Information and Communication Technologies

EPIWORK

Developing the Framework for an Epidemic Forecast Infrastructure

http://www.epiwork.eu

Project no. 231807

D7.1 Yearly management report

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Lead contractor for this deliverable: ISI Foundation

Work package participants

The following partners have taken active part in the work leading to the elaboration of this document, even if they might not have directly contributed writing parts of this document:

- ISI
- FGC-IGC
- TAU
- MPG
- AIBV
- SMI
- FFCUL

Change log

Version	Date	Amended by	Changes
1	**20/02/10**		

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1 Consortium management tasks and achievement

The members of WP7 have the task to provide administrative and scientific work, including the consortium meeting and the commission evaluation reports. A framework for the communication within the consortium participants as well as the associated partners has been set up from the very beginning. An internal area of the project website is being used for the exchange of information between the partners keeping them updated about the work in progress and providing assistance on development of special working groups. In particular, the members of WP7 have made use of all the IT tools available to enhance communication and exchange of information between the consortium partners. A development wiki has been set up at the address: http://wiki.epiwork.eu. The wiki page allows the easy creation and the editing of any number of interlinked pages and it creates a collaborative website used to identify, create, represent and distribute all kind of information among the users.

At the moment, the wiki home page contains a section dedicated to the Project Consortium, with a brief description for each partner, and a section dedicated to Epiwork's Work Packages. These pages are intended for the members of each WP to exchange documentation, arrange meetings, set up working environments etc. Moreover, there is a section dedicated to the Project meetings and to the WP's meetings and a section dedicated to the press releases with news concerning the Project outcome for the various Work Packages.

Aside the wiki platform, several mailing lists have been set up to allow a more efficient exchange of email among the several partners. The details of all the activated mailing lists can be found at the address:

http://lists.epiwork.eu/mailman/listinfo

The lists are the following:

epiwork-project@lists.epiwork.eu	Epiwork project members list
epiwork-tech@lists.epiwork.eu	Epiwork development technical list
epiwork-ims-tech@lists.epiwork.eu	Epiwork IMS technical list
epiwork-wp1@lists.epiwork.eu	Epiwork WP1 members list
epiwork-wp2@lists.epiwork.eu	Epiwork WP2 members list

epiwork-wp3@lists.epiwork.eu	Epiwork WP3 members list
epiwork-wp4@lists.epiwork.eu	Epiwork WP4 members list
epiwork-wp5@lists.epiwork.eu	Epiwork WP5 members list
epiwork-wp6@lists.epiwork.eu	Epiwork WP6 members list

2 Coordination and conflict management

We can certainly say that during the whole project duration we did not find any particular conflict on management.

3 Arrange meeting of Management Committee and Project meetings

During the first project period, the Project Board organized the following management meetings:

- Epiwork Kick-off Meeting in Torino, February 3-4 2009;
- Epiwork WP5 First Meeting in Amsterdam, May 25-26 2009;
- Steering Committee Meeting in Torino, November 16-18 2009;
- Epiwork Annual Meeting in Torino, November 16-18 2009;

EPIWORK KICK-OFF MEETING – TORINO (IT) 3-4 Feb. 2009

The Kick-off Meeting was organized in Torino, February 3-4 2009, with the participation of all EPIWORK Partners and the members of the Steering Committee. The objective of this meeting was to present the research, identify and discuss the join research initiatives and the planning of the activities for the first year.
The meeting was held at the Villa Gualino, ISI, Torino on 3 to 4 February, 2009.

Present: David BREE, Dirk BROCKMANN, Jacopo CARRERAS, Flavio COELHO, Vittoria COLIZZA, Mario SILVA, Fabricio DA SILVA, Philip GERRISH, Shlomo HAVLIN, Frank HILKER, Haggay KATRIEL, Piet MAES, Stefano MERLER, Daniele MIORANDI, Olof NYREN, Enza PALAZZO (for day 1), Roberto PALERMO (for day 1), Daniela PAOLOTTI, José-Javier RAMASCO, Moa REHN, Ronald

SMALLENBURG, Nico STOLLENWERK, Lewis STONE, Alessandro VESPIGNANI in the chair

Absent with apologies: John EDMUNDS, Gabriela GOMES

Tuesday 3 February

1430 Opening

By Alessandro Vespignani, who welcomed everyone.

1445 The management structure of the Epiwork project - see slides below.

Vespignani gave an overview. The following bodies are involved:

- The Coordinator, which is ISI, with:
  - The project coordinator, Vespignani, who has overall responsibility for the project;
  - The financial manager, Roberto Palermo, who is responsible for all financial matters;
  - The project manager, Enza Palazzo, who is responsible for meetings and periodical reports.
- The WP leaders who are responsible for ensuring the scientific and technical progress of their respective WPs.
- The Steering Committee, which is composed of the project coordinator in the chair and co-chair and the WP leaders, is responsible for the project plan, roadmaps, monitoring international developments, ensuring dissemination of results, reviewing all technical matters, consolidating WP reports, and changes to deliverables.
- The Project Board composed of members of the Steering Committee and lead scientists of each team. It is the governing body for the overall direction and major decisions of the project, e.g.: budget transfers, contract termination, actions for defaulting partners, new contractors, amendments to the contract, decisions concerning dissemination and exploitation.
- The Advisory Board who advise on the roadmaps for the scientific and technical activities.

1500: The financial management

Roberto Palermo gave an overview of the financial management of the project. This included the following points:

1. Partners
2. Total budget of about €5 M
3. Budget per participant: the pre-financing funds have already been sent to ISI. Half of this has been distributed to those partners who have supplied their bank account details. The other half will be distributed after 6 months, provided the partners keep to their contractual obligations.
4. Subsequent payments will be made to the partners by ISI upon receipt of the funds from the EU, provided the partners have performed their tasks as stipulated in the contract.

5. 5% of the total budget has been set aside by the EU for insurance against defaults. If there are no defaults, this money will be made available to the Epiwork project at the same time as the final payment from the EU.
6. Direct costs that can be claimed include:
   - Personnel (both permanent and temporary staff) costs
   - Travel and subsistence of such personnel, **but excluding any taxes**
   - Depreciation on durable equipment. NB the purchase of a computer in the last year of the project can only be depreciated over the one year.
   - Consumables, e.g. software, but not normal office costs, e.g. postage
   - Subtracting, but only if agreed and done in accordance with EU regulations, e.g. tendering
7. Non eligible costs:
   - Indirect taxes, e.g. VAT, airport taxes
   - Duties, e.g. on imports
   - Interest on loans
   - Losses, e.g. on FX, including insurance against losses
   - Costs for another community project
   - Debt and debt service, excessive or reckless expenditure
8. Payment will be made provided the partner has supplied satisfactory:
   - Summary financial report – serves as an invoice
   - Form C signed by the partner's legal representative
   - Audit certificate for amounts above €375.000
   - Other specified documents required by the Coordinator, e.g. person month tables

NB 1 A person may and must work only 1680 hours per year, excluding holidays but including sick leave. This is on average 140 hours per month.

NB 2 all documents must be kept by each partner for 5 years from the date of the last payment received.

1700 Advisory Board.

Vespignani proposed two names from the ECDC and JRC:

- Asikainen from ECDC
- Stilianakis from JRC

These two people were approved.

A list of names was compiled from suggestions of those present.

The short list became:

- Stephen Eubank (VT)
- Simon Levin (Princeton)
- Marcello Pagano (Harvard)
- Ralf Reintjes (Bremen)
- Jon Crowcroft (Cambridge)
- Roel Coutinho (Hamburg)

These people will first be contacted informally by those that suggested them.

Further possible names who could be invited are:

- Peter Sloot (UvA); but there is a possible conflict of interest
- Ronald Dickman (B.O. Brazil)
- David Earn (McMaster, Canada)

- Ed Kaplan (Yale)
- Cahterine Macken (Los Almos)
- Mirtiam Kreteshmar (RVIM)
- Jaco Wallinga (RIVM)

Four people have successively been enlisted to be part of Epiwork project's **Advisory Board**:

- Asikainen from ECDC
- Stilianakis from JRC
- Ralf Reintjes (Bremen)
- Roel Coutinho (Hamburg)

1735 Dissemination and outreach

In agreement with Brussels we have to send a representative to many different EU activities, e g the Prague meeting, the kick-off meeting of the Assist project of Jeff Johnson. Please be cooperative on attending such meetings matter.

ACTION ISI will send a list of such meetings to all.

The EU asked us to contact the press and issue press releases.

ACTION: ALL to contact the PR department of your university to announce the start of the Epiwork project

ACTION: ALL if there is any press release from a partner please send this to the Epiwork email address: epiworkATisi.it

There must be an Epiwork WWW site by month 8. Hosted hopefully by one of the participants, but managed by ISI. Mario Silva has a preliminary version used for attracting applicants. There is a logo being designed. The managing of the WWW pages for each WP will be distributed to each WP leader; but there should be a style that is common across WPs.

ACTION: ALL until the Epiwork wwwsite is distributed, if you now have any material that you want to put into a centralised Epiwork WWW site, please send it to the epiworkATisi.it.

1800: Wrap up

By Vespignani. In the participant's package there is a list of Deliverables. Please look at this and get started on those deliverables due within the first year. On how long the Deliverable reports should be: please keep it short and to the point.

ACTION: ISI will circulate a template with recommendations about length and content of reports and deliverables.

1815 Meeting adjourned

Wednesday 4 February: meeting resumption

0915 4 February: Re-opening

These are minutes of the presentations made by each contractor during the morning of 4 February, rearranged in order for WP.

WP 1: Population models and contact networks

Nico Stollenwerk: CMAF, Lisbon

Presented past work on multi-strain model applied to two studies:

- Dengue: two types of strains, dangerous and not. Deterministic chaos model data from Thailand, smooth for Thailand, but noisy for Bangkok;
  in comparison with UK, origin is in Bangkok, spreads North;
  but evidence is that it spreads South
- Meningitis: several strains, theory of accidental pathogens
- Influenza: daily data for 2007 in NL, hi fluctuations so fitted to cumulative curve: Poisson until epidemic started and then Binomial
- Influenza: data from Israel and from France (weekly data)

Frank Hilker

Interested in vector born diseases Disease ecology

Philip Gerrish

Interested in evolutionary genetics: what are the mechanisms responsible for large evolutionary changes?
Collecting data from different countries, which encourages other countries to supply their data. WHO also has data, but it is difficult to access. Vaccine development centres, eg in Cuba for dengue, in Canada for meningitis.

Lewis Stone: TAU

Has very detailed data on influenza, but doesn't know what to do with it!
However, this data is not available to the group as it is. It is not even clear to what extent it can be used it in their group. Maybe it can be anonymized and then made available. WP4 have a model so hope that we can apply this to our data.
We make models of spread of epidemics in order to predict time and extent of epidemic. We are getting some counter intuitive results. Also seasonality has an effect. With childhood diseases there is an effect from one season to the next.
We also study contact networks. We will coordinate with the UK group (LHSHTM: not presented – snow grounded). the Swedish group (SMI) and Bar-Ilan (BIU).
We have two PhD students working on the data set and a post doc working on contact networks.

Shlomo Havlin: BIU

Interested in advancing our understanding of networks:

- Now contact networks are available, but geographic information is also important. So need to combine the two.
- Dynamic networks, since contacts change over time
- Limited path length, e.g. for seasonal epidemics

This aspect is related to:

- WP1 Theme 3: effective intervention strategies

- WP2 Theme1: spatially structured networks
- WP3 Tasks 1 & 4: data driven simulation

Immunization strategies: locate hubs and immunize these. But we don't know the network. New strategy: ask a sample to name their friends. Hubs are those chosen by at least N. Even for N=1 this reduces drastically the number of people that need to be immunized. A Gaussian model makes predictions of the effectiveness.

Limited Path percolation: models tell us how many need to be immunized.

Which strategy to use? Compared three methods: random, hub targeted as above, graph partitioning. Graph partitioning divides the graph into groups of a size less than a given maximum. It is effective for minimising the number of people at risk of infection. But it requires knowing the network!

Climate networks: world model with temperature at nodes in say 4 networks. Used to study the effect of El Nino

Flavio Coelho: IGC

Studying three topics:

- modelling,
- forecasting techniques,
- extending the infrastructure for influenza & dengue fever surveillance to Brazil

Approach to spread of epidemics: use a simple math model and replicate, parameterise from the available data, using Bayesian melding (integrating different sources of data) techniques. Use the data to give probability distribution around the parameter values for the past, but also variables in the future (prediction).

Forecasting: parameters do not stay the same over time, eg temperature/behaviour changes. Example: take the first week of data and get the probability distribution for both variables and parameters; use these as priors for the second week etc. Done with simulated data, but real data is patchy and noisy.

Collecting data: developing software for uploading data from different sources.

Gabriela Gomes: IGC (not present)

She is continue her work on population dynamics of multi stain disease, especially strain evolution

Comments from Vespignani:

- Please avoid reinventing the wheel; make good use of material from other partners. Please pay attention to what is in the project contract, e.g. dengue fever, while interesting, is quite secondary in the project contract. Work on such topics needs to be motivated to be included.
- We are getting €5M not just to do what we were doing before, but to benefit from the presence of the others in the partnerships. E.g. we need to establish a common method for recording and modelling influenza.

WP2 Spatially structured models and human mobility

Dirk Brockman: MaxPlanck, Gottingen *(Now at North Westerm)*

Showed several movies displaying network dynamics:

- air travel density,

- viewing the network from different points of view
- proxy networks, geocaching: objects travelling from place to place, based on games over the internet, show international connections
- iWhere: new smart phones have GPS availability, which can be monitored.
- Computing effective boundaries that go beyond the political boundaries.

WP 2 objectives

- Compliation & standardisation
- Proxy networks
- Stability
- Multiscale communities, going beyond administrative boundaries
- There is a relation between contact and transportation networks: how to combine these?
- Connecting clients that everyone uses to large data bases, e.g. money flow & google earth.

Stefano Merler: FBK

Involved in several projects including the Italian based model of influenza, extended to a European model using social networks and long distance travel. Run on standard machines.

Contributions to Epiwork:

- WP4 data driven simulations of case studies, modelling platform, visualisation of results.
- WP2 dynamics of heterogeneous networks, super-spreading phenomena
- WP3 data collection

WP3 Information platform

Mário da Silva: University of Lisbon

Epiwork team: Mário da Silva, Fabrício da Silva, Farancisco Couto, Luís Filipe Lopes and a new software engineer.

Will develop an Epidemic Marketplace:

- Catalogue of available epidemic data sources
- Forum for publications
- Host of mediating software

Deliverables for WP3:

3.1 report on meta model spec

ACTION: ALL we need your data and your input

3.2 prototype of epidemic market place (Month 12)
3.3 release of epidemic market place
3.4 report on epidemic market place
3.5 report on epidemic data ontology
3.6 report on final spec and evaluation of epidemic marketplace platform

Inspire directive. A question from Brussels: why are we not linked to this directive on GIS? Maybe because we are not interested in the details of the GIS people, eg on which GPS datum to use.

WP 4 Epidemic modelling platform

Alessandro Vespignani: ISI

Developing the Global Epidemic Modeler (GLEaM) which uses a coarse grain tessellation of the world. It uses many different data sources on transportation infrastructure, e.g. IATA airline data, country mobility data from different countries.
Link with WP 1 for a computational model of epidemic diffusion; also for how to cut the network to delay the spread of infection.
There is a potential problem of resolution: how does GLEaM compare with country models
How to interface with the data sharing platform? Can GLEaM use this platform directly.

WP 5: ICT monitoring and reporting system

Ronald Smallenburg: Acquisto Inter BV, Amsterdam

Uses

- interaction observed on the www, as done in the NL, extension to other EU countries planned
- uses mobile phones, starting in Italy.

First step is to collect data in old EU countries and then the new EU countries

Daniela Paolotti: ISI

Has ported the Portugese influenza platform to Italy, which posed several problems.
Three problems:

- Does the data to be stored comply with the national regulations?
- Recruiting people to participate, using various media: word of mouth TV, WWW, Radio, newspapers . What makes a difference is WWW and TV. Now have about 4,000 participants.
- Ensuring participation: weekly reminder, roughly half of the participants are still active

What's new: users can now view the state of flu at any time, by zipcode.

Olof Nyren: Stockholm

Is self selection a strong factor influencing illness instances and in their reporting? We will try to validate the NL data in Sweden. Prerequisites are unusually good in Sweden, where there are many updated registers.
Done by drawing a random sample from the population, i.e. Stockholm, and inviting to participate by reporting common sickness for one season. Acceptance rate is around 30%. We believe that this is a representative sample. Participants call us when they have something to report (validated by questionnaires on a sub sample). We have a questionnaire on the background information on the participants taken at their initial registration. We have data for two years but are still reluctant to use them because of the validity issue.
We are keen to interact and collaborate with others on standardizing the questionnaire and data collection method. We have three reporting systems and will compare the results: doctors, our telephone based and national recording.

ACTION: ALL Common format for data sharing is needed.

Piet Maes: KU Leuven
Works in a virology lab. Interested in the linkage between genes and viruses.

Daniele Miorandi: CREATE-NET

Also involved are:
- Iacopo Carreras for technical activities
- Andrea Zanardi & Antonio Francescon, software development

Active in WP 5, Task 5.7 & 5.8
Activities:
- Extend IMS platform to mobile forms
- Tracing contacts using mobile phones (Bluetooth)

Expected results:
- Beta version of mobile phone interface by the first review meeting
- Demo for first review meeting

A thought - From InfluNet to InfluBook:
Develop a facebook application to compliment IMS. Facebook is a widely used platform, so does not require spreading a new application.

1445 Planning of activities:

Alessandro Vespignani
It is important that there is cooperation between the partners in the WPs. Meetings in a short while should take place. The first to come to do this should be WP5.

ACTION: Ronald Smallenburg (AIBV) to organise this, first for WP5.

Next project meeting should be sufficiently far before the first review meeting, say November, to take any necessary corrective action.

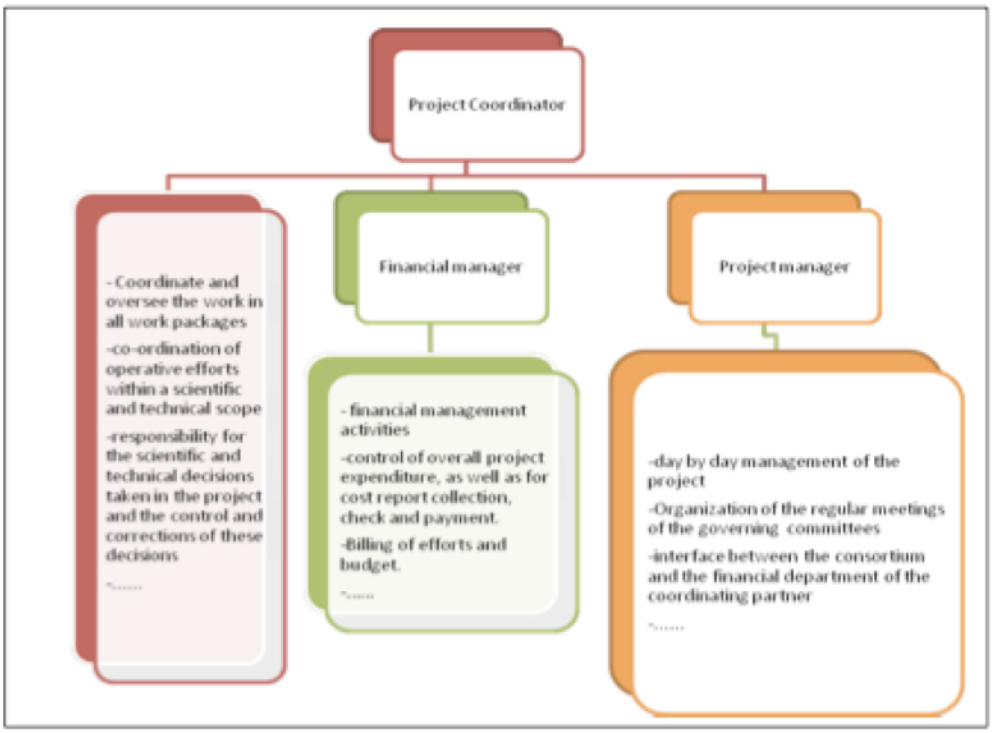
ACTION: ISI to organise a meeting in the last two weeks of November 2009.

Missing a Milestone is MORE serious than missing a deliverable.

ACTION: ALL take note of the milestones

There needs to be active communication by the WP leaders.

ACTION: Dirk Brockman (MPG) to develop a means for communication within WP2 which will be incorporated into the Epiwork WWW site so that all WPs can use this.



Management structure of the coordinator ISI foundation.

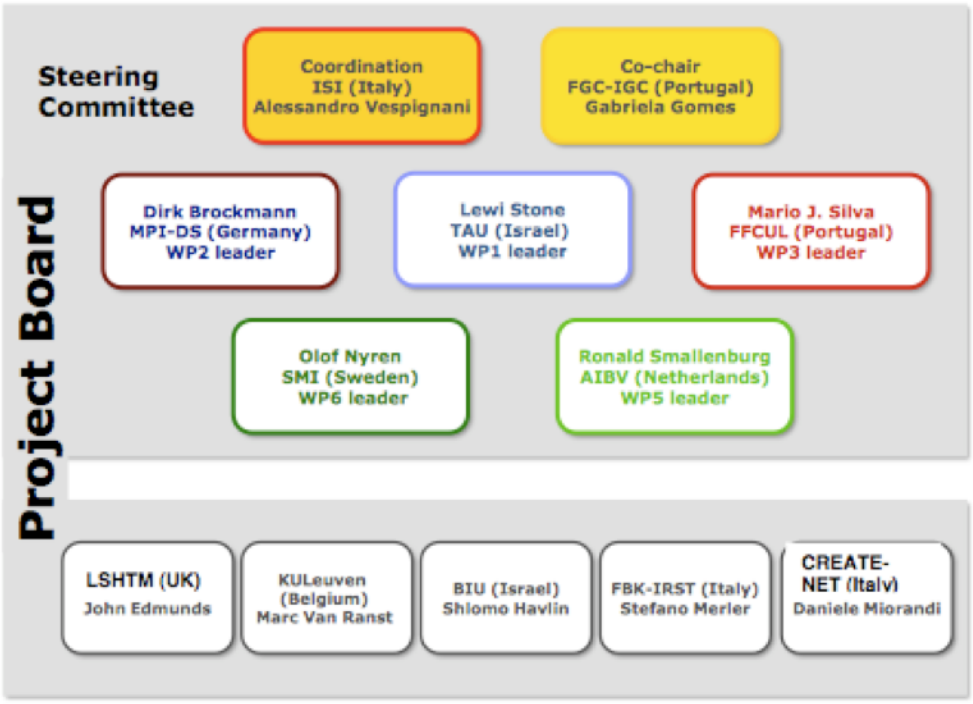


Illustration of the project management structure

The diagram shows the management structure of the consortium, including the Project Coordinator, the Steering Committee and the Project Board. WP leaders and team leaders are shown.

EPIWORK WP5 1st MEETING – AMSTERDAM (NL) 25-26 May 2009

The meeting was held at the Science Park, University of Amsterdam, on 25 to 26 May, 2009.

Present: Jacopo CARRERAS, Mario DA SILVA, Fabricio DA SILVA, Ken EAMES, John EDMUNDS, Corrado GIOANNINI, Carl KOPPESCHAAR, Elles LALIEU, Luis Filipe LOPES, Daniele MIORANDI, Sander Van NOORT, Brenndann O'NULLAIN, Daniela PAOLOTTI, Ben REIS, Moa REHN, Martin TAKKEN
Ronald SMALLENBURG in the chair

Absent with apologies: Gabriela GOMES

Monday 24 May

1400 Opening
By Ronald Smallenburg, who welcomed everyone.

1400 ICT research at the Science Park in A'dam: a short introduction
Dr. Breanndán Ó Nualláin, senior researcher at the Institute of Informatics, University of Amsterdam (UvA)

1415 Introduction to the WP 5 Meeting:Ronald Smallenburg
WP5 is about collecting data and about communication. The purpose is to attract people to report their disease symptoms via internet (or mobile phones). To implement this form of data collection in many different countries the WP5 project should come up with a single website design, standard questionnaires etc.
The **main goal** of this meeting is to make steps forward and set appointments to accomplish this.

1500 Introduction to the IMS, history, concept and prospects of the GGM: Carl Koppeschaar, creative director and editor-in-chief of the GGM
The Dutch influenza survey "De Grote Griepmeting" launched in 2003. Now the website has some 31.000 participants per season from both The Netherlands and Flanders, the Dutch-speaking part of Belgium. The purpose of the website is three-fold:

1. Fascinating the general public about science
2. Inform people about contagious diseases
3. Collect data for further research

When people apply they first receive 'intake' questions like: what is your postal code, are you a smoker, have you been vaccinated? Participants receive a weekly reminder to fill in the symptoms questionnaire.

Some results of "De Grote Griepmeting"
An analysis of the data from 2003-2009 revealed some remarkable things:

- Transportation: there is no difference in flu attack rate between public transportation, bike or car
- Age: young people get flu much easier than older people. The attack rate in families with children is high
- There is a difference in attack rate between man and women (possible explanation: women care for children and are therefore easily affected)
- People with pets have more flu (possible explanation: families with little children often have pets)
- Smokers are more susceptible to flu

Attracting participants to your website and keeping them
To attract and to keep participants you need to know what motivates them. They can have several reasons to contribute to the project, for example:

- They have a feeling that they want to contribute to a scientific project
- They have a (general or personal) interest in health-care issues

Immediate feedback appears important for participants: they want to see their own dot on a map and they want a health status of their own. In order to attract people you could distribute posters/flyers at schools and pharmacies. Furthermore, you need trustful and easily accessible information (forum, faq's, educational materials) and you could offer games, quizzes and/or competitions as a service to the volunteers.
Local newspapers are very important to raise people's attention. Unlike national magazines, local newspapers are willing to publish your news and they are in every household. To keep participants it is important to focus on different target groups, spread (weekly) newsletters and communicate your results.
Suggestion from Sander van Noort: in attracting visitors to your website, put effort into documenting 'best practices': what works and what does not.

1545 Influenzanet: experiences and recommendations

Sander van Noort, IGC and Dr. Daniela Paolotti, ISI on IMS in Portugal, Belgium, the Netherlands and Italy,

Results Influenzanet 2003-2009 – Sander van Noort

The basic system of Influenzanet consists of a (1) *single intake* questionnaire and a (2) *weekly symptoms* questionnaire. The four participating countries so far (The Netherlands, Belgium, Portugal, Italy) all have little differences in their systems, so it is not easy to compare.

Participants
The results only contain the data of the volunteers who fill in the questionnaire at least three times a year. In general, participants keep coming back to the websites. Influenzanet has trouble though to attract young children (<10, via account of parents) and persons of the age of 80+ (probably due to lack of internet connection). Furthermore, the number of participants in the 10-20 year-olds is decreasing every year.

Vaccination

One important research subject is the effect of the flu shot on the flu attack rate. Until season 2006-2007, there was no effect of vaccination observed. Since 2007 the question "Why do you take a flu shot?" was added. People who take the vaccine without medical advice have 20% less influenza during the season.

Reinfection
Results of the individual history of every participant revealed that some people get Influenza Like Illness (ILI) twice a year. 5% of the total amount of cases is a secondary infection. Reinfection is much higher in seasons when both influenza A and B are present.

Influenzanet vs EISS
Influenzanet receives its information directly from the public, ill or not ill. In contrast, EISS is depending on patients who visit their GPs. The GP visiting rates and definitions of ILI differs from country to country. Therefore, EISS is not comparing the number of cases per country, but instead works with "high" or "low". With Influenzanet it will be possible to compare numbers in the future. So far, there is a good correlation between Influenzanet and EISS in every season.

Experiences with Influweb (Italy) – Daniela Paolotti

The Italian project started in 2005 with a logo and a visual identity. The platform was translated from Portuguese and some additional questions, adapted to the Italian users, were added. Google maps is used in order to show the results.

A serious problem with the implementation of Influweb was the personal data protection. In Italy, there is a commission for the handling of sensitive data. You are supposed to specify procedures, objectives and people who have access to data (including names). Sharing results of Influweb in the Epiwork project could therefore be an issue.

Every participant should give written permission to enroll in the project. They also have to declare that they are adults (18+). Children can only participate in the Influweb project via an adult account. These two issues must be discussed for every (new) IMS country. Influweb was launched in September 2007. Participants were recruited via television, web, radio, newspapers and word of mouth. Recruiting via television and websites are techniques that really worked in Italy.

1645 New Influenzanet © design, outline, logo, content, maps, national versions: Martin Takken. Webmaster of the GGM
The idea of the new Influenzanet design is to design an European umbrella site which has a recognizable look, is easy to use and offers clear and informative maps and navigation. Right now, there are three template proposals:

1. Focus on layout, simple menu, login prominent on website (no votes so far)
2. Recognizable logo (three votes so far)
3. Implements the European site into the national site (two votes so far)

Essential things for the homepage: simplicity, prominently placed maps, no confusion about what the website presents, clear how you can join.

Decision: Next week, everyone can send around comments and we will proceed with one or two designers.

17.45 hrs End of Day 1

Tuesday 26 May 2009

0930 Contact pattern data, internet-based questionnaire incorporating contact data: Prof. dr. John Edmunds, LSHTM

Diseases like measles, TB and influenza are close contact infections, but there is not much known about interactions between people. More knowledge about contact patterns can define potential at risk events.

The Polymod project

In this EU FP project people keep diaries of events: did they have a conversation, physical contact or both? For each event they write down the age of the contacted person, where the contact occurred etcetera. This project was implemented in 8 European countries. In general, people mix with people of similar age. In households there is mixing between generations. There are no big differences between the countries. Now, there is a need for a longitudinal study with a large sample size of individuals.

Implementation of contact patterns in Epiwork

Intake questionnaire: Ask about household (size and composition)
Symptoms questionnaire: Add the question "Have you been in contact with anyone with flu-like illness in the last week?" In that way, we can expose the denominator. We could add more detail if we want, for example "What was the setting of the contact?" This is open for discussion.
Ronald Smallenburg: Implementing these questions into the questionnaires is no problem.

Additional contact survey: This will be an optional questionnaire that is offered every time people finished their symptoms questionnaire.

- Count the number of people you had contact with yesterday (in three settings: home, work/school and other)
- How much time did you spend on public transport yesterday?
- How much time did you spend in other closed environments (classrooms, bar, cinema) with more than 20 other people?

We refer to yesterday because most people fill in the questionnaire in the middle of the day. Problem: participants have to remember to whom they had contact with. We have not checked how people fill it out yet.

Suggestion from Ben Reis: use cellphones or I-pods and make an application; every time people contact someone they can press a button. Also an idea to text message people (for example every hour) to ask them who their with.

Suggestion form Carl Koppeschaar: there are many 'flu meters' in Holland. Try to implement the additional survey here (for example as a school project for children).

Decision: Everyone is going to think about how to implement the additional contact survey into the IMS. Sander van Noort will be the contact point for this.

1030 Surveillance of ILI and non-ILI syndromes, for IMS / Influenzanet application: Sander van Noort, FGC-IGC

New name
Influenzanet needs a new name. Options are:

- Epidemicnet (can have subs: influenzanet, denguenet, gastronet)
- Epidemios
- Epidemonet
- Epritrack/epimeter

Decision: Ronald Smallenburg will make a list of possibilities. Suggestions for new names (currently not on the list) via e-mail.

The idea of the new website is to have a short intake questionnaire after login. Participants can subscribe to weekly symptoms questionnaires (influenza, norovirus, dengue, allergy etcetera). Problem with this is the overlap of questions. For example, fever is a characteristic of both influenza and norovirus. This can be solved in three ways:

1. Participants get questions twice
2. A questionnaire engine removes duplications
3. Subgrouping; both diseases belong to 'infection'

Suggestion from Fabricio Silva: make use of onthologies to guide a user.

Suggestion from Flavio Coelho: use a short list of symptoms for pre-screening. Ask additional questions if the answer, for example, refers to flu. In this way, you don't need to split all the symptoms questionnaires for all diseases.

Case definition of ILI
The current case definition of ILI is: fever >38° C, acute onset of fever, cough or sour troath or chest pain, muscle pain. There is a problem with the fever question: participants might never measure temperature. We implemented the question "Did you feel feverish?" This doesn't seem to work; the results no longer correlate with EISS.

There are two options to minimize follow-up questions:

- Only ask fever question when other symptoms are present
- Only ask other symptoms if fever is present

Suggestion from Ken Eames: You need to know the delay between the onset of symptoms and the day participants go to the GP. We need to ask: "When did you see a doctor (and at what day)?"

Decision: Sander van Noort will make a selection between essential and optional questions.

1*145 European IMS database, conceptual and technical ins and out: Dr. Breanndán Ó Nualláin, senior researcher at the Institute of Informatics, UvA*

The European central database will be a key tool for countries which are setting up the IMS website. It is a possibility to store data in a central place and in a uniform format.
The database requires:

- Capacity (to avoid delays)
- Availability (people can fill in their information 24/7)
- Scalability (increase of users when more countries join)
- Extensibility
- Redundancy (back-up system)
- Anonymity (no user data in database)
- Privacy (people need to check national and European legislations for this!)
- Security

The front-end database will be in Amsterdam. This database picks up information from different countries and writes it to the main database.

Suggestion from Sander van Noort: write data locally and to the main database.

Adding new questions to questionnaires
If a national organization wants to add a question to a certain questionnaire they need to contact Amsterdam. The team in Amsterdam will program the question and send an e-mail to all of the countries. Each country can than decide if they want to use the added question in their survey.

Sharing of data
There are some questions about the sharing of data. Between the participating countries there must be open-access. But what do we do with interested individuals, organizations, governments and commercial companies? Do the rules of the project also apply to historical data?

Decision: Ronald Smallenburg will write a procedure about the sharing of data.

Technical issues of the database
The database is built with open source software. QueXML will be applied in order to write questionnaires, Python will be used to write the website. The current national websites are in PHP. The new python website will be translated to PHP to use for existing websites.

Decision: Sander van Noort will deliver the questionnaires to be programmed in the main database.

1400 Connecting WP3, WP 4 & WP 5, modelling, marketplace & IMS platform: Dr. Fabricio da Silva, FFCUL

The first version of the epidemic marketplace is on line at: http://epiwork.di.fc.ul.pt . All 'Epiworkers' can ask for a password after which they can upload data, use Twitter etcetera.

Decision: from now on, Epiwork documents will be put in the marketplace. In an e-mail you'll just have to past the url.

Requirements of the marketplace are:

- Support sharing and management of data
- Integration of data
- Creation of virtual community
- Distributed architecture (use of software in other places)
- Secured access to data
- Support data analysis and simulations

The main components of the marketplace are:

- A repository with epidemic datasets and catalogues of epidemic datasources: the repository and data collector are already available (for now it only collects from Twitter)
- A forum for people to collaborate: will be available in the following months
- Host of mediating software: this is still a challenge. The mediator consist of two components: Fedora Commons (data repository) and Muradora (front-end).

Infrastructure of marketplace:

- Two Dell servers power edge SC 1435
- Two Iomega network storage servers
- 12 TB total disk space
- Network: 10 Gb connection to Géant, 2 Gb connection to FCCN (both can be improved if needed)

Future developments:

- Authentication
- Client (graphical and illustrative tool to help people analyze data)
- Semantic support, onthologies,
- Building on the website depends on what you need, so let us know what you want!

Integration with WP4

The marketplace will give directive support for simulations and data for simulations. Results can be stored on the epidemic marketplace and can be available to other members of the community.

Integration with WP5
You will have access to data from IMS and data from the epidemic marketplace. The data collector from the epidemic market place can interact with IMS websites. A first experiment with Lisbon's IMS website can be scheduled soon.

Decision: We need input for defining and improving the interface and definition of data formats to be transferred and stored. Fabricio Silva and Breanndán Ó Nualláin will work together to make the IMS and the epidemic marketplace compatible.

1515 Data collection by mobile phones on influenza and contact patterns: Dr. Daniele Miorandi, director of Create Net & Dr. Iacopo Carreras

The idea is to create a mobile phone interface for IMS contact patterns. In this way we can reach out to a larger group of people and trace their contacts. The application should run over the major part of commercially available software/hardware platforms. The application asks weekly questions about the health status of the participant and, probably, the health status of friends/family.

There are two ways to link a mobile application to a user account:

1. If you have a profile on the website, you can download the application. Some of your information will already be in the application
2. Download the application via internet and confirm via your phone

For users, a feedback channel, educational material (download information about certain symptoms), information about Epiwork and entertainment will be available. All features of the application should not interfere with the normal characteristics of the phone (for example battery life).

Bluetooth
Bluetooth can be used to detect social behaviour of people. There are some question marks about this measuring of contact patterns. There are no statistics about Bluetooth use (people might use it in the public transport but not at home, for example). Furthermore, there can be an age-difference: only younger people will use Bluetooth.

Decision: Mobile application will be an Italian project for now. Later, it could be gradually expanded to other countries. Everyone needs to think about the mobile phone (weekly) questionnaire. Ben Reis has developed some very appealing Facebook applications (www.healthysocial.org). He will collaborate in the development of mobile phone applications.

17.15 Summary of sessions, results and decisions: Ronald Smallenburg, WP5 co-ordinator and director AI BV - GGM

EPIWORK 1st PROJECT MEETING – TORINO (IT) 16-18 Nov. 2009

This was the first project meeting and it was intended as the first check-point of the activities of the project within the consortium. The meeting has allowed all partners to provide a summary of the activities undertaken and the progress with respect to the many approaching deliverables deadlines. During the meeting, all the formal moments of the consortium were scheduled, with both project board and Steering committee meeting.

The meeting was held at the Villa Gualino, ISI, Torino on 16 to 18 November, 2009.

Present: Paolo BAJARDI, Dirk BROCKMANN, Vittoria COLIZZA, Fabricio DA SILVA, Sebastien BALLESTEROS, Iacopo CARRERAS, Mario DA SILVA, Ken EAMES, Vitor FAUSTINO, Philip GERRISH, Corrado GIOANNINI, Gabriela GOMES, Frank HILKER, Amit HUPPERT, Carl KOPPESCHAAR, Daqing LI, Stefano MERLER, Olof NYREN, Breanndan O' NULLAIN, Daniela PAOLOTTI, Chiara POLETTO, Marco QUAGGIOTTO, Rick QUAX, Jose' RAMASCO, Ronald SMALLENBURG, Patricia SOUSA, Nico STOLLENWERK, Lewi STONE, Michele TIZZONI, Wouter VAN DEN BROECK, Alessandro VESPIGNANI

Absent with apologies: Marc VAN RANST, Piet MAES, Shlomo Havlin

Monday 16 November

0930-0100 WP5 Meeting organized by Ronald Smallenburg

Ronald Smallenburg AIBV

- New Influenzanet website design: comments and experience with the implementation in NL and B.
- First translation into English of selected educational material, web quests, quizzes etc
- "Gold Standard" of Influenza symptoms, selected other diseases and survey questions

Breandan O' Nullain UvA

Database design: design and implementation of a centralized European database for IMS

Ken Eames LSHTM

- Comments and experience with the implementation of Influenzanet in the UK. Exchange of experiences from Influenzanet implementation in UK, I, P, and NL/B
- Contact patterns: progress in UK, NL/B and P

Iacopo Carreras CREATE-NET
Facebook application: final issues/first experiences

1430 Opening of the main meeting

Alessandro Vespignani ISI
Welcome and introductions of participants. Review of the agenda, next deadlines, incumbencies and administrative issues

1500 Scientific progress report

Alessandro Vespignani ISI
WP4 scientific progress

Gabriela Gomes FGC-IGC
WP1 scientific progress

Lewi Stone TAU
WP1 scientific progress

Dirk Brockmann MPG
WP2 scientific progress

Ronald Smallenburg AIBV
WP5 scientific progress

Ken Eames LSHTM
WP5 scientific progress

Olof Nyren SMI
WP6 scientific progress

Tuesday, 17 November

0900 Scientific progress report (continuation)

Stefano Merler FBK
WP4 scientific progress

Iacopo Carreras CREATE-NET
WP5 scientific progress

Mario Silva, Fabricio da Silva FFCUL
WP3 scientific progress

1045 Discussion on the project management

- EC project review meeting
- Discussion of the impact if the H1N1 pandemic on the consortium activity (highlights, interferences etc)

- Preparation of the 1st project workshop
- Preparation of the 1st year report (scientific, dissemination/outreach)
- Discussion of ideas to coordinate activities inter-intra WPs

0200 Scientific Highlights

Lewi Stone TAU – Pandemic influenza dynamics and the breakdown of herd immunity

Stefano Merler FBK – European-wide agent based model for the spreading of influenza

Vittoria Colizza ISI – Transmissibility and activity peaks of H1N1 pandemic

Patricia Sousa FFCUL – Epiwork data marketplace tour

1715 WP Leaders Consolidation

WP leaders report a consolidation summary with a SWOT (Strengths, Weaknesses, Opportunities and Threats) analysis as emerged from the previous discussions. To do list and planning for the WP

1845 Meeting of the Steering Committee (only SC members)

Wednesday, 18 November

0830-1130 WP1+WP2 meeting, organizers: Dirk Brockmann, Lewi Stone

1200-1600 WP3+WP4 meeting, organizers: Mario Silva, Vittoria Colizza

- Presentation of the prototype of the epidemic marketplace, data contribution
- Presentation of the prototype of the modeling platform, round table discussion on further developments and partners contributions