



MEETING REPORT

Second annual meeting of the invasive bacterial diseases surveillance network in Europe

Stockholm, 16–17 November 2010

Executive summary

The invasive bacterial diseases (IBD) surveillance network is coordinated by the surveillance unit at the European Centre for Disease Prevention and Control (ECDC). The network covers invasive infections caused by *Nisseria meningitides* and *Haemophilus influenzae* in all 27 European Union (EU) Member States (MS) and in the three European Economic Area/European Free Trade Association (EEA/EFTA) countries. National surveillance data is entered by the participating countries into the European Surveillance System (TESSy) database hosted at ECDC.

The IBD network integrates epidemiological and laboratory surveillance. As per its mandate, ECDC ensures the integrated operation of the network and focuses on how to continually strengthen the integration of epidemiological and laboratory surveillance, further developing the network.

During the meeting, held over 16–17 November 2010, an overview of general surveillance—including TESSy activities—was presented, ranging from a presentation on the ECDC programme and goals for the next coming years to development of the new IBD metadataset in TESSy and the progress of laboratory surveillance activities in the EU. Experts presented the status of surveillance and disease trends of IBD at the European level and in their countries, experiences from using the new metadataset in TESSy, and communicating IBD data results. Experts from the outsourced EU IBD laboratory network presented their activities within the field of invasive bacterial diseases on laboratory methods development in order to further strengthen the quality of laboratory data.

The meeting provided a good opportunity to learn from experiences in the MS on the following important aspects: epidemiological and laboratory surveillance activities; preventive measures and the impact of vaccination on disease patterns in special in age groups targeted by vaccination; and how to develop and strengthen collaboration between different partners within the surveillance network.

The outcomes of the discussion are summarised on page five. The European Centre for Disease Prevention and Control will bring forward issues that require agreement at a higher administrative level (i.e., the national surveillance contact points, EU Network Committee) and work towards implementing the suggested improvements.

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Stockholm, January 2011

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1 Background

Over 16-17 November 2010, public health experts from the European Union and European Economic Area/European Free Trade Association (EEA/EFTA) countries gathered at the European Centre for Disease Prevention and Control (ECDC) in Stockholm for the second meeting of the invasive bacterial diseases (IBD) network. The meeting, which brought together epidemiologists and laboratory surveillance experts, provided an important opportunity to share experiences and strengthen the collaboration within the network.

1.1 Objectives

The following is a list of objectives set out to be attained at the meeting:

- To present the epidemiological situation of invasive bacterial infections in Europe over 2008 and 2009.
- To discuss and improve the existing disease-specific surveillance objectives for invasive meningococcal disease (IMD) and invasive *H. influenzae* disease.
- To discuss and revise the existing case definitions.
- To discuss countries' experiences using TESSy, including data variables, strengths, weaknesses and improvements.
- To discuss the possibility for further development of systematic reports, outputs format and reporting frequency.
- To set up a coordination group for IBD.

1.2 Meeting expected outcomes

The following are the expected outcomes of the meeting:

- Revised disease-specific surveillance objectives for IMD and *Haemophilus influenzae* disease, if needed.
- Revised EU 2008 case definitions for invasive meningococcal and *Haemophilus influenzae* disease, if needed.
- Proposals from MS for improvement of the system, modes of collaboration with the ECDC and identifying how to build and maintain the collaboration.
- Agreement on approaches for surveillance system improvements.
- Agreement on development of systematic reports, outputs format and reporting frequency.
- Setting up a coordination group.

The annual meeting was composed of plenary lectures and working groups (see the agenda in Annex 1).

2 Meeting sessions

Sessions 1 & 2: Epidemiology of invasive bacterial diseases in the EU and developments in the reporting of invasive bacterial diseases to TESSy

The participants learned about general surveillance activities in the ECDC, the mission and vision of surveillance followed by recent enhancements in TESSy, including principles and challenges on data comparability. The vaccine preventable diseases group presented the work on epidemiology and trends of invasive bacterial diseases from *N. meningitidis* and *H. influenzae* over 2008–2009 in the EU and EEA/EFTA countries.

The participants discussed experiences from the data collection based on the revised metadataset focusing mainly on general data quality, data comparability using different case definitions for the 2008–2009 data collection, and general issues related to the enhanced set of variables. Possible steps for improving these activities were presented. The participants learned about different ways to disseminate and communicate surveillance data and about the different types of the reports they should consider when preparing their reports.

Session 3: Invasive bacterial diseases—outsourced laboratory activities

Several presentations were given on laboratory surveillance activities by the representatives from the University of Würzburg to whom the laboratory work is contracted. Professor Matthias Frosch, the main coordinator of the consortium, presented an update on the current and future work of the IBD laboratory network followed by a description of disease-specific issues on molecular epidemiology and on European laboratory capacities for the diagnosis of invasive pneumococcal disease.

The added values for establishment of a strain collection with representative European meningococcal isolates were presented and the network members' opinions on having such strain collection in Europe were welcomed. Virtual versus physical collection of strains, ethical issues related to personal data, and the complexity of the links with pharmaceutical companies were debated, as were the needs and the role of European Medicines Agency for vaccine licensing.

Session 4: Surveillance updates and country experiences

Network members from Spain, Poland, Germany, France and the United Kingdom presented updates regarding developments and improvements in surveillance systems, experiences with meningococcal vaccinations, laboratory methodologies, recent trends, and challenges in the integration of laboratory and epidemiological data related to the invasive bacterial diseases.

The presentation from Spain highlighted the impact of vaccination in reduction in meningococcal C disease, the evidence of herd-immunity, clonal changes and the association of particular strains with outbreaks. The impact of the introduction of recommendations on chemoprophylaxis for case contacts and the co-existence of epidemiological and laboratory surveillances was presented by Poland. During presentations from Germany, the colleagues learned about the integrated database matching laboratory and epidemiological data according to a set algorithm.

The presentation from the United Kingdom drew attention to the increasing role of non-typeable *H. Influenza* strains as a cause of invasive disease. To improve estimates of disease incidence, France presented the capture-recapture analysis method to estimate underreporting.

Session 5: Invasive bacterial diseases coordination group

The European Centre for Disease Prevention and Control terms of references for the IBD coordination group were shared with the network members prior of the meeting. Clarifications regarding the membership, tasks of the group and selection procedures were presented in the meeting.

The coordination group was established and the members were presented (see Annex 2).

Session 6: Strengthening the surveillance of invasive bacterial diseases—horizontal activities in the ECDC

During this session, the ECDC guidance on the public health management of IMD produced by the European Meningococcal Disease Society (EMGM) working group was presented in order to support countries across Europe in making decisions about appropriate measures to control and prevent meningococcal disease.

In the second presentation, the most recent developments on epidemic intelligence information system (EPIS) were presented. The presenter gave a short overview on the added values of the system, providing the auditors an overview of the already functioning disease-specific aspects of it.

Session 7: Working groups (two parallel sessions)

The participants were grouped according to their expertise (epidemiology and laboratory; meningococcal disease or *Haemophilus influenzae* disease expert) into one of the two working groups. Each group dealt with two of the following topics: revision of specific surveillance objectives of meningococcal disease or *Haemophilus influenzae* disease; revision of specific variables which need to be modified according to the proposed objectives; frequency of reporting; and reviewing and, if necessary, revising the existing case definitions for both diseases. As a starting point, the groups got a number of background documents intended to clarify the context and stimulate discussion.

3 Key points of the meeting summary

The following is a summary of the key points of the meeting:

- The IBD network meeting provided an important opportunity for countries to exchange experiences from surveillance of invasive meningococcal and *H. influenzae* diseases.
- In order to have notification and laboratory surveillance data included in the epidemiological report, epidemiological surveillance data and laboratory data should be linked at national levels.
- There is a need for guidance and exchange of experiences on methodologies for evaluating surveillance quality, including capture-recapture analysis, estimating the level of underreporting and enhanced analysis of the data sets.
- In terms of communication between MS and ECDC, the countries pointed out the importance of getting messages across to the right people, making sure that the information is provided to them in a clear and timely manner. Sharing the ECDC data call calendar and the dates for the annual meetings was requested.
- The European meningococcal strain collection was discussed extensively. Although there was general agreement on the benefits of collecting bacterial strains, there were diverging opinions about the added value for countries to physically send strains to the dedicated laboratory in Oslo. Strain collection is a resource and some participants strongly felt that the ownership of strains should remain with the national reference laboratories or funding public health institutions. It was agreed that the participation in the strain collection should be voluntary. The option of contributing 'virtual' strains was favoured by some participants.
- The role of ECDC with the European Meningococcal Epidemiology in Real Time EMERT molecular database was asked to be clarified.

Summary of the results of working groups on diseases objectives

The working group's proposal on IMD objectives included the following:

- Estimate the incidence of the IMD in Europe by MS, age group, gender and seasonality.
- Assess and monitor disease trends and strain distribution over time in Europe.
- Monitoring the serogroup distribution in Europe by age group, country and seasonality.
- Collect data on antimicrobial susceptibility profiles of reported cases.
- Monitor specific serogroups/genotypes and changes in serogroup/genotype distribution.
- Promote the collection of the information on vaccination status at national levels.
- Promote improvement of the quality of available data.
- Promote standardisation and quality assurance of laboratory methods, including molecular epidemiological typing and seroepidemiological studies.
- Promotion and training of laboratory methods for the surveillance of IMD.
- Promote harmonisation of methods and data interpretation for antibiotic resistance testing of *N. meningitidis*.

The working group's proposal on invasive *Haemophilus influenzae* disease objectives included the following:

- Estimate incidence of invasive *Haemophilus influenzae* disease by MS, age group, gender and seasonality.
- Assess and monitor disease trends and strain distribution over time.
- Monitor strain distribution in Europe by age group, country and seasonality.
- Monitor antimicrobial susceptibility profiles of reported cases.
- Identify emerging strains.
- Monitor specific serotypes/genotypes and changes in serotype/genotype distribution.
- Evaluation of vaccine impact.
- Assessment of vaccine failure (serological studies).
- Improve the quality, analysis and feedback of available data.
- Promote standardisation and quality assurance of laboratory methods, including molecular epidemiological typing.

There was no agreement regarding assessment of vaccine failure. The invasive meningococcal disease group agreed that promotion of the collection of information on vaccination status variable should be a national responsibility, while the invasive *Haemophilus influenzae* disease group proposed to first promote the collection on vaccination status variable and to have vaccine failure among ECDC objectives as a long-term goal.

Additionally, identifying emerging strains, monitoring the replacement to the selective pressure of vaccines, and evaluation of vaccine impact were not considered priorities for the near future and the meningococcal group

proposed to remove them from the list of the objectives, while the invasive *Haemophilus influenzae* group agreed to keep them among the disease objectives.

Monitoring of adverse events following immunisation in public health perspectives was not considered relevant for the IBD surveillance.

The participants agreed that the reporting should be performed annually. Since the diseases have different epidemiological profiles separate reports or sections for all aspects of meningococcal and *Haemophilus influenzae* disease would be preferred.

Summary of the results of working groups on diseases case definitions

According to the 2008 case definition, all fever and septic arthritis cases should be classified as possible IMD cases. Greater weight to some of these signs was proposed. Therefore the group proposed the removal of fever from the clinical criteria of the case definition. Following a vote, septic arthritis was decided to be kept among the possible case criteria. The replacement of petechial rash with haemorrhagic rash was accepted. For epidemiological criteria, the epidemiological link must have at least one confirmed case. Regarding laboratory criteria, isolation or detection of *N. meningitidis* should be performed from a sterile site or from a purpuric skin lesion instead of merely including purpuric skin lesion.

For invasive *Haemophilus influenzae* disease, the group agreed to remove the word meningitis from the title and they suggested the 'typing should be performed' only if possible. This sentence should be placed at the end as an additional remark.

4 Conclusions

A key aspect of this invasive bacterial diseases (IBD) network meeting was its success in bringing together a wide range of partners working in the field of surveillance of invasive bacterial diseases. These included country nominated epidemiological and laboratory experts and the European IBD laboratory network consortium members as well as colleagues working in different fields at ECDC—general surveillance, preparedness and response, scientific advice and communication—to discuss the topics related to surveillance of IBD in EU and EEA/EFTA countries.

Overall, the participants felt the meeting was a success with many lessons learned and useful and concrete suggestions that will enable improvements to IBD surveillance in the EU. The following is a list of the suggestions:

- Future meetings should continue to include more country-specific topics and more involvement for the network members.
- Further discussion on methods and comprehensive understanding of the biological quality of the molecular data and of the acceptance of performing molecular typing by the MS should be prerequisites to achieving the surveillance objectives.
- The need to continue having longer discussions on specific topics and more time dedicated to working groups work.
- Additional support and capacity-building is needed for several EU countries.
- Combining meetings with mini scientific conference should be considered.

Annex 1: Meeting programme

16 November 2010 — Day 1

- 09:00–09:30** **Registration at ECDC**
- 09:30–09:45** **Welcome and opening of the meeting**
Andrea Ammon, Head of Surveillance Unit
- Session 1: Epidemiology of invasive bacterial diseases in the EU, an overview**
Chairpeople: Mary Slack, HPA, London; Graham Fraser, ECDC
- 09:45–10:10** **ECDC's mission to strengthen the European surveillance**
Edward van Straten, ECDC
- 10:10–10:40** **Epidemiology of invasive meningococcal and H. influenzae diseases in the EU, 2008 and 2009**
Ida Czumbel, ECDC
- 10:40–10:50** **Discussion**
- 10:50–11:00** **break**
- 11:10–11:30** **VPD Surveillance in WHO European Region. Plans for 2011**
David Mercer, WHO Europe
- 11:30–11:50** **Discussion**
- Session 2: Developing invasive bacterial diseases reporting to TESSy**
Chairpeople: Edward van Straten; Paweł Stefanoff, NPHI Poland
- 11:50–12:20** **Experiences from the 2008-2009 data collection based on metadata-set 16, IBD data quality**
Adrian Prodan, ECDC
- 12:20–12:40** **Communicating IBD surveillance data**
Niklas Danielson, ECDC
- 12:40–13:00** **Discussion**
- 13:00–14:00** **Lunch**
- Session 3: Invasive Bacterial Diseases: Outsourced laboratory activities**
Chairpeople: Per Olcén, University of Orebro, Sweden; Adoracion Navarro Torne, ECDC
- 14:00–15:15** **Presentations:**
- Update on the work of IBD laboratory network: *Matthias Frosch, University of Würzburg, Germany*
 - *N. meningitidis* strain collection, ECDC perspectives: *Adoracion Navarro Torne, ECDC*
 - *N. meningitidis* strain collection project in EU: *Dominique Caugant, NPHI, Norway*
 - Mapping of the laboratory capacities for the diagnosis of *Str. pneumoniae* in EU: *Dominique Caugant, NPHI, Norway*
- 15:15–15:30** **Discussion**
- 15:30–15:45** **break**
- Session 4: Country presentations on Invasive Bacterial Diseases**
Chairpeople: Wiebke Hellenbrand, RKI, Germany; Sigrid Heuberger, AGES, Austria
- 15:45–17:00** **Country presentations:**
- Ten years experience with meningococcal C vaccination in Spain: *Rosa Cano, CNE, Spain*
 - Invasive meningococcal disease surveillance in Poland: *Paweł Stefanoff, NPHI, Poland; Anna Skoczynska, NMI Poland*
 - Invasive *H. influenzae* disease in UK: *Mary Slack, HPA, London*
 - Surveillance of *H. influenzae* in France: *Isabelle Parent, Institute Pasteur, France; Gaillot Olivier, CPB, France*

- Epidemiology of meningococcal disease in Germany, 2002-2009: Analysis of matched statutory and laboratory surveillance data: *Wiebke Hellenbrand, RKI, Germany*

17:00–17:20 Discussion

Session 5: IBD coordination group

Chairpeople: Ida Czumbel, ECDC; Adoracion Navarro Torne, ECDC

17:20–17:35 Clarification for terms of reference for the IBD surveillance network
coordination group

Ida Czumbel, ECDC

17:35–17:50 Discussion

17 November 2010 — Day 2

Session 6: Strengthening the surveillance of Invasive Bacterial Diseases, Horizontal activities in the ECDC

Chairperson: Kari Johansen, ECDC

09:00–09:20 Management of cases of meningococcal disease

James Stuart, Consultant epidemiologist

09:20–09:40 Alert mechanism for cases and clusters- EPIS

Thomas Mollet, ECDC

09:40–10:00 Discussion

10:00–10:20 break

Session 7: Working group sessions (parallel sessions)

Chairpeople: Pavla Krizova, NPHI, Czech Republic; Annette Siedler, RKI, Germany

10:20–12:30 Working group 1: Invasive meningococcal disease

- Disease specific surveillance objectives
- Case definitions

10:20–12:30 Working group 2: Invasive Haemophilus influenzae disease

- Disease specific surveillance objectives
- Case definitions

12:30–13:30 Lunch

Session 8: Presentation of the results of the Working groups

Chairpeople: Pavla Krizova, NPHI, Czech Republic; Annette Siedler, RKI, Germany

13:30–14:00 Summary report from invasive meningococcal disease working group. Discussion

14:00–14:30 Summary report from *Haemophilus influenzae* working group. Discussion

14:30–15:00 Final remarks

Annex 2: Participants

Country	Name
Austria	**Sigrid Heuberger
Belgium	Edward Gurning
Belgium	Sophie Bertrand
Bulgaria	Teodora Georgieva
Bulgaria	Dimitar Nashev
Czech Republic	**Pavla Křížová
Czech Republic	Vera Lebedova
Denmark	**Lotte Munch Lambertsen
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Estonia	Rita Peetso
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Finland	Maija Toropainen
France	Olivier Gaillot
France	Taha Muhamed Khier
France	**Agnes Lepoutre
France	Isabelle Parent
Germany	Matthias Frosch
Germany	**Wiebke Hellenbrand
Germany	Anette Siedler
Germany	Ulrich Vogel
Greece	Georgina Tzanakaki
Hungary	Judit Krisztina Horváth
Hungary	Ákos Tóth
Ireland	Piara O'Lorcain
Ireland	Margaret Fitzgerald
Italy	Maria Grazia Caporali
Italy	Marina Cerquetti
Italy	**Fortunato Paolo D'ancona
Italy	Paola Stefanelli
Latvia	Jelena Galajeva
Latvia	Solvita Selderina
Latvia	Raina Nikiforova
Lithuania	Greta Amasenkovaitė
Lithuania	Migle Janulaitienė
Malta	Paul Caruana
Netherlands	Arie Van Der Ende
Norway	Dominique A.Caugant
Norway	Martin Steinbakk
Poland	Pawel Stefanoff
Poland	**Anna Skoczyńska
Portugal	Maria Joao Simoes
Portugal	Paula Lavado

Portugal	Laurinda Queiros
Romania	Lavinia Cipriana Zota
Romania	Mihaela Guica
Romania	Marina Pana
Romania	Aurora Violeta Stanescu
Slovakia	Margareta Sláčiková
Slovakia	Alena Vaculíková
Slovenia	Tamara Kastrin
Slovenia	Metka Paragi
Spain	Silvia Garcia
Spain	Rosa Cano-Portero
Spain	**Pilar Soler Crespo
Spain	**Julio Vazquez Moreno
Sweden	Tiia Lepp
Sweden	Eva Morfeldt
Sweden	**Per Olcén
United Kingdom	Pauline Kaye
United Kingdom	**Mary Slack
United Kingdom	Edward Kaczmariski

** Indicates member of IBD coordination group

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