

**DESCRIPTION OF COURSE UNIT FOR DOCTORAL STUDIES
AT VILNIUS UNIVERSITY**

Scientific Area/eas, Field/ds of Science	Medical and Health Sciences (M 000): Medicine (M 001)			
Faculty, Institute, Department/Clinic	Medicine Faculty Institute of Clinical Medicine Clinic of Rheumatology, Orthopaedics Traumatology and Reconstructive Surgery			
Course unit title (ECTS credits, hours)	Polytrauma 10 credits (270 hours)			
Study method	Lectures	Seminars	Consultations	Self-study
Number of ECTS credits	-	4	2	4
Method of the assessment (in 10 point system)	The exam is considered oral. 3 questions provided. The clinic has a block of questions that is updated every year. Exam evaluation criteria (minimum readable score - 5): (b) general structure and scope of the answer, clear presentation of the knowledge, reasoning, brevity and specificity (3 points); e) ability to participate in discussion, question management, oratory skills (5 points); d) problematic issues lifting (2 points).			
PURPOSE OF THE COURSE UNIT				
Acquainted with the concept, relevance, frequency, diagnosis and treatment of polytrauma, diagnosis of life-threatening injuries and life-saving operations and procedures, methods of surgical treatment of fractures and repair of long bone dislocations, their indications, risks, complications and follow-up. Emphasis is placed on first aid, world and Lithuanian experience, treatment priorities, and the importance of determining the sequence of actions.				
THE MAIN TOPICS OF COURSE UNIT				
<p><u>General part.</u> Relevance of the problem. Concepts of polytrauma (isolated trauma, multiple trauma, mixed trauma, combined trauma). Causes of polytraumas, most common mechanisms, life-threatening injury combinations, shock areas. First aid, its organization, scope and influence on further treatment and outcome. Volume of first aid in stages. Principles of communication and cooperation of the first aid center with the polytrauma center. Experience of polytrauma patients in the world and possible organizational model in Lithuania. General algorithm for diagnosis and treatment.</p> <p><u>Assessment of the severity of the condition.</u> Assessment of the severity of the condition of polytrauma patients: Injury severity scale Severity Score (ISS), Trauma Score (TS), Polytraumaschlüssel (PTS), Classification of bleeding patients according to the American Committee of Injury Surgeons. Necessity of evaluation scales, areas of application.</p> <p><u>Polytrauma patients.</u> Breakdown into time intervals, main aspects of the organization of medical care: necessary conditions, composition of the polytrauma team, technical equipment, tactical treatment drawing up a plan, its justification.</p> <p><u>Traumatic shock.</u> Etiopathogenesis, causes of development, symptomatology, diagnosis, anti- shock treatment, treatment algorithm. Actions and interventions are performed during the acute resuscitation period.</p> <p><u>Treatment priorities in the acute period and in the initial phase.</u> Life - saving</p>				

operations (Phase I). Deferred primary operations (Phase II), sequence of their execution.

Procedure for radiological examination. Indications, main aspects.

Polytrauma patient. Measures are needed, the most important aspects.

Mixed chest trauma. Hemopneumothorax, ventilated pneumothorax. Chest drainage: indications, technique of performance. Artificial lung ventilation. Evidence for thoracotomy.

Mixed abdominal trauma. Diagnosis of internal bleeding: ultrasound, laparocentesis with peritoneal lavage (performance technique), laparoscopy.

Mixed head injury. Glasgow Coma Scale. Stabilization period. Symptoms indicating stabilization. Indications for operation.

Injuries to the musculoskeletal system, diagnostics, priority treatment methods. External and internal fixation of fractures. Methods of fixation of unstable pelvic fractures: bone staples, external fixation AO rod devices, corsets. Prevention of pelvic stability and prevention of bleeding into internal organs with special vacuum beds. Vertebral fractures. First aid. Conservative and surgical treatment of vertebral fractures, indications. Minimally invasive methods of fixation of femoral fractures in a polytrauma patient: external fixation AO rod devices, unilateral semi-circular and frame devices. Intramedullary osteosynthesis with or without transverse fixation of the femoral canal. Priorities for these fixation methods. Methods of fixation of tibia fractures: external fixation AO rod apparatus, circular and frame apparatus. Intramedullary osteosynthesis with or without transverse fixation of the femoral canal. Dislocations of long tubular bones (femur, humerus and tibia). Clinic, classification, complications and main methods of dislocation repair of femoral, humeral and tibial dislocations.

Thermal and chemical burns. First aid, classification, burn area calculation methodology. Respiratory burns. Early necrectomy and autodermoplasty.

Local and general complications of polytrauma. Muscle bed syndrome: causes and mechanism of development, clinical symptoms, treatment. Fatty embolism: etiopathogenesis, symptoms, forms of development, treatment. Polyorgan failure: etiopathogenesis, developmental stages, clinic, treatment. ARDS: etiopathogenesis, development, clinic, treatment. Thromboembolism : etiopathogenesis, development, clinic, treatment.

RECOMMENDED LITERATURE SOURCES

1. Frederick M. Azar, James H. Beaty. Campbell's Operative Orthopedics : Volume one. Elsevier Health Sciences, 14th edition, 2020:
<https://evolve.elsevier.com/cs/product/9780323672177?role=student>
2. Frederick M. Azar, James H. Beaty. Campbell's Operative Orthopedics : Volume two. Elsevier Health Sciences, 14th edition, 2020:
<https://evolve.elsevier.com/cs/product/9780323672177?role=student>
3. Frederick M. Azar, James H. Beaty. Campbell's Operative Orthopedics : Volume three. Elsevier Health Sciences, 14th edition, 2020:
<https://evolve.elsevier.com/cs/product/9780323672177?role=student>
4. Frederick M. Azar, James H. Beaty. Campbell's Operative Orthopedics : Volume four. Elsevier Health Sciences, 14th edition, 2020:

- <https://evolve.elsevier.com/cs/product/9780323672177?role=student>
5. Bentley, George (Ed.) European Surgical Orthopedics and Traumatology : The EFORT Textbook. Springer, 2014:
<https://link.springer.com/referencework/10.1007/978-3-642-34746-7>
 6. Clifu DX, Lew HL. Handbook of Polytrauma Care and Rehabilitation. 2013:
<https://www.springerpub.com/handbook-of-polytrauma-care-and-rehabilitation-9781936287550.html#description>
 7. Stannard, James P.; Schmidt, Andrew H. Surgical Treatment of Orthopedic Trauma. Thieme, 2016:
<https://www.thieme-connect.de/products/ebooks/book/10.1055/b-004-129594>
 8. Marble MT Decision Making in Orthopedic Trauma. Thieme, 1st edition 2017:
<https://www.thieme.com/books-main/orthopaedic-surgery/product/4198-decision-making-in-orthopaedic-trauma>
 9. Hans-Christoph PapeAndrew B. PeitzmanMichael F. RotondoPeter V. Giannoudis. Damage Control Management in the Polytrauma Patient. Springer, Cham, 2nd edition, 2017:
<https://link.springer.com/book/10.1007/978-3-319-52429-0?page=2#toc>
 10. Vittorio Miele, Margherita Trinci. Diagnostic Imaging in Polytrauma Patients. Springer, Cham, 1st edition, 2018:
<https://link.springer.com/book/10.1007/978-3-319-62054-1#toc>

CONSULTING LECTURERS

1. Coordinating lecturer: Valentinas Uvarovas (Prof. Dr.).

2. Igoris Šatkauskas (Assoc. Prof. Dr.).

APPROVED:

By Council of Doctoral School of Medicine and Health Sciences at Vilnius University:
29th of September 2022

Chairperson of the Board: Prof. Janina Tutkuvienė