EpiSouth Project

WP6 Strategic Document

Epidemic Intelligence & Cross-Border in the Mediterranean Countries and Balkans

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WP 6 Epidemic Intelligence & Cross-Border in the Mediterranean Countries and Balkans

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1. Epidemic intelligence & Cross –Border: Context and Justification

General Context

In an environment where circulation of goods and people is constantly increasing, epidemic risk is also growing. To fulfil their public health missions, States must not only exert a continuous monitoring of their population's health, but also build the capacity to identify emerging international health threats that can affect their population. The SARS outbreak in 2003, the ongoing avian influenza sporadic outbreak, the A/H1N1 pandemic but also the 2007 chikungunya outbreak in Italy, illustrate the nature and the possible dimension of these threats. In order to translate collected data into appropriate action, information sharing is crucial especially for cross-border events where harmonised, synchronised and prompt responses is needed to effectively contain and manage such event.

Mediterranean and Balkan countries share the same ecosystem, the same history and common populations and health issues. Flows of people and goods across the Mediterranean are very important and involve large annual multilateral movements of tourists, people visiting family and relatives and legal and illegal immigration flows.

Despite of these close epidemiological and historical links, countries of the Mediterranean and the Balkans belong to different international and political systems: they are part of 3 different WHO regions (AFRO, EMRO and EURO) and only a third are members of the European Union (EU). Hence, sometimes bordering countries have no direct formalised channels with their direct neighbours (e.g. Algeria belongs to the AFRO region and Israel to EURO while their direct neighbours belong to EMRO), which could result in unnecessary delays in communication.

In order to improve health security, at regional and international levels, supranational organisations have developed specific surveillance and alert networks but they are not interconnected and none can fulfil the need of enhanced health information exchange across the Mediterranean and Balkan area. One of EpiSouth objectives is to bridge this gap in developing two different but closely connected axes: Epidemic Intelligence (EI) and cross-border (CB) alerts.

State of the art at the beginning of EpiSouth

It is worth remembering that at the very beginning, EpiSouth was initiated by only 9 EU countries with funds ensuring their participation only. Although, since the beginning, the objective was the inclusion of all Mediterranean and Balkans countries, it is only at a second stage that non-EU countries were asked to join and that additional sources of funding allowing participation of non-EU countries were identified. This initially EU-only focused initiative generated an unbalanced representation of EU and non EU countries and therefore created or reinforced a sceptical feeling. Concerns were particularly high regarding epidemic intelligence and cross border activities and the use of information. First, Epidemic Intelligence (EI) was a relatively new concept which was not familiar to all countries representatives. Particularly, the EI component was somehow perceived as potentially intruding in countries internal health affairs while not always perceived as potentially ensuring an even circulation of information. For that matter, during the first EpiSouth meeting held in Rome in March 2007, many non-EU countries raised their concerns and sometimes their unwillingness to participate to

EI and or CB activities. Other concerns were also raised regarding the lack of official mandate for EpiSouth, the possible duplication with existing networks and the legal implications especially with international health regulation (IHR). These elements representing potential threats were duly taken into account for the construction of the EI and CB activities.

The first step was to assess the EI and CB activities implemented in the respective countries i.e. strategy, objectives, resources, outputs and expectations. This was carried out through a survey, among a sample of countries representatives of their respective sub-region (see *http://www.episouth.org/outputs/wp6/WP6_Report-Assessment_survey-FINAL.pdf*). Results of the survey indicated that:

- EI perception and understanding were quite homogenous both in terms of expected outcomes and fields of interest. A common interest in improving health security was noted. The contribution of EI and CB for anticipating and responding to health threats was highlighted.
- Most countries perceived a need to formalise their specific methodology and criteria.
- Several countries had not defined procedures to verify or validate information originating from non official sources.
- Most countries have developed retro-information procedures privileging electronic supports.

Taking into account both the concerns raised in Rome and the results of this survey, a strategy based on confidence building and on a progressive approach aiming to familiarise focal points with the EI and CB concepts was adopted. The main steps being:

- The clear separation of EI activities from CB: EI being initially focused on health events occurring outside EpiSouth countries only.
- Phasing the implementation of both components: first EI and at a later stage CB activities.
- Formalising the different means of communication: electronic weekly bulletin and thematic notes for EI and a secured web based platform for CB
- Endorsement by all countries of all major steps (EI criteria, public release of EI bulletin, implementation and functionalities of the CB platform, etc.)
- Active involvement of the WP6 Steering group (EI+CB), The steering team was initially composed by Croatia, Israel, Jordan, Malta, Morocco, Montenegro, Palestine and Tunisia representing the 4 EpiSouth sub-regions (Balkans, South Europe, North Africa and Middle-East). On a later stage, Croatia withdrew and was replaced by Kosovo.

Current perception

Despite the difficulties met at the beginning, 17 non-EU countries have joined EpiSouth, highlighting the common need to exchange health information across the Mediterranean and the Balkans. In practice, perceptions and understanding of both EI and CB have notably evolved since the first meeting in 2007. An evident sign of improvement is the high countries response rate to information requests regarding the A/H1N1 pandemic.

2. Overview of activities and achievements

The results of activities implemented during the 3 past years correspond to a gradual implementation strategy. During the first phase, the project focused on the evaluation of the regional context and the elaboration of adequate strategies acceptable by the countries. The active involvement of participating countries either through their representative within the WP Steering Team or during plenary session was actively promoted. This process “somewhat slow” was essential to build on confidence and create an ownership feeling.

Epidemic Intelligence

The EI objective is to detect, using formal and informal sources (media internet…) internationally occurring health threats that may affect EpiSouth countries’ population. Most threats are related to infectious diseases though investigation also covers non-infectious issues (e.g. chemical or environmental threats, products contamination, etc). Informal information is mostly accessible via the Internet and thus theoretically available to all. In practice access to relevant information is very difficult and limited. The volume of information is considerable and the signals are often multiple, originally very diverse, sometimes contradictory and their

reliability is highly variable and questionable. This tedious process requires specific dedicated resources including qualified and experienced staff, the use of specific EI tools and a strict methodology to be of any use, information must be collected, sorted out, verified, analysed and, when necessary disseminated (detail of methodology provided in the annex).

In all countries devoted resources to public health are limited and duplication should be minimised as much as possible. The EI carried out by EpiSouth is initially based on the expertise developed since 2002, by the Institut de Veille Sanitaire (InVS). Hence, the centralised information processing and the dissemination of verified information contribute to reduce the unnecessary duplication and allow countries to focus available resources on specific needs.

Cross-border

This second strategic direction aims to provide a secure communication support allowing countries to share health information and alerts of common interest. Confidentiality must be guaranteed; secure communication is imperative as press coverage regarding certain threats may result in general public anxiety. Since November 2009, the implemented secure web-based platform allows EpiSouth countries to share relevant information on a voluntary basis. To date, this EpiSouth early warning system is the only one allowing for the rapid, easy and secure sharing of such information across 26 countries of the Mediterranean and the Balkan regions. The information posted on the platform is also immediately available to WHO (including EMRO and EURO regional offices), ECDC and the European commission (DG-Sanco).

Majors outputs

Epidemic Intelligence criteria and principles were adopted in Athens in December 2007. The most appropriate type of communication support was developed and implemented accordingly:

- The early warning CB platform, tailored to EpiSouth needs, is operational since November 2009. It is too early to assess its use and performances, yet 14 messages have been posted on the platform including 6 on the A/H1N1 pandemic.
- The EpiSouth electronic weekly epidemiological bulletin (e-Web) has been issued since 19th March 2008 and is available on the EpiSouth website since April 2008. The e-Web provides a weekly summary of new health events occurring in both non-EpiSouth and EpiSouth countries (providing that information is already public or directly provided by the affected EpiSouth country). Events are presented in a public health perspective. The e-Web aims neither to present an exhaustive list of all "international health alerts" nor to provide weekly updates on previously reported health crises. E-Webs are posted every Thursday on the EpiSouth website public area. Between the 19th of November 2008 and the 18th of February 2010, 100 e-Web were released. They reported :
  - 390 events corresponding to criteria adopted by EpiSouth countries.
  - Among the 390 events, 374 related to infectious diseases.
  - 274 events occurred outside EpiSouth region while 73 occurred within EpiSouth it.
- Thematic notes: They are short documents produced to complement other communication formats especially the e-Web. They are produced when a rapid and wide dissemination is required, in order to provide in-depth analysis of a more complex event (e.g. multiple countries epidemics) or to update knowledge on a given health topic. They provide background information, facts on the current health event and element for its interpretation. They are produced on an *ad hoc* basis and target a wider audience of public health professional and stakeholders. They are disseminated using the e-web mailing list and are posted on the public section of the EpiSouth website. To date, 11 notes have been posted under this section.

Type of Events reported

Since 2006, several health crises have illustrated the contribution of EpiSouth to streamline information flow in the region. They encompassed a wide range of heath events such as international health threats (e.g. A(H5N1) outbreaks), potential cross regional health crisis (Al Khurma virus in Saudi Arabia, cholera in Iraq, CCHF in the Black Sea area, etc.), potentially undetected threat (West Nile in Israel…), hoaxes and rumours (false Al Qaeda related plague in Algeria) and Intra-EpiSouth potential cross border risk (e.g. rabies Slovenia Italia, hepatitis A France-Turkey) and more recently A(H1NI) [see § 3.2.5 - opportunities]

3. Major stakeholders, audiences and targets

The EpiSouth Countries

The objective being to disseminate appropriate information collected by EI and CB for the region, the primary target audience is the 26 participating countries. Initially, information was sent to EpiSouth focal points only. EI publications are now more widely disseminated. Focal points were encouraged to forward EI documents to their concerned national audiences, according to Counties. They can be: fellow units of their Ministry of health (MoH) and Public Health Institutes (PHI), provincial health authorities, national reference laboratories, sentinel network: at a second stage, these outputs were also made available on Internet and thus accessible to a wider audience.

Major Epidemic Intelligence Stakeholders: WHO and ECDC

The major regional EI and CB stakeholders are also among the priority targets, and in the first place WHO and ECDC. An overview of the main partners and international organisations is given hereafter:

- WHO : Global mandate
  - Under IHR (2005), WHO has a worldwide mandate that includes EI responsibilities.
  - WHO, at central and regional level, also coordinates and contribute to several alert and surveillance networks of major interest of EpiSouth. For instance the Global outbreak alert & response network (GOARN), Global alert International network of food safety authorities (INFOSAN), Global Early Warning and Response System (GLEW), EMRO Regional Alert Surveillance and Detection of Outbreak Network (RASDON), EURO centralised information system for infectious diseases (CISID), AFRO epidemic alert and verification unit (EAV), etc.
- ECDC :
  - The core mandate of ECDC is "to identify, assess and communicate current and emerging threats to human health from communicable diseases." Under this mandate, epidemic intelligence is a key activity of the centre, focusing on potential threats for the EU. The outputs are communicated through the weekly CDTR.
  - EU's early warning system (EWRS)
  - ECDC/EU diseases surveillance networks: EISN (Influenza); FWD (food- and waterborne diseases and zoonoses); ENIVD/CLRN (imported viral diseases and laboratory); EUROTRAVNET (travel and tropical medicine); VBORNET (medical entomologists and public health network) ESSTI (STI); EU-IBIS (invasive bacterial infections); EuroHIV (HIV/AIDS); EuroTB (tuberculosis); IPSE (hospital acquired infections); DIVINE (food-borne enteric viral infections); EARSS (Antimicrobial resistance); EUVACNET (Vaccine preventable Diseases) EWGLINet (Legionella), SHIPSAN (Health threats in cruise ships), etc.
- EU commission: Rapid Alert System for Food and Feed) (RASFF) and Medical Information System (MedISys)
- OIE: World Animal Health Information Database (WAHID): As most of emerging disease are primarily zoonose, the veterinary surveillance component is essential.
- InVS: has a mandate for public health surveillance including EI for France. Since the implementation of EI by EpiSouth, InVS has been a privileged interlocutor and provided of verified EI information (Bulletin hebdomadaire International - BHI).

Although, supranational organisations have developed their own EI strategies, the review of the activities of the past 3 years proved that EpiSouth can be a potential primary source of information, and as such provide complementary added value.

- For instance, in January 2009, a rumour mentioning "plague related deaths in an Al Qaeda terrorist camp" in Algeria raised international concerns. This hoax was rapidly and officially contradicted through the combined action of Episouth EI team and the active involvement of Algerian focal points, hence allowing EpiSouth to be the first official source of publicly available information.
- An example of active synergy is the of the epidemiology of Crimean–Congo haemorrhagic fever in the Balkan and the countries of the Black Sea that was carried out in collaboration with the countries (Albania, Bulgaria, Greece, Iran, Kosovo, Russia and Turkey), WHO Regional Office for Europe, InVS and EpiSouth EI team.

- Another example is the provision by EpiSouth of an update of the A/H1N1 in the EpiSouth catchments area and its inclusion in the ECDC weekly disease communicable disease threat report (CDTR).

Of course, the role and implication of WHO, ECDC and other EI stakeholders goes far beyond the status of "simple" recipients and active collaboration has been initiated to strengthen collaboration. Furthermore, this collaboration should be a constantly evolving process.

Other Stakeholders

Other regional networks, though not actively engaged in EI activities, are potential audiences and partners:

- The South-Eastern Europe Health Network (SEE). It was founded in 2001 by 8 Balkan countries and joined in 2002 by 4 additional Balkan and central European countries. SEE aims at strengthening communicable disease surveillance and response and to work on harmonisation with those of surrounding EU countries.
- Middle-East consortium on infectious disease surveillance (MECIDS) was created in 2002 to improve regional cooperation on disease surveillance with the objective to promote long-term health, stability and security in the region. Its members are Israel, Jordan and Palestine.

Articulation with pre-existing systems

Obviously, the EpiSouth EI and CB activities especially the early warning function takes its full scope when replaced in the global context. First of all, under Intentional Health Regulation (IHR) but also within European Union regulation, countries have mandatory obligation to notify health threats. However, both systems have specific objectives (e.g. worldwide versus regional), focuses (e.g. EU only countries) and legal constraints that limit information sharing (e.g. information shared in some systems are mandatorily restricted to a limited list of users and extension of the beneficiaries –event to another secure system- could be very difficult to obtain). The main objective of the EpiSouth platform is thus to allow the circulation of information that would not respond to mandatory notification criteria, or that could not be readily accessible to other (e.g. information posted on EWRS is accessible to EU countries only). EpiSouth early warning platform acts in synergy and conjunction with these mandatory systems and aims at facilitating the dissemination of information that would otherwise not be possible or too delayed (not timely).

EI and CB activities implemented in EpiSouth differ fundamentally from the previously mentioned diseases surveillance networks the mains differences could be summarised as follows:

- EpiSouth CB is not an infectious diseases surveillance network. It aims at determining public health threats and disseminates information. It is not restricted to a type of disease or infection (non infectious health event are also included), there is no regular collection of data and there is no objective of exhaustivity or representativity as it is the case for surveillance.
- EpiSouth EI is an early warning system i.e. it is not restricted to the geographical area corresponding to participating countries and allows anticipation regarding international threats.
- Although, some of the diseases surveillance systems include non-EU countries, none covers the 26 EpiSouth countries.

Therefore, EpiSouth EI-CB and diseases surveillance systems are complementary, as disease surveillance network could be the source of information that would be efficiently disseminated to all Mediterranean countries by EpiSouth. Likewise, EpiSouth could be a source of information for the disease surveillance systems especially regarding areas out side of their catchment area. It can also complement the other EW systems.

4. EpiSouth EI-CB experience and lessons learned

Strengths

A progressive approach: The separation between EI and CB was somehow artificial as both components are very often intricate. This step was important to build confidence in the network. It was essential to familiarise focal points and therefore countries, with the EI concept but also to demonstrate that EpiSouth would be useful for the countries. By starting to provide EI information corresponding to their interest and needs before asking countries to share their own data, EpiSouth demonstrated its usefulness and trustworthiness. This progressive approach allowed relevant countries focal points to overcome the difficulties and particularly the suspicion expressed by participants at the beginning of the project. Now EI is well

established and countries have accepted the CB activities implementation and have started to share information.

A WP steering group The close association of countries to the EI-CB development through the establishment of a specific steering group was essential. First, it helped obtain a representative participation of the all four EpiSouth areas. It was also essential to better appraise needs and expectations of Mediterranean countries. Moreover, it was necessary to understand their constraints and reserves and to develop along with them strategies to over come those. Support and collaboration of the steering group members was important, positive and regular.

The quality of outputs EpiSouth focal points globally perceived EI outputs as pertinent and useful. There is still room for improvement, but this result provides a solid base to build upon in the future.

The network's value: Although EpiSouth is not a formal institution, the focal points of the non-EU countries were officially designated by their ministries of health and therefore represent their countries. The involvement of focal points at a senior but technical position (as opposed to political) was also essential to overcome political difficulties and tensions between countries. Furthermore, the human factor i.e. the trust and relations that individuals have been able to develop is invaluable.

Weaknesses

Heterogeneity of focal points: EpiSouth development's including integration of non-EU countries has been gradual. Focal points were appointed by their respective ministers of health and were selected according to their expertise regarding the activities implemented by one of the four technical initial work-packages:

- Most countries selected alert and communicable diseases surveillance specialists, but some countries chose (for at least one of two focal points) vaccine preventable diseases, zoonoses or training specialists.
- Most non-EU countries appointed a representative of the national public health institute (NPHI) and a representative of the MoH while for the 9 EU countries focal points are all are members the NPHI.
- In a minority of countries, focal points were also IHR focal points.

If this flexibility was initially necessary to facilitate countries' participation, the experience gained over the past three years showed that this heterogeneity resulted in complications for the EI-CB activities:

- Difficulties for some focal points to have access to information issued by their national early warning and surveillance system.
- Difficulties or delays in obtaining decision/agreement regarding information and alert sharing.
- Insufficient involvement of MoH who are often insufficiently aware of EpiSouth and related issues.

Interoperability of systems: EpiSouth addresses uncovered needs and for that purpose it should have its own communication tools and especially an early warning platform. The collaborative process has been initiated to obtain interoperability with other systems, yet achievements are insufficient especially taking into account the long term perspective.

Limited resources: Resources allocated to the implementation of EI and CB activities were initially tailored for 9 countries. In regard to the unexpectedly rapid adhesion of the 17 non-EU countries, the resources were grossly underestimated.

Number of participating countries: Although, the integration of all Mediterranean and Balkan countries was the objective, the number of targeted countries (n=28) and the heterogeneity of their surveillance and alerts systems does constitute a limitation that needs to be taken into account.

5. The Way Forward: Opportunities, threats and challenges

Opportunities

Mediterranean and Balkan countries share the same ecosystem and therefore have a common interest. The first 3 years' objective has demonstrated the feasibility of establishing such a network and laid the groundwork for future euro-Mediterranean cooperation. This first phase of 3 years has enabled the constitution of a strong network despite a difficult political environment (notably in the Middle East), and financing conditions favouring an unbalanced representation of EU and non-EU countries. The rapidity of the adhesion of the 17 non-EU countries is encouraging. The participation of countries to the project and the exchange of information are uneven but promising. This underlines the importance given by countries to the EpiSouth objectives. EpiSouth has effectively demonstrated that it met a need frequently expressed by the participating countries: the

pooling of scarce available resources both in terms of EI and CB. This momentum must therefore be maintained. Although, the current funding for EpiSouth ends in June 2010 and the second phase, called EpiSouth-plus is in preparation.

The A/H1N1 pandemic has vividly illustrated the rapidity of the spread of an infectious agent. It also justified the need for focused information especially at the earliest stage of the pandemic when countries were all in need of information to set up their national policies (cases and contacts management, immunisation strategies…). The first EpiSouth communication was issued on 25th April 2009 and over 200 documents synthesising internationally available information were issued (most are available on the EpiSouth website). They provided various information including monitoring of affected countries (necessary for establishment of national cases definition), analysis of epidemiological data made available from the first affected countries (North America and Southern hemisphere), dynamics of the pandemic, description of cases and deaths, group at risk, or on the Hajj pilgrimage in a pandemic context. Information focused specifically on the Mediterranean area were although disseminated, especially EpiSouth countries shared data regarding their confirmed cases and deaths, national strategies for cases and contact management and immunisation. For instance, these data allowed documenting the role played by population movements within EpiSouth area in the dynamic of the pandemic in the region.

Threats

Lack of formal institutional framework: So far, EpiSouth has been built outside any formal institutional framework. Initially, the flexibility provided by the "informal" network allowed developing strategies that helped reach acceptability for activities such as EI and CB, initially considered controversial. In the short term, this flexibility will continue to be an asset especially for the consolidation of establishment of a Mediterranean early warning system. Nevertheless, in the medium and long term, this lack of formal framework will be a major obstacle to the survival and functioning of EpiSouth.

Sustainability and allocation of adequate resources: Intricate with the absence of institutional framework, the lack of sustainable sources of funding constitutes a major threat to the future of EpiSouth. Funding sources have to be identified on short notice and on an ad hoc basis which hinders establishing long term plans to allow necessary time for an adequate involvement of all participant countries and does not secure sustainable balanced functioning.

Visibility and governance: EpiSouth has demonstrated feasibility but it remains insufficiently visible. It is not known enough by policymakers and major stakeholders. Moreover, governance rules securing balanced participation of countries have not yet been defined and agreed upon. If these issues were not to be addressed, some countries could reconsider their participation.

Interoperability of systems: The identification of appropriate and functional strategic and technological solutions that would allow the interoperability of the existing early warning and alerts systems will not lay with EpiSouth only. It will also depend on the willingness, the interest of other early warning and alerts systems as well the feasibility (including legal aspects).

Network dynamic: The added value of personal involvement, trust and rapport that have been established over the past 3 years should not be underestimated. The replacement of too many focal points could hamper this dynamic.

Challenges

Keep momentum: Although the first years demonstrated feasibility, acquits are still fragile. EpiSouth must now meet the expectations it has generated. Beyond financial constraints, the success of EpiSouth lies in its ability to establish a genuine partnership between countries. For the second phase, it will be essential to involve more actively countries of the South Shore and the Balkans. This involvement should materialise into concrete actions, including through the allocation of responsibilities and provision of adequate resources to non-EU countries.

Governance: The Identification of appropriate and functional governance strategies is certainly one of the major challenges that EpiSouth will have to face in the coming months. If this is the case for the whole project, it is of pristine importance for EI and CB activities. As a matter of fact, beyond the willingness of participating countries, it is the establishment of balanced governance and decision making process that will allow developing the trust necessary for the full-fledged construction of a sustainable and efficient Mediterranean

early warning system. This governance strategy will have to find a good compromise to allow smooth operation while fully involving the countries and ensuring a balanced representation of EU and non-EU countries. Because the number of countries (n = 26), the systematic involvement of all countries in the all decision making steps is not practically feasible. Alternatives will have to be identified. During the first phase, the establishment of steering committees for each work-package and the involvement of countries from different sub-regions have proved very useful. This strategy could be generalised to the entire project providing the rules of representation in the steering committees (EpiSouth and work programmes) are formalised (method of selecting representatives, period of performance, etc.).

A formal institutional framework: As previously mentioned the lack of formal institutional framework will rapidly constitute an obstacle. It is its integration into a formal institutional framework that will give EpiSouth its true dimension. The Union for the Mediterranean (UfM) aims to strengthen Euro-Mediterranean activities but faces difficulties identifying concrete actions in the field of health. EpiSouth is currently the only health project covering both shores of the Mediterranean and the Balkans. In this context, UfM could represent a potential institutional framework.

Role of national focal points: To ensure the full and active involvement of all countries in early warning activities, national focal points terms of reference should be defined.

- To ensure an even representation, for all countries (including EU) one of the focal points should be from the MoH and the other from the National Institute of Public Health (according to countries specificities).
- Focal points should have institutional responsibilities in terms of early warning, surveillance of communicable diseases or response.
- At least one of the focal points (preferably both) should have an institutional position allowing access to alerts generated by the national alert and/or surveillance system but also to decide the appropriateness of sharing this information. For example, it could be focal points EWRS (for EU countries), IHR focal point, responsible for early warning systems, etc.

Interoperability of systems EpiSouth-plus will enable the further development of health information exchange in the region. A special focus will then be placed on CB alerts and EpiSouth will continue to require a specifically dedicated early warning system. Nevertheless, further reduction of duplication is essential. The synergy between WHO, ECDC and EpiSouth is not only desirable but essential. EpiSouth should identify solutions allowing bilateral interoperability and cross-fertilisation with pre-existing EI and early warning & alert systems and in the first place those supported by ECDC, the European commission and WHO (including regional offices).

Establish balanced communication exchanges: In regards to the early warning component, it will be determinative for all countries to actively participate. However, for EU countries, it will be crucial to strengthen the information exchanges with ECDC and European networks to secure fair ways of communication. The construction of a strong and balanced partnership being both a prerequisite and the best guarantee of success for EpiSouth.

Enhanced articulation with other work-packages: The strategy for EpiSouth-Plus is to re-focus the project on early warning system and strengthening national capacity. Mechanisms should be developed to enhance cross-fertilisation and collaboration with the other work-packages especially those involved in the set up of a reference laboratory network, capacity building and exchange of surveillance data.

6. Conclusions

EpiSouth is the only project of this nature, covering both sides of the Mediterranean. It provides a real opportunity to create a strong link between the EU and all participating countries. It also constitutes an essential source of information to strengthen health security across the Mediterranean. This project is still under construction, the issues and challenges ahead are significant. If the beginning is very promising, the success of this project will be determined by the continued willingness of countries to contribute actively, the provision of adequate resources for all countries and the ability to create a strong and balanced partnership in a formal institutional framework.

ANNEX

Introduction to Epidemic Intelligence and Cross-Border Methodology

1. CROSS-BORDER & EPIDEMIC INTELLIGENCE

In an environment where circulation of goods and people is increasing, the epidemic risk is also growing. To fulfil their public health mission, states must not only exert a continuous monitoring of their population's health, but also to set up a capacity to identify emerging health threats at international that can affect their population. The SARS outbreak in 2003 and the ongoing avian influenza outbreak illustrate the nature and the possible dimension of these threats. Infectious diseases as well as other possible health threats do not know geographical borders. For highly infectious diseases and also chemical or environmental threats, the early detection of the event can have a major impact on implemented control measures and their outcome. Epidemiological surveillance and Epidemic intelligence are crucial instruments needed by public health personnel to contain the spread of infectious diseases. In order to translate collected data into appropriate action, i.e. to contain the further spread of diseases, sharing of information is crucial especially for cross-border health events where harmonised, synchronised and prompt responses by more than one authority are needed to effectively contain the spread of the disease.
In attempt to contribute to the strengthening of early warning capacities of the Mediterranean countries, the EpiSouth dedicated WP6 has been divided in 2 specific components

- Monitoring of health events of international importance, i.e. "International Epidemic intelligence";
- Regional Cross Borders issues, i.e. implementation of a "Mediterranean Early warning system"

2. INTERNATIONAL EPIDEMIC INTELLIGENCE (E.I)

There are many supranational and global networks which collect, analyse and disseminate information relating to health monitoring and alerting.

This information is mostly accessible via the Internet. E.I is based on already collected information circulating in various networks and on the Internet. Theoretically information in the Internet is available to all, but in practice relevant information is limited. The volume of information is considerable and the signals are often multiple, originally very diverse, sometimes contradictory, more or less accurate and their reliability is highly variable. To be of any use, information must be collected, sorted out, checked, analysed and, when necessary disseminated. This information processing is one of the added values provided by EpiSouth WP6. The Epidemic intelligence developed for EpiSouth was initially based on the expertise developed by the Institut de Veille Sanitaire (InVS). Since 2003, InVS has developed and implemented International Epidemic Intelligence to respond to France specific needs.

2.1. Objectives and Principles

E.I objective is to detect any threat occurring abroad that may affect EpiSouth population in their national territories or abroad.E.I. must deal with several, often competing principles. The system must be:

- Timely (the time between events occurrence, detection and dissemination of the information should be as short as possible)
- Sensitive (not miss potential threats)
- Specific (no false alarms)
- Reliable

2.2. Methods

Given the amount of information to process and to validate, a strict methodology is crucial to obtain the most reliable possible data. The methodology defined by the WP6 is to:

- Detect primary signals (crude and already processed signals);
- Sort these signals (through criteria developed specifically for this purpose);

- Verify and Validate
- Analyse and Interpret
- Disseminate when necessary using appropriate communication tools

2.3. Detection of signals

2.3.1. *Nature of signals*

The signals mainly concern infectious events and sometimes environmental or chemical issues. These may include:

- Crude signals (untreated) from various sources, most often limited to the description of events (no or little information of a scientific nature)
- Secondary signals (already treated), such as alerts from other countries or institutions

2.3.2. *Information Sources*

Sources that can generate pertinent information regarding potential health threats are relatively scarce:

Official sources

These are generally reliable, but they are often not compatible with an early warning system (time validation, transmission, etc.). Information originates:

- Directly from states :
  - Ministries of Health,
  - National Public Health Institutes,
  - National reference laboratories, etc.)
- WHO Under IHR(2005), WHO has a worldwide mandate that includes EI responsibilities example of formal networks are :
  - Global outbreak alert & response network (GOARN),
  - Global alert International network of food safety authorities (INFOSAN),
  - EMRO Regional Alert Surveillance and Detection of Outbreak Network (RASDON),
  - EURO centralised information system for infectious diseases (CISID),
  - AFRO epidemic alert and verification unit (EAV), etc.
- OIE World Animal Health Information Database (WAHID): As most of emerging disease are primarily zoonose, the veterinary surveillance component is esse
- Inter agencies : WHO-OIE-FAO: Global Early warning and response system (GLEW),
- ECDC has mandate for infectious diseases and threat detection activities in the EU and coordinates:
  - EU's early warning system (EWRS)
  - Rapid Alert System for Food and Feed) (RASFF)
  - ECDC/EU diseases surveillance networks:
    - EISN (Influenza); Enter-net (Enteric Infections); ENIVD (Imported viral diseases); ESSTI (STI); EU-IBIS (invasive bacterial infections); EuroHIV (HIV/AIDS); EuroTB (Tuberculosis); IPSE (hospital acquired infections);
    - DIVINE (food-borne enteric viral infections); EARSS (Antimicrobial resistance); EUVACNET (Vaccine preventable Diseases) EWGLINet (Legionella), SHIPSAN (Health threats in cruise ships), etc.
- Regional epidemiological surveillance and alert networks as PACNET (Pacific), EpiSouth (Mediterranean), Carec (Caribbean), EpiNorth (North Europe) etc.
- International networks specific to a pathogen, e.g. DENG-NET (dengue) or FLU-NET (flu)

Non official sources

A) <u>WP6 created network</u>

This is a formal network of correspondents built up over the years first by InVS and now through EpiSouth. It relies notably on the feedback of verified and pertinent EI information by the

network's members. It is considered reliable. It is constantly growing and should continue to expand with an increasing EpiSouth visibility.

B) Data exchange networks

Some scientific data exchange networks, and in a first place ProMED, can also be a source of reliable signals. However, it is often difficult to know if the disseminated information had been previously validated, which may make them difficult to use.

Media sources and information networks

These are media based sources and other informal sources accessible via the Internet (news, forums, etc.). This type of potential sources and the volume of information they relay is very large. They are generally easily accessible but often of an uncertain reliability. They however make up the large majority of crude alerting signals. In regard to the extremely large volume of information produced daily, a manual treatment (e.g. through search engines like Google©) is impossible.

Therefore, epidemic intelligence is carried out using expert systems. These perform systematic and automated searches on the Internet for potential health threats signals.

WP6 has access to different systems either directly (e.g. MedISys developed by the European Commission) or indirectly through InVS (Gphin, Global Public Health Information Network, developed by Health Canada, government agency)

To improve these tools, the exchange of information and methodologies, the InVS International and Tropical department; therefore EpiSouth WP6 is collaborating with partners in this area.

2.4. Sorting (and selection) of signals

The number of crude and treated signals is very large. Therefore, it is important to define criteria to select the events subject to analyse and monitor. The following criteria help to answer three questions:

1) Can the health threats affect EpiSouth countries or their populations?
2) Is the threat serious?
3) Is there a need for information dissemination (e.g. emerging disease)?

2.4.1.Geographical criteria (population)

To be taken into account, the signal for potential health threats must meet at least one of the following criteria:

- Risk of spread to an EpiSouth country(ies)
- Risk of imported cases into an EpiSouth country(ies)
- Affect the main countries of origin of migrants in an EpiSouth country(ies)
- Affect a foreign country where a large EpiSouth country(ies) expatriate community reside
- Affect major tourist destinations
- Affect EpiSouth neighbouring areas

2.4.2. Criteria related to the nature of the threat

The seriousness of the event is evaluated by considering the following indicators:

- Mortality: number of deaths, fatality ratio mortality rates
- Morbidity: severity of clinical signs, number of patients, incidence rates
- Transmissibility/spread: number of affected people, specific population groups affected (e.g. medical staff)
- Previous knowledge of the causal agent
- Re-emergence of a previously controlled disease

2.4.3. Criteria related to the nature of the agent

- The nature of the infectious or non infectious agent in question is assessed in relation to:
- Its virulence / infectivity (if known)
- Its ability to transmit / spread

- Existence of prevention measures, as well as their availability
- Degree of knowledge: any change in the characteristics of a known agent (resistance to treatment, new serotype…) or any emergence of a new agent will be analysed as potentially dangerous

2.5. Validation

Only the signals that have been sorted on the basis of the above criteria and were retained will undergo the validation process. This stage consists of verifying and supplementing available information from additional sources. These information sources are chosen according to:

- The nature and location of events
- The reliability of the potential sources
- Their official character (on which will depend the further dissemination)

In this process, access to an already build up networks plays a major role. It is crucial to have direct contacts with potential resources people. These contacts will allow, on a case by case basis, to validate and complement information obtained from the primary signals. The data will be supplemented to get an as broad as possible picture of the event: epidemiological context, the number of cases, deaths, clinical signs, and additional scientific information (causal agent ...). Potential sources include:

- Peers (Institutes, Ministries of Health) from the affected countries
- Experts from WHO
- Coordinators of surveillance and alerts networks
- EpiSouth correspondents
- Laboratories (Pasteur Institutes, CDC, etc.)
- Representatives of NGOs
- Etc.

2.6. Analysis and characterization

WP6 Team performs an epidemiological analysis of each verified signal. This analysis presuposes the existence of data, even fragmentary and that are exploitable. Data should enable the best possible description of the event in terms of time / places / people (including risk factors). It could include

- Tables
- Epidemic curves
- Rate calculations (attack rate, case fatality, …)
- Maps
- Characterisation of at risk groups
- Current and historical trends, etc

At the end of this stage, the objective is to obtain an interpretation of the event in terms of risk factors, Public Health significance and potential implications for EpiSouth countries. Information is put into its right perspective and analysed in regards to available scientific knowledge.

At the end of this analysis process a signal will be qualified as "alert" or "no warning". In the latter case, according to the potential evolution of the situation, the signal will be classified as "signal to be followed up" or “rejected”.

2.7. Communication /feedback

In order to provide an efficient feedback to the countries, different communication tools have been proposed.

2.7.1. EpiSouth Weekly Epidemiological bulletin (e-Web)

e-Web presents a weekly summary of new health events occurring:

- In Non EpiSouth countries
- In EpiSouth countries if information is already public or provided by the affected country

The bulletin provides a brief description of events in the most appropriate form (tables, graphs, maps) and in a public health perspective. e-Web does not provide an exhaustive list of all international health "alerts". Except for exceptional situations (e.g. A(H5N1) avian influenza). Likewise e-Web is not intended to provide a weekly update on followed health crises. However, depending on the nature of the event, updates are incorporated if they reflect a change in the epidemiological situation (increase in the number of cases, geographical spread, nature of at risk groups, etc.). e-Web complements other existing tools such as WHO Bulletin and ECDC-CDTR and does not aim to replace them. To the possible extent and according to international situation e-Web is posted on EpiSouth website public area every Thursday. EpiSouth countries are free to post e-Web on their National website (or to provide links) and to disseminate it at their convenience. The e-Web is designed for EpiSouth public health partners (national and international) and not to general public (not specifically design for it).

2.7.2 Thematic notes

For thematic notes a short format (one or two pages) has been selected as the most adequate to communicate with public health partners about international health threats. Theses notes come in complements to other communication supports especially e-Web. They allow to:

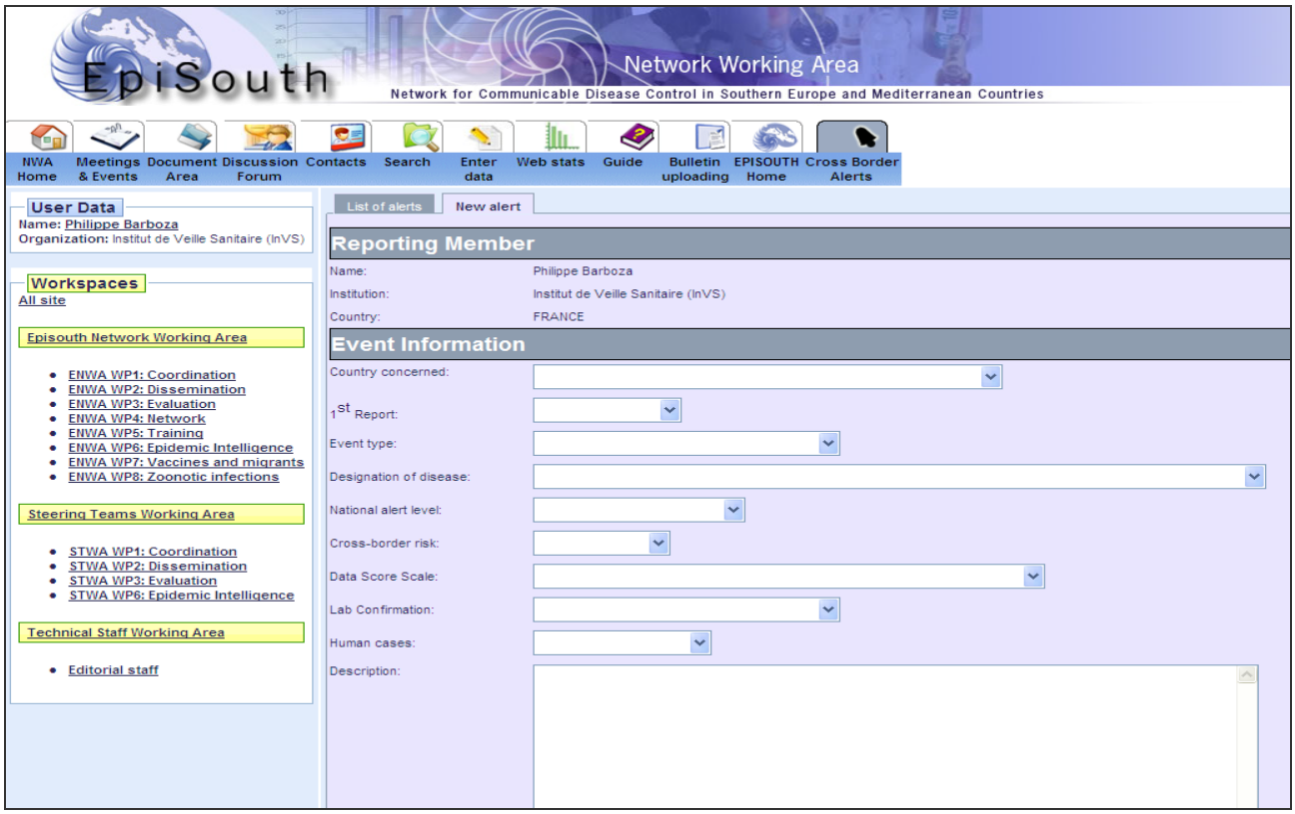
- Rapidly disseminate information requiring special attention
- Provided an in-depth analysis of an epidemic or an environmental threat
- Update knowledge on a given health topic (description of the agent (infectious or environmental), epidemiology, public health measures, possible impact and risk)

These notes include background information, facts on the current health event and a conclusion providing element for its interpretation (schematic risk analysis). Formal recommendations (e.g. travel advices) are not included.

These notes are produced on an *ad hoc* basis according to the evolution of international health crises and therefore there is no specific schedule set for their release.

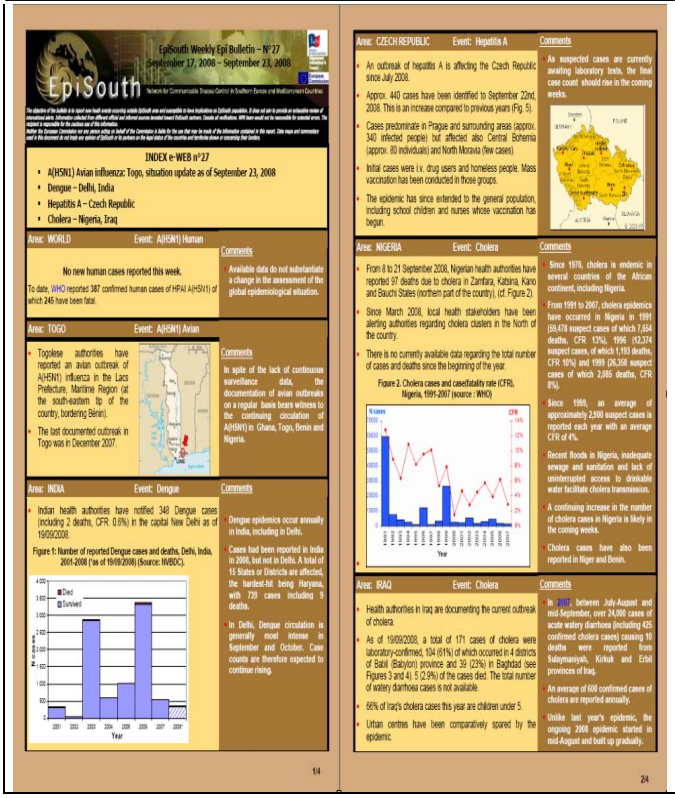
These notes are targeted at a wider audience of public health professional and stakeholders. They are disseminated using the same procedure and dissemination list as e-Web.

EpiSouth early warning system

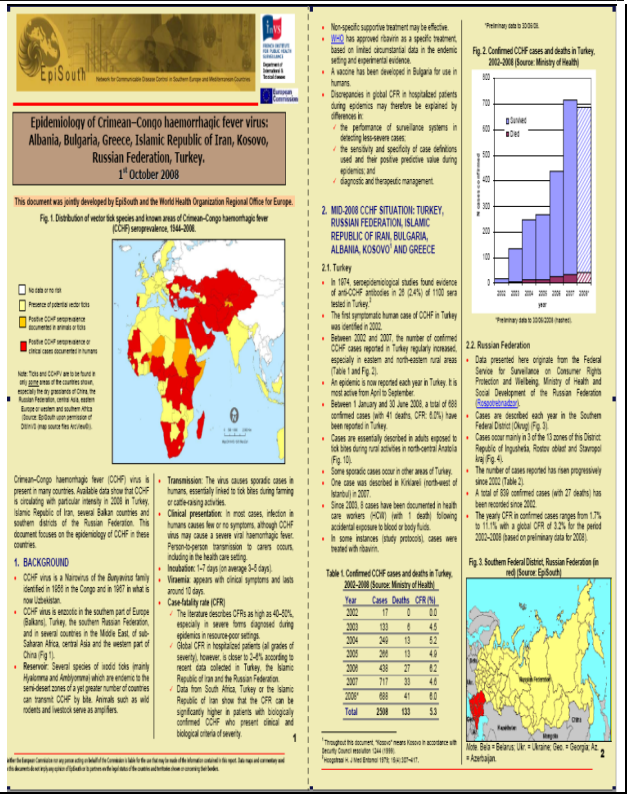


EI Communication supports

e-Web



Thematic note



APPENDIX
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