good (5): Independent orientation of the student in the recommended literature on the specific topic. A correct interpretation, adequate conclusions on the specific topic.
- Good (4): Independent orientation of the student in the recommended literature on the specific topic. Correct interpretation.
- Intermediate (3): Orientation of the student in the recommended literature on the specific topic.

OUTLINE OF LECTURES, PRACTICAL EXERCISES AND SEMINARS

Lectures:

1. Disease prevention and dental health. Hygiene as a basic preventive discipline. Modern environmental and health problems related to air pollution. Prevention of air pollution. **2 hours**

2. Hygienic and environmental problems of settlements. Urbanization - health effects and emerging risks. Physical risk factors in the community environment and their impact on human health. **2 hours**

3. Importance of water for human health. Continuous monitoring of drinking water. Diseases related to the chemical composition and bacterial contamination of drinking water. Public health approaches to disease and caries prevention. **2 hours**

4. Healthy eating - a preventive factor for dental health (basic requirements, physiological norms, modern concepts). Alimentary prevention of oral and dental diseases. **2 hours**

5. Healthy eating in mental work. Eating disorders. **2 hours**

6. Working conditions of the dentist - factors of the occupational process and the working environment. Workplace risk assessment. Prevention of occupational diseases in dental practice. Occupational health services - components and functions. **2 hours**

7. Applied ergonomics in dental medicine - basic principles and requirements. Prevention of musculoskeletal injuries in dental practice. **2 hours**

8. Physical and biological agents in the working environment of the dentist. **2 hours**

9. Toxic agents, dust, and nanomaterials in the working environment of the dentist. **2 hours**

10. Healthy lifestyle and its importance for disease prevention and promotion of dental health. **2 hours**

11. Introduction in epidemiology. Historical and logical formation and development of epidemiological knowledge. Relationship of epidemiology with other sciences. Definitions, subject, and methods of epidemiology. Theory of the epidemic process - main elements. The source of infection - the first element in the epidemic process. Sources of infection by anthroponoses, zoonoses, and sapronoses. **2 hours**

12. The process mechanism of transmission of the infection - biological conditioning, phases, types, factors of transmission. Modern aspects of the transmission mechanism. Epidemiological classification of infectious diseases. **2 hours**

13. The susceptibility of the population - the third element of the epidemic process. Susceptibility management - tools, methods, organization. Specific immunoprophylaxis - nature and significance. Bioproducts for active and

passive immunoprophylaxis - characteristics, methods of application, requirements. Immunization calendar/ schedule. Evaluation of the prophylactic effectiveness of the immunizations - successes and problems.

2 hours

14. Driving forces of the epidemic process. Social and natural factors. Forms of the epidemic process and the types of epidemics. Theoretical foundations and applied epidemiology in infection management (eradication and elimination). **2 hours**

15. Diseases subject to international health regulation. Highly dangerous infections. Epidemiological surveillance and control. The problem emerging (emergent) infections. Bioterrorism. Health control and border protection. **2 hours**

16. Healthcare-associated Infections (HAI) - definition, specifics of the epidemic process, risk factors, classification. Etiology of HAI - problematic microflora. Significant HAI. Principles of epidemiological surveillance, international control programs. Applied epidemiology - medical standard for prevention and control of HAI in dental medicine. **2 hours**

17. Disinfection, disinsection, and deratization - definitions, terminology, means, and methods. Applied epidemiology of decontamination in dental practice. **2 hours**

18. Features of the epidemic process, epidemiological control and prevention of respiratory infections - measles, mumps, rubella, scarlet fever, influenza, diphtheria, whooping cough, epidemic meningitis. Measures for epidemiological control in the epidemic focus and dental practice. **2 hours**

19. Features of the epidemic process, epidemiological control and prevention of infections of covers and mucosa, blood-borne infections and infections with multiple transmission mechanisms (viral hepatitis B, C, D and HIV / AIDS). Tropical medicine. Measures for epidemiological control in the epidemic focus and dental practice. **2 hours**

20. Features of the epidemic process, epidemiological control and prevention of intestinal infections - dysentery, salmonellosis, enterocolitis, polio, viral hepatitis A and E. Measures for epidemiological control in an epidemic focus and in the dental practice. **2 hours**

Practical Lessons and Seminars:

1. Health norms and requirements to drinking water quality. Fluoride prevention of dental caries. Situational tasks. **2 hours**

2. Dietary requirements for children and students. Nutritional in various physiological conditions (pregnancy and lactation). Alimentary prevention of diseases of the hard dental tissues (dental caries, dental erosion). Evaluation of the daily menu and compilation of a set of food and beverages with a caries-protective focus. Situational tasks. **2 hours**

3. Assessment methods for physical development, physical capacity, and health status of children and students. Situational tasks. Test 1.

2 hours

4. Assessment of the hygienic and technical facilities in the outpatient clinics for primary and specialized dental care and the wards for oral and maxillofacial surgery. Microclimate as a factor of the working environment - a comprehensive assessment of its impact on the human body. Situational tasks. **2 hours**

5. Psychophysiological methods and indicators for assessing working capacity and fatigue in modern forms of work. Fatigue prevention. Physiological regimes of work and rest. Situational tasks. **2 hours**

6. Workplace risk assessment. Occupational-physiological and ergonomic characteristics of the profession of a dentist. Ergonomic evaluation of the working posture. Situational tasks. Test 2. **2 hours**

7. Organization of surveillance of infectious diseases in the Republic of Bulgaria - structure, tasks, and problems. International cooperation for control and prevention of threats to human health of microbial nature - WHO and ECDC.

Epidemiological study in the focus of acute infectious disease - nature, objectives and stages. Anti-epidemic and prophylactic measures related to the patient, contact people and the environment. Applied epidemiology: work in an epidemic focus, filling in epidemiological documentation - notification, alert, checklist for epidemiological study, accounting and reporting forms. **2 hours**

8. Epidemiological study in the focus of intestinal infections - organization and implementation of anti-epidemic and prophylactic measures. Surveillance of the epidemic focus. Applied epidemiology: Features of the epidemiological study in the epidemic focus of shigellosis, salmonellosis, Coli enteritis, enterocolitis. Epidemiological study of patients with acute viral hepatitis.

2 hours

9. Epidemiological study in the focus of respiratory infections - organization and implementation of anti-epidemic and prophylactic measures. Specific immunoprophylaxis - types of immunizations, planning and organization of conduct. Applied epidemiology: Features of the epidemiological study in the focus of chickenpox, measles, mumps, rubella, diphtheria, pertussis, scarlet fever, influenza, staphylococcal infections, meningococcal infections, legionellosis. Bioproducts for immunoprophylaxis - types, methods of application, storage requirements. Postvaccinal reactions and complications. Immunization calendar/schedule of the Republic of Bulgaria. documentation and reporting forms. **2 hours**

10. Disinfection - definition, types, methods - physical and chemical. Asepsis and antiseptics. Sterilization. Control methods. Main groups of chemical disinfectants - properties, forms and methods of application. High-level disinfection. Applied Epidemiology: Introduction to the principles of operation of sterilization equipment. Preparation of disinfectant solutions and methods of application. Work of the Central Unit for Supply of Sterile Materials (CUSSM).

2 hours

11. Epidemiological study in the focus of blood (transmissible) infections and infections of covers and mucosa - organization and implementation of anti-epidemic and prophylactic measures. Applied Epidemiology: Epidemiology and post-exposure prophylaxis of blood-borne (HIV / AIDS, viral hepatitis type B, C and D, CCHF) and covers infections (anthrax, tetanus, rabies). **2 hours**

SYLLABUS

1. Types of disease prevention and their relation to dental health. Hygiene as a basic preventive discipline - subject, meaning, and relationship with other sciences. Environmental problems.
2. Air pollution - sources, classification of atmospheric pollutants, conditions affecting air pollution.
3. Modern environmental problems related to air pollution.
4. Health problems from the direct impact of air pollutants. Prevention of air pollution.
5. Hygienic and environmental problems of the settlements. Urbanization - health effects and emerging risks. Physical risk factors in the community environment and their impact on human health
6. Importance of water for human health. Drinking water monitoring - purpose, types, health requirements for drinking water.
7. Continuous monitoring of drinking water - purpose, characteristics of indicators, health standards, and evaluation.
8. Diseases related to the chemical composition of drinking water - characteristics of the main groups of diseases. Public health approaches for fluoride prevention of dental caries.
9. Epidemiological role of water for the spread of infectious diseases. Prevention of anthropogenic pollution of drinking water sources. Environmental laws.
10. Types of healthcare facilities. Health norms and requirements to the healthcare facilities for outpatient dental care. Hygienic and technical facilities.

11. Health norms and requirements to the specialized healthcare facilities - surgical department (clinic, hospital) for oral and maxillofacial surgery and operating theaters. Hygienic and technical facilities.

12. Modern forms of work. Physiological changes in the body during mental work. Characteristics of the factors of the working process in dentists.

13. Working capacity, fatigue. Prevention.

14. Working conditions of the dentist - physical risk factors and biological agents in the working environment of the dentist.

15. Applied ergonomics in dental medicine.

16. Physiological and ergonomic characteristics of the profession of the dentist - labor-physiological assessment of the risk of working posture.

17. Toxic agents in the working environment of the dentist.

18. Dust and nanomaterials as a risk factor of the working environment in dental practice.

19. Microclimate - health norms and requirements to microclimate factors. Basic types of microclimates in the work environment. Physiological methods for complex assessment of the impact of microclimate factors on the human body. Prevention of adverse effects.

20. Risk assessment at the workplace of the dentist. Occupational health services.

21. Occupational sensitization and intoxications related to dental practice. Prevention.

22. Current problems of nutrition.

23. Healthy eating - basic principles, requirements, physiological norms.

24. Healthy eating - a preventive factor for dental health. Alimentary prophylaxis of oral diseases.

25. Healthy eating during pregnancy and lactation. Alimentary prophylaxis of the dental health of pregnant and lactating women. Healthy eating for children and students. Healthy eating in mental work.

26. Healthy eating in old age and senility.

27. Alternative eating patterns.

28. Eating disorders.

29. Healthy lifestyle and its importance for disease prevention.

30. Age periodization in childhood. School age-specific diseases - current trends in the structure of non-communicable diseases. Basic principles of prevention.

31. Physical development and physical capacity - physiological significance, methods, and indicators for assessment. Calendar and biological age. Secular trend.

32. Formation and development of epidemiological knowledge. Relationship of epidemiology with other sciences. Subject, methods and tasks of epidemiology.

33. Epidemic process. Forms of manifestation. Seasonality and cyclicity.

34. Source of infection. Types of sources. Anti-epidemic measures against the source.

35. Mechanisms of transmission of infection. Roads and transmission factors. Anti-epidemic measures to interrupt the transmission mechanism.

36. General preventive and basic anti-epidemic measures. Measures in the epidemic focus to the patient, contact people and surrounding environment.

37. Susceptibility and nonsusceptibility from an epidemiological point of view. Types of immunity. Immunoprophylaxis. Immunization calendar/schedule.

38. Natural and social factors and their influence on the epidemic process.

39. Epidemiological classification of infectious diseases. Types of epidemics. Anti-epidemic and prophylactic measures in food, water, and other epidemics.

40. Liquidation of acute communicable diseases. General and specific requirements for eradication and elimination. Criteria for proven eradication.

41. Epidemiological surveillance of infectious diseases in the Republic of Bulgaria. International health requirements in the fight against
acute communicable diseases

42. Disinfection – definition, concepts, methods. Types of disinfection. Requirements for disinfectants. Disinfection methods: biological, mechanical, physical.

43. Chemical method of disinfection. Definition, requirements for biocides. Classification of biocidal products. Monitoring and quality control of disinfection.

44. Disinfection in medical practice. Infectious risk assessment. Choice of decontamination method. Hand disinfection. Monitoring and quality control of disinfection.

45. Sterilization - definition. Methods for sterilization of medical devices. Sterilization quality control. Central Unit for Supply of Sterile Materials (CUSSM).

46. Healthcare-associated Infections (HAI) - definition, specific features. Classification. Epidemic process in HAI. Etiology and problematic microorganisms. Significant HAI. Organization of epidemiological surveillance.

47. Epidemic process in rubella, measles, mumps. Anti-epidemic measures in the epidemic focus.

48. Epidemic process in scarlet fever, chickenpox, epidemic meningitis. Anti-epidemic measures in the epidemic focus.

49. Epidemic process in diphtheria, whooping cough. Anti-epidemic measures in the epidemic focus.

50. Epidemic process in influenza. Anti-epidemic measures in the epidemic focus.

51. Epidemic process in intestinal infections - shigellosis, salmonellosis and infections caused by E. coli. Anti-epidemic measures in the epidemic focus.

52. Epidemic process in viral hepatitis type A and E. Anti-epidemic measures in the epidemic focus.

53. Epidemic process in viral hepatitis type B, C, D. Post-exposure prophylaxis in medical practice.

54. Epidemic process in HIV/AIDS. Post-exposure prophylaxis in medical practice.

55. Tick-borne infections - Mediterranean spotted fever and Lyme disease. Anti-epidemic measures.

56. Viral tick-borne infections - Crimean Congo hemorrhagic fever and Hemorrhagic fever with renal involvement

57. Diseases subject to international health control: cholera, plague, yellow fever. Anti-epidemic measures in the epidemic focus and prevention.

58. Epidemic process in infections of covers and mucosa - anthrax, tetanus, and rabies. Prophylactic and anti-epidemic measures.

RECOMMENDED SOURCES:

1. Lectures and Practice lessons presentations in Blackboard
2. Hygiene and medical ecology. Textbook and handbook for pharmacy students. Edited by prof. P. Gatzeva. Plovdiv 2018
3. Environmental health, Dade W. Moeller, Harvard University Press, Third edition, 2005
4. Air Quality Guidelines – Global Update 2005. WHO Regional Office for Europe, 2006
5. Children's health and the environment, WHO, Geneva, 2004
6. Oxford Handbook of Occupational Health, 2nd Edition. Oxford University Press, 2013
7. Prevention of hospital-acquired infections. A practical guide, 2nd Edition. Ed. by G. Ducel, J. Fabry, L. Nicolle. WHO, 2002
8. Environmental health, Dade W. Moeller, Harvard University Press, Third edition, 2005
9. http://www.who.int/en/
10. http://epp.eurostat.ec.europa.eu/portal/page/portal/eurostat/home/
11. http://www.eea.europa.eu/
12. http://www.espen.org/useful-links

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Approved by a decision of the Council of the Faculty of Dental Medicine, Protocol №

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