MEDREONET NEWSLETTER N°3
Meeting report

Second Annual Meeting of MedReoNet
Giulianova, Teramo, Italy, 9-11 December 2008

The second annual meeting of MedReoNet organized by the *Istituto Zooprofilattico Sperimentale dell'Abruzzo e del Molise "G.Caporale"* (IZS - http://www.izs.it) was held from 9-11 December 2009 in Grand Hotel Don Juan in Giulianova, Teramo.
The introduction and welcome was given by Catherine Cêtre-Sossah (Cirad) who became at the end of 2008 the coordinator of the MedReoNet project.

A workshop entitled "The use of Latent class analysis to evaluate diagnostic tests performance" was organized the before the plenary meeting. The theoretical bases and the methods for estimating sensitivity and specificity of diagnostic tests in the absence of a gold standard were described considering both maximum likelihood and Bayesian methods for independent tests.

The aim of this meeting was to present activities achieved at the end of 2008 and to plan future activities for 2009. Discussions were organized mainly by work package:
- WP1: Regional surveillance of virus activity and vaccination
- WP2: Regional surveillance of vectors
- WP3: Molecular epidemiology
- WP4: Database, web design and GIS
- WP5: Risk assessment

For the WP1, at the end of year 2007, in order to avoid duplications, it has been decided to take advantage of the EUBTNet system and obtain from EUBTNet the surveillance data required by the WP1. The choice to obtain data from EUBTNet was justified by:
- Data in the EUBTNet system belong to the National Competent Authorities, i.e. the involved Ministries of the Member States

- It would have not been difficult by the institutions involved in the project to be granted the permission to use aggregated data for the aims and scopes of the project
- Data in the EUBTNet system are the official information available from the Member States, therefore the use of EUBTNet data guarantees the consistency with the official situation of member countries
- Since the MEDREONET project requires only aggregate data on the basis of administrative units, the proper management of sensible data can be easily assured.

Nevertheless, at the end of 2008, most of the data required for the MEDREONET project were still missing from the EUBTNet system.

For WP2, the objectives are to strengthen of *Culicoides* entomological surveillance in Europe and neighbouring countries by: (1) the evaluation and harmonization of surveillance protocols and available tools for trapping; (2) the identification of vectors and modeling of vector habitat.

D2.1 - Recommendation of the optimal trap design for sampling *Culicoides*. As was agreed in the previous meeting held in Palma of Majorca in December 2007, three groups conducted collaborative experiments in testing the following traps: OVI trap (South Africa), MiniCDC (USA), Rieb (France), Pirbright (UK) and Sentinel (Germany).

D2.2 - Guide to the identification of *Culicoides* vectors and potential vectors present in the Mediterranean (European) basin, including molecular methods. Dr. T. Balenghien presented work regarding the developing of a web key for the for the identification of the European species of *Culicoides*. In another presentation, Dr. M. P. Agapow showed the different current opportunities to process and access epidemiological information on-line. Finally, Dr. C. Cêtre-Sossah presented the results in regards to the ring trial performed by 11 laboratories for molecular identification of species from the Palearctic species of the subgenus *Avaritia*.

D2.3 - Assessment of the relationship between *Culicoides* vector density and BT and AHS 'risk'. Three presentations covered different aspects related with vector density and BT and AHS risk.

D2.4 - Evaluation of the role played in Europe by novel (non- *C. imicola*) vector species. Dr. Carpenter presented a review about the current status of the vector competence studies and Dr. Venter presented a very complete work of the oral susceptibility of the main vector species in South Africa.

D2.6 - Evaluation of available models of suitable vector (larval and adult) habitat. Dr. G. Venter presented preliminary studies on oviposition site preferences of *Culicoides imicola*.

For WP3, the objectives are the identification of the distribution, origins and movement of individual BTV and EHDV strains, by characterisation of well documented isolates of different serotypes. This will allow individual virus lineages and therefore virus isolates to be identified more accurately than is possible by serological methods.

D3.1 – Collect isolation data (where available) and collect or generate relevant sequence data, from partners and other sources (accession numbers) for inclusion in the Orbivirus sequence database.

A presentation from IAH has been given with the following news- Presence of BTV-8 and 16 (for the 1st time) in Greece, BTV-1 in Algeria, BTV-9 in Lybia, identification of a new serotype of BTV in Switzerland named Toggenburg virus, the sequencing of the full genome of BTV-8 (Netherlands). *The reference collection data can be viewed at: www.iah.bbsrc.ac.uk/dsRNA_virus_proteins/ReoID/orbiviruses.htm. An oral presentation given by Christian Potgieter –OVI--South Africa- described a new method for sequencing full genome viruses in a short period of time.

D3.2 - Generate and display phylogenetic trees of recent BTV isolates and different serotypes

These trees will need to be updated using data for new virus isolates from recent outbreaks, and as often as possible.

D3.3 - Provide a continuing update concerning the development and validation of primers necessary for the identification and sequencing of BTV/AHSV/EHDV serotypes threatening European-Mediterranean countries (for genome segment 2)- Primers have been developed to detect the serotype 6 and 11 in Europe. These are available upon request to Peter Mertens. Some primers are

also displayed on the web site at www.iah.bbsrc.ac.uk/dsRNA_virus_proteins/ReoID/rt-pcr-primers.htm- And these will be updated as necessary to detect different strains and lineages that invade Europe or neighbouring regions.

D3.4 - Provide a continuing update concerning the development, validation of primer sequences to identify, characterise and distinguish variants in other genome segments of different BTV/AHSV/EHDV types & strains (e.g. different topotypes, vaccine/field strains etc.)

Updating primers and diagnostic assays inevitably involves the end users as partners in the system. If any of the multiple sets of primers or methods fails, this should be reported to the central co-ordination. The isolate should be sent to the reference collection and should be sequenced to support primer redesign and re-evaluation. This will ensure that the primers and methods remain relevant.

Moves are underway to design primers to identify different lineages in each of the different BTV genome segments. This would facilitate the detection of reassortants.

D3.5 - Provide a database of sequences for specific virus isolates (maintained as a reference collection) made during the past decade around Mediterranean and from other sources. This will provide well documented and characterised isolates and data for specific strains for further analyses.

An oral presentation was given by Michael Paul Agapow, IAh, Pirbright on the epi-infomratic infrastructure for bluetongue-There is already a virus collection at IAH Pirbright, data for which can be viewed over the web (www.iah.bbsrc.ac.uk/dsRNA_virus_proteins/ReoID/orbiviruses.htm)

For WP4, the general objectives, working on web-GIS and database, were the following:
- display and spread information related to bluetongue (BT), African Horse Sickness (AHS), Epizootic Hemorrhagic Disease (EHD);
- provide an interactive, dynamic mapping system.

In detail, the activity planned for the second year of activity (2008) were the following:
- to implement map services for African Horse Sickness and Epizootic Emorragic Disease as far as outbreak distribution is concerned;
- to set up on-line procedures to update data in the web-GIS as defined during the first year of activity;
- discuss about the EUBTNET System, the Network for Europe and Mediterranean Basin, put in place during the 2007 and spreading BT information;
- define specific GIS objectives for surveillance of bluetongue so that data are not duplicated in the MedReoNet project and in EUBTNET.

For WP5:

D5.3. Definition of the set of elements that should be taken into account for risk assessments conducted by Member States. In April 2008, the different groups involved met in Barcelona and the following points were discussed:
- the common points in the different pathways and the best approach for the common structure;
- the identification of the inputs needed for the models.

D5.4. Guidelines for the risk assessment of BT, AHS and/or EHD in the Mediterranean basin and remaining Europe. The common structure of the risk assessment procedure was also discussed.

D5.5. Map of the different areas of the Mediterranean basin classified according to the risk. Recent developments in BTV research allow us to develop quantitative models. Representation of the quantitative models results in maps was agreed to be made through applications developed by WP4 (Database, web design & GIS).

D5.8. Data on viral strains threatening the Mediterranean originating from case studies. The Field Studies, based on the standardized guidelines designed on the previous meeting have been already conducted in Turkey and Algeria.