MED•VET•NET
NEWS
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This month, MVN News provides an overview of Workpackage 12: A European Network for the Detection and Control of Cryptosporidium (CryptNet).

Our project management update gives us a brief outline of the non-scientific Workpackages for the second Joint Programme of Activities (JPA2), and the Annual Report.

We have an update from the Science Communication internship, and the Administration Bureau report on the outcomes of the recent Governing Board, Co-ordinating Forum and Advisory Panel meetings.

Communications Unit

CRYPTNET OVERVIEW

Workpackage 12: A European network for the detection and control of *Cryptosporidium* (CryptNet)

Background

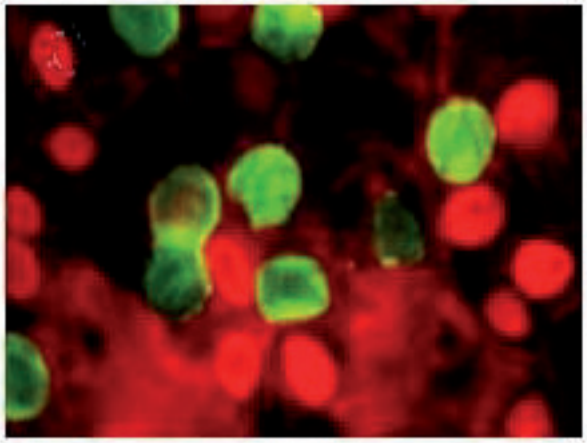
Cryptosporidium is a parasite commonly found in lakes and rivers, particularly when the water is contaminated with sewage and animal wastes. It is highly resistant to disinfection, and even a well-operated water treatment system cannot ensure that drinking water will be completely free of this parasite. *Cryptosporidium* has caused several large waterborne disease outbreaks of gastrointestinal illness, with symptoms that include diarrhoea, nausea, and/or stomach cramps. Those who are severely immunocompromised are likely to have more severe and more persistent symptoms than healthy individuals. Moreover, *Cryptosporidium* has been a contributing cause of death in some immunocompromised people.

The genus *Cryptosporidium* is classified in the same phylum as other parasites of great medical and veterinary importance such as *Plasmodium*, *Toxoplasma* and *Eimeria*. *Cryptosporidium* species cause cryptosporidiosis in humans and animals, a condition which constitutes one of the most common causes of protozoal diarrhoea, and leads to significant morbidity and mortality in both the developing and developed world. Transmission is via the faecal-oral route following direct or indirect contact with the infective stage (the oocyst), including person-to-person, zoonotic, waterborne, and foodborne transmission.
There are several characteristics of *Cryptosporidium* that markedly influence the epidemiology of human infection:
(i) the infective dose is low (1-10 oocysts)
(ii) oocysts are immediately infectious when excreted in faeces, and can be transmitted by person-to-person contact
(iii) oocysts are remarkably stable and can survive for long periods (up to one year) in the environment
(iv) environmental dispersal can lead to the contamination of drinking water and food.

Direct and indirect transmission between infected hosts and susceptible individuals is favoured by high population densities (e.g. during lambing or calving), and by close contact (e.g. during recreational bathing or consumption of contaminated water).
Detection of *Cryptosporidium* has traditionally been based on microscopic and staining techniques, but these do not discriminate among many of the species of *Cryptosporidium*, and neither do antibody-based tests such as enzyme linked immunosorbent assays (ELISA) and immunofluorescent microscopy. On the other hand, molecular biology has provided powerful tools for characterising *Cryptosporidium*, and the analysis of previously unrecognised genetic differences within the genus has revolutionised both the taxonomy and our understanding of the epidemiology of the disease in humans. Molecular tools have enabled not only the identification of species/genotypes in the faeces of infected hosts, but also their recognition in water and food samples. At least seven species (*C. hominis, C. parvum, C. meleagridis, C. felis, C. canis, C. suis,* and *C. muris*) and two genotypes (monkey and cervine) of *Cryptosporidium* are associated with human disease, and molecular approaches have enabled a greater understanding of the contributions of humans and livestock as reservoirs of infection. Using species typing tools, differences in geographical and temporal distribution, disease presentations and risk factors for infection have been identified for *C. parvum* and *C. hominis*, the most commonly reported causes of human cryptosporidiosis.

Aims and objectives of Workpackage 12

The overall objective of the project is to implement the detection and identification of the protozoan pathogen *Cryptosporidium* through harmonisation and standardisation of methods, including molecular methods, at the pan-European level. This should increase knowledge on the biological properties of *Cryptosporidium* isolates (in particular, the differences in virulence, host specificity and transmission routes), and eventually lead to estimate the risk of food and waterborne infection and to identify effective control measures. The workpackage leader is Simone M. Cacciò of the Istituto Superiore di Sanità (ISS) in Rome, Italy. There are ten participating Institutes from eight European countries working on Workpackage 12 which began on 1 September 2004 and will be completed by 1 March 2006.



Cryptosporidium oocysts

Workpackage tasks

Task 1: Working group establishment.

The network was established at the kick-off meeting, held at the ISS in Rome on 14-15 October 2004. The meeting was very useful in terms of the interaction between partners. All the activities scheduled for Workpackage 12 were discussed in a pleasant and friendly atmosphere.
One important question concerned the level of expertise in the different European countries, and it was soon recognised that identifying common sources of data is difficult, because the situation varies considerably between countries. To update our knowledge about the detection and control of cryptosporidiosis in Europe, two approaches were used:
i) a specific questionnaire was developed,
ii) a review of the literature data was performed.
Each partner was responsible for completing the questionnaire and continuing the literature review from his/her country. This resulted in a large amount of data being collected, which was unavailable before.This information will be used in the development of specific sections of the database (Task 2).

Task 2: Database development.

The database will be "static", and composed of a number of sections where updated information on *Cryptosporidium* and cryptosporidiosis will be presented. The information collected (also as an outcome of Task 1) on the epidemiology of the infection in each country will be used to highlight the current situation in Europe. Furthermore, the different methodologies for recovery and characterisation of the parasite from different matrices will be presented and discussed. The database will be available to the public, as it represents a means of sharing knowledge and will disseminate

scientifically correct information to increase awareness of this widespread infection.
At present, the development of the database has been appointed to an IT company based in Rome, and work is in progress in close collaboration with Workpackage12 partners. We have had good communication with the bioinformatic team of Med-Vet-Net, with helpful discussions at the Med-Vet-Net General Scientific Meeting which was held in Winchester, UK on 29 June and 1 July, 2005.

Task 3: Establishment of repositories for reference material.

The main objective of this task is to provide access to a well-characterised source of the most common *Cryptosporidium* species for all partners. Indeed, the availability of reference material is a defined advantage for those Institutes that want to set up detection methods, including molecular biology techniques. Furthermore, reference material (particularly oocysts and extracted nucleic acids) can be used for standardisation of protocols, validation studies, and spiking experiments.
Two partners, ISS (Italy) and DFVF (Denmark), are in charge of this task. *Cryptosporidium* isolates of both human and animal origin have been collected during the first year of the project, and have been characterised by Polymerase Chain Reaction (PCR) assays targeting the 18S ribosomal DNA (rDNA), the Heat Shock Protein 70 and the *Cryptosporidium* Oocyst Wall Protein genes. Following their analysis by sequencing and/or by Restriction Fragment Length Polymorphism analysis (PCR-RFLP), these markers provide exact information about the species of *Cryptosporidium* present in the samples. Reference samples, representing the two major human pathogens *C. hominis* and *C. parvum* are available to partners upon request.

Developments

Meetings outcome

The preliminary work programme for the project was discussed during the first meeting which was held on October 14-15, 2004 at ISS in Rome, Italy. The participants consisted of 10 scientists from 9 different Institutes. During the first day, the participants presented their Institute's research activities, informing all partners about the level of expertise in the field. On the second day, the discussion focussed on the different aspects of the project, and on the practical organisation of the work. Two topics were discussed in detail, namely:
(i) Data collection on cryptosporidiosis in Europe
(ii) Molecular methods for the detection and species identification of *Cryptosporidium*.
As a result, a questionnaire for data collection and a review document on molecular diagnostic assays were produced.
Furthermore, the Med-Vet-Net General Scientific Meeting (see above) was an ideal occasion to discuss on-going and future activities of the Workpackage, and to put this into a wider context. Several oral presentations and posters were presented by Workpackage12 partners at this meeting.

Transfer of knowledge and integration activities

During the first year of the project, two scientists visited the laboratory of Dr. Simone M Cacciò at the Istituto Superiore di Sanità in Rome, Italy. Both scientists gratefully acknowledged the financial support obtained from the Med-Vet-Net project (WP2A).
Dr. Alessandro Broglia, from the laboratory of Dr. Karsten Noeckler at the BfR in Berlin, spent a week here during February 2005. The purpose of his visit was to exchange protocols and ideas with respect to the molecular detection and genotyping of *Cryptosporidium*.
Dr. Peter Wielinga, currently working with Dr. Joke van der Giessen at the RIVM in Bilthoven, visited the laboratory during July 2005. The purpose of his visit was to discuss the different aspects related to the development of web-based resources. In particular, the *Cryptosporidium* and *Giardia* bionumerical database recently developed at RIVM by Dr. Wielinga and his colleagues, was used as a platform to identify and discuss the key elements of the development of future databases.

Simone Cacciò

PEOPLE

Leader of Workpackage 12 – Dr. Simone M Cacciò

Dr. Simone M Cacciò is a molecular biologist who is 45 years old. He is a scientist in the Department of Infectious, Parasitic and Immunomediated Diseases at the Istituto Superiore di Sanità (ISS) in Rome. He graduated in Biological Sciences at the University of Pavia in 1985, and obtained a PhD in Genetics and Molecular Biology in 1992. His main research interests include the molecular epidemiology of intestinal protozoa, particularly *Cryptosporidium* and *Giardia*.

ADMINISTRATION BUREAU UPDATE

Financial management

The first annual financial report and JPA financial planning will be completed by the end of October. Institute Representatives, Financial Officers and the Administration Bureau have all been involved in this demanding process. Individual financial reports have now been received with audit certificates from most Partners. The second payment from the Co-ordinator to the Partner Institutes is expected to be completed by December 2005. This payment accommodates adjustments to the budget allocations as requested by the partners in accordance with the Consortium Agreement.
The timing of the third payment to the Partner Institutes is dependant on the approval of the Annual Report by the EC. This could take 90 days after receipt of the report and therefore is not expected until February 2006. In addition to the funds allocated for Workpackages, each partner will receive funds for a contribution to financial management. This will be calculated on the basis of level of partner participation in the network. The calculations will be approved by the Governing Board and are expected to be distributed in March 2006. The second wave of Workpackages will begin on 1 March 2006. Contracts for each new workpackage will be distributed for signature before the end of 2005.

Management meetings

Co-ordinating Forum

The Third Co-ordinating Forum meeting was held at AFSSA on 28 September 2005 under the chairmanship of Diane Newell. All Partner Institutes were represented. At this meeting the scientific and financial aspects of the draft Annual Report and the Second Joint Programmes were reviewed. Specific important scientific and financial management topics were discussed. Among the topics of high priority were the two delayed Workpackages 4 and 6, the sustainability of the Network, the development of external collaborations, and the utilisation of unspent funds. The minutes will be published on the website
(See overleaf for photograph of participants).

Advisory Panel

The Advisory Panel comprises four external expert scientists who advise the Governing Board on the scientific direction of the network. The second Advisory Panel meeting was held at AFSSA on 10 October 2005. The aims of this meeting were to define the Terms of Reference for the Advisory Panel, review the progress of the first year and the second Joint Programme of Activities. Further network information was provided to the panel by Andre Jestin, Diane Newell and Claire Cassar. The recommendations of the Advisory Panel will be published with the minutes on the website, however, the Panel was impressed by the progress to date. The Advisory Panel also has an observer from The European Food Safety Agency (EFSA) and a further observer from the European Centre for disease control and prevention (ECDC) has been invited to attend future meetings.

Governing Board

The third Governing Board meeting was held at AFSSA on 14 October 2005 under the chairmanship of Peter Borriello. All Partner Institutes were represented. Laurent Bochereau and Jean-Charles Cavitte, (our new liaison officer) from EC DG-Research were also present. Reports were provided from the Co-ordinating Forum and the Advisory Panel, as well as on Workpackage scientific progress and financial budgets. In addition, the sustainability of the Network, development of collaborations with external institutes and associations between Med-Vet-Net and European agencies such as ECDC and EFSA were discussed. The Governing Board approved the workpackage activities and financial status of the network and applauded the scientific progress that has been achieved in this first year and in particular recognised the Project Management and Administration Bureau activities in this success. The minutes of this meeting will also be published on the website.

Admin Bureau

Co-ordinating Forum Participants, AFSSA, 28 September 2005

PROJECT MANAGEMENT

The Project Management Team has been extremely busy over the last month with the management meetings and delivery of the First Scientific Annual Report and the Scientific Plans for the Second Joint Programme of Activities. These documents are currently being designed in a magazine-like format by the Communications Unit and will be placed on the private website as soon as possible.

Annual Report

The Annual Report comprises an Executive Summary suitable for publication in non-scientific literature, as well as a review of the state-of-art network activities in an international context, detailed progress reports from each of the three overarching Workpackages and the eleven research Workpackages, an analysis of management issues, and finally, lists of progress in milestones and deliverables against targets.

The Second Joint Programme of Activities

The plans for the Second Joint Programme of Activities (JPA2) are also required for submission to the EC at the same time as the Annual Report. The document comprises an overview of network direction and updated detailed plans for the three overarching Workpackages. Essentially the three overarching Workpackages will undertake the same work as in JPA1. The changes will be highlighted in a future newsletter but they will primarily respond to the following issues highlighted by the Thematic Representatives, Co-ordinating Forum, Governing Board, Advisory Panel and EC:

- Extend the breadth of the research programme
- Provide greater partner involvement
- Develop critical mass in crucial areas of expertise
- Expand training and education
- Maintain and develop contacts with European scientists outside of the network
- Enhance the profile of Med-Vet-Net at the national levels of all Partner Institutes.

The new Workpackage programme, as described in previous newsletters is also included. In addition to these new workpackages, Workpackage 4 and Workpackage 6 will be extended and modified in order to complete delayed milestones and deliverables.

Thematic Meeting participants, Uppsala, 19-21 October 2005

Over all the network activities in this first year have been extremely successful. 77% of the 38 expected milestones were completed on time and a further 5 were completed ahead of schedule. 78% of the expected 33 deliverables were completed on time and a further 8 were completed ahead of schedule.

Third Thematic Meeting

In addition, this month the final Thematic Meeting was held in Uppsala. The meeting was organised locally by Eva Olsson Engvall with help from several colleagues. Forty Thematic Representatives, or their deputies, attended the three day meeting.

The tasks of this final meeting were challenging:

- Review the process of Workpackage Planning and the roles of the Thematic Co-ordinators in JPA2
- Finalise the Science Strategy Document for publication in December
- Complete the plans for the State-of-Art Reviews for publication in January

Thematic Co-ordinators Emma Snary (Risk Research); Eduardo Pozio (Detection and Control); Eva Olsson Engvall (Host-Microbe interaction) and their deputies and teams worked hard to ensure that good progress was made. Particular thanks go to Anne-Marie Kaesboher, who with the help of Katri Javala, took over, at the last minute, the responsibility for the Epidemiology Thematic Group to develop their strategy and review documents. The working documents from this meeting are beginning to go on to the private website and all comments and suggestions should go to the relevant leader named above.

Diane Newell and Claire Cassar

The next General Meeting

At the Co-ordinating Forum and Governing Board meetings, enthusiastic approval was given to hold the next General meeting in Malta, probably in mid May next year.

SALMONELLA WORKSHOP

Med-Vet-Net: Workshop on *Salmonella* control in poultry, from feed to farm

With the *Salmonella* control regulation (2160/2003) coming into force, there is a need for exchange of best practices and better knowledge between all stakeholders. The regulation will begin gradually, starting with *Salmonella* control in poultry. Consequently, under the auspices of Med-Vet-Net, a workshop on this subject will be held from 13-17 March 2006 in Sweden. We anticipate that a lot of money could potentially be saved in *Salmonella* control by using the best practices approach.
The objectives of the workshop are to have an exchange on best practices by presenting *Salmonella* control programs including surveillance feed control, and clean-up control options in primary production. Based on presented facts, participants will be expected to contribute in the workshop by discussing their own experience of implementing *Salmonella* control in their countries. By the end of the workshop, the participants should be able to suggest strategies and programs for *Salmonella* control in feed and primary production adapted to their local circumstances.
This workshop will be most appropriate for individuals responsible for the design and/or implementation of national *Salmonella* control programs. Each Med-Vet-Net institute will be allocated one free place on the course. There are also 25 additional places at the delegate's own cost. In this case, the conference fee is €300 with an additional fee of €150 to cover the cost of the hotel and meals. These additional places will be available on a first come, first served basis.
The course language will be in English.
Further information on the workshop can be found at http://www.medvetnet.org./salmonellaworkshop

Please forward this information to all relevant persons in your country that could benefit from this workshop.

Science Communication Internship Update

Here at the Communications Unit we're into the second month of the packed Science Communication internship timetable. So far our interns have enjoyed a range of activities at our temporary office accomodation in Milton Keynes, UK.
We've all learnt a lot about the key skills required of a communicator, from giving effective presentations, to networking successfully. These skills were put to the test at the EURAGRI conference in York on 21-23 September 2005. The interns interviewed Antoinette Betschart, the associate administrator of the American Agriculture Research Service (ARS) and Howard Dalton, the Chief Scientific Advisor at DEFRA, UK. These interviews will be published in forthcoming newsletters. The philosophy behind science communication has been discussed at length and we've heard about the importance of effective communication, which includes when to say nothing at all, from the perspective of crisis managment in industry. We have also had the opportunity to travel further afield visiting key stakeholders. This has included a visit to Biotechnology trade association, EUROPABIO, and the MEP Philip Whitehead in Brussels. The question of science policy being governed by the perception of public opinion was raised and acknowledged by us all as an important issue for science. The interns have visited the Science Media Centre in London, an organisation which aims to bridge the gap between journalists and scientists. They've also had some intensive training in the development and managment of websites.
The remaining time of the internship is equally busy and will equip the interns with a full range of skills to enable them to become effective science communicators.

Lucy Harper

EXTERNAL CONGRESS

Communicating European Research 2005
International Conference
Brussels Exhibition Center (Heysel)
14-15 November 2005
Based on the very positive feedback from the 2004 conference, this event will focus on the manifold aspects of science communication and will provide an excellent forum and meeting place for scientists, communication professionals and journalists. The conference will also take stock of the way towards the Seventh Framework Programme.
Around 3000 participants will meet to promote mutual understanding of their respective roles, to share best practice and to define strategies to improve communication, outreach and dissemination of research results to the public and the press at a European level.
An exhibition will feature selected research initiatives as well as the communication strategies of research organisations.
At the time of CER 2005, the preparation of the 7th Framework Programme will be in full swing and the current state of play will be presented. Please visit http://europa.eu.int/comm/research/conferences/2005/cer2005/index_en.html

Epidemiology and Vaccines
SfAM Winter Meeting, The Royal Society, Carlton House Terrace, London, UK
5 January 2005
This one day meeting includes a variety of aspects of vaccine use and epidemiology; from MMR to Bioterrorism vaccines. A plenary session, inlcuding a presentation on avian flu will be followed by two parallel sessions;
A. Postcodes to Pandemics - inlcuding TB vaccines and the effects of climate change
B. Current Vaccine issues - including vaccination against MRSA.
Further information and online booking are available at www.sfam.org.uk/janmeet.html or email meetings@sfam.org.uk

4th International Veterinary Vaccines and Diagnostics Conference (IVVDC)
Oslo, Norway
25-29 June 2006
The conference provides an excellent opportunity to meet colleagues and be updated on recent progress and future perspectives in the fields of vaccinology and diagnostics.
The IVVDC has become an important meeting place for regulatory authorities, pharmaceutical companies and the scientific community.
An exciting scientific program has been prepared covering the various areas of vaccinology and diagnostics. Please visit: http://www.vetinst.no/inet_eng/index.asp?strUrl=1002147i&topExpand=&subExpand=

MED-VET-NET

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