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 (1M20) 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	I-II 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)	1,2
Classes (C)		
e-learning (e-L)		
Practical classes (PC)		
Work placement (WP)		
Unassisted student's work		
Preparation for classes and completions	20	0,8

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 29th of September 2023)*
Knowledge – Graduate* knows and understands:	

C.W9.	genetic mechanisms of drug resistance acquisition by microorganisms and cancer cells and their relationship to the need for individualisation of pharmacotherapy;
C.W10.	micro-organisms including pathogenic and those constituting the human microbiome, and human-invasive forms or life stages of selected parasites;
C.W11.	the epidemiology of viral, bacterial, fungal and prion infections and parasitic infections, including their geographical distribution;
C.W12.	the pathogenesis and pathophysiology of infections and contagions and the impact of pathogens such as viruses, bacteria, fungi, prions and parasites on the human body and population, including their modes of action, the consequences of exposure to them and the principles of prevention;
C.W14.	aetiology, pathogenesis, pathophysiology, routes of transmission, forms and prevention of iatrogenic infections;
C.W15.	methods used in microbiological and parasitological diagnosis (indications, principles of performance, interpretation of results);
C.W16.	diagnostic principles for infectious, allergic, autoimmune and neoplastic diseases and blood diseases, based on the antigen-antibody reaction;
C.W17.	principles of disinfection, sterilisation and aseptic management;
C.W32.	the problem of drug resistance, including multidrug resistance, and the principles of rational antibiotic therapy;
E.W32.	principles for dealing with suspicion and detection of an infectious disease;
E.W33.	environmental and epidemiological conditions, causes, symptoms, principles of diagnosis and therapeutic and preventive management of the most common infectious diseases and their complications: 5) hospital - acquired infections;
E.W34.	procedures for exposure to potentially infectious material;
E.W39.	types of biological materials used in laboratory diagnosis and the principles of collecting material for tests;
E.W40.	possibilities and limitations of laboratory tests;
G.W3.	epidemiology of infectious diseases, including those related to health care, and non-infectious diseases, types and methods of prevention at various stages of the natural history of the disease, and the role and principles of epidemiological surveillance;
Skills– Graduate* is able to:	
C.U6.	interpret microbiological test results;
C.U10.	design rational chemotherapy regimens for infections - empirical and targeted;
E.U14.	7) collecting and securing blood for laboratory tests, including microbiological ones; 9)taking swabs for microbiological and cytological tests;
E.U15.	use personal protective equipment appropriate to the clinical situation;
E.U22.	apply rational antibiotic therapy depending on the patient's clinical condition;
E.U31.	accept, explain and analyze your own role and responsibilities in the team and recognize your role as a doctor in the team;

F.U1.	perform surgical hands scrub, put on sterile gloves, dress for surgery or a procedure requiring sterility, prepare the surgical field in accordance with aseptic rules and participate in the surgical procedure;

** In appendix to the Regulation of Minister of Science and Higher education from 29th of September 2023 „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	
K2	
Skills– Graduate is able to:	
D.U5	critically analyse medical literature, including literature in in English, and draw conclusions;
S2	
Social Competencies – Graduate is ready for:	
E.U32.	obtain information from team members, respecting their diverse opinions and specialized competences, and take this information into account in the patient's diagnostic and therapeutic plan;

6. CLASSES

Form of class	Class contents	Effects of Learning
e-learning	Introduction to hospital - acquired infections.	C.W9., C.W10., C.W11., C.W12., C.W14., C.W15., C.W16., C.W17., C.W32., E.W32., D.U5., E.W33., E.W34., E.W39., E.W40., G.W3., C.U6., C.U10., E.U14., E.U15., E.U22., E.U31., F.U1.
	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.	
	Legal liability for hospital - acquired infections.	

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.W9., C.W10., C.W11., C.W12., C.W14., C.W15., C.W16., C.W17., C.W32., E.W32., D.U5., E.W33., E.W34., E.W39., E.W40., G.W3., C.U6., C.U10., E.U14., E.U15., E.U22., E.U31., F.U1.	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