



**International surveillance network for
the enteric infections -
Salmonella, *VTEC O157* and *Campylobacter***

Funded by the European Commission – DG SANCO



**European
Commission**

**DG SANCO –
Unit C/3 (Health Threats)**

**Programme of Community Action in the
field of public health (2003-2008)
Decision 1786/2002/EC**

Agreement N° 2003203

**Enter-net – Human enteric pathogen
dedicated surveillance network**

**Final report for the period
01/10/2003 – 01/10/2006**

Project Management

Team:

Noël Gill (Project
Leader)

Bill Reilly

John Threlfall

Scientific Co-ordinator:

Ian Fisher

Administrator:

Francine Stalham

Address:

HPA Centre for
Infections
61 Colindale Ave,
London, NW9 5EQ,
UK

Ph: +44-(0)870-084-
2000

Fax: +44-(0)20-8327-
7112

Email: [Enter-
net@hpa.org.uk](mailto:Enter-net@hpa.org.uk)

Austria; F Allerberger, C Kornschöber, R Strauss; **Belgium;** J-M Collard, D Pierard, F Guillaume; **Bulgaria;** G Asseva, S Raycheva; **Canada;** L-K Ng, P Sockett; **Cyprus;** D Bagatzouni, C Hadjianastassiou; **Czech Republic;** D Dedicová, R Karpiskova, M Prikazska; **Denmark;** K Mølbak, E Nielsen, F Scheutz; **England & Wales;** GK Adak, T Cheasty, **Estonia;** U Joks, J Epshtein; **Finland;** M Kuusi, A Siitonen; **France;** H de Valk, P Grimont; **Germany;** H Karch, K Stark, H Tschäpe; **Greece;** K Mellou, PT Tassios, A Vatopoulos; **Hungary;** M Herpay, K Krisztalovics, N Nógrády; **Iceland;** H Hardardóttir, G Sigmundsdóttir; **Ireland;** M Cormican, P McKeown, E McNamara; **Italy;** A Caprioli, I Luzzi, A Tozzi; **Japan;** N Okabe, H Watanabe; **Latvia;** A Bormane, S Makarova; **Lithuania;** G Zagrebneviene; **Luxembourg;** P Huberty-Krau, F Schneider; **Malta;** P Cuschieri, M Micallef; **the Netherlands;** Y van Duynhoven, W van Pelt, W Wannet; **New Zealand;** G MacBride-Stewart, F Thomson-Carter; **Norway;** J Lassen, K Nygard; **Poland;** J Szych, M Sadkowska-Todys; **Portugal;** C Furtado, J Machado; **Romania;** M Damian; **Scotland;** J Coia, J Cowden, M Hanson; **Slovakia;** D Gavacova; **Slovenia;** T Cretnik, E Grilc; **South Africa;** K Keddy; **Spain;** A Echeita, G Hernández-Pezzi; **Sweden;** Y Andersson, S Löfdahl, R Wollin; **Switzerland;** H Hächler, H Schmid.

Contents

Executive summary	Page 3
Introduction	Page 5
Objectives	Page 5
Methods	Page 7
Development, progress and impact of the project	Page 7
Databases and Outputs	Page 7
Annual and Quarterly Reports	Page 8
Monitoring trends	Page 9
<i>Salmonella</i> infections	Page 9
<i>Campylobacter</i> infections	Page 10
<i>E coli</i> infections	Page 11
Urgent inquiries	Page 12
External Quality Assurance schemes	Page 17
Impact of the project	Page 19
Incorporation of molecular methods	Page 19
Activities conducted and utilisation and dissemination of results	Page 20
Project management information	Page 21
Manpower for the execution of the activities/partners and countries involved.	Page 21
Achievement of the objectives.	Page 21
Conclusion	Page 22

Annexes

Annex 1 Enter-net participants	Page 23
Annex 2 2003/06 References	Page 29
Annex 3 Management meeting reports	Page 31
Annex 4 Annual Workshop Reports	Page 44
Annex 4a workshop report 2004	Page 44
Annex 4b workshop report 2005	Page 73
Annex 4c workshop report 2006	Page 115
Annex 5 Final cost statement	Page 142

Executive Summary.

Introduction.

Public health surveillance is essential for recognising outbreaks of food-borne infection so that investigations can be mounted to identify contaminated sources and protect consumers. Swift and comprehensive typing by laboratories of enteric bacteria isolated from human cases together with rapid pooling of these data from as wide an area as possible is the foundation for successful surveillance of these infections. The steady increase in the geographical distribution of food products both within and between countries makes it more likely for outbreak cases to be widely scattered. International surveillance systems which combine highly discriminating and reliable typing data from reference laboratories are a necessary response to the vulnerability caused by global food distribution chains.

Enter-net is an established and thriving EU-wide dedicated surveillance network (DSN) for human cases caused by the pathogens *Salmonella* and Verocytotoxin-producing *Escherichia coli* (VTEC) and *Campylobacter*. By involving the microbiologist in charge of the national reference laboratory and the epidemiologist responsible for national surveillance of these organisms, the key professionals in every EU country are participating. Data from the majority of participating countries are being collated every month to create international salmonella and VTEC databases. Outbreak recognition and the efficiency of investigations in the EU has improved, and national surveillance has been strengthened. The network functions as an alert system through rapid enquiries to all participants when an unexplained outbreak is recognised in one of the member countries. Harmonisation has been agreed for the phage-typing of *Salmonella* Enteritidis and *Salmonella* Typhimurium for the principal European laboratories undertaking this activity.

Enter-net objectives.

Enter-net's purpose is to maintain and develop EU-wide laboratory-based surveillance of the major enteric bacterial pathogens through a co-ordinated network in which the participants are the microbiologists responsible for national reference services, and the epidemiologists responsible for national surveillance of these bacteria (annex 1). All participants are actively involved in the operation of the network.

During the period from October 2003 through October 2006 the Enter-net aims were achieved by pursuing the following objectives:

1. Improve the completeness and timeliness of the data collated regularly on human *Salmonella* and Vero cytotoxin-producing *Escherichia coli* (VTEC) infections,
2. Full incorporating the new Member States into the Enter-net DSN so that all EU countries are contributing to the international surveillance of enteric pathogens,
3. Recognise and respond to potential threats to health arising from foodstuffs contaminated with *Salmonella* and VTEC, *Campylobacter*, and other foodborne pathogens if appropriate,
4. Facilitate international outbreak detection and investigation, or widely distributed national outbreaks, of bacterial enteric pathogens through the rapid exchange of information and strains,
5. Continue to harmonise the surveillance of antimicrobial resistance in *Salmonellas* through repeat calibration studies. Extend surveillance of antimicrobial resistance by inclusion of other antimicrobials and by identification of resistance mechanisms where appropriate,
6. Conduct routine external quality assurance (EQA) of salmonella and VTEC sero- and phage-typing and of other virulence factors as appropriate by national reference laboratories through extending the existing ring-trial arrangements.

7. Continue to promote, facilitate and extend collaborative international research on typing enhancements to enteric surveillance within the EU through the PulseNet Europe Work Package as part of MED-VET-NET, and antimicrobial susceptibility testing (AST) of human enteric bacteria,
8. Maintain the Enter-net collaboration principles under review in consultation with participants, Commission staff, and members of the Network Committee of DG SANCO,
9. Develop a consensus on standards for national participation in international surveillance against which the performance of Enter-net participants and co-ordinators can be assessed,
10. Continue to strengthen global surveillance of these infections through collaboration with the WHO and the European non-EU countries, the G8 countries, South Africa, New Zealand, Australia and other countries as appropriate,
11. Development of an international database of fully characterised enteric bacteria isolates obtained through ad hoc and routine examination of foodstuffs,
12. Extend the range of pathogens surveilled to include the collection, collation and EU-wide analysis of data on *Campylobacter* infections.

The operational aims of Enter-net can be summarised as having three main threads; monitoring trends, requesting and disseminating information on potential international incidents and recognising and reacting to international outbreaks of food-borne pathogens. Significant progress has been made in each of these. To underpin these aims, quality assurance of the reference laboratories is an integral part of the management of the network, and is built into the project.

Impact of the project.

The network has provided improved the recognition of outbreaks of foodborne infections involving more than one country. This early recognition has facilitated the investigation of such outbreaks and has allowed public health interventions to be implemented to reduce the burden of infection in the affected countries.

Participation in the Quality Assurance schemes has been very high and significant improvements have been seen in the results. This results in considerable Community Added Value, as national surveillance is improved as a result of an international project. Authoritative data on trends in *Salmonella* and VTEC infections and associated antimicrobial resistance is being circulated within and outwith the project.

The project has been successfully fulfilling its objectives in monitoring trends of infection in Europe, requesting and disseminating information on potential international incidents and recognising and reacting to international outbreaks of foodborne pathogens.

Conclusion.

The surveillance scheme is working well and is meeting its primary objectives. Data from the international databases are being circulated to all participants and a wider, public health audience whenever possible and appropriate. Information on potential and actual international incidents of infection by foodborne pathogens is being circulated around the network, and, when appropriate, to other relevant public health professionals in a timely manner. International outbreaks identified are being investigated on an international basis.

The laboratory component of the network is being actively supported by the annual QA schemes. These schemes ensure that the data being supplied to the Enter-net databases are of the highest quality.

Introduction.

Public health surveillance is essential for recognising outbreaks of foodborne infection so that investigations can be mounted to identify contaminated sources and protect consumers. Swift and comprehensive typing by laboratories of enteric bacteria isolated from human cases together with rapid pooling of these data from as wide an area as possible is the foundation for successful surveillance of these infections. The steady increase in the geographical distribution of food products both within and between countries makes it more likely for outbreak cases to be widely scattered. International surveillance systems which combine highly discriminating and reliable typing data from reference laboratories are a necessary response to the vulnerability caused by global food distribution chains.

Enter-net is an established and thriving EU-wide dedicated surveillance network (DSN) for human cases caused by the pathogens *Salmonella* and Verocytotoxin-producing *Escherichia coli* (VTEC) and *Campylobacter*. By involving the microbiologist in charge of the national reference laboratory and the epidemiologist responsible for national surveillance of these organisms, the key professionals in every EU country are participating. Data from the majority of participating countries are being collated every month to create international salmonella and VTEC databases. Outbreak recognition and the efficiency of investigations in the EU has improved, and national surveillance has been strengthened. The network functions as an alert system through rapid enquiries to all participants when an unexplained outbreak is recognised in one of the member countries. Harmonisation has been agreed for the phage typing of *Salmonella* Enteritidis and *Salmonella* Typhimurium for the principal European laboratories undertaking this activity.

The problem of widespread and increasing antimicrobial resistance, including resistant *Salmonella*, was recently highlighted by the European Commission¹. Resistance to several newly developed antibiotics in *Salmonellas* has been reported. The report of the Parliament's Economic and Social Committee called for research on the evolution of antimicrobial resistance and for surveillance which incorporated external quality assurance of resistance detection methods.

A co-ordinated study of the results from antimicrobial susceptibility testing of specially selected *Salmonella* strains has provided a basis for initial comparisons of resistance trends between countries participating in Enter-net. Although there is sufficient concordance in measurement of resistance in enteric bacteria between national laboratories for trend comparisons to be meaningful, the need to harmonise resistance testing is a priority. Standardisation of antimicrobial susceptibility testing is currently being actively pursued by veterinary laboratories within the EU and by the Office International des Epizooties. Recommendations for the adoption of methods for human isolates based on internationally agreed levels are now required to enable the accurate comparison of resistance to epidemiologically-important and therapeutically-relevant antibiotics.

Enter-net objectives.

Enter-net's purpose is to maintain and develop EU-wide laboratory-based surveillance of the major enteric bacterial pathogens through a co-ordinated network in which the participants are the microbiologists responsible for national reference services, and the epidemiologists responsible for national surveillance of these bacteria (annex 1). All participants are actively involved in the operation of the network.

¹ http://europa.eu.int/comm/health/index_en.htm COM (2001) 333 final

During the period from October 2003 through October 2006 the Enter-net aims were achieved by pursuing the following objectives:

1. Improve the completeness and timeliness of the data collated regularly on human *Salmonella* and Vero cytotoxin-producing *Escherichia coli* (VTEC) infections,
2. Full incorporating the new Member States into the Enter-net DSN so that all EU countries are contributing to the international surveillance of enteric pathogens,
3. Recognise and respond to potential threats to health arising from foodstuffs contaminated with *Salmonella* and VTEC, *Campylobacter*, and other foodborne pathogens if appropriate,
4. Facilitate international outbreak detection and investigation, or widely distributed national outbreaks, of bacterial enteric pathogens through the rapid exchange of information and strains,
5. Continue to harmonise the surveillance of antimicrobial resistance in *Salmonellas* through repeat calibration studies. Extend surveillance of antimicrobial resistance by inclusion of other antimicrobials and by identification of resistance mechanisms where appropriate,
6. Conduct routine external quality assurance (EQA) of salmonella and VTEC sero- and phage-typing and of other virulence factors as appropriate by national reference laboratories through extending the existing ring-trial arrangements.
7. Continue to promote, facilitate and extend collaborative international research on typing enhancements to enteric surveillance within the EU through the PulseNet Europe Work Package as part of MED-VET-NET, and antimicrobial susceptibility testing (AST) of human enteric bacteria,
8. Maintain the Enter-net collaboration principles under review in consultation with participants, Commission staff, and members of the Network Committee of DG SANCO,
9. Develop a consensus on standards for national participation in international surveillance against which the performance of Enter-net participants and co-ordinators can be assessed,
10. Continue to strengthen global surveillance of these infections through collaboration with the WHO and the European non-EU countries, the G8 countries, South Africa, New Zealand, Australia and other countries as appropriate,
11. Development of an international database of fully characterised enteric bacteria isolates obtained through ad hoc and routine examination of foodstuffs,
12. Extend the range of pathogens surveilled to include the collection, collation and EU-wide analysis of data on campylobacter infections.

The operational aims of Enter-net can be summarised as having three main threads; creating international databases to enable the monitoring of trends, requesting and disseminating information on potential international incidents and recognising and reacting to international outbreaks of food-borne pathogens. Significant progress has been made in each of these. To underpin these aims, quality assurance of the reference laboratories is an integral part of the management of the network, and is built into the project. Publications are regular outputs from the DSN and those for this contract period are listed in Annex 2.

Methods.

Limited data on each laboratory-confirmed case of *Salmonella* or *E. coli* infection identified by the national reference laboratories are transmitted to the central databases held at the Enter-net hub. These records include microbiological and epidemiological data and are analysed on a regular basis and fed back to all participants. The creation of the central databases allows Enter-net to monitor trends in infection and recognise unusual events that can only be seen when the data are pooled internationally. The *Campylobacter* element of the surveillance system is realised by collecting aggregated data on a quarterly basis.

The quality of these data is supported by the regular Quality Assurance programs within Enter-net.

The hub also acts as the distribution point for all urgent enquiries on incidents and outbreaks of enteric pathogens. Often these may only affect individual countries, but conveying information on outbreaks between members of the network has identified international outbreaks. When international outbreaks are recognised the hub manages the co-ordination of their investigation.

Regular meetings of the Project Team, the Scientific Advisory Committee, and all the participants at the annual workshop manage the progress of project. The hosts for the workshops during this contract were the Robert Koch Institute in Berlin for the 2004 workshop, the Centro Nacional de Epidemiologia at the Instituto de Salud Carlos III, Madrid, Spain, for the 2005 workshop, and the National Institute of Public Health, Prague, the Czech Republic for the 2006 workshop. At these meetings the progress of the network was reviewed, potential shortcomings identified and remedial actions identified and implemented. Strategic developments for the future are also discussed and methods for progressing towards these targets decided. The reports on these meetings are in annexes 3 and 4.

Development, progress and impact of the project.

The project has made considerable progress in the aspects of international surveillance in which it operates. Trend and summary reports are disseminated to all participants, the European Commission, the WHO and, since its inception, the ECDC by email and the general public via the World Wide Web. Peer-reviewed articles have been published in journals and presented at major international conferences to communicate the results of the project to a wider public health audience. Urgent enquiries have been disseminated to all participants, the European Commission, the WHO and the ECDC, to enhance surveillance activities and improve the ascertainment of incidents with potential international implications. International outbreaks have been identified, and public health interventions have been made to prevent further cases of infection. Quality assurance schemes are an integral element of the project and have been distributed regularly, and have significantly improved the quality of Reference Microbiology in the participating institutes.

Databases and outputs.

During the period of this contract, the VTEC quarterly reports started being produced from the Enter-net VTEC database. A confidential version is being distributed to all participants and a public domain version is being routinely put up on the Enter-net website. These are complimentary to the quarterly *Salmonella* reports that have been produced for many years.

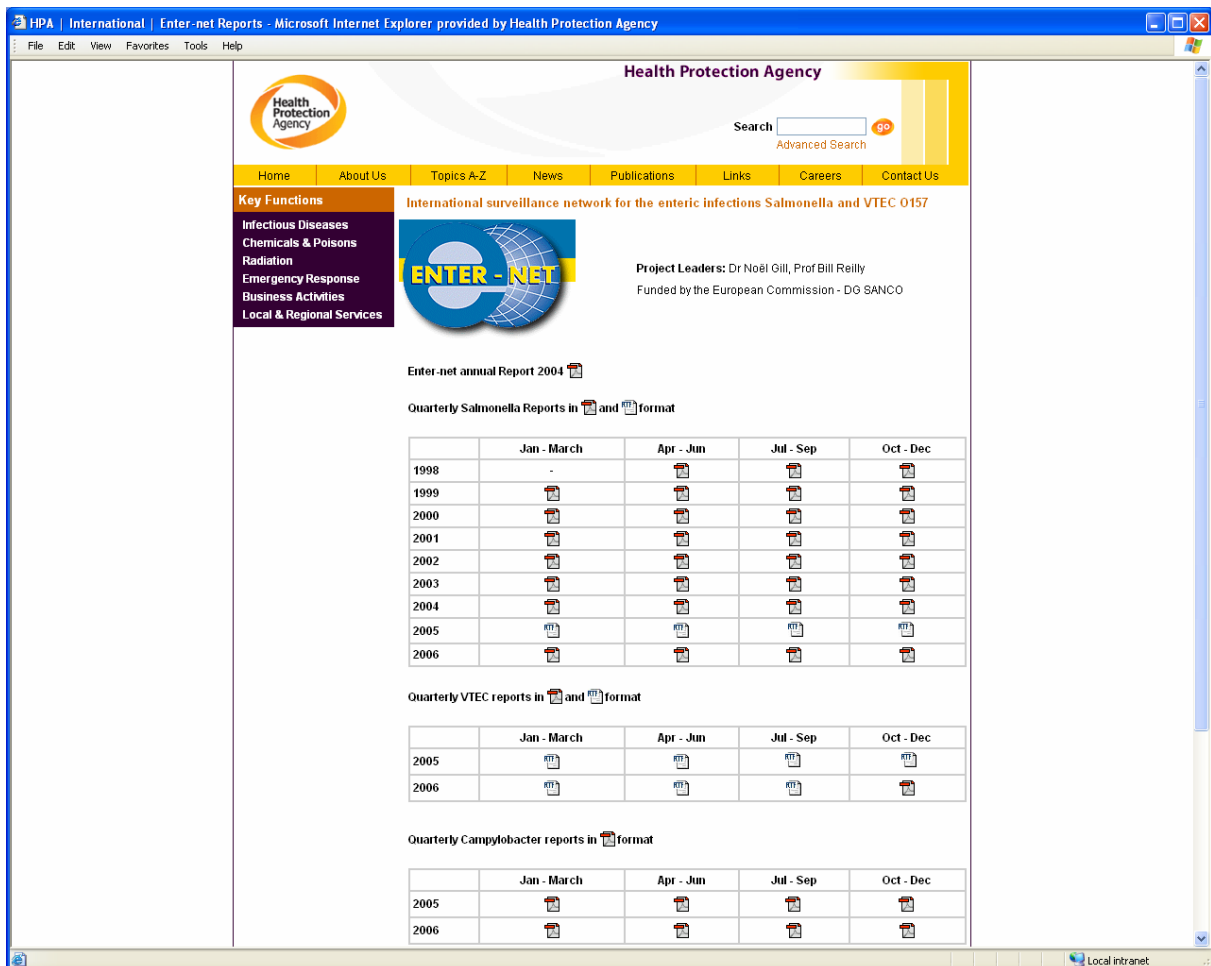
The specification of the *Campylobacter* reports was discussed and the first draft report was put out for comment. This was agreed and further reports have been prepared. These reports were prepared retrospectively from the beginning of 2005,

and prospectively from 2006, and have been circulated to all participants, the Commission, the WHO, the ECDC and to the general public via the WWW.

Annual and quarterly reports.

It was agreed at the first workshop including all the new Member States in July 2004 that an annual report would be published from the whole Enter-net group. The first draft was circulated for comment at the workshop in Madrid in 2005; and was approved by all the participants. The first published report is for the year 2004 and went live early in 2006. The annual report also provides the Enter-net input into the European annual Zoonoses report and the ECDC annual Epidemiological report.

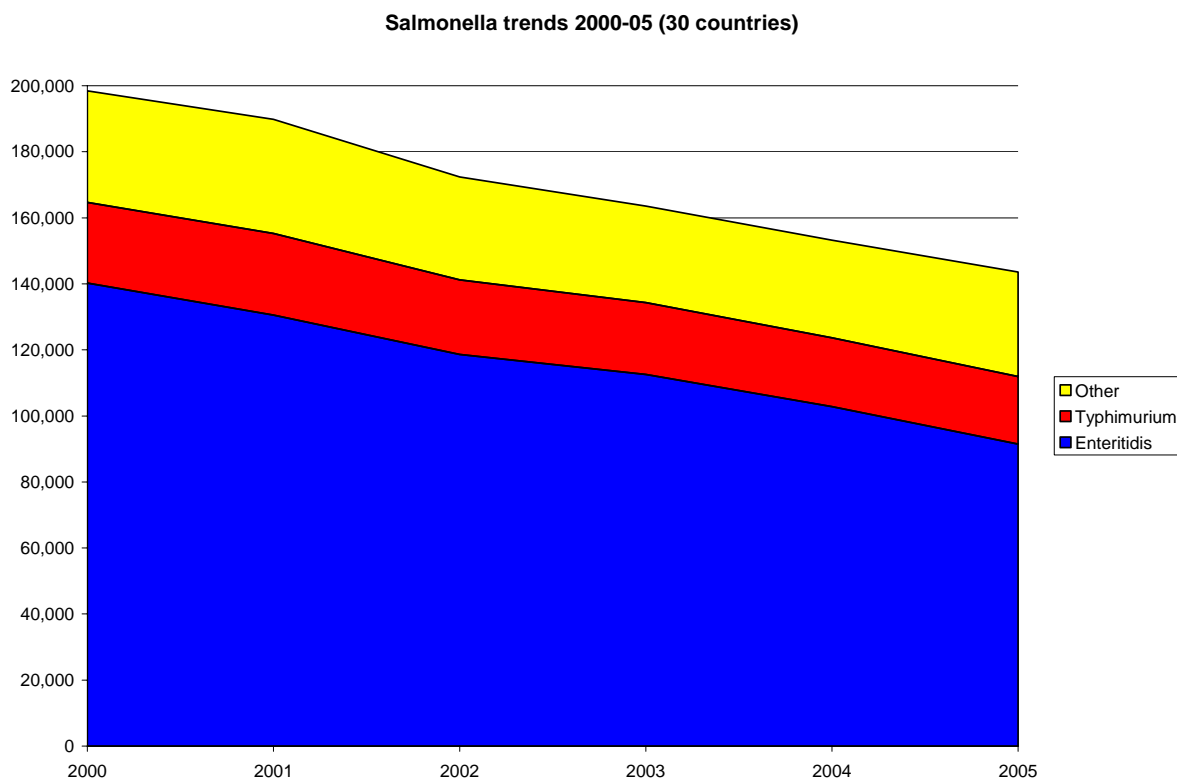
As well as these reports being made available to the Enter-net participants, the Commission, and other relevant parties, public domain version of the quarterly reports for all the pathogens surveilled by Enter-net and the first annual report are available on the Enter-net website (http://www.hpa.org.uk/hpa/inter/enter-net_reports.htm). This demonstrates the added value of the network and ensures that the outputs supported by the Commission contract are made available to a wide public health audience, and ensure high visibility of the project.



Monitoring trends.

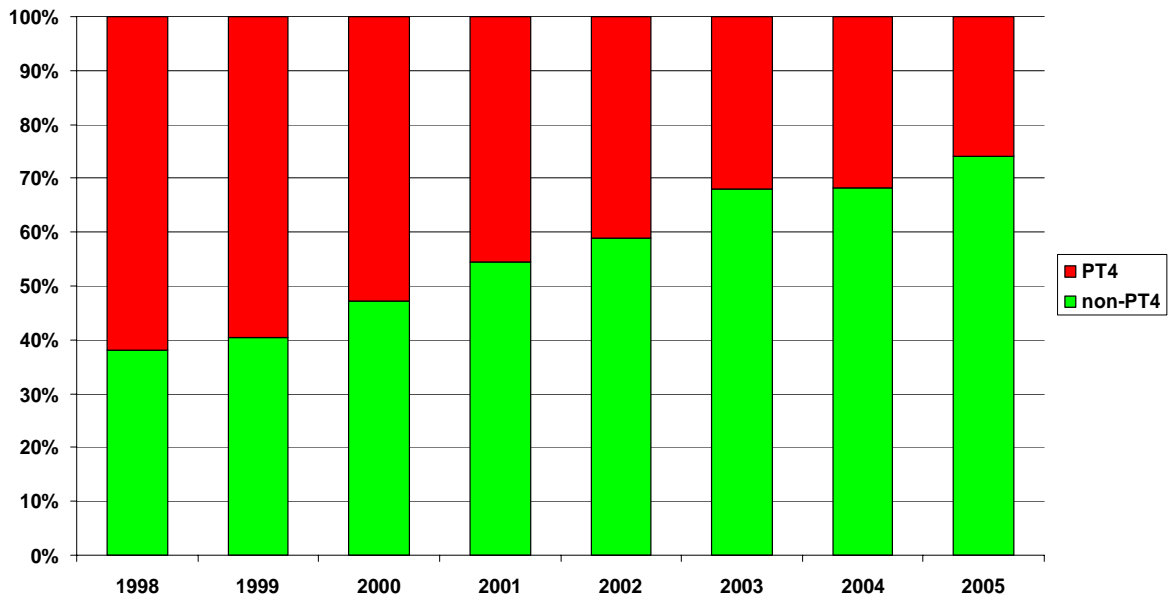
Salmonella infections.

One objective of Enter-net is the monitoring of trends in enteric pathogens. This has been done for a considerable time which allows the changes in the epidemiology of enteric pathogens to be followed. The graph below shows the trend in *Salmonella* infections since 2000. Even though the number of cases of salmonellosis is declining, it is clear that with almost 140,000 laboratory-confirmed cases from the 30 countries from whom retrospective data are available, *Salmonella* remains a considerable cause of mortality within Europe. Especially as it is known that the number of laboratory-confirmed cases under-represents the true burden of illness in the community.



However further in-depth analysis of the Enter-net salmonella database shows that this is not the full story, while the number of Enteritidis strains have been going down the distribution of phage types within this has changed dramatically. Phage type 4 was the predominant clone in 1988, but by 2001 phage types (PT) other than PT4 had overtaken them as the most important strains. This trend has continued since then. Not only have non-PT4 types increased in proportion, they have increased in total numbers as well, showing that this was not just an artefact. This change in epidemiology has been consistent over several years. This shift in phage types being identified can only be demonstrated by the pooling of data at the European / International level.

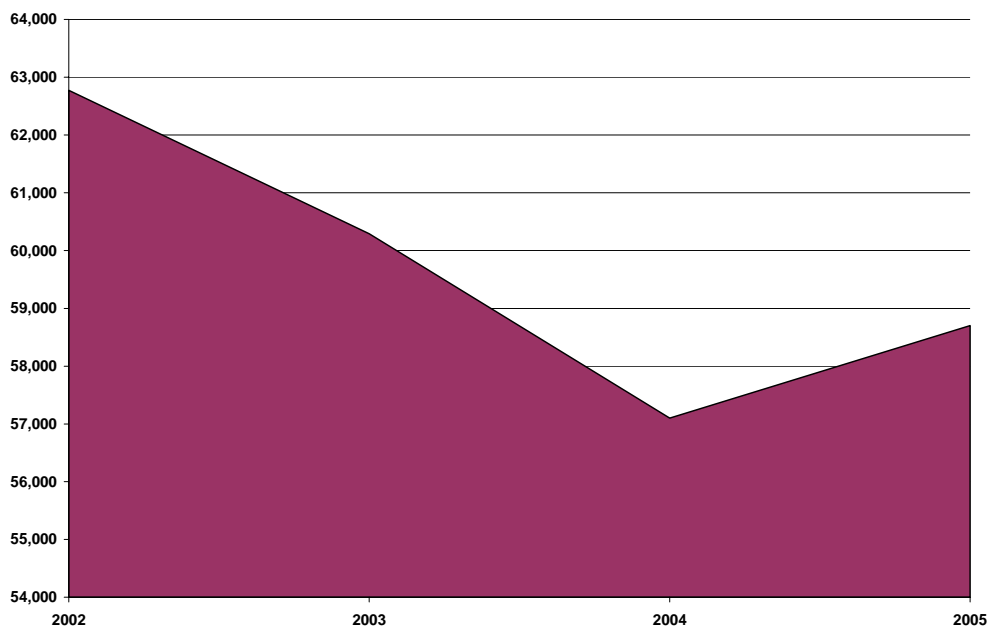
S. Enteritidis phage-types (PT4/non-PT4) 1998-2005



Trends in Campylobacter infections.

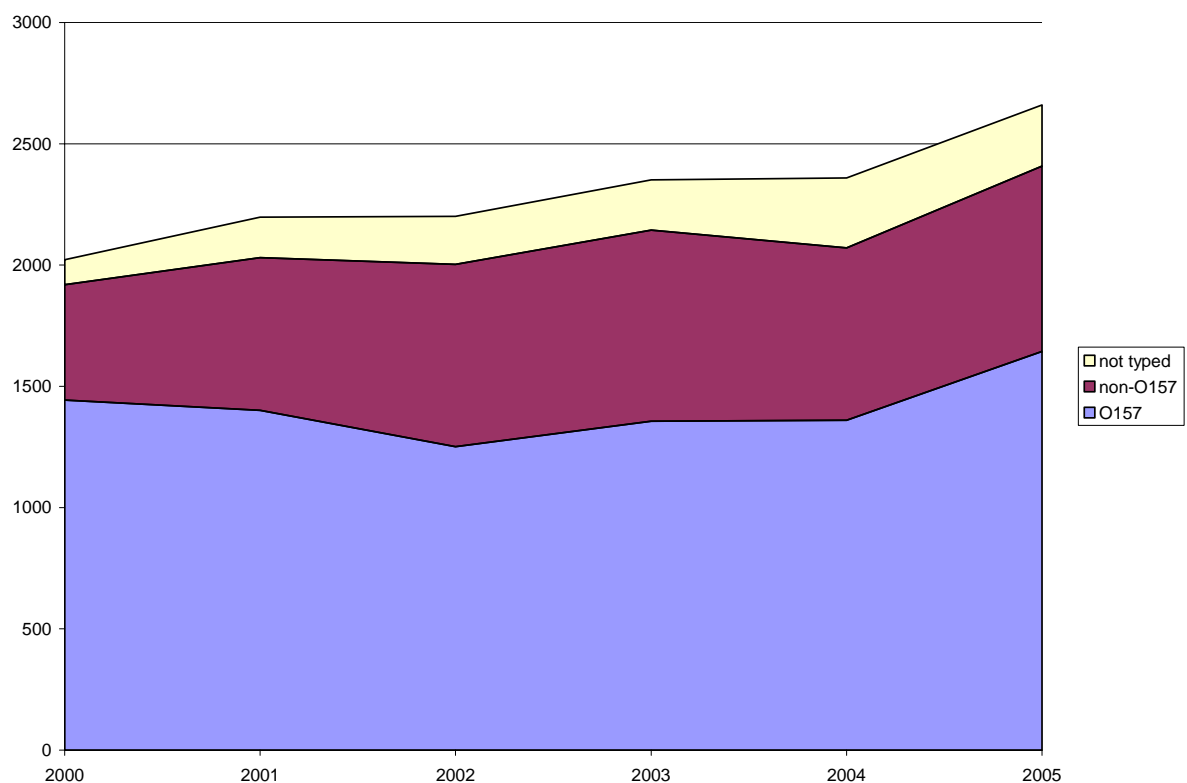
As the surveillance of *Campylobacter* only really commenced in 2005, it is not possible to accurately analyse trends from the Enter-net *Campylobacter* database. However, retrospective data from 2002 have been provided by seven Enter-net countries so that some trends can be seen. The full value of the *Campylobacter* component will be seen as the DSN progresses over the next few years.

Total Campylobacter 2002-05 (7 countries)



Trends in *E. coli* infections.

There are data from 22 countries for the years 2000-05 in the VTEC database, and unlike *Salmonella* infections the trend is upwards. There were 2,660 cases in 2005 compared with 2,022 cases in 2000 (a rise of 31.6%). VTEC O157 is the most common single serogroup identified, and this rose from 1,443 to 1,644 cases (an increase of 13.9%), O157 VTECs increased by over 284 cases between 2004 and 2005, although a significant number of these (circa 200) can be attributed to the outbreak in Wales in September 2005. However non-O157 serogroups are also being recognised and they rose from 476 to 764 cases (up 60.5%) over the course of the six years. This is significant as there are considerable opportunities for non-O157s to be under-reported as many laboratories do not look for them, and hence not identify and report them. Non-O157 VTECs can, and do, cause significant illness in patients with these infections.



Urgent enquiries;

Usually at the start of an outbreak the vehicle of infection is not known. Enter-net provides a mechanism to inform other countries of potential international problems and ask for any information that may be of relevance to the outbreak investigation. A negative response is just as valuable as a positive one. If nothing is happening in another country, then this allows lines of enquiry to be focused accordingly, if something is then there may be an incident with international implications occurring. If the latter is the case then the investigation can be conducted appropriately. The central hub of the network in Colindale manages the co-ordination of the investigation of any international outbreaks identified. The full list of urgent enquiries including details of any international dimension that have been sent during this contract is detailed below, indicating any known association, and any recognised international dimension;

List of Enter-net urgent enquiries 1 October 2003 – 1 October 2006.

<i>Index country</i>	<i>Date of enquiry (month/year)</i>	<i>Organism</i>	<i>Association</i>	<i>International dimension</i>
Netherlands	October 2003	<i>Salmonella</i> Enteritidis change in phage types	None found	Yes
England & Wales	October 2003	<i>Salmonella</i> various serotypes	Tahini	Yes
Latvia	October 2003	<i>Salmonella</i> Enteritidis	None found	Yes
Sweden	November 2003	<i>Salmonella</i> Hadar	Chicken ^a	No
England & Wales	November 2003	<i>Salmonella</i> London	None found	No
Denmark	November 2003	<i>Salmonella</i> Virchow (Multi-drug resistant)	Quails	No
Scotland	December 2003	<i>Salmonella</i> Typhimurium PT RDNC	None	Yes
Denmark	December 2003	<i>S. Uganda</i>	None found	No
Iceland	December 2003	<i>Salmonella</i> Typhimurium	Mixed foods	No
Austria	February 2004	<i>Salmonella</i> Typhimurium U291	Eggs	Yes
Germany	March 2004	<i>Salmonella</i> Goldcoast	Pork	Yes
Denmark	March 2004	<i>E. coli</i> O157:H-	Milk ^b	No
Ireland	March 2004	<i>Salmonella</i> Havana	None found	No
United States	May 2004	<i>Salmonella</i> Enteritidis	Almonds	Yes
Ireland	April 2004	<i>Salmonella</i> Typhimurium DT49	Liquid egg	No
Sweden	July 2004	<i>E. coli</i> O157	None found	Yes

Czech Republic	July 2004	<i>Salmonella</i> Enteritidis PT13	None found	No
Austria	August 2004	<i>Salmonella</i> Typhimurium DT46	None found	No
Austria	August 2004	<i>Salmonella</i> Typhimurium DT46	None found	No
Italy	August 2004	<i>Salmonella</i> Typhimurium 104A	Pork salami ^c	No
Latvia	September 2004	<i>Salmonella</i> Enteritidis	International seminar	Yes
England & Wales	September 2004	<i>Salmonella</i> Newport	Lettuce	Yes
Denmark	October 2004	<i>Salmonella</i> Typhimurium PT12	Pork	Yes
Canada	October 2004	Hepatitis A	International wine festival	Yes
Norway	November 2004	<i>Salmonella</i> Thompson	Lettuce	Yes
Sweden	November 2004	<i>Salmonella</i> Mikawasima	Not known	No
Latvia	December 2004	<i>Salmonella</i> Derby	Pork	No
Germany	January 2005	<i>Salmonella</i> Bovismorbificans	Not known	No
Scotland	February 2005	<i>Salmonella</i> Typhimurium DT104 (MDR)	Not known	No
Ireland	February 2005	<i>Salmonella</i> Arechavaleta	Foreign travel	Yes
England & Wales	February 2005	<i>Salmonella</i> Virchow PT8	Imported cooked chicken	Yes
USA	February 2005	<i>Salmonella</i> Enteritidis	Travel to Jamaica	Yes
France	March 2005	<i>Salmonella</i> Agona	Infant formula ^d	Yes
Bulgaria	March 2005	<i>Salmonella</i> Brandenburg	Not known	No
England & Wales	April 2005	<i>Salmonella</i> Saintpaul	Not known	No
Sweden	May 2005	<i>Salmonella</i> Typhimurium NT (U302)	Imported salami	Yes
Enter-net	June 2005	<i>Salmonella</i> Aberdeen	Ground Ginger imported into the EU	Yes
Sweden	June 2005	<i>Salmonella</i> Stourbridge	Unpasteurised cheese ^{e, f, g} – international recall of product	Yes
Finland	June 2005	<i>Salmonella</i> Typhimurium DT104B (MDR)	Lettuce	Yes
Ireland	June 2005	<i>Salmonella sonnei</i>	Travel to Egypt	Yes
Italy	June 2005	<i>Salmonella</i> Napoli	Environment/fresh water	Yes
France	July 2005	<i>Salmonella</i> Worthington	Powdered milk	No
USA	July 2005	<i>Salmonella</i> Enteritidis	Travel to Russia	Yes

Australia	July 2005	<i>Salmonella</i> Hvittingfoss	N/K	N/K
Spain	August 2005	<i>Salmonella</i> Hadar PT2	Cooked chicken	Yes
Scotland	August 2005	<i>E. coli</i> O157	Travel to Turkey	Yes
Sweden	September 2005	<i>E. coli</i> o157	Lettuce	No
Sweden	September 2005	<i>Salmonella</i> Enteritidis	Travel to Poland	Yes
Denmark	September 2005	<i>Salmonella</i> Typhimurium DT104 (MDR)	Carpaccio ^h	Yes
Ireland	September 2005	<i>Salmonella</i> Agona	None found	No
Netherlands	October 2005	VTEC O157	Beef ⁱ	No
Scotland	October 2005	<i>Salmonella</i> Goldcoast	Travel to Majorca	Yes
France	November 2005	VTEC O157	Beef burgers	No
Netherlands	November 2005	<i>Salmonella</i> Typhimurium DT 104 (MDR)	Filet Americain (Italy) ^j	Yes
Norway	November 2005	<i>Salmonella</i> Typhimurium DT 104	Meat from Poland	Yes
Latvia	November 2005	<i>Salmonella</i> Papuana	None found	No
Italy	November 2005	<i>Salmonella</i> Typhimurium DT 121	None found	No
Austria	November 2005	<i>Salmonella</i> Typhimurium DT 120 (variant)	None found	No
England & Wales	November 2005	VTEC O157 PT8	Consumption/handling raw beef at home	No
Ireland	November 2005	VTEC O157 PT32	Epi link to private water supply	No
France	December 2005	<i>Salmonella</i> Manhattan	Pork meat ^k	No
France	December 2005	VTEC O26	Camembert cheese – International recall of the product, no cases identified outside France	Yes
Sweden	December 2005	<i>Salmonella</i> Typhimurium NST	Salami	Yes
England & Wales	February 2006	<i>Salmonella</i> Paratyphi A PT1	None found	Yes
Norway	February 2006	VTEC O103	Cured meat sausage	No
Sweden	February 2006	<i>Salmonella</i> Typhimurium NST	None found	No
Sweden	February 2006	<i>Salmonella</i> Enteritidis PT30	Almonds suspected	Yes
England & Wales	April 2006	VTEC O157	None found	No
Sweden	April 2006	<i>Salmonella</i> Give	None found	No
Luxembourg	April 2006	<i>Salmonella</i> 4,5,12:i:-	Pork	Yes
Scotland	May 2006	VTEC O157 (sorbitol	None found	Yes

		fermenting)		
Norway	May 2006	<i>Salmonella</i> Kedougou	Salami	Under investigation
Finland/Sweden	June 2006	<i>Salmonella</i> Typhimurium NST	None found	No
Netherlands	June 2006	<i>Salmonella</i> Mikawasima	None found	No
England & Wales	June 2006	<i>Salmonella</i> Montevideo	Chocolate	Yes
England & Wales	June 2006	<i>Salmonella</i> Ajiobo	None found	Yes
Finland	July 2006	<i>Salmonella</i> Give	None found	No
Germany	July 2006	<i>Salmonella</i> Hadar	Turkey meat strongly suspected	Unclear if human cases were observed in Denmark
Germany	September 2006	<i>Salmonella</i> Kedougou	Strains in Germany for comparison sent to Norway, strains were different	No – the outbreak strains from Germany and Norway were different – no association between outbreaks.
Denmark/Ireland	September 2006	Mixed <i>Salmonella</i> serotypes	Travel to Bulgaria	Yes
Netherlands	September 2006	<i>Salmonella</i> Typhimurium DT7	Cheese	Possibly
Information requests				
Ireland	December 2003	<i>E. coli</i> case definitions		
Ireland	April 2004	Definition of “new” or “re”-infection		
Enter-net/CRL-E	August 2004	Draft monitoring scheme on the occurrence of antimicrobial resistance – request for comments		
Denmark	January 2005	Fellowships in "TRAINAU Training Risk Assessment in Non-human Antibiotic Usage"		
Luxembourg	June 2005	Microbiological position in Luxembourg		
Denmark	July 2005	<i>E. coli</i> sero- and virulence typing training workshop		
Australia	June 2006	Electronic notification systems		
Ireland	September 2006	Definition of “travel-associated” infections		

N/K=not known at the moment.

Summary.

There were 81 urgent enquiries from 22 countries and one from the Enter-net surveillance hub – in addition to these there were eight information requests.

Urgent enquiry references:

- ^a Hjertqvist M, Tullgren B, Svennungsson B, Knauth S-B, de Jong B, Wikström I, Andersson Y. A multi county outbreak of *Salmonella* Hadar in Sweden involving several different authorities. 5th World Congress Foodborne Infections and Intoxications, Berlin, Germany 2004.
- ^b C Jensen, S Ethelberg, A Gervelmeyer, EM Nielsen, KEP Olsen, K Mølbak, and the outbreak investigation team* Euro Surveill. 2006 Feb;11(2):55-8. First general outbreak of Verocytotoxin-producing *Escherichia coli* O157 in Denmark. <http://www.eurosurveillance.org/em/v11n02/1102-221.asp>
- ^c Amy Cawthorne, Pasquale Galetta, Marco Massari, Anna Maria Dionisi, Emma Filetici, et al *Salmonella* Typhimurium DT104, Italy. Emerg Infect Dis. 2005;12:1289.
- ^d Brouard C, Espié E, Weill FX, Kerouanton A, Brisabois A, et al. Two consecutive large outbreaks of *Salmonella enterica* serotype Agona infections in infants linked to the consumption of powdered infant formula. The Paediatric Infectious Disease Journal (in press)
- ^e Espie E, Vaillant V. International outbreak of *Salmonella* Stourbridge infection, April- July 2005: results of epidemiological, food and veterinary investigations in France. Euro Surveill. 2005 Aug 11;10(8)
- ^f Vaillant V, Espie E. Cases of *Salmonella* Stourbridge infection in France, April-June 2005. Euro Surveill. 2005 Jul 21;10(7)
- ^g Vaillant V, Espie E, Fisher I, Hjertqvist M, de Jong B, et al. International outbreak of *Salmonella* Stourbridge infection in Europe recognised following Enter-net enquiry, June-July 2005. Euro Surveill. 2005 Jul 21;10(7)
- ^h Salmonellosis outbreak linked to Carpaccio made from imported raw beef, Denmark, June-August 2005. Ethelberg S. Euro Surveill. 2005 Sep 22;10(9):E050922.3. Links <http://www.eurosurveillance.org/ew/2005/050922.asp>
- ⁱ Doorduyn Y, de Jager CM, van der Zwaluw WK, Friesema IHM, Heuvelink AE, et al. Shiga toxin-producing *Escherichia coli* (STEC) O157 outbreak, The Netherlands, September – October 2005. Eurosurveillance Mthly (<http://www.eurosurveillance.org/em/v11n07/1107-223.asp>)
- ^j Kivi M, Hofhuis A, Notermans DW, Wannet WJB, Heck MEOC, et al. A beef-associated outbreak of *Salmonella* Typhimurium DT104 in the Netherlands September–November 2005 with bearing on national and international policy. Epidemiol Infect (accepted for publication)
- ^k Noël H, Dominguez M, Weill FX, Brisabois A, Duchazeaubeinex C, et al. Outbreak of *Salmonella enterica* serotype Manhattan infection associated with meat products, France 2005. Eurosurveillance monthly (in the November 2006 issue).

External Quality Assurance (EQA) schemes.

During this contract there have been five EQAs conducted; one each year on *Salmonella* sero- and phage-typing, and one in 2005, and one in 2006 on sero-typing and sero-grouping of VTECs. The *Salmonella* EQA continue to show improvements over this contract and those conducted in previous years. The EQAs for VTEC typing followed on from the first and second ever such international schemes, and included the new Member States. The first EQA showed a relatively poor performance among NRLs with only half the participating laboratories grouping 69% of the O Groups correctly, there was a dramatic improvement in the 2005 ring-trial when this number rose to 80% correct, showing the added value of such schemes.

Salmonella EQAs.

Enter-net laboratories took part in the eleventh CRL-*Salmonella* inter-laboratory comparison study (2006) on typing of *Salmonella* spp^{2,3}.

The study was organised by the European Union Community Reference Laboratory for *Salmonella* (CRL-*Salmonella*, Bilthoven, the Netherlands) in collaboration with the Health Protection Agency (HPA, London, United Kingdom) in March 2006.

The main objective of the study was to evaluate whether typing of *Salmonella* strains by the National Reference Laboratories (NRLs) and Enter-net Laboratories (ENLs) was carried out uniformly and whether comparable results were obtained.

For the study, 20 strains of the species *Salmonella enterica* subspecies *enterica* were selected from the collection of the National Salmonella Centre in the Netherlands by the CRL-*Salmonella* for serotyping. Ten strains of *Salmonella* Enteritidis and ten strains of *Salmonella* Typhimurium were selected by the Salmonella Reference Unit, Centre for Infections, HPA, London, for phage typing.

Serotyping of *Salmonella*

Twenty-five ENLs took part in the serotyping of *Salmonella*. The serotyping results were evaluated by laboratory for the detection of the O- and H- antigens and the identification of the strains. Nineteen of the ENLs correctly typed all the O-antigens and 17 laboratories correctly typed all the H-antigens of the 20 strains in the study. Fourteen of the laboratories identified all of the serovar names.

Evaluation of the results showed the O-antigens of 13 strains were correctly typed by all the ENLs participating in the study. The H-antigens were correctly typed for four strains by all of the ENLs. All the ENLs named the correct serovar for three strains.

Detection of the O-antigens did not cause many problems and is comparable to the previous EQAs. Most of the problems were with the detection of the H-antigens, which led to the incorrect serovar name being given by some of the laboratories.

² Berk PA, Maas HME, de Pinna E and Mooijman, 2006. Eleventh CRL-*Salmonella* inter-laboratory comparison study (2006) on typing of *Salmonella* spp. [RIVM, Bilthoven], RIVM report 330604001. <http://www.rivm.nl/bibliotheek/rapporten/330604001.html>, accessed 29/12/2006.

³ Korver H, Maas HME, Ward LR, Mevius DJ and Mooijman KA, 2006. Tenth CRL-*Salmonella* inter-laboratory comparison study (2005) on typing of *Salmonella* spp. [RIVM, Bilthoven], RIVM report 330300009. <http://www.rivm.nl/bibliotheek/rapporten/330300009.html>, accessed 29/12/2006.

Overall, the score for the ENLs was lower in this study compared to 2005. In 2005, 14 ENLs participated in the study compared with 25 ENLs in 2006. This means 11 ENLs participated for the first time and will be less experienced than the other ENLs taking part in the study, which may account for the lower score in 2006.

Phage typing of *Salmonella*

There were 17 ENLs participated in the phage typing of *Salmonella*; 16 laboratories performed phage typing of both *Salmonella* Enteritidis and *Salmonella* Typhimurium. One laboratory only took part in the phage typing of *Salmonella* Typhimurium.

Evaluation of the phage typing results by laboratory showed four laboratories correctly phage typed all 10 strains of *Salmonella* Enteritidis in the study. Five laboratories correctly phage typed nine of the Enteritidis strains and five laboratories correctly phage typed eight of the Enteritidis strains. One laboratory had four incorrect results and one laboratory had six incorrect results for the Enteritidis phage typing.

All 10 strains of *Salmonella* Typhimurium were correctly phage typed by 10 of the ENLs participating in the study. Two laboratories correctly typed nine of the Typhimurium strains. Three laboratories had two incorrect results and one laboratory had three incorrect results for the phage typing of Typhimurium. One laboratory incorrectly phage typed five of the Typhimurium strains. Four of the incorrect results were due to those laboratories not having the complete panel of Typhimurium phages.

Most of the problems encountered with the phage typing of *Salmonella* Enteritidis and Typhimurium were due to the misinterpretation of the phage patterns obtained.

In the study of 2005 10 ENLs participated in the phage typing of *Salmonella* and in the 2006 study 17 ENLs took part. Many of the laboratories taking part in the study for the first time will be less experienced in phage typing and this may account for the incorrect results obtained by some laboratories.

Conclusion.

Overall, the results for the ENLs for both the serotyping and phage typing were good, and are comparable with those of previous years. The slightly lower scores may be due to the number of new laboratories taking part in the study for the first time.

The study highlights the necessity for all the laboratories to use standardised methods for typing *Salmonella*, so that results are comparable. This is necessary in outbreak situations.

The study also shows where problems may be occurring and this means support can be given to laboratories which may be experiencing problems.

VTEC EQA ring-trials

- In 2005, the third Enter-net ring-trial EQA scheme for serotyping, virulence typing and typing by Pulse Field Gel Electrophoresis (PFGE) of *E. coli* was launched. The PFGE part of the ring trial was co-ordinated with Pulse Net Europe as part of the "Pulse Net Europe Feasibility Study" of VTEC. This part of the ring-trial had the voluntary participation of 29 veterinary, food and human diagnostic laboratories. The study has been presented at the numerous meeting and coordination of PulseNet Europe has received EU funding for 2004-5 through the Med-Vet-Net programme.

The results were published in 2006 (1). The Enter-net part of the ring trial had a new record of thirty countries participating. A number of these laboratories are non-Enter-net participants but are participating at their own expense. We thus came very close to establishing a worldwide international network of Quality Evaluation and Assurance for typing of *E. coli*.

The fourth international ring-trial in 2006 had 32 laboratories from 20 member states (21 laboratories) and 10 non-member states (11 laboratories from Australia, USA, Canada, New Zealand, Mexico, Argentina, Brazil, Norway, Japan, Turkey and South Africa) participating. Apart from the regular O:H serotyping, this ring-trial was centred around the capacity to detect the *vtx* genes. The ring-trial demonstrated that there is reason to be concerned about the detection and surveillance of VTEC because not all laboratories will correctly detect all the *vtx* genes. A report is underway.

Reference List

1. **Gerner-Smidt, P. and F. Scheutz.** 2006. Standardized pulsed-field gel electrophoresis of Shiga toxin-producing *Escherichia coli*: the PulseNet Europe Feasibility Study. *Foodborne Pathog Dis.* 3:74-80.

Incorporation of molecular methods (deliverables 3 and 8 of the project management plan).

During the lifetime of this contract the Salm-gene project funded by DG RESEARCH (QLK2-CT-2001-01940 SALM-GENE) was completed. This was run alongside the Enter-net DSN involving a sub-set of the Enter-net laboratories. One aim of this project was to assess whether it is possible to use molecular methods to type strains within each NRL so that they could be directly compared without having to transfer strains between them. An outcome of this project was that it was demonstrated that this was achievable and the protocol for molecular typing was made available to all Enter-net participating laboratories, not just those that were able to be funded from the available Salm-gene monies. In addition to ensuring direct comparability of strains within Europe, it was ensured that the Salm-gene protocol was compatible with other international molecular typing networks so that outbreaks occurring on more than one continent could also be identified.

Salm-gene clearly demonstrated the added value of utilising molecular methods as an adjunct to phenotypic methods and outbreak investigations involving several countries. Furthermore the method has obviated the necessity of transferring strains by post removing a costly and protracted obstacle to outbreak recognition.

Impact of the project.

The network has improved the recognition of outbreaks of foodborne infections involving more than one country. This early recognition has facilitated the investigation of such outbreaks and has allowed public health interventions to be implemented to reduce the burden of infection in the affected countries.

Participation in the Quality Assurance schemes has been very high and significant improvements have been seen in the results. This results in considerable Community Added Value, as national surveillance is improved as a result of an international project. Authoritative data on trends in salmonella and VTEC infections and associated antimicrobial resistance is being circulated within and outwith the project.

The project is successfully fulfilling its objectives in monitoring trends of infection in Europe, requesting and disseminating information on potential international incidents and recognising and reacting to international outbreaks of foodborne pathogens.

Activities conducted and utilisation and dissemination of results.

The results from the project are in-line with those detailed in annex II of the contract with the Commission. These are; maintaining international databases of enteric infections to provide epidemiological information thereon, sending urgent enquiries around the network to identify international outbreaks of enteric infections, holding annual External Quality Assurance schemes to underpin the microbiological standards required to ensure that the data within the network are correct. Specifically the activities pursued have been;

1. All participants are notified of any clusters of infection involving more than one country as soon as the automatic detection software applied to the international databases identifies them.
2. Urgent enquiries are circulated to all participants, the European Commission, the WHO, the ECDC (since its inception) and to relevant public health ministries and other EU institutions (eg EFSA) if appropriate.
3. The international databases are updated regularly by the submission of national data to them. These are not currently available on-line as this was due to be expedited under the EU-funded project IDA – Health Surveillance System for Communicable Diseases. The HPA Cfl is working on making the databases available and accessible online. It is expected that access to the databases will be available in early 2007.
4. Summary epidemiological reports from the *Salmonella* and VTEC databases are posted on the Enter-net web site for general access. Confidential versions of these reports are circulated among all participants and other appropriate partners.
5. Quality assurance schemes are regularly distributed among all participants, and routinely reported upon. This reporting is done at the annual workshop and via written reports to all participants.
6. Reports on outbreak investigations, significant trends and any research results are published in peer-reviewed journals such as Eurosurveillance. This provides the opportunity for outputs and information from the Enter-net DSN to be disseminated to a wider public health audience (annex 2).
7. The Annual report is a published document following agreement from the enlarged network (including all the New Member States).

International outbreaks of gastrointestinal infections are reported to a wider public health audience in published journals. Immediate information is disseminated via the electronic Eurosurveillance weekly journal. Final reports are published in other scientific journals. The quarterly *Salmonella* and VTEC reports are produced regularly and sent to all participants, a public-domain version of these are available on the WWW. The annual report was agreed and was presented to the participants in the Enter-net DSN at the workshop in 2005 so that the new Member States could agree that their data can be incorporated into the report and a published version has been made available on the World Wide Web.

The regular outputs from the project will be continued and extended in the future.

Project management information.

During the course of the contract, the Standard Operating Procedures and Project Management Plans for the Enter-net DSN were prepared, agreed and adopted.

Manpower for the execution of the activities/partners and countries involved.

The Enter-net surveillance hub is maintained by a full time Scientific Co-ordinator, and a full time database administrator. There is a half-time laboratory scientist to co-ordinate the EQAs; including the preparation, characterisation, and distribution of the EQA strains. They also prepare and provide typing reagents for all participants whenever required, and conduct full characterisation and confirmation of outbreak strains as and when international outbreaks are recognised.

Each participating country has an epidemiologist responsible for the national surveillance of the enteric pathogens being surveilled to provide epidemiological input into the network, and co-ordinate investigations within their own country when international outbreaks are identified. Each country also has one or two (depending on the microbiological systems in place in each country) participants to ensure appropriate microbiological expertise and advice is in place in that country, particularly in the recognition of outbreak strains.

The partners in each country are responsible for; the timely provision of data to the Enter-net databases, assisting in investigating international outbreaks, undertaking typing of relevant strains, providing strains for inclusion in the EQAs, and undertaking these EQAs.

The national participants/partners involved in each of the countries participating are the medical or scientific personnel detail in annex 1, their contribution to the project are detailed in the financial reports (annex 5).

Achievement of the objectives.

The objectives of the project have been achieved by;

1. Regular provision of data to the international databases, as evidenced by;
 - a. over the course of the contract period all countries have provided data,
 - b. Regular quarterly reports have been prepared, circulated, and posted on the Enter-net website.
 - c. The annual report has been prepared and distributed.
2. The new Member States have been fully incorporated into the DSN,
 - d. All new MSs have contributed data, circulated, and responded to urgent enquiries sent out, taken part in the EQAs and participated in the annual workshop. The workshop for 2006 was hosted by the Czech Republic.
3. Potential threats to health have been recognised, and responded to,
 - e. All participants have been informed and involved in replying to urgent enquiries. Eighty-one urgent enquiries were sent from 21 countries and the Enter-net hub during this contract.
4. International outbreaks have been recognised and investigated,
 - f. Relevant participants from affected countries have been involved in these outbreak investigations,
4. AST harmonisation studies have been completed,
 - g. All participants have taken part in these
6. Annual EQAs have been conducted,

- h. All participants have taken part in these
- 7. The Enter-net collaboration principles have been reviewed,
 - i. At the annual workshops
- 8. Standards for national participation in the DSN have been discussed,
 - j. At the annual workshops
- 9. Global surveillance has been strengthened by collaboration with non-European countries,
 - k. Several non-EU countries participate in, and contribute to, the network
- 10. International database of food isolates has been created,
 - l. Several countries have provided these data,
- 11. *Campylobacter* has been incorporated in the range of pathogens being surveilled by the Enter-net DSN.
 - m. The *Campylobacter* reports are being posted on the Enter-net website.

The indicators of the achievement of these objectives are that;

1. the routine quarterly reports and the annual reports are circulated to all participants, the Commission, and any other appropriate EU institutes (such as the ECDC) by email,
2. Urgent enquiries and information requests are circulated to all participants, the Commission, and any other appropriate EU institutes (such as the ECDC) by email,
3. International outbreaks have been recognised, investigated and report (ie in Eurosurveillance, see annex 2).

The monitoring indicators are;

1. Reports of the Scientific Advisory Committees
2. Reports of the Project management team
3. Reports of the annual workshops
4. Interim reports to the Commission

From these indicators and outputs the achievements of the network against the objectives in the contract can be demonstrated.

Conclusion.

The surveillance scheme is working well and is meeting its primary objectives. Data from the international databases are being circulated to all participants and a wider public health audience whenever possible or relevant. Information on potential and actual international incidents of infection by foodborne pathogens is being circulated around the network, and, when appropriate, to other relevant public health professionals in a timely manner. International outbreaks identified are being investigated on an international basis.

The laboratory component of the network is being actively supported by the annual EQA schemes. These schemes ensure that the data being supplied to the Enter-net databases are of the highest quality.

The new EU Member States have been fully integrated into the project, assimilating their data and information into the operating procedures of the dedicated surveillance network, and improving the outputs from the enlarged network.

Ian Fisher
Enter-net Scientific Co-ordinator, 31 December 2006

Annex 1

Enter-net Project Team.

30 September 2006

Project Leader	John Threlfall	Health Protection Agency, Laboratory of Enteric Pathogens, 61 Colindale Avenue, London NW9 5HT	Ph: + 44-20-8327 Fax: + 44-20-8905-9929 Email: John.threlfall@hpa.org.uk
Project Leader	Noël Gill	Health Protection Agency, Centre for Infections 61 Colindale Avenue London NW9 5EQ	Ph: + 44-20-8200-6868 x 7462 Fax: + 44-20-8200-7868 Email: noel.gill@hpa.org.uk
Project Leader	Bill Reilly	Health Protection Scotland Clifton House Clifton Place, Glasgow, G3 7LN	Ph: + 44-141-300-1122 Fax: + 44-141-300-1170 Email: bill.reilly@hps.scot.nhs.uk
Co-ordinating Scientific Secretary	Ian Fisher	Health Protection Agency, Centre for Infections 61 Colindale Avenue, London NW9 5EQ	Ph: +44-20-8327-7543 (Direct/Voicemail) Ph: +44-20-8200-6868 (Switchboard) Mob: +44-773-636-2507 Fax: +44-20-8200-7868 Email: ian.fisher@hpa.org.uk
Administrator	Francine Stalham	Health Protection Agency, Centre for Infections 61 Colindale Avenue, London NW9 5EQ	Ph: + 44-20-8327 7691 Fax: + 44-20-8200-7868 Email: francine.stalham@hpa.org.uk

Enter-net International Collaborators

Country	Participant	Address	Phone/Fax No.
Australia*	Geoff Hogg	Department of Microbiology and Immunology University of Melbourne, Parkville, Victoria 3052	Ph: +613-9344-5701/5713 Fax: +613-9344-7833 Email: g.hogg@mdu.unimelb.edu.au
Austria	Reinhild Strauss	Federal Ministry for Health and Women Radetzkystrasse 2, A-1031 Vienna	Ph: + 43-1-711-009367 Fax: + 43-1-7157312 Email: Reinhild.Strauss@bmgf.gv.at
Austria	Franz Allerberger	AGES Spargelfeldstr 191, 1266 Wien	Ph: +43-1-732 16 4120 Fax: +43-1-732 16 2108 Email: Franz.Allerberger@ages.at
Austria	Christian Berghold	Salmonella Zentrale AGES/Med Graz Beethovenstraße 6, A-8010 Graz	Ph: + 43-316-321643 Fax: + 43-316-388470 Email: christian.berghold@ages.at
Belgium	Sophie Quoilin	Scientific Institute of Public Health Epidemiologie Department Brussels, Belgium	Ph: +32 322 642 4084 Fax: Email: sophie.quoilin@iph.fgov.be
Belgium	Jean-Marc Collard	Institut Scientifique de Santé Publique - Louis Pasteur, Section Bacteriologie, Rue Juliette Wytsman 14, B-1050 Bruxelles	Ph: + 322-642-5082 Fax: + 322-642-5220 Email: jean-marc.collard@iph.fgov.be
Belgium	Denis Pierard	Akademisch Ziekenhuis VUB 101 Laarbeeklaan, 1090-Brussels	Ph:+322-477-5000 Fax: +322-477-5015 Email: Denis.Pierard@az.vub.ac.be
Bulgaria*	Galina Asseva	National Reference Laboratory for Enteric Pathogens, National Centre of Infectious and Parasitic Disease, 26 Yanko Sakazov Blvd, 1504 Sofia	Ph:+359-888-31-53-92 Fax: +359-2-988-34-13 Email: Salmonella@ncipd.netbg.com
Bulgaria*	Stella Raycheva	Department of Epidemiological Surveillance, National Centre of Infectious and Parasitic Disease, 26 Yanko Sakazov Blvd, 1504 Sofia	Ph: +359-2-946-15-52 Fax: +359-2-846-55-17 sraycheva@ncipd.netbg.com

Canada	Lai King Ng	National Microbiology Laboratory Health Canada, 1015 Arlington Street, Winnipeg, Manitoba, R3E 3R2	Ph: + 1-204-789-2131 Fax: + 1-204-789-2142 Email: Lai_king_Ng@hc-sc.gc.ca
Canada	Paul Sockett	Chief, Division of Disease Surveillance Bureau of Infectious Diseases, Laboratory Centre for Disease Control, HPB, Health Canada, 0603E1, Ottawa, Ontario, K1A 0L2	Ph: + 1-613-941-1288 Fax: + 1-613-998-6413 Email: paul_sockett@hc-sc.gc.ca
Cyprus	Despo Bagatzouni	Microbiology Department Nicosia General Hospital Nicosia 1450 Nicosia	Ph: +357-22801694 Fax: +357-22801664 Email: dbagatzouni@mphs.moh.gov.cy
Cyprus	Chrystalla Hadjianastassiou	Medical & Public Health Services, Ministry of Health, 10, Marcou Drakou, 1449 Nicosia	Ph: +357-22400146 Fax: +357-22400223 Email: cycomnet@cytanet.com.cy
Czech Republic	Marta Prikazska	Dept of Epidemiology National Institute of Public Health Srobarova 48, Prague, 100 42	Ph: +420 267 082 200 Fax: +420 267 082 588 Email: martaprik@szu.cz
Czech Republic	Renata Karpiskova	Head of laboratory for typing of salmonella, National Institute of Public Health, Palackého 1-3, Brno – 612 42	Ph: + 42-05-755-745 Fax: + 42-05-4121-1764 Email: karpi@chpr.szu.cz
Czech Republic	Daniela Dedicová	Head of National Reference Lab for Salmonella, National Institute of Public Health, Srobarova 48, Prague, 100 42	Ph: +420 267 082 200 Fax: +420 267 082 588 Email: dedi@szu.cz
Denmark	Eva M. Nielsen	Unit of Gastrointestinal Infections Statens Seruminstitut Artillerivej 5, DK-2300 Copenhagen	Ph: + 45-3268-3644 Fax: +45-3268-8238 Email: emn@ssi.dk
Denmark	Flemming Scheutz	Unit of Gastrointestinal Infections Statens Seruminstitut Artillerivej 5, DK-2300 Copenhagen	Ph: + 45-3268-3334 Fax: +45-3268-8238 Email: fsc@ssi.dk
Denmark	Kare Mølbak	Department of Epidemiology Research Statens Seruminstitut Artillerivej 5, DK-2300 Copenhagen	Ph: +45-3268-3157 Fax: +45-3268-3165 Email: krm@ssi.dk
England & Wales	John Threlfall	Health Protection Agency, Laboratory of Enteric Pathogens, 61 Colindale Avenue, London NW9 5HT	Ph: + 44-20-8327-6144 Fax: + 44-20-8905-9929 Email: john.threlfall@hpa.org.uk
England & Wales	Linda Ward	Health Protection Agency, Laboratory of Enteric Pathogens, 61 Colindale Avenue, London NW9 5HT	Ph: + 44-20-8327-6132 Fax: + 44-20-8905-9929 Email linda.ward@hpa.org.uk
England & Wales	Bob Adak	Health Protection Agency, Centre for Infections, 61 Colindale Avenue, London NW9 5EQ	Ph: + 44-20-8327-7551 Fax: + 44-20-8200-7868 Email: bob.adak@hpa.org.uk
Estonia	Unna Joks	Central Laboratory of Microbiology Health Protection Inspectorate Tallin Kotkaz 11315	Ph: +372-694-3652 Fax: +372-694-3651 Email: unna.joks@tervisekatse.ee
Estonia	Jevgenia Epshtein	Central Laboratory of Microbiology, Health Protection Inspectorate Tallin, Kotkaz 11315	Ph: +372-694-3523 Fax: +372-694-3501 Email: jevgenia.epshtein@tervisekaitse.ee
Finland	Anja Siitonen	Laboratory of Enteric Pathogens, National Public Health Institute, Mannerheimintie 166, FIN-00300, Helsinki	Ph: +358-9-474-48245 Fax: +358-9-474-48238 Email: anja.siitonen@ktl.fi
Finland	Markku Kuusi	Dept of Infectious Diseases Epidemiology, National Public Health Institute, Mannerheimintie 166, FIN- 00300, Helsinki	Ph: +358-94744-8935 Fax: +358-9474-48468 Email: markku.kuusi@ktl.fi

France	Patrick Grimont	Unite de Biodiversite des Bacteries Pathogenes Emergentes, Institut Pasteur, 28 Rue du Docteur Roux, F-75724 Paris Cedex 15	Ph: +331-456-88340 Fax: +331-456-88837 Email: pgrimont@pasteur.fr
France	Henriette de Valk	Institut de Veille Sanitaire Saint-Maurice, 14 Rue du Val D'osne, 94415 Saint-Maurice, Cedex	Ph: +33-1-41-79-67-28 Fax: +33-1-41-79-67-69 Email: h.devalk@invs.sante.fr
Germany	Helge Karch	Institut für Hygiene Robert-Koch-Str. 41 D-48149 Münster	Ph: +49-251-83-55361 Fax: +49-251-83-55341 Email: hkarch@uni-muenster.de
Germany	Helmut Tschäpe	Robert Koch-Institut, Bereich Wernigerode, Burgstrasse 37, 38843 Wernigerode/Harz	Ph: +49-3943-679-237 Fax: +49-3943-679-207 Email: TschaepeH@rki.de
Germany	Andrea Ammon/Klaus Stark	Robert Koch-Institut Seestr 10 13353 Berlin	Ph: +49-1888-754-3404 Fax: +49-1888-754-3533 Email: ammona@rki.de
Greece	Alkiviadis Vatopoulos	Department of Microbiology, National School for Public Health, 196 Alexandras Avenue, Athens 115 21 Greece	Ph: +30-2106422278 Fax: +30-2106743294 E-mail: avatopou@med.uoa.gr
Greece	Kassiani Mellou	HCIDI Hellenic Centre for Infectious Diseases (KEEL) 6-8 Macedonias Str.GR 104 33 Athens	Ph: +30-8899007 Fax: +30-18842011 Email: kmellou@keel.org.gr
Greece	Panayotis Tassios	Department of Microbiology Medical School, University of Athens, M. Asias 75, 115 27 Athens	Ph: +30-210-7462011 Fax: +30 -210-7462124 Email: ptassios@med.uoa.gr
Hungary	Maria Herpay	National Center for Epidemiology B. Johan Gyali ut 2-6, H-1097 Budapest	Ph: +36-1-476-1391 Fax: +36-1-476-1391 Email: herpaym@oek.antsz.hu
Hungary	Noémi Nógrády	National Center for Epidemiology, Phage typing and Molecular Epidemiology B. Johan, Gyali ut 2-6, H-1097 Budapest	Ph: +36-1-4761265 Fax: +36-1-4761234 Email: nogradyn@oek.antsz.hu
Hungary	Katalin Krisztalovics	National Center for Epidemiology " B. Johan, Gyali ut 2-6, H-1097 Budapest	Ph: +36-1-215-1792 Fax: +36-1-215-1792 Email: Krisxtalk@oek.antsz.hu
Iceland	Hjordis Hardardottir	Institute of Lab Medicine Dept of Clinical Microbiology, Landspítali Hospital, 101 Reykjavik	Ph: +354-543-5660 Fax: +354-543-5626 Email: hjorish@landspitali.is
Iceland	Gudrun Sigmundsdottir	Centre for Infectious Disease Control, Directorate of Health, Austurstrond 5 170 seltjarnarnes, Reykjavik	Ph: +354-510 1900 Mob: +354-891 7009 Email: gudrun@landlaeknir.is
Ireland	Paul McKeown	National Disease Surveillance Centre 25-27 Middle Gardiner, Dublin 1	Ph: +353 1 876 5300 Fax: +353 1 876 5333 Email: Paul.McKeown@ndsc.ie
Ireland	Martin Cormican	University College Hospital Newcastle Road, Galway	Ph: +353-91-524222 x 4413 Fax: +353-91-524216 Email: Martin.Cormican@bsi.ie
Ireland	Eleanor McNamara	Public Health Lab, Cherry Orchard Hospital, Ballyfermot, Dublin 10	Ph: +353-62 64702 Fax: +353-1-876-5333 Email: eleanor.mcnamara@mailm.hse.ie
Italy	Alfredo Caprioli	Istituto Superiore di Sanita Laboratory of Veterinary Medicine Viale Regina Elena 299, 00161 Rome	Ph: +3906-4990-2727 Fax: +3906-4938-7077 Email: a.caprio@iss.it
Italy	Ida Luzzi	Istituto Superiore di Sanita, Laboratory of Medical Bacteriology & Mycology, Viale Regina Elena 299, 00161 Rome	Ph: +3906-4990-2171 Fax: +3906-4938-7112 Email: luzzi@iss.it
Italy	Alberto Tozzi	Istituto Superiore di Sanita, Laboratory of Epidemiology & Biostatistics, Viale Regina Elena 299, 00161 Rome	Ph: +3906-4938-7215 Fax: +3906-4938-7292 Email: tozzi@iss.it

Japan*	Nobuhiko Okabe	Director, IDSC, National Institute of Infectious Diseases, 1 chome, 23-1, Toyama, Shinjuku, Tokyo 162 – 8640	Ph: +81-35285-1111 Fax: +81-5285-1129 Email: okabenob@nih.go.jp
Japan*	Haruo Watanabe	Director, Dept of Bacteriology, National Institute of Infectious Disease, 1 chome, 23-1, Toyama, Shinjuku, Tokyo 162 – 8640	Ph: +81(3)5285-1111 ext 2201 Fax: +81-(3)5285-1171 Email: haruwata@nih.go.jp
Latvia	Ilze Jansone	Department of Epidemiological Surveillance of Infectious Disease, State Agency Public Health Agency, 7 Klijanu Street, Riga, LV – 1012	Ph: +371-7081509 Fax: +371-7374980 Email: jansonei@sva.lv
Latvia	Ivonna Selga	Laboratory of Microbiology, State Agency for Public Health, 7 L. Klijanu str. LV-1012 Riga	Ph: +371-2-379-231 Fax: +371-7-339-006 Email: selga@sva.lv
Lithuania*	Galina Zagrebneviene	National Centre for Communicable Disease Control, Kalvariju 153, LT – 2042, Vilnius	Ph: +370-5-277-8661 Fax: +370-5-277-8761 Email: ULPKC@takas.lt
Luxembourg	François Schneider	Laboratoire National de Santé 42, rue du Laboratoire L-1911-Luxembourg	Ph: +352-494938 Fax: +352-494938 Email: francois.schneider@crp-sante.lu
Luxembourg	Pierrette Huberty-Krau	Médecin-Chef de division Division de l'Inspection Sanitaire 5A, rue de Prague L-2348 Luxembourg	Ph: +352-478-5650 Fax: +352-480323 Email: Pierrette.Huberty-Krau@ms.etat.lu
Malta & Gozo	Paul Cuschieri	Bacteriology Department, Pathology Department St Lukes Hospital, G'Mangia	Ph: +356 21239820 Fax: +356 21239840 Email: paul.cuschieri@gov.mt
Malta & Gozo	Malcolm Micallef	Department of Public Health 37-39 Rue D'Argens, Msida MSO 05	Ph: +356 21324085 Fax: +356 21319243 Email: Malcolm.p.micallef@gov.mt
Netherlands	Wim Wannet	National Institute of Public Health and the Environment, Diagn. Lab. for Infectious Diseases and Perinatal screening, PO Box 1 3720 BA, Bilthoven	Ph: +31-30-274-2105 Fax: +31-30-274-4418 Email: Wim.Wannet@rivm.nl
Netherlands	Wilfrid van Pelt	National Institute of Public Health and the Environment, Dept of Infectious Disease Epidemiology, PO Box 1 3720 BA, Bilthoven	Ph: +31-30-274-3560 Fax: +31-30-274-4409 Email: W.van.Pelt@rivm.nl
Netherlands	Yvonne van Duynhoven	National Institute of Public Health and The Environment, Centre for Infectious Disease Epidemiology, PO Box 1 3720 BA, Bilthoven	Tel: +31-30-274-3480 Fax: +31-30-274-4409 Email: Y.van.Duynhoven@rivm.nl
New Zealand*	Fiona Thomson-Carter	Institute for Environmental Science and Research Ltd. 34 Kenepuru Drive, PO Box 50-348, Porirua, Wellington	Tel. +64-4-914-0753 Fax +64-4-914-0770 Email: Fiona.Thomson-Carter@esr.cri.nz
New Zealand*	David Phillips	Institute for Environmental Science and Research Ltd. 34 Kenepuru Drive, PO Box 50-348, Porirua, Wellington	Tel. +64-4-914-0651 Fax +64-4-914-0770 Email: David.Phillips@esr.cri.nz
Norway	Jørgen Lassen	Norwegian Institute for Public Health Geitmyrsveien 75, 0462 Oslo 4	Ph: +47-2204-2200 Fax: +47-2204-2518 Email: jorgen.lassen@fhi.no
Norway	Karin Nygard	Norwegian Institute for Public Health Geitmyrsveien 75, 0462 Oslo 4	Ph: +47-2204-2200 Fax: +47-2204-2513 Email: karin.nygard@fhi.no
Poland	Anna Cieslik/Malgorzata Todys-	Department of Bacteriology National Institute of Hygiene 24 Chocimska, 00-791 Warsaw	Ph: +4822-54-21-263 Fax: +4822-54-21-307 Email: acieslik@pzh.gov.pl

Poland	Jolanta Szych	Department of Bacteriology National Institute of Hygiene 24 Chocimska, 00-791 Warsaw	Ph: +4822-54 21 263 Fax: +4822-54-21-307 Email: jszych@pzh.gov.pl
Portugal	Cristina Furtado	Instituto Nacional de Saude Communicable Disease Surveillance Centre, Avenida Padre Cruz 1699 Lisbon	Ph: +351-1-757-7070 Fax: +351-1-759-0441 Ph/Fax: +351-1-759-9828 Email: Cristina.Furtado@insa.min-saude.pt
Portugal	Jorge Machado	Instituto Nacional de Saude Avenida Padre Cruz, 1649-016 Lisbon	Ph: +351-21-751-9287 Fax: +351-21-759-0441 Email: Jorge.machado@insa.min-saude.pt
Romania	Maria Damian	Department of Microbiology and Molecular Epidemiology, National Research and Development, Institute of Microbiology and Immunology, Splaiul Independentei 103, CP 70100, Bucharest	Ph: +40 21 4113860 x 204 Fax: +40 21 4115672 Email: mdamian@cantacuzino.ro
Scotland	John Cowden	The Health Protection Scotland Clifton House, Clifton Place, Glasgow G3 7LN	Ph: +44-141-300-1150 Fax: +44-141-300-1170 Email: john.cowden@hps.scot.nhs.uk
Scotland	Mary Hanson	Scottish E.coli 0157 Ref Lab, Dept of Clinical Microbiology Western General Hospital, Crewe Road Edinburgh EH4 2XU	Ph: +44-131-537-1927 Fax: +44-131-537-1024 Email: Mary.hanson@luht.scot.nhs.uk
Scotland	John Coia	Scottish Salmonella Reference Lab, Department of Bacteriology, Stobhill Hospital, 133 Balornock Road, Glasgow G21 3UW	Ph: +44-141-201-3015 Fax: +44-141-558-5508 Email: john.coia@northglasgow.scot.nhs.uk
Slovakia	Dagmar Gavacova	National Public Health Institute of the Slovak Republic, Trnavska 52 826 45 Bratislava	Ph: +421 Fax: +421-2443-72-641 Email: gavacova@uvzsr.sk
Slovenia	Eva Grilc	Institute of Public Health Slovenia, Trubarjeva 2, 1000 Ljubljana	Ph: +386-1-2441-574 Fax: +386-1-244-1-471 Email: ada.hocevar@ivz-rs.si
Slovenia	Tjasa Zohar Cretnik	Regional Institute of Public Health Celji Gregirciceva 5, 3000 Celji	Ph: +386 3 425 1 210 Fax: +386 3 425 1 212 Email: tjasa.cretnik@zzv-ce.si
South Africa*	Karen Keddy	National Institute of Communicable Diseases, Enteric Disease Unit, PO Box 1038, Johannesburg 2000	Ph: + 27-11-489-9151 Fax: + 27-11-489-9332 Email: karenk@mail.saimr.wits.ac.za
Spain	Gloria Hernández Pezzi	Instituto de Salud Carlos III, Centro Nacional de Epidemiologia, Sinesio Delgado 6, 28029 Madrid	Ph: + 34-91-387-7802 Fax: + 34-91-387-7816 Email: ghpezzi@isciii.es
Spain	Aurora Echeita	Laboratory of Enterobacterias, Instituto de Salud Carlos III, Centro Nacional de Microbiologia 28220 Majadahonda, Madrid	Ph: +34-91-387-7802 Fax: +34-91-509-7966 Email: aecheita@isciii.es
Sweden	Yvonne Andersson	Swedish Institute for Infectious Disease Control, Dept of Epidemiology SE 171 82 Solna	Ph: + 46-8-457-2368 Fax: + 46-8-300-626 Email: yvonne.andersson@smi.ki.se
Sweden	Sven Löfdahl	Swedish Institute of Infectious Disease Control, Dept of Bacteriology KCB, SE 171 82 Solna	Ph: + 46-8-457-2421 Fax: + 46-8-301-797 Email: sven.lofdahl@smi.ki.se

Sweden	Ralfh Wollin	Swedish Institute for Infectious Disease Control, Dept of Bacteriology KCB SE 171 82 Solna	Ph: + 46-8-457-2422 Fax: + 46-8-301-797 Email: ralfh.wollin@smi.ki.se
Switzerland*	Hans Schmid	Federal Office of Public Health, Hess Strasse 27E, 3003 Bern	Ph: + 41-31-631-2484 Fax: + 41-31-631-2634 Email: hans.schmid@bag.admin.ch
Switzerland*	Herbert Hächler	NENT/NANT Institute of Vet Bacteriol, University of Bern, Langgass Strasse 122, Postfach, 3001 Bern	Ph: + 41-31-631-2484 Fax: + 41-31-631-2634 Email: Herbert.haechler@vbi.unibe.ch

*** not funded by the European Commission under the contract No 2003203**

Annex 2.

2003/06 Enter-net references.

1. Orth D, Grif K, Fisher I, Fruth A, Tschäpe H, Scheutz F, et al: Emerging Shiga toxin-producing *Escherichia coli* serotypes in Europe: O127:H40 and O100:H-. *Curr Microbiol.*, 2006 Nov;53(5):428-9.
2. D Werber, J Dreesman, F Feil, U van Treeck, G Fell, S Ethelberg, et al. International Outbreak of *Salmonella* Oranienburg due to German Chocolate. *BMC Infect Dis* 2005, 5:7 (03 Feb 2005).
3. IST Fisher and EJ Threlfall (on behalf of the Enter-net and Salm-gene participants). The Enter-net and Salm-gene databases of foodborne bacterial pathogens that cause human infections in Europe and beyond: an international collaboration in surveillance and the development of intervention strategies. *Epidemiol Infect* (2005), 133: 1-7.
4. Ian ST Fisher on behalf on the Enter-net participants. Dramatic shift in the epidemiology of *Salmonella enterica* serotype Enteritidis phage types in Western Europe 1998-2003 – results from the Enter-net international salmonella database. *Euro Surveill* 2004; 9: 43-5.
5. Ian ST Fisher on behalf on the Enter-net participants. International trends in *Salmonella* serotypes 1998-2003 – a surveillance report from the Enter-net international surveillance network. *Euro Surveill* 2004; 9: 45-7.
6. E John Threlfall and Ian ST Fisher. Antibiotic resistance trends in Europe. *In: ILISI Symposium Series on Food Microbiology, J Food Prot* (2004); 24: 750-1.
7. MD Kirk, CL Little, M Lem, M Fyfe, D Genobile, A Tan, et al. An outbreak due to peanuts in their shell caused by *Salmonella enterica* serotypes Stanley and Newport – sharing molecular information to solve international outbreaks. *Epidemiol Infect* (2004), 132, 571-7.
8. EJ Threlfall, IST Fisher, C Berghold, P Gerner-Smidt, H Tschäpe, M Cormican, et al. Trends in antimicrobial drug resistance in *Salmonella enterica* serotypes Typhi and Paratyphi A isolated in Europe, 1999-2001. *Int J Antimicrob Agents* 2003 Nov; **22**(5): 487-91.
9. E. John Threlfall, Ian S.T. Fisher, Christian Berghold, Peter Gerner-Smidt, Helmut Tschäpe, Martin Cormican, et al. Antimicrobial drug resistance in isolates of *Salmonella enterica* from cases of salmonellosis in humans in Europe in 2000: results of international multi-centre surveillance. *Euro Surveill* 2003; **8**: 41-5.
10. Crook PD, Aguilera JF, Threlfall EJ, O'Brien SJ, Sigmundsdóttir G, Wilson D, et al. A European outbreak of *Salmonella enterica* serotype Typhimurium Definitive Phage Type 204b in 2000. *Clin Microbiol Infect* 2003; **9**: 839-45.
11. Hannah Lewis on behalf of the Outbreak Control team. International outbreak of *Salmonella* Goldcoast infection in tourists returning from Majorca, September-October 2005: final summary. *Euro Surveill Weekly* 2005; **10**: 081205.
12. John Coia, Martin Cormican, Steen Ethelberg, Ian Fisher, Gloria Hernandez Pezzi, Marika Hjertqvist, et al. Outbreak of *Salmonella* Goldcoast affecting tourists exposed in Majorca from the UK, Ireland, Sweden, Norway and Denmark. *Euro Surveill Weekly* 2005; **10**: 271005.
13. Alenka Kraigher, Katja Seme, Andreja Krt-Lah and Ian Fisher. Fatal case of HUS after VTEC *E. coli* O145 infection in Slovenia highlights importance of testing for this rare strain. *Euro Surveill Weekly* 2005; 10: 150905.
14. Alison Smith-Palmer, Mary Locking, Bill Reilly and Ian Fisher. Cluster of *E. coli* O157 infections in Scottish tourists returning from southwest Turkey, July-August 2005. *Euro Surveill Weekly* 2005; 10: 180805.
15. Véronique Vaillant, Emmanuelle Espiè, Ian Fisher, Marika Hjertqvist, Birgitta de Jong, Christian Kornschöber, et al. International outbreak of *Salmonella* Stourbridge infection in Europe recognised following Enter-net enquiry, June-July 2005. *Euro Surveill Weekly* 2005; 10: 210705.

16. Karin Nygård, Jørgen Lassen, Line Vold, Preben Aavitsland and Ian Fisher. International outbreak of *Salmonella* Thompson caused by contaminated rucicola salad – update. *Euro Surveill Weekly* 2004; 8: 161204.
17. Ian Fisher. Outbreak of *Salmonella* Enteritidis PT9C associated with consumption of raw almonds in the US: Situation in countries participating in the Enter-net dedicated surveillance network. *Euro Surveill Weekly* 2004; 8: 030604.
18. John Threlfall, Linda Ward and Ian Fisher. New multi-resistant strain of *Salmonella enterica* serotype Choleraesuis detected in Taiwan. *Euro Surveill Weekly* 2004; 8: 220404.



Enter-net project team meeting 16th November 2004 Rm 1B10, Cfl, Colindale

Minutes

Present: Bob Adak (BA)
Ian Fisher (IF)
Noel Gill (NG)
Bill Reilly (BR)
Henry Smith (HS)
Francine Stalham (FS)

1) Enternet V BSN

A Basic Surveillance Network (BSN) was set up in Sweden and funded by DG SANCO and it was discussed how the BSN will affect the future of Enter-net and other dedicated surveillance networks and whether Enter-net is able to comply with the data requirements of the new Zoonoses Directive. The group was informed that the Zoonoses working group has now met three times. It was noted that the BSN is capable of providing similar data to Enter-net and that England & Wales haven't sent any data information to the BSN database. Andrew Chronias is the HPA representative on the BSN committee.

It was decided that we have to demonstrate that our dedicated surveillance network is a "value for money" network which concentrates on human illness. We should ask the Danish how they are collecting for the Zoonoses directive as they collect zoonoses and how we could merge our data with theirs. **Action: IF**

2) Letter from the Commission

IF informed the group that there was a contradiction in the between annex two and annex four. Annex two said two months before the interim report, annex four "specific instructions for dedicated surveillance network" said nine months after the receipt of contract. We will be operating towards annex four.

3) Annual Report

It was decided that Enter-net will produce an Annual Report using the data from 2003 as the "dummy run" for *Salmonella* and attempt to chase and update VTEC data with a view to producing an annual report for that also. Gail Ettienne (GE) and Francine will be working primarily on producing these reports. Gail is in the process of preparing template tables into which data can be added. A message will be circulated by e-mail informing Enter-net participants of our requirements from them, giving

specific deadlines to have data completed and returned. We will also use this opportunity to give a deadline for the production of the 2004 report. Participants will be asked to write a short piece on what they've noticed about trends and/or a particular organism in their country. It would be useful if the 2003 Annual Report could be available by the next workshop. The new Scientific Committee will be asked to give some input into the production of the reports with ideas and or comments.

It was agreed that the data for 2003 should be validated and ready to be extracted for the report by the end of December 2004.

Campylobacter Data

Countries will be asked to complete their own data for this annual report in template format that we will supply.

4) New Zoonoses Directive – Supply of human data

As the new Zoonoses directive has reverted back to directive 2119/98EC there is still only a requirement to collect data on animal feed and feedstuff. To which the Enter-net database already complies.

BR to sent of copy of the new Zoonoses directive to IF

ACTION:BR

5) Outputs from database

More will be coming from the Enter-net database. This will commence as previously discussed with the production of the annual reports. GE is now solely employed by Enter-net to work on database output. She will aim at producing at least two papers one on trends in *Salmonella*. The paper, which was written by John Threlfall (JT) and IF on behalf of the Salm-gene and Enter-net participants, will be published December in Epidemiology & Infection. The abstract for that is on the website and should be circulated to all. A further paper has been accepted by Eurosurveillance to be published in November.

6) E & W VTEC data update

The interaction between MOLIS and the server has had further problems. IF reported that following a recent meeting, IT are promising to have it up and running by Christmas.

It was decided that an *E. coli* 2002/2003 review should be done using the little data we have using the “empty box” technique hoping that it will entice more participants to send us VTEC data. We should only collect data on VT+.

BA suggested that it would be worth looking into a collaborative study with Cfl, SRMD and Health Protection Agency Scotland to compare trends in Scotland and E&W in view of writing a joint paper.

7) Workshop 2004 Annual Report

This will soon be completed and circulated.

ACTION: IF

8) QA schemes 2005

It was mutually agreed that if there is funding in the Enter-net budget for another QA scheme and because of its success previously we should do another next year.

Details of this can be discussed at the workshop to get the candidate countries on board. QA scheme can commence February/March 2005.

9) Incidence of VTEC in Europe Proposal

Flemming Scheutz will be representing his proposal soon. The call will go out from DG SANCO in January, concluding March.

10) Foodborne Isolate Database

SOFIE has proven that it has been able to define foods in a more structured way and has had good feedback. The existing database used is not performing the way it should. HS due to attend a meeting at the FSA to discuss further, he will feedback further information. Looking specifically at particular foods is tricky, finding which pathogen is found in which food is easier. It would be good if it could become an international database of food and environmental resources.

11) EU Legislation

BA suggested that IF should talk to Chris Little and Steve Pugh for advice on the interpretation of the food and food stuffs piece on the Zoonoses Directive.

ACTION: IF

12) UK VTEC Review

HS to report back from a meeting at the FSA next week. This will be a good opportunity to influence Food Standards Agency.

ACTION: HS

13) New Scientific Advisory Committee Meeting

This meeting will be held early in 2005. They will be asked for input on the Annual Report as well as assisting with the planning of the next workshop. They will assist in preparing the scientific program for the agenda. They will also be asked to contribute to further proposals and applications.

14) Workshop 2005

We have had offers from three countries to host the 2005 workshop, one of them is a definite offer from Austria. The Czech Rep and Portugal have an interest but we will aim at making the venue Portugal as the host for political reasons.

This report was prepared by Ian Fisher, Scientific Coordinator and Francine Stalham, Administrator – November 2004



ENTER-NET SCIENTIFIC ADVISORY COMMITTEE (SAC)

18th MAY 2005 CDSC Library,
Colindale

Present

Jet De Valk	(JDV)
Maria Damian	(MD)
Sven Löfdahl	(SL)
Noel Gill	(NG)
Bob Adak	(BA)
Francine Stalham	(FS)
Bill Reilly	(BR)
Ian Fisher	(IF)
John Threlfall	(JT)

Apologies: Panayotis Tassios (PT)
Andrea Ammon (AA)

Annual Report

The “dry run” of the annual report for presentation at this year’s workshop will be made up of data obtained for the year 2003.

It was pointed out that this kind of data production is necessary for the network to comply with its legal obligation to the Commission which is referred to in annex four of the current contract.

The structure and content of the annual report was discussed. It was decided that the report should contain as follows;-

The full report from all countries showing the Enter-net side of things with all the individual countries data amalgamated, ie an overview of Europe as a whole. This would contain updates and information on trends and unusual increases; including highlighting various issues such as Typhimurium, drug-resistance and the trends of Typhi and Paratyphi and the country of travel versus the country the illness was diagnosed in (for example). This would be backed by a series of annexes.

Annex 1. What is Enter-net?

Annex 2: Specifications for data and legal obligations

Annex 3 A report by country containing the summary supplied by each country, but all countries following the same format/answering the same questions.

Annex 3 would have a structured template with a series of headings prepared for ease of completion. This structure will be decided by the SAC prior to presentation at the workshop.

Action SAC

It is important to involve the countries that are not in Europe so their data will be included.

The “draft” annual report along with summaries from individual countries, will be circulated electronically before the workshop to all attending. This will give people the opportunity to think of ideas prior to the workshop discussion. There will be an overview of the report available at the workshop. **Action IF/FS**

It was decided that the title of the annual report could be decided at the workshop. Prepare some way of allowing people to make suggestions i.e “Salmonella in Europe and Beyond” **Action: IF/FS**

Ian is to present the “Annual Report” at the workshop for which he has been allocated 40 mins. Support was asked from the chair of the SAC to assist Ian in the discussion.

Once agreement has been reached by the participants at the workshop to proceed with the annual report, the projected timeline would be; tables sent post the workshop. Brief national reports and summary data received and checked by the end of July, draft report for comment by the end of September, publication in October.

Annual Workshop

A draft outline of the programme was examined. IF pointed out that the content of the programme would take more time than was available. It was agreed that breaks would be half hour long. The list of business and scientific presentations was reviewed and the timings adjusted so as to be able to fit everything in to the workshop. The issues that may provoke discussions will still have their full time.

It was also decided to accept one speaker from each institute.

Following input from the SAC, Ian will prepare a full draft agenda and circulate for comment **Action IF**

ECDC Working Group

Enter-net does not have a representative on the ECDC Working groups concerned with enteric infections. The issue of the involvement of relevant DSNs with ad hoc advisory groups of the ECDC has yet to be addressed. Ian and Noel will telephone Karl Ekdahl to discuss this further. **Action: NG/IF**

Andrea Ammon is at present working for the ECDC part-time, but in June she will be working there full time. She may be the representative of the ECDC at the workshop, as well as in her capacity as German Epidemiological Representative.

Phage Type Reagents

John discussed an e-mail he'd received from a collaborator commenting that there were not enough reagents to carry out Enter-net work. The expense of producing these phages and the postage was discussed and although we have the funding for a post for someone to work on this, we do not have enough funding for postage and training etc. The Enter-net budget will be reviewed to see what funds could be identified to alleviate the situation. **Action: IF/NG/JT**

The *E. coli* proposal from William Dawson, Colinet

A new research proposal has been presented for *E. coli* under FP6 called Colinet, by Chalex, a commercial company, who are looking for participants. The deadline for submitting an

application under this call is mid-September. It was agreed that Enter-net should not join this proposal in the first instance.

Flemming Scheutz and Helge Karch have also attempted similar proposals. It was decided that Enter-net *E. coli* experts could have a 1 hour satellite meeting at the workshop to see if they could put something similar together as a team. Sven Lofdahl will chair this meeting. It was suggested Geraldine Duffy will be invited (at her own expense), who was believed to be preparing a similar proposal. Bill will contact her to see how things are going.

Action: NG/SL/BR

If nothing could be agreed at this satellite workshop, the opportunity of joining the Chalex proposal would be reviewed

Collection of Foodstuffs database

Collection of foodstuff data has commenced with Enter-net and it is starting to receive a slow feed. It was suggested that to be more effective with the collection of data, that Enter-net draft a letter requesting this data to be sent to the FSA's of the countries through the Enter-net participant. IF will prepare the letter.

Action IF

Global Salm-Surv

There is a Global Salm-Surv strategy meeting in Winnipeg in September. The SAC decided that it was important that someone attends to represent Enter-net. That person is still to be decided.

Any Other Business

There was no other business. The meeting concluded at 3.30pm.



**Enter-net Scientific Advisory
Committee
28th November 2005
CDSC Library, Colindale**

Minutes.

Present:

Bob Adak	(BA)
Henriette de Valk	(HDV)
Maria Damian (MD)	
Ian Fisher	(IF)
Noel Gill	(NG)
Sven Lofdahl	(SL)
Panayotis Tassios	(PT)
Francine Stalham	(FS)

Apologies: Bill Reilly (BR), John Threlfall (JT),

1) Review of current objectives.

The ECDC will be reviewing all the dedicated surveillance networks (DSNs) as part of their mandate for managing them once the current DG SANCO contracts expire. They will particularly be looking at the performance of the DSNs against their objectives. A detailed description of the Enter-net project was circulated and the statement of project aims and objectives was reviewed. It was pointed out that we still had a few objectives to be completed. These have now been addressed.

- i) Incorporate the new Member States into the Enter-net Dedicated Surveillance Network (DSN) so that all EU and other participating countries are contributing to the international surveillance of enteric pathogens.
Action All
- ii) Continue to harmonise surveillance of antimicrobial resistance in Salmonella through repeat calibration studies. Extend surveillance of antimicrobial resistance by inclusions of other antimicrobials and by identification and resistance mechanisms where appropriate – it was suggested that Enter-net set up a working group to monitor drug resistance, a panel of microbiologists that meet once a year to organise the set of strains to be used for the annual EQA, and to assess the results.
Action JT/All salmonella labs

2) SOPs/urgent enquiries

The standard operating procedures were reviewed and were agreed as being acceptable. It was suggested that there should be a summary of the results of any urgent enquiries sent out. A form would be prepared by the Enter-net hub for agreement by the SAC. When this has been agreed it will be sent out to all countries initiating an urgent enquiry for them to return to the hub after a short while. This would provide an audit of the enquiries, and their response rates, which would assist in the evaluation of the Enter-net DSN which will take place in 2006 under the ECDC.
Action IF/SAC

3) Relationship with ECDC

22/24 State Epidemiologists voted that hubs with alert systems should be managed by ECDC. This move would be broadly welcomed and Enter-net could easily be re-branded as ECDC rather than Commission (as is currently the case). Enter-net has strong grounds to stay outwith Stockholm because the microbiology content would make it difficult to move.

Enter-net's current contract expires at the end of September 2006. Although it was suggested that Enter-net continues with its hub in Colindale for a further 15 months to ensure smooth transition. Negotiations with the ECDC will be conducted with this aim in mind.

Andrea Ammon with a team from the ECDC will visit Cfl in January to carry out an evaluation of the networks concerned – all rapid response networks. Evaluation results will not be available until September 2006. The results of the evaluation may lead to the hub remaining out-based from Stockholm in the future, although this remains to be seen. IF will report on the meeting when completed. **Action IF**

4) Workshop 2006

Andrea Ammon has offered Enter-net full funding for the 2006 Workshop. It was suggested that Stockholm hosts the workshop this year, but that is yet to be confirmed. The provisional dates for the workshop are 9th – 11th June. The costs for year 2 have yet to be assimilated, once these have been done any necessary financial input from the ECDC can be agreed.

Also discussed was the length of time and the relevance of the various presentations given at the workshop. It was suggested that more time was given to fewer presentations in order for there to be more detailed discussions. It was felt that the workshop would benefit from being more hands-on, with less emphasis on the Scientific presentations. The SAC will meet to discuss the agenda at an appropriate time before the next workshop. **Action SAC**

5) VTEC Quarterly Reports

IF enclosed a copy of the new VTEC quarterly report and asked for comments. He reported on the amount of data we were receiving and from whom and asked the committee to support the requests for data.

6) Campylobacter Quarterly Reports

These are in the process of being developed, any suggestions as to the format would be welcome. They would be different from the salmonella and VTEC reports as the data would be aggregated rather than using individual records to prepare the reports.

7) SOPHIE 2

IF informed the committee that we lost our bid for SOPHIE 2 to a bid from the BfR in Berlin. Enter-net will have to wait and see how the project progresses.

8) Annual Report

IF showed the committee a template of the Annual report and asked for comments. He explained that the feedback he'd had from the collaborators was very useful and a draft of the whole thing should be available by the end of January. It was suggested it would be a good idea to include a paragraph on the "Spanish Egg outbreak". Once the first draft has gone out the SAC will review the comments in preparation for the second draft.

Action SAC

9) VTEC 2006

It was agreed that Enter-net should have as high a profile as possible at this event. After checking with Bill Reilly, it transpired that the programme was set with very little further flexibility around the scientific session within the programme. One opportunity would be to have a satellite workshop around the symposium, although this would be too expensive and outwith the monies available in the budget. It was agreed that Enter-net should actively promulgate details of the meeting, and suggest that as many participants as possible submit abstracts, but attendance at the symposium would have to be at their own expense.

Action IF/all participants

10) Access to Salm-gene database

All Enter-net participants should have access to the Salm-gene database. This would be arranged under PulseNet Europe.

11) Med-Vet-Net

There is a MVN/PulseNet Europe workshop on PFGE training being held in Colindale during the first week in February 2006.

MVN training fellowships are available and details can be accessed on the MVN website (<http://www.medvetnet.org/cms/>).

12) Date of next meeting.

The date of the next meeting was agreed as Monday 27 March.

Ian Fisher and Francine Stalham
20 February 2006.



**Enter-net Scientific Advisory
Committee
27th March 2006
Room 2B07 - Colindale**

Minutes.

Present: Maria Damian (MD)
Ian Fisher (IF)
Noel Gill (NG)
Sven Lofdahl (SL)
Sally Meakins (SM)
Panayotis Tassios (PT)
John Threlfall (JT)
Francine Stalham (FS)

Apologies: Bill Reilly (BR), Bob Adak (BA), Henriette de Valk (HdV)

3) Minutes of the last meeting

The minutes of the last meeting were agreed as accurate and there were no issues raised.

2) Annual Report

Salmonella

SM begun by discussing some of the difficulties she has had with the compilation of the data for the report. The main concern is with the translation of data. Some data has been received from all of the countries except Cyprus. She also explained that some countries have supplied their data as per their own annual report which was sometimes different to that of the Enter-net database. The deadline for any modifications to the annual report is Friday 31st March, with the aim of distributing the completed report in mid-April. **Action: SM**

JT asked about the statistical difference between pages 20, 21 and 22 Table 2. It was noted that the differences in the figures was due to the Paratyphus and non-Paratyphus.

Antimicrobial resistance has declined with the drop of DT104, but there has been an increase in single resistance in Enteritidis. Perhaps a table showing this could be added, along with a table showing the increase in resistance to Nalidixic acid.

Other things that were noted were the increase in Paratyphi A and the travel trends were interesting.

VTEC

It is important that we show the difference in continental and non continental 0157 and non-0157. It may be worth looking into *E. coli* in cattle as Sweden recently

carried out a study and discovered that 60% of the cattle screened had *E. coli* this information would be useful for the Zoonoses Directive, maybe we should do a “Pan-European” epidemic report.

3) **Campylobacter Report**

It was agreed that tables 1, 2 and 6 should stay as they are and not merged. With reference to the country specific table, page 1. The mark ‘-’ should be changed to “not submitted” and “nt” should equal “not typed” this would make the table easier to read. It was also requested that we use an alternative reference to “The CIA World Fact Book.”

Action: SM

4) **Contract with the Commission**

IF enclosed a graph detailing the budget for the period of 2004-2006 and Enter-net has around 190,000 Euro under-spend. This was due to the fact that the contract was late in being signed as the negotiations had taken some time. This meant that activities were delayed or reduced until the contract was finalised, and hence funds had not been utilised until the final issues had been resolved.

i) **VTEC Study**

It was agreed that a ring trial on VNTR *E. coli* and Typhimurium should be explored. This could be achieved using an existing panel of 20-50 strains.

ii) **Harmonisation of Anti-microbial Resistance**

This study should be carried out in a similar way to studies carried out in the past, including the new members states, but on a smaller scale. This should be completed by the end of June.

There should be a survey of methodology carried out by the SAC to produce a protocol which should agree all of the costings, Ian and Noel are to oversee the budgets etc.

iii) **BioNumerics Workshop**

Further monies available could be put aside to fund people to come to Colindale for training on BioNumerics.

iv) **VTEC Serotyping course**

Conduct a VTEC serotyping course similar to ones carried out in the past, but on a smaller scale.

5) **Contract with ECDC**

The ECDC came to Colindale to evaluate the networks based at Cfl, particularly Enter-net, EU-IBIS and EWGLI. These projects have been guaranteed an additional 12 months. Zsuzsanna Jakab has written to Pat Troop, Chief Executive, HPA, confirming their decision and Pat Troop is happy that the contract is remaining. The Enter-net DSN would be evaluated in the next year to ascertain whether it would be subsumed into Stockholm, or all, or part, would be out-sourced.

6) Case definitions – update

The case definitions had been circulated to all Enter-net participants for comment. These comments are being fed back to both the Enter-net surveillance hub and the ECDC direct. Sven is keeping an eye on progress and is discussing with the ECDC any required changes or additional comments. **Action: SL/All Enter-net participants**

7) Information on Communicable Diseases in Europe

A letter from Zsuzsanna Jakab had been received regarding input from Enter-net into the ECDC annual report. It was agreed that Enter-net would assist as far as possible in contributing to this. **Action: IF/all Enter-net participants**

8) Training in typing methods

It was noted that the expertise in being able to phage type was declining in Enter-net countries and that this remains a significant element in being able to identify outbreaks and trends over time (eg recognise non-PT4 emergence). Training and producing and making the phages available would be very valuable, but it was not within the Enter-net budget to provide this. This would be brought to the agenda of the 2006 workshop to begin addressing this issue. **Action: JT**

9) Participation in EQA schemes.

It was noted that all participants were expected under the contract to participate in the EQA schemes, unless there was a good reason not to do so (for example participation in the Enteritidis and Typhimurium phage typing schemes was dependant on whether phage typing of these was routinely done in each country. If not then there was no point in taking part in these EQAs). Wherever possible all participants should be encouraged to take part, but at the end of the day, it was their choice. It was noted that the strains could also be used for acts of bioterrorism, and as such care had to be taken in transporting them. Wherever possible, especially when there were practical difficulties in importing strains into countries, then couriers should be used rather than the current method of shipping strains. **Action: All**

10) Workshop 2006

The workshop for 2006 would be hosted by the Czech Republic, and after much discussion it was agreed that towards the end of September would be the best time. While this was not ideal, it was the only practical option. This would be finalised with the hosts and the invitations would be sent out. **Action: IF/FS**

11) Agenda items for the workshop.

Agreed items were; the collaboration with ECDC, revised Principles of Collaboration to reflect this new relationship, case definitions. In addition a teleconference would be held by the SAC in June to discuss and agree further items. **Action: SAC**

12) VTEC 2006

Enter-net should aim to have a high profile at the triennial International Symposium on VTEC infections. Enter-net would put in at least one poster and would encourage other participants to do so, although no Enter-net funds could be made available for

attending. IF would explore with the organisers how to raise the profile (possibly with a satellite meeting / workshop). **Action: IF**

13) Remote access to the Enter-net databases

IF was working with Cfl IT to make the database available on-line. This was being progressed but was taking some time. Updates would be brought to the agenda of the workshop and to the SAC as and when appropriate. **Action: IF**

14) Any Other Business

The future of Bill Reilly's retirement and the effect on the network was discussed and whether we needed a replacement Project Leader this is to be confirmed with Bill as soon as possible.

**Ian Fisher and Francine Stalham
March 2006.**

This report was produced by a contractor for Health & Consumer Protection Directorate General and represents the views of the contractor or author. These views have not been adopted or in any way approved by the Commission and do not necessarily represent the view of the Commission or the Directorate General for Health and Consumer Protection. The European Commission does not guarantee the accuracy of the data included in this study, nor does it accept responsibility for any use made thereof.