DEPARTMENT OF HYGIENE, EPIDEMIOLOGY AND PUBLIC HEALTH.
COURSE IN “HYGIENE AND EPIDEMIOLOGY” FOR 3RD YEAR MEDICAL STUDENTS.

The name of unit In chich the subject is realized:
Department of Hygiene, Epidemiology and Public Health
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Head of Departament:
Dr hab. n. med. Alicja Walczak

Total hours:
55 hours include:
7 hours of lectures
48 hours of workshops

ECTS points: 5

Goals of teaching “Hygiene and epidemiology”:
Knowledge of environmental factors affecting population’s health.
Knowledge of means of protection from environmental diseases.
Knowledge of capabilities needed in protection from diseases and in health promotion in the practice of a physician.
Knowledge of rules of nutrition of healthy people in different stages of life.
Knowledge of rules of dietetic therapy supporting the pharmacological treatment.
To help ensure that students develop appropriate knowledge of basic principles related to conducting and interpreting epidemiologic studies to fulfill their public health and occupational responsibilities to their communities, as well as to individual patients.

FORMS OF ACTIVITIES

Subject „Hygiene and epidemiology” is carried out in the 5th and 6th semesters in forms of seminars, workshops, colloquiums and examination. Includes in total 55 hours.

1. Lectures. There are 7 hours of lectures in the 6th semester.
2. Workshops. Each class consists of 2 hours of workshops. During workshops students are obliged to perform determinations, to describe the chosen features of materials or presented examples, to solve the analysed problems and to draw appropriate conclusions.
3. Colloquiums. The material in hygiene and epidemiology is controlled during 7 colloquiums (3 in 5th semester and 4 in 6th semester) as tests with single choice questions. Students who got the mark 2 should do the retake test within 2 weeks after the announcement of the test results.
4. Exam. The final verification of students knowledge conducted as a test consisting of single and multiple choice questions. The exam has two retakes.
PROGRAM OF „HYGIENE AND EPIDEMIOLOGY” COURSE

Lectures: 7 hours


Workshops: 48 hours (2 hours per each subject):

1. Hospital hygiene.

2. Measurements and their hygienic interpretation of noise level.
   Workshop: Measurement of noise level with the use of Sound Level Meter (SLM): measurement of noise level in the silent room, measurement of noise level from vacuum cleaner, determination the acoustic pattern of vacuum cleaner noise – estimation the possible effects on worker. Analysis of audiograms.

   The impact of climate and climate change on public health. The health effects of exposure to low and high atmospheric pressure. Exposure to heat and cold: burns and frostbites (classification). The influence of microclimatic factors (solar radiation, air temperature, air humidity, air velocity) on human health and comfort. Indices and methods of evaluation of the integrated microclimate effects (cooling power, effective temperature).
   Workshop: Cold and heat stress evaluation: calculation of Wind Chill Index (WCI) and Wet Bulb Globe Temperature (WBGT). Measurements and interpretation of temperature and relative humidity. Calculation and interpretation of some chosen microclimate indices in a seminar room: effective temperature (ET), Predicted Mean Vote (PMV) and Predicted Percentage of Dissatisfied (PPD).
4. **Occupational hygiene: light and lighting assessment.**
**Workshop:** Measurements and interpretation of parameters of natural and artificial lighting.

**Workshop:** Performing the PWC 170 test with the use of cycle ergometer. Calculating energy expenditure in the work of physician. Ergonomic evaluation of computer workstation in the seminar room.

6. **The assessment of exposure to particulate matter: industrial dusts. Assessment of exposure to chosen environmental allergens.**
**Workshop:** 1. Microscopic evaluation of chosen pollen grains and the preparation of one’s own listing of pollens. 2. Making one’s own recommendations regarding limiting/minimizing the exposure of hypersensitive people to aeroallergens of plant origin. 3. The evaluation of exposure to feces of house dust mites with the use of ACAREX test. 4. Of the given list of methods limiting the exposure to allergens of house dust mites students choose methods which are: a) essential, b) desirable and c) of questionable effectiveness.

7. **Environmental and occupational toxicology.**
**Workshop:** Determinations of reference doses for chosen toxic substances.

8. **Chemical and biological pollution of water. The effectiveness of water treatment.**
**Workshop:** Determination of nitrates, nitrites, chlorine, chlorides, copper, water hardness, pH and total dissolved solids (TDS) in a given water samples.

9. **Food hygiene and safety.**
Recommended norms for daily food intake. Artificial substances in food and their influence on health status.

**Workshop:** Calculation of energy requirements for individuals in relation to age, sex and physical activity.

**10. Analysis and evaluation of some chosen diets.**

**Workshop:** Quantitative method for evaluation of different diets.

**11. Biological hazards.**
Blood-borne pathogens. Other potentially infectious materials (OPIM) HCV, HBV, HIV. Risk identification, clinical course of infection, routes of contamination, preventive protocols. Vaccinations.

**Workshop:** assessment of individual risk of a health care workers exposed to blood-borne pathogens. Reporting protocol. Preventive procedures. Different scenarios.


**Workshop:** accounting of standardized mortality rates.

**15. Types of epidemiological studies.** Observations and experiments in epidemiology. Observational studies: descriptive, cross-sectional, case-control and cohort study.

**Workshop:** applications, advantages and disadvantages of different observational studies.

**16. Potential errors in epidemiological studies.** Random and systematic error. Types of bias. Confounding; methods commonly used to control confounding at the design and analysis stage. Internal and external validity of an epidemiological study.

**Workshop:** how to deal with random and systematic error in epidemiological studies – various examples from different study designs.


**Workshop:** calculating sensitivity, specificity, PPV and NPV from a 2x2 table using hypothetical examples from medical literature.


**Workshop:** The epidemiological investigation in various food-borne outbreaks.
19. **Experimental epidemiology.** Randomized controlled, field and community trials.  
**Workshop:** applications, advantages and disadvantages of experimental study.

20. **Causation in epidemiology.** The concept of cause: sufficient or/and necessary; a causal pathway; single and multiple causes; factors in causation. Establishing a cause of a disease: temporal relationship, plausibility, consistency, strength, dose-response relationship, reversibility. From association to causation: deriving inferences from epidemiologic studies.  
**Workshop:** assessment of the evidence suggesting Helicobacter pylori as a causative agent of duodenal ulcer.

21. **Clinical epidemiology.** Epidemiology and prevention of selected chronic illnesses.  
Risk factors of cancers.  
**Workshop:** physical examination of breast tumor.

**Workshop:** understanding and calculations basic measures of EBM, such as number needed to treat and likelihood ratios.

23. **Planning a research project.** First steps in practical epidemiology: choosing a project, writing the protocol, doing the research, analysing the data, getting published.  
**Workshop:** how to prepare a questionnaire: types and sequence of questions, language, layout, graphics; questionnaires versus interviews; pre-testing.

24. **Weighting the evidence: Critical reading of published reports.** What is the research question of the study? If valid, are the results relevant to my work? What kind of study is this? What is the study population? Are the methods well described? How are the data presented? Is there a statistically significant difference between groups? Is it due to any chance or bias?  
**Workshop:** Final evaluation: critical analysis of epidemiological research papers.

**Textbooks:**


**Knowledge, capabilities and students’ competence after finishing the course in “Hygiene and epidemiology”**.

1. Knowledge of the principles of hygiene in hospital environment.
5. Capability for the assessment of human’s exposure to harmful substances present in drinking water and of evaluation of water for drinking purposes.
6. Knowledge of hygienic requirements and indices of daylight and artificial lighting.
9. Familiarity with the basic principles of epidemiology, including incidence, prevalence, confounding and bias, causality by proximate and underlying determinants, and basic study designs, including the research hierarchy for practice of evidence-based medicine.
10. Capable for planning a population-based survey in community or clinical practice, including concepts of target population, random sampling, inference, and generalisation, as well as practical aspects of ethics, proposal writing, questionnaire design, quality control of data entry, data analysis, descriptive statistics, followed by interpretation of the data.
11. Capable of rapidly and efficiently retrieving and assessing scientific evidence for medical and public health practice from peer-reviewed publications and internet sources.