

VBORNET

European Network for Arthropod Vector Surveillance for Human Public Health

Third Annual General Meeting

Summary of Comments and Discussion on Workpackages

**Radisson Blu Hotel Latvija
Riga, Latvia, May 7th – 9th 2012**

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Introduction

VBORNET, the *European network for arthropod vector surveillance for human public health*, organises each year an Annual General Meeting (AGM), and invites 60 members of the network to participate. EC/DG-Sanco, EFSA, WHO and other international institutions are also invited to join.

This year the AGM was organized in Riga, Latvia. Participants to this year's AGM included two delegates from ECDC, one from EFSA and 57 delegates from 31 countries (24 EU or EFTA members; 7 others; see Annex 2). VBORNET delegates were invited based on their contribution to the network, their expertise, and their geographical distribution, 3 participants cancelled their attendance. Whilst the first day is only open to VBORNET members, the second day is open to the public.

Talks and discussions of the first day focused on this year's achievements, on-going activities, and problem solving. During the second day much attention was given to define future objectives and activities, and which inputs are required from the network to achieve these. All presentations are made available through the VBORNET website (www.vbornet.eu); Outcomes of the discussions are summarized below and the agenda is given in Annex 1.

For the first time, this year's VBORNET AGM, was linked to the AGM of ENIVD, the *European Network for Diagnostics of "Imported" Viral Diseases*. Both networks are funded by ECDC. Between both AGMs a Joint Meeting was organised where members of both networks were invited to give scientific presentations on themes of common interest (see Agenda in Annex 3).

VBORNET started in 2009 with the major objective to establish a European network of entomology and public health experts to assist ECDC in its preparedness activities on vector-borne diseases (VBD). The project is now in its fourth period, and continues to implement the following activities:

- Enlarging the VBORNET network and the VBORNET inventory;
- Compiling maps of vector distributions in Europe through collating data records provided by the network members;
- Establishing a *VBORNET expertise inventory* which aims at making an exhaustive catalogue of VBD and related public health (PH) activities (and expertise) in Europe;
- Producing regular science watch and technical papers for each group of vectors: mosquitoes, ticks and phlebotomines;
- Holding AGMs of network members for discussing activities and encouraging member contribution.

The VBORNET project consists of four Work Packages:

- *WP1 Information Management and Coordination*, focusing on establishing and coordinating the network, developing necessary software and web applications, maintaining the VBORNET expertise database, organizing network meetings.
- *WP2 Science Watch and Ad Hoc Technical Support*, producing factsheets and risk analyses on VBD as well as technical support to ECDC on VBD in Europe.
- *WP3 Vector Surveillance and Distribution Maps*, consisting in establishing databases and editing maps on vector surveillance and distribution in Europe.
- *WP4 Strategic Consultation Group*, which concentrates on public health aspects of vector surveillance and control in Europe.

VBORNET AGM, May 7th-8th 2012

WP1 –Coordination, Management, Gap Analysis and IT

Besides secretariat and network management (including meetings and website), Work Package One focuses in 2012 on (1) the integration and transfer of the surveillance and distribution databases, the data collection tool and the web-based map servers to ECDC IT platform, and (2) on developing strategy for vector distribution gap analysis.

Discussions focussed mainly on gap analysis and the online reporting tool.

Other than a general positive endorsement from the floor, there was little comment on the coordination and management content of the work package, and some limited specific comments on the website and online reporting. It was again stressed that all maps on the ECDC website are in the public domain, with appropriate attribution. Several specific clarifications about the location and accessibility of certain items on the ECDC website were provided, and it was emphasised that the site is being continuously upgraded and improved. The new version of the vector questionnaire tool will be browser driven which will remove any earlier issues with institutional firewalls. Various aspects of the source references need to be standardised, such as titles of those translated into English and links to pdfs should be provided on the site.

The discussion of gap analyses was more wide ranging and driven by the fact that the primary gaps would be filled using a range of modelling techniques. The meeting had divided opinions as to whether there should be separate or combined maps of observed and predicted presence with distinct colours for each category.

The topics to be mapped were discussed in some depth: It was confirmed that *Phlebotomus neglectus* is included in the species lists, and that attention will also be focussed on invasive mosquitoes through looking at the imported tyre trade. It was considered that it may prove more effective to map species complexes rather than their constituent species (i.e. for the indigenous *Anopheles maculipennis* complex).

Additional vector data are still required from many regions, particularly from the Eastern countries like Ukraine, Belarus, Armenia and Azerbaijan, and Network members should be encouraged to invite colleagues encountered at meetings to join VBORNET.

Disease maps will not be produced at the NUTS level, but it should be noted that combining the NUTS level vector distributions with the country level disease maps from WP4 could produce first approximations.

The maps produced are designed to be used at EU level and are not suitable for detailed sub-national interpretation. Unsuitable habitat masks could be used to improve model resolution taking advantage of the wide range of relevant environmental data that will soon be available through ECDC and its collaborators such as EDENext.

WP2 –Science Watch, Fact Sheets and Ad-Hoc TechnicalSupport

For 2012, WP2 aims in particular at (1) producing four fact sheets of the main malaria vectors as well as two on Phlebotomine vectors, (2) support the pilot phase of the implementation of the ECDC guidance for the surveillance of invasive mosquitoes, and (3) finalize the copyright-free high resolution picture database of the main vector species.

The Science watch and support presentations were followed by some discussion of the need to include additional species in due course (e.g. *Anopheles superpictus* and *An. algeriensis*) and in the longer term *Phlebotomus tobbi* and *Ph. similis*. The functions of the developing image library were elucidated further, with *Sensu Lato* approaches being favoured, given the main use was for public education and training, rather than detailed identification aids for experts. It has been suggested that sequencing information or relevant links may also be included at a later date.

The factsheets presentations were very well received; the first on ticks is nearing completion and the others on main malaria vectors are in their initial stage. Discussion from the floor concentrated on the short and medium changes in distribution and seasonal activity patterns that have been recorded in recent years, and network members were able to provide some additional information about this topic.

Requests for inputs on mosquitoes were strongly underlined by coordinator and it was agreed that the process of consultation with network members during the compilation of new factsheets should focus on comments on sequential drafts by experts rather than completion of questionnaires.

WP3 –Vector Distribution and Surveillance Maps

WP3 activities in 2012 consist in (1) further updated and validated vector distribution database in order to produce maps on a three monthly basis, and (2) extend this database to 3 main malaria vectors species, and (3) contribute to the above mentioned gap analysis.

As with the other topics, suggestions were put forward for additional species to be added to the target species list: for example *Phlebotomus gallilei* (in addition to those cited above).

It was suggested that validation approaches might well need to be tailored to the vector group and the source of the information being screened. Members comments centred on the objectivity of validation process, in relation to the validators' personal knowledge of experts and location. Most importantly the validation process should not discourage potential contributors, which are in short supply. More ways should be investigated to get experts involved and the public reporting of vectors (e.g. ticks in the Netherlands and the UK) should be considered for use in corroboration.

The tick distribution maps are mainly based on existing databases (EFSA, EDEN, CIRAD) funded by the EU, several of them being updated on a regular basis. Beside the wish to avoid duplicate work, there is a need to harmonize European tick database by agreeing on data collection and validation method and on sharing all data in one centralized database for public access, suggested to be the VBORNET database.

The speakers further clarified the definitions of record dates and suggested that it could be useful to archive historical maps and sequential versions of the more recent outputs, which could be summarised in factsheets highlighting changes and improvements in coverage.

WP4 –Strategic Consultation for Public Health

In 2012, WP4 activities will aim at (1) finalizing the strategy document based on the PH questionnaire data and the Pan-EU maps on VBD situation, (2) producing a risk assessment of diseases transmitted by lice and fleas, and (3) providing a document outlining a framework for vector control in EU using invasive mosquitoes, malaria and West Nile virus as examples.

Some additional diseases should be considered, notably Sindbis disease. Additional hosts were mentioned for a number of diseases which will be validated and included in the next revisions. It was thought that some more definite distinction between autochthonous and other cases should be made. In addition, there was extensive discussion of disease status according to emergence status and expression of symptomatic as opposed to asymptomatic disease, and that this, along with sources of infection and perhaps details of reservoir hosts should be added to the tabular characterisations.

There was extensive discussion about using ECDC contact points for surveillance as focal points for the questionnaire approach, as a lack of

response rather than a lack of data could lead to gaps in the database, as seemed to be the case in the Balkans. Also a list of competent body contact details was requested for network use.

It was emphasised that the original approach has evolved and VBORNET focal points are actively encouraged to collaborate with other experts when providing information and to establish informal as well as formal links, though this will make standardisation more difficult.

Another aspect of the evolution of the methodology has been to widen the initial focus on surveillance to include additional activities and disciplines. A discussion on the need to accommodate public perceptions, especially in the context of national disease planning, also touched on this change in emphasis.

ENIVD-VBORNET Joint Meeting, May 9th 2012

The Joint Meeting day was organised in close collaboration with ENVID and ECDC staff, and 20 scientific presentations were selected and gathered in 3 (+ 1 supplementary) sessions on the following themes: (1) Mosquitoes and mosquito-borne pathogens: Detection of pathogens in field-collected mosquitoes – Relevance and outputs; (2) Sand flies and sand fly-borne pathogens: Changes in pathogen distribution or changes in sand fly vectorial capacities?; (3) Ticks and other vectors: Should we survey introductions and spread of other vectors in Europe?; (Supplementary session) Updates about diagnostics on vectors and vector-borne diseases. See the final agenda in Annex 3.

This meeting allowed to exchange updated scientific information on the above-mentioned topics which are of high interest to both networks. VBORNET experts have also enjoyed the joint meeting because of the opportunity to meet experts in other fields (e.g. virology), and to develop contacts for further networking and collaborations. A consensus came out for repeating such meetings in the future.

Summary and conclusions of the meeting

Regarding the gap analysis (WP1) the audience had divided opinions as to whether there should be separate or combined maps of observed and predicted presence with distinct colours for each category. The new version of the vector questionnaire tool will be browser-driven which will remove any earlier issues with institutional firewalls. It was confirmed that *Phlebotomus neglectus* is included in the species lists, and it was considered that it may prove more effective to map species complexes rather than their constituent

species (*i.e.* for the indigenous *Anopheles maculipennis* complex). Additional vector data are still required from many regions, particularly from the Eastern countries like Ukraine, Belarus, Armenia and Azerbaijan, and Network members are encouraged to invite colleagues encountered at meetings to join VBORNET.

WP2 provided a consensus on interest of fact sheets and risk assessment documents. Inputs from network members on sequential drafts were strongly underlined as valuable sources of updated information. It was also suggested to further include additional species in due course (e.g. *Anopheles superpictus* and *An. algeriensis*) and in the longer term *Phlebotomus tobbi* and *P. similis*.

Discussions on WP3 pinpointed that validation approaches might well need to be tailored to the vector group and the source of the information being screened. The validation process should not discourage potential contributors, which are in short supply. As with the other topics, suggestions were put forward for additional species to be added to the target species list: for example *Phlebotomus gallilei* (in addition to those cited above).

WP4 discussions emphasised that the use of ECDC contact points for surveillance as focal points for the questionnaire approach can generate a lack of response rather than a lack of data, as seemed to be the case in the Balkans. Thus, the original approach has evolved and VBORNET focal points are actively encouraged to collaborate with other experts when providing information and to establish informal as well as formal links. For the future, some additional diseases should be considered, such as Sindbis disease.

Annex 1: VBORNET AGM Agenda

Day 1: Monday, May 7th 2012

VBORNET activity report per Work Package: Achievements, Problems encountered, Ongoing activities

Day 1: Monday, May 7 th 2012		
Time	Session	Presenter
AM	Arrival of delegates	
14h00 – 15h00	Registration of delegates	
15h00 – 15h10	Welcome address	G. Hendrickx
15h10 – 15h50	WP1 – VBORNET coordination	G. Hendrickx
15h50 – 16h30	WP4 – Strategic consultation for Public Health	M. Braks
16h30 – 17h00	Tea break	
17h00 – 17h40	WP2 – Science watch and technical support	J. Medlock
17h40 – 18h20	WP3 – Vector surveillance and distribution maps	F. Schaffner
19h00	VBORNET SC meeting	VBORNET SC

Day 2: Tuesday, May 8th 2012

VBORNET AGM Public Session: Public Health and Vector-Borne Disease: Objectives, Future activities, Inputs from the network

Day 2: Tuesday, May 8 th 2012		
Time	Session	Presenter
09h00 – 09h45	WP4 – Pan-European maps of vector-borne diseases and surveillance activities	M. Braks
09h45 – 10h15	WP4 – Pan-European maps on other vectors and VBD	M. Braks
10h15 – 10h30	WP4 – Public health and VBDs in EDENext	R. Lancelot
10h30 – 11h00	Tea break	
11h00 – 11h30	WP4 – Integrated Vector Management: Mosquito control in the French national plan against dengue and chikungunya	Y. Perrin & M.-C. Paty
11h30 – 12h00	WP2 – Driving forces for change in the geographic distribution of <i>Ixodes ricinus</i>	J. Medlock
12h00 – 12h30	WP2 – Factsheets and risk assessments on Anopheline vectors of malaria	K. Hansford
12h30 – 14h00	Lunch	
14h00 – 14h45	WP1 – Gap analysis	G. Hendrickx
14h45 – 15h30	WP1 – New online tool for reporting vector surveillance data	E. Ducheyne
15h30 – 16h00	Tea break	
16h00 – 16h30	WP3 – Mosquitoes: Updated distribution and surveillance maps	F. Schaffner
16h30 – 17h00	WP3 – Ticks distribution maps	R. Lancelot
17h00 – 17h30	WP3 – Sand flies: Updated distribution maps and outcomes	B. Alten
19h00	VBORNET AGM dinner at Radisson Blu Hotel Latvija	

Annex 2: List of Delegates Attending VBORNET AGM

List of 60 delegates from 30 countries*				
Surname	First Name	Institute	City	Country
Almeida	Paulo	Instituto de Higiene e Medicina Tropical	Lisboa	Portugal
Alten	Bulent	Hacettepe University	Ankara	Turkey
Alves	Maria João	Ministerio da Saúde	Lisboa	Portugal
Antoniou	Maria	University of Crete	Heraklion, Crete	Greece
Bakonyi	Tamas	SzentIstvan University	Budapest	Hungary
Bellini	Romeo	Centro AgricolturaAmbiente "G.Nicoli"	Crevalcore	Italy
Bødker	René	DTU Veterinary - National Veterinary Institute	Copenhagen	Denmark
Bormane	Antra	Infectology Center of Latvia	Riga	Latvia
Braks	Marieta	RIVM	Bilthoven	Netherlands
Calzolari	Mattia	ISZLER	ReggioEmilia	Italy
Ceianu	Cornelia	Cantacuzino National Institute of Recherche and Development for Microbiology and Immunology	Bucharest	Romania
Dhollander	Sofie	EFSA	Parma	Italy
Dikolli	Enkelejda	Institute of Public Health	Tirana	Albania
Ducheyne	Els	Avia-GIS	Zoersel	Belgium
Eritja	Roger	ConsellComarcal del BaixLlobregat	Sant Feliu de Llobregat	Spain
Gewehr	Sandra	Ecodevelopment S.A.	Thermi, Thessaloniki	Greece
Golovljova	Irina	TerviseArengu Instituut	Tallinn	Estonia
Groschup	Martin	Friedrich-Loeffler-Institute	Greifswald - InselRiems	Germany
Gysin	Nicole	Federal Office of Public Health FOPH	Bern	Switzerland
Hansford	Kayleigh	HPA	London	UK
Hendrickx	Guy	Avia-GIS	Zoersel	Belgium
Hjertqvist	Marika	The Swedish Institute for Infectious Disease Control	Solna	Sweden
Hubalek	Zdenek	University of Technology	Brno	CzechRepublic
Hukic	Mirsada	University Clinical Centre	Sarajevo	Bosnia and Herzegovina
Huldén	Lena	University of Helsinki	Helsinki	Finland
Jaenson	Thomas	EvolutionaryBiology Centre	Uppsala	Sweden
Jalili	Nasir	Comenius University	Bratislava	Slovakia
Kazimirova	Maria	Institute of Zoology, Slovak Academy of Sciences	Bratislava	Slovakia
Koliopoulos	George	BenakiPhytopathologicalInstitute	Kifissia	Greece
Kondrusik	Maciej	Medical University	Bialystok	Poland
Kostanova	Zina	Regional Authority of Public Health, dept of Epidemiology	Ziadnad Hronom	Slovakia
Lancelot	Renaud	CIRAD	Montpellier	France
Lazarevska	Liljana	Centre for Public Health	Skopje	R. Macedonia
Mathis	Alexander	University of Zurich, IPZ	Zurich	Switzerland

* Three delegates cancelled their participation

List of 60 delegates from 30 countries*				
Surname	First Name	Institute	City	Country
Medlock	Jolyon	HPA	London	UK
Melillo	Tanya	Public health regulationdivision	Msida	Malta
Merdic	Enrih	University of Osijek	Osijek	Croatia
Mikov	Ognyan	National Center of Infectious and Parasitic Diseases	Sofia	Bulgaria
Murchie	Archie	Agri-Food & Biosciences Institute	Belfast, Northern Ireland	UK
Nunn	Miles	Centre for Ecology and Hydrology	Wallingford	UK
Miranda	Miguel Angel	University de les Illes Balears	Palma	Spain
Ozbel	Yusuf	Ege University	Bornova Izmir	Turkey
Paty	Marie-Claire	Institut de Veille Sanitaire	Paris	France
Perrin	Yvon	Centre national d'expertise sur les vecteurs (CNEV)	Montpellier	France
Petric	Dusan	Faculty of Agriculture	Novi Sad	Serbia
Quoilin	Sophie	Scientific Institute of Public Health	Brussel	Belgium
Rjabinina	Jelena	Health Board	Tallinn	Estonia
Rose	Andreas	Biogents GmbH	Regensburg	Germany
Schaffner	Francis	Avia-GIS	Zoersel	Belgium
Scholte	Ernst-Jan	National Centre for Monitoring of Vectors	Wageningen	Netherlands
Spungis	Voldemars	University of Latvia	Riga	Latvia
Sulesco	Tatiana	Acadamy of Sciences of Moldova	Chisinau	Moldova
Vaheri	Antti	Haartman Institute, University of Helsinki	Helsinki	Finland
Van Bortel	Wim	ECDC	Stockholm	Sweden
Walochnik	Julia	Medical University	Vienna	Austria
Wegner	Elzbieta	Museum and Institute of Zoology, PAS	Warsaw	Poland
Werner	Doreen	Leibniz-Centre for Agricultural Landscape Research (ZALF)	Müncheberg	Germany
Wint	Willy	ERGO	Oxford	UK
Zeller	Hervé	ECDC	Stockholm	Sweden
Žygutienė	Milda	Centre for Communicable Diseases And AIDS	Vilnius	Lithuania

Annex 3: Joint Meeting ENIVD-VBORNET Agenda

Wednesday, May 9th 2012

Introduction

09:00	Collaborative activities between VBORNET and ENIVD-CLRN: An added value for Europe – Hervé Zeller
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Session 1

Mosquitoes and mosquito-borne pathogens: *Detection of pathogens in field-collected mosquitoes – Relevance and outputs.*

Chair: Alexander Mathis and Olli Vapalahti

09:30	Guidelines for the surveillance of invasive mosquitoes in Europe (ECDC) –Francis Schaffner
09:40	Epizootic emergence of Usutu virus in wild and captive birds in Germany –Jonas Schmidt-Chanasit
09:50	Nation-wide surveillance programme of mosquitoes in Germany – Doreen Werner
10:00	Mosquito surveillance in Israel and latest laboratory findings – Hanna Bin
10:10	West Nile virus activity in a Red-footed falcon (<i>Falco tinnunculus</i>) colony in Hungary – Tamás Bakonyi
10:20	<i>Tea break</i>
10:50	Surveillance of potential malaria vectors (<i>Anopheles spp.</i>) in Greece – Sandra Gewehr
11:00	What surveillance for arboviruses such as Chikungunya, Dengue, and West Nile in Europe? – Romeo Bellini
11:10	Discussion

Session 2

Sand flies and sand fly-borne pathogens: *Changes in pathogen distribution or changes in sand fly vectorial capacities?*

Chair: Maria Antoniou and Paul Heyman

11:40	Highlights on pathogen transmission by sand flies in Turkey – Bulent Alten
11:50	Punique virus, a novel phlebovirus, related to Sandfly fever Naples virus, isolated from sandflies collected in Tunisia and its potential impact on public health – Rémi Charrel
12:00	Discussion
12:30	<i>Lunch</i>

Session 3

Ticks and other vectors: *Should we survey introductions and spread of other vectors in Europe?*

Chair: Remy Charrel and Miguel Miranda

14:00	Detection of Flaviviruses, WNV and ISF, in Mosquito Surveillance in Portugal, 2001-2010 – Paulo Almeida
14:10	Insect vectors identification by mass spectrometry – Alexander Mathis
14:20	Emerging Schmallenberg and Bluetongue diseases: What should we expect next? – René Bødker
14:30	Presence, abundance of Ixodid ticks in Belgium and prevalence of <i>Anaplasma phagocytophilum</i> – Paul Heyman
14:40	Increasing cases of importation of <i>Hyalomma</i> spp. to Central and Western European countries and the risk of spread of CCHF and rickettsioses – Maria Kazimirova

14:50	Ixodes ricinus and persulcatus-borne TBEV and mosquito-borne Sindbis virus in Finland - Antti Vaheiri
15:00	Lyme prevention: Integration of interventions - Marieta Braks
15:10	Discussion
16:00	<i>End of the joint meeting and tea break</i>

Supplementary session

Updates about diagnostics on vectors and vector-borne diseases

Chair: Antti Vaheiri and Dušan Petrić

16:30	New developments in trapping invasive mosquitoes - Andreas Rose
16:45	Genetic Susceptibility Factors, Autoreactivity, Muscle Cell Infection, and Molecular Epidemiology of Sindbis Virus Infection - Olli Vapalahti
17:00	A Microbial Detection Array Combined with Random Phi29-Amplification used as a Diagnostic Tool for Virus (and bacterial) Detection in Clinical Samples - Anders Fomsgaard
17:15	Discussion
18:00	<i>End of the session</i>