The problem of hospital acquired infections. Rational antibiotic therapy in physician practice. Problem zakażeń szpitalnych. Racjonalna antybiotykoterapia w praktyce lekarza.

1. IMPRINT

Academic Year	2025/2026
Department	Faculty of Medicine
Field of study	Medicine
Main scientific discipline	Medical sciences
Study Profile	General academic
Level of studies	Uniform MSc
Form of studies	Full time studies, asynchronous e-learning
Type of module / course	Non-compulsory (optional)
Form of verification of learning outcomes	Completion
Educational Unit / Educational Units	Department of Medical Microbiology 5 Chałubińskiego Street 02-004 Warsaw, Poland (+48 22) 628 27 39 http://mikrobiologia.wum.edu.pl e-mail: mikrobiologia@wum.edu.pl
Head of Educational Unit / Heads of Educational Units	Prof. Hanna Pituch
Course coordinator	Beata Sokół-Leszczyńska, M. Sc., Ph. D. beata.sokol-leszczynska@wum.edu.pl
Person responsible for syllabus	Beata Sokół-Leszczyńska, M. Sc., Ph. D.
Teachers	Piotr Leszczyński, MD., Ph.D., Beata Sokół-Leszczyńska, M. Sc., Ph.D.

2. BASIC INFORMATION

Year and semester of studies	III-VI year, winter semester	**Number of ECTS credits**	2.00

FORMS OF CLASSES **Contacting hours with academic teacher**	**Number of hours**	**ECTS credits calculation**
Lecture (L)		
Seminar (S)	30 (e-learning)	1,20
Classes (C)		
e-learning (e-L)		
Practical classes (PC)		
Work placement (WP)		
Unassisted student's work		
Preparation for classes and completions	20	0,80

3. COURSE OBJECTIVES

O1	Providing knowledge about healthcare-associated infections, basic definitions, and classification of healthcare-associated infections.
O2	Providing knowledge about risk factors for healthcare-associated infections.
O3	Developing skills in planning actions to prevent the transmission of microorganisms in the hospital environment.
O4	Learning the principles of prevention and control of healthcare-associated infections.
O5	Learning the principles of rational antibiotic therapy and antibiotic policy in the hospital.
O6	Raising awareness of the importance of rational antibiotic therapy in infection prevention.
O7	Shaping an attitude of responsibility for the epidemiological safety of patients and healthcare staff.
O8	Discussing the principles of prevention and control of healthcare-associated infections.
O9	Developing skills in recognizing situations requiring patient isolation and the use of personal protective equipment.
O10	Shaping an attitude of responsibility for the epidemiological safety of patients and healthcare staff.
O11	Preparing for collaboration with the microbiology laboratory and the hospital infection control team.

4. STANDARDS OF LEARNING – DETAILED DESCRIPTION OF EFFECTS OF LEARNING

Code and number of the effect of learning in accordance with standards of learning	**Effects in the field of:** *(in accordance with appendix to the Regulation of Minister of Science and Higher education from 26th of July 2019)*
Knowledge – Graduate* knows and understands:	

C.W11.	genetic mechanisms of drug resistance developed by microorganisms and cancer cells;
C.W12.	microorganisms, focusing on pathogenic microorganisms and microorganisms present in the human microbiome;
C.W13.	epidemiological background of viral, bacterial, fungal and parasitological infections including the geographical distribution of microorganisms;
C.W14.	influence of abiotic and biotic environmental factors (viruses and bacteria) on the human body and the population of people and the ways of their penetration into the human body;
C.W18.	symptoms of iatrogenesis, the ways of its distribution and pathogens causing changes in particular organs;
C.W19.	basics of microbiological and parasitological diagnostics;
C.W20.	basics of disinfection, sterilisation and aseptic procedure;
C.W33.	external and internal pathogens, modifiable and non-modifiable;
C.W40.	problem of drug resistance and multi-drug resistance;
E.W32	basics of prevention and procedures in case of professional exposure to dangerous and harmful factors;
E.W33.	procedures in the case of detection of an infectious disease;
E.W34	causes, symptoms, diagnostics and therapy principles in the most common bacterial, viral, fungal and parasitic diseases, including pneumococcal diseases, viral hepatitis, AIDS, sepsis and nosocomial infections;
E.W39.	types of biological materials used in laboratory diagnostics and the principles of obtaining samples for microbiologic testing;
G.W3.	epidemiology of infectious and chronic diseases, methods of prevention at different stages of the disease natural history and the roles of epidemic surveillance;
Skills– Graduate* is able to:	
B.U17.	ways of communication between cells, as well as between the cell and the extracellular matrix and the pathways of transmitting signals in the cell and examples of disruption of these processes leading to cancer and other diseases:
C.U10.	interpret the results of microbiological tests;
C.U15.	design the schemes of reasonable chemotherapy of infections, empirical and targeted;
D.U15.	observe patient's rights;
E.U26.	plan next steps after the exposure to blood-transmitted infections;
F.U3	observe the rules of asepsis and antisepsis;
G.U2.	collect information about the presence of the factors of risk of infectious and chronic diseases and plan preventive actions at various levels of prevention;

** In appendix to the Regulation of Minister of Science and Higher education from 26th of July 2019 „graduate", not student is mentioned.*

5. ADDITIONAL EFFECTS OF LEARNING *(non-compulsory)*

Number of effect of learning	**Effects in the fields of:**

Knowledge – Graduate knows and understands:	
K1	
Skills– Graduate is able to:	
S1	
Social Competencies – Graduate is ready for:	
SC1	

6. CLASSES

Form of class	Class contents	Effects of Learning
e-learning	Introduction to hospital - acquired infections.	C.W11., C.W12., C.W13., C.W14., C.W18., C.W19., C.W20, C.W40., C.W33., E.W32, E.W33., E.W34., E.W39., G.W3., B.U17., C.U10., C.U15., D.U15., E.U26., F.U3, G.U2.
	Classification, epidemiology, and registration of hospital - acquired infections.	
	Risk of infections in selected hospital wards.	
	Registration of hospital - acquired infections.	
	Isolation and decontamination procedures.	
	The role of the microbiology laboratory in infection control.	
	Antibiotic prophylaxis and antibiotic therapy in hospital - acquired infections.	
	Rational antibiotic therapy.	
	Antibiotic stewardship.	
	Disinfection, sterilization, aseptic technique, and patient isolation.	
	Post-exposure management.	
	Hospital infection control teams – principles of operation.	
	Hospital-acquired infections – case studies.	

7. LITERATURE

Obligatory
Supplementary

8. VERIFYING THE EFFECT OF LEARNING

Code of the course effect of learning	Ways of verifying the effect of learning	Completion criterion

C.W11., C.W12., C.W13., C.W14., C.W18., C.W19., C.W20, C.W40., C.W33., E.W32, E.W33., E.W34., E.W39., G.W3., B.U17., C.U10., C.U15., D.U15., E.U26., F.U3, G.U2.	Students work individually on clinical cases (text descriptions, laboratory/imaging test results).	Quizzes, problem-solving exercises, asynchronous discussion
	Analysis of instructional videos (e.g., hygiene, isolation, etc.).	
	Analysis of problem-solving tasks and interpretation of clinical cases developed online.	
	On knowledge, skills, and social competencies, a 15-question test (single-choice, true-false) is provided.	>=50% + 1 point

9. ADDITIONAL INFORMATION

E-learning classes will be available in their entirety on the platform https://e-learning.wum.edu.pl/ from October 27th, 2025, to January 19th, 2026.
The minimum number of participants to start the course is 20, and the maximum is 50.
The course provides an understanding of the role of hospital infection control in modern medicine and the role of specialist microbiologists in this field. The knowledge contained in the course materials is systematically updated based on sources such as the ECDC (European Centre for Disease Prevention and Control), the CDC (Centers for Disease Control and Prevention, United States of America), the National Institute of Hygiene (PZH), and key scientific societies operating in Poland. The practical knowledge gained during the course allows students to understand the pathophysiology of one of the most serious complications of healthcare services, hospital - acquired infections, to effectively prevent them, and to actively combat them if they do occur. The issue of rational antibiotic therapy and antibiotic policy is discussed, as well as their role in infection therapy and control. The course also presents the legal aspects of hospital infections, including physician liability. For students who have not had any contact with medical microbiology, it will be a good foundation for understanding the role of this field in modern medicine, systematizing, and expanding their knowledge before the exam. For students who have completed their third year, it can be a source of materials for reviewing the topic of hospital infection control and updating their knowledge in this field, as part of their professional preparation.
A dozen or so lessons include a set of slides with theoretical material and a set of questions embedded in case studies to illustrate the problem. Students can work at their own pace. The course concludes with a 15-question test (single-choice, multiple-choice, and true-false). This set of questions is personalized for each student. It will be available after passing all topics/lessons, but no later than the last day of the course. Two attempts will be allowed. The course concludes with a certificate of completion.
The PDF of the certificate should be sent to Dr. Beata Sokół-Leszczyńska, email: beata.sokol-leszczynska@wum.edu.pl, no later than January 19, 2026.

ATTENTION

The final 10 minutes of the last class of the block/semester/year should be allotted for students to fill out the Survey of Evaluation of Classes and Academic Teachers