



1. List of topics that can be presented to students of partner countries

Selected medical themes and areas where some types of new methods, technologies and/or simulations are used. The topic may be extended/changed to topics the participants will be interested in depending on their skills

The training will be organised during first two weeks of September 2019.

31.08.-01.09.2019 – arrival of participants

02.09.-13.09.2019 – lectures and practical lessons for students

14.09.-15.09.2019 – departure of participants

2. Preclinical and clinical topics

2.1. Public Health and Hygiene

Department of Public Health and Hygiene, prof. Kvetoslava Rimárová (09.-13.09.2019)

1. Lecture:
Elementary risk factors in the work of health care workers
2. Practical lesson:
Self-evaluation of chronic diseases risk (incl. cardiovascular risk) + obesity evaluation, individual preventive diagnostic, body weight, height, indexes, measurement of body fat percentage, arteriography, total cholesterol and triglycerides level in blood, analysis of exhauster tit, smoking evaluation, risk factors questionnaires
3. Practical lesson:
Global environmental issues - air pollution and impact on health. Evaluation of environmental pollution in Slovak republic, possible field visit in Public Health Institute

2.2. Nursing Care

Department of Nursing Care, prof. Lucia Dimunová

1. Lecture:
Introduction of nursing care, Infection Control – Infectious process
2. Practical lesson:
Applying bandages - purposes, assessment, planning, settings goals, preparation of equipment, technique in general
3. Practical lesson:
Assessing vital signs - pulse rate, respiratory rate, body temperature, blood pressure

2.3. Medical biophysics

Department of Medical and Clinical Biophysics, prof. Ján Sabo, prof. Imrich Géci

1. Lecture (some of offered):
X rays – physical properties, Conventional radiography and CT; Ultrasound – physical characteristics, Medical application of ultrasound; Lasers in medicine – physics of laser process and medical applications; Magnetic resonance imaging and its application in medicine; Positron emission tomography and its medical application
2. Practical lesson:
Modelling of basic vital functions on the model system; The principles of sensors in medicine – pulse and blood pressure measurement using different techniques
3. Practical lesson:
Audiometry – intensity of the sound and hearing; Ultrasonography – measurement of the blood flow velocity



2.4. Medical Physiology

Department of Medical Physiology, prof. Viliam Donič

1. Lecture (some of offered):
Homeostasis, the body fluids; The cell, cell membrane, transport of molecules across cell membranes, membrane potentials; physiology of blood; Mechanisms of breathing; Pulmonary ventilation; Physiology of the heart; Renal physiology; Kidney function; Gastrointestinal system
2. Practical lesson:
Manners of blood samples taking. Determination of haematocrit value. Erythrocyte sedimentation rate and factors affecting the sedimentation. Determination of haemoglobin value, types of haemoglobin. Hering's model of breathing. Muller's test. Valsalva's maneuver. Spirography – Volutest. Voluntary apnoea. Percussion of the lungs. Auscultation of the lungs. Testing by Eutest. Testing by ventilometer VM1. Computer spirometry
3. Practical lesson:
Sleep Medicine - sleep and wakefulness, stages of sleep, neurological disorders of sleep, control of breathing, recording of different parameters, demonstration of evaluation of polysomnographic records, problematic topics and questions from sleep medicine

2.5. Experimental medicine

Department of Experimental Medicine, prof. Alojz Bomba, prof. Jana Štofilová

1. Lecture:
Modulation of gut microbiome in prevention and treatment of chronic diseases - recent understanding and advances in human gut microbiome composition and modulation in the context of chronic disease prevention, Microbiological and molecular techniques for the analysis of gut microbiota, In vitro models for the study of the human gut microbiota, Gut microbiota and gut barrier in health and disease
2. Practical lesson:
Molecular biology: Basic molecular biology techniques in microbiome research (DNA isolation, electrophoresis)
3. Practical lesson:
Microbiology: Staining, microscopy and quantification of probiotic bacteria (Gram staining, light microscopy, plate counting); Cell biology: visualisation of adherence of bacteria on epithelial cells

2.6. Human anatomy

Department of Anatomy, prof. Ingrid Hodorová

1. Lecture:
Thorax - borders. Thoracic wall. Diaphragm. Mediastinum - division. Superior and inferior mediastinum. Heart - external description
2. Practical lesson (models and dissection room):
Skeleton of thorax, joints, muscles, vessels and nerves of thoracic wall. Diaphragm. Mammary gland
3. Practical lesson (models and dissection room):
Structures in mediastinum. Heart - outer surface and pericardium

2.7. Forensic Medicine

Department of Forensic Medicine, prof. Nikita Bobrov

1. Lecture (one of offered):
The official Concept of Forensic Medicine. Medical aspects of death. The examination of wounds. Blunt and sharp injuries. Regional injuries. Effects of injury. Drugs of



dependence and abuse. Agro-chemical, gaseous and miscellaneous poisons. Firearm and explosive injuries. Radiation injuries

2. Practical lesson:
Medico-legal investigation of deaths. Death certification. The estimation of the time of death. Doctor at the scene of crime. Exhumation. Current case demonstration and analysis
3. Practical lesson:
Types of autopsies. Identification of the living and dead. Blood stains, groups, DNA identification. Duty of the doctor in wounding cases and firearm. Evaluation of histopathological findings in forensic medicine. Immunohistochemistry

2.8. Medical Informatics

Department of Medical Informatics, prof. Jaroslav Majerník

1. Lecture (one of offered):
Theory of evidence based medicine, biostatistics, and informatics in medicine. Tools and simulations in education of medical students at UPJS
2. Practical lesson:
Understanding of Evidence-Based Medicine principles. Formulation of clinical questions. Information resources
3. Practical lesson:
Description of medical data and main statistical analysis. Software tools and simulations integrated in education of medical students at UPJS

2.9. First Aid in Health Care Disciplines

1st Department of Anaesthesiology and Intensive Medicine, prof. Jozef Firment

1. Lecture (one of offered):
Introduction to A&IM. Instructions for exam organisation. Remarkable Moments from History of A&ICM. Indications for Admission to ICU. Vital Function Failure. Airway management. Pre-anaesthetic Evaluation & Preparation before Anaesthesia. Premedication. Risk of Anaesthesia, Anaesthetic Chart
2. Practical lesson:
General anaesthesia. Inhalational Anaesthesia, Intravenous Anaesthesia, Sedation. Post-Anaesthesia Care in Recovery Room. Regional anaesthesia. Neuraxial Technics of Regional Anaesthesia. Peripheral Neural Blocks. Local Anaesthetics Pharmacology, Toxic Reaction Treatment. Anaesthesia for Day-Case Surgery. Acute & Chronic Pain Treatment
3. Practical lesson:
Patient Monitoring During Anaesthesia & ICU. Vascular Accesses, Indications, Complication, CVP measurement. Acute Poisoning - First Aid, Elimination methods. Acute Kidney Injury, Renal Replacement Therapy

2.10. Dental medicine

Department of Stomatology and Maxillofacial Surgery, prof. Andrej Jenča

1. Lecture:
Stomatology and maxillofacial surgery. Tools and simulations in education of dental medicine at UPJS Faculty of Medicine
2. Practical lesson:
Practical training of preclinical subject of Dental medicine - Propaedeutic of Dental Medicine
3. Practical lesson:
Practical training of conservative medicine, prosthetics, dentoalveolar surgery on models, on trainers



2.11. Gynaecology and Obstetrics

Department of Gynaecology and Obstetrics, prof. Peter Urdzík

1. Lecture:
Simulations in Gynaecology and Obstetrics
2. Practical lesson:
Practical trainings in gynaecology simulations (Life – size female lower torso, Examination in mirrors, Bimanual palpation, Uterine and cervical lesions)
3. Practical lesson:
Practical training in obstetrics simulations (Anatomically accurate walled basin (CT), Silicon pelvic floor muscles, Palpable fontanelle contours and seams, Detachable placenta with umbilical cord, Continuous monitoring of the child)

2.12. Surgery

Department of Surgery, prof. Jozef Radoňak, prof. Róbert Kilík

1. Lecture:
Simulations in Surgery
2. Practical lesson:
Surgery interventions, laparoscopy, surgery simulators
3. Practical lesson:
Practical training on Simbionix Lap -Mentor Mentor

3. Possible alternatives

3.1. Medical microbiology

- Resistance to antibiotics

3.2. Internal medicine

- Cardiovascular prevention

3.3. Radiology and nuclear medicine

- Tools and principles of imaging method in medicine