MEETING REPORT

Training strategy for intervention epidemiology in the European Union

Third ECDC consultation with the Member States

Stockholm, 27 October 2008

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The views expressed in this publication do not necessarily reflect the views of the European Centre for Disease Prevention and Control (ECDC).

Stockholm, March 2009

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1 Background

The Founding Regulation[1] establishing the European Centre for Disease Prevention and Control (ECDC) gives the agency a clear mandate to strengthening the capacity of the European Union (EU) for the prevention and control of infectious diseases. Trained epidemiologists are an essential component of the ECDC and Member States (MS) response capacity to public health threats, both in Europe and internationally.

The ECDC Strategic Multi-annual Programme 2007–2013 presents the Vision of ECDC on training:

'By 2013, ECDC will be the key reference support centre in the European Union for strengthening and building capacity [in Member States] through training for the prevention and control of communicable diseases and diseases of unknown origin'.

1.1 ECDC training strategy

The first ECDC training policy, developed in 2005 in collaboration with the European Programme for Intervention Epidemiology Training (EPIET), was presented to the Advisory Forum (AF) in September 2005 and discussed with MS in December 2005 and September 2007.

The ECDC training policy seeks to develop a European network of public health epidemiologists with an EU perspective, common objectives and common methods. Strengthening this capacity in human resources in intervention epidemiology is done by: (1) contributing, through training, to harmonise approaches and methods for coordinated interventions against public health threats in the EU; and (2) meeting regional and national specific needs of MS.

Specific objectives of a training strategy in intervention epidemiology for Europe are:

- to identify and reduce gaps in required epidemiological knowledge, skills and practices at MS and EU level;
- to identify and target groups of public health professionals to be trained in epidemiology; and
- to identify/develop appropriate training methods and tools for all specific groups.

The ECDC regularly reviews its training strategy and makes it operational by securing adequate financial and human resources for training and by organising regular training activities. Needs assessments are conducted for the EU and MS.

Since the first ECDC training strategy, published in September 2005, main priorities have included:

- development of field epidemiologists' core competencies;
- sharing models of good practice in some MS;
- needs assessments in MS, applying a protocol with qualitative and quantitative techniques by scheduled country visits;
- short courses with a EU added value, i.e. on coordination of international outbreaks, outbreak investigation and train-the-trainers;
- introductory courses on intervention epidemiology;
- development of a EU manual on intervention epidemiology and availability of training materials in the ECDC website; and
- support to MS that have requested a feasibility study for the development of a National Field Epidemiology Training Programme (FETP).

Achievements in the area of training at ECDC include:

- integration of EPIET into ECDC;
- development of assessment tools and organisation of country visits for conducting training resources and needs assessments;
- country visits for assessing the feasibility of developing a national FETP, upon request;
- development of core competencies in intervention epidemiology in the EU;
- short courses organised through contracts with different public health institutes and organisations in different areas:
  - managerial skills for outbreak investigation teams;

[1] Regulation (EC) No 851/2004 of the European Parliament and of the Council.

- regional courses on technical aspects in outbreak investigation of communicable diseases;
- time series analysis: descriptive methods and introduction to modelling and forecasting;
- joint training on 'epidemiological and microbiological aspects of outbreak investigation'; and
- epidemiological aspects of vaccination.

Developing a network of institutions involved in training to increase the capacity of response against infectious diseases is one of the main strategies of the ECDC. Important partnerships include: the National Public Health Institutes in EU countries, EPINORTH, EPISOUTH, WHO EURO, ASPHER, TEPHINET and WHO Global Salm-Surv, among others.

1.2 EPIET Training Site Forum

The integration of EPIET into ECDC requires the transformation of the EPIET Steering Committee into a group that functions consistently with the competent bodies and structures established by the Founding Regulation of ECDC.

As the success of EPIET will continue to rely on a strong contribution of the Member States, it will be crucial to maintain the link with the epidemiologists responsible for the functioning of the programme in their respective countries (training sites). This group, called 'EPIET Training Site Forum' fits well into the ECDC approach to establish such forums to address day-to-day technical issues regarding ECDC activities. In addition, the group will include a representative of the EPIET Alumni Network and a representative of the current cohorts. Among its functions, this forum will provide technical input from training sites and participate in recruitment of fellows and facilitators.

The scope of the Competent Body for Training on EPIET issues will be:

- to provide strategic advice and suggestions for future developments of EPIET and similar training programmes;
- to advise on implementation and review of the EPIET training objectives; and
- to assess the programme outcomes regularly at scientific and technical level, compared to the established training needs.

In addition, the scope of the EPIET Training Site Forum is suggested to be:

- to provide technical input from training sites in terms of feedback on the curriculum and current programme (e.g. on administration, communication, training resources and tools, preparation and execution of modules, etc.);
- to identify training needs for trainers; and
- to facilitate and participate in recruitment of fellows and facilitators.

2 Scope and purpose of a third ECDC consultation with MS in 2008

The main objective of this consultation is to review the implementation of the ECDC training strategy in intervention epidemiology in the EU and update it, in order to strengthen the capacity of response to epidemics in the EU as well as reinforcing collaboration with international counterparts.

Specific objectives of this meeting are:

- to increase awareness about the role of EPIET in strengthening the capacity to respond to health threats in the EU;
- to present the role, composition and functions of the new EPIET Training Forum;
- to present the results of the country visits for training resources and needs assessments and discuss how they can orient the ECDC training strategy; and
- to discuss accreditation or recognition of training in intervention epidemiology (EPIET and national FETPs) in order to facilitate the mobility of epidemiologists in Europe.

3 Methodology

The consultation consisted of presentations by ECDC on approaches currently implemented and working group sessions on each of the specific objectives. The design of an implementation of a training strategy on intervention epidemiology in Ireland was presented, as an example from a Member State.

The agenda of the consultation, list of participants and papers for the working groups are in appendixes to this report.

4 ECDC activities in capacity building through training, 2008

In order to update the participants in the consultation, the main activities organised by ECDC in 2008 as part of the implementation of its training strategy were presented.

4.1 EPIET activities since September 2007

4.1.1 EPIET integrated into ECDC

EPIET was integrated into ECDC on 1 November 2007 and is now part of the newly created Epidemiology Training Section in the Preparedness and Response Unit. Two logistical officers, Anna Bohlin and Claudia Metz-Ruffer, work for the EPIET Programme Office. The Programme Office is responsible for handling all logistical matters, for example organising the EPIET Introductory Course, training modules, and the face-to-face meetings during the selection of new fellows. Administrative support is also provided by the ECDC Administration Unit for working contracts, removal, duty travel, reimbursements and medical checkups.

The EU staff regulations form the base for all administrative procedures, also for EPIET fellows who receive an ECDC salary. However, the staff regulations are not adapted to the situation of staff enrolled in a training programme and working in a MS. Therefore, an Internal Working Group consisting of staff from the Preparedness and Response and the Administrative Service Units has been created to identify solutions to these problems.

Most of the administrative issues have been addressed in the newly published EPIET Administrative guide, which has been made available to all new EPIET fellows and their supervisors.

Viviane Bremer is the new EPIET chief coordinator, based at ECDC, since February 2008. The other coordinators are associated with EPIET through Framework Partnership Agreements with four national institutes: Instituto de Salud Carlos III in Spain, Robert Koch-Institute in Germany, Health Protection Agency, Centre for Infections in the UK, and the Institut de Veille Sanitaire in France. In October 2008, four coordinators, corresponding to 3.9 full-time equivalents are employed through the Framework Partnership Agreements. In addition, the coordinating team collaborates closely with the coordinator of the German postgraduate training for applied epidemiology (PAE) for the supervision of fellows and organisation of modules.

4.1.2 EPIET fellows

At the time of the meeting there were three cohorts in training, cohort 12, 13 and 14. Cohort 12, which consists of 12 EPIET and seven FETP fellows, received their diplomas in November during the ESCAIDE conference. Cohort 13, which consist of 13 EPIET and eight FETP, started the training in November 2007 and will go through a review of their training progress. Cohort 14 started their training on 15 September 2008. A total of 19 salaries were made available (16 ECDC, 3 from MS). In addition, four PAE fellows, one Norwegian, one Finnish and one Slovenian FETP have joined the cohort.

The recruitment process of cohort 15 started in December 2008.

4.1.3 EPIET modules

The following modules were held since September 2007:

- October 07 – 13th EPET Introductory Course, Menorca, Spain;
- January 08 – Computer Tools in Outbreak Investigations, Sesimbra, Portugal (cohort 13);
- April 08 – Multivariable Analysis, Stockholm, Sweden (cohorts 12/13);
- June 08 – Time Series Analysis, Kristiansand, Norway (optional for cohorts 12/13);
- September 08 – Project Review Module, Vilnius, Lithuania (cohorts 12/13); and
- October 08 – 14th EPIET Introductory Course, Menorca, Spain.

4.1.4 Cooperation with EPIET partners

Most of EPIET activities are conducted through close collaboration with partners within the EU. For example, with an approximate amount of four hours of supervision per week, the training site supervisors would have contributed a total of 3 800 hours of supervision (500 days) for cohort 12 and 4 200 hours of supervision (560 days) for cohort 13. In addition, supervisors provided a total of 32 weeks of facilitation in EPIET courses during the last year. Four modules were hosted by MS last year and one case study developed.

EPIET maintains also close contact with other European FETP training programmes, such as the German PAE, the French PROFET, and the Spanish PEAC. In addition, EPIET coordinators and one fellow have contributed to the 2008 Introductory Course in Ankara, Turkey. EPIET has hosted two observers from Iran during the 14th Introductory Course and identified an experienced teacher from the EPIET network to teach in the Introductory Course of the newly created FETP programme in Iran. EPIET has also continued to promote the exchange of coordinators and teachers with the Canadian Field Epidemiology Program. Finally, the collaboration with TEPHINET and other FETPs around the world has been strengthened, with contribution and representation of EPIET in TEPHINET activities.

4.1.5 EPIET site visits

Between September 2007 and October 2008, the following training sites were visited by EPIET coordinators and supervisors from the EPIET network:

- Health Protection Agency, Centre for Infections, UK, and Health Protection Agency, Health Protection Agency, London Regional Epidemiology Unit, London, UK, in January 2008;
- Communicable Disease Surveillance Centre (Northern Ireland), Belfast, UK, in February 2008;
- Austrian Agency for Health and Food Safety (AGES), Vienna, Austria, in March 2008;
- Institut de Veille Sanitaire, Département des Maladies Infectieuses and Département Santé Environnement, Paris, France, in May 2008;
- Robert Koch-Institut, Berlin, Germany, in May 2008; and
- Swedish Institute for Infectious Disease Control, Stockholm, Sweden, in June 2008.

4.2 Training activities for the Member States in 2008

4.2.1 Short courses for EU/EEA MS, organised in 2008 with contractors

Following advice from MS in 2007, ECDC organised in 2008 ten short modules for the EU/EEA MS under framework contracts signed in 2006.

A total of 250 public health experts from EU MS participated in 2008 in ECDC training modules, of whom 18 were external participants to EPIET modules. An overview is given on Table 1.

Table 1 Participants to short training modules in 2008, excluding EPIET Fellows

Title of training module	Hosting country	Participants
EPIET computer tools in outbreak investigations	Portugal	10
ECDC joint training on microbiological and epidemiological aspects of outbreak investigation	Netherlands	30
ECDC technical aspects of communicable disease outbreak investigation (five modules)	Netherlands, Spain, Hungary	120
ECDC managerial skills for coordination of outbreak investigations (two modules)	Sweden, France	29
ECDC time series analysis	France	21
ECDC epidemiological aspects of vaccination	Netherlands	32
EPIET introductory course	Spain	8
Total Member State experts trained (excluding EPIET fellows) in 2008		**250**

Table 2 Participants to short courses in 2008 by country

Country	Participants 2008	Participants to EPIET/ECDC modules 1995–2008		Country	Participants 2008	Participants to EPIET/ECDC modules 1995–2008
Hungary	15	32		Poland	9	21
Lithuania	15	23		Spain	9	22
Portugal	14	38		Malta	8	19
Germany	13	48		Austria	6	27
Romania	13	20		Ireland	6	36
Estonia	12	21		Italy	6	38
Slovenia	12	27		Norway	6	20
Sweden	12	34		France	5	35
Czech Republic	11	22		Denmark	4	23
Netherlands	11	39		Cyprus	3	16
Slovakia	11	18		Finland	3	18
United Kingdom	11	65		Iceland	2	4
Belgium	10	23		Liechtenstein	2	4
Latvia	10	17		Greece	1	38
Bulgaria	9	17		Luxembourg	1	3

Participants came from all 30 EU/EEA countries. Table 2 gives the overview of the number of participants per country in 2008 and, for reference, also the total number of participants (n=768) to EPIET/ECDC training modules since 1995.

The courses, local organisers, venues and dates in 2008 were:

Five courses on technical aspects of outbreak investigation (ASPHER), second editions:

- 19–23 May, School of Public Health, Madrid, Spain, for epidemiologists from Bulgaria, Cyprus, Greece, Italy, Malta, Portugal, Romania and Spain;
- 19–23 May, Netherlands School of Occupational and Public Health, Amsterdam, the Netherlands, for epidemiologists from Denmark, Germany, Iceland, Ireland, The Netherlands and United Kingdom;
- 16–20 June, Netherlands School of Occupational and Public Health, Amsterdam, the Netherlands, for epidemiologists from Estonia, Finland, Latvia, Lithuania, Norway and Sweden;
- 16–20 June, School of Public Health, University of Debrecen, Debrecen, Hungary, for epidemiologists from Austria, Belgium, France, Liechtenstein and Luxembourg; and
- 23–27 June, School of Public Health, University of Debrecen, Debrecen, Hungary, for epidemiologists from the Czech Republic, Hungary, Poland, Slovakia and Slovenia.

Managerial skills for coordination of outbreak investigations (Schouten & Nelissen):

- April, Rimbo, Sweden; and
- June, Veyrier du Lac, France.

Epidemiological aspects of vaccination (RIVM):

- 14–18 April, Bilthoven, the Netherlands.

Times series analysis (Epiconcept):

- 21–25 April, Veyrier du Lac, France.

Joint training on microbiological and epidemiological aspects of outbreak investigation (RIVM):

- 23–28 June 2008, the Netherlands.

More details about these courses can be found in Appendix 5.

Feedback from organisers and participants

Participants show general satisfaction with the contents and organisation of the modules. The access to basic materials or references for preparation, distributed to participants, was welcome.

Evaluations were done both by the administration of questionnaires and by discussion with participants. Not all courses had the same format; therefore it is difficult to compare results between different courses.

In some courses, the diversity of participants' computer literacy, English command and epidemiology knowledge and experience may have posed a challenge for the learning process and for teachers and facilitators that needed to adjust their classes to a diverse audience.

Organisers have complained in some modules about the late selection of participants by ECDC. This may be linked to a cumbersome administrative process that involves the need of identifying and contacting competent bodies in a stage when they were not completely identified yet, the need of several contacts per country to replace first nominees in some cases or to adjust to situations like extra requests of seats or unavailability of participants. The restricted administrative support dedicated to this activity until the summer of 2008 was a big limitation.

Lessons learnt from 2008 editions

1. In general, participants have openly expressed their appreciation for the contents, organisation and the opportunity to meet experts from other MS.
2. There are expectations among participants for follow-up courses on similar topics (advanced modules) or creation of learning groups where ECDC could facilitate the application of knowledge acquired to real studies or 'homework', as well as for an online discussion of topics learnt.
3. The calendar and the selection of participants criteria need to be shared with competent bodies for training as soon as possible during the planning process, so that the CB for training can link the training opportunities with specific training needs for staff identified at the country level.
4. Administrative staff exclusively dedicated to the organisational aspects of selection of participants is needed for the courses for MS.
5. Coordination with the EPIET programme office and training of administrative staff may be of benefit for the process and, at the same time, can facilitate consistency between different activities of the section.
6. Different questionnaires and methods for evaluation make it more difficult to compare results of evaluations. An agreed questionnaire would be advantageous for future courses.

4.2.2 Training resources and needs assessments through country visits

Background

During the First Consultation with MS on training in intervention epidemiology in 2005, it was recommended that ECDC should organise country visits for the assessment of training needs, upon request.

Methodology

A protocol and terms of reference (TOR) were developed in 2006. A questionnaire focusing on the epidemiological capacity and training resources is administered before each visit. This questionnaire (see appendix 7) has been used already in several visits, but it can be improved (comments are welcome and should be sent to pru@ecdc.europa.eu or Carmen.varela@ecdc.europa.eu).

Training needs or interests are explored during a country visit. The ECDC list of domains and core competencies of field epidemiologists is used as a reference tool to identify areas where more training is needed. The list — in English — can be found in Appendix 8. In 2009, the list of 80 core competencies will be made available in all 23 EU languages.

Other elements that are included in the discussion: barriers for access to training (funding, level of awareness of decision makers), models (short courses, distance learning, long programmes, etc), targets, potential partnerships (universities, Public Health schools), language, etc.

Finally, ECDC explores the expectations of the MS counterparts about potential support, and always emphasises that models should be adjusted to specific needs.

The FETP development handbook of the US CDC was used in some visits, particularly in the feasibility study for the development of an FETP. On the other hand, an inventory of epidemiological capacity, that also includes a chapter on training resources, is currently being developed by Country Relations, ECDC Governance.

Summary 2008

Upon request, ECDC conducted visits for training resources and needs assessments to Portugal, Slovenia, Hungary and Romania in 2008. The goal was to support the self-assessment in the countries and to update the ECDC training strategy accordingly.

Specific requests were also expressed:

- Hungary was visited in June 2007 and again in February 2008, after the request of a feasibility study for the development of a national FETP;
- Portugal requested ECDC input to set a national training programme and demonstrated interest to become an EPIET training site. ECDC conducted a visit to Portugal in January 2008; and
- Slovenia expressed interest in developing a hybrid FETP and requested a visit from ECDC, which occurred in April 2008.

Finally, in June 2008, Romania received the first country visit focused on general objectives TOR.

Topics

Priority areas and domains for which training has been suggested during country visits include: public health surveillance, outbreak investigation, risk assessment, risk communication and analytical epidemiology.

Target audience

While there is agreement about the fact that epidemiologists in intervention epidemiology are the priority target, the multidisciplinary perspective needed in surveillance and response activities is also emphasised and translated into ECDC activities. The course on 'microbiology and epidemiology aspects of outbreak investigation' in 2008, and the planned workshop on intersectoral perspectives of detection, surveillance and response to food and waterborne diseases are examples of these activities with broader audiences, keeping the focus on intervention epidemiology, but assuming that different professionals may be involved.

It has been mentioned during some visits the importance of addressing the specific needs of senior epidemiologists and senior public health officials and managers, particularly in areas as risk communication and risk assessment.

Models

In several visits, the possibility of developing a National FETP or a EPIET-FETP hybrid was the main reason for the request, or appeared as one interesting possibility during the discussions. The so-called 'hybrid model' can be described as 'in the job training' in the country of origin, under MS salaries, combined with attendance to training courses with participants from different countries (e.g. EPIET modules).

In-country training can have advantages for those that have family ties or other reasons that prevent them from leaving their own country for training purposes. It may be important in small countries with less epidemiological capacity in terms of human resources. In any case, the fellow needs to have dedicated training time, and it is advisable that they do not remain in the same post of origin.

There is a clear need of continuing medical education for mid-career and senior epidemiologists that is currently being addressed by ECDC through short courses of one week and through the introductory course to intervention epidemiology since 2009.

Nevertheless, other methods like distance learning and two- or three-day workshops may be an alternative and a complementary way of addressing these needs.

Country visits vs. survey

Country visits are more interactive but less systematic than a survey. All countries interpret ECDC visits as a back-up, but the individual country visit approach is not efficient: with approximately five visits per year, it would take six years to have an overview for a status report, and at that time the situation reflected in the first visits could have changed completely.

An online survey of all the EU MS is suggested, for measuring epidemiological capacity and creating an inventory of training resources.

Structural context is crucial, including the epidemiological capacity in the public health system: number of experts, type of educational background and training received, age structure, etc. Training resources — public health schools, universities, public health institutes with training programmes, etc. — need to be mapped.

The training needs to increase this capacity will continue to be assessed with the pilot assessment tool, considering areas, domains and core competencies in applied infectious disease epidemiology.

Country visits will be conducted to provide support for assessments, as requested and when there is a clear added value.

Regional workshops may be needed to increase comprehensiveness of assessments and interaction among ECDC competent bodies for training.

5 ECDC Work Plan 2009

5.1 EPIET

5.1.1 EPIET programme external review and expansion

In February 1999, an external evaluation of the EPIET programme was carried out to answer the following questions:

- To what extent does EPIET fulfil its objectives?
- Is EPIET good value for the price it costs to run the programme?
- Does the training meet the standards required to appropriate and effective learning?
- Can the training be adapted to other disciplines (e.g. environmental health)?
- Are there alternative models to accomplish the training objectives (e.g. through an institution)?
- What impact does EPIET have on other international organisations?

The evaluation team conducted this assessment by reviewing documents provided by EPIET management; conducting selected site visits to Paris, Brussels, Berlin, Madrid, London (including Wales and Scotland), and Geneva; and telephone interviews to Sweden and Finland. People interviewed included officials, trainers, fellows, alumni and other relevant stakeholders. These activities occurred over a period of approximately eight months.

With the transfer of the programme to ECDC and the fact that the previous review had been conducted in 1999, it was decided that ECDC will seek to conduct a new external evaluation.

The objective of this new external review is to evaluate EPIET, including the pedagogical programme, and the administrative procedures. The evaluation is to take into account how the recommendations of the 1999 evaluation have been addressed, where still appropriate. The evaluation will be outsourced through a call for tender and will include a mechanism for EPIET stakeholders to monitor the process. The evaluation is planned to start in the spring of 2009.

5.1.2 EPIET training

In 2009, the 15th cohort will be recruited. ECDC has reserved funding for 20 EPIET fellows. The new fellows will start their training in September 2009.

The following modules are planned for 2009:

- Laboratory methods for epidemiologists in Bilthoven, the Netherlands (optional for cohort 13/14);
- Communication & Scientific Writing, Berlin, Germany (optional for cohort 13/14);
- Vaccinology, Helsinki, Finland (cohort 13/14);
- Rapid Assessment in Complex Emergency Situations (optional for cohort 13/14);
- Project Review Module (cohort 13/14);
- 15th EPIET Introductory Course, Menorca, Spain (obligatory cohort 15);
- Computer tools for outbreak investigation (obligatory cohort 15).

See tentative calendar and details in Appendix 5.

During the first months of 2009, new regional training sites, mainly in France and Germany, will be evaluated by the EPIET coordinators. EPIET will continue to support hybrid EPIET programmes.

5.1.3 Collaboration with other training programmes

EPIET will continue to strengthen the collaboration with other training programmes, such as the Spanish and the French Programme for applied epidemiology or the Canadian Field Epidemiology Training Programme, by sharing training material and facilitators.

In 2009, ECDC plans to organise a meeting of the directors of national field epidemiology training programmes from the EU and beyond in collaboration with TEPHINET.

5.2 Consolidate organisation of training courses for MS

Ten courses like those referred to in section 4.2.1, with the same contractors and addressing same topics and audiences, will be organised during the first half of 2009. See tentative calendar and details in Appendix 6.

Discussions and conclusions from the meeting that resulted in this report will be taken into account for the improvement of the process and contents.

Coordinating meetings may also be organised between ECDC and contractors to improve the details of their implementation.

5.3 Development of new training activities and products

In 2008, ECDC launched new calls for tenders for the organisation of additional training activities. Their development and implementation will continue in 2009.

5.3.1 Curriculum, training materials and pilot course on rapid risk assessment or threat assessment

The goal is to have a reference curriculum and materials that can be used as a basis to organise training courses that will strengthen participant knowledge and skills on assessment of public health threats/events. Tools will be provided to understand the magnitude of a health threat (it may be a new or unknown disease, an outbreak or a case of a severe and highly transmissible disease) and its relevance in terms of extension, ability to spread, existence of preventive or control measures.

Aspects like the systematic collection and collation of information from a variety of sources, verification and analysis are included. The concepts of indicator-based and event-based surveillance at national, regional and local levels, and potentially at European and international level, are incorporated. Communication between risk managers and those responsible for risk assessment at all levels is also crucial.

The target audiences for which this curriculum will be intended are epidemiologists working in infectious disease surveillance, preparedness or response units of public health institutes or in Ministries of Health of the concerned EU/EEA Member States, with responsibilities for detection, follow-up, assessment and response activities related to public health events.

The curriculum is designed for a course of 35 hours — one week — and the developed materials may be used in 2009 or early 2010 to organise a training module that will address MS.

5.3.2 Curriculum, training materials and pilot workshop on public health programmes on prevention and control of seasonal influenza

The goal of this activity is to have a reference curriculum and materials that can be used as a basis for the organisation of training courses that will strengthen participant knowledge and skills on the programmes for prevention and control of human seasonal influenza.

The primary target group are senior public health professionals responsible for the design and implementation of programmes on human seasonal influenza prevention and control at the national and sub-national level in the EU countries.

This curriculum and training materials should also be modular so that they can be easily used in part for training for other target groups who need to know about influenza prevention and control:

- medical professionals (including those working in nursing homes);
- health policymakers;
- municipal (commune/county) health authorities;
- non-governmental (patient) organisations;
- employers' organisations;
- representatives of industry (vaccine producers).

The curriculum is designed for 30 hours — one week — and the developed materials may be used in early 2010 to organise a training module that will address MS.

5.3.3 Introductory course on intervention epidemiology

Following the 2007 recommendation, this course seeks to fulfil the important demand of external participants for the introductory course of EPIET and it will also allow for training supervisors in the countries. ECDC will organise a three-week course on introduction to intervention epidemiology, open to all EU-EEA Member States. This activity will be outsourced and will have the same teaching objectives as the EPIET Introductory Course.

5.3.4 Manual on intervention epidemiology

In 2006 EPIET started to develop 'Lecture Notes' linked to the lectures of the Introductory Course. This has resulted in 18 draft chapters of text, each reflecting the content of the EPIET presentations. ECDC plans to develop these documents further into an online manual on intervention epidemiology, based on WIKI principles. The construction of this WIKI manual starts in 2009.

5.4 Continuation of training resources and needs

It will be necessary to continue to analyse the resources and needs in training by country visits and explore the possibility of an online survey.

The ECDC may also focus on helping countries to develop their national training strategies and translate tools into 23 EU languages, including questionnaire and core competencies in intervention epidemiology.

The annual meeting with competent bodies for training strategy update will continue to be organised as well as regional workshops for TRNA as needed.

5.5 Develop network for training

A network for training, constituted by trainers, participants in courses, EPIET fellows, Public Health organisations, European Commission, ECDC units and sections, and FETPs, will be developed.

The planned activities to achieve this goal include:

- to facilitate exchange of information between partners;
- to promote epidemiological and pedagogical language;
- to identify experts in training for ECDC activities; and
- to host a EU FETP Director Meeting to share technical and organisational experiences, where administrative-organisational experience can be shared.

5.6 Others

Other important activities that will allow to reach more professionals and to update current resources include:

- the creation of new training materials (lectures, case studies, workshops, modules); and
- the design of distance learning modules with presentations and video lectures:
  - moderated, with evaluation tests and credits, or
  - self-learning, with materials available on the website

6 Specific training needs of MS: discussion in working groups A and B

Participants representing the Competent Body for training discussed in groups the training needs of MS in the area of intervention epidemiology, with the goal of contributing to update the Training Strategy. The discussion is summarised below.

6.1 Impact of ECDC activities in building capacity in the Member States

In general representatives of CB for training are aware of the participation of epidemiologists from their respective countries in ECDC training activities (e.g. short courses). These activities match the needs, but it is also expected that ECDC organises more advanced courses and activities with European added value.

More information is needed at the national level about training activities in the countries. It was recommended that ECDC keeps updating its website with all the information on short courses: title, previous editions, and target audience. More information can be found on ECDC's website (http://ecdc.europa.eu) under 'Training activities'.

As a method for measuring the impact of ECDC short courses in the surveillance and response capacity of the country, it was suggested that targeted questionnaires to CB and to participants in specific activities could be used. It would be necessary for the CB for training, at least, to know who has been trained in their country.

6.2 Selection of participants

In 2007 and 2008, the invitation letters to select participants were sent to the CB or response and surveillance, depending on the topic of the specific course, with copy to the CB for training.

More involvement from the CB for training in proposing participants was suggested. The CB may conduct a training needs assessment in the country, a role consistent with the expected responsibilities of the competent body for training.

It is important to take into account that individual needs may be different from the needs defined by the CB at the country level.

The CB for training would need to get in advance the detailed information about the ECDC work plan on short courses, and the description about the profile of participants.

It was recommended that the countries indentify and propose official ECDC contact points in the institution of the CB for training.

A good description of the requisites for participants is needed, considering that similar posts or responsibilities may be called differently in different countries. For example, the term 'epidemiologist' is not common in all of them. The programme of the course should be sent with the invitations.

Regarding criteria to select the right participants, it was recommended to reach different levels (national, but also sub-national) and different positions.

There was agreement on including as an important criteria: 'those than can give training when back in the countries'.

6.3 Activities in applied epidemiology

Activities in applied epidemiology where training is considered necessary include:

- exchanges of epidemiologists between countries;
- invitation to EPIET fellows in second year to organise training as part of their learning objectives;
- two-day workshops on risk assessment , epidemic intelligence, IHR, etc.;
- sharing experiences (i.e. Q fever Netherlands);
- regional training; and

- advanced courses on international/European perspective.

6.4 Topics for which training is needed

They include:

- evaluation of public health surveillance systems;
- introductory courses on intervention epidemiology, with emphasis in analytical epidemiology;
- environmental epidemiology;
- train the trainers;
- cooperation with food safety and animal health;
- methods for impact assessment, including economical evaluation;
- preparedness;
- modelling;
- EU organisation; and
- forensic epidemiology.

6.5 Distance learning

The group considered that ECDC can play an important role by making training materials available on its website. For example, Canada has had a good experience and recommends making available after training the materials for:

- participants in modules;
- mentors; and
- those who cannot travel to attend courses.

A stepwise approach is recommended: first sharing training materials, also including training materials from national courses, and then developing e-learning.

6.6 Link between CB training and EPIET Training Site Forum

In terms of interaction or links of the competent bodies for training with the EPIET Training Site Forum, the group is open to continue activities like teleconferences, expert meetings, and workshops to discuss specific issues on training.

7 EPIET Training Site Forum, discussion in working group C

The aim of this working group session was to seek views and advice on the following topics:

- expansion of EPIET;
- external evaluation of EPIET; and
- support for national FETP.

The working group discussed these topics in order to achieve a consensus opinion, which was then presented at the plenary session of the meeting. The views of the EPIET Training Site Forum are documented in this section of the report.

7.1 Expansion of EPIET

EPIET cohorts have gradually increased in size over the years and in the coming years this will continue. This will again require an increase in our capacity to teach as well as modifications in the logistics. For example, it will become unfeasible to host modules for two active cohorts together. ECDC seeks advice on the selection criteria for fellows and on strategies to strengthen the network of trainers and training sites.

Question: What approaches to increase the number of EPIET facilitators for modules and courses will also offer benefits for the employers/host organisations?

The Forum considered the following options:

- increasing awareness among the group of sporadic and past facilitators that more trainers are needed, to take away the impression that there are already enough trainers;
- raising interest among those experts who have never taught;
- broadening the methods of announcing (through the EPIET Training Site Forum and EAN);
- ensuring recognition of the effort, for example through CME credits;
- including training of trainer activities.

Question: Are the current selection criteria for the fellowship sufficient to attract those candidates that Member States seek to employ after their training? If not, how can we make the criteria more effective?

The Forum agreed that the programme is highly successful in delivering graduates that quickly find employment in EU Member States and that currently a large number of EPIET alumni occupy key positions in communicable disease control at national and international level. From this perspective, it was acknowledged that EPIET achieves the objective to develop a European network of intervention epidemiologists.

The discussion focused more on the identification of obstacles for fellows to return to their country of origin after training. Elements that could promote the return of alumni to their country:

- a pro-active position of the Ministries of Health or National Institutes to offer jobs to returning fellows;
- ECDC to arrange accreditation of the EPIET training.

7.2 EPIET external evaluation

ECDC plans to call for an external review of the EPIET, from the scientific and the administrative perspective. ECDC seeks advice on the selection of experts for the external evaluation as well as on the key questions to be answered.

Question: What should be the selection criteria for the group of experts/organisation to respond to the call to evaluate EPIET?

It was considered relevant that the evaluators need to have sufficient insight into the professional field of intervention epidemiology, or at least have such expertise in the team, in addition to expertise in training and evaluation of complex training programmes. It was suggested to assess as well if EPIET achieves the programme objectives. The experts should preferably be familiar with EPIET, but not have been involved in the programme as fellows or trainers.

Specific questions for the evaluations are thought to fall in the following categories:

- Follow-up of 1999 recommendations
- Do we train the right people?
- Do we train the people right?
- How many experts are needed in the EU?
- Is the governance and administrative structure appropriate?
- Do training sites cover the needs?

Questions: What are appropriate and relevant indicators that need to be covered by the evaluation in these categories? Are there any other categories of questions that are not mentioned above?

These categories were considered to cover the relevant issues for an external evaluation. The Forum advised to ask the employers of EPIET alumni for their level of satisfaction and to add the question 'do fellows learn what they need to learn?'. It was also considered useful to include a survey among alumni (e.g. performed by EAN) to document employment history.

Question: What is the preferred mechanism of input by the EPIET Training Site Forum to the final call for evaluation of EPIET?

The Forum requests to review the questions that are posed to the evaluator, and to be able monitor the process. The Forum members agree that it is relevant that a significant number of them will be interviewed as part of the evaluation.

7.3 Support of National FETPs

ECDC aims to encourage and support countries to develop national FETPs. One way is to offer access to EPIET modules and scientific coordination. These FETPs would then depend on an increase in EPIET's training resources. ECDC seeks advice on the strategy to increase the capacity to train by considering the following questions:

Question: EPIET has always depended on a strong contribution for teaching and supervision from the Member States. Should countries with 'dependent FETPs' contribute to EPIET proportionally to their number of fellows? If not, by what means can we increase EPIET's capacity to train?

The Forum acknowledges how much 'dependent FETPs' benefit from the EPIET training modules and scientific coordination. It is felt that such hybrid models contribute to the same objectives as EPIET and the support of ECDC is seen within the mandate to strengthen the workforce in Europe. In addition, the option of 'Hybrid-EPIET-FETPs' was seen as a possibility to open up this type of professional training to those who are not yet strong enough in English.

The Forum expressed concern that adding requirements for contribution may add an obstacle to engage in such training activities and was cautious to support a formula for FETPs to compensate their use of EPIET resources.

Question: What should ECDC offer to on-site FETP supervisors in terms of 'training of trainers' in order to achieve a common approach to teach fellows intervention epidemiology in the field?

Time did not allow an extensive discussion on this topic, yet several options were mentioned in the group:

- to continue to invite supervisors to EPIET Site Appraisals;
- to ensure that supervisors have opportunity to teach in modules;
- to provide specific training in pedagogical issues.

8 Conclusions

- The training strategy of ECDC has been discussed and updated. The main conclusion was that it does not need substantial changes: both EPIET/FETPs and shorter courses are needed.
- Appreciation was expressed for the security that ECDC offers to EPIET as well as for the ECDC efforts to strengthen FETPs, in particular the hybrid model.
- The ECDC 2007–2008 training activities received positive feedback from the participants of the meeting, and the added value for Member States to have participants in short modules was emphasised.
- The roles of competent bodies for training and EPIET Site Forum were presented and discussed.
- The first meeting of the EPIET Training Site Forum proved to be a very fruitful exchange of views and provided ECDC with relevant input on the training programme.
- The inventory of training resources and needs was considered a priority. A survey of institutions, programmes and curricula on intervention epidemiology in the MS is needed.

9 Recommendations

- A systematic survey to all MS for situation analysis regarding training needs was considered a priority and complementary to country visits, which should be done upon specific requests by MS.
- Between consultations, it will be useful to organise teleconferences with the competent bodies for training and with expert groups from MS to update our ECDC training strategy.
- Panels or expert working groups on training in intervention epidemiology from MS representing different targets could be convened for specific discussions.
- ECDC should consider the need of exploring new models, like for example the EPIET with the learning by doing component in-country.
- The model of hybrid EPIET training in MS should be promoted and the financial support for MS identified.
- EPIET needs to develop strategies to train more trainers for modules and day-to-day supervision.

Appendix 1: Agenda of the consultation

09:00 – 09:15	**Presentation of the meeting, introduction of participants** **Denis Coulombier**
09:15 – 09:45	**Opening and background summary of activities in 2007–2008** **Arnold Bosman**
09:45 – 10:30	**Update on EPIET** **Viviane Bremer**
10:30 – 11:00	**Coffee break**
11:00 – 11:30	**EPIET Training Site Forum: role, composition and functions** **Arnold Bosman and Viviane Bremer**
11:30 – 12:00	**Discussion and summary** **Arnold Bosman, Carmen Varela Santos, Viviane Bremer and Vladimir Prikazsky**
12:00 – 13:00	**Lunch**
13:00– 13:45	**Feedback on training resources and needs assessment in the Member States. ECDC Training Strategy & Work Plan 2009** **Carmen Varela Santos**
13:45 – 14:00	**Intervention epidemiology training strategy and implementation in Ireland** **Derval Igoe,** Specialist in Public Health Medicine, Health Protection Surveillance Centre
14:00 – 15.30	**Three working groups in parallel:** **A and B – Specific needs of MS to orient priorities in 2009.** **Vladimir Prikazsky and Carmen Varela Santos** **C – First EPIET Training Site Forum Meeting** **Viviane Bremer and Arnold Bosman**
15:30 – 16:00	**Feedback working groups**
16:30 – 17:00	**Coffee break**
17:00 – 17:30	**Summary of the meeting** **Denis Coulombier and Arnold Bosman**

Appendix 2: List of participants

Country	Name	Institution
Austria	Reinhild Strauss	Ministry of Health, Family and Youth
Belgium	Sophie Quoilin	Scientific Institute of Public Health
Bulgaria	Kojouharova Mira	National Center of Infectious and Parasitic Diseases (NCIPD)
Canada	Hockin Jamie	Public Health Agency Canada
Switzerland	Philippe Sudre	General Directorate of Health (DGS)
Croatia	Ira Gjenero-Margan	Croatian National Institute of Public Health
Czech Republic	Marta Prikazska	National Institute of Public Health
Estonia	Natalia Kerbo	Health Protection Inspectorate
Germany	Gérard Krause	Robert Koch Institute
Denmark	Anne Mazick	Statens Serum Institut
Spain	Dionosio Herrera	Centro Nacional de Epidemiología Instituto de Salud Carlos III
Spain	Fernando Simón Soria	EPISOUTH
Finland	Outi Lyytikäinen	National Public Health Institute KTL
France	Biagio Pedalino	MSF, Epicentre
France	Brigitte Helynck	Institut de Veille Sanitaire
France	Tek-Ang Lim	Institut de Veille Sanitaire
Hungary	Martá Melles	National Center for Epidemiology
Hungary	Ágnes Hajdú	National Center for Epidemiology
Ireland	Derval Igoe	Health Protection Surveillance Centre
Iceland	Guðrún Sigmundsdóttir	Centre for Health Security and Communicable Disease Control
Italy	Enrico Girardi	National Institute for Infectious Diseases
Italy	Caterina Rizzo	National Center for Epidemiology, Surveillance and Health Promotion
Lituania	Lina Diringyte	Ministry of Health
EU	Frank Van Loock	EC – DG SANCO
Norway	Aavitsland Preben	Norwegian Institute of Public Health (NIPH)
Netherlands	Jeannette de Boer	RIVM National Institute for Public Health and the Environment
Poland	Pawel Stefanoff	National Institute of Public Health – National Institute of Hygiene (PZH)
Portugal	Carlos Orta Gomes	Direcção-Geral de Saúde
Romani	Florin Popovici	Centre for Prevention and Control of Communicable Diseases
Sweden	Agnet Holmström	The National Board of Health and Welfare
Sweden	Yvonne Andersson	Smittskyddsinstitutet – SMI
Slovenia	Irena Klavs	National Institute of Public Health

United Kingdom	Roland Salmon	National Public Health Service for Wales
United Kingdom	Ruth Roberston	Health Protection Scotland
United Kingdom	Richard Pebody	Health Protection Agency
United Kingdom	Graham Fraser	Health Protection Agency London Regional
United Kingdom	Aileen Kitching	Health Protection Agency
United Kingdom	Isabel Oliver	Health Protection Agency SW
Turkey	Nihal Babalioglu	Ministry of Heath
United States	Patricia Simone	CAPT, USPHS
EU	Arnold Bosman	Preparedness and Response Unit, ECDC
EU	Viviane Bremer	Preparedness and Response Unit, ECDC
EU	Denis Coulombier	Preparedness and Response Unit, ECDC
EU	Vladimir Prikazsky	Preparedness and Response Unit, ECDC
EU	Carmen Varela	Preparedness and Response Unit, ECDC

Appendix 3: Specific training needs of Member States (working group paper)

Introduction

In previous consultations, ECDC consulted MS to update their training strategy. Among other activities, short courses are being organised as a result of the input in consultations at ECDC and in country visits. Topics covered include: (1) technical aspects of outbreak investigation; (2) managerial skills for coordinators of outbreak investigation teams; (3) joint training microbiological and epidemiological aspects of outbreak investigation; (4) epidemiological aspects of vaccination; (5) time series analysis (TSA): descriptive methods and introduction to modelling and forecasting.

EPIET organises several courses for the fellows, to which external participants can also attend. Train of trainers workshops are planned this year for ESCAIDE, with four different topics:

- Enhance your skills in training facilitation
- Designing case studies
- Coaching and supervising adult learners
- Expert review of scientific manuscripts

Curricula and training materials on different topics are also being developed on: (1) threat assessment of public health events, (2) antimicrobial resistance and healthcare-related infections, and (3) influenza public health programmes.

Objectives

With the goal of updating its training strategy, ECDC would like to request MS participants to address the following objectives during this consultation:

- Identify ways of measuring impact of ECDC activities in capacity building in MS
- Suggest improvements in selection of participants for training activities
- Areas where training is still needed
- To explore how the CB for training could provide more advice on a continuous basis (besides the annual meeting)

Methods

- Group brainstorming with MS and ECDC moderators and participants
- Feedback in plenary session (short WG presentations)

Work sheet

1. We would like to measure the impact that these activities are having in building capacity in the MS. Please, consider your own country, when discussing the following questions:

1.1. Are you aware of the participation of epidemiologists from your country in our courses and activities?

1.2. Have you had access to the contents of their curricula?

1.3. Does it match your needs?

1.4. What is the effect afterwards? Could you please suggest methods for measuring the impact in your surveillance and response capacity?

2. Currently, the selection of participants is done through the CB of ECDC, mainly those on response and surveillance, informing the training CB.

2.1. Can you please suggest methods to improve the selection process in these courses?

2.2. Which criteria would help to select the right participants?

3. Can you please enumerate at least 5 areas-topics in applied epidemiology where training would be necessary in your country, and for which ECDC has not yet organised activities?

4. How important is that ECDC puts training materials available in the website?

5. How do you see the interaction or links of the CB for training with the EPIET training site forum?

The rapporteur of each group is invited to collect comments and prepare 4 slides to be presented during plenary session (15:30-16:00). Each WG has approximately 4 minutes for presentation and 3 for clarifications, questions.

Appendix 4: EPIET Training Site Forum (working group paper)

Introduction

Before the transition of EPIET into ECDC, the Training Programme was governed by the EPIET Steering Committee, representing all EU Member States, the budget holder and the EPIET Alumni Association (EAN). This Committee convened once a year during the EPIET Scientific Seminar and advised the EPIET budget holder on issues such as programme review, future planning, member states' needs assessment, selection of new training sites, recruitment of EPIET staff and fellows. The Steering Committee had also delegated the task of providing the EPIET coordinating team with ad hoc advice on urgent issues to 5 or 6 members who formed the EPIET Executive Board.

In order to ensure that the EPIET continues to benefit from the technical advice of EU Member States for training in a way that is consistent with the organisation of the ECDC, the tasks of the former Steering Committee are proposed to be taken over by the Competent Body for Training and a new body titled 'EPIET Training Site Forum'.

The scope of the Competent Body for Training on EPIET issues will be:

- To provide strategic advice and suggestions for future developments of EPIET and similar training programmes
- To advise on implementation and review of the EPIET training objectives
- To assess the programme outcomes regularly at scientific and technical level, compared to the established training needs

In addition, the scope of the EPIET Technical Expert Group is suggested to be:

- To provide technical input from training sites in terms of feedback on the curriculum and current programme (e.g. on administration, communication, training resources and tools, preparation and execution of modules, etc.)
- To identify training needs for trainers
- To facilitate and participate in recruitment of fellows and facilitators

Objectives

The aim of this working group session is to seek views and advice on the following topics:

- Expansion of EPIET
- External evaluation of EPIET
- Support for National FETP

Methods

Moderated discussions with members of the EPIET Training Site Forum.

Feedback in plenary session (short WG presentations).

Questions to discuss:

Expansion of EPIET

EPIET cohorts have gradually increased in size over the years and in the coming years this will continue. This will again require an increase in our capacity to teach as well as modifications in the logistics. For example, it will become unfeasible to host modules for 2 active cohorts together. ECDC seeks advice on the selection criteria for fellows and on strategies to strengthen the network of trainers and training sites.

A1 – What approaches to increase the number of EPIET facilitators for modules and courses will also offer benefits for the employers/host organisations?

A2 – Are the current selection criteria for the fellowship sufficient to attract those candidates that Member States seek to employ after their training? If not, how can we make the criteria more effective?

EPIET external evaluation

ECDC plans to call for an external review of the EPIET, from the scientific and the administrative perspective. ECDC seeks advice on the selection of experts for the external evaluation as well as on the key questions to be answered.

B1 – What should be the selection criteria for the group of experts/organisation to respond to the call to evaluate EPIET?

B2 – Specific questions for the evaluations are thought to fall in the following categories:

Follow up of recommendations 1999

Do we train the right people?

Do we train the people right?

How many experts are needed in the EU?

Is the governance and administrative structure appropriate?

Do training sites cover the needs?

What are appropriate and relevant indicators that need to be covered by the evaluation in these categories? Are there any other categories of questions that are not mentioned above?

B3 – What is the preferred mechanism of input by the EPIET Training Site Forum to the final call for evaluation of EPIET?

Support of National FETPs

ECDC aims to encourage and support countries to develop national FETPs. One way is to offer access to EPIET modules and scientific coordination. These FETPs would then depend on an increase in EPIET's training resources. ECDC seeks advice on the strategy to increase the capacity to train by considering the following questions:

C1 – EPIET has always depended on a strong contribution for teaching and supervision from the Member States. Should countries with "dependent FETPs" contribute to EPIET proportionally to their number of fellows?

If not, by what means can we increase EPIET's capacity to train?

C2 – What should ECDC offer to on site FETP supervisors in terms of "training of trainers" in order to achieve a common approach to teach fellows intervention epidemiology in the field?

D – Any other business

The rapporteur of each group is invited to collect comments and prepare 4 slides to be presented during plenary session (15:30-16:00). Each WG has approximately 4 minutes for presentation and 3 for clarifications, questions.

Appendix 5: Short courses of EPIET (calendar for 2009 & portfolio)

Title of the EPIET course	Dates and venue (2009)
Laboratory methods for epidemiologists (optional for cohort 13/14)	23–27 February, Bilthoven, the Netherlands
Communication and scientific writing (optional for cohort 13/14)	23–27 March, Berlin, Germany
Vaccinology (obligatory cohort 13/14)	20–24 April, Helsinki, Finland
Rapid assessment in complex emergency situations (optional for cohort 13/14)	22–26 June, Gloucester, United Kingdom
Project review module (cohort 13/14)	In August/September
15th EPIET Introductory Course (obligatory cohort 15)	In September/October, Menorca, Spain
ESCAIDE (obligatory cohort 13/14/15)	In October/November, Stockholm, Sweden
Computer tools for outbreak investigations (obligatory cohort 15)	In December

NOTE: EPIET modules are organised and coordinated by the EPIET Programme Office of ECDC. These EPIET modules are built significantly on the contribution of the Member States and, more specifically, the Host Training Sites to provide suitable training facilities and expert staff for teaching. The EPIET Coordinators and Programme Office organise the logistics of travel for fellows and all facilitators, and coordinate the preparation of the modules, including the invitations to expert facilitators from the steadily growing EPIET network.

Portfolio EPIET modules

14th EPIET Introductory Course	
Previous editions:	**Once a year in September/October since 1995. Last course: 2007 in Menorca, Spain.**
Target group:	**EPIET fellows cohort 14, external participants from EU.**
Pre-requisite:	**The course is compulsory for EPIET fellows cohort 14. Professionals working in public health in European Member States and Norway can apply to the course. Basic notions of epidemiology and statistics are needed.**
Learning objectives:	**To acquire skills in: outbreak investigation methods, epidemiological surveillance planning, establishment and evaluation of surveillance systems and descriptive and analytical epidemiology.**

Duration:	**3 weeks**
ECDC contractor:	**Spanish Ministry of Health**
Content:	**• Information on methods of outbreak investigation, supported by exercises and case studies based on real investigations;** **• The development and presentation of a study protocol (defining the study question, designing the methodology, drawing the questionnaire and presenting the protocol to the rest of the group and to the facilitators);** **• The basis for developing and evaluating surveillance systems and presentation of some European surveillance systems;** **• Instruction in analytical epidemiological skills for data analysis: risk, association, impact; stratification, bias, confounding, effect modification, matching and multi-variable analysis;** **• Attendance to the ESCAIDE conference, which is held after the three week course.**
More info:	**EPIET Chief coordinator Viviane Bremer. For additional info please send an e-mail to Epiet.office@ecdc.europa.eu**

Computer tools in outbreak investigation	
Previous editions:	**Once a year in December/January since 2003. Last course: January 2008 in Sesimbra, Portugal**
Target group:	**EPIET fellows in their first year (cohort 14), not open to external participants.**
Pre-requisite:	**The course is compulsory for EPIET fellows cohort 14. Knowledge of basic aspects of outbreak investigations and basic knowledge of Excel are needed.**
Learning objectives:	**To equip fellows with the tools to manage and analyse data from outbreak investigations in the field.**
Duration:	**5 days**
ECDC contractor:	**Epiconcept, facilitators from national health institutes, Epidata**
Content:	**• Create a data entry file from a paper questionnaire;** **• Enter, validate and clean data, manage datasets;** **• Perform descriptive analysis;** **• Calculate study power and sample size for various study designs;** **• Randomly select controls;** **• Carry out analysis for cohort and (matched) case-control studies, including stratified and multivariable analysis;** **• Interpret the results of the various analyses.**
More info:	**EPIET Chief coordinator Viviane Bremer. For additional info please send an e-mail to Epiet.office@ecdc.europa.eu**

Vaccinology	
Previous editions:	**Biannually, in spring. Last course: May 2007 in Bilthoven, the Netherlands.**
Target group:	**EPIET fellows in first/second year (cohort 13/14), not open to external participants.**
Pre-requisite:	**The course is compulsory for EPIET fellows in first/second year (cohort 13/14).**
Learning objectives:	**To apply epidemiological methods to the evaluation of vaccines and vaccination programmes.**

Duration:	**5 days**
ECDC contractor:	**None**
Content:	**• Describe key clinical and epidemiological characteristics of main vaccine preventable diseases and their current level of control in Europe; • Describe in general the possible aims, methods of delivery and effects of vaccination programmes; • Describe/apply epidemiological and public health principles for the design of vaccination programmes incl. introduction of new vaccines; • Describe and apply epidemiological principles and methods for the evaluation of vaccination programmes, specifically; • Surveillance of disease (both clinical and laboratory), vaccine uptake, vaccine safety, immune status and seroepidemiology, vaccine effectiveness; • Outbreak investigation • Describe and apply the principles of risk perception and communication in relation to vaccination programmes; • Describe key aspects of vaccine related immunology; • Describe key aspects of vaccine development, production, licensure, supply and delivery; • Describe and apply the epidemiological concepts of clinical vaccine trial design including vaccine efficacy; • Describe the principles and applications of modelling and economic evaluation of vaccination programmes; • Describe the European and global VPD networks and disease control targets.**
More info:	**EPIET Chief coordinator Viviane Bremer. For additional info please send an e-mail to Epiet.office@ecdc.europa.eu**

Multivariable analysis	
Previous editions:	**Biannually, in spring. Last course: April 2008, in Stockholm, Sweden.**
Target group:	**EPIET fellows in first/second year (cohort 14/15), not open to external participants.**
Pre-requisite:	**The course is compulsory for EPIET fellows in first/second year (cohort 14/15).**
Learning objectives:	**Introduction to multivariable analysis and its use in field epidemiology.**
Duration:	**5 days**
ECDC contractor:	**Epiconcept, others.**
Content:	**• Understand the principles of multivariate analysis and its role in field epidemiology. • Distinguish different types of multivariate analysis (linear, logistic, poisson...). • Understand in which analysis situations it is adequate to use which multivariate analysis. • Interpret correctly the results of linear, logistic, and poisson regression: the meaning of the parameters and the corresponding inferences. • Deal with confounding and interactions in a logistic regression analysis, interpreting correctly the coefficients of each term. • Understand how to build an optimal regression model. • Understand the need, the advantages and the disadvantages of conditional logistic regression and how to use it.**
More info:	**EPIET Chief coordinator Viviane Bremer. For additional info please send an e-mail to Epiet.office@ecdc.europa.eu**

Time series analysis	
Previous editions:	**Biannually, in spring. Last course: June 2008, in Kristiansand, Norway.**
Target group:	**EPIET fellows in first/second year (cohort 14/15), not open to external participants.**

Pre-requisite:	**The course is optional for EPIET fellows in first/second year (cohort 14/15).**
Learning objectives:	**The general content of the course will provide fellows with the basic theoretical concepts, using many real life examples of a time series and plenty of practical exercises with STATA in order to analyse a given TS. Fellows should be able to perform basic description and analysis of a time series by the end of the week.**
Duration:	**5 days**
ECDC contractor:	**Epiconcept, others.**
Content:	**• Understand the basic epidemiological applications of a time series (TS) (description, explanation, prediction, control) and how time series analysis can be used to interpret disease dynamics;** **• Understand the theoretical principles that govern a time series (trend, periodicity, seasonality, white noise);** **• Introduce the two main approaches in TS analysis: the time and the frequency domain;** **• Acquire basic practical skills related to time series analysis (handling the data, preparing the data for time series analysis, converting date formats, plotting the data, simple descriptive techniques, detecting and analysing outliers, dealing with missing values, performing stratified analysis, moving average and other smoothing techniques, regression models);** **• Acquire basic computer skills (STATA) and understand the respective commands in order to perform time series analysis (decompose the time series into its different components);** **• Introduce the concept of stationarity and application of transformations, understand the use of filters, periodograms, correlograms, and acquire the basic computer skills needed to analyse these;** **• Understand how time series analysis can be used to forecast, predict, and set thresholds for outbreak detection, and acquire the basic computer skills needed to perform these operations.**
More info:	**EPIET Chief coordinator Viviane Bremer. For additional info please send an e-mail to Epiet.office@ecdc.europa.eu**

Communication and scientific writing	
Previous editions:	**Biannually, in spring. Last course: February 2007 in Berlin, Germany.**
Target group:	**EPIET fellows in first/second year (cohort 14/15), open to external participants depending on seat capacity**
Pre-requisite:	**The course is optional for EPIET fellows in first/second year (cohort 14/15).**
Learning objectives:	**Improving written communication of public health messages to the media and the scientific community.**
Duration:	**5 days**
ECDC contractor:	**None**
Content:	**• Produce a high level outline of the manuscript;** **• Edit a manuscript after internal review;** **• Complete writing a manuscript;** **• Submit to peer reviewed journal;** **• Undergo editorial process;** **• Review manuscript (peer review);** **• Write a press release.**
More info:	**EPIET Chief coordinator Viviane Bremer. For additional info please send an e-mail to Epiet.office@ecdc.europa.eu**

Laboratory methods for epidemiologists	
Previous editions:	**Biannually, in spring. First course in 2009.**
Target group:	**EPIET fellows in first/second year (cohort 14/13), open to external participants.**

Pre-requisite:	**The course is optional for EPIET fellows in first/second year (cohort 14/13).**
Learning objectives:	**Get acquainted with the role of the laboratory in field epidemiology.**
Duration:	**5 days**
ECDC contractor:	**None**
Content:	**• Describe the role of the laboratory in surveillance, outbreak investigation, applied research; • Identify the needs and objectives of clinicians, laboratory, veterinary and environmental agencies; • Critical thinking in pre-sampling, sampling, analysis, reporting, documentation, feedback; • Define a sampling strategy related to affected organ/physiopathology including number of needed samples; • Collect, label, package and transport samples appropriately and safely; • Identify key laboratory investigations relevant to selected syndromes and/or suspected pathogens; • Identify situations where genetic typing methods should be used; • Calculate sensitivity, specificity, positive and negative predictive value.**
More info:	**EPIET Chief coordinator Viviane Bremer. For additional info please send an e-mail to Epiet.office@ecdc.europa.eu**

Rapid assessment of complex emergency situations	
Previous editions:	**Biannually, in spring. Last course: March 2007 in Veyrier du Lac, France;**
Target group:	**EPIET fellows in first/second year (cohort 14/13), not open to external participants.**
Prerequisite:	**The course is optional for EPIET fellows in first/second year.**
Learning objectives:	**To understand the component of the response to Complex Emergency Situation (CES).**
Duration:	**5 days**
ECDC contractor:	**None**
Content:	**• Prepare for a CES international mission; • Identify priorities in CES; • Conduct a rapid health assessment; • Be familiar with sampling methods; • Use GPS for mapping, compass and appropriate methods for counting population; • Plan and conduct a mortality and nutritional surveys in CES; • Write, interpret and use situation reports in CES; • Establish a health information system; • Know and use relevant indicators to measure and monitor the health status of a population in CES; • Identify source of information and implement data collection to monitor intervention; • Understand the component of the response to severe epidemics (e.g. haemorrhagic fevers); • Understand case finding, case management, contact tracing, social mobilisation, use of laboratory requirements and PPE.**
More info:	**EPIET Chief coordinator Viviane Bremer. For additional info please send an e-mail to Epiet.office@ecdc.europa.eu**

Project review	
Previous editions:	**Annually, in fall. Last course: August 2007 in Warsaw, Poland.**
Target group:	**EPIET fellows in first/second year (cohort 12/13), not open to external participants.**

Pre-requisite:	**The course is compulsory for EPIET fellows in first/second year.**
Learning objectives:	**To review fellows' projects and preparation for the annual ESCAIDE meeting in order to strengthen their communication skills.**
Duration:	**5 days**
ECDC contractor:	**None**
Content:	**Thorough review of the content, methods and style of oral presentations and posters accepted to the annual ESCAIDE meeting in small groups by experienced epidemiologists.**
More info:	**EPIET Chief coordinator Viviane Bremer. For additional info please send an e-mail to Epiet.office@ecdc.europa.eu**

Appendix 6: Short courses for Member States (calendar for 2009 & portfolio)

Title of the course	Contractor – Local organiser	Dates and venue
Communicable disease outbreak investigation	ASPHER – Netherlands School of Occupational and Public Health	20–27 April, Amsterdam, the Netherlands
Communicable disease outbreak investigation	ASPHER – Netherlands School of Occupational and Public Health	25–29 May, Amsterdam, the Netherlands
Communicable disease outbreak investigation	ASPHER – Faculty of Public Health, Debrecen, Hungary	25–29 May, Debrecen, Hungary
Communicable disease outbreak investigation	ASPHER – National School of Public Health, ISCIII	25–29 May, Madrid. Spain
Communicable disease outbreak investigation	ASPHER – Faculty of Public Health, Debrecen, Hungary	8–12 June, Debrecen, Hungary
Leadership and management for co-ordinators of outbreak responses in the EU	Schouten & Nelissen	19–24 April, Madrid, Spain
Leadership and management for co-ordinators of outbreak responses in the EU	Schouten & Nelissen	31 May–5 June, Brussels, Belgium
Time series analysis	EpiConcept	3–8 May, Santorini, Greece
Epidemiological aspects of vaccination	RIVM, ISS, HPA, THL (former KTL)	20–24 April, Helsinki, Finland
Microbiological and epidemiological aspects of outbreak investigation	RIVM	8–12 June, Bilthoven, the Netherlands

Portfolio of courses for MS

Technical aspects of outbreak investigation	
Previous editions:	**Five regional modules in 2007, five regional modules in 2008: one in Madrid (National School of Health, ISCIII), two in Amsterdam (Netherlands School of Public and Occupational Health) and two in Debrecen, Hungary (University of Debrecen, Faculty of Public Health).**
Target group:	**Epidemiologists working in public health administration in the 27 EU MS and the EEA/EFTA countries, proposed by the ECDC competent bodies for training.**
Pre-requisite:	**Epidemiologists, working at the national or at the sub-national level in the EU/EEA countries, designated by their countries.**

Learning objectives:	**The objective of these courses is to strengthen participant knowledge and skills related to the investigation of communicable disease outbreak affecting their country. Competencies to be acquired should enable participants, at the end of the training, to conduct the following activities independently: • Plan and conduct a descriptive analysis of an outbreak: create epidemic curves, line-listing and summary tables of person characteristics and maps with distribution of cases (spot maps or incidence maps); • Choose between different designs to conduct an analytical epidemiological investigation of an outbreak; • Communicate the results of an outbreak investigation.**
Duration:	**5 days**
ECDC contractor	**Association of Schools of Public Health in the European Region (ASPHER)**
Content:	**Introduction to outbreak investigation, cohort and case-control studies: • creation of a questionnaire; • data entry and validation; • descriptive epidemiology; • analysis of time characteristics (epidemic curve, etc.); • analysis of place characteristics (mapping of cases, etc); • analytical epidemiology, bivariate analysis; • analytical epidemiology, stratified analysis; • analytical epidemiology, multivariate analysis; • communication.**
More info:	**Project manager: Carmen Varela. For additional info please send an e-mail to pru@ecdc.europa.eu**

Managerial skills for coordinators of outbreak investigation	
Previous editions:	**October 2006 in Sigtuna, Sweden; January 2007 in Sigtuna; April 2008 in Rimbo, Sweden; June 2008 in Veyrier du Lac, France.**
Target group:	**Epidemiologists working in the public health administration in the 27 EU MS and the EEA/EFTA countries, proposed by the ECDC competent bodies for training.**
Pre-requisite:	**A good knowledge and experience in outbreak investigation, preferably also in coordination of field investigations. The course is intended for epidemiologists that will have the opportunity to lead outbreak investigation teams both in their own country and at the EU level.**
Learning objectives:	**To build and strengthen managerial skills. The course will cover general management competences, which can be applied when coordinating an outbreak response team. Please be reminded that this training will not cover technical epidemiological skills for conducting outbreak investigations. Overall course objectives include: •To strengthen management and leadership capacity during outbreak response at national and regional levels, for both single and multi-state outbreaks occurring in the EU; •To achieve team building and networking between colleagues with similar outbreak control responsibilities in various EU member states and at ECDC.**
Duration:	**5 days**
ECDC contractor	**Schouten & Nelissen**

Content:	**1. Decision making** **General objective: to acquire methods and skills for rapid and evidence-based decision making, including situational analysis and priority setting.** **Specific objectives:** **• to be comfortable in the communication of a decision;** **• to ensure the implementation and follow-up of a decision;** **• to critically appraise and cope with the consequences of wrong decisions.** **2. Communication** **General objective: to select, prioritise and structure information relevant to the decision process.** **Specific objectives:** **• to select the best adapted means of communication according to the purpose of the communication;** **• to chair meetings, according to the different forms these can take (face-to-face and video/teleconference);** **• to acquire skills for addressing the media.** **3. Team management** **General objective: to ensure the functioning of an efficient team** **Specific objectives:** **• to assign and supervise tasks;** **• to achieve rapid team building and collective intelligence;** **• to acquire skills for negotiation and handling conflict;** **• to identify and handle stress.**
More info:	**Project manager: Arnold Bosman. For additional info please send an e-mail to pru@ecdc.europa.eu**

Epidemiological aspects of vaccination	
Previous editions:	**14–18 April 2008, Bilthoven, the Netherlands.**
Target group:	**Epidemiologists/public health experts from EU Member States and EEA/EFTA countries, who are involved in surveillance of vaccine preventable diseases and immunisation issues in their regular activities at national or regional level. They will be proposed by the competent bodies for training.**
Pre-requisite:	**Minimum work experience of two years in this field and good command of English (enough to be able to give a presentation in English).**
Learning objectives:	**The objective of this training is to give an overview of the main aspects of vaccination issues in public health and strengthen the participant's knowledge and skills related to surveillance of vaccine preventable diseases (VPD) and immunisation programmes.** **Knowledge objectives include:** **• Understand key aspects of vaccine-related immunology;** **• Understand key clinical and epidemiological characteristics of the main vaccine preventable diseases and their current level of control in Europe;** **• Describe key aspects of vaccine development, production, licensure, supply and delivery;** **• Describe the possible aims, methods of delivery and effects of vaccination programmes;** **• Understand principles and applications of modelling and economic evaluation of vaccination programmes;** **• Describe the European and global VPD networks and disease control targets.** **Skills to be acquired include:** **• Apply the epidemiological concepts of clinical vaccine trial design including vaccine efficacy;** **• Evaluate vaccination programmes, surveillance of vaccine preventable diseases, vaccine uptake, vaccine safety, immune status, seroepidemiology and vaccine effectiveness;** **• Conduct outbreak investigation of vaccine preventable diseases;** **• Apply principles of risk perception and communication in relation to vaccination programmes.**
Duration:	**5 days**

ECDC contractor:	**RIVM**
Content:	**• General aspects of vaccine-related biology and immunology (type of vaccines, immune response, adverse events, etc);** **• Vaccine developments and production (licensure, trials, efficacy);** **• Vaccine logistics (supply, cold chain, delivery);** **• Immunisation programmes and adjustments of programmes;** **• Surveillance of Vaccine Preventable Diseases (VPD);** **• Surveillance of vaccine coverage in a VPD;** **• Outbreak investigation of a VPD ;** **• Surveillance of adverse events;** **• Evaluation of immunisation programmes;** **• Modelling and disease transmission;** **• Communication to the population.**
More info:	**Project manager: Carmen Varela. For additional info please send an e-mail to pru@ecdc.europa.eu**

Microbiological and epidemiological aspects of outbreak investigation	
Previous editions:	**23–29 June 2008, Bilthoven, the Netherlands.**
Target group:	**Mid-career microbiologists and epidemiologists, proposed in pairs by each country. They will be proposed by the competent bodies for training.**
Pre-requisite:	**To be involved, or potentially involved, in outbreak investigations at national and regional levels within public health administrations.**
Learning objectives:	**The objective of this training is to strengthen the participant's knowledge and skills required for an improved collaboration of laboratory specialists and epidemiologists for outbreak detection, investigation and response of infectious diseases.** **With the goal of improving communication between laboratory specialists and epidemiologists, the long-term objective is to create an integrated laboratory-field epidemiology network for outbreak detection, investigation and response nationally.** **Knowledge objectives should include:** **• Understanding the roles and needs of team members (laboratory and epidemiology) in outbreak detection and response;** **• Understanding the concepts of virology, bacteriology, and immunology related to the different test formats;** **• Use and limitation of tests;** **• Sampling strategies for disease surveillance and for outbreak detection and control;** **• Biosafety issues in laboratories and for shipment of infectious material;** **• Communication during outbreaks and the importance of information sharing;** **• Surveillance systems (syndromic and laboratory-based systems).** **Skills to be acquired should include:** **• Collect an adequate specimen;** **• Apply sampling techniques for different types of samples;** **• Comply with biosafety standards during sampling;** **• Ship samples;** **• Collect adequate epidemiological data;** **• Interpret surveillance data to inform the public and to advice on prevention and control strategies;** **• Use a laboratory information system to monitor epidemiological data;** **• Recognise common laboratory errors and their impact on outbreak response;** **• Detect and respond to an unusual communicable disease events in the laboratory;** **• Interpret laboratory results during an outbreak investigation and advice on prevention and control strategies;** **• Set up basic epidemiological and laboratory databases for different purposes (surveillance and outbreak response);** **• Communicate laboratory and epidemiological data/results: write a joint report.**
ECDC contractor:	**RIVM**

Content:	**1. Communication, roles and responsibilities of epidemiologist and microbiologists in outbreak detection, investigation and response Communicating better between laboratory specialists and epidemiologists** **• Development and validation of diagnostic methods from scratch: a primer for epidemiologists** **• Assessing etiology, risk factors, sources and modes of transmission: a primer for microbiologists** **• Defining the requirements for an outbreak investigation** **• Formulate a working hypothesis, define requirements for laboratory tests, sampling strategies, data collection. This will be done in combined lab and epi teams** **• Synthesis of requirements for epidemiological and microbiological methods** **2. Sampling, tests, methods, interpretation** **• Assessing quality of laboratory tests, Safety regarding sampling and shipping, International requirements** **• Sampling, packaging and shipping of specimens** **3. Further characterisation of pathogens and surveillance** **4. Site visits and emerging infections** **5. Integration of microbiology and epidemiology related to veterinary and human infectious disease control**
More info:	**Project manager: Carmen Varela. For additional info please send an e-mail to pru@ecdc.europa.eu**

Time series analysis: descriptive methods and introduction to modelling and forecasting	
Previous editions	**21-25 April 2008, Veyrier du Lac, France**
Target Group:	**Epidemiologists who are involved at any level of the public health administration in the analysis of surveillance data with the objective of detecting aberrations which may reflect a change in frequency of occurrence requiring public health action. They will be proposed by the competent bodies for training.**
Prerequisite:	**Basic knowledge of statistics and mathematics is required, comprehension of basic linear regression techniques is an advantage. A basic knowledge of STATA commands is required**
Learning objectives:	**The objective of this training is to strengthen the participant's knowledge and skills related to the analysis of time series in the field of public health and specifically on communicable diseases.** **• Knowledge objectives include: understanding of different components of a Time Series (TS), understanding of different methods for modelling TS and understanding advantages and limitations of forecasting.** **• Skills to be acquired include: identify the needs of TS analysis, use STATA to perform TS analysis, participate in a project on TS analysis where senior experts have the responsibility to conduct analysis, read and understand scientific papers using TS analysis methodologies, and communicate the results of a TS analysis.**
Duration:	**5 days**
ECDC contractor	**Epiconcept**
Content:	**• Objectives of TS analysis;** **• Definitions, software;** **• Descriptive techniques;** **• Stationary process;** **• Filtering;** **• Smoothing;** **• Regression techniques;** **• TS models (linear models, autoregressive models); and** **• Forecasting.**
More info:	**Project manager: Carmen Varela. For additional info please send an e-mail to pru@ecdc.europa.eu**

Appendix 7: Questionnaire for epidemiological capacity and training resources assessment

(To be sent to the focal point of the country for training in field epidemiology a few weeks before the visit)

The State Epidemiologist and the AF member will be also copied or will receive the questionnaire and distribute it, if there is no focal point for training in field epidemiology identified

This questionnaire has two sections:

1. General capacity in epidemiology in the public health administration
2. Inventory of resources for training in public health epidemiology in the area of communicable disease surveillance and response (CDSR)

Please, fill this questionnaire and use it as a reference for the visit of self-training needs assessment of the ECDC team

Country:

Name

Institution

Date __/__/__

1. General capacity in epidemiology in the public health administration

For the purposes of this questionnaire, we suggest the definition of epidemiologist presented in the report of the expert meeting for the development of core competencies of epidemiology in the area of communicable disease surveillance and response:

"The epidemiologist that applies the science of epidemiology to the prevention and control of public health problems and works in intervention and response activities"

1.1. Is there a title of epidemiologist in the country?

☐ Yes ☐ No

If there is a title, please give its name

Is it a graduate or post-graduate title?

☐ Graduate ☐ Post-graduate

1.2. What is the more common educational background of the epidemiologists?

☐ Physicians

☐ Bachelor's degree (University title)

Others, please describe

1.3. Recruitment: How do the epidemiologists in the country access their jobs?

☐ Specialised training

☐ Experience on-job

☐ Open competition for access to public position

1.4. Epidemiologists currently working in the public health administration

How many epidemiologists are currently working at the national level?

☐☐☐☐

How many epidemiologists are working currently in the sub-national level, next administrative division?

☐☐☐☐

Please estimate the number of epidemiologists in total per 100.000 habitants in the country

☐☐☐☐

Please estimate the number of epidemiologists per 100.000 habitants in the sub-national level (districts, provinces, counties)

☐☐☐☐

1.5. Please describe/estimate the type of epidemiologists and its number in your country

Number of infectious diseases epidemiologists: ☐☐☐☐

Number of chronic diseases epidemiologists: ☐☐☐☐

Others: Names and numbers

1.6. Epidemiologists by age/experience

Years of experience	Number	Percent
>7 years (senior)		
3-7 years (middle level)		
<3 years (entry)		

1.7. Do the epidemiologists receive training as part of their professional development?

☐ Yes ☐ No

If yes, which percentage approximately has undergone training during the last year?

☐☐☐%

1.8. Is there any ongoing plan for reforming the public health system in the country?

☐ Yes ☐ No

If yes, has it any impact in the education or training of epidemiologists?

☐ Yes ☐ No

Please, explain

1.9. Is the country conducting any project on training under international or European funding?

☐ Yes ☐ No

Please, explain

2. Public Health Training Inventory

2.1. Does the national institute of public health surveillance organise courses for the epidemiologists of the national level?

☐ Yes ☐ No

2.2. And for the regional level?

☐ Yes ☐ No

2.3. Does the country run a two-year learning by doing programme, with components of outbreak investigation and public health surveillance, deployed in the national institute of public health surveillance or in a regional homologous body?

☐ Yes ☐ No

If yes, please give the name of the director of this two-year programme and her/his organisation.

Name _____

Institution _____

Is the programme a member of the Training Programs in Epidemiology and Public Health Interventions NETwork (TEPHINET)?

☐ Yes ☐ No

2.4. Are there national or regional schools of Public Health that give training in public health epidemiology in CDSR?

☐ Yes ☐ No

If yes, please give the name of the school, the organization that they belong to and the city.

Name	Institution	City

2.5. Are there Universities that give a title in public health epidemiology?

☐ Yes ☐ No

If yes, please enumerate them and give more details:

Name of University/Faculty	Graduate/Postgraduate title	City

2.6 Short courses

2.6.1. If you answered yes to question 2.1 or 2.2, please give examples of topics covered by short courses organised by the public health institute. Please specify the frequency with which they are organised

Name of course	Frequency

2.6.2. Please give examples of topics covered by short courses organised by the public health school. Please specify the frequency with which they are organised

Name of course	Frequency

2.6.3. Please give examples of topics covered by short courses organised by other institutions in CDSR

Topics	Institution

2.7. Distance learning

2.7.1. If you answered yes to question 2.1 or 2.2, please give examples of topics covered by distance learning organised by the public health institute.

Topics

2.7.2. Please give examples of topics covered by distance learning organised by the public health school. Please specify the frequency with which they are organised

Name of course	Frequency

2.7.3. Please give examples of topics covered by distance learning organised by other institutions in CDSR

Topics	Institution

2.8. Please give examples of other programmes and institutions involved in training in public health epidemiology in CDSR

Topics	Institution

2.9. Has the country sent a national to the EPIET training?

☐ Yes ☐ No

If yes, how many as of March 2007?

☐☐

If not, would you consider it in the future?

☐ Yes ☐ No

2.10. Does the country have graduates from national Field Epidemiology training programmes?

☐ Yes ☐ No

If yes, how many as of March 2007?

☐☐

3. Others

Please, feel free to comment on this questionnaire and write other aspects that you consider relevant for this assessment of resources in training and that they were not covered in this questionnaire.

Appendix 8: List of 80 core competencies in intervention epidemiology

List of Core Competencies for field epidemiologists in PH administrations of the European Union, grouped by categories and domains

Areas and domains in public health epidemiology

Category	Area	Domain
1 Specific for the profession	1.1 Public health	1.1.1 Public health science
		1.1.2 Public health policy
	1.2 Applied Epidemiology	1.2.1 Risk assessment
		1.2.2 Public health surveillance
		1.2.3 Outbreak investigation
		1.2.4 Epidemiological studies
		1.2.5 Infectious diseases
		1.2.6 Laboratory issues
		1.2.7 Public health guidance
2 Common to other professions	2.1 Biostatistics	2.1.1 Probability
		2.1.2 Inferential statistics
		2.1.3 Sampling
	2.2 Applied Informatics	2.2.1 Internet
		2.2.2 Statistical and other data analysis
		2.2.3 Editing and presentations
	2.3 Communication	2.3.1 Risk communication
		2.3.2 Written communication
		2.3.3 Oral communication
		2.3.4 Use of new technologies
	2.4 Management	2.4.1 Planning and use of resources
		2.4.2 Team building and negotiation
	2.5 Capacity development	2.5.1 Mentorship
		2.5.2 Training
	2.6 Ethics	2.6.1 Protection of individuals
		2.6.2 Confidentiality
		2.6.3 Conflicts of interests

1 Areas specific for the profession

1.1 Public Health

Domain 1.1.1: Public health science

1. Use current knowledge of epidemiology of diseases to guide public health or epidemiological practice.
2. Provide epidemiological input to develop measurable relevant objectives of public health programmes.
3. Use knowledge of specific sociological and cultural factors in the population to conduct studies and recommend public health actions relevant for the affected community.

Domain 1.1.2: Public health policy

4. Understand and analyse legal public health policy documents at local, national and European level.
5. Use epidemiological findings to plan public health programmes.
6. Implement public health programmes: translate policy into public health practice.

7. Identify effective health promotion measures for specific problems.
8. Identify appropriate health prevention measures for specific problems.
9. Evaluate the impact of an intervention on population health.
10. Measure health outcomes to guide decision making in prevention strategy.
11. Use evaluation results of programme progress towards objectives and outcomes in further programme planning and modification.
12. Identify an appropriate public health intervention based on surveillance data.

1.2 Applied Epidemiology

Domain 1.2.1: Risk Assessment

13. Identify sources of information about potential public health threats.
14. Conduct risk assessments: verify, using critical thinking, if a public health problem exists and describe its magnitude.
15. Identify surveillance data needs for risk assessments of public health threats.

Domain 1.2.2: Public health surveillance

16. Run a surveillance system.
17. Conduct surveillance data management.
18. Perform descriptive analysis of surveillance data.
19. Interpret disease and public health events trends from time series analysis.
20. Identify key findings from surveillance data analysis and draw conclusions.
21. Evaluate surveillance systems.
22. Recognise the need for and set up a new surveillance system.
23. Use event-based surveillance, also called epidemic intelligence, to detect health threats.
24. Be familiar with laws on surveillance and reporting of communicable diseases at national, EU level and globally (International Health Regulations).

Domain 1.2.3: Outbreak investigation

25. Create a case definition and adjust it as necessary during the investigation.
26. Describe the outbreak in terms of person, place and time.
27. Generate hypothesis about the cause and/or risk factors of the outbreak.
28. Conduct analytical epidemiological investigation to identify the source.
29. Recommend appropriate evidence based measures to control the outbreak.
30. Report and present results of an investigation.

Domain 1.2.4: Epidemiological studies

31. Write a study protocol using investigation techniques consistent with the public health problem.
32. Conduct epidemiological studies.
33. Report and present results of a study.
34. Recommend evidence-based interventions in response to epidemiological findings.

Domain 1.2.5: Infectious diseases

35. Be familiar with transmission dynamics of infectious diseases.

Domain 1.2.6: Laboratory issues

36. Interpret the diagnostic and epidemiological significance of reports from laboratory tests.
37. Be familiar with different methods for diagnosis and typing, including molecular tests.
38. Communicate effectively with the laboratory team.

Domain 1.2.7: Public health guidance

39. Identify, review and assess relevant literature and other evidence.
40. Develop evidence based guidelines for surveillance, prevention and control of communicable diseases and other acute public health events.
41. Identify appropriate target groups for guidelines.

2 General areas, common to other professions

2.1 Biostatistics

Domain 2.1.1: Probability

42. Apply basic concepts of probability.

Domain 2.1.2: Inferential statistics

43. Calculate and interpret point estimates and confidence intervals of measures of central tendency and dispersion.
44. Calculate and interpret point estimates and confidence intervals of measures of disease frequency.
45. Calculate and interpret point estimates and confidence intervals of measures of association and impact.
46. Calculate and interpret significance tests.

Domain 2.1.3: Sampling

47. Select an appropriate sampling strategy.

2.2. Informatics

Domain 2.2.1: Internet

48. Use internet sources to conduct literature search.
49. Use web-enabled databases.

Domain 2.2.2: Statistical and other data analysis

50. Use database software packages for entering and managing data.
51. Use software packages for statistical analysis (measures of association, testing, and logistic regression).
52. Draw conclusions from the results of analysis.

Domain 2.2.3: Editing and presentations

53. Use software for writing, editing and creating presentations.

2.3 Communication

Domain 2.3.1: Risk communication

54. Apply the basic principles of risk communication, adjusting the message when presenting results of an investigation to different audiences: media, general public, professionals and policy makers.

Domain 2.3.2: Written communication

55. Write a report of an epidemiological investigation for decision makers.
56. Write an article for a scientific journal.
57. Write an abstract.
58. Write a press release.
59. Produce documents, reports, letters, meeting minutes, etc.

Domain 2.3.3: Oral communication

60. Incorporate interpersonal skills in communication with colleagues and with the other audiences.
61. Analyse and synthesise main points in a speech.
62. Provide objective feedback (descriptive, rather than judgemental).

Domain 2.3.4: Use of new communication technologies

63. Use communication technologies (videoconference, teleconference, e-mail, etc.) effectively.

2.4. Management

Domain 2.4.1: Planning and use of resources

64. Plan, prioritise and schedule tasks in a project.
65. Monitor progress and quality against specific targets, adjust schedules and make changes if necessary.
66. Manage available resources (staff, time, budget, etc) effectively.
67. Conduct epidemiological activities within the financial and operational planning context.
68. Prepare an activity report.

Domain 2.4.2: Team building and negotiation

69. Be an effective team member, adopting the role needed to contribute constructively to the accomplishment

of tasks by the group (including leadership).
70. Promote collaborations, partnerships and team building to accomplish epidemiology programme objectives.
71. Develop community partnerships to support epidemiological investigations.
72. Mutually identify those interests that are shared, opposed or different with the other party to achieve good collaborations and conflict management.

2.5 Capacity development

Domain 2.5.1: Mentorship

73. Mentor peers or junior epidemiologists.
74. Assist others to clarify thinking, create consensus, and develop ideas into actionable plans.

Domain 2.5.2: Training

75. Train junior epidemiologists.

2.6 Ethics

Domain 2.6.1: Protection of individuals

76. Respect and adhere to ethical principles regarding human welfare.
77. Follow ethics principles and guidelines for planning studies, conducting research, and collecting disseminating and using data.
78. Apply relevant laws to data collection, management, dissemination and use of information.

Domain 2.6.2: Confidentiality

79. Respect and adhere to ethical principles regarding data protection and confidentiality regarding any information obtained as part of the professional activity.

Domain 2.6.3: Conflicts of interests

80. Handle conflicts of interests.