Course on "Introduction to Systematic Reviews and Meta-analysis"

COURSE DIRECTORS

João Costa, MD, PhD (*Coordinator Director, Cochrane Portugal; Associated Director, Center for Evidence Based Medicine; Professor, Laboratory of Clinical Pharmacology and Therapeutics, Faculty of Medicine, University of Lisbon*)

António Vaz Carneiro, MD, PhD, FACP (*Executive Director, Cochrane Portugal; Director, Center for Evidence Based Medicine, Faculty of Medicine, University of Lisbon*)

SPEAKERS

AT   **Aurelio Tobias**
Consejo Superior de Investigaciones Científicas, Barcelona

AVC   **António Vaz Carneiro**
CEMBE, Cochrane Portugal, Faculty of Medicine, University of Lisbon

DC   **Daniel Caldeira**
Laboratory of Clinical Pharmacology and Therapeutics, Faculty of Medicine, University of Lisbon

JA   **Joana Alarcão**
Cochrane Portugal, Laboratory of Clinical Pharmacology and Therapeutics, Faculty of Medicine, University of Lisbon

JC   **João Costa**
CEMBE, Cochrane Portugal, Laboratory of Clinical Pharmacology and Therapeutics, Faculty of Medicine, University of Lisbon

RF   **Ricardo Fernandes**
Cochrane Portugal, Laboratory of Clinical Pharmacology and Therapeutics, Faculty of Medicine, University of Lisbon

DATES

April 8th- 9th 2016

COURSE FEES

- Post graduate students - **150€**
- Professionals of public and private institutions - **300€**

VENUE

Faculty of Medicine, University of Lisbon
"Anfiteatro Cid dos Santos"
Av. Prof. Egas Moniz | 1649-028 Lisboa | PORTUGAL
www.medicina.ulisboa.pt

TARGET AUDIENCE

This course is aimed at health care professionals and researchers.

The level of this course will be introductory (aimed primarily at health care professionals and researchers in training, or those wishing to refresh/update their basic knowledge in the field of systematic reviews and meta-analyses). It may also be suitable for undergraduates or general trainees with this particular interest.

OBJECTIVES

- Describing basic concepts of EBM
- Describing basic concepts of a systematic review and a meta-analysis
- Writing a protocol of a systematic review
- Developing strategies for searching bibliographic databases and studies selection
- Critically appraise clinical trials
- Preparing a systematic review and a meta-analysis
- Critically appraise a systematic review and a meta-analysis

COURSE STRUCTURE

The course is composed of two modules of one day each, interconnected, providing a broad knowledge of the subject as well as the various methods for its practical application.

APPLICATIONS

Number of participants: 30 (max).

COURSE EVALUATION

The course will have the following evaluations:

1. **Teaching evaluation** - The evaluation of teaching will be done through surveys completed by students at the end of the course, focusing on the quality of the course, its objectives, bibliographic support, teaching ability of the trainer, etc.

2. **Learning evaluation** - The evaluation of learning will be done through the completion of an individual work.

COURSE PROGRAMME

Day 1 (8 April 2016)

9:00-9:15	**WELCOME NOTE** Course Directors: João Costa, MD, PhD *(Coordinator Director, Cochrane Portugal; Associated Director, Center for Evidence Based Medicine, Professor, Laboratory of Clinical Pharmacology and Therapeutics, Faculty of Medicine, University of Lisbon)* António Vaz Carneiro, MD, PhD, FACP *(Executive Director, Cochrane Portugal; Director, Center for Evidence Based Medicine, Faculty of Medicine, University of Lisbon)*
SESSION #01	**INTRODUCTION TO SYSTEMATIC REVIEWS**
9:15 - 9:45	**1. Principles of evidence-based medicine** António Vaz Carneiro, MD, PhD, FACP *(Cochrane Portugal, CEMBE, Faculty of Medicine, University of Lisbon)* • Explain the importance of using an evidence-based approach • Levels of evidence • Systems of recommendation
9:45 - 10:15	**2. Systematic reviews** António Vaz Carneiro, MD, PhD, FACP *(Cochrane Portugal; CEMBE, Faculty of Medicine, University of Lisbon)* • Systematic reviews vs. narrative reviews • The role of Cochrane • Outline the process of undertaking a systematic review
10:15 - 10:30	**3. Discussion**
	COFEE BREAK
SESSION #02	**PROTOCOL OF A SYSTEMATIC REVIEW**
11:00 - 11:45	**1. Writing a protocol** Joana Alarcão, PharmD *(Cochrane Portugal, Laboratory of Clinical Pharmacology and Therapeutics, Faculty of Medicine, University of Lisbon)* • Outline the key components of a protocol • Explain the PICO approach to defining the question and objectives for the protocol • Prepare the background section of the protocol • Describe the elements of the methods section
SESSION #03	**SEARCH STRATEGY**
11:45 - 12:30	**1. Searching for studies** Joana Alarcão, PharmD *(Cochrane Portugal, Laboratory of Clinical Pharmacology and Therapeutics, Faculty of Medicine, University of Lisbon)* • Planning the search process • Constructing a search strategy • Managing and reporting the search results
12:30 - 13:15	**2. Practical exercises: Searching for studies in Medline** Joana Alarcão, PharmD *(Cochrane Portugal, Laboratory of Clinical Pharmacology and Therapeutics, Faculty of Medicine, University of Lisbon)*
	LUNCH
SESSION #04	**EVALUATION AND APPRAISAL OF CLINICAL TRIALS**
14:15 - 15:00	**1. Evaluation and appraisal of randomized controlled trials** Ricardo Fernandes, MD, PhD *(Cochrane Portugal, Laboratory of Clinical Pharmacology and Therapeutics, Faculty of Medicine, University of Lisbon)* • Describe different types of bias which randomised trials are at risk of • Identify and assess the risk of bias in randomised trials • Plan how to summarise and incorporate risk of bias assessments
15:00 - 15:45	**2. Practical exercise** Ricardo Fernandes, MD, PhD *(Cochrane Portugal, Laboratory of Clinical Pharmacology and Therapeutics, Faculty of Medicine, University of Lisbon)* • Critical appraisal of clinical trials papers
15:45 - 16:15	**3. Discussion**
	COFEE BREAK
SESSION #05	**STUDY SELECTION and DATA COLLECTION**
16:45 - 18:30	Daniel Caldeira, MD *(Laboratory of Clinical Pharmacology and Therapeutics, Faculty of Medicine, University of Lisbon)* • Implementation of the selection process • Discuss methods used to minimise errors and bias in collecting data • Decide what data to collect from studies • Devise an appropriate form for collecting data from included studies
18:30 - 18:45	**1. Overall Discussion** All Faculty

Day 2 (9 April 2016)

SESSION #06	FUNDAMENTALS OF META-ANALYSIS
9:00 - 9:30	**1. Introduction to meta-analysis** João Costa, MD, PhD *(Cochrane Portugal; CEMBE, Laboratory of Clinical Pharmacology and Therapeutics; Faculty of Medicine, University of Lisbon)* • Explain the difference between meta-analysis and systematic reviews • Understand the steps of conducting a meta-analysis • Recognise the elements of a forest plot and interpret the results
9:30 - 10:30	**2. Which data should be pooled in a meta-analysis?** Aurelio Tobias, PhD *(Consejo Superior de Investigaciones Científicas, Barcelona)* • Select effect measures for dichotomous and continuous outcome measures • Calculate effect measures from raw data e.g. risk ratio and odds ratio • Calculate mean difference and standardised mean difference
10:30 - 11:30	**3. How to pool the results?** Aurelio Tobias, PhD *(Consejo Superior de Investigaciones Científicas, Barcelona)* • Fixed and random effect methods
	COFEE BREAK
SESSION #07	HETEROGENEITY and other bias in meta-analysis
11:45 - 12:45	**1. Heterogeneity** Aurelio Tobias, PhD *(Consejo Superior de Investigaciones Científicas, Barcelona)* • Understand the meaning of heterogeneity • Identify differences between clinical, methodological and statistical heterogeneity • Describe the strategies for handling heterogeneity
12:45 - 13:45	**2. Bias in meta-analysis and complementary techniques** Aurelio Tobias, PhD *(Consejo Superior de Investigaciones Científicas, Barcelona)* • Publication bias • Cumulative meta-analysis • Sensitivity analysis
13:45 - 14:00	**3. Discussion**
	LUNCH
SESSION #08	PRACTICAL EXERCISES I
15:00 - 16:30	**1. Exercises** Aurelio Tobias, PhD *(Consejo Superior de Investigaciones Científicas, Barcelona)* João Costa, MD, PhD *(Cochrane Portugal; CEMBE, Laboratory of Clinical Pharmacology and Therapeutics; Faculty of Medicine, University of Lisbon)*
	COFEE BREAK
16:45 - 18:00	PRACTICAL EXERCISES II **1. Exercises** Aurelio Tobias, PhD *(Consejo Superior de Investigaciones Científicas, Barcelona)* João Costa, MD, PhD *(Cochrane Portugal; CEMBE, Laboratory of Clinical Pharmacology and Therapeutics, Faculty of Medicine, University of Lisbon)*
18:00 - 18:15	CLOSING REMARKS All Faculty