



The problem of hospital acquired infections.  
Rational antibiotic therapy in physician practice.

Problem zakażeń szpitalnych. Racjonalna antybiotykoterapia w  
praktyce lekarza.

## 1. IMPRINT

<b>Academic Year</b>	2024/2025
<b>Department</b>	Faculty of Medicine
<b>Field of study</b>	Medicine
<b>Main scientific discipline</b>	Medical sciences
<b>Study Profile</b>	General academic
<b>Level of studies</b>	Uniform MSc
<b>Form of studies</b>	Full time studies
<b>Type of module / course</b>	Non-compulsory
<b>Form of verification of learning outcomes</b>	Credit
<b>Educational Unit / Educational Units</b>	Department of Medical Microbiology (1M20) 5 Chałubińskiego Str., 02-004 Warsaw Phone: 48 22 628 27 39, 22 688 00 28 e-mail: mikrobiologia@wum.edu.pl
<b>Head of Educational Unit / Heads of Educational Units</b>	Prof. Hanna Pituch Department of Medical Microbiology 5 Chałubińskiego Str., 02-004 Warsaw
<b>Course coordinator</b>	Beata Sokół-Leszczynska, M. Sc., Ph. D. e-mail: beata.sokol-leszczynska@wum.edu.pl
<b>Person responsible for syllabus</b>	Beata Sokół-Leszczynska, M. Sc., Ph. D. e-mail: beata.sokol-leszczynska@wum.edu.pl

<b>Teachers</b>	Piotr Leszczyński, MD., Ph.D., Beata Sokół-Leszczyńska, M. Sc., Ph.D.
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<b>2. BASIC INFORMATION</b>			
<b>Year and semester of studies</b>	I-V year, summer, and winter semester	<b>Number of ECTS credits</b>	2.00
<b>FORMS OF CLASSES</b>		<b>Number of hours</b>	<b>ECTS credits calculation</b>
<b>Contacting hours with academic teacher</b>			
Lecture (L)			
Seminar (S)		30 (e-learning)	1.00
Classes (C)			
e-learning (e-L)			
Practical classes (PC)			
Work placement (WP)			
<b>Unassisted student's work</b>			
Preparation for classes and completions		30	1.00

<b>3. COURSE OBJECTIVES</b>	
O1	Knows the definition of hospital infection, knows how to recognize, and correctly register
O2	Knows the risk factors and the specificity of infections in intensive care, surgical, neonatal departments, etc., can correctly use this information in the prevention of hospital infections in the above-mentioned departments
O3	Can correctly plan and implement patient isolation due to the probable or confirmed etiological factor of infection and the protective isolation of patients particularly vulnerable to infection
O4	Knows the rules of personal protection against the most common infections and infections among health professionals and knows the rules of post-exposure procedures
O5	Knows the rules of conducting an epidemiological investigation
O6	Knows the importance of a microbiological laboratory in the control of hospital infections and knows the principles of cooperation between the attending physician and the head of the laboratory in this respect
O7	Knows the importance of antibiotic stewardship and the impact of antibiotic therapy on the epidemiological situation of the hospital

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

<b>Code and number of effect of learning in accordance with standards of learning</b>	<b>Effects in the field of:</b> <i>(in accordance with appendix to the Regulation of Minister of Science and Higher education from 26th of July 2019)</i>
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##### 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 diseases
C.W17.	principles of disinfection, sterilisation and aseptic management;
C.W18.	specific and non-specific mechanisms of humoral and cellular immunity;
C.W32.	the problem of drug resistance, including multidrug resistance, and the principles of rational antibiotic therapy;
E.W12.	risks of hospitalisation of older people;
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: bacterial diseases, viral diseases, including respiratory and gastrointestinal infections, viral hepatitis, human immunodeficiency virus mycoses, hospital-acquired infections;
E.W34.	procedures for exposure to potentially infectious material;
E.W37.	environmental and epidemiological conditions, causes, symptoms, principles of diagnosis and therapeutic management of the most common diseases in GP practice;
G.W2.	determinants of diseases, methods of identifying and examining disease risk factors, advantages and disadvantages of epidemiological research and principles of cause-and-effect inference in medicine;

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;
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**Skills– Graduate\* is able to:**

C.U6.	interpret microbiological test results;
C.U10.	design rational chemotherapy regimens for infections - empirical and targeted;
E.U15.	use personal protective equipment appropriate to the clinical situation;
E.U22.	apply rational antibiotic therapy depending on the patient's clinical condition;
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;
G.U2.	collect information on the conditions and presence of risk factors for infectious and noncommunicable diseases and plan preventive activities at various levels of prevention;
G.U4.	assess the epidemiological situation of infectious and non-communicable diseases in the Republic of Poland and in the world;

\* 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 field of:
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**Knowledge – Graduate knows and understands:**

K1	
K2	

**Skills– Graduate is able to:**

S1	
S2	

**Social Competencies – Graduate is ready for:**

D.U3.	respect patients' rights;
D.U4.	demonstrate responsibility for improving their own skills and transferring knowledge to others;
D.U5.	critically analyse medical literature, including literature in in English, and draw conclusions;

6. CLASSES		
Form of class	Class contents	Effects of Learning
seminar	<p><u>Topics covered during e-learning:</u></p> <ol style="list-style-type: none"> <li>1. Elements of infection control program. Mechanisms of nosocomial infections, risk factors, registration, identification, and monitoring. Legal acts governing the control of nosocomial infections. The specificity of etiological agents of nosocomial infections.</li> <li>2. Most common forms: hospital acquired urinary tract infections, nosocomial pneumonia, blood site infection, surgical site infection, nosocomial gastrointestinal infections. Definition of nosocomial infection. Case definitions – Decision EU.</li> <li>3. Surveillance of epidemics. Epidemiological investigation.</li> <li>4. Antibiotic stewardship. Guidelines.</li> <li>5. Patient zone. Isolation - role in infection control. Surveillance of multidrug resistant strains.</li> <li>6. Reprocessing of medical instruments. Standard precautions. Personal Protective Equipment.</li> <li>7. The role of microbiological laboratory in hospital infection control</li> <li>8. WHO program “5 moment for hand hygiene”.</li> <li>9. Analysis and interpretation of microbiological report in different types of infections.</li> <li>10. HAI cases.</li> </ol>	G.K2.C.W33,G.K 2.A.W21,G.K3.C.W3,G.K4.C.W36,G.K5.C.W35,D.W 51,G.K6.C.W37,C .W34,G.K7.B.W6 ,G.K8.C.W7, G.K9.C.W34, G.S1.C.U1,G.S2.C .U7,G.S3.E.U7,G. S4.E.W34,G.S5.C .U44,C.U48,G.S6 .B.U5,G.K1.U7 G.S7.C.U49, G.S8.B.U6, SC1-C3

7. LITERATURE
<b>Obligatory</b>
<ol style="list-style-type: none"> <li>1. <a href="http://www.cdc.gov/hai">http://www.cdc.gov/hai</a> - types of infection, guidelines, prevention, laboratory testing.</li> <li>2. <a href="http://ec.europa.eu/health/ph_threats/com/docs/1589_2008_en.pdf">http://ec.europa.eu/health/ph_threats/com/docs/1589_2008_en.pdf</a> - COMMISSION DECISION of 28/IV/2008 amending Decision 2002/253/EC laying down case definitions for reporting communicable diseases to the Community network under Decision No 2119/98/EC of the European Parliament and of the Council</li> <li>3. <a href="http://who.int/gpsc/tools/Five_moments/en-five_moments_for_hand_hygiene">http://who.int/gpsc/tools/Five_moments/en-five_moments_for_hand_hygiene</a></li> </ol>
<b>Supplementary</b>
<p>For students who speak Polish to the extent that they can understand a medical professional recommendation:</p> <ol style="list-style-type: none"> <li>1. Recommendations for the diagnosis and treatment of infections <a href="http://www.antybiotyki.edu.pl/szpitalna-polit-rekomendacje-diagnost.php">http://www.antybiotyki.edu.pl/szpitalna-polit-rekomendacje-diagnost.php</a></li> <li>2. Act of December 5, 2008, on preventing and fighting infections and infectious diseases in humans (Dz. U. of 2008.234.1570) and its implementing legislations</li> </ol>

8. VERIFYING THE EFFECT OF LEARNING		
Code of the course effect of learning	Ways of verifying the effect of learning	Completion criterion
O1-O10, G.K1 - G.K10, G.S1 - G.S8, SC1 - SC1	In the field of knowledge, skills, and social competences - multiple-choice and true-false questions	>51%

9. ADDITIONAL INFORMATION

E-learning classes will be totally available on <https://e-learning.wum.edu.pl/> platform from October 21<sup>st</sup> 2024, until January 12<sup>th</sup> 2025.

The minimum number of students required to run the optional course is 20 people, maximum 50.

The scope of the course allows to understand the role of hospital infection control in modern medicine and the role of a specialist doctor-microbiologist in this field. The knowledge contained in the course materials is systematically updated based on sources such as ECDC (European Center for Disease Prevention and Control), CDC (Centers for Disease Control and Prevention, United States of America), PZH (National Institute of Hygiene, Poland) and key societies research centers operating in Poland. The practical knowledge gained during the course allows to understand the pathomechanism of the one of the most serious complications of providing health services, which are nosocomial infections, effectively prevent them and, in the event of their occurrence, actively combat them. For students who have not had contact with medical microbiology, it will be a good base for understanding the role of this field in modern medicine, systematizing, and extending knowledge before the exam. For students who have completed the 3rd year, it can be a source of materials to remind of the topic of nosocomial infection control and to update knowledge in this field as part of preparation for the profession.

A dozen or so lessons contain a set of slides with theoretical material and a set of questions placed in case descriptions included as an illustration of the problem. The course will end with a test consisting of 15 questions (single and multiple choice and true-false). Students can work at their own pace. The final test consists of 15 questions, consists of an individual set of questions for each student and will be available after completing all topics/lessons, but no later than by the last day of the course. There will be two attempts to take the test. The course ends with a certificate of completion.

Each student should email the PDF of the certificate to Dr. Beata Sokol-Leszczynska by e-mail: [beata.sokol-leszczynska@wum.edu.pl](mailto:beata.sokol-leszczynska@wum.edu.pl), no later than on January 12<sup>th</sup>, 2025.

**ATTENTION**

The final 10 minutes of the last class in the block/semester/year should be allocated to students' Survey of Evaluation of Classes and Academic Teachers.

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