



## MEETING REPORT

# 5th Food- and Waterborne Diseases and Zoonoses Programme Network Meeting

Uppsala, 19 April 2013

## Background and scope

The European Centre for Disease Prevention and Control (ECDC) is an agency of the European Union<sup>1</sup> with a mandate to operate international surveillance networks and to identify, assess, and communicate current and emerging threats to human health from communicable diseases.

The first meeting of the EU Food- and Waterborne Diseases and Zoonoses network was held at ECDC, Stockholm, in October 2008 and the second meeting in San Anton, Malta, in September 2009. These two meetings covered all six priority FWD diseases and the reports of these meetings are available on the ECDC website. The third meeting in Dublin, Ireland, in June 2010 focused on in-depth activities related to three of the six priority diseases, salmonellosis, listeriosis and VTEC infections; while the fourth meeting in Uppsala in October 2011 was focused on the other three priority diseases, campylobacteriosis, shigellosis and yersiniosis.

This fifth FWD network meeting was held partially jointly with the European Food Safety Authority (EFSA). The first day was targeted to ECDC and EFSA networks with a focus on strengthening joint response to multi-country foodborne outbreaks and harmonising intersectoral surveillance of antimicrobial resistance. The FWD network meeting on the 19 April 2013 paid attention to sharing information and assessing the potential impacts of the new diagnostic techniques in the FWD field, with a special focus on culture-independent methods, and on microbiological typing methodologies and their application for surveillance and early outbreak detection, and FWD surveillance report outputs.

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<sup>1</sup> Established by Regulation (EC) No 851/2004 of the European Parliament and of the Council of 21 April 2004 establishing a European centre for disease prevention and control.

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*The views expressed in this publication do not necessarily reflect the views of the European Centre for Disease Prevention and Control (ECDC).*

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## Summary of meeting content

On 19 of April 2013, epidemiologists and laboratory experts from across the EU working on food- and waterborne diseases and zoonoses (FWD) met in Uppsala, Sweden, for the 5th Annual Meeting of the European Food- and Waterborne Diseases and Zoonoses Network (FWD-Net) in Europe. This meeting followed the 2nd joint meeting of the FWD network and EFSA Task Force on Zoonoses data collection on the 18th of April 2013. Fifty-one delegates from 25 EU/EEA countries participated as well as 13 non-EU network members. As in previous meetings, there were representatives of important stakeholders such as the World Health Organization (WHO), the Centers for Disease Control and Prevention (CDC) as well as invited speakers.

The meeting was organised in two plenary sessions with four invited speakers each, and one parallel session combining invited presentations and working groups on laboratory- and epidemiology-related topics respectively.

The first plenary session was focused on surveillance and culture-independent methods. The invited speakers provided a good overview on latest developments on culture-independent diagnostics (CID) and specifically of the whole-genome sequencing approach (WGS), as well as on country-specific experiences from Sweden and the United Kingdom. Emphasis was put on the rapid development and roll-out of CID. These nucleic acid-based culture-independent diagnostic tests allow for simultaneous detection of multiple bacterial, viral, and parasitic diarrheal disease agents. They are cost-efficient, offer fast results, require relatively unskilled labour, and may have high sensitivity, specificity, and predictive values, hence acceptance by the laboratory community may be rapid. However, CID tests pose the greatest threat to programs that depend on the availability of microbial isolates produced during the culture process. Affected surveillance includes antimicrobial resistance (AMR) monitoring, and subtype-based outbreak detection, investigation, and microbiological attribution programs. Approaches for mitigating impacts of CIDs include: 1) developing culture independent methods that combine pathogen detection and characterisation (subtype, virulence, AMR) using currently available technology such as PCR and sequencing, and (2) working towards the use of advanced culture-independent technologies such as metagenomics. The foundation for metagenomics is laid by the whole genome sequencing approach (WGS). This technique is rapidly becoming a practical tool for outbreak investigations, although at present it shares with Pulsed field gel electrophoresis (PFGE) and Multiple-Locus Variable number tandem repeat Analysis (MLVA) a dependency on isolates.

The laboratory session focused on the results of the first round of the EQA programme for typing of *Salmonella*, verotoxin-producing *Escherichia coli* VTEC and *Listeria*, and discussions on the molecular typing and revision of the methods to be used in future surveillance. Presented EQA results for molecular typing were encouraging. For the majority of the identified technical issues an acceptable quality is within reach by optimisation of procedures in laboratories, trouble-shooting assistance, and training. The MLVA method was proposed to be adapted for the use for *S. Enteritidis* as well. ECDC will support individual training activities and visits to laboratories with expertise in a specific typing method.

The epidemiology session focused on ECDC surveillance outputs. According to attendees feedback, the Annual Epidemiological Report and the EU Summary Report on Zoonoses were consulted at least once by the wide majority (>70%) of participants; while the EU Summary Report on Antimicrobial Resistance and the Quarterly Reports for salmonellosis and VTEC infections were only accessed by some 20% of the participants. The Surveillance Dashboard prototype was received very positively by the attendees and was flagged for further developments. Suggestions for web version of the reports were also given to allow for faster publication.

The third session focused on outbreaks and emerging threats and was composed of four presentations. A live demo of the new FWD EPIS platform was presented and well received by the participants. The standard operating procedures (SOPs) for management of molecular typing clusters were presented. The last two presentations focused on epidemiology of monophasic *Salmonella* Typhimurium in the EU/EEA area as well as the investigation of a nosocomial outbreak of *S. Typhimurium* in South Africa.

The meeting provided opportunities to discuss the current status of FWD surveillance and outbreak-related activities at the EU level as well as for exchanging experiences and strengthening international collaboration between different partners in the surveillance, control and prevention of FWD in Europe. It also provided valuable feedback to ECDC in its work on developing further molecular surveillance and surveillance outputs.

## Conclusions and next steps

This year the FWD network meeting followed the 2nd joint EFSA-ECDC meeting. The oral presentations and discussions provided a good overview of the recent developments of diagnostics techniques including culture-independent methods and molecular typing. The presentation of the new EPIS-FWD platform and the Surveillance Dashboard prototype were received positively by the attendees.

The conclusions from the meeting and proposed ways forward are summarised below:

- ECDC should prepare for the changes in diagnostic methods following the rapid spread of culture independent methods:
  - need to review the EU case definitions to include culture-independent diagnostics
  - investigate the possible use of PCR-guided cultivation methods in the interim period, i.e. before whole genome sequencing will be routinely available
  - fast-track the process of case definition revision to allow for adjustments to rapid developments in the diagnostic technologies.
- A new coordination group will be established. The terms of reference are currently under approval process in ECDC.
- Promote prevention through awareness raising:
  - propose to establish an enteric illness awareness day (before the start of the summer season). The European antibiotic awareness day initiative may be used as a benchmark.

The meeting was well appreciated and received. Finally, ECDC would like to thank all the meeting participants and the FWD coordination group for their invaluable input to the meeting and to the development of international collaboration in surveillance and outbreak investigation of FWD in the EU.

## Annex 1. Meeting agenda

Friday 19 April 2013 - FWD network		
<b>Session 1: Surveillance and culture-independent methods Chair: Martin Cormican</b>		
09:00–09:45	Culture-independent diagnostics – increased use and impact on epidemiological surveillance (John Besser, Centers for Disease Control and Prevention, US)	
09:45–10:00	Culture-independent techniques – experience from Sweden (Cecilia Jernberg, Swedish Institute for Communicable Disease Control)	
<b>10:00–10:30</b>	<b>Coffee</b>	
10:30–11:00	Dipping a toe in the water - Whole genome sequencing and foodborne disease outbreaks (Kathie Grant, Health Protection Agency, United Kingdom)	
11:00–11:30	Whole genome sequencing (WGS) and metagenomics – developments at international level (John Besser, Centers for Disease Control and Prevention, US)	
11:30–12:00	Panel for discussion (John Besser, Cecilia Jernberg, Kathie Grant)	
<b>12:00–13:00</b>	<b>Lunch</b>	
<b>Session 2: Parallel sessions for microbiologists and epidemiologists</b>		
13:00–14:30	<b>Laboratory session</b> - Overview of three EQAs (Salm, VTEC, List) (Susanne Schjørring, Statens Serum Institute, Denmark) - Molecular typing (PGFE and MLVA) EQA results (Mia Torpdahl, Statens Serum Institute, Denmark) - EQA results of VTEC serotyping and virulence gene detection (Flemming Scheutz, Statens Serum Institute, Denmark) - Suggestions for activities in 2014	<b>Epidemiology session</b> - Proposal on surveillance outputs to ECDC web site - Suggestions for activities in 2014
	<b>14:30–15:00</b>	<b>Coffee</b>
<b>Session 3: Outbreaks and emerging threats.</b>		
15:00–15:15	Demonstration of EPIS version 2 (Celine Gossner, ECDC )	
15:15–15:25	SOPs for management of molecular typing clusters (Jaime Martinez Urtaza, ECDC)	
15:25–15:40	Discussion	
15:40–15:55	Situation analysis of monophasic Salmonella Typhimurium in the EU/EEA, 2007-2011 (Daniel Eibach, University of Lyon, France)	
15:55–16:10	An ongoing nosocomial outbreak of Salmonella Typhimurium in a paediatric ward, in a South African hospital (Karen Keddy, National Institute for Communicable Diseases, South Africa)	
16:10–16:30	Discussion, wrap up and closure of the meeting (Johanna Takkinen, ECDC)	

## Annex 2. List of participants

	Country	Name
1.	Austria	Robert Muchl
2.	Bulgaria	Katucha Ivanova
3.	Bulgaria	Plamen Padeshki
4.	Cyprus	Panayiota Maikanti
5.	Czech Republic	Radka Králová
6.	Denmark	Eva Møller Nielsen
7.	Denmark	Steen Ethelberg
8.	Estonia	Jevgenia Epstein
9.	Estonia	Jelena Viktorova
10.	Finland	Anja Siitonen
11.	Finland	Ruska Rimhanen-Finne
12.	France	Malika Gouali
13.	France	Véronique Vaillant
14.	Germany	Antje Flieger
15.	Germany	Klaus Stark
16.	Hungary	Mária Herpay
17.	Hungary	Katalin Krisztalovics
18.	Ireland	Martin Cormican
19.	Ireland	Sarah Jackson
20.	Italy	Ida Luzzi
21.	Italy	Gaia Scavia
22.	Latvia	Diāna Dušacka
23.	Latvia	Rita Korotinska
24.	Lithuania	Rasa Liausediene
25.	Lithuania	Ruta Jankauskiene
26.	Luxembourg	Christophe Olinger
27.	Malta	Christopher Barbara
28.	Malta	Carmen Buttigieg
29.	Netherlands	Wilfrid van Pelt
30.	Netherlands	Max Heck
31.	Norway	Astrid Wester
32.	Norway	Line Vold
33.	Poland	GrzegorzMadajczak
34.	Poland	Malgorzata Sadkowska-Todys
35.	Romania	Lavinia Cipriana Zota
36.	Romania	Codruta Romanita Usein
37.	Slovakia	Dagmar Gavačová
38.	Slovakia	Alena Hajlová
39.	Slovenia	Eva Grilc
40.	Slovenia	Marija Trkov
41.	Spain	Carmen Varela
42.	Spain	Silvia Herrera
43.	Sweden	Cecilia Jernberg
44.	Sweden	Sofie Ivarsson
45.	United kingdom	John Cowden
46.	United kingdom	Bob Adak
47.	US CDC Atlanta	John Besser
48.	EUPHEM fellow-France	Daniel Eibach
49.	Denmark	Flemming Scheutz
50.	United kingdom	Kathie Grant

	Country	Name
51.	Denmark	Mia Torpdahl
52.	Albania	Artan Bego
53.	Bosnia and herzegovina	Alen Šeranić
54.	Croatia	Irena Tabain
55.	Montenegro	Maja Milanović
56.	Serbia	Natasa Galic
57.	the former Yugoslav Republic of Macedonia	Snezana Ivic-Kolevska
58.	Turkey	Belkis Levent
59.	South Africa	Karen Keddy
60.	Australia	Mary Valcanis
61.	Switzerland	Marianne Jost
62.	Switzerland	Herbert Hächler
63.	Denmark	Susanne Schjørring
64.	WHO	Hilde Kruse
65.	ECDC	Johanna Takkinen
66.	ECDC	Therese Westrell
67.	ECDC	Taina Niskanen
68.	ECDC	Jaime Urtaza
69.	ECDC	Carmen Varela
70.	ECDC	Ivo van Walle
71.	ECDC	Celine Gossner
72.	ECDC	Ettore Severi
73.	ECDC	Robert Whittaker
74.	ECDC	Joana Gomes
75.	ECDC	Johan Giesecke
76.	ECDC	Denis Coulombier
77.	ECDC	Marc Struelens