



**EpiSouth Report 6/2008**

## **EpiSouth Project**

### **Report of Training Needs Assessment in Countries Participating in the EpiSouth Project**

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## **1. Introduction**

### **1.1 EpiSouth General Objective**

The general objective of the project is to create a framework of collaboration on epidemiological issues in order to improve communicable diseases surveillance, communication and training across the countries in the area of Mediterranean and Balkans.

### **1.2 Specific Objectives and Areas of Activity**

Several areas of activity were identified and are being developed through specific Work Packages (WP) as follow.

1 - Co-ordination of the project (WP1), with the main specific objective (SO) of guaranteeing a high quality performance of the project.

2 - Dissemination of the project (WP2), with the main SO of disseminating the information produced by EpiSouth within the participating countries and to those who need to know through an ad hoc created website and an electronic bulletin.

3 - Evaluation of the project (WP3), with the main SO of evaluating the project and its achievements in terms of milestones, deliverables, and indicators.

4 - Network of public health institutions (WP4), with the main SO of facilitating the networking process and activities among participants in order to strengthen solidarity and cohesion.

5 - Training in field/applied epidemiology (WP5), with the main SO of strengthening the early response capacity of participating countries to health threats and infectious disease spread.

6 - Cross-border epidemic intelligence (WP6), with the main SO of establishing a common platform on epidemic intelligence where participating countries may find broad internationally as well as regionally focused information.

7 - Vaccine-preventable diseases and migrant populations (WP7), with the main SO of assessing the access to immunisation and exchanging information on cases/outbreaks of vaccine-preventable diseases of migrant populations.

8 - Epidemiology and preparedness to cross-border emerging zoonoses (WP8), with the main SO of providing a platform for the communication of human (HPH) and veterinary public health (VPH) officials, describing risk assessment methods and providing a mechanism for exchanging information between HPH and VPH.

### **1.3 Methods**

The main partner (ISS Italy) has developed a framework where all the managerial aspects are being included (WP1) and the information produced by the project are being disseminated (WP2).

Three vertical WPs, "Cross-border epidemic intelligence-WP6" (InVS, France), "Vaccines and migrants-WP7" (NCIPD, Bulgaria) and "Cross-border emerging zoonoses-WP8" (HCDCP, Greece) constitute the technical basis.

The two horizontal Work Packages, "Networking-WP4" (Padua, Italy) and "Training-WP5" (ISCIII, Spain) provide tools that help fulfilling the objectives of the vertical Work Packages. The project is evaluated through a dedicated Work Package (WP3).

### **1.4 Project Network Organisation**

Once the project had been approved by EU-DGSANCO, the effort done by the EpiSouth Project Steering Committee was to verify the strategic possibility to involve in the Project all the interested countries of Mediterranean area.

In this framework, the 1st Project Meeting was organised in Rome in March 2007. In addition to the 9 Countries which were involved in the project from the beginning, 13 countries from the Balkans, North Africa and Middle East participated to the meeting together with representatives of EU DGSANCO, EU ECDC, and WHO. Once the EpiSouth project objectives and methodology were discussed, the new organization and partnership were elaborated.

The 2<sup>nd</sup> Project Meeting took place in Athens in last December 2007 and, in addition to the Countries present to the 1<sup>st</sup> Meeting, other four were invited as potential partners of EpiSouth Network.

The Project Steering Committee is now composed by the 6 WP leaders Countries plus ECDC, EC-SANCO C3, WHO EURO, WHO EMRO and WHO LYO-HQ representatives as observers, in order to facilitate synergy and avoid overlapping.

The participation of the Countries and the International Organisations to the project foresees three different levels of active involvement:

- a) Focal Points (FPs) of the EpiSouth Network (WP4). Each Country/International Organisation identifies and appoints one or two relevant persons who act as Focal Point (FP) of the EpiSouth Network and who convey all the communication/information to the relevant officers in their respective Countries/Organisations.
- b) Collaboration in the Work Packages Steering Teams (WPSTs). In order to facilitate and enhance the work, each Country/International Organisation actively collaborates in one or two WP Steering Teams, which is in charge for identifying the countries' needs, developing the tools and the conducive project environment in accordance with the specific objective and requirements of the related WP.
- c) Participation to Work Packages' activities. Each participating country participate to the activities of one up to all the WPs in accordance with their needs and interests.

As per December 2007, the Network counts 21 Countries, (plus Tunisia that is in progress with its official commitment to EpiSouth) which have identified and appointed a total of 52 Country Focal Points (27 from EU-Countries and 25 from non-EU Countries) plus 5 representatives from International Organisations as part of the Network.

## 2. Summary

**Background:** The Episouth project is a public health surveillance project aiming to improve communicable diseases surveillance, communication and training across the Mediterranean and Balkan regions. Among eight areas of activity included, “Training in field/applied epidemiology” is a horizontal work package having as main objectives: Strengthening the early response capacity of participating countries to health threats and infectious diseases spread by organising short-term training courses and seminars and promoting participation in already existing European training courses.

The objective of the present survey was to identify common training needs in surveillance and early warning among participant countries in order to ensure consensus and necessary support for surveillance activities in the region.

**Methodology:** A survey was carried out in June-July 2007 among the 22 countries participating in the Episouth project. We used a self administered, semi-structured questionnaire sent to decision-makers/senior epidemiologists. The core part of the questionnaire allowed for prioritisation of training topics for the project. Analysis was performed using EpiInfo for Windows, version 3.3.2.

**Results:** A total number of 779 professionals works in surveillance at the central level in the respondent countries. The distribution of participant institutions by number and professional staff shows that services tend to be understaffed at central level and lack trained professionals. Access to training revealed that in most of the respondent countries, less than 25% of personnel in surveillance have received training in the last two years. Results of the training topics prioritisation show that training is most needed in quantitative risk assessment, modelling to understand dispersion of environmental risks and infectious diseases dynamics, epidemic intelligence and advanced data analysis.

**Conclusion:** A training needs assessment proved useful to identify training topics of major interest to be included in the training modules. Proposals for the next two modules are presented in the report. In addition to these, we identified a need for coordinating activities with major public health institutions and organizations working on these topics at regional level such as WHO (EURO, EMRO and Lyon Office) and the ECDC.

### **3. Background**

The Instituto de Salud Carlos III, Spain, through the National Centre for Epidemiology (CNE) and the National School of Public Health (ENS), was designated as the leading partner for the training work package (WP5). During the first meeting of the Episouth project in Rome in March 2007, a Steering Team was formed with representatives of Algeria, Lebanon, Morocco, Romania, Serbia and Turkey to oversee the activities developed under this work package in order to reach expected results.

The specific objectives of Work Package 5 (Training in field/applied epidemiology) include:

- Strengthening the early response capacity of participating countries to health threats and infectious diseases spread by organising short-term training courses and seminars.
- Promoting participation in already existing European training courses.

Main outputs of WP5 include three training modules with related teaching material, and a directory of training courses and fellowships of interest to the project. Since the Episouth network comprise 22 countries with important socioeconomic and health systems differences, a training needs assessment was considered necessary to identify common training needs within the framework of the project. This assessment was not meant to evaluate surveillance systems in participating countries or national training programmes in Epidemiology, but to explore directions in which training provided through the project would help countries fill in gaps in their surveillance related activities.

This report presents the results of the training needs assessment carried out as part of WP5 activities of the Episouth project. It also includes recommendations to address the needs identified through the assessment.

## **4. Training needs assessment**

### **4.1 Methodology**

A survey was carried out in June-July 2007 among the 22 countries participating in the Episouth project using a self administered questionnaire sent by email to institutions in charge of surveillance at national level.

The objective of this survey was to identify common training needs perceived in surveillance and early warning among the Public Health Institutions from the countries participating in the Episouth project in order to ensure consensus and necessary support for surveillance activities.



#### **4.1.2 Target group**

We invited senior professionals or decision makers from the Ministries of Health or national public health institutions in charge of epidemiological surveillance at central level to fill in the questionnaire or to designate the appropriate person for this task.

#### **4.1.3 Questionnaire**

The questionnaire (annex 2), comprised 45 questions, grouped into 5 sections. We used mainly close ended and contingency questions, but there was the possibility to add comments through open ended questions. Matrix questions were used for obtaining information on specific training areas under a "Skills and Competency" section, in order to prioritise listed training topics according to their perceived need and importance for the different institutions.

The five sections of the questionnaire were: Introduction, Professional identification data, Organization and Structure, Skills and competencies, Proposals for improvement.

The Skills and Competencies section, the main part of the questionnaire, was organized into four parts: Access to training, Training areas, Dissemination of results and Collaboration with neighbouring countries and international organizations. The training area part of this section consisted of tables with questions on surveillance, outbreak investigation, risk assessment and tools used in surveillance activities including a total of 20 training topics.

This approach allowed for prioritising the training topics of interest for Episouth participating countries. However, further activities such as site visits and in-depth interviews would be necessary to complete the picture of surveillance training needs in the region.

#### **4.1.4 Analysis**

A database was created and analysed using EpiInfo for Windows, version 3.3.2. Missing values were excluded from the analysis.

We used the median ranks for comparing variables and mean ranks only for differentiation purposes in case of equal score in the prioritisation of training topics, as described below.

For prioritising training topics in the third section (Skills and Competencies), a unique score was computed using the following variables:

- Perceived need of training in that topic
- Rank of perceived importance of the topic
- Existent skills at the central level to perform related task
- Availability of the related activity in the participant unit/team.





The score was calculated summing up ranks of variables: perceived need (recoded from 1-4, 4 being the most needed), perceived importance of the training (recoded from 1-3, 3 being the most important), activity performed in the team/unit (recoded 1 for “yes” and 2 for “no”) and sufficient skills in the team to perform the topic-related tasks (recoded 1 for “yes” and 2 for “no”).

This estimation method gave more weight to the first two variables. In order to minimize the effect of missing values, the mean score for each topic was used in prioritising. In case of an equal score, topics were ranked according to the perceived training need and then according to the mean rank of perceived importance of the topic.

The four training areas (Surveillance, Outbreak investigation, Risk assessment and Tools) were also ordered using the mean of the specific topic mean scores included in the area.

## 4.2 Results

### 4.2.1 Introduction

Response rate: Twenty-one questionnaires from 19 participating countries out of 22 were returned and validated, reaching a 86% response rate, after multiple reminders sent to participants.

A list of countries and institutions participating in the Training Needs Assessment of the Episouth Project is presented in annex 1.

### 4.2.2 Professional Identification Data

We received one questionnaire per country, except for two countries which returned two questionnaires filled in by different institutions (epidemiology and infectious disease departments).

Twelve questionnaires (57%) were completed by designated representatives from national communicable diseases centres or institutes. Nine (43%) were filled in by representatives of Ministries of Health through departments of Epidemiology or communicable diseases in the participating countries.

Most of the respondents (62%) were senior professionals having more than 10 years of experience in the participant institutions and more than half of them (62%) had been in their current position for over 4 years.

### 4.2.3 Organization and Structure

Participants were requested to return flowcharts in the organization and structure section. The diagrams and information obtained were insufficient to draw relevant conclusions besides a high diversity of the systems in number of decision levels and hierarchy, integration of laboratory and other institutions in the system, information systems and technical resources. However the returned flowcharts provided basic information to be used in planning workshops within modules.

By question 7, we intended to identify the target audience for training under the Episouth project. The number of professionals working in public health surveillance at the central level varied widely among institutions. Figure 1 shows the corresponding results.

A total number of 779 professionals work<sup>1</sup> at the central level in the responding countries but 70% of them are concentrated in 4 countries.

Out of 127 medical doctors epidemiologists working in the respondent institutions, 74 (58.2%) work in four countries reporting each one 10 or more medical doctors working at

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<sup>1</sup> The 779 professionals are distributed as follows: 127 medical doctors epidemiologists; 59 Non-epidemiologists medical doctors; 243 Non –epidemiologist Public Health professionals; 136 Technicians (statisticians, information technology staff, etc) and 165 Support (administrative support, etc)

the central level. In 11 respondent institutions, less than five medical doctors' epidemiologists work at the central level.

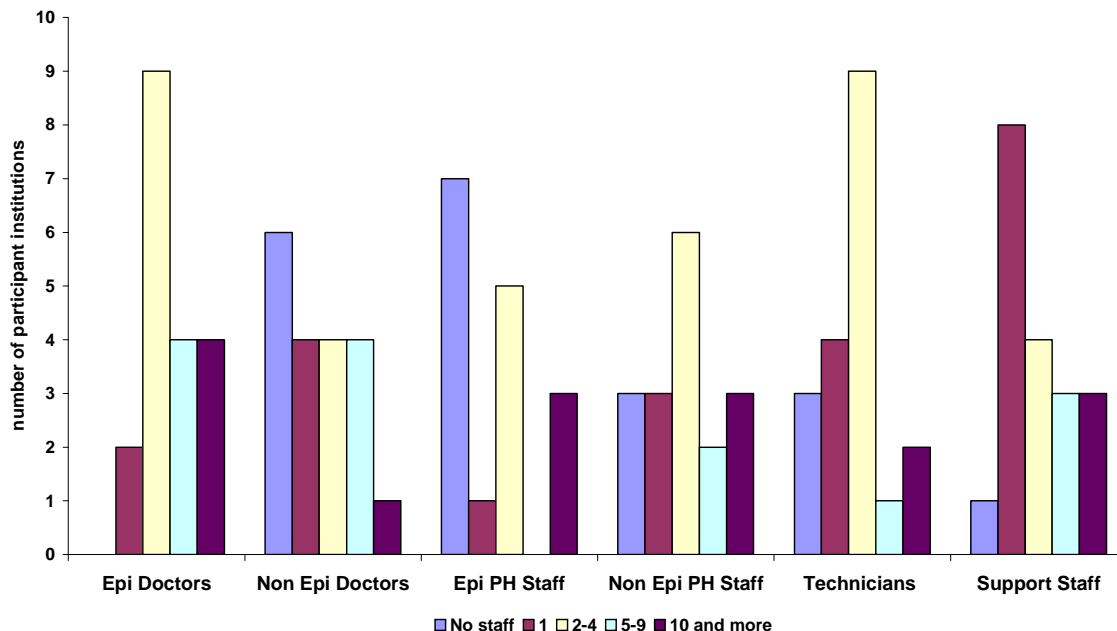
Six respondents (32%) reported not having any non-epidemiologist medical doctors at the central level. Ten (47%) stated that 5 or less non-epi doctors work in their units. Only one respondent reported more than 10 non-epi doctors, an expected result since that institution includes an infectious diseases clinic.

Even though a total number of 243 public health professionals (non-doctors) with training in Epidemiology were reported by respondents, the majority (93%) is concentrated in three countries. In 7 out of 16 responding to this question, no public health professionals are trained as epidemiologists at the central level.

Nine out of 17 respondents reported less than 5 non-epidemiologist public health professionals at central level, only three countries having 10 or more.

Three respondent institutions (15.7%) have no statisticians and/or information technology staff working at the central level, 14 (73.6%) have 5 or less. Eight institutions (40%) reported having only one person as support staff at central level and three respondents (15.7%) reported 10 or more.

Figure 1: Distribution of participant institutions by number and type of professional staff



Regarding coordination of epidemiological surveillance activities among different institutions involved in public health (question 8), 90% of respondents reported having such a coordination in their countries.

Two respondents stated it is in progress. Nineteen out of 20 responses mentioned coordination at the technical level, only 10 respondents reporting coordination at the political level in their countries.

Questions 9 and 10 dealt with the organization of early warning and outbreak response in participating countries. One team deals with both early warning and response to outbreaks in 66% (14) of respondent countries, whereas in 33% (7) separate teams handle those activities. Sixty-two percent of the respondent institutions mentioned another institution with an equivalent level of decision making capacity involved in surveillance, early warning and response (question 10). Eight participants (38%) stated that only one institution is involved in decision making for surveillance and early warning and response in the country.

As of June 2007, eighteen respondent countries (95%) have designated the International Health Regulations (2005) focal points. In two countries, it is still in progress. Most of the IHR focal points were established within Ministries of Health (12 out of 19), the others being located at national public health institutes or other institutions.

Most of the countries already have protocols for mandatory notifiable diseases under surveillance (question 12): 47% (9) of them for all diseases and 47% (9) for some of them. Only one country reported being in the process of developing such surveillance protocols.

#### **4.2.4 Skills and Competencies**

##### **4.2.4.1 Access to training**

In 17 out of the 18 respondent countries, a course in disease surveillance and/or Epidemiology is offered besides the basic curriculum in public health/Epidemiology in medical schools (question 13). One country reported not having any course offered in surveillance or Epidemiology apart from that basic curriculum.

Among the 17 countries (those who responded to the question 13a), 13 offer introductory courses in diseases surveillance. In seven countries, advanced courses are offered. In 14 countries a master level degree in public health with emphasis in Epidemiology is available. A 2-3 years field Epidemiology training programme exists in five countries. In three countries, a course in field Epidemiology is offered with duration of 1-4 weeks.

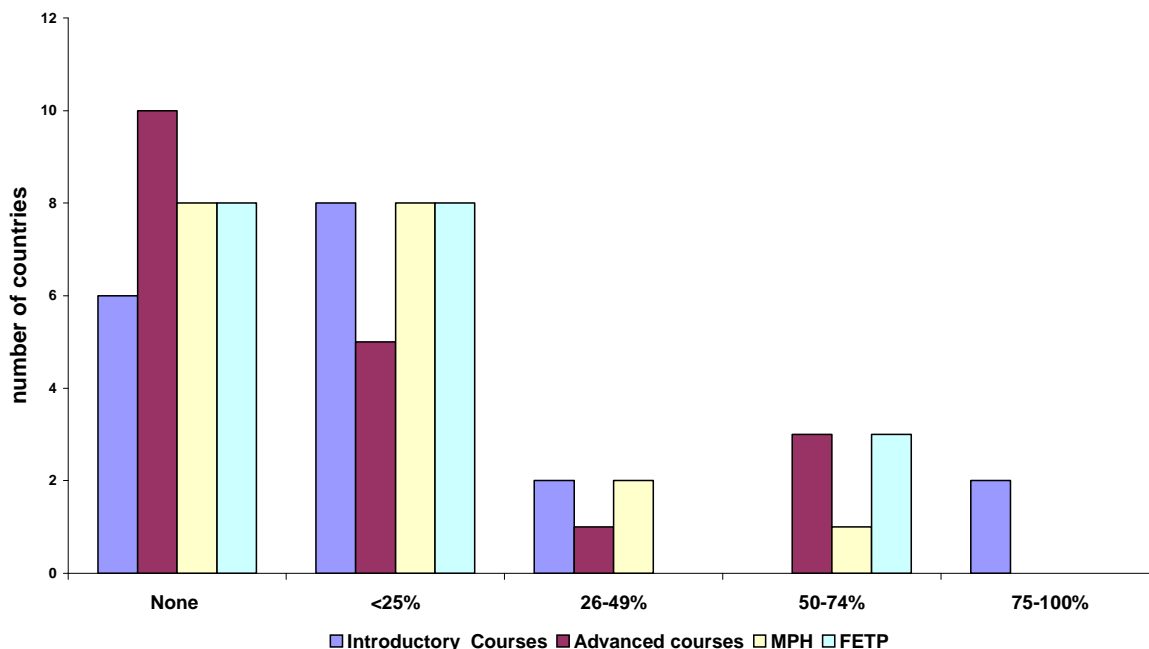
In 68% (13) of responding countries, 75-100% of the surveillance personnel at the central level, excluding support staff, received training in surveillance along the course of their professional career. In 4 countries (21%), only 26-49% of the personnel received training in surveillance and in two countries, less than 25% did.

Combining the availability of training courses and personnel having received training in the past two years among the participating countries, we found that 78% of the countries have advanced courses but only 42% of working professionals in the surveillance institutions have had access to those courses in the past two years.

Out of the 5 countries with FETPs of more than 1 year duration only in one of them have more than 50% of the personnel working in surveillance at national level been trained. On the other hand, we found that one country with no available advanced courses has trained part of its personnel (<25%).

Figure 2 presents the percentage of surveillance personnel who received training in the last two years according to the participants in our survey. Results show that in most countries that percentage is less than 25%.

Figure 2: Surveillance personnel (%) receiving training in surveillance in the last two years in the participating countries (n=19)



The majority of the institutions responding (81%) deliver training in surveillance (question 16). One country is currently in the process of starting a training programme. Half of respondent institutions (52%) developed training programmes for their staff (question 17). One country is in the process of preparing such a programme for its own personnel.

Regarding the training needs for IHR (2005) implementation, 17 out of 19 (89%) respondents expressed the need for training in implementation of the newly revised IHR. Among those respondents, 12 are designated as focal points for the revised IHR.

#### 4.2.4.2 Training Areas

For the first training area, **Surveillance**, results are summarized in table 1. *Data Collection, Processing and Management (Information System)* and *Time Series Analysis (TSA)* were perceived as the most important among the topics listed under this area (median rank =1 and 2 respectively).

The other topics: *Spatial Analysis*, *Evaluation of surveillance systems*, and *Conduct a population survey* were considered less important (a median rank = 3 for all three topics). Most of the respondents (>75%) consider that there are members in their teams with sufficient skills to perform these tasks.

In general, these surveillance activities are performed in respondent institutions in >90% for *TSA* and *Data collection and management* and in >65% for the other three topics. Training is perceived as needed (median rank = 2) in all topics listed under this training area. (Table 1).

Table 1: Results of training needs in Surveillance topics

|  | Perceived importance<br>1: the most important<br>5: the least important<br>Median rank | Sufficient skills to perform the task<br>n (%) | Activities performed by the team<br>n (%) | Need of training<br>0: not needed<br>3: very much needed<br>Median rank |
|--|--|--|---|---|
| Temporal analysis                          | 2  | Yes: 17 (81)<br>No: 4 (19)                     | Yes: 19 (91)<br>No: 2(9)                  | 2   |
| Spatial Analysis                           | 3  | Yes: 17 (81)<br>No: 4 (19)                     | Yes: 14 (67)<br>No: 7 (33)                | 2   |
| Evaluation of Surveillance Systems         | 3  | Yes: 14 (70)<br>No: 6 (30)                     | Yes: 15 (75)<br>No: 5 (25)                | 2   |
| Conduct of Population Survey               | 3  | Yes: 16(76)<br>No: 5 (24)                      | Yes: 14 (67)<br>No: 7 (33)                | 2   |
| Data collection, processing and management | 1  | Yes: 21 (100)<br>No: 0 (0)                     | Yes: 20 (95)<br>No: 1(5)                  | 2   |

Results corresponding to the **Outbreak investigation** area are displayed in table 2. *Coordination and conducting an outbreak investigation* were considered the most important (median rank = 2 and 1 respectively). *Design a questionnaire and conduct*

*descriptive data analysis* were perceived of medium importance (median rank =3). Advanced analysis such as *conduct analytical studies and multivariate data analysis* were considered less important. (median rank = 5).

In >95% of respondent institutions, there are sufficient skills for *conducting and coordinating an outbreak investigation, designing a questionnaire and conducting descriptive data analysis*. The mentioned activities are performed by more than 80% of respondent institutions. *Conducting an analytical study* can be performed in 75% of institutions, but only 62% carry it out regularly. The more advanced data analysis such as *multivariate analysis using regression* is known and performed only in 38% of respondent institutions.

Despite these findings, training is perceived as needed for questionnaire design, to conduct an outbreak investigation, analytical studies and multivariate data analysis (median rank = 2) and less needed for coordination of an outbreak investigation and descriptive data analysis (median rank = 1).

*Table 2: Results of training needs in Outbreak investigation activities*

|  | <b>Perceived importance</b><br>1: the most important<br>5: the least important<br>Median rank | <b>Sufficient skills to perform the task</b><br>n (%) | <b>Activities performed by the team</b><br>n (%) | <b>Need of training</b><br>0: not needed<br>3: very much needed<br>Median rank |
|--|---|---|--|--|
| <b>Coordinate an outbreak investigation</b>                | 2   | Yes: 20 (95)<br>No: 1 (5)                             | Yes: 17 (81)<br>No: 4 (19)                       | 1  |
| <b>Conduct an outbreak investigation</b>                   | 1   | Yes: 21 (100)<br>No: 0 (0)                            | Yes: 19 (91)<br>No: 2 (9)                        | 2  |
| <b>Design a questionnaire</b>                              | 3   | Yes: 21 (100)<br>No: 0 (0)                            | Yes: 20 (95)<br>No: 1 (5)                        | 2  |
| <b>Conduct descriptive data analysis</b>                   | 3   | Yes: 20 (95)<br>No: 1 (5)                             | Yes: 19 (91)<br>No: 2 (9)                        | 1  |
| <b>Conduct analytical studies</b>                          | 5   | Yes: 15 (75)<br>No: 5 (25)                            | Yes: 13 (62)<br>No: 8 (38)                       | 2  |
| <b>Conduct multivariate data analysis using regression</b> | 5   | Yes: 8 (38)<br>No: 13 (62)                            | Yes: 8 (38)<br>No: 13 (62)                       | 2  |

Table 3 summarizes participant opinions on topics covered by the **Risk assessment** area. *Infectious Diseases dynamics and control* is the topic perceived as the most important in this section (median rank = 1) followed by *Quantitative risk assessment and epidemic intelligence* (median rank = 2).

Activities related to *infectious diseases dynamic and control* are performed in 80% of institutions and 91% consider having sufficient skills in this area. Even though *epidemic intelligence* is performed in 57% of respondent institutions and 67% of them present sufficient skills in their teams, only 38% of institutions carry out quantitative risk assessments and 43% use the annex 2 of the revised IHR(2005).

Further training is considered necessary for all listed topics (median rank = 2 for all of them).

*Table 3: Results of training needs in Risk assessment*

|   | <b>Perceived importance</b><br>1: the most important<br>5: the least important<br>Median rank | <b>Sufficient skills to perform the task</b><br>n (%) | <b>Activities performed by the team</b><br>n (%) | <b>Need of training</b><br>0: not needed<br>3: very much needed<br>Median rank |
|---|---|---|--|--|
| <b>Infectious Diseases Dynamics and Control</b>                       | 1   | Yes: 19 (91)<br>No: 2 (9)                             | Yes: 16 (80)<br>No: 4 (20)                       | 2  |
| <b>Quantitative risk assessment</b>                                   | 2   | Yes: 10 (48)<br>No: 11 (52)                           | Yes: 8 (38)<br>No: 13 (62)                       | 2  |
| <b>Dispersion of environmental risk</b>                               | 5   | Yes: 3 (15)<br>No: 17 (85)                            | Yes: 2 (10)<br>No: 18 (90)                       | 2  |
| <b>Epidemic Intelligence</b>  | 2   | Yes: 14 (67)<br>No: 7 (33)                            | Yes: 12 (57)<br>No: 9 (43)                       | 2  |
| <b>International Health Regulations Decision Instrument (Annex 2)</b> | 4   | Yes: 11 (52)<br>No: 10 (48)                           | Yes: 9 (43)<br>No: 12 (58)                       | 2  |

Table 4 shows the results for the **Tools** area. The *use of software for statistical analysis* and *creation of a relational database* were considered important tools for surveillance among respondents. The *use of mapping software* and *access and use of online public health related information* were perceived as less important (median rank = 2 and 3 respectively).

All activities are performed in the majority of respondent institutions. More than 67% of them consider their teams are sufficiently skilled. Nevertheless, respondents considered that further training is needed in all topics listed in this section (median rank = 2 for all of them).



Regarding the statistical packages used, most of the respondents (15 out 21) reported the use of EpiInfo, followed by SPSS (10), STATA (7) and SAS (4). Other statistical packages mentioned were: Epidata, Excell, Statistica, Sat Scan, R. As graphical packages, Excel is the most widely used (13 participants). Other visual packages mentioned were: ArcView, EpiInfo, Health Mapper and Photoshop.

One institution reported using its own application as statistical and graphical packages.

*Table 4: Results of training needs in Tools for surveillance activities*

|   | <b>Perceived importance</b><br><b>1: the most important</b><br><b>5: the least important</b><br>Median rank | <b>Sufficient skills to perform the task</b><br>n (%) | <b>Activities performed by the team</b><br>n (%) | <b>Need of training</b><br><b>0: not needed</b><br><b>3: very much needed</b><br>Median rank |
|---|---|---|--|--|
| <b>Use of software for statistical analysis</b>                   | <b>2</b>  | Yes: <b>19 (91)</b><br>No: <b>2 (9)</b>               | Yes: <b>18 (86)</b><br>No: <b>3 (14)</b>         | <b>2</b>   |
| <b>Create and customize relational database</b>                   | <b>2</b>  | Yes: <b>14 (67)</b><br>No: <b>7 (33)</b>              | Yes: <b>12 (57)</b><br>No: <b>9 (43)</b>         | <b>2</b>   |
| <b>Use a mapping software</b>                                     | <b>3</b>  | Yes: <b>17 (81)</b><br>No: <b>4 (19)</b>              | Yes: <b>15 (71)</b><br>No: <b>6 (29)</b>         | <b>2</b>   |
| <b>Access and use of online public health related information</b> | <b>3</b>  | Yes: <b>19 (91)</b><br>No: <b>2 (9)</b>               | Yes: <b>19 (91)</b><br>No: <b>2 (9)</b>          | <b>2</b>   |

#### 4.2.4.3 Prioritisation of training topics

As previously described in the methodology section, a unique score was used to prioritise training topics.

Table 5 lists training topics according to the priority given upon computing that score.

Table 5: Training topics according to priorities given by participants

| Training Topic   | Mean Score | Perceived Training Need (Mean rank) | Perceived Importance of the topic (Mean rank) |
|--|------------|-------------------------------------|---|
| Quantitative risk assessment                               | 8.73       |                                     |   |
| Dispersion of environmental risk                           | 8.52       |                                     |   |
| Epidemic Intelligence                                      | 8.31       |                                     |   |
| Create and customize relational database                   | 7.94*      | 2                                   |   |
| Infectious Diseases Dynamics and Control                   | 7.94*      | 1.9                                 |   |
| Conduct multivariate data analysis using regression        | 7.84       |                                     |   |
| International Health Regulations Instrument (Annex 2)      | 7.79       |                                     |   |
| Use of software for statistical analysis                   | 7.68       |                                     |   |
| Conduct an outbreak investigation                          | 7.63       |                                     |   |
| Spatial Analysis   | 7.526*     | 1.9                                 | 2.8   |
| Evaluation of surveillance systems                         | 7.526*     | 1.9                                 | 2.7   |
| Conduct of Population Survey                               | 7.526*     | 1.8                                 |   |
| Coordinate an outbreak investigation                       | 7.5        |                                     |   |
| Use a mapping software                                     | 7.47       |                                     |   |
| Data collection, processing and management                 | 7.47       |                                     |   |
| Temporal analysis  | 7.42       |                                     |   |
| Conduct analytical studies                                 | 7.38       |                                     |   |
| Design a questionnaire                                     | 7.21       |                                     |   |
| Conduct descriptive analysis                               | 6.94       |                                     |   |
| Access and use of online public health related information | 6.52       |                                     |   |

*When more than one topic had the same mean score, the order was established using first the initial mean rank of perceived training need in descending order. In case of further equality, the mean rank of initial perceived importance of the topic was used in ascending order.*

Considering the mean of the mean scores by training area, the **Risk assessment area** ranked first in prioritisation (mean of the mean scores = 8.25), followed by **Surveillance** (7.49), **Outbreak Investigation** (7.41) and **Tools** (7.40). Priority topics per area were: all topics for the Risk assessment training area, evaluation of surveillance systems and

spatial analysis for the Surveillance area, conducting multivariate data analysis for Outbreak investigation, creating and customizing relational databases for Tools.

#### **4.2.4.4 Dissemination of results**

Regarding the dissemination of the information related to outbreak investigation at national level, 52% of respondents stated they communicate results most of the time or always by publication of scientific articles or other communications (i.e. media, conferences).

Two countries regularly report outbreak findings at international level. Seventy-one percent of respondents stated that they communicate information on outbreaks at international level sometimes, while 19% of respondents never do it (question 47).

Findings or lessons learned from outbreaks are introduced into Epidemiology curricula by 43% of respondents while in 14% of them this activity is in progress (question 48).

All participants but one disseminate surveillance reports to public health professionals (question 49). Dissemination of surveillance reports to politicians is done by 76% of participants, to media by 62% and to the general public by 52%.

In general, reports produced by participating institutions (routine surveillance information or outbreak investigation reports) generate changes in general procedures (for 71% of respondents), response protocols (for 71%) or control measures (for 81%), but less in public health legislation (52%) (question 50).

#### **4.2.4.5 Collaboration with neighbouring countries and international organizations**

The existence of bilateral agreements for cross-border surveillance (question 51) is mentioned by 40% of respondents. An “in progress activity” is reported by 10% institutions. A bilateral system was considered useful for urgent information exchange regarding cross-border epidemiological threats by 43% of respondents (question 52).

All respondents stated reporting surveillance data to WHO by their respective institutions and 9 (47%) report to ECDC and designated surveillance networks, reflecting the EU members among Episouth members. Other institutions to which respondents report surveillance data are the European Food Safety Authority, FAO and UNICEF.

#### **4.2.5 Proposal for improvement**

Most participants in this survey feel that training under the Episouth project may improve cross-border surveillance and early warning in the region. Suggestions included improving the networking, exchanging experience and common surveillance tools/methods with neighbouring countries. Harmonized training could lead to aligned surveillance methodology and facilitate the cooperation and comparisons between countries.

They also believe that the project could promote the access to information and surveillance tools while promoting further training at the subregional level for countries sharing common problems. Moreover, this training would also help improve surveillance at the national level.

According to respondents, EPIET (European Programme on Intervention Epidemiology Training) is an example of a good training in applied Epidemiology and organization of EPIET-like training courses was suggested for improving the training under the Episouth project. Other suggestions included planning courses in outbreak investigation, advanced statistical methods, and antimicrobial resistance. One respondent proposed that training needs assessment be systematic rather than sporadic.

### 4.3 Discussion

Emergence and reemergence of some infectious diseases, bioterrorism threats and the development of technical capacity in the last 20 years led to advances in surveillance methodology and activities. Adoption of the newly revised International Health Regulation (IHR 2005) since June 2005 and its entry into force in June 2007 highlight the importance of adapting surveillance systems to those changes.

Most of the respondents in our survey were senior professionals working for many years in their institutions and leading departments in the past years. We assume that they have faced the advances in disease surveillance including early warning in recent years, thus their answers to our questionnaire represent expert opinion in this field.

The survey identified the target audience for training under the Episouth project. In general, services are understaffed at central level and need trained professionals. Nevertheless, related findings should be carefully interpreted considering differences in size and population of countries, their organization, structure and development of the surveillance systems but also availability of and regular participation in advanced courses. Assessing the reasons behind this situation could be interesting for further activities.

The limited staff mentioned above could explain the lack of involvement of these structures in training activities of their own personnel.

The results of the training topics prioritisation show that most needed are quantitative risk assessment, modelling to assess dispersion of environmental risks, epidemic intelligence, advanced data analysis. However, these findings could be biased by the increased promotion of these topics by international and supranational institutions or by the formulation of questions in our questionnaire and their understanding. Although the questionnaire has been pretested, during data analysis we observed that some answers clearly reflected a misunderstanding of some questions.

Results of outbreak investigations and surveillance reports seem to be well disseminated at the national level, targeting politicians, public health professionals, media and the general public. Sometimes information is also disseminated at international level.



Unfortunately, corresponding lessons learned are seldom included in Epidemiology curricula, only sometimes resulting in changes in public health legislation.

A special attention has been given to the newly revised IHR (2005), many institutions represented in the survey being also IHR national focal points. Most of the participants feel that training is needed in IHR (2005) implementation in general and more specifically in the use of its decision instrument (IHR annex 2). Other IHR related training topics also ranked high in the prioritisation such as quantitative risk assessment and epidemic intelligence.

The first Episouth training module took place in September 2007. It included a workshop on different aspects of surveillance systems in the Mediterranean region and the Balkans and an introduction to time and space analysis of surveillance data. Thirty-three participants from 18 countries attended the module and evaluated it well in general. Contact with facilitators and the relevance of topics were very much appreciated. Flowcharts returned along with the questionnaires of this assessment were very useful for the preparation of the first module.

Additional trainings requested by participants in this module were consistent with the findings of the present needs assessment (global and cross border surveillance, advanced data analysis). Other topics were mentioned as well: basic epidemiology/surveillance (outbreak investigation, vaccine preventable diseases, etc).

## 4.4 Conclusion and recommendations

Work package 5 of the EPISOUTH project (Training in field/applied epidemiology) is meant to help filling some gaps in training related to specific disease surveillance topics of interest for the development of the Episouth network. Together with other activities, the project carries out three training modules and therefore a limited number of training topics can be directly tackled by this work package.

A training needs assessment proved useful to identify training topics of major interest to be included in the training modules (Table 6). The topics identified constitute the latest step in the epidemiological training process and require a good understanding of other topics included in the assessment. Short refreshment of some basic knowledge of interest can be added to the agenda of the training modules. Nevertheless, establishing an accurate profile and an adequate selection of candidates will be key issues for the success of the next two training modules.

Although the training modules will include specific topics of interest for the Episouth network, country-specific training programmes for most countries participating in Episouth seem to be needed.

The capacity and quality of a network depends on the capacities of its members.

The Episouth project is not meant for implementing training at national level, however, WP5 could play a “hub” role by facilitating/promoting the preparation of adapted and feasible training plans and programmes at national level and by mobilising its resources for attracting the interest of potential donors in funding training programmes in the Episouth area.

Given the objectives and geographical area of Episouth and more specifically of WP5, in addition to the training topics of interest prioritised through this assessment, we identified a need for coordinating activities with major public health institutions and organizations working on these topics at regional level such as WHO (EURO, EMRO and Lyon Office) and ECDC.

Future training activities shared or prepared together with these institutions could reinforce not only coordination in training but also the coordination and complementarities between networks.

*Table 6: proposed training topics for next Episouth modules*

|                 | Topics of interest         | Complementary topics | Proposed dates |
|-----------------|----------------------------|----------------------|----------------|
| <b>Module 2</b> | Epidemic intelligence      | Infectious diseases  | June 2008      |
|                 | Risk assessment            | dynamics and control |                |
|                 | IHR decision instrument    | Environmental Epi    |                |
| <b>Module 3</b> | Multivariate data analysis | Relational databases | 2009           |
|                 | Data modelling/ Regression | Statistical software |                |

## Annexes

### Annex 1: Countries and institutions participating in the Training Needs Assessment in the Episouth Project

| Country         | Participant Institution   |
|-----------------|---|
| Algeria         | National Institute of Public Health   |
| Bulgaria        | National Centre of Infectious and Parasitic Diseases  |
| Croatia         | National Institute of Public Health   |
| Cyprus          | Medical and Public Health Services – Ministry of Health   |
| France          | Institute of Public Health Surveillance (InVS)  |
| FYROM Macedonia | Institute of Health Protection<br>Clinic for Infectious Diseases, Skopje                                |
| Greece          | Hellenic Centre for Disease Control and Prevention  |
| Israel          | Centre for Disease Control, Ministry of Health<br>Department of Infectious Diseases, Ministry of Health |
| Italy*          | Instituto Superiore di Sanita, National Centre for Epidemiology, Surveillance and Health Promotion      |
| Jordan          | Disease Control Directorate, Ministry of Health   |
| Kosovo          | National Institute of Public Health Epidemiology  |
| Lebanon         | Ministry of Public Health   |
| Malta           | Department of Public Health, Ministry of Health   |
| Morocco         | Direction of Epidemiology and Disease Control   |
| Romania         | Centre for Prevention and Control of Communicable Diseases, Institute of Public Health, Bucharest       |
| Slovenia        | National Institute of Public Health   |
| Spain           | National Centre of Epidemiology   |
| Tunisia         | DSSB (PHC Directorate), Ministry of Health  |
| Turkey          | Communicable Diseases Department, Ministry of Health  |

## Annex 2: Questionnaire

# TRAINING NEEDS ASSESSMENT

## A. Introduction

The following questionnaire aims at identifying the common training needs in surveillance and early warning of all countries participating in the EpiSouth project. Based on this needs assessment, the contents of Work Package 5 training modules will be defined, in order to ensure substantial support to the improvement and reinforcement of cross-border epidemiological surveillance in the Mediterranean region and to help define consensus to operate.

This assessment does not, in any way, intend to evaluate the countries surveillance systems in themselves but rather to draw conclusions as to what would be the common training needs. In addition to this, it is important that answers reflect the actual needs for improving cross-border communicable diseases surveillance and response of the system and not national needs. From that perspective, the questionnaire targets central and intermediate levels and the person providing answers should be the person in charge of surveillance at country level or anyone this person may consider appropriate.

Information collected through the questionnaires will be confidential and only overall results will be communicated. The use of individual country data will be subject to countries approval.

Feel free to add in comments to any section in the space provided for that purpose, at the end of the questionnaire or added as a separate page.

The completed questionnaire will have to be sent as an attachment to the following e-mail addresses:

Fernando Simon : [fsimon@isciii.es](mailto:fsimon@isciii.es)

Concha Martín de Pando: [cmartinpando@isciii.es](mailto:cmartinpando@isciii.es)

Nathalie El Omeiri: [nelomeiri@isciii.es](mailto:nelomeiri@isciii.es)

We would appreciate if the flowchart could also be attached as a scanned document. If scanning is not possible, it could be sent by fax to the following number +34913877815 (for the attention of Fernando Simon). If access to internet or fax is not available a paper



copy of the questionnaire including the flowchart could be sent via post mail to the following address:

Fernando Simón Soria

Instituto de Salud Carlos III, ISCIII  
Centro Nacional de Epidemiología  
C/ Sinesio Delgado 6  
ES-28029 Madrid  
Spain

The deadline for returning the questionnaire is July 13, 2007. We will send you reminders a week before and two days before that date. For questions or clarifications, please do not hesitate to contact us to the e-mail addresses given above or to the following phone number: +34918222059.

Please read the questions below carefully, fill in the fields with text or numbers according to the questions and tick boxes where required, choosing the answer(s) that best corresponds to your opinion. We would also appreciate that you do not leave questions unanswered. Remember there are no "correct" or "incorrect" answers.

### ***EPISOUTH NEEDS ASSESSMENT-WP5***

#### **B. Professional Identification Data**

The following data relate to the person filling in the questionnaire.

1. First Name  Last Name
2. Current position
3. Name of the Institution /department
4. For how long have you been working in this institution? (*Please, tick only one box*)  
From 0 to 3 years  ; From 4 to 7 years  ; From 8 to 10 years  ; More than 10 years
5. For how long have you had your current position? (*Please, tick only one box*)  
From 0 to 3 years  ; From 4 to 7 years  ; From 8 to 10 years  ; More than 10 years

**C. Organization and Structure**

6. Draw the Flow Chart of Surveillance and Early Warning Systems in your country. *(Please add as a separate page).*
7. How many people work in Public Health Surveillance at the central level? *(Consider the categories mutually exclusive)*

- 7a. Medical Doctors Epidemiologists
- 7b. Non-Epidemiologists Medical Doctors
- 7c. Public Health professional Epidemiologists
- 7d. Non-Epidemiologists Public Health Professionals  
(e.g. nurses, laboratory technicians..)
- 7e. Technicians (e.g. Statisticians, Information Technology staff)
- 7f. Support (e.g. Administrative staff...)

8. Is there any coordination for epidemiological surveillance among various institutions involved in public health? (for e.g. Food safety, Ministry of agriculture, etc..)

YES  / NO  / UNKNOWN  / IN PROCESS .

8.a. If YES, at what level? Technical  Political  Others  Specify

9. Do you have distinct teams, one dealing with Early Warning and one dealing with Response to outbreaks?

YES  / NO  / UNKNOWN

10. Besides your institution, is there another institution involved in surveillance, early warning and response with an equivalent level of decision-making?

YES  / NO  / UNKNOWN

11. Has the focal point been established for implementing the new recommendations of the International Health Regulations?

YES  NO  UNKNOWN  IN PROCESS

11.a. If YES, where is it based (i.e. in what institution)?

12. Does the system have surveillance protocols for mandatory communicable diseases? *(Tick only one option)*

YES for all



- YES for some of them   
 NO   
 UNKNOWN   
 IN PROCESS

**D. Skills and Competencies**

**Access to Training**

13. Beside what is given in basic public health/Epidemiology curricula in your country, are there other trainings/courses in diseases surveillance and/or Epidemiology available?

YES  / NO  / UNKNOWN

If YES, what is the level of these trainings/courses? (Tick one or more)

- Introductory course in surveillance (1 or 2 weeks)
- \*Advanced course in surveillance (3 or more weeks)  
(Also taking into account the content of the course)
- Master level degree in Public Health with emphasis in Epidemiology
- Field Epidemiology Training Programme
- If YES, duration of the programme

14. How many of the personnel involved in surveillance activities in your unit, except support staff, have ever received training in surveillance? (Tick only one option)

None  < 25%  26% – 49%  50% – 74%  75% - 100%

15. How many of the personnel involved in surveillance activities in your unit, except support staff, have received training in surveillance during the past two years?

|  | None                     | < 25%                    | 26%-49%                  | 50%-74%                  | 75%-100%                 |
|--|--------------------------|--------------------------|--------------------------|--------------------------|--------------------------|
| -Introductory course in surveillance (1 or 2 weeks)            | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| -Advanced course in surveillance (3 or more weeks)             | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| -Master level degree in Public Health-emphasis in Epidemiology | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| - Field Epidemiology Training Programme                        | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| - Other, specify <input type="text"/>                          | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |

16. Does your institution deliver training in diseases surveillance and Epidemiology?

YES  / NO  / UNKNOWN  / IN PROCESS

17. Has your institution developed any specific training programme in Epidemiology targeting its own personnel?

YES  / NO  / UNKNOWN  / IN PROCESS

18. If your institution is the National Focal Point for the International Health Regulations, would you need training in implementing the new IHR?

YES  / NO

|                       |
|-----------------------|
| <b>Training Areas</b> |
|-----------------------|

Here below are four different tables to complete on surveillance, outbreak investigation, risk assessment and tools. In the headings are the questions you must answer concerning a series of methodologies/activities displayed in the left column. Please, tick the boxes that best correspond to your opinion.

**Surveillance**

|  | 29. Please rank the following activities/methodologies according to their perceived importance for surveillance (1 being the most important to 4 the least important) | 30. In your opinion, are there individuals, in your surveillance unit, with sufficient skills to perform these tasks? | 31. Are these activities performed by your team?           | 32. Is any basic or refreshment training needed for your team to be able to perform these activities? (0 Not at all; 1 Not really needed; 2 Needed; 3 Very Much needed) |
|--|---|---|--|---|
| Temporal analysis  |   | YES <input type="checkbox"/> / NO <input type="checkbox"/>  | YES <input type="checkbox"/> / NO <input type="checkbox"/> | 0 <input type="checkbox"/> 1 <input type="checkbox"/> 2 <input type="checkbox"/> 3 <input type="checkbox"/>   |
| Spatial analysis   |   | YES <input type="checkbox"/> / NO <input type="checkbox"/>  | YES <input type="checkbox"/> / NO <input type="checkbox"/> | 0 <input type="checkbox"/> 1 <input type="checkbox"/> 2 <input type="checkbox"/> 3 <input type="checkbox"/>   |
| Evaluation of a Surveillance system                              |   | YES <input type="checkbox"/> / NO <input type="checkbox"/>  | YES <input type="checkbox"/> / NO <input type="checkbox"/> | 0 <input type="checkbox"/> 1 <input type="checkbox"/> 2 <input type="checkbox"/> 3 <input type="checkbox"/>   |
| Conduct a population survey                                      |   | YES <input type="checkbox"/> / NO <input type="checkbox"/>  | YES <input type="checkbox"/> / NO <input type="checkbox"/> | 0 <input type="checkbox"/> 1 <input type="checkbox"/> 2 <input type="checkbox"/> 3 <input type="checkbox"/>   |
| Data collection, processing and management (Information systems) |   | YES <input type="checkbox"/> / NO <input type="checkbox"/>  | YES <input type="checkbox"/> / NO <input type="checkbox"/> | 0 <input type="checkbox"/> 1 <input type="checkbox"/> 2 <input type="checkbox"/> 3 <input type="checkbox"/>   |

Comments:

### Outbreak investigation

|  | 33. Please rank the following activities/methodologies according to their perceived importance for outbreak investigation (1 being the most important to 6, the least important) | 34. In your opinion, are there individuals in your surveillance unit with sufficient training to carry out these activities? | 35. Are these activities performed by the team?            | 36. Is any basic or refreshment training needed for your team to be able to perform these activities? (0 Not at all; 1 Not really needed; 2 Needed; 3 Very Much needed) |
|--|--|--|--|---|
| Coordinate an outbreak investigation                                   |  | YES <input type="checkbox"/> / NO <input type="checkbox"/>   | YES <input type="checkbox"/> / NO <input type="checkbox"/> | 0 <input type="checkbox"/> 1 <input type="checkbox"/> 2 <input type="checkbox"/> 3 <input type="checkbox"/>   |
| Conduct an outbreak investigation                                      |  | YES <input type="checkbox"/> / NO <input type="checkbox"/>   | YES <input type="checkbox"/> / NO <input type="checkbox"/> | 0 <input type="checkbox"/> 1 <input type="checkbox"/> 2 <input type="checkbox"/> 3 <input type="checkbox"/>   |
| Design a questionnaire   |  | YES <input type="checkbox"/> / NO <input type="checkbox"/>   | YES <input type="checkbox"/> / NO <input type="checkbox"/> | 0 <input type="checkbox"/> 1 <input type="checkbox"/> 2 <input type="checkbox"/> 3 <input type="checkbox"/>   |
| Conduct descriptive data analysis                                      |  | YES <input type="checkbox"/> / NO <input type="checkbox"/>   | YES <input type="checkbox"/> / NO <input type="checkbox"/> | 0 <input type="checkbox"/> 1 <input type="checkbox"/> 2 <input type="checkbox"/> 3 <input type="checkbox"/>   |
| Conduct analytical studies   |  | YES <input type="checkbox"/> / NO <input type="checkbox"/>   | YES <input type="checkbox"/> / NO <input type="checkbox"/> | 0 <input type="checkbox"/> 1 <input type="checkbox"/> 2 <input type="checkbox"/> 3 <input type="checkbox"/>   |
| Conduct multivariate data analysis using linear or logistic regression |  | YES <input type="checkbox"/> / NO <input type="checkbox"/>   | YES <input type="checkbox"/> / NO <input type="checkbox"/> | 0 <input type="checkbox"/> 1 <input type="checkbox"/> 2 <input type="checkbox"/> 3 <input type="checkbox"/>   |

Comments:

### Risk Assessment

|   | 37. Please rank the following activities/methodologies according to their perceived importance for risk assessment (1 being the most important to 5, the least important) | 38. In your opinion, are there individuals, in your surveillance unit, with sufficient skills to carry out these activities? | 39. Are these methodologies/ activities performed by the team? | 40. Is any basic or refreshment training needed for your team to be able to perform these activities? (0 Not at all; 1 Not really needed; 2 Needed; 3 Very Much needed) |
|---|---|--|--|---|
| Infectious Disease Dynamics & control                               |   | YES <input type="checkbox"/> / NO <input type="checkbox"/>   | YES <input type="checkbox"/> / NO <input type="checkbox"/>     | 0 <input type="checkbox"/> 1 <input type="checkbox"/> 2 <input type="checkbox"/> 3 <input type="checkbox"/>   |
| Quantitative Risk Assessment  |   | YES <input type="checkbox"/> / NO <input type="checkbox"/>   | YES <input type="checkbox"/> / NO <input type="checkbox"/>     | 0 <input type="checkbox"/> 1 <input type="checkbox"/> 2 <input type="checkbox"/> 3 <input type="checkbox"/>   |
| Dispersion* of environmental risks                                  |   | YES <input type="checkbox"/> / NO <input type="checkbox"/>   | YES <input type="checkbox"/> / NO <input type="checkbox"/>     | 0 <input type="checkbox"/> 1 <input type="checkbox"/> 2 <input type="checkbox"/> 3 <input type="checkbox"/>   |
| Epidemic Intelligence   |   | YES <input type="checkbox"/> / NO <input type="checkbox"/>   | YES <input type="checkbox"/> / NO <input type="checkbox"/>     | 0 <input type="checkbox"/> 1 <input type="checkbox"/> 2 <input type="checkbox"/> 3 <input type="checkbox"/>   |
| International Health Regulations Decisions Instrument (Annex 2 IHR) |   | YES <input type="checkbox"/> / NO <input type="checkbox"/>   | YES <input type="checkbox"/> / NO <input type="checkbox"/>     | 0 <input type="checkbox"/> 1 <input type="checkbox"/> 2 <input type="checkbox"/> 3 <input type="checkbox"/>   |

\* Estimation and modelling of atmospheric, water, soil dispersion of toxic substances, pollutants and other environmental risks.

Comments:

**Tools**

|  | 41. Please rank the following tools according to their perceived utility (from 1 the most important to 4, the least) | 42. In your opinion, are there people in your surveillance unit, with sufficient skills to perform these methodologies/ activities? | 43. Is this methods/ methodologies/ activities used by your team? | 44. Is any introduction or update needed in your team to be able to use it? (0 Not at all; 1 Not really needed; 2 Needed; 3 Very Much needed) |
|--|--|---|---|---|
| Use of Software for statistical analysis                   | █  | YES <input type="checkbox"/> / NO <input type="checkbox"/>  | YES <input type="checkbox"/> / NO <input type="checkbox"/>        | 0 <input type="checkbox"/> 1 <input type="checkbox"/> 2 <input type="checkbox"/> 3 <input type="checkbox"/>                                   |
| Create and customize relational databases                  | █  | YES <input type="checkbox"/> / NO <input type="checkbox"/>  | YES <input type="checkbox"/> / NO <input type="checkbox"/>        | 0 <input type="checkbox"/> 1 <input type="checkbox"/> 2 <input type="checkbox"/> 3 <input type="checkbox"/>                                   |
| Use a mapping software                                     | █  | YES <input type="checkbox"/> / NO <input type="checkbox"/>  | YES <input type="checkbox"/> / NO <input type="checkbox"/>        | 0 <input type="checkbox"/> 1 <input type="checkbox"/> 2 <input type="checkbox"/> 3 <input type="checkbox"/>                                   |
| Access and use of online public health related information | █  | YES <input type="checkbox"/> / NO <input type="checkbox"/>  | YES <input type="checkbox"/> / NO <input type="checkbox"/>        | 0 <input type="checkbox"/> 1 <input type="checkbox"/> 2 <input type="checkbox"/> 3 <input type="checkbox"/>                                   |

 Comments: 

 45. Which are the statistical packages usually used by your team? 

 46. Which are the graphical packages usually used by your team? 
**Dissemination of results**

47. Upon outbreak investigation, do the findings result in publication of scientific articles or communications (to the general public, media, in scientific conferences...)?

 At national level: Never  / Sometimes  / Most of the time  / Always 

 At International level: Never  / Sometimes  / Most of the time  / Always 

48. Are findings and/or lessons learned from those investigations adapted and introduced into Epidemiology curricula?

 YES  / NO  / UNKNOWN  / IN PROCESS 

49. Does your surveillance system generate routine reports targeting the following specific audiences:

 49.a.. Public health professionals YES  / NO 

 49.b. Politicians YES  / NO 

 49.c. Media YES  / NO 

 49.d. General Public YES  / NO

50. Have reports produced by your institution, whether routine surveillance or outbreak investigation reports, generated changes in

50.a. General Procedures YES  / NO

50.b. Response protocols YES  / NO

50.c. Control measures YES  / NO

50.d. Public health legislation YES  / NO

### Collaboration with neighbouring countries& international organizations

51. Are there agreements with neighbouring countries to share cross-border surveillance information?

YES  / NO  / UNKNOWN  / IN PROCESS

52. Does a bilateral system take charge of informing urgently neighbouring countries of cross-border epidemiological threats?

YES  / NO  / UNKNOWN  / IN PROCESS

53. Do you report surveillance data to any international organisation such as

WHO YES  / NO  / IN PROCESS

53.a. To other organisations, please specify

### E. Proposals for improvement

(No restrictions on text length)

54. In what way can the training work package 5 of the Episouth project contribute to improving cross-border surveillance and early warning in the region?

55. Other comments relating to training in Epidemiology in your country or other suggestions for the training Work Package of the Episouth Project

## References

1. Grant Agreement no. 2005206 “Network for communicable disease control in Southern Europe and Mediterranean countries (EPISOUTH)”  
International Health Regulation (2005),  
[http://www.who.int/gb/ebwha/pdf\\_files/WHA58/WHA58\\_3-en.pdf](http://www.who.int/gb/ebwha/pdf_files/WHA58/WHA58_3-en.pdf)
2. International Health Regulation (2005), Areas of work in implementation  
<http://www.who.int/csr/ihr/finalversion9Nov07.pdf>
3. Decision no 2119/98/EC of the European Parliament and of the Council of 24 September 1998: Setting up a network for the epidemiological surveillance and communicable diseases in the Community ([http://europa.eu.int/eur-lex/pri/en/oj/dat/1998/l\\_268/l\\_26819981003en00010006.pdf](http://europa.eu.int/eur-lex/pri/en/oj/dat/1998/l_268/l_26819981003en00010006.pdf))
4. Commission Decision 2000/57/EC on the early warning and response system for the prevention and control of communicable diseases under Decision No 2119/98/EC of the European Parliament and of the Council  
([http://eur-lex.europa.eu/pri/en/oj/dat/2000/l\\_021/l\\_02120000126en00320035.pdf](http://eur-lex.europa.eu/pri/en/oj/dat/2000/l_021/l_02120000126en00320035.pdf))
5. CDC/CSTE Applied Epidemiology Competencies for Governmental Public Health Agencies