MEETING REPORT

Annual meeting of the European Influenza Surveillance Network

Sofia, 1–3 June 2010

Executive summary

The annual meeting of the European Influenza Surveillance Network (EISN) was held 1–3 June 2010 in Sofia, Bulgaria. More than 80 nominated epidemiologists and virologists from the European Union and European Economic Area (EU/EEA) Member States (MS), representatives from the US-based Center for Disease Control and Prevention, and the World Health Organization's Regional Office for Europe participated.

Experiences were exchanged with regards to influenza-like illness and/or acute respiratory infection, severe acute respiratory infection, virology, mortality and serology reporting during the 2009 influenza A(H1N1) pandemic. In general, the participants agreed that the surveillance system worked well despite the pressures. Those systems in place prior to the crisis were easier to activate and more effective during the actual crisis than ones that had to be implemented ad hoc.

Several conclusions were reached and the network will now continue to develop these ideas in order to improve the systems and to be better prepared for the next crisis.

The 2009 pandemic has shown that, in general, the systems in Europe managed to cope relatively well with this level of crisis; however, the pandemic virus could have been worse. There were still major challenges in the EU's ability to respond. Systems established prior to the pandemic worked relatively well, but gaps in the surveillance systems and areas for improvement have been identified. These include surveillance of severe disease (in hospitals) and deaths, agreed definitions of severity in a pandemic, timelier seroepidemiological data and more rapid sharing of analyses between MS, especially in the early part of a crisis.

Stockholm, January 2011

1 Background

The European Centre for Disease Prevention and Control (ECDC) is a European Union (EU) agency whose mandate includes the coordination of EU surveillance networks (former dedicated surveillance networks (DSNs)) and the identification, assessment, and communication of current and emerging threats to human health from communicable diseases.

The European Centre for Disease Prevention and Control has been coordinating the activities of the former DSN project responsible for influenza for the last two years. This period coincided with the first influenza pandemic in nearly 40 years, posing significant new surveillance challenges at national, EU and global levels.

Data collection, validation and reporting related to influenza-like illness or acute respiratory infection (ILI/ARI) sentinel surveillance, case-based reporting of severe acute respiratory infection (SARI)—including fatal outcomes—and the aggregate reporting of deaths due to 2009 pandemic influenza A(H1N1) virus are carried out by the nominated flu epidemiologists in participating EU/EEA Member States (MS). The Member States' nominated flu epidemiologists and virologists make up the European Influenza Surveillance Network (EISN). The virological sentinel and non-sentinel surveillance, including monitoring of antiviral resistance, is carried out by the nominated virologists and their work is supported by the Community Network of Reference Laboratories for Human Influenza (CNRL) on behalf of ECDC. Subsequent surveillance data are analysed and then summarised in a weekly influenza surveillance overview report (WISO) that is published on the ECDC portal each Friday. An annual summary report is also prepared at the end of the season.

1.1 Objectives

The overall purpose of this meeting was to accomplish following specific objectives:

- Discuss and describe the epidemiological and virological features of influenza during the last season in Europe.
- Discuss any changes in the current surveillance and reporting of influenza that should be made in the aftermath of the pandemic.
- Make proposals for any new activities or improvements that the network wishes to see introduced in the near future.
- Identify key messages for the Belgian Presidency Influenza conference (July 2010) and World Health Organization (WHO) reviews.

1.2 Planned outcomes

The planned outcomes of this meeting included the following:

- Participants are to be updated on the EISN system and influenza surveillance activity in the EU.
- Clear suggestions that will lead to improvements to the current surveillance and reporting of influenza.
- A mandate to present a summary for those attending the Belgian Presidency meeting and information that can be used for global and other evaluations.

1.3 Invited speakers

Invited speakers at this annual meeting provided good material on a variety of topics. This information was included in the following presentations:

- Bernadette Gergonne, EpiLife, Sweden: EuroMOMO progress report;
- Alain Moren, Epiconcept, France: I-Move project;
- Caroline Brown, WHO-Europe: Surveillance in the European Region during the pandemic and WHO EURO plans for the upcoming season;
- Johan Reimerink, RIVM, NL: Serology microarray assays;
- Kaat Vandemaele, WHO-Geneva: Applications and future look of seroepidemiology;
- Scott Reid, Virology Dept. Veterinary Laboratories Agency, UK: The role and recent activities of the Community Reference Laboratory for Avian Influenza; and
- John Wood, National Institute for Biological Standards and Control, HPA UK: Antibody standards for influenza serology

2 Plenary sessions

The meeting was opened by Prof Dr Ivan Milanov, Deputy Minister of Health, Ministry of Health Bulgaria, who read a welcome message on behalf of Prof Dr Anna-Maria Borissova, Bulgarian Minister of Health. Andrea Ammon, Head of the Surveillance Unit at ECDC, also welcomed participants.

The first plenary session focused on the main epidemiological and virological activities and data collected by the network during the last season, including the pandemic period. In particular, the discussions focused on the recently started SARI surveillance.

The second plenary session opened with the preliminary results of an evaluation of the WISO which showed that, despite some areas that could be improved, most respondents found the WISO a major source of information. The session then heard updates on the epidemic intelligence, media monitoring and science watch activities of the ECDC, the CNRL activities in 2009/2010, progress reports on the EuroMOMO and I-Move projects, and an update on the WHO Regional Office for Europe's surveillance work and plans for the upcoming season.

The next session commenced with discussions on the main focus of this meeting, seroepidemiology. In the general presentations, WHO HQ presented 'Applications and future look of sero-epidemiology', drawing on experiences from studies from various parts of the world. This was followed by discussions on the newer serology microarray assays that may be a more effective method as they simultaneously detect antibodies to different groups of viruses that can cause different clinical syndromes. The evaluation of three types of serology assays (haemagglutination-inhibition, virus neutralisation, single radial haemolysis) were presented and showed that comparability and reliability remain an issue with the currently used methods. The last general discussion focused on the role and recent activities of the Community Reference Laboratory for avian influenza.

The last two sessions combined one general presentation and experiences from seven countries in the area of serology. The country presentations were made by the following experts:

- Isabelle Bonmarin, Institut de Veille Sanitaire, France
- Anneke Steens, RIVM, the Netherlands
- Pia Hardelid, Health Protection Agency, the United Kingdom
- Mia Brytting, SMI, Sweden
- Olav Hungnes, FHI, Norway
- Thedi Ziegler, THL, Finland
- Sandro Bonfigli, on behalf of Caterina Rizzo, Ministry of Health, Italy

3 Parallel sessions

The epidemiology working group session discussed the following five key topics, after introductory presentations were made on each:

- **Surveillance of SARI—experiences from the first season:** Isabelle Bonmarin presented the France experience with SARI.
- **Flu case definitions—any changes:** Amparo Larrauri introduced the Spanish experience with testing various ILI, ARI and human infection with avian influenza, and possible changes to these.
- **Calculation of an ILI/ARI baseline:** Tomás Vega Alonso (General Direction of Public Health, Valladolid, Spain) presented their method for calculating an ILI baseline and an epidemic threshold that can be used for influenza surveillance: Moving Epidemics Method (MEM).
- **Deaths attributable to influenza and reassessing how we measure severity:** Angus Nicoll (Influenza programme, ECDC) presented the various parameters that may be used to define the severity of the pandemic.
- **Future WISOs:** René Snacken led the discussions on how feasible the MS felt it was to continue reporting SARI related data in a non-pandemic situation.

Key conclusions of the epidemiology working group included the following:

- There is limited information about how countries can best implement SARI surveillance; a draft SARI surveillance protocol should be developed and circulated among EISN members for comments.
- Agreement to change the ILI case definition[1].
- No changes needed to the ARI or human infections with avian influenza case definitions.
- It is difficult to define severity at the European level, as it differs between countries; there should be an agreement on the definition criteria and there needs to be more study on methods for countries to measure severity.

The virology working group discussed the progress of the task groups and specific laboratory issues:

- Brunhilde Schweiger and the virus characterisation task group presented a summary of the questionnaire sent out after the 2008/2009 season, addressing the problems regarding cultivation of H3N2 viruses.
- Olav Hungnes and Joan Ellis presented on behalf of the molecular diagnosis and sequencing task group.
- Angie Lackenby summarised the progress of the antiviral susceptibility task group.
- Helena Rebelo de Andrade, Global influenza surveillance network (GISN), WHO HQ, presented results of a laboratory capacity survey of GISN assessing the status of NICs to perform sequencing and antiviral resistance testing.
- Francisco Pozo presented the progress on preparing guidance for testing of antiviral resistant influenza virus infections in patients and contacts.
- Catherine Thompson summarised the training and external quality assurance activities of last and forthcoming influenza season.

Key conclusions of the virology working group included the following:

- The laboratories were encouraged to continue with culture of viruses on eggs; MS to report antigenic characterisation data to TESSy and to do the testing in the local laboratories.
- Together with ECDC, the antiviral susceptibility task group has defined stricter rules for strain names to be used with TESSy reporting to avoid problems in the database and double reporting of same data.
- The antiviral susceptibility task group is preparing guidance for testing of antiviral resistant influenza virus infections in patients and contacts and how to send samples for central testing.
- Next laboratory training on sequencing and bioinformatics is in November 2010, and the next external quality assurance panel will be distributed in November 2010.

[1] At present, EU definition is without the sudden onset of symptoms. The rationale behind this is the generalised opinion among clinicians that this criterion is not easily recognised in patients with underlying condition and children with frequent and repeated viral events.

4 Main conclusions

The participants' main conclusions and recommendations are summarised in the following points:

- Good surveillance data (epidemiology and laboratory) are essential when dealing with influenza epidemics and pandemics. The Weekly Influenza Surveillance Overview has been a useful tool to help share and present these data and analyses.
- Despite the strain of the pandemic, the existing system of combined syndromic surveillance with virology worked well. However, it was also noted that this could have been a much more stressful pandemic; thus the need to ensure ongoing future support of these systems and their core, the public health authorities.
- It is very important to maintain surveillance activities started during the pandemic in order to ensure better preparation for the next crisis/pandemic.
- Data collection in hospitals had worked in some settings; nevertheless, data collection had been especially difficult to establish where there had not been any prior system. Also, work on data related to more severe cases needs to improve; this includes developing a SARI surveillance protocol for Europe and facilitating more exchanges of experiences.
- Official reporting of deaths during the pandemic clearly represented an underestimate. The experts called on ECDC to work on systems to improve reporting of severe cases and deaths.
- The European Centre for Disease Prevention and Control will introduce a standardised baseline (the MEM system) for ILI, and possibly ARI, on a trial basis to improve comparability and to assist countries in their decisions on declaring the start of an epidemic. This baseline will be published only with the express permission of the MS.
- It was agreed that the important work of serology needs to be improved; better data should be available faster in order to provide key input for planning the crisis response. There is also a need for a European standardised serological test.
- There needs to be increased communication, timely exchange of information, analyses and research findings in order to be better prepared for the next crisis.
- A clear commitment to sharing analyses as soon as they become available, especially in times of crisis, needs to be achieved.
- Remember that systems put in place before any crisis are easier activated and can be more successful than any activated during the actual event.

Annex 1: Meeting programme

1 June 2010 — Day 1

09:00–12:00	**Restricted Access: Meeting of CNRL Task Groups**
12:00–14:00	**Registration and lunch**
14:00	**Plenary session: introduction and European surveillance** *Chair: Andrea Ammon*
14:00–14:10	**Welcome and opening** *The Honourable Minister Anna-Maria Borissova and Andrea Ammon*
14:10–14:30	**EISN during the H1N1 Pandemic 2009** *Andrew Amato*
14:30–14:50	**Season 2009/2010 primary care surveillance** *Flaviu Plata*
14:50–15:10	**Season 2009/2010 SARI surveillance** *Rene Snacken*
15:10–15:30	**Season 2009/2010 virological surveillance** *Rod Daniels—Discussion 15 mins*
15:45–16:00	***break***
16:00–	**Plenary session: international surveillance** *Chair Mira Kojouharova*
16:00–16:10	**The WISO evaluation** *Katarina Widgren and Rene Snacken*
16:10–16:30	**Epidemic intelligence, media monitoring and science watch; less conventional surveillance in the pandemic and other crises** *Angus Nicoll and Pasi Penttinen*
16:30–16:50	**Euromomo progress report** *Bernadette Gergonne*
16:50–17:10	**I-Move** *Alain Moren*
17:10–17:30	**CNRL report on activities 2009/2010** *Maria Zambon and Adam Meijer*
17:30–17:50	**Surveillance in the European Region during the pandemic and WHO EURO plans for the upcoming season** *Caroline Brown—Discussion 25 mins*

2 June 2010 — Day 2

09:00–09:05	**Introduction to the work of the working groups** *Andrew Amato*
09:05–10:30	**Epidemiology group: Surveillance of severe ARI experiences from the first season** *Rene Snacken and Isabelle Bonmarin*
09:10–10:00	**Virology group: Virus characterisation TG** *Brunhilde Schweiger and John McCauley*
10:00–10:30	**Molecular diagnosis and sequencing TG** *Olave Hungnes and Rod Daniels*
10:30–11:00	***break***
11:00–13:00	**Epidemiology group** *Amparo Larrauri Cámara*: **Flu case definitions–any changes?** *Andrew Amato;* **Calculation of an ILI/ARI baseline.** *Tomas Vega Alonso;* **Deaths**

	attributable to influenza and reassessing how severity is measured. *Angus Nicoll;* **Future WISO.** *Angus Nicoll.*
11:00–11:30	**Virology group** *Maria Zambon*: **Molecular diagnosis and sequencing TG.** *Olav Hungnes and Rod Daniels*
11:30–12:30	**Antiviral TG** *Adam Meijer*
12:30–13:00	**Quality and training TG** *Catherine Thompson and Maria Zambon*
13:00–14:00	*lunch*
14:00	**Plenary session** *Katarina Prosenc and Jan Kyncl*
14:00–14:15	**Reports from Epidemiology working group**
14:15–14:30	**Discussion**
14:30–14:45	**Reports from Virology working group**
14:45–15:00	**Discussion**
15:00–15:30	*break*
15:30	**Plenary session; serology overview** *John Wood*
15:30–16:10	**Serology microarray assay** *Johan Reimerink*
16:10–16:50	**Applications and future look of seroepidemiology** *Kaat Vandemaele*
16:50–17:00	**Discussion**
17:00–17:15	**The role and recent activities of the community reference laboratory for avian influenza** *Scott Reid*
17:15–17:30	**Closing remarks** *Andrea Ammon*

3 June 2010 — Day 3

09:00	**Plenary session: Specialist session on serology** *Sylvie van der Werf*
09:00–09:30	**Antibody standards for influenza serology** *John Wood*
09:30–09:45	**Country experiences with serology: France** *John Wood*
09:45–10:00	**Country experiences with serology: the Netherlands** *Anneke Steens*
10:00–10:15	**Country experiences with serology: the United Kingdom** *Pia Hardelid*
10:15–10:30	**Discussion**
10:30–11:00	*break*
11:00	**Plenary session** *Chair Andreas Mentis*
11:00–11:15	**Country experiences with serology: Sweden** *Mia Brytting*
11:15–11:30	**Country experiences with serology: Norway** *Olav Hunges*

11:30–11:45	**Country experiences with serology: Finland** *Thedi Ziegler*
11:45–12:00	**Country experiences with serology: Italy** *Sandro Bonfigli, on behalf of Caterina Rizzo*
12:00–12:15	**Discussion**
12:15–12:30	**Closing remarks** *Andrea Ammon*

Annex 2: Participants

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