



COURSE UNIT (MODULE) DESCRIPTION

Course unit (module) title	Code
Clinical pharmacology; Emergency medicine (2023-2024)	VRVS3115

Lecturer(s)	Department(s) where the course unit (module) is delivered
Coordinator: Prof. dr. Jolanta Gulbinovič Others: dr. Ingrida Lisauskienė, dr. Tomas Janušonis prof. P. Šerpytis, prof. R S. Samalavičius, doc. A. Beiša, asist. R. Juknevičienė, dokt. P. Uksas, dokt. A. Briedis, dokt. J. Skruodytė, gyd. G. Montrimas, gyd. A. Černauskas, gyd. G. Banytė, gyd. I. Vėgelytė, gyd. L. Šimenaitė, gyd. J.Jaramavičius, lekt. G. Berkevičius, lekt. M. Dmitrijev.	Department of Pathology, Forensic medicine and Pharmacology. Čiurlionio 21, Vilnius Vilnius University, Faculty of Medicine, Clinic of Emergency Medicine, Santariškių 2, Vilnius, Vilnius Republican University Hospital, Šiltnamių str. 29, Vilnius.

Study cycle	Type of the course unit (module)
cycle (integrated studies)	Compulsory

Mode of delivery	Period when the course unit (module) is delivered	Language(s) of instruction
Lectures, seminars, practical work Lectures and seminars in simulator class	10 semester	English

Requirements for students	
Prerequisites: A student must have completed the following courses: anatomy, biochemistry, physiology. Microbiology, pathology and internal medicine. Prerequisites: A student must have completed the following courses: human anatomy, human physiology, biochemistry, pathophysiology, internal medicine.	Additional requirements (if any): None

Course (module) volume in credits	Total student's workload	Contact hours	Self-study hours
5	80+53	40+26	40+27

Purpose of the course unit (module): programme competences to be developed	
<p>To give the understanding about development and life cycle of medicines, benefit risk balance and measures to optimise it. To familiarise with the principles of clinical pharmacology and application of them in practice; to understand the reason for variation of drug effects in different patients or patient groups, e.g., in paediatric patients, elderly, pregnancy and lactation, in patients with renal or hepatic impairment; to teach how to choose the best treatment for a particular patient, how to assess efficacy and safety of drug treatment; to introduce principles of drug interactions; to teach to recognise adverse drug reaction and to report to competent authority; to teach how critically appraise the results of clinical trials, how to interpret information about the medicines and where to search for independent information on medicines.</p> <p>To give the general understanding about the etiology, diagnostics and management of critical conditions; to develop ability to provide medical care in acute clinical situations; to familiarise with causes and results of contemporary global threats (terrorism, war, ethnic conflicts); to introduce principles of first aid in situations of armed conflict.</p>	
Teaching and learning	Assessment methods

Learning outcomes of the course unit (module)	methods	
<p>After the course the student will be able</p> <ul style="list-style-type: none"> - To understand and describe drug development and life cycle, benefit risk balance of medicines, aim for risk management, risk minimisation measures and effectiveness of risk minimisation. - Will be able to use in practice the principles of rational prescribing and use of medicines, to assess effectiveness and safety of drug treatment, to predict possible drug-drug interaction; to recognise and differentiate adverse drug reactions, to establish causal relationship and to report to the competent authority (State medicines Control Agency). - Will be able to evaluate patient and drug interaction specificity, and make a dose or treatment adjustment for patients with renal or hepatic impairment and for elderly. Will understand therapeutic drug monitoring. - Will be able to assess benefit and risk of drug treatment in pregnancy and lactation. - Will be able to interpret critically the results of clinical trials, and drug information. 	<p>During practical work, the students work in small groups, solve the problems and discuss clinical situations, learn how to find necessary information and how to interpret information critically.</p> <p>During the course, the students have to fulfil specific task for self-study: describe adverse drug reaction and prepare the report to competent authority; to prescribe treatment for specific patients; to evaluate rationality of drug prescribing in specific given situation</p> <p>During practical work, the students will read given publications of clinical trials and will apprise the quality of these trials and reliability of the results; will discuss the quality indicators of clinical trials and interpretation of results.</p>	<p>The knowledge and understanding of students is checked during every practical work – short written or oral test.</p> <p>Self-study work (ADR reporting, and prescription of treatment) and work in class is scored in 10 points system. This score makes up 15% of final exam score.</p> <p>Self-study work evaluating rationality of treatment is scored in 10 points system. This score makes up 15% of final exam score.</p> <p>After finalisation of the course – final examination. It is scored in 10 points system. This score makes up 70% of final exam score.</p>
<p>Will be able to act <i>conscientiously and comply with ethical standards, act empathetic, demonstrate ability of critical,creative thinking</i>, show initiative and ability of goal oriented behavior, demonstrate effective teamwork skills.</p> <p>Will be able to understand the basics of diagnostics and primary management of main life threatening conditions.</p> <p>Will be able to recognize urgent medical conditions; will have principal knowledge of management of acute medical conditions.</p> <p>Will be able to understand principles of medical care in cases of mass casualty incidents.</p>	<p>Lectures and seminars in simulator class</p> <p>Lectures and seminars in simulator class, self-study work</p>	<p>Short written or oral test after seminars in simulator class</p> <p>Evaluation of participation in discussion, oral test, clinical case analysis</p>

Topics	Contact work hours							Time and tasks of self-study	
	Lectures	Consultations	Seminars	Practice	Laboratory work	Practical training	Total contact hours	Self-study	Tasks
1. Development and life cycle of medicines, benefit risk balance and measures to optimise it	1			2			3	2	To prepare for practical work
2. Clinical pharmacokinetics, therapeutic drug monitoring, drug interaction	1		2	2			5	3	To prepare for seminar
3. Adverse drug reactions, seriousness, severity and causality	1		2	2			5	5	To prepare for practical work, self-study tasks
4. Rational use of medicines. Principles of rational use of antibiotics	1		2	2			5	6	To prepare for practical work, self-study tasks
5. Clinical pharmacology of drug use in patients with renal or hepatic impairment	1		2	2			5	4	To prepare for practical work
6. Clinical pharmacology of drug use in critically ill patients			2	2			4	6	To prepare for practical work
7. Paediatric and geriatric clinical pharmacology	1		2	2			5	6	To prepare for practical work
8. Drug use in pregnancy and lactation	2			2			4	2	To prepare for practical work
9. Evaluation of clinical trials			2	2			5	6	To prepare for seminar, self-study tasks
Total	8		16	16			40	40	

Topics	Contact work hours							Time and tasks of self-study	
	Lectures	Consultations	Seminars	Practice	Laboratory work	Practical training	Total contact hours	Self-study	Tasks
Diagnostics of sudden death and principles of basic life support. European Resuscitation Council Guidelines. Electric cardiac defibrillation. Resuscitation algorithms in cases of ventricular fibrillation, ventricular tachycardia, asystole, electromechanical dissociation. Airway management and devices in basic life support.	2		2	4			8	5	To prepare for practical work.
Foreign body airway obstruction, hanging, drowning. First aid in case of foreign body airway obstruction.	1			1			2	3	To prepare for practical work.
Electrical and lightning injuries. Basic principles of safety in providing emergency care.	1		1				2	1	To prepare for seminar.

<p>Anaphylaxis. Acute allergic reactions. Stings and bites. Poisonous animals in Lithuania. Diagnosis and treatment of bee stings and snake bites.</p>	1		1				2	3	To prepare for seminar.
<p>Emergency management of bleeding and bone fractures. Motor vehicle accident. Head trauma. Spinal injury. Principles of bleeding management, limb immobilization, desmurgy. Etiology, clinical features, diagnosis and first aid in cases of head trauma and spinal injury. Principles of immobilization and transportation to health care facility.</p>	1			1			2	4	To prepare for practical work.
<p>Principles of military medicine. Military medicine and contemporary challenges. Possible military threats, definition of terrorism. Target of terrorism - civilian citizens. Methods of terrorism – kidnapping, use of explosive devices, individual and group murders, infrastructure damage, hacking computer networks etc. Hybrid warfare aimed at vulnerable domains of states. Noticeable elements of hybrid warfare. Experience from conflict in Ukraine. War for hearts and minds. Hostile informational operations in Lithuania. War challenges of new generation. Aims of hostile informational operations in Lithuania. Propaganda in Lithuania: channels, measures, types, aims and examples. Threats of disinformation and informational operations to the security of state. Ability of western states to resist adverse informational operations and disinformation campaign from the east. History as a weapon in information warfare. Why and how history is used in information warfare? Which stages of Lithuanian history are most vulnerable? Security of decision making process. Warfare tomorrow, thoughts and insights. Role of citizens in case of armed conflict: behavior and attitude to a changing situation. Information warfare. Ability of state of Russia to use military and non-military measures (hybrid warfare), masked military operations is changing the understanding of defense and planning. Currently main factor undermining security of Lithuania – actions of Russia, which are destroying the rule- based architecture of security in Europe. Modern military munitions of Russian state at the borders of Lithuania and other states, regularly carried out inspections of combat readiness, military drills are raising tension. Soft power.</p>	1		2	1			4	4	To prepare for practical work.
<p>Disaster medicine and terrorism. Mass-casualty incidents. Use of personal protective equipment. Evaluation of reports form Emergency services and Emergency response centers. Means of communication used by prehospital</p>	1		2	1			5	2	

emergency providers and hospitals.								
Psychological and social relief in extreme situations. Principles of organizing psychological and social relief in extreme situations. Analysis of traumatic factors affecting people involved in accidents and disasters, groups affected by accidents and disasters.			2				2	2
Total	8		10	8			26	27
TOTAL	16		26	24			66	54

Assessment strategy	Weight (%)	Assessment period	Assessment criteria
Self-study work (ADR reporting, and prescription of treatment) and work in class is scored in 10 points system. This score makes up 15% of final exam score.	15	During the course	Assessment of work in class is based on the score of written or oral test results. Assessment of self-study work (ADR reporting, and prescription of treatment) will be based on how correct and comprehensive work was done.
Self-study work evaluating rationality of treatment is scored in 10 points system. This score makes up 15% of final exam score.	15	During the course	Assessment of self-study work (evaluating rationality of treatment) will be based on how correct and comprehensive work was done.
Final examination	70	At the end of the semester	Examination – test, 50 multi-choice questions.

Assessment strategy	Weight (%)	Assessment period	Assessment criteria
Work in simulator class	50	10 th semester	Assessment of ability to organize emergency care, identify sudden death, understand principles of basic life support and first aid in special cases and apply those principles in practical cases.
Written evaluation (rated by mark)	50	10 th semester	Student is presented with 10 open-ended questions and clinical cases. Accuracy, comprehensiveness, consistency of the answers is evaluated. Student has to answer 5 or more questions correctly to pass the evaluation.
Overall Rating: Clinical Pharmacology: Urgent medicine	60% 40%	At the end of semester	The total final score is calculated after passing a clinical pharmacology exam and an emergency medical examination

Author	Year of publication	Title	No of periodical or vol. of publication	Publication place and publisher or Internet link
Reading list				
Reid JL, Rubin PC, Walters MR	2006	Clinical pharmacology & therapeutics	7 ed.	Blacwell publishing
Additional literature				
Internetiniai puslapiai: www.vvkt.lt ; www.emea.eu				
Bennet P.N., Brown M.J.	2012	Clinical Pharmacology	11 ed.	Churchill Livingstone

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Reading list				
	2017	ACCA Clinical Decision-Making Toolkit		ESC, Second Edition, 2017
M.Tubaro et al.	2015	The ESC Textbook of Intensive and Acute Cardiovascular Care		Oxford
<i>Rita K. Cydulka et al.</i>	2017	<i>Tintinalli's Emergency Medicine, Eighth Edition.</i>		<i>American College of Emergency Physicians 2017</i>
	2015	European Resuscitation Guidelines		
Additional literature				