ECDC FELLOWSHIP MODULE

EPIET & EUPHEM

MULTIVARIABLE ANALYSIS MODULE (MVA) PROGRAMME

Nicosia, Cyprus
16-20 April 2018

University of Cyprus
Medical School

ΥΠΟΥΡΓΕΙΟ ΥΓΕΙΑΣ

Ministry of Health

The ECDC Fellowship MVA module will be hosted jointly by the **Ministry of Health Cyprus** and the **Medical School, University of Cyprus**.

The learning objectives of the module are:

MVA module - Learning objectives	EPIET core competencies
To understand the principles of multivariable analysis	**2.1.1.38 to 2.1.1.43**
To identify the analysis situations that require use of multivariable analysis	**1.2.2.14; 1.2.3.23; 1.2.4.27; 1.2.7.36**
To select the multivariable analysis that is adapted to a study objective/design	**1.2.3.23; 1.2.7.36**
To identify the relevant variables to build up an optimal regression model	**2.1.1.38 to 2.1.1.43**
To control for confounding and effect modification at the analytical level	**2.1.1.38 to 2.1.1.43**
To interpret the results of a regression model: Meaning of parameters and the corresponding inferences	**2.1.1.38 to 2.1.1.43; 1.2.2.14; 1.2.3.23; 1.2.7.36**

Context: The fellows are involved in the surveillance and research of different infectious diseases, which can include different types of data analysis and interpretation, to inform decision-making and plan actions.

Core competencies identified for the analysis of epidemiological data component of the fellowship are to:

- (1.2.2.14) Identify key findings from surveillance data analysis and draw conclusions. (1,3)

- (1.2.3.23) Conduct analytical epidemiological investigation to identify the source. (1,2,3)

- (1.2.4.27) Conduct epidemiological studies. (2,3)

- (1.2.7.36) Identify appropriate target groups for recommendations. (3)

- (2.1.1.37) Apply basic concepts of probability. (1,2,3)

- (2.1.1.38) Calculate and interpret point estimates and confidence intervals of measures of central tendency and dispersion. (1,2,3)

- (2.1.1.39) Calculate and interpret point estimates and confidence intervals of measures of disease frequency. (1,2,3)

- (2.1.1.40) Calculate and interpret point estimates and confidence intervals of measures of association and impact. (1,2,3)

- (2.1.1.41) Calculate and interpret significance tests. (1,2,3)

- (2.1.1.42) Use database software packages for entering and managing data. (2)

- (2.1.1.43) Use software packages for statistical analysis: measures of association, testing, and multivariable analysis. (2,3)

The ECDC Fellowship introductory course aims at presenting the theoretical ground and basic practice for the competencies marked as (1). The "Outbreak Investigation Module" aims at providing the technical skills needed for the competencies marked as (2). **The "Multivariable Analysis module" aims at providing more in depth technical skills needed for competencies marked as (3)**

The module will provide fellows with basic definitions and concepts for the different types of regression models. It will also provide the skills needed to perform and interpret multivariable analysis and to communicate the results. Therefore participants will acquire competencies in the areas of statistical data analysis, inferential statistics and written communication.

Lectures and exercises will be given in interactive sessions in a plenary room and will include discussions on the main results. There will be a homework exercise to complete prior to the module, and more than half of the time will be dedicated to 4 case studies, including computer exercises. Fellows will present their work in mini seminars and obtain feedback. There will be a review of published papers in groups and a practice on scientific writing.

Software: STATA will be used.

Draft syllabus Multivariable Analysis Module – April 2018

Time	Monday	Tuesday	Wednesday	Thursday	Friday
09:30 - 11:00	**Welcome** and presentation of the course (Alicia/Ioannis)	**Lecture**: Logistic regression I (Thomas)	**Lecture**: Conditional logistic regression (Chris)	**Exercise**: From numbers to words: how to write your results in a paper	**Case-study F**: presentation (Alicia/Ioannis)
	Pre-course exercise: descriptive and stratified analysis (Alicia/Ioannis)	**Case-study B**: Logistic regression	**Case-study C**: Conditional logistic regression		
11:00-11:30	Break	Break	Break	Break	Break
11:30 – 13:00	**Lecture**: MVA in surveillance and research (Alicia) **Lecture**: General approach to different multivariable techniques (Andre)	**Case-study B**: Continuation	**Case-study C**: Continuation	**Lecture**: Cox regression (Patrizio) **Case-study E**: Cox regression	**Case-study F**: Continuation
13:00 - 14:00	Lunch	Lunch	Lunch	Lunch	Lunch
14:00 - 15:30	**Lecture**: Linear regression (Irina/Ben)	**Lecture**: Logistic regression II (Thomas)	**Lecture**: Poisson regression session and negative binomial (Ioannis)	**Case-study E** Continuation	**Case-study F**: wrap up (Alicia/Ioannis)
	Case-study A: Linear regression	**Case-study B**: Continuation	**Case-study D**: Poisson and negative binomial regressions		
15:30 - 16:00	Break	Break	Break	Break	Break
16:00 - 17:30	**Case-study A**: Continuation	**Case-study B**: Continuation	**Case-study D**: Continuation	**Fellows' presentations**	**Course evaluation** (Alicia/Ioannis)
	Facilitators meeting: 20 min			Facilitators meeting: 20 min	

Green: lecture
Orange: group discussion
Blue: practical session