



Joint ECDC/WHO Regional Office for Europe Meeting on Influenza Surveillance

SUMMARY REPORT

Ljubljana, Slovenia, 7-9 June 2011

ABSTRACT

This report summarizes ECDC and WHO/Europe's first joint influenza surveillance meeting, held on 7-9 June 2011 and hosted by the Slovenian Ministry of Health. The meeting was attended by more than 150 participants representing national focal points for epidemiological and virological surveillance of influenza in 48 of 53 WHO European Region and EU/EEA Member States. This report contains the main content of the meeting's working group sessions and the recommendations and next steps identified during these sessions. It also describes how the influenza surveillance network in the WHO European Region and EU/EEA Member States will implement further work on influenza surveillance.

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Background

The WHO Regional Office for Europe (WHO/Europe) and the European Centre for Disease Prevention and Control (ECDC) coordinate the surveillance of influenza in the European Region¹. On 7-9 June 2011, WHO/Europe and ECDC held the first full (i.e. open to all countries in the European Region) joint influenza surveillance meeting, hosted by the Slovenian Ministry of Health. The meeting was attended by more than 150 participants representing national focal points for epidemiological and virological surveillance of influenza in 48 of 53 WHO European Region and EU/EEA Member States. The list of participating countries and focal points can be found at: http://www.euroflu.org/cgi-files/wiw_members_display.cgi.



This report summarizes the main content of the meeting's working group sessions and the recommendations and next steps identified during these sessions. It describes how the influenza surveillance network in the WHO European Region and EU/EEA Member States will implement further work on influenza surveillance, supported by ECDC and WHO/Europe. Presentations and full working group reports from this meeting in English and Russian have been posted on the password-protected EuroFlu library and the ECDC extranet. For more information about this meeting, please contact influenza@euro.who.int and influenza@ecdc.europa.eu.

Objectives of the meeting

The main objectives of the meeting were to:

- review the 2010-2011 influenza season in the European Region;
- present current recommendations for influenza surveillance; and
- address key issues related to virological and epidemiological influenza surveillance presented in working group sessions covering the following topics: severe influenza disease surveillance; epidemic threshold calculations; mortality monitoring; qualitative indicators for influenza; risk assessment for influenza; virus characterization; antiviral susceptibility testing; molecular diagnosis; and sequencing, training and quality assurance.

¹ See the WHO European Region EuroFlu bulletin at <http://www.euroflu.org/> and the ECDC Weekly Influenza Surveillance Overview (WISO) for EU/EEA countries at http://ecdc.europa.eu/en/healthtopics/seasonal_influenza/epidemiological_data/pages/weekly_influenza_surveillance_overview.aspx

Key conclusions and recommendations

The meeting emphasized the achievements of the last year and the work still necessary, indicating the importance of enduring and consistent work on influenza surveillance in the inter-pandemic period.

The main focus of the meeting, in the aftermath of the 2009 (H1N1) pandemic, was to review the surveillance for severe disease associated with influenza. As different models and systems are being implemented by countries, such as sentinel surveillance for severe acute respiratory infections in hospitals (SARI) and reporting systems for laboratory confirmed hospitalized cases of influenza and/or ICU admissions associated with influenza, an important result of the meeting was agreement on the objectives of this surveillance (see below). The meeting also confirmed the importance of performing severe disease surveillance for seasonal influenza, not only during a pandemic.

Virological surveillance in the Region provides detailed information for national, regional and global surveillance. It has benefitted from activities of the network aimed at improving the capacities of the National Influenza Centres, conducted by the WHO collaborating centre (WHO CC) for reference and research on influenza (NIMR), London, UK, the Community Network of Reference Laboratories (CNRL)², and individual National Influenza Centres (NIC). Continued provision of external quality assurance (EQA) programmes by WHO and ECDC, coupled with training to address identified gaps, are essential to the sustainability and further improvement of the network.

Information sharing was an important focus of this meeting. Influenza surveillance data are shared automatically between ECDC and WHO/Europe through live transfer of EU/EEA countries' data from TESSy to the EuroFlu platform, enabling the creation and publication of the EuroFlu and WISO bulletins. This means that countries do not have to report twice. The participants of the meeting agreed that other information provided by Member States to either organization (such as surveys, results from EQA programs, etc.) would also be shared between ECDC and WHO/Europe.

Working group reports and recommendations



Epidemiology working groups (WG)

WG1 Severe disease surveillance:

Various approaches have been taken to implement surveillance for severe disease associated with influenza in the WHO European Region, including sentinel surveillance for SARI and reporting systems for laboratory confirmed hospitalized cases of influenza and/or ICU admissions

² The CNRL, Community Network of Reference Laboratories for Human Influenza, consists of national influenza reference laboratories in EU and EEA Member States.

associated with influenza. Overall, it was noted that there was a lack of clarity about which surveillance options for severe disease surveillance are feasible and sustainable. While the diversity of health care systems in the Region makes it unlikely that a single 'one size fits all' system can be adopted, there was general agreement about five key objectives for severe disease surveillance and the public health actions they connect to (these are also described in the *WHO European guidance for influenza surveillance in humans*³):

- Monitor severity and burden of influenza seasons
- Identify influenza viruses associated with severe clinical presentations
- Provide standard tool to monitor risk factors associated with severe influenza
- Provide early effectiveness data of interventions to prevent severe disease
- Contribute to detection of emerging severe respiratory diseases

Conclusions and recommended next steps: It was suggested to implement a survey among Member States to understand the range of possible surveillance options and to identify how the above surveillance objectives have been addressed in the past, as well as which options are underway or are being considered for future severe disease monitoring. The WG recommended that a summary of surveillance options for severe respiratory disease and influenza be prepared, including relative strengths and weaknesses of each option.

WG2 Baseline and data quality: Harmonization of analysis to allow better comparisons of epidemiological data is of particular importance in influenza surveillance. With different surveillance methods in use in Europe (e.g. influenza-like illness (ILI) versus acute respiratory infections (ARI) surveillance, consultation-based rates versus population-based rates, nationwide versus sentinel sampling systems), it is important to share information on the systems used. The WG addressed two topics: the use of a baseline (or threshold) and a comparison of different case definitions in use for ILI/ARI surveillance.

The utility of the baseline was presented for countries reporting to EuroFlu and TESSy; the baselines calculated for 2010-2011 using the Moving Epidemic Method (MEM)⁴ showed the best results for countries reporting ILI.

Work to improve data quality across Europe by comparing different case definitions was discussed and data collected using different ILI/ARI case definitions were presented by one country (Spain).

Conclusions and recommended next steps: The baseline calculated with historical ILI/ARI data from each country will allow the start and the end of an epidemic period to be estimated and to make appropriate comparisons between countries. For the baseline calculation, it was advised to use a minimum of 5 and maximum of 10 seasons and to recalculate the baseline each year. Next steps are the implementation of the MEM epidemic baseline in the WHO European Region for the 2011-2012 season. An automatic calculation of the baseline will be implemented on TESSy; results will be sent to the countries and, if the baseline is agreed upon, it will be implemented. Otherwise the national baseline will be displayed.

³ http://www.euro.who.int/_data/assets/pdf_file/0020/90443/E92738.pdf

⁴ "Modelling influenza epidemic—can we detect the beginning and predict the intensity and duration?" Tomás Vega Alonso, José E Lozano Alonso, Raúl Ortiz de Lejarazu, Marisol Gutiérrez Pérez, *International Congress Series*, Volume 1263, June 2004, Pages 281-283, Options for the Control of Influenza V. Proceedings of the International Conference on Options for the Control of Influenza V

As the baseline is based on epidemiological data only, it was suggested that influenza activity has truly started when the following criteria are met: influenza activity is above the baseline for two weeks and virological detections have been reported. The group also recommended using the levels of intensity as a quantitative indicator.

Results from the Spanish study on options for ILI/ARI case definitions showed that the most adequate definition for surveillance purposes was the EU2 definition⁵. The WG proposed to test the definition with data from other countries.

WG3 Mortality monitoring: Estimating mortality due to influenza provides essential information for planning and identifying public health priorities. Monitoring deaths attributed directly to laboratory confirmed influenza, however, can be difficult and will inevitably underestimate the true figure. A variety of statistical methods to estimate influenza-related mortality have been published. These methods can provide more accurate estimates of deaths associated with influenza infection, provided that they take into account factors that potentially influence mortality such as other epidemics (notably of respiratory syncytial viruses) or events (e.g. winter cold spells). The working group discussed what should be the key objectives of mortality monitoring and the strengths and limitations of current methods to estimate influenza-related mortality, including surveillance of individual confirmed influenza deaths, excess all-cause mortality modelling, regression modelling and models to estimate 'years of life lost'.

Conclusions and recommended next steps: The WG participants proposed that objectives of mortality surveillance should include:

- Describe clinical presentation and course of fatal influenza cases.
- Provide virological characteristics and risk factors for fatal influenza cases.
- Assess uptake of interventions (e.g. vaccination and antiviral use) in fatal cases.
- Provide estimates of excess mortality due to influenza, including years of potential life lost (YPLL), which may yield more subtle estimates of influenza burden especially when there are significant differences in the age distribution of fatal cases between influenza seasons.

The WG recommended that:

- Common methods should be developed to estimate influenza-related premature mortality at national and regional levels for both seasonal and pandemic influenza, potentially using approaches such as YPLL in order to produce estimates that are comparable between seasons and between countries.
- Countries should collect case-based data (epidemiological, clinical and virological) in order to identify risk factors for severe and fatal disease.
- A model (or models) for estimating the impact of influenza epidemics on mortality should be developed.

Finally, it was proposed that an expert group formed by Member States, ECDC and WHO/Europe should be established to identify the most suitable approaches for estimating the public health burden of influenza.

⁵http://ecdc.europa.eu/en/press/events/Documents/11_06_EISN_meeting_Ljubljana_WG2%20Baseline_dataQuality.pdf

WG4 Qualitative indicators: Coordinated jointly by WHO/Europe and ECDC, the European surveillance network for influenza collects data on a wide range of quantitative and qualitative indicators for influenza from more than 50 Member States on a weekly basis. An evaluation of the performance of the four qualitative indicators (geographical spread, intensity, trend and impact), which are used to classify levels of influenza transmission according to standard definitions, was performed in May 2011. The evaluation showed that the majority of countries (>90%) reported geographical spread, intensity and trend with a high level of reporting completeness throughout the season, while impact was only reported by about half of the Member States with relatively low reporting completeness. Moreover, there were substantial differences in the interpretation of the indicators among countries, and discrepancies between weekly reported qualitative and quantitative data were often observed.

The results of the evaluation were presented in the working group, along with a discussion of the clarity, usefulness, ease of collection, "quantifiability" and usage of the qualitative indicators.

Conclusions and recommended next steps: There was general agreement that the indicators 'geographical spread', 'intensity' and 'trend' were clearly defined and provided useful information. However, most WG participants also acknowledged that reporting on the indicators was prone to error and suggested that WHO/Europe and ECDC establish a working group to assess the feasibility and value of quantifying the current qualitative indicators. It was also proposed that automated calculations of the indicators 'trend' and 'intensity' should be explored, including integrating virological data in the calculations, if feasible, to increase the robustness and accuracy of the indicators. While the importance of monitoring the impact of influenza during a season was stressed, it was noted that the definition of the indicator 'impact', added during the 2009 A(H1N1) pandemic to reflect demands on health care services, lacked clarity and that it was not feasible for most countries to report on this indicator on a weekly basis.

WG5 Annual risk assessment: During the 2011 World Health Assembly, Member States endorsed the report of the IHR Review Committee⁶, which reviewed the functioning of the International Health Regulations (2005), as well as the WHO response to the influenza A(H1N1) 2009 pandemic. The report recommended that WHO develop methods to assess the severity of influenza and that annual risk assessments for seasonal influenza should be performed. The objectives of the session were to examine different approaches for risk assessment and severity estimation and consider how they would operate together.

The UK presented a seasonal and pandemic severity matrix derived from consideration of three indices: the severity of the illness, the effectiveness of response measures to control the infection and the impact on health and society, at large. Each index would be scored against relevant data, such as clinical attack rate and case fatality rate, under the severity index. A traffic light colour code would be applied to indicate whether a season was normal (green), worse than normal (amber) or exceptionally severe (red).

⁶ WHO Report of the Review Committee on the Functioning of the International Health Regulations (2005) and on Pandemic Influenza A (H1N1) 2009. Final version endorsed at the World Health Assembly 2011 http://apps.who.int/gb/ebwha/pdf_files/WHA64/A64_10-en.pdf

The ECDC process of annual risk assessment for seasonal influenza (initiated during the 2010-2011 season) with its accompanying severity matrix was also reviewed with the suggestion that it should continue to be piloted.⁷

Conclusions and recommended next steps: The group recommended that risk assessments should be undertaken during and after each influenza season. The methods presented should complement each other and incorporate Member States' analyses and approaches. ECDC and WHO/Europe will continue the work in collaboration with interested Member States and apply it for the 2011-2012 season.

Virology working groups

Virus characterization (Task Group (TG) 1 of the CNRL): The network of National Influenza Centres (NIC), the CNRL and the WHO CC in the WHO European Region perform antigenic sub-typing and strain characterization of influenza viruses. The results of these analyses provides information on the antigenic match between seasonal influenza vaccines and circulating strains, as well as informing the selection of representative vaccine strains for the next influenza season. The WG discussed the requirements for efficient virus isolation and antigenic characterization, as well as the comparability of antigenic characterization data. Laboratories can monitor the efficacy of virus isolation during the season through the comparison of results obtained by molecular testing – quantitative polymerase chain reaction (PCR) results. Different red blood cells (RBC) for detection and antigenic characterization of influenza viruses have been tested and there is a decreasing ability of A(H1N1) 2009 virus to agglutinate turkey and guinea pig RBCs. Recent strains of A(H3N2) do not agglutinate chicken or turkey RBCs and therefore microneutralization assay is recommended. There is a continuous need for monitoring of the virus detection capability in the cell culture and characterization assays. The assay comparison information will be shared on ECDC extranet and on EuroFlu.

The interpretation of antigenic characterization data requires thorough analysis of a number of factors that may influence the results of the hemagglutination inhibition assay, such as the cells or eggs on which viruses were isolated, RBC used and the origin of ferret sera used to distinguish between different strains of influenza viruses. The reporting of antigenic characterization results to TESSy and EuroFlu was discussed; issues include irregular reporting of results, delayed reporting of results and mistakes in reporting cumulative data.



⁷ Nicoll A Planning for uncertainty: a European approach to informing responses to the severity of influenza epidemics and pandemics *Bulletin of the World Health Organization* 2011;89:542-544. doi: 10.2471/BLT.11.089508 <http://www.who.int/bulletin/volumes/89/7/11-089508/en/index.html>

A key indicator on the surveillance platforms is dominant virus type/subtype. Due to the high number of errors in reporting on this indicator, participants were reminded of the key definitions for reporting. Reporting is based on results from the previous week when 10 or more positive results are available (and at least 50% of influenza A viruses were sub-typed) and a virus type or sub-type is considered co-dominant when it constitutes >40% of positive samples (reference [available in the extranet](#)).

Conclusions and recommended next steps: It was agreed that it is necessary to have continuous monitoring by the network of the efficacy of virus isolation and of RBCs used for detection and characterization of influenza viruses. Updates should be provided regularly to the network. Characterization data indicating that a virus is not attributable to a known antigenic group should be interpreted with caution and discussed with the WHO CC. These samples should also be shipped to the WHO CC for further characterization. The group agreed that the network coordinators (ECDC, CNRL and WHO/Europe) will follow-up with the countries not reporting data and offer support as needed. Regarding the issue of cumulative versus weekly data, it was proposed to explore the possibility of reporting weekly characterization data on WISO-TESSy/EuroFlu.

Molecular diagnosis and sequencing (TG2 of the CNRL): The network of laboratories in the WHO European Region generates and shares genetic sequence data on influenza virus strains. Data generated by countries is important to public health, as it provides data on a large number of virus strains that will be more representative of circulating viruses and can be linked to epidemiological and clinical data. In addition, it increases the potential for early warning of the emergence of mutations with implications for public health and clinical management of patients, such as mutations that render viruses resistant to antiviral drugs and markers for pathogenicity.

The WG discussed sharing of influenza virus genetic sequences, access and analysis. The sequence database EpiFlu of GISAID⁸ is used extensively by WHO CC and contains more recent virus sequences compared to other databases. It also protects ownership of sequence data to a greater extent than, for example, Genbank⁹.

Issues related to the recording and analysis of virus characterization data in WISO-TESSy and EuroFlu were discussed jointly with WG1. Issues include lack of reports from countries, countries not reporting on a continuous basis and data entry errors in reporting cumulative data.

The results of the survey of molecular analysis among the CNRL laboratories conducted in 2010 were presented. The survey covered three main areas: molecular diagnostics, sequence access and analysis, and controls and standards. Its results and conclusions were presented.

The importance of the EQA programs for influenza virus detection was highlighted to assure quality and harmonize the work done by the network, which is using a high diversity of PCR platforms and kits. On the other hand, it is important to preserve some variety within the detection assays to ensure the reagent supply and wider detection assurance.

⁸ GISAID Global Initiative on Sharing All Influenza Data; see homepage www.gisaid.org

⁹ GenBank[®] is the United States National Institutes of Health genetic sequence database, an annotated collection of all publicly available DNA sequences See <http://www.ncbi.nlm.nih.gov/genbank/>

Conclusions and recommended next steps: It was agreed that GISAID is the preferred option for sharing sequence data. The CNRL coordination and WHO/Europe will offer support to encourage more countries to report genetic characterization results and to ensure fewer errors in reporting are made. Related to this, it was proposed that WISO-TESSy/EuroFlu explore the possibility of reporting characterizations by week as opposed to cumulative data. The sharing of protocols for molecular detection and sequencing will be facilitated through the ECDC Extranet and the EuroFlu library. The lab-by-lab inventory, which is already available on EuroFlu, will be included on the EISN extranet and later on the resource and reagents database of ECDC, where it will be possible to see who does what and whom to contact.

Antiviral susceptibility testing (TG3 of the CNRL): The group discussed reporting by countries to TESSy and EuroFlu, virus sharing with the WHO CC and data flow. Viruses are tested for susceptibility to neuraminidase inhibitors (oseltamivir and zanamivir) and/or M2-blockers (rimantidine and amantidine) by countries and/or by the WHO CC. Data on individual viruses and cases are reported to TESSy/EuroFlu. The group discussed that data from country-level testing is more complete with respect to clinical information than the data from central testing. It is also crucial to report all the susceptible cases to provide the denominator, i.e. total number of tested viruses. In addition, it is important to report whether viruses originate from community or hospitalized cases and whether the patients had received antiviral drug treatment prior to infection.

A guidance document targeted chiefly to clinical laboratories performing antiviral resistance testing (AVRT) that was prepared by the CNRL Task Group 3 was discussed. The guidance describes current assays for AVRT, interpretation of the results in relation to clinical management of patients, as well as the main reasons to perform AVRT. These are to:

- monitor for the emergence of mutation(s) associated with resistance during antiviral treatment of patients, and consequently decisions on changes to the treatment;
- determine the level of natural resistance among community and/or hospitalized cases; and
- identify resistant viruses with good viral fitness, which are readily transmissible and may become dominant among circulating viruses.

The report of the antiviral EQA is described under the WG on Quality and training (see below).

Conclusions and recommended next steps: Countries will be supported to report more complete virological and clinical data related to AVRT. The group also encourages those laboratories that have the capacity to start performing AVRT and reporting the data to TESSy/EuroFlu. The group reached agreement with the network that the antiviral guidance paper would be revised to include: explanations regarding the different mutations indicating resistance; interpretation of AVRT results in terms of clinical management of the patient; a section describing the surveillance required to monitor antiviral resistance; and the public health actions that would ensue should resistance be detected. It was agreed that ECDC and WHO/Europe would work jointly together with TG3 and the network on a single guidance document for antiviral resistance testing and surveillance.

Quality & training (TG5 of the CNRL): The group discussed the EQA programme undertaken in 2010-2011. The EQA programme provides laboratories with an independent mechanism to check their performance and to gain insights into the performance of the different techniques. Two EQA detection panels were sent to the network laboratories: one for the detection of human influenza virus types A and B by PCR, virus culture, sub-typing

and strain characterization; and a second panel for influenza AVRT (genotypic and phenotypic assays).

From the first panel, the rapid detection results were excellent with 96% (47/49) of the laboratories achieving more than 90% correct results (compared to 2008 EQA: 84%). Only the low viral load sample was experienced as difficult to detect and type. The virus culture and strain characterization results were more than 75% correct in 73.3% of the laboratories (2008 EQA: 73.6%).

Regarding the AVRT panel, this was the first time it was provided to the network. The genotypic analysis results were excellent, showing that all 20 laboratories that participated



in the antiviral EQA detected H275Y neuraminidase substitution in the A(H1N1) 2009 virus, which confers the virus resistance to oseltamivir. Mixtures of sensitive and resistant viruses were more difficult to detect and interpret. Twelve laboratories returned results of the phenotypic testing. It is difficult to compare the inter-laboratory results, as there is no accepted definition of cut-off value for IC50 for the

resistant viruses and the laboratories are using different thresholds for detection. In addition, the results based on two different assay methods are not comparable. There would need to be a standardization of the IC50 assays not only with in-house reference viruses but also with a panel of defined sensitive and resistant viruses. The group recommends that great care in the preparation of the stock solutions of oseltamivir and other drugs be exercised. The laboratories will receive individual feedback on the antiviral and virus culture EQA in due course and the final reports are under preparation for both EQA panels.

The document "Key tasks for CNRL laboratories" was discussed, which includes key and complementary tasks that each laboratory should be able to perform¹⁰. The key tasks are complementary to the terms of reference for WHO-recognized National Influenza Centres¹¹.

Conclusions and recommended next steps: The CNRL and WHO/Europe will finalize the reports and provide feedback to the laboratories individually about their performance in the EQA panels, particularly with respect to false negative results for low viral load samples. These reports will indicate what training should be conducted by the laboratory network. For longer term training objectives, laboratory visits, study tours and trainings should be organized. The group also discussed the availability of cell lines in different laboratories, biennial distribution of EQA panels instead of annual, as well as the sensitivity of the PCR assays. CNRL member laboratories will implement the key tasks document.

¹⁰ http://ecdc.europa.eu/en/activities/surveillance/EISN/laboratory_network/Pages/methods_surveillance.aspx

¹¹ <http://www.euro.who.int/en/what-we-do/health-topics/communicable-diseases/influenza/publications/2010/how-to-become-a-who-recognized-national-influenza-centre-guidance-on-the-process-for-influenza-laboratories-in-the-who-european-region>

Meeting evaluation

Seventy-eight participants completed an evaluation form. Of these, 63 rated the overall quality of the meeting as high and 56 rated the usefulness of the meeting as high. Some participants found it useful to have a meeting that included all WHO European Member States. However, other participants felt that the meeting was too large and too diverse to allow detailed discussion on the many important topics presented at the meeting. It was also considered that there were too few presentations from eastern and southeastern European countries.

Participants made suggestions for topics to be included in future meetings. These included: more topics covering influenza vaccine; the usefulness of year-round surveillance; alternative data sources for monitoring influenza (e.g. school absenteeism); the cost-effectiveness and comparability of different surveillance systems; the usefulness and limitations of comparing data at the European level; and new research being conducted by Member States.

WHO/Europe and ECDC will take the above into consideration when organizing the 2012 surveillance network meetings.

Meeting secretariat

WHO Regional Office for Europe

Ganna Bolokhovets
Caroline Brown
Cassandra Butu
Silviu Ciobanu
Elkhan Gasimov
Pernille Jorgensen
Giorgi Kurtsikashvili
Joshua Mott
Irina Papieva
Anna Pashalishvili
Dmitriy Pereyaslov
Mark Witschi

WHO temporary advisers

Diane Gross
Liana Martirosyan
Tamara Meerhoff
John Paget

European Centre for Disease Prevention and Control (ECDC)

Andrew Amato
Eeva Broberg
Karin Johansson
Angus Nicoll
Flaviu Plata
René Snacken
Philip Zucs

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Programme

Agenda – (list of presentations with links)

Tuesday, 7 June	
12:00 – 13:00	Registration and Coffee
1. 13:00 - 15:25	<p>Plenary session. Introduction and European Surveillance 2010/2011 (Chair: <i>Andrew Amato</i> /ECDC)</p> <p>13:00-13:10. Welcome and opening (<i>Mojca Gruntar Činč</i> /Ministry of Health of Slovenia)</p> <p>13:10-13:30. Introduction and welcome (<i>Caroline Brown</i> /WHO EURO (10 min), <i>Andrew Amato</i> (10 min))</p> <p>13:30-13:45. Epidemiological and virological surveillance of influenza-like illness in Slovenia (<i>Katarina Prosenč and Maja Socan</i> / Slovenian institute of public health)</p> <p>13:45-14:00. Regional overview 2010/2011 Primary care surveillance (<i>Flaviu Plata</i> /ECDC)</p> <p>14:00-14:20. Patterns of influenza infection and disease in Europe 2010-2011 and future severe end influenza surveillance in Europe (<i>René Snacken</i> /ECDC)</p> <p>The implementation of sentinel SARI surveillance in the WHO European Region 2010/2011 (<i>Joshua Mott</i> /WHO EURO)</p> <p>14:20-14:40 Regional overview of virological surveillance (<i>Rod Daniels</i> /WHO CC)</p> <p>14:40-15:00. CNRL report on activities (<i>Maria Zambon</i> /CNRL)</p> <p>Discussion (25 minutes)</p>
15:25 – 15:55	Coffee break
2. 15:55 – 18:00	<p>Plenary Session – International Surveillance (Chairs <i>Caroline Brown</i> and <i>Angus Nicoll</i> /ECDC)</p> <p>15:55-16:15. WHO Global Surveillance Consultation (<i>Joshua Mott</i>)</p> <p>Outcome of the Pandemic Influenza Preparedness Virus Sharing Negotiations (<i>Angus Nicoll</i> /ECDC)</p> <p>16:15-16:35. WHO EURO 2010/11 activities and plans for the upcoming season (<i>Caroline Brown</i>)</p> <p>16:35-16:55. ECDC Influenza Disease Programme Priorities for 2012 (<i>Angus Nicoll</i>)</p> <p>Discussion (25 minutes)</p> <p>17:20-17:50. Surveillance for Severe Influenza: Lessons Learned from the 2009 H1N1 Pandemic (<i>Seema Jain</i> /CDC)</p> <p>Discussion (10 minutes)</p>
18:30	Hosted Dinner

Wednesday, 8 June

3. 09:00 – 09:15	Report from Day 1 (<i>Phillip Zucs/ECDC</i>) Introduction to the work of the Working Groups (<i>Andrew Amato</i>)				
4. 09:10 – 10:30	a. Severe disease surveillance WG1 (lead <i>Josh Mott-René Snacken</i>)	b. Baseline and data quality WG2 (lead <i>Tomas Vega</i> / Junta de Castilla y Leon, Spain)	c. Virus Characterisation TG 1 (lead <i>Brunhilde Schweiger</i> , Robert Koch Institute) Quality & Training TG 5 (lead <i>Catherine Thompson</i> /HPA) <i>Russian translation</i>	d. Molecular Diagnosis & Sequencing TG 2 (lead <i>Olav Hungnes</i> / The Norwegian Institute of Public Health)	e. Antiviral TG3 (lead <i>Adam Meijer</i> /RIVM)
10:30 – 11:00	Coffee break				
5. 11:00 – 12:30	a Mortality WG3 (lead <i>Richard Pebody</i> /HPA)	b Qualitative indicators WG4 (lead <i>John Paget</i> /NIV EL/ <i>Pernille Jorgensen</i> /WHO)	c. Virus Characterisation TG 1 (lead <i>Brunhilde Schweiger</i>) Molecular Diagnosis & Sequencing TG 2 (lead <i>Olav Hungnes</i>)	d. Antiviral TG 3 (lead <i>Adam Meijer</i>) Quality & Training TG 5 (lead <i>Catherine Thompson</i>)	

Wednesday, 8 June <i>continued</i>	
12:30 – 13:30	Lunch
6. 13:30 – 15:15	<p>a. Joint session (all epidemiologists) Annual functioning/risk assessment (3 epi WG) (Chair: <i>Diana Gross/CDC and Preben Aavitsland/The Norwegian Institute of Public Health</i>)</p> <p>UK approach to severity (<i>Jim McMenamin/HPA Scotland</i>(5 min))</p> <p>b. Joint session (all Virologists) (Chairs: <i>Eeva Broberg/ECDC, Caroline Brown</i>)</p> <ol style="list-style-type: none"> 1. 13:30 – 13:50 CNRL basic task document and the NIC recognition document (<i>Catherine Thompson and Caroline Brown</i>), discussion 10 min 2. 14:00 – 14:30 Antiviral testing guidance (<i>Francisco Pozo/National Centre for Microbiology Spain and Adam Meijer</i>) and antiviral surveillance (<i>Caroline Brown</i>), discussion 10 min 3. 14:40 – 14:50 Representativeness of virological data and reporting issues (<i>Olav Hungnes</i>), discussion 10 min 4. 15:00 – 15:15 Other topics from TGs (<i>TG chairs</i>), discussion 10 min
15:15-15:30	6.c Mini survey results and introduction to the EISN Extranet (<i>Eeva Broberg</i>)
15:15-16:00	Work time for WG/TG/leaders and rapporteurs to prepare presentations
15:30 – 16:00	Coffee break
7. 16:00 – 17:30	<p>Plenary Session (Chair <i>Katarina Prosenc</i>)</p> <p>16:00 – 16:15 Comparative epidemiology of the 2009 influenza pandemic in the WHO/European region (<i>Liana Martirosyan/WHO EURO/Nivel</i>)</p> <p>16:15 – 16:30 What is the use of Modelling? (<i>Andrea Pugliese/University of Trento, Italy</i>)</p> <p>16:30 - 16:45 Monitoring vaccine effectiveness – a long term approach (<i>Marta Valenciano/Epiconcept</i>)</p> <p>16:45 – 17:15 Reflections from the review of the IHR and the global response to the pandemic (<i>Preben Aavitsland/The Norwegian Institute of Public Health</i>)</p> <p>Discussion (<i>15 minutes</i>)</p>
	Free evening

Thursday, 9 June

<p>8. 09:00 – 10:15</p>	<p>Plenary Session – Reporting from the WG (Chair <i>Maja Socan</i>)</p> <p>09:00-9:15 Report of the severe disease surveillance WG (<i>Semra Cavaljuga</i>/ Institute of Epidemiology and Biostatistics, Sarajevo, Bosnia and Herzegovina)</p> <p>09:15-9:30 Report of the Mortality WG. (<i>Siri Helene Hauge</i>/ The Norwegian Institute of Public Health)</p> <p>09:30-9:45 Report of the Baseline and data quality WG (<i>Tomas Vega Alonso</i>)</p> <p>09:45 – 10:00 Report of the Qualitative indicators WG (<i>Khatuna Zakhashvili</i> /National Centre for Disease Control Georgia)</p> <p>10:00 - 10:15 Report of the Annual functioning/risk assessment WG (<i>Tyra Grove Krause</i>/ Statens Serum Institut Denmark)</p> <p>Discussion (<i>15 minutes</i>)</p>
<p>10:30 – 11:00</p>	<p>Coffee break</p>
<p>9. 11:00 – 12:15</p>	<p>Report from the TG (Chair <i>John McCauley</i>)</p> <p>11:00 – 11:15 10:45-11:00 Virus Characterisation TG 1 (<i>Brunhilde Schweiger</i>)</p> <p>11:15 – 11:30 Report of TG 2: Molecular Diagnosis & Sequencing (<i>Olav Hungnes</i>)</p> <p>11:30 – 11:45 Antiviral TG 3 (<i>Adam Meijer</i>)</p> <p>11:45 – 12:00 Quality & Training TG 5 (<i>Catherine Thompson</i>)</p> <p>Discussion (<i>15 minutes</i>)</p>
<p>10. 12:15 – 12:30</p>	<p>Closing remarks and forward look (<i>Angus Nicoll and Caroline Brown</i>)</p>