M-Eco news

No 1

Enjoy this 1st M-Eco newsletter by discovering the main topics and first achievements of the M-Eco project.
You can also get more information by visiting our website http://www.meco-project.eu/ and subscribing to our news.
The M-Eco project is funded by the European Commission under Project No. 247829.

The overall goal of this European research project is to help reducing the impact of epidemics by early detection of disease activity to support a rapid response.

Medical Ecosystem

The health of a society's individuals is not isolated from the natural environment. Symbiotically we influence and are influenced by the ecosystem.

Public health officials are faced with new challenges for outbreak alert and response due to the continuous emergence of infectious diseases and their contributing factors such as demographic change, or globalization. Early reaction is necessary, but often communication and information flow through traditional channels is slow. The M-Eco – Medical Ecosystem: Personalized Event-based surveillance – project proposes a complementing way to early detection of public health threats by using additional sources of information. These days, online media, weblogs, scientific and non-scientific discussion forums and direct electronic communication provide complements to the traditional reporting mechanisms. Technologies related to the development of the Medicine 2.0, are rapidly changing the possibilities to assess and provide health information.

These days, online media, weblogs, scientific and non-scientific discussion forums and direct electronic communication provide complements to the traditional reporting mechanisms. Importantly, the publication barrier for these types of user-generated content is much lower. In light of this, electronic media and discussion groups today are increasingly recognized as valuable sources of public health alerts. Awareness of diseases achieved through first-hand-observations and word of mouth can influence people's behavior in a way that the risk of an outbreak and the number of infected people is reduced. But, dealing with this data is still challenging. The M-Eco approach tries to address these challenges by more sophisticated event detection methods and personalization. The M-Eco project has the objective of supporting the early detection of potential health threats, in particular, infectious

diseases. It is intended to go beyond existing system by: building upon additional data sources (e.g., Social Media Data), providing validation facilities and giving access to health events in a personalized way.

User Requirements for Epidemic Intelligence

The project follows a user-centric approach, and aims at involving potential users into the system design and evaluation process. To ensure that the system has a benefit for potential users, requirements and use cases for the planned M-Eco system have been collected at the beginning of the project duration in discussions with user institutions that are part of the M-Eco project consortium NLGA and RKI. Additional requirements were discussed with representatives of other health organisations, including the World Health Organization (WHO, Geneva), Institut de Veille Sanitaire France (INVS, Paris), the Health Protection Agency (HPA, UK), and the European Centre for Disease Prevention and Control (ECDC, Stockholm) during the first M-Eco User Workshop, held at L3S Research Center on February 18, 2010. In the discussions, the character and process of public health event detection was clarified by identifying potential information sources, defining user interaction and planning result presentation, among others.

Clearly, within the restricted area of a single project, not all requirements or use cases can be addressed. Therefore, two scenarios have been selected: In the notification scenario users are informed automatically when a signal of interest has been produced. Within the signal search scenario, the users know already syndromes or diseases they are interested in and search for signals related to those. Even though we restrict the project to address these two scenarios, we intend to build the system as general or adaptable as possible in order that other use cases and requirements can be considered at some later stage, once the project has been closed.

The user requirements are organised into 4 system functions: 1) information collection and management, 2) personalisation, 3) user interface and information presentation, and 4) support for signal verification and decision making. Some examples are as follows: Duplicate information need to be avoided and is gathered with appropriate specificity (system function 1). Users would like to have a profile for routine and specific surveillance and would like to specify trust levels with respect to sources of information (system function 2). Information shall be visualised using innovative techniques and in a structured way (system function 3). User feedback can be given to verify relevance of events (system function 4).

User requirements are primarily thought of as design considerations that aim to guide the development of functionalities and eventual interface development. These requirements will guide first the creation of the M-Eco prototype, and subsequently the M-Eco System. As a result, user requirements and functionalities are divided into two phases. Those requirements outlined in the first phase will be incorporated in the prototype. More details are provided in the requirements specification and evaluation guidelines that can be downloaded from the webpage.

Events

First M-Eco User Workshop

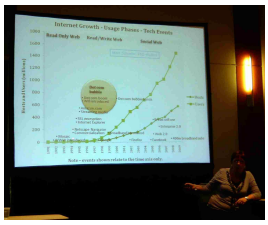
In the first M-Eco User Workshop, representatives from several health organizations, as well as the M-Eco consortium, came together to discuss the major requirements and challenges for systems devoted to the early detection of public health threats.

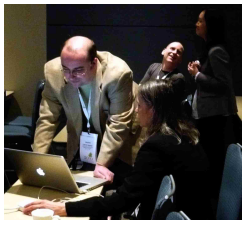
The objectives of the M-Eco workshop on User Requirements and Experiences with Event-Based Surveillance Systems were three-fold:

- Collecting requirements from Users,
- Understanding the daily operations and challenges in the domain of Epidemic Intelligence, and
- Learning more about related projects.

Johannes Schnitzler from the World Health Organization Europe (Geneva) presented an international view on health surveillance. Philippe Barboza (Institut de Veille Sanitaire, Paris), Mike Barker (Health Protection Agency, UK) and Edward Velasco (Robert Koch Institut, Berlin) provided insights at a national level, focusing on issues relevant for their countries. Also, a representative of a local health organization, Johannes Dreesmann from Niedersächsisches Landesgesundheitsamt attended the work-shop. On the EU-level, Jas Mantero from the European Center of Disease Control (Stockholm) talked about the systems used by the EU for surveillance. Additionally, Roman Yangarber (University of Helsinki) and Alexander Krämer (University of Bielefeld) presented their work related to the M-Eco project. The collected requirements will be the basis for concrete system development within the M-Eco project.

MedEx Workshop at WWW 2010





In April, we held the MedEx Workshop on "Web Science and Information Exchange in the Medical Web" in conjunction with the World Wide Web Conference 2010 in Raleigh / North Carolina. This workshop was devoted to the technologies for dealing with social- and multi media data for medical information gathering and exchange. It was intended to address different aspects related to the problem of accessing, exchanging, processing, filtering and making applications that rely upon health related Web information more reliable and adaptable. We had six interesting papers presented; two of them were on M-Eco project results. The proceedings are available at http://ceur-ws.org/Vol-572

M-Eco at MedInfo 2010 (12 - 15 September 2010 Cape Town, South Africa)

A first overview on the project ideas was presented at the World Congress on Medical and Health Informatics (MedInfo) in September 2010. The Medical Ecosystem – Personalized Event-based

surveillance paper summarizes the main issues relevant to the project. Another paper entitled "Using ProMED Mail and MedWorm Blogs for Cross-Domain Pattern Analysis in Epidemic Intelligence" presents the work of the L3S Research group on analyzing the alignment of two different corpora as a prerequisite for cross-domain classification and filtering.

News

M-Eco Blog Page

The consortium keeping a Weblog where up-to-date information can be found: Impressions from conferences, project meetings or information on upcoming events. Just have a look http://meco-project.blogspot.com !

M-Eco discussed in the radio

In a recent interview at Deutschlandradio, Dr. Tim Eckmanns, the director of the department of surveillance at the Robert-Koch Institute, and a M-Eco consortium partner, discussed the significance of the consortium's work in Epidemic Intelligence. In 2009, in the Federal Republic of Germany alone, approximately 400,000 cases of infectious diseases have been reported; 420 public health departments were engaged in collecting the corresponding data and processing the reports.
Although systems such as SurfStat, provided by the Robert-Koch-Institute exist to offer an easily accessible "epidemiological snapshot" on up-to-date summary statistics for numerous infectious diseases, these Indicator-based systems represent only part of the solution. In the interview, Dr. Eckmanns mentions that indicator-based systems fail when confronted with agents that are new emerging like the agents causing the lung disease SARS in 2002.
The M-Eco consortium is exploring new research methods for discovering previously unknown epidemics more quickly. The significance of the consortium's work is that with traditional reporting systems, such as SurfStat, epidemiologists "may miss something" if only searching for specific public health threats. However with Event-based systems being developed at L3S, researchers are "exploring the possibility of using the Internet, and the entire communication range of Web 2.0" to automatically build an epidemiological snapshot.
The complete interview is obtainable from Deutschlandradio via the url: http://www.dradio.de/dlf/sendungen/computer/1216672/

Contact

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