MEETING REPORT

Third European Legionnaires' disease surveillance network (ELDSNet) annual meeting

Dresden, Germany, 4–5 September 2012

Summary

The third European Legionnaires' disease surveillance network (ELDSNet) meeting was held on the 4–5 September 2012 in Dresden, Germany. Seventy-six participants from 29 different countries attended the meeting. Presentations about the number of cases reported in 2011, including all cases and travel-associated cases were given. An overview of the different tasks performed by the ELDSNet laboratory tenderer was presented. In parallel sessions the new version of the epidemic intelligence information system (EPIS), ELDSNet and the external quality assessment (EQA) results were discussed. In one of parallel working groups the operational procedures for ELDSNet was discussed and updates proposed, and in the other working group more in-depth discussions were held about the laboratory procedures and methods.

A German presentation described the *Legionella* situation in Germany and ended with the announcement that Germany will participate fully in the network now with the start of reports of travel-associated cases. The meeting ended with several presentations regarding the different outbreaks that have occurred in Europe recently.

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Stockholm, January 2013

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1 Background

Since 1 April 2010, ECDC has coordinated the European Legionnaires' Disease Surveillance Network (ELDSNet). This includes the daily surveillance of travel-associated Legionnaires' disease, the timely detection of clusters, their immediate notification to the network and the close monitoring of cluster site investigations and control measures taken. It also includes the annual collection, analysis and reporting of all cases of Legionnaires' disease that were notified to the 27 Member States, Iceland and Norway in the preceding year.

The epidemiological activities are complemented by centralised laboratory services that were outsourced through an open call for tender. The Health Protection Agency's Atypical Pneumonia Unit in London was contracted to provide ECDC with this laboratory support.

This is the third annual ELDSNet meeting under ECDC coordination. It is preceded by a meeting of the ELDSNet Coordination Group on 4 September and followed by the 1st Scientific Meeting of the ESCMID Study Group for Legionella Infections (ESGLI) from 5 to 7 September.

Objectives of the annual ELDSNet meeting

- To present and discuss the epidemiology of Legionnaires' disease in Europe in 2011.
- To present and discuss laboratory aspects of Legionnaires' disease surveillance in Europe.
- To suggest changes in the new version of EPIS ELDSNet.
- To discuss and recommend ways on how to systematically increase the numbers of clinical and environmental isolates available for typing.

Planned outcomes of the annual ELDSNet meeting

- Updated and deepened knowledge on the epidemiology of Legionnaires' disease in Europe, on relevant on-going laboratory activities and on the use of the European surveillance system (TESSy)/EPIS ELDSNet.
- Recommendations on EPIS ELDSNet version 2, updates of the ELDSNet operational procedures, as well as recommendations on how to increase the numbers of clinical and environmental isolates available for typing.
- A meeting report summarising the discussions and conclusions reached.

Sessions and working groups

Welcome and opening

Birgitta de Jong welcomed all participants and gave a special welcome to the guests from the World Health Organization (WHO), Jukka Pukkila from WHO European Region and Kande-Bure O'bai Kamara from WHO HQ in Geneva. She noted that the number of participants was more than the previous year even if several participants could not make the journey to Dresden due to the strike on Lufthansa.

Results of the annual dataset collection 2011

Julien Beauté presented the results from the annual dataset collection. In 2011, 4 897 confirmed and probable cases were reported by 29 countries with France, Italy and Spain accounting for 59% of all cases. The overall notification rate was 9.7 per million inhabitants in 2011, 22% lower than in the previous year. This decrease was observed in most countries. Of note, a significant increase was observed in Latvia, Sweden and Austria. Interestingly, when comparing the number of cases reported by month in 2011 to the 2007–2010 average, the decrease was more pronounced during the second half of the year (-2% from January to June vs. -17% from July to December). The number of cases reported in 2011 with a presumable setting of infection associated with a travel abroad (559) was similar to 2010 (557) and at its highest over the past five years. The proportion of other settings of infection was similar to previous years with two thirds of cases reported to have been community-acquired. Gender and age group distributions were similar in previous years with a male-to-female ratio of 2.5:1 and people aged 65 years and older accounting for 2 052 (42%) of 4 887 cases with known age. Of 3 423 cases with a known outcome, 358 were reported to have died, giving a case-fatality ratio (CFR) of 10%, unchanged since 2009. As in previous years, 80% of all cases were diagnosed by urinary antigen test.

Reported travel-associated cases for 2011

Emmanuel Robesyn presented the travel-associated cases (TALD) for 2011. The preliminary analysis of TALD case reports with date of onset in 2011 indicates 763 cases were notified to ECDC through TESSy and subsequently shared with the ELDSNet members through EPIS ELDSNet. Of those, 715 were confirmed and 48 were probable cases. Travel associated cases were reported by 19 countries and those concern residents from 24 different countries.

A male-to-female ratio of 2.6 is similar to the annually reported surveillance data and to the ratio of the former years. The age range is from 16 to 97 with a median of 61. In 616 cases of the notified cases, serogroup 1 was reported as the causing microorganism. This needs to be interpreted taking into account that 706 cases were diagnosed by urine antigen test, compared to 50 by culture and 50 by PCR. Twenty five cases were diagnosed by single high titre, for eight cases the method used was a fourfold increase in antibody titre and for one case an immunological method was used.

Twenty-one TALD cases were reported to have died but this figure needs to take into account the early reporting and the incompleteness of TALD daily surveillance. Eighty-two new standard clusters and seven new complex clusters were detected in 2011. Forty-five percent of the new standard clusters in 2011 (37/82) could only have been detected through ELDSNet.

Laboratory activities

Tim Harrison presented the ELDSNet laboratory activities from May 2011 to August 2012. The laboratory tender has four work packages;

- 1: standardisation and training,
- 2: quality assurance,
- 3: outbreak investigation and
- 4: other scientific output and advice.

As the budget was cut for the third year contract, the laboratory method specific training had to be stopped as well as the quarterly science watch. The best practice laboratory protocols - ELDSNet *Legionella* document portal http://www.hpa-bioinformatics.org.uk/legionella_docs/projects/legionella-docs is online. Methods were discussed in the working group on 5 September. Two outbreaks among travellers were investigated with the support of the ELDSNet laboratory.

Use of EPIS in outbreak situation

Cristina Rota and Rosa Cano described how they have used EPIS in outbreak situations. They had the following conclusions and recommendations;

- Realtime alert dissemination among all ELDSNET collaborators
- It allows to be able to keep track of all the steps of the process (epidemiological and environmental investigation, exchange of messages and contributions) among participants
- Facilitates communication: messages can be written directly in the 'ad hoc forum', recipient list is not necessary
- Privacy issue: safer than a mail message, since a password is needed for access and restricted to registered users
- Web data entry of questionnaires
- Can be used as a repository of relevant documents
- Home page useful for keeping us informed on country tasks related to clusters including editing and submitting forms A and B
- The pdf report documents are not flexible. Comments added on the website complete the relevant details. There needs to be a discipline for checking routinely and to incorporating it into work databases.
- European reference laboratory should have been included in the ad hoc forum.

EPIS ELDSNet next version

EPIS ELDSNet went live in June 2011 and has now been used for more than one year. Most network members think that the system is useful but there are always improvements that can be made. The objective of this parallel session was to discuss the requirements from the network members regarding the new version of the EPIS ELDSNet application.

PowerPoint slides with the proposed changes were used to guide the discussions during the parallel session. First, the group discussed the routine TALD follow-up in EPIS. The proposed changes were to copy all information from the travel records by default to the notification, to copy single case notification by default to the country of residence, and to review the code display in the tables and the format of the notification templates. Further, it was agreed to allow allocation of future due dates for forms in case of hotel closure during the winter season. Finally, it was agreed to improve the user friendliness of alert settings and the site discussion forum.

The second part of the discussion was about the major changes to the ad hoc forum that are needed to communicate more effectively. This will be done through the three axes of the multidisciplinary investigation: epidemiology, microbiology and environmental and further through the different steps of an outbreak investigation. The plan is to incorporate questionnaire building, data collection, description of outbreaks, site risk assessment and clinical and environmental microbiological results, and communication messages. Finally, epidemic intelligence information should be shared through the ad hoc forum. The usefulness of case-control studies during Legionnaires' disease outbreaks was questioned and it was emphasised that this might only be useful when a well-defined hypothesis is available.

Specific topics raised during the discussions were: the display of the accommodation code on the notifications, the need to check the spelling of the accommodation sites, the need to avoid the creation of tasks related to sites of complex clusters that are not involved in the new cases, the need to add reference to other hotels visited by one case. The question was raised whether the SBT database could not be linked with the case data. However, currently the SBT database is not held by ECDC (but by HPA).

The network members agreed that in future investigations, the inclusion of persons from the regional outbreak team should be considered. The EPIS ELDSNet application already has the possibility to create ad hoc roles. The ELDSNet contact person can propose to ECDC to create an ad hoc access for a specific ad hoc forum. The person will only have access to that specific ad hoc forum, and to no other parts of the application.

Finally, it was proposed to implement in the new EPIS ELDSNet version a search function that allows searching on different tables.

EQA results

This was the other parallel session and Tim Harrison presented the result of the urinary antigen EQA sent out from May 2011, five distributions with 10 samples in each batch. The result showed that the Biotest usage has fallen but sensitivity remains a problem for those few laboratories that still use it. BinaxNow lacks sensitivity compared to EIAs and newer ICT may be even worse, but more data is needed.

Norman Fry presented Sequence-Based Typing (SBT) and PCR proficiency testing results. For the SBT five coded *L. pneumophila* strains were distributed, a pair of epidemiologically related isolates, a clinical isolate and environmental isolates. Nine laboratories (47%) submitted completely correct datasets and three laboratories had not a single correct result. Thirteen of 19 labs (68%) correctly identified the epidemiologically related pair. The *L. pneumophila* PCR was sent out to 23 participants and it consisted of 10 coded specimens 'simulated respiratory samples'. For the SBT, reasons for lower scores could be sample-switching, file-labelling or low quality sequence. For the *L. pneumophila,* PCR reasons for lower scores could be sensitivity/specificity problems or cross-contamination.

Working group 1: Laboratory

- It was agreed that samples, specimens and isolates should be referred to ELDSNet laboratories during outbreak investigations. Since no national reference laboratory could be identified in some countries, it was decided to name the laboratories involved ELDSNet laboratories.
- It was agreed to incorporate a new set of neuA homolog (neuAh) primers into the standard scheme allowing a hybrid allele to be created so enabling these strains to be allocated an ST. The nomenclature used will ensure that it is always possible to distinguish between standard neuA and neuAh bearing strains.
- It was agreed that it was a good idea to develop and validate a standard ELDSNet L. *pneumophila*/L. p serogroup 1 multiplex PCR. The next step will be a survey on the current situation to determine which platforms are used and which countries would be willing to actively participate. A publication could set this new standard.
- A presentation was given by Jacob Bruin on the on-going process aiming at expanding and updating the current ISO standards for determination and enumeration of Legionella (ISO 11731).
- It was agreed that contact details could be made available in EPIS ELDSNet.

Working group 2: Operational procedures, rapidly evolving clusters

The working group discussed the different questions in the forms A and B and several suggestions to changes were made. The group discussed the possibility to add comments and info about the site investigation and attach reports (environmental site assessment, microbiological results) to the respective EPIS 'site discussion forum'.

Regarding rapidly evolving clusters, the group discussed the need to share information on the efforts done to inform all possibly-exposed persons that might still be under the incubation period. Such information can also assist with case finding and vital information for any on-going source investigations. The group agreed that in case of rapidly evolving clusters the following information could be shared within one week after notification as a 'Form C' if known; - informing guests, the number of guests and their nationalities that might have been exposed and number of guest not possible to reach. It was agreed the above proposal for Form C should be used only for standard clusters, and not for complex clusters. No personal data will be shared through ELDSNet. In case it is needed, personal info and contact details would be shared through the EWRS confidential exchange mechanism and the appropriate WHO mechanism for persons at risk residing outside of the EU.

Regarding Appendix 1 and the 14 point check list it was agreed that the cold water temperature mentioned should be 25^{o}C and to add the following 15th point to the list of checklist for accommodation sites: 'Keep daily records of all water treatment readings such as temperature and chlorine concentrations and ensure they are checked regularly by the manager'.

Regarding cruise ships it is still unclear in the ELDSNet procedures, to which country (ELDSNet member) notification of single site or clusters should be addressed to for action. The group agreed that the ELDSNet team will contact the European Cruise Council to investigate how they may be able to assist with con tacting ships on cruise schedules which involve several days at sea.

An evaluation of recurrent hotel in Spain

Rosa Cano and Carmen Pelaz described the outbreak associated with a hotel in eastern Spain. This was a very complex outbreak with onset of disease in three episodes. New cases occurred despite very exhaustive control measures. The hotel water system and spa were intensively treated from the beginning which could give a false sensation of control. Control of the outbreak was based on the continuous environmental water sampling carried out in the premises and the exhaustive works that pointed to the spa as a source of infection.

Novel source detected in spa

Birgitta de Jong continued with describing what the ECDC team, invited by Spanish Ministry of Health, learnt during a visit to the hotel described in the previous presentation. A novel source had been detected in the spa pool by the consultant hired by the hotel. The interiors in the spa pool, like stairs, islands, seats etc. were not solid and water had come into these parts of the pool where the bacteria started to multiply in the stagnate water. Several aerosol generating devices were present in the spa pool and the aerosols were found to be able to enter the hotel lobby area via three routes; glass cupola, stairwell and outlet/intake of air.

Legionella situation in Germany

Bonita Brodhun presented the *Legionella* situation in Germany. Since 2001, laboratory confirmed *Legionella* infections are notifiable in Germany. Data is continuously collected and updated via an electronic network. Since 2001 the number of reported cases of LD has continuously increased, and in 2011, 631 cases were reported. About 40 % of reported cases are travel-associated and more than 100 cases (30%) in 2011 had acquired the disease while travelling outside Germany. The substantial number of nosocomial cases and especially their high case-fatality presents a significant public health problem which needs more attention and effective strategies for preventing nosocomial Legionnaires´ Disease are required. She ended her presentation with the announcement that Germany will from now on fully participate in the ELDSNet work and travel-associated cases will be reported to ELDSNet. This was greeted with the longest applause of the day.

Outbreak of Legionnaires' disease in Edinburgh

Alison Potts gave a description of the outbreak investigation conducted in Edinburgh. Between the end of May and mid-July, 101 confirmed or suspected cases of Legionnaires' disease were identified in Edinburgh. Three men who had underlying health conditions have died. The investigators suspected a cooling tower in a densely populated area of the city. No slides were available for distribution.

Coordination group activities

Günther Wewalka, chair of the coordination group, gave an overview of the actions discussed in the three meetings that has been held since the last annual meeting. He ended with the announcement that the next meeting will be held in Athens in September 2013.

Network meeting in Athens 2013

Emmanuel Velonakis from Athens gave a description of his home town and wished all a warm welcome to Athens next year.

Wrap-up and closure

Birgitta de Jong thanked Christian Lück with co-workers for co-organising the ELDSNet meeting 2012 and for their hospitality. She subsequently thanked all participants for attending and actively contributing, and closed the meeting.

Annex 1. Workshop agenda

4 September		
14.00 – 14.30	**Coffee** (Individual TESSy/EPIS coaching if required)	
14.30 – 16.20	**Plenary session** (Chair: Birgitta de Jong)	
14.30 – 14.40	Welcome and opening – *Birgitta de Jong*	
14.40 – 15.00	Results of the annual dataset collection 2011 – *Julien Beauté*	
15.00 – 15.20	Reported travel-associated cases for 2011 – *Emmanuel Robesyn*	
15.20 – 15.40	Laboratory activities – *Tim Harrison*	
15.40 – 16.00	Use of EPIS in outbreak situation – *Cristina Rota/Rosa Cano*	
16.00 – 16.15	**Coffee** (Individual TESSy/EPIS coaching if required)	
16.15 – 17.15	**Parallel sessions**	
	EPIS version 2 - *Emmanuel Robesyn*	EQA results – *Tim Harrison*
19.30	**Dinner at hotel**	
5 September		
09.00 – 09.15	**Introduction to working groups**	
09.00 – 09.05	WG 1 Laboratory - *Tim Harrison*	
09.05 – 09.10	WG 2 Operational procedures, rapidly evolving clusters - *Birgitta de Jong*	
09.15 -10.15	**Working groups**	
	WG 1	**WG 2**
10.15 – 10.40	**Coffee break** (Individual TESSy/EPIS coaching if required)	
10.40 – 13.00	**Plenary Session** (Chair: Kande-Bure O'Bai Kamara)	
10.40 – 11.20	Feedback from working groups	
11.20 – 11.35	An evaluation of recurrent hotel in Spain – *Rosa Cano/ Carmen Pelaz-Antolin*	
11.35- 11.50	Novel source detected in spa – *Birgitta de Jong*	
11.50 - 12.05	Legionella situation in Germany – *Bonita Brodhun*	
12.05 – 12.20	Outbreak of Legionnaires' disease in Edinburgh – *Alison Potts*	
12.20 – 12.30	Coordination group activities – *Günther Wewalka*	
12.30 – 12.40	Next network meeting in Athens 2013 -	
12.40 – 13.00	Wrap up and closure - *Birgitta de Jong*	
13.00 – 14.00	**Lunch**	

Annex 2. List of participants

Country	Surname	First Name	Institution
Austria	Wewelka	Gunther	Austrian Agency for Health and Food Safety (AGES)
Austria	Bondanini	Maria-Grazia	Austrian Agency for Health and Food Safety (AGES)
Belgium	Wybo	Ingrid	Universitair Ziekenhus Brussel
Bulgaria	Tomova-Tsvetkova	Iskra	National Centre of Infectious and Parasitic Diseases(NCIPD)
Croatia	Kaic	Bernard	Croatian Institute of Public Health
Croatia	Štiglić	Jurica	Health ecology service
Czech Republic	Drasar	Vladimir	Public Health Institute Ostrava
Czech Republic	Martinkova	Irena	Regional Public Health Authority
Denmark	Uldum	Soren Anker	Statens Serum Institut
Denmark	Bangsborg	Jette	Department of Clinical Microbiology
Estonia	Dontsenko	Irina	Health Board
Estonia	Peetso	Rita	Health Board
Finland	Jaakola	Sari	National Institute for Health and Welfare (THL)
Finland	Kusnetsov	Jaana	National Institute for Health and Welfare (THL)
France	Jarraud	Sophie	National Reference centre of Legionella
France	Campese	Christine	Institut de Veille Sanitaire
Germany	Brodhun	Bonita	Robert Koch Institute
Germany	Luck	Christian	Technische Universität Dresden
Germany	Lesnik	Rene	Helmholtz Centre for Infection Research
Germany	Höfle	Manfred	Helmholtz Centre for Infection Research
Germany	Brettar	Ingrid	Helmholtz Centre for Infection Research
Greece	Velonakis	Emmanouil	Central Public Health Laboratory
Greece	Spala	Georgia	Hellenic Centre for Disease Control and Prevention (KEELPNO)
Hungary	Horvath	Judit Krisztina	Országos Epidemiológiai Központ
Hungary	Ildiko	Paluska	Országos Epidemiológiai Központ
Ireland	O Donnell	Joan	Health Protection Surveillance Centre
Ireland	Mulhare	Patrick	Health Protection Surveillance Centre
Israel	Moran-Gilad	Jacob	Ministry of Health
Italy	Rota	Cristina	Istituto Superiore di Sanita
Italy	Ricci	Maria Luisa	Istituto Superiore di Sanita
Italy	Franzin	Laura	Amedeo di Savoia Hospital
Italy	Borella	Paola	University of Modena and Reggio Emilia
Italy	Scaturro	Maria	Istituto Superiore di Sanità
Latvia	Bormane	Antra	Centre for Disease Prevention and Control of Latvia
Latvia	Dusaka	Diana	Infectology Center of Latvia

Country	Surname	First Name	Institution
Lithuania	Zagrebneviene	Galina	Centre for Communicable Diseases and AIDS
Malta	Caruana	Paul	Mater Dei Hospital
Malta	Seychell	Caroline	Mater Dei Hospital
Malta	Christopher	Barbara	Mater Dei Hospital
Norway	Lange	Heidi	Norwegian institute of public health
Poland	Stypulkowska-Misiurewicz	Hanna Teresa	National Institute of Public Health-National Institute of Hygiene
Portugal	Diegues	Paulo	Directorate General of Health
Romania	Chicin	Gratiana	National Institute for Public Health
Romania	Cotar	Ani Ioana	Cantacuzino NIRDMI
Slovak Republic	Spalekova	Margita	Public Health Authority of the Slovak Republic
Russian Federation	Tartakovskiy	Igor	Gamaleya Research Institute of Epidemiology&Microbilology
Slovenia	Kese	Darja	Institute of Microbiology and Immunology
Slovenia	Socan	Maja	National Institute of Public Health
Slovenia	Gošnjak	Maja	Institute of Public Health Celje
Spain	Pelaz	Carmen	Centro Nacional Microbiología, Instituto de Salud Carlos III
Spain	Cano Potera	Rosa	Centro Nacional Microbiología, Instituto de Salud Carlos III
Sweden	Lofdahl	Margareta	Smittskyddsinstitutet (SMI)
Sweden	Gorel	Allestam	Smittskyddsinstitutet (SMI)
Sweden	Schönning	Caroline	Smittskyddsinstitutet (SMI)
Sweden	Andersson	Sabina	Smittskyddsinstitutet (SMI)
Switzerland	Gaia	Valeria	Swiss National Reference Center for Legionella
Switzerland	Barbarossa	Sheila	Swiss National Reference Center for Legionella
Switzerland	Gysin	Nicole	Bundesamt für Gesundheit BAG
Taiwan	Hsu	Chia-Yu	Taiwan CDC
The Netherlands	Den Boer	Jeroen	Streeklab, Harlem
United Kingdom	Phin	Nick	Health Protection Agency
United Kingdom	Potts	Alison	Health Protection Scotland
United Kingdom	Harrisson	Tim	HPA Microbiology Services Division
United Kingdom	Fry	Norman	Health Protection Agency
United Kingdom	Mentasti	Massimo	Health Protection Agency
United Kingdom	Lindsay	Diane	Scottish Haemophilus Legionella Meningococcus Pneumococcus Reference Laboratory
WHO	Pukkila	Jukka	
WHO	Obai Kamara	Kande-Bure	
ECDC	de Jong	Birgitta	
ECDC	Beaute	Julien	
ECDC	Robesyn	Emmanuel	
ECDC	Payne-Hallstrom	Lara	
ECDC	Zucs	Phillip	

Country	Surname	First Name	Institution
ECDC	Ursut	Dana	
ECDC	Stancova	Michaela	
ECDC	Fall	Rosine	