UNIVERSITAT DE BARCELONA

TRANSLATIONAL RESEARCH IN PUBLIC HEALTH

STUDY PLAN 2019-2020

Coordinated by Prof. Ángela Domínguez Medicine Department, Faculty of Medicine and Health Sciences, University of Barcelona. Epidemiology and Public Health CIBER, Instituto de Salud Carlos III

GENERAL INFORMATION

Subject Name	Translational Research in Public Health
Code	566665
Type	Optional
Teaching	Second semester
Coordinator	Dr. Àngela Domínguez
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ECTS credits	3

OBJECTIVES

At the end of this Module, students must be able to:
- Explain the terms cluster, outbreak and epidemic
- Interpret and describe the value of an epidemic curve
- Discuss some of the biases that might affect case-control studies
- Discuss some of the biases that might affect cohort studies
- Calculate the proportion of attributable risk in the exposed
- Calculate the proportion of attributable risk in the population
- Discuss what does the proportion of attributable risk in the exposed and the proportion of attributable risk in the population imply for the practice of public health
- Discuss the criteria for causation in an observational study
- Describe the applications and limitations of matching in case-control studies
- Describe the method to analyze matched case-control data
- Calculate the odds ratio for triplets and quadruplets in a matched case-control study
- Calculate the predictive value of the two sequence tests in a screening program
- Discuss the criteria considered in evaluating a screening program in public health practice
- Define public health surveillance and to identify the key features of a surveillance system
- Develop a case definition for an outbreak investigation
- Explain how hypotheses can be generated and tested in an outbreak investigation
- Discuss the advantages and disadvantages of using a sensitive and/or specific case definition in an epidemic investigation
- List the factors that can account for a change in the reported incidence of a disease
- Discuss the effect of a different case definition on the sensitivity of a surveillance system
- Calculate the vaccine effectiveness and discuss its interpretation

COMPETENCES TO BE GAINED DURING THE STUDY

Generals
G1: Be able to design, plan and properly interpret experimental protocols in the field of Translational Medicine

G2: Be able to dynamically integrate modern knowledge and techniques developed within the field of Translational Medicine

G3: Be able to interact with professionals from other medical specialties in a creative and decisive way

G4: Have a clear appreciation of disciplinary actions and communications necessary to establish the link between basic science and clinical medical research

Specifics

S1: To be capable of teaching and divulging knowledge in the social environment for expert and non-expert people

S2: To be capable of integrating knowledge and ways to do in front complex situations and to formulate a judgment with a limited information, but in a reflexive way, taking into account the social and ethical repercussions of them

S3: To be capable of knowing the bioethical and legal principles of research and professional activities in the field of translational research

S4: To be capable of using adequate technologies for the design, analysis and interpretation of epidemiological data

S5: To be capable of identifying problems of public health, to design epidemiological studies and to interpret the results

Pre-requirements

All oral sessions, presentation of lectures and practical sessions will be offered in English, thus students should have a good comprehension and oral English level.

THEMATIC BLOCKS

1. Introduction to Global Public Health
2. Bioethics
3. Fundamentals of outbreak investigations. Case study: Oswego
4. Investigation of transmission in infectious diseases. Case study: Suspected Legionnaires' disease in Bogalusa
5. Sensitivity of a surveillance system. Case study: Paralytic illness in Ababo
6. Design of observational studies. Case study: Smoking and lung cancer
7. Prevention impact assessment. Case study: Texarkana-Vaccine efficacy
8. Unmatched and matched case-control studies. Case study: Toxic shock syndrome
9. Screening programs in public health practice. Case study: Screening for antibody to the human immunodeficiency virus

METHODOLOGY

Total training hours: 3 credits ECTS x 25h/credit = 75h

Classroom activities will consist in sessions which firstly show the conceptual aspects needed for the different types of epidemiological studies and secondly, problem solving using different Case studies. In this way, the students will acquire knowledge and skills to apply translational research to public health and the basics of epidemiology by means of the analysis of real situations.

Face-to-face training (32 hours) will consist in Lectures and Case studies.

Home training: Students should prepare the Case studies before each session, study the concepts explained in the classroom, read the recommended reading material and prepare the oral presentation to complete 75 hours corresponding to the 3 ECTS credits of the subject

EVALUATION

To pass the subject, students must obtain a minimum of 50 points. The score will be established as follows:

• **Attendance 50% of the score**
• **Oral presentation 50% of the score**

To pass the subject, students will have to fulfill three requisites: Attendance-score ≥ 20/50, oral presentation score ≥20/50, and overall score (attendance + oral presentation) ≥ 50/100.

Oral presentation: Students will have to present in class an observational study dealing with the association between risk factors or preventive measures (primary prevention or secondary prevention) and a specific communicable or non-communicable disease. Students should select an article from the options listed in the Virtual Campus task consultation.

The oral presentation must include an introduction to the topic, as well as the research question, objectives, methodology (describing the design of the study and the variables included and the ethical aspects), results, a discussion (including limitations and possible biases of the study) and conclusions. Students should also make recommendations in relation to the author's conclusions. A pdf file containing the PowerPoint slideshow supporting the oral presentation must be submitted to the lecturer after the presentation. Slideshows will be posted on the Virtual Campus.

<u>Re-evaluation</u>: After the final grades have been posted, a multiple-choice examination is set for students who have not met the assessment criteria. There is only one correct answer out of four options per question. Incorrect answers incur a penalty of 25% of the mark given for each correct answer. The re-evaluation final score will never get over 50 points.

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