Study program: Integrated Academic Studies in Medicine	
Course title: Special Epidemiology of Hospital Acquired Infection (HAI) and Infection Control	
Teacher: Gorana S. Dragovac, Jelena N. Đekić Malbaša	
Course status: elective	
ECTS Credits: 3	
Condition:	

Course aim

The aim of this course is to provide students with knowledge and application of epidemiological methods, appropriate measures forthe prevention and control of hospital acquired infections occurring during the process of health-care and treatment.

Expected outcome of the course:

Knowledge

Student should become familiar with epidemiological methods, epidemiological characteristics of different types of HAI's (by anatomical localization) in the hospital and community and in population of patients with different epidemiological characteristics in order to apply preventive and control measures. They also need to become familiar with application of epidemiological surveillance ofhospital acquired infections.

Skills

The student should adopt the skills of epidemiological surveillance of hospital acquired infections and adopt the procedures that carry the risk of hospital infections. Also, students should be able to apply epidemiological questionnaire and records of HAI and risk factors; implementation of preventive measures, levels of disinfection, immunoprophylaxis and chemoprophylaxis; Detection of hospital outbreaks, interpretation of microbiological laboratory results and data collection of epidemiologically important microbiological pathogens.

Course description

Theoretical education

1. Subject, definitions and tasks of the epidemiology of hospital infections, epidemiological methods. Indicators of prevalence ofhospital acquired infections.
2. Unit of epidemiological investigation - definition, significance, characteristics of acute health- care institutions and institutions forlong-term care (outpatient), examples.
3. Epidemiological surveillance of hospital infections: continuous / intermittent; comprehensive / targeted.
4. Epidemiological models. Agent, host and environment. Modes of transmission of nosocomial infections. Epidemiological characteristics of hospital infection outbreaks.
5. Epidemiology of catheter- associated bloodstream infections.
6. Epidemiology of ventilator associated pneumonia.
7. Epidemiology of surgical site infections.
8. Catheter associated urinary tract infections.
9. Epidemiology of HAI among ICU patients.
10. Epidemiology of infections in outpatient services.
11. Epidemiology of blood-borne infections.
12. Measures of HAI control and prevention - Immune prophylaxis, Sera prophylaxis and chemoprophylaxis of patients and medical staff. Protection of healthcare workers. Procedure for sharp injures (accidental) injures. Medical waste мenagment as preventive meassure of HAI.

Practical education

1. Sources of hospital infections data - importance, legal provision, case definition, reporting techniques, types of application forms,the use of data, use the Internet for date collection.
2. Basic indicators of HAI's incidence - indicators of morbidity, mortality, general, specific and standardized rates.
3. Application of epidemiological methods in research and investigation of hospital acquired infections - cohort studies, principles, significance, practical application, incidence study of specific anatomic localization (bloodstream infections, pneumonia, surgical site infection); incidence study of HAI conected to specific medical procedures (surgery, endoscopy, childbirth, hemodialysis) principles, significance, the practical application; case-control study, practical application; cross-sectional (prevalence) study (occasional and repeated), principles, significance, practical application.
4. Epidemiological surveillance: by implementation time, by HAI type, incidence study of HAI in high-risk units; Bloodstream infection- definition, criteria, significance, surveillance.
5. Epidemiological questionnaire for HAI's - importance of the questionnaire, components, questionnaire design.
6. Outbreak investigation - sources of date for detection of outbreak, steps in outbreak investigation of HAI, examples of

hospitaloutbreaks. Application of molecular biology in outbreak investigation.
7. Contact transmitted outbreaks- characteristics, examples of infections transmitted by contact, steps in outbreak investigation;examples of contact transmitted outbreaks associated with medical procedures.
8. Respiratory infection outbreaks - characteristics of respiratory outbreaks in hospital environment, examples of respiratory infection outbreaks, investigations.
9. Foodborne and waterborne outbreaks in hospital environment, examples.
10. Surgical site infections- preventive measures, bundle approach.
12. Ventilator associated pneumonia – prevention, bundle approach
13. Urinary tract infections - prevention, precautions, bundles.
14. Infections caused by multidrug-resistant bacteria-*Staphylococcus aureus, Clostridium difficile, Enterococcus faecalis et faecium,* ESBL and others -preventive measures, protocols for prevention and control.
15. Measures of HAI control and prevention - Immunization of healthcare staff. Isolation measures.
11. Sanitary and hygiene measures to prevent hospital acquired infections - hand hygiene, disinfection and cleaning protocol forhospital environment; sterlization, principles, records, surveillance

Literature
Compulsory
1. Damani N. Manual of Infection Prevention and Control. Fourth edition. Oxford University Press, 2019.
   (Damani N. Manual of Infection Control Procedures. Second edition. Cambridge University Press, 2003)

Number of active classes	**Theoretical classes:** 15	**Practical classes:** 30

Teaching methods
Ex-cathedra theoretical lectures, practical sessions with active aprticipation of previously prepared students, with apropriate literatureanounced during previous practical session

Student activity assessment (maximally 100 points)			
Pre-exam activities	**points**	**Final exam**	**points**
Lectures	20	Written	50
Practices	30	Oral	
Colloquium		....	
Essay			