

Workpackage 4: Annual Research Report

WP number	04
Title	PulseNet Europe
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Progress summary

PulseNet Europe is a unique network of public health, veterinary and food laboratories for the molecular surveillance of food-borne infections in Europe.

The aim of PNE is to establish a real-time surveillance system to detect and aid in the control of infection clusters of *Salmonella*, verocytotoxin-producing *E. coli* (VTEC) and *Listeria monocytogenes*. The Steering committee, curator group and structure for PulseNet Europe were established in September 2004. Participants come from 56 Institutes from 29 countries. Appointment of an expert in bioinformatics took place in June 2005 and he received training in Bionumerics software.

The development of the organism-specific databases included the necessary information for each organism and cross-compatibility across the PulseNet databases.

The access to a pilot central database was tested by the curators. The initial databases are being developed and will be tested in the next few months.

The established PNE website 'www.pulsenet-europe.org' is under development. A closed communication system has been established and testing is underway.

The training of curators who will take care of central database, perform the naming and confirming the PFGE profiles and infection cluster detection, is scheduled for 26-28 Sept 2005 in Belgium.

The coordinator visited CDC, Atlanta and gained information on running other PulseNet databases and represented PNE at PulseNet International Steering Committee Meeting.

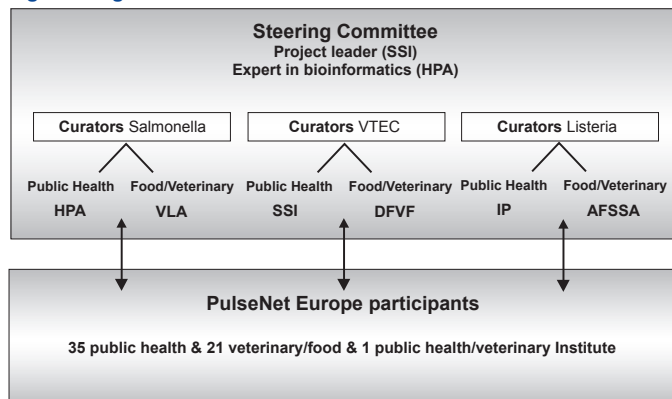
Three PulseNet Europe Steering Committee meetings were held. Other funding streams for PulseNet Europe are currently being pursued.

Project progress report

Organisational structure of PulseNet Europe

The Steering Committee and organisation structure was established in September 2004 (Fig. 4.2). The members of the Steering Com-

Fig. 4.1 Organisation structure of PulseNet



SSI, Statens Serum Institut, Denmark; HPA, Health Protection Agency, England; DFVF, Danish Institut for Food and Veterinary Research, Denmark; VLA, Veterinary Laboratories Agency, England; IP, Institut Pasteur, France; NVI, National Veterinary Institute, Norway

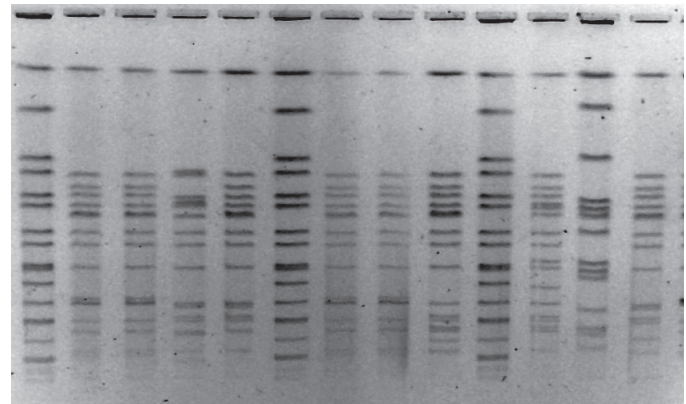


Fig. 4.2 Pulsed Field Electrophoresis Gel

Objectives

The overall aim is to establish a real-time linked surveillance database system to detect disease clusters and investigate outbreaks of *Salmonella*, VTEC and *Listeria*. This will involve:

- establishment of real-time linked surveillance database system to detect disease clusters and investigate outbreaks of *Salmonella*, VTEC and *Listeria*.
- establishment of a database curator system and training of the curators
- establishment of a rapid communication system (ListServ)
- establishment of a certification and proficiency testing program and certification of participants

mittee are - besides the coordinator who comes from Statens Serum Institut (SSI), Denmark - six curators and representatives from the six PulseNet Europe reference laboratories, representing the highest expertise in the veterinary and public health field in molecular surveillance of food-borne pathogens in Europe. Curators and representatives

for *Salmonella* are from the Health Protection Agency (HPA), England, and from the Danish Institute for Food & Veterinary Research (DFVF), Denmark. For verocytotoxin-producing *E. coli* there is a representative from SSI, Denmark and from the Veterinary Laboratories Agency (VLA), England and for *Listeria monocytogenes*, representatives from the Institut

Pasteur (IP), France and from the National Veterinary Institute (NVI), Norway. In addition, HPA has the responsibility for the technical management of the database system by an expert in bioinformatics. The workpackage leader was changed in the beginning of 2005.

Participants are laboratories submitting typing data for one or more of the

pathogens under surveillance in the network. The participants represent public health laboratories, food and veterinary laboratories across Europe. These laboratories are chosen based on their key position in national surveillance and their capacity in molecular typing. All together, 56 Institutes from 29 countries are participating in PulseNet Europe including 12 Institutes participating in Med-Vet-Net (Fig. 4.3).

Central database system

The first task in the establishment of the central database system was to appoint a Bioinformatician. Due to internal organisational changes at the Health Protection Agency, there were delays, however, appointment of an expert in bioinformatics was made in June 2005 and this aspect of the project is now on course.

The essential web database-hosting infrastructure was already in place at the Health Protection Agency and the initial task therefore was to develop the specification for each of the organism-specific databases. This was done through liaison with the curators, ensuring that the necessary information for each organism was included but also ensuring cross-compatibility across the databases. To optimise the communication of PulseNet Europe database with other PulseNet servers in PulseNet International it was decided to adopt certain field names, fingerprint types and *Salmonella* Braenderup standard strain from PulseNet USA.

A pilot database derived from the former "Salmgene" project was established so that access to the central database from the curators Institutes could be tested and this was confirmed.

The initial databases are now under development and will be tested in the next few months.

Website

Although Med-Vet-Net has a central website, the Steering Group identified the need for a PulseNet Europe website for use by participants and to disseminate information to the scientific community. The web address 'www.pulsenet-europe.org' was established and preliminary content, compatible and complementary to that on the main website, is under development. A particularly important component for PulseNet Europe participants is the establishment of a closed communication system, i.e. a web bulletin board. This has been established and testing is underway. It is felt that this will be a significant means of communication between curators and participants as it will provide a forum where discussions and questions can be asked concerning the PulseNet protocols and the database.

Training of curator group

Due to unforeseen circumstances, training of the curator group will be delayed by less than one month. The training will now take place 26-28 Sept 2005 in Belgium. The six curators will take care of the central database, perform the naming and confirmation of the PFGE profiles submitted by partners and perform central cluster detection of all pathogens at regular intervals. Each pathogen will be allocated to two curators - one from a public health and the other from veterinary/food side. Curators will also be involved in troubleshooting for a participant laboratory whenever requested.

Training of PulseNet Europe participants

PulseNet Europe workpackage successfully applied for extra funding from Med-Vet-Net WP2 for training, and of up to 14 delegates to perform PFGE and image analysis according to the defined PulseNet Europe rules. The training will take place within the next six months and will enable participants to be active in PulseNet Europe by submitting profiles and data to the database.

Other training

Susanna Lukinmaa spent two weeks in April 2005 at the Center for Disease Control and Prevention (CDC) in Atlanta to gain more information on running PulseNet USA databases.

Susanna Lukinmaa received one days training, and Craig Lucas (new expert in bioinformatics) three days training in August 2005 in Belgium from Applied Maths which has manufactured the Bionumerics software.

PulseNet International

Susanna Lukinmaa represented PulseNet Europe at the PulseNet International Steering Committee Meeting. PulseNet International is built up with networks from different continents: PulseNet Asia-Pacific region, PulseNet Canada, PulseNet Latin America and PulseNet USA.

Finding a more stable funding mechanism

The funding from Med-Vet-Net covers coordination, building the database system, some meetings and training of the database curators. Therefore, an alternative funding mechanism for PulseNet Europe is needed to maintain and curate the databases and train the participants. These funds were applied for from the EU under Programme of Community Action in the field of public health (2003-2008). The application included participants from 54 Institutions from 28 European countries. Unfortunately, the application was unsuccessful.

The following meetings have taken place. The topics discussed are also given.

1. First Steering Committee Meeting in PulseNet Europe (MVN)

- Statens Serum Institut, Copenhagen, Denmark 7 September, 2004
- Definition of the PulseNet Europe tasks within Med-Vet-Net

- The PulseNet Europe database (experiences with Salm-Gene and PulseNet USA)
- The WebBoard (ListServ - communication forum for participants)
- Memorandum of understanding with PulseNet International
- Finances including future funding/project applications

2. Second PulseNet Europe Steering Committee Meeting

Health Protection Agency, London, United Kingdom 23 February 2005

- PulseNet Europe Milestones
- The database
- The PulseNet Europe Communication system
- Memorandum of Understanding with PulseNet International
- The DG-Sanco application
- Training of participants

3. PulseNet International Steering Committee Meeting

Westin Hotel, Seattle, USA, 10 May, 2005

- News from each regional network
- Discussions of draft Memorandum of Understanding and Term of Reference
- Interaction with other networks
- New protocols
- Collaboration on next generation methods
- PulseNet issue of Food-borne Pathogens & Disease

4. Third PulseNet Europe Steering Committee Meeting

Statens Serum Institut, Copenhagen, Denmark, 30 August, 2005

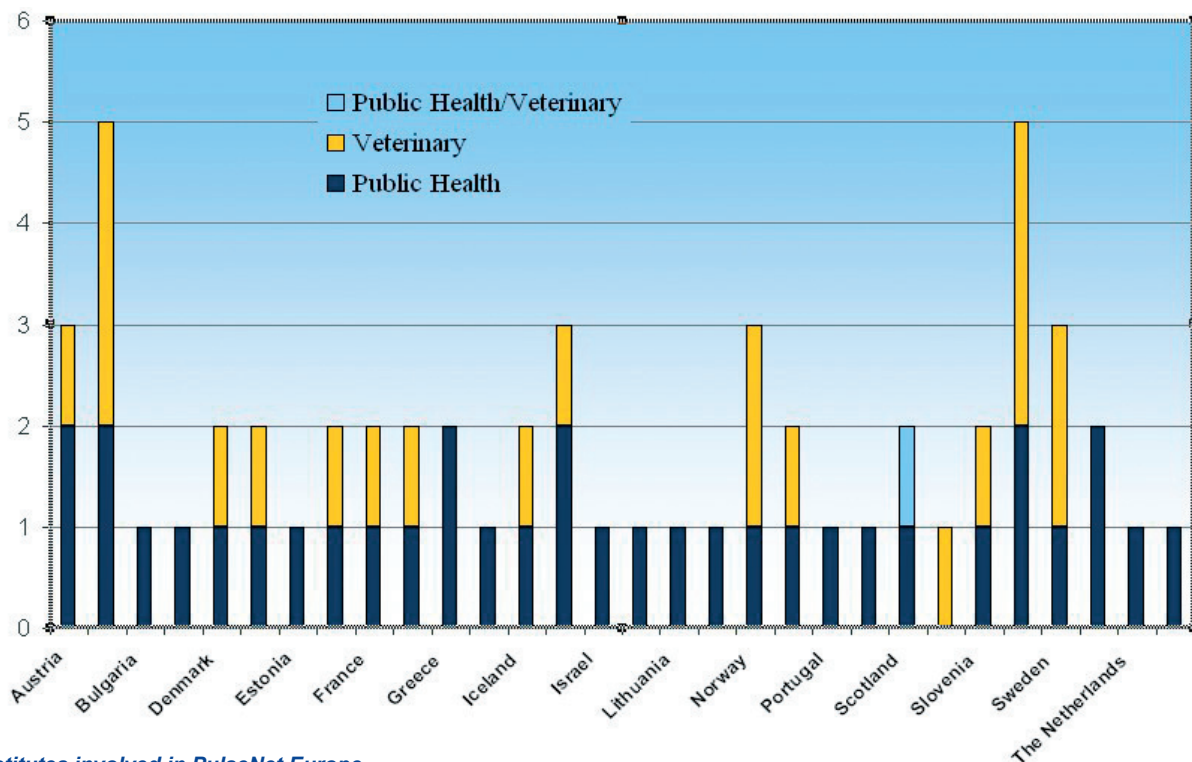


Fig. 4.3 Institutes involved in PulseNet Europe