MediPIET
Diseases-Oriented Training
Module 7: Food and Waterborne
18-20\textsuperscript{th} April 2016
Module 6: Vectorborne and zoonosis
21-23\textsuperscript{rd} April 2016
Athens, Greece

Implemented by the Consortium

Funded by the EU

Centres of Excellence
An Initiative of the European Union
Background

The Mediterranean Program for Intervention Epidemiology Training (MediPIET) is a sustainable training program in intervention epidemiology funded by the European Commission and implemented by Spanish Consortium -National Public Health Institute (ISCIII) and the International and Ibero-American Foundation for Administration and Public Policies (FIIAPP)-, and under the scientific leadership of European Centre for Disease Prevention and Control (ECDC). The purpose of the program is to consolidate a competent workforce with the necessary competence in intervention epidemiology to carry out essential public health functions for prevention and control of national and cross-border challenges posed by communicable diseases (http://medipiet.eu/web/).

Title of the training module

Food, Waterborne, Vectorborne and zoonotic diseases

Dates, place and venue

18-23\textsuperscript{rd} April 2016.

The training will take place at hotel Radisson Blue Park Athens, Greece https://www.radissonblu.com/en/hotel-athens and on Thursday 21\textsuperscript{st} April 2016, the field exercise and laboratory demonstration will take place at the National Public Health School of Greece.

Learning objectives

Learning objectives of each of the two modules included in this 6-days training, i.e module Module 7- Food and Waterborne diseases and Module 6- Vectorborne and zoonosis, and detailed contents of each section are provided in the next sections of the document.

Faculty

In collaboration with the Hellenic Center for Disease Prevention and Control, the Module 7 is coordinated by Kassiani Mellou, Head of Food and Waterborne diseases of the Greek Center for Disease Control & Prevention and Module 6 is organized by Adela Paez & Nikoletta Mavroeidi, MediPIET Scientific coordinators.

For this training, MediPIET mobilises the below listed group of experts, from both participating countries and EU reference institutions, with large teaching and field experience:

- Kassiani Melou kmellou@gmail.com
- Angeliki Lambrou lambrou@keelpno.gr
- Adela Paez apaez@medipiet.eu
- Nikoletta Mavroeidi nmavroeidi@medipiet.eu
- Marie Belizaire Duvalsaint mduvalsaint@medipiet.eu
- Ahmed Zaghloul azaghloul@medipiet.eu
- Vinciane Sizaire vsizaire@medipiet.eu
- Ettore Severi Ettore.Severi@ecdc.europa.eu
- Kiki Trifinopolou k.tryfinopoulou@otenet.gr
Target audience

Up to a total of 30 participants, expected attendees are:

- MediPIET fellows from 2014-2016 Cohort Training Sites, i.e. Albania, fYROM, Lebanon, and Tunisia;

- Public health epidemiologists and/or experts from related professions, who can participate in FWD and/or VBD outbreak investigations such as veterinarians, nominated by national authorities through the National MediPIET Committee from Albania, Algeria, Armenia, Bosnia & Herzegovina, Egypt, former Yugoslav Republic of Macedonia, Georgia, Israel, Kosovo ¹, Lebanon, Lybia, Jordan, Moldova, Montenegro, Morocco, Serbia, Palestine*, Tunisia, Turkey, Ukraine.

Pre-requisites

Since the course is intensive, a good command of the English language is essential. Also, it is required knowledge of:

- Principles of surveillance,
- Outbreak investigation,
- Epidemiological analytical methods,
- Topics covered by, or participation in MediPIET Modules 1 (Introductory Course), and 2 (Outbreak investigation tools).

Of note, the free software Epi Info 7™ will be used during the case studies in the afternoons. It can be download at the following link:

http://www.cdc.gov/epiinfo/support/downloads.htm

It is advised participants get familiar with this software before the start of the training.

¹ This designation is without prejudice to positions on status, and is in line with UNSC 1244 and the ICJ Opinion on the Kosovo Declaration of Independence.

*This designation shall not be construed as recognition of a State of Palestine and is without prejudice to the individual positions of the Member States on this issue
Expected participants

Fellows Cohort 1, 2014-2016

1. Ivana Capo  
ALBANIA  
capo.ivana@yahoo.com

2. Elona Kureta  
ALBANIA  
ekureta@gmail.com

3. Vladimir Mikik  
FORMER YUGOSLAV REPUBLIC of MACEDONIA  
mikik.vladimir@gmail.com

4. Kristina Stavridis  
FORMER YUGOSLAV REPUBLIC of MACEDONIA  
etistavridis@gmail.com

5. Hala Abou Naja  
LEBANON  
esu.abounajah@gmail.com

6. Nadine El Haddad  
LEBANON  
haddad_nadeen@hotmail.com

7. Hajer Letaief ép Mrad  
TUNISIA  
hejerletaeif@gmail.com

8. Salsabil Rejaibi  
TUNISIA  
salsabil-raibi@hotmail.fr

External participants

9. Liana Torosyan  
ARMENIA  
Liana_torosyan@mail.ru

10. Lusine Paronyan  
ARMENIA  
lusineparonyan@yahoo.com

11. Semra Cavaljuga  
BOSNIA and HERZEGOVINA  
kozicahalis@gmail.com

12. Alis Kozica  
BOSNIA and HERZEGOVINA  
maifarouk87@yahoo.com

13. Mai Arafat  
EGYPT  
Gouda.pharmacist88@gmail.com

14. Mohamed Nasr Gouda el-Sayed  
EGYPT  
Gouda.pharmacist88@gmail.com

15. Erjona Shakjiri  
FORMER YUGOSLAV REPUBLIC of MACEDONIA  
erjona.shakjiri@gmail.com

16. Irine Kalandadze  
GEORGIA  
irinekal7@yahoo.com

17. Alina Pakhuridze  
GEORGIA  
alinapakhuridze@yahoo.com

18. Fatmire Kollçaku  
KOSOVO  
fatmiremk@gmail.com

19. Shqipe Krasniqi  
KOSOVO  
Shqipe_krasniqi123@hotmail.com

20. Natalia Caterinciuc  
MOLDOVA  
cia.tacternicuc@mail.ru

21. Ion Birca  
MOLDOVA  
ion.b@cnsp.md

22. Maja Milanović-Menyhart  
MONTENEGRO  
maja.milanovic@ijzcg.me
Participants from MediPIET observer countries

30. Rami Grifath  
31. Gamze Aktuna

Evaluator/Observer

• Enver Roshi, Supervisor Albania

Schedule

The schedule of the training is in the following page.
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<th>Monday 18th</th>
<th>Tuesday 19th</th>
<th>Wednesday 20th</th>
<th>Thursday 21st</th>
<th>Friday 22nd</th>
<th>Saturday 23rd</th>
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</thead>
<tbody>
<tr>
<td><strong>9:00-9:45</strong></td>
<td>Welcome and Introduction to the course [KASSIANI &amp; ADELA]</td>
<td>Environmental methods [ANGELIKI LAMBROU]</td>
<td>Introduction to VBD [LAURENCE MARRAMA]</td>
<td>Overview of zoonotic diseases [NIKOLETTA]</td>
<td>VBD Environmental/entomological aspects [ANTONIS MICHAELAKIS]</td>
</tr>
<tr>
<td><strong>10:30-11:00</strong></td>
<td>Break</td>
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<tr>
<td><strong>11:00-12:00</strong></td>
<td>Investigation of foodborne outbreaks [VESNA VELIKJ]</td>
<td>Investigation of waterborne outbreaks [GORDANA KUZMANOVSKA]</td>
<td>Hepatitis A outbreak in Scandinavian countries [ALL FACILITATORS]</td>
<td>Outbreak investigation in VBD [LAURENCE MARRAMA]</td>
<td>Leishmaniasis in Tunisia [MOHAMED]</td>
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<tr>
<td><strong>13:00-14:00</strong></td>
<td>Lunch</td>
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<tr>
<td><strong>15:15-15:45</strong></td>
<td>Break</td>
<td>Break</td>
<td>Break</td>
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<td>Break</td>
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<tr>
<td><strong>15:45-17:00</strong></td>
<td>Brucellosis outbreak (cont.) [ALL]</td>
<td>Waterborne outbreak (cont.) [ALL]</td>
<td>Lab &amp; field demonstration of larvae and adult mosquito sample [E.PATSOULA, B. STAVROULA, G. BALATSOS]</td>
<td>Case study West Nile Virus in Serbia (cont.) [ALL]</td>
<td>Plenary session [PAULA VASCONCELOS]</td>
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<td>Evaluation</td>
<td>Evaluation</td>
<td>Evaluation &amp; Closure [ADELA]</td>
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</tbody>
</table>
Module 7 Food and waterborne diseases,
18-20th April 2016
Athens, Greece

Course Program

About the course

(a) Learning objectives
At the end of the introductory course, participants will have and be able to:
- Refreshed knowledge of food and waterborne (FWD) diseases epidemiology;
- Apply principles of surveillance systems in human, vectors and animals;
- Propose evidence based Public Health response;
- Get acquainted with risk and impact communication;
- Practice intersectoral collaboration;
- Integrate aspects of emerging diseases and generic preparedness;
- Exchange best practices to minimise negative health outcome of migration process among refugees and asylum seekers in the current crisis situation.

(b) Course format
Teaching will be through interactive lectures in the morning and practical sessions in the afternoon. Such practical sessions in small groups of 6-8 participants will use case studies, which will allow participants to explore how what they have learned in the lectures applies to real situations. These case studies will include use of Epi Info 7 software.

(c) Course content

DAY 1 - Monday 18 April 2016

Presentation 1. FWD introduction - KASSIANI MELLOU

Content
- Basic terms – review
- Surveillance of FWD
- FWD epidemiology
- Epidemiological data in the Mediterranean - priorities
- Public health significance of FWD - burden
- Diversity of investigation methods, prevention and control measures

Presentation 2: Investigation of foodborne outbreaks - VESNA VELIKJ

Content
- Investigation – goals
- Basic principles
- Investigation methods (Ten steps)
- Operational aspects of outbreak investigation
- Examples of foodborne outbreaks
- Response
- Risk communication

**Presentation 3: Laboratory investigation of FWD outbreaks (clinical and food samples) - KIKI TRIFINOPOLOU.** Content:
- Appropriate collection of samples (clinical samples, food and water) and transportation
- Identification of aetiological agents
- Antimicrobial resistance patterns
- Molecular typing methods used in foodborne outbreak investigations
- Microbiological cluster definition, epitypes
- Interpretation of laboratory results
- Data flow between laboratories and epidemiologists

**Afternoon Case study: Outbreak investigation of brucellosis in Thassos, Greece, 2008 [1].** Learning Objectives:

At the end of this exercise, the participants should be able to:

- Apply principles of outbreak investigation in humans, food, and animals;
- Construct an epidemic curve;
- Interpret descriptive data;
- Conduct univariate and multivariable analysis with the use of Epi Info 7;
- Interpret results of univariate and multivariable analysis in a case control study;
- List the environmental and laboratory investigations needed;
- Discuss the risk of re-emergence of a brucellosis in an area under eradication;
- Propose short-term and long-term public health action and preventive measures;

**DAY 2 - Tuesday 19 April 2016**

**Presentation 1: Environmental methods & trace back methods - ANGELIKKI LAMBROU**

Content:
- Inspections of structural and operational hygiene in implicated food premises
- Trace back and forward investigations
- European legislation on traceability

**Presentation 2: Preventive and control measures of foodborne outbreaks – NIKOLETTA MAVROEIDI**

Content:
- Prevention and control of foodborne outbreaks (“farm to fork” approach)
- Preparedness issues
- Intersectoral collaboration
- Food safety
- Implementation of HACCP

**Presentation 3. Investigation of waterborne outbreaks - GORDANA KUZMANOVSKA**

Content:
- Investigation - goals
- Investigation methods (Ten steps)
- Operational aspects of outbreak investigation
- Examples of different outbreaks
- Risk communication

**Presentation 4. Preventive and control measures of waterborne outbreaks - MOHAMED CHAHE**

- Water safety
  - Preventive and control measures for outbreaks due to drinking water (tap water, well water, bottled water, contaminated water served as ice or in beverages, etc.)
  - Preventive and control measures for outbreaks due to recreational water (swimming pools, interactive fountains, water slides, lakes, rivers, streams, hot springs etc.)

**Afternoon Case study: A waterborne Campylobacter jejuni outbreak in Greece, 2009 [2].**

**Learning objectives:**
By the end of this case study, participants should be able to:
- list the investigations needed in a waterborne outbreak;
- describe the steps followed in an outbreak investigation;
- undertake descriptive analysis and univariate analysis with Epi Info 7;
- compute and interpret unadjusted odds ratios in a case-control study;
- perform stratified analysis and identify effect modification and confounding;
- compute and interpret stratum-specific and Mantel-Hänszel odds ratios;
- list the most important measures required in the context of a waterborne outbreak.

**DAY 3 - Wednesday 20 April 2016**

**Presentation 1. International outbreaks – ETTORE SEVERI**

**Content:**
- Definition of international outbreaks
- Consequences (economic, political, etc.)
- Coordination of investigation – difficulties – who is in charge
- The role of different bodies in investigation of food-borne outbreaks and legal framework (WHO, DG SANTE, ECDC, EFSA)
- International alert systems
  - International Health Regulation
  - INFOSAN
  - European alert systems (EWRS, RASSF, EPIS-FWD etc.)
- Communication plan (type of information to be shared, by whom, how)

**Presentation 2. Examples of past international outbreaks and Lessons learned – ETTORE SEVERI**

**Content:**
- Multistate foodborne hepatitis A outbreak among European tourists returning from Egypt, November 2012 to April 2013 [3]
- Multicountry outbreak of *Salmonella* Chester ex Morocco, 2014-2015
- Multi-country outbreak of Shiga toxin-producing Escherichia coli infection associated with haemolytic uraemic syndrome in Romania, 2016.
Case-study: Outbreak with Hepatitis A virus in Scandinavian countries, 2013 [5,6].

Learning objectives:

After completing the case study, participants should be able to critically examine:

- Under which circumstances a cluster of patients constitutes an international outbreak;
- Which international networks/institutions to alert in case of an international outbreak and when;
- What are the main challenges you anticipate during investigation of an international outbreak and necessary steps to deal with them;
- The value of performing an analytical epidemiological study when more than one countries are implicated in the outbreak;
- What kind of measures should be taken and by whom.

Presentation 3 and Plenary discussion: Implications for the epidemiological surveillance system of arrival of a sizeable migrant population: the experience of Greece. Foodborne and Vectorborne diseases – KASSIANI MELLOU & AGORITSA BAKA

Content:

- what type of pathogens in general could we expect to cause outbreaks in the current migrant situation (foodborne and vectorborne diseases)
- methodological and logistic aspects related to outbreak investigation in migrant populations,
- the experience of Greece from surveillance and response to foodborne diseases (hep A, shigella)
- the experience of Greece from surveillance and response to vectorborne diseases (malaria, leishmaniasis)

Last session: Course evaluation.

References


Module 6 Vector borne diseases,
21-23 April 2016
Athens, Greece

Course Program

About the course

(a) Learning objectives

- Refresh knowledge of epidemiology of vector borne diseases (VBD);
- Understand the specificity of VBD outbreak investigations, and become familiar with methods complementary to epi investigations;
- Gain knowledge in VBD surveillance (human and animal), including real time reporting, and in vector surveillance activities;
- Become familiar with VBD risk assessment tools and VBD preparedness principles, stressing the importance of intersectoral collaboration;
- Discuss implications for the epidemiological surveillance system and options to minimise negative health outcomes of migration process among refugees and asylum seekers.

(b) Course format

Teaching will be through interactive lectures in the morning and practical sessions in the afternoon. Such practical sessions in small groups of 6-8 participants will use case studies, which will allow participants to explore how what they have learned in the lectures applies to real situations. These case studies will include use of Epi Info 7 software.

(c) Course content

DAY 1 - Thursday 21st April 2016

Lecture 1. Introduction to VBD – LAURENCE MARRAMA
Content: What is important to know about VBD and vectors to handle VBD in outbreak investigation, surveillance and preparedness.


Lecture 3. Specificities of VBD outbreak investigation - LAURENCE MARRAMA
Content: Review of the ten steps of the outbreak investigations in the case of VBD, focusing on aspects of cases detection, appropriate collection of samples and transportation, specific protocols and data analysis.

Lecture 4. Laboratory methods in VBD – ELINA PATSOULA, EDVOKIA VASSALOU & GREGORY SPANAKOS

Afternoon Field Exercise: Laboratory and field demonstration of larvae and adult mosquito sample, National School of Public Health. ELINA PATSOULA, BELERI STAVROULA & GEORGE BALATSOS.
Learning objectives:
- Raise awareness about ecological and environmental issues for control of vectors;
- Become familiar with the key aspects of sample larvae, pupae and adult mosquito sampling and transportation from natural habitats;
- Understand purpose of the analysis carried out in the lab and interpretation of the results.

The participants will be divided in two groups and will alternatively participate in two sessions: one in the backyard of the school to understand sampling principles and another session in the lab for a practical demonstration.

**DAY 2 - Friday 22nd April 2016**

**Lecture 1. Overview of zoonotic diseases. NIKOLETTA MAVROEIDI.** Content:
Review of zoonotic diseases, including outbreak investigation and human and animal surveillance.

**Lecture 2. Intersectoral collaboration “One Health” approach. JAVIERA REBOLLEDO**

**Lecture 3. Brucellosis in the Former Yugoslav Republic of Macedonia. VESNA VELIJK**

**Lecture 4. Cutaneous leishmaniasis surveillance and control activities in Tunisia [2]. MOHAMED CHAHE.**

**Lecture 5. Enhanced malaria surveillance activities in Greece [3]. DANAI PERNAVANADIOU.**

**Lecture 6. From WNV to Zika virus: lessons learnt. TAKIS PANAGITOPoulos**

**Afternoon Case-study:** West Nile virus outbreak in Serbia, 2013.

Learning objectives:
- Understand the operational and epidemiological steps of an outbreak investigation of an emerging VBD,
- Understand principles and steps to set up a surveillance system in an outbreak setting,
- Develop a case definition for an emerging disease
- Draw and interpret an epidemic curve & characterize an outbreak by time, place and person
- Understand principles of mosquito based-surveillance and define mosquito-based indicators.

**DAY 3 - Saturday 23rd April 2016**

**Lecture 1. Environmental / Entomological aspects in the control and prevention of VBDs. ANTONIS MICHAELAKIS.**
Content:
- Ecological & environmental investigation in the framework of VBDs control and prevention;
- Key aspects of mosquito sampling, transportation and laboratory investigation.
- Entomological surveillance

**Lecture 2. VBD preparedness and available tools: generic principles and introduction to simulation exercises (SE). PAULA VASCONCELOS.**
**Practical exercise**: Exercise on preparedness and response: training approach to a discussion-based simulation exercise on VBD [4]. Learning objectives:

- Apply principles of outbreak investigation & risk assessment to the current situation with zika epidemics
- Propose public health action and preventive measures according to available evidence

**Last session**: Evaluation of the module (satisfaction survey) and Closure

**References**


