

**SYLLABUS OF THE EDUCATIONAL COMPONENT
EPIDEMIOLOGY IN DENTAL PRACTICE**

(title of the educational component)

Specialty: 221 «Dentistry»
Educational and professional program: Dentistry
Component code in the educational program: _EC 50
Higher education level: _ the second (master's degree)
Form of education: _ full-time _____
Year of study: __4
Semester(s): __VIII _____
Type of educational component: _ elective _____
Academic year: **2027-2028**

Volume: **_3,0_ credits ECTS (90 hours)**
Training sessions: practical, consultations
Final control: credit
Prerequisites: _ **MC 9** Philosophy, **MC 10** Life safety. Fundamentals of bioethics and biosafety. Occupational safety in the industry
MC 15 Microbiology, Virology and Immunology **MC 32** Epidemiology **EC 48** Basics of infection control in dentistry

Department/Unit: _Epidemiology Department 12 Trinkler Street, 3rd Floor of the Red Building
Head of the educational component: __Viktoriia Makarova
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(Full name and email of the teacher responsible for the content of the educational component)

Page of the educational component in the Distance Learning System of KhNMU (Moodle):
<https://distance.knu.edu.ua/course/view.php?id=662>

(link to the page of the educational component in the Distance Learning System of KhNMU)

DESCRIPTION OF THE EDUCATIONAL COMPONENT*Brief description of the content of the subject*

This discipline systematizes knowledge on the epidemiology, prevention, and control of infections transmitted by the aerosol mechanism, taking into account the specific characteristics of dental care delivery to the population.

Aerosol-transmitted infections are among the most widespread diseases worldwide. They are characterized by wide distribution, an easy mechanism of pathogen transmission, relevance for all age groups, and a tendency to cause outbreaks, epidemics, and, for some infections, pandemics.

The medical and social significance of aerosol infections is determined by the high incidence rate, the possibility of epidemic and pandemic spread, severe or chronic disease course, fatal outcomes, and the emergence of resistance and multidrug resistance in certain pathogens (e.g., tuberculosis). In addition, these infections create a significant economic burden and increase the workload on healthcare systems during epidemic and/or pandemic spread.

PURPOSE OF THE COURSE: The objective of the course is to develop students' knowledge of the patterns of the epidemic process of aerosol infections and modern technologies for the prevention of these diseases in healthcare facilities providing dental care.

LEARNING OUTCOMES: (*in a language understandable to applicants*)

Upon completion of the course, students will be able to:

1. understand the epidemiological characteristics of aerosol-transmitted infections;
2. understand the principles of prevention and control of aerosol infections;
3. understand the principles of organizing anti-epidemic measures in outbreaks of aerosol infections;
4. understand the main principles of infection control for aerosol-transmitted infections in dental healthcare facilities;
5. know the rules for selecting and using personal protective equipment (PPE) and be able to properly put on and remove PPE;
6. know the rules and best practices of hand hygiene and perform proper hand hygiene procedures;
7. organize and conduct primary anti-epidemic measures in outbreaks of aerosol infections (diphtheria, meningococcal infection, measles, pertussis, influenza, COVID-19).

CONTENT OF THE EDUCATIONAL COMPONENT**List of lecture topics (_0_ hours):**

Lectures are not conducted

List of topics of practical / laboratory classes / seminars (__20_ hours):

1. Epidemiological characteristics of aerosol-transmitted infections.
2. Features of the epidemic process of aerosol infections.
3. Quantitative and qualitative manifestations of the epidemic process of aerosol infections. The concepts of epidemic and pandemic.
4. Principles of organization and implementation of anti-epidemic and preventive measures, including during public health emergencies and in conditions of military actions.
5. Viral infections transmitted via the aerosol mechanism: relevance, current problems, and threats to public health (COVID-19, influenza, acute respiratory infections).
6. Basic principles of anti-epidemic and preventive measures in outbreaks of measles, rubella, mumps, influenza, respiratory syncytial infection, COVID-19, and mpox.
7. Bacterial infections transmitted via the aerosol mechanism: relevance, current problems, and threats to public health.
8. Basic principles of anti-epidemic and preventive measures in outbreaks of tuberculosis, diphtheria, meningococcal infection, pertussis, and scarlet fever.
9. Principles of infection control for aerosol-transmitted infections in dental healthcare facilities.
10. Principles of ensuring personal safety of healthcare workers and patient safety when providing medical care to patients with signs of aerosol infections.
11. Credit.

List of topics of independent work of the student (_70_ hours)

1. Relevance of infections transmitted by the aerosol mechanism.
2. Medical, social, and economic significance of aerosol infections.
3. Epidemiological characteristics of aerosol-transmitted infections.
4. Features of the epidemic process of aerosol infections. Quantitative and qualitative manifestations of the epidemic process. The concepts of epidemic and pandemic.
5. Viral infections transmitted by the aerosol mechanism: relevance, current problems, and threats to public health.
6. Coronavirus infection (COVID-19): etiology, biological characteristics of the pathogen, sources of infection, mechanisms and routes of transmission, susceptibility and immunity, principles of prevention.
7. Influenza and acute respiratory infections: etiology, biological characteristics of pathogens, sources and routes of transmission, prevention.
8. Bacterial aerosol infections: etiology, biological characteristics of pathogens, sources and routes of transmission, susceptibility and prevention.
9. Anti-epidemic and preventive measures in outbreaks of tuberculosis, diphtheria, meningococcal infection, pertussis, and scarlet fever.
10. Anti-epidemic and preventive measures in outbreaks of measles, mumps, rubella, varicella, and infectious mononucleosis.
11. Organization of anti-epidemic and preventive measures in outbreaks of aerosol infections, including during emergencies and wartime conditions.
12. Preparation for the final assessment. **Consultations:** online by prior arrangement with the department lecturer using the corporate email of the lecturer/Department of Epidemiology of KhNMU

Teaching methods: practical work, solving situational tasks and cases, narrative explanation, conversation, discussion, presentation, educational videos.

EVALUATION

Current Learning Activities (CLA). Assessment of the success of education seekers is carried out in accordance with the Instructions for assessing the educational activities of higher education seekers at KhNMU (https://knmu.edu.ua/doc_block_type/instrukczyi-navchalnogo-proczesu/)

Grades for practical classes are given according to the traditional 4-point system: “excellent”, “good”, “satisfactory” or “unsatisfactory” in accordance with the criteria for assessing knowledge and skills. Submission of assignments late for unwarranted reasons entails a reduction in the grade in accordance with the percentage of delay in time from the time of completing the assignment. Assignments are checked within 24 hours. Grades are given in the electronic journal. Unsatisfactory grades are worked out in accordance with the Regulations on the procedure for working out academic classes by students of KhNMU (chrome-extension://efaidnbmnnnibpcajpcglclefindmkaj/https://knmu.edu.ua/wp-content/uploads/2021/05/pol_por-vidprac-zaniat.pdf).

At the end of the semester, the semester average grade is converted into a multi-point grade (120 – 200 points) in accordance with Table 2 of the Assessment Instructions (see above). The arithmetic average of the PND with the addition of points for completed individual tasks (performed at will) constitutes the total learning activity (TLA).

Individual tasks (IT) are evaluated up to 10 points. Individual student tasks (hereinafter referred to as ITS) are not a mandatory element, but if the student wishes, they can be completed and are evaluated in ECTS points (no more than 10), which are added to the sum of points scored for current educational activities. At the meeting of the department, a list of individual tasks (participation with reports in student conferences, specialized Olympiads, preparation of analytical reviews with presentations with plagiarism check) was approved, specifying the number of points for their completion, which can be added as incentives.

Final control. Credit

Grade in subject (GS). $GS=CLA+IT$

Appealing the results of the final control is carried out in accordance with the procedure established in KhNMU (https://knmu.edu.ua/wp-content/uploads/2021/05/polog_apel_kontrol.pdf).

POLICIES OF THE EDUCATIONAL COMPONENT

Recommendations for working on the course: take an active part in all forms of work in classes, devote the hours allocated for independent work, to completing the necessary tasks, namely, "Analysis of a scientific publication", "Analysis of the incidence of a certain infectious disease" to preparing for classes, ask questions during classes, attend consultations, submit assignments on time and perform all forms of control. Explanations regarding the completion of tasks assigned to the applicant's independent work are provided by the teacher in the 1st class.

Attendance at classes. Attendance at lectures and practical classes is mandatory. The dress code during offline classes is a medical gown. If you are more than 5 minutes late, you may not be allowed to class. Missed classes are made up in accordance with the Regulations on the procedure for completing classes by students of KhNMU (https://knmu.edu.ua/wp-content/uploads/2021/05/polog_ad-1.pdf)

Academic integrity. KhNMU stands on the positions of zero tolerance to manifestations of academic dishonesty. Any violations of the principles of academic integrity entail responsibility in accordance with the procedure established by KhNMU (https://knmu.edu.ua/wp-content/uploads/2021/05/polog_ad-1.pdf).

Use of electronic gadgets and artificial intelligence tools. allowed for educational activities, subject to teacher permission.

Policy on persons with special educational needs. Applicants with special educational needs should contact a teacher to develop an individual educational trajectory.

Teacher Response Time: 24 hours.

Technical requirements for the course:

- access to a computer, laptop, tablet or smartphone
- Corporate Google account with your own photo

- skills in working with Google Workspace (Google Meet, Docs, Sheets, Slides, Forms) and Moodle

Technical support: ASM (ev.shevtsov@knu.edu.ua), Google (tehotdelknu@gmail.com), Moodle (al.korol@knu.edu.ua)

RECOMMENDED SOURCES

1. World Health Organization. *Infection Prevention and Control of Epidemic- and Pandemic-Prone Acute Respiratory Infections in Health Care*. Geneva : WHO, 2020. URL: <https://www.who.int/publications/i/item/9789241507134> (accessed: 11.03.2026).
2. World Health Organization. *WHO Guidelines on Hand Hygiene in Health Care*. Geneva : WHO, 2020. URL: <https://www.who.int/publications/i/item/9789241597906> (accessed: 11.03.2026).
3. World Health Organization. *Infection Prevention and Control during Health Care when Coronavirus Disease (COVID-19) is Suspected or Confirmed*. Geneva : WHO, 2022. URL: <https://www.who.int/publications/i/item/WHO-2019-nCoV-IPC-2022.1> (accessed: 11.03.2026).
4. World Health Organization. *Global Tuberculosis Report*. Geneva : WHO, 2023. URL: <https://www.who.int/teams/global-tuberculosis-programme/tb-reports> (accessed: 11.03.2026).
5. Centers for Disease Control and Prevention. *Guidelines for Infection Control in Dental Health-Care Settings*. Atlanta : CDC, 2020. URL: <https://www.cdc.gov/dental-infection-control/index.html> (accessed: 11.03.2026).
6. Centers for Disease Control and Prevention. *Guidelines for Environmental Infection Control in Health-Care Facilities*. Atlanta : CDC, 2020. URL: <https://www.cdc.gov/infectioncontrol/guidelines/environmental/index.html> (accessed: 11.03.2026).
7. Centers for Disease Control and Prevention. *Interim Infection Prevention and Control Recommendations for Healthcare Personnel during the Coronavirus Disease (COVID-19) Pandemic*. Atlanta : CDC, 2023. URL: <https://www.cdc.gov/coronavirus/2019-ncov/hcp/infection-control-recommendations.html> (accessed: 11.03.2026).
8. European Centre for Disease Prevention and Control. *Infection Prevention and Control and Preparedness for COVID-19 in Healthcare Settings*. Stockholm : ECDC, 2021. URL: <https://www.ecdc.europa.eu/en/publications-data> (accessed: 11.03.2026).
9. European Centre for Disease Prevention and Control. *Guidance for Prevention and Control of Tuberculosis in Healthcare Settings*. Stockholm : ECDC, 2022. URL: <https://www.ecdc.europa.eu/en/publications-data> (accessed: 11.03.2026).
10. Centers for Disease Control and Prevention. *Guidelines for Environmental Infection Control in Health-Care Facilities: Airborne Contaminants and Ventilation*. Atlanta : CDC, 2020. URL: <https://www.cdc.gov/infectioncontrol/guidelines/environmental/air.html> (accessed: 11.03.2026).
11. World Health Organization. *Roadmap to Improve and Ensure Good Indoor Ventilation in the Context of COVID-19*. Geneva : WHO, 2021. URL: <https://www.who.int/publications/i/item/9789240021280> (accessed: 11.03.2026).
12. World Health Organization. *Natural Ventilation for Infection Control in Health-Care Settings*. Geneva : WHO, 2020. URL: <https://www.who.int/publications/i/item/9789241549950> (accessed: 11.03.2026).
13. Centers for Disease Control and Prevention. *Ventilation in Buildings*. Atlanta : CDC, 2023. URL: <https://www.cdc.gov/coronavirus/2019-ncov/community/ventilation.html> (accessed: 11.03.2026).

14. Peng X., Xu X., Li Y., Cheng L., Zhou X., Ren B. Transmission routes of respiratory viruses in the dental clinic and prevention strategies. *International Journal of Oral Science*. 2020. Vol. 12. Article 9. DOI: <https://doi.org/10.1038/s41368-020-0075-9>.

Head of Department of Epidemiology

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