



## **The Treaty of Nice – Dec 2002**

### **ARTICLE 152**

**“A high level of human health protection shall be ensured in the definition and implementation of all Community policies and activities.”**

**“The Community shall encourage cooperation between the Member States... and, if necessary, lend support to their action.”**

# €uropean surveillance





**The International network for the surveillance of Enteric Infections – *Salmonella*, VTEC O157 and *Campylobacter***

**Funded by the European Centre for Disease Prevention and Control**

**(previously by DG SANCO and DG 12 under Framework 4)**



# What does Enter-net do?

- **Three main strands;**
  - ♦ **International databases and surveillance**
  - ♦ **Urgent enquiries/international outbreaks**
  - ♦ **EQA schemes**
    - **Salmonella sero-, phage typing and AST**
    - **VTEC serotyping, virulo-typing**



## Definition of Surveillance

**The ongoing systematic collection, collation and analysis of data and the prompt dissemination of the resulting information to those who need to know so that an action can result.**

**AD Langmuir 1963**

**!! Information for Action !!**



# Objectives of Surveillance

**By monitoring disease trends to:**

- 1. Predict epidemics**
- 2. Detect outbreaks**
- 3. Identify risk groups**
- 4. Evaluate effectiveness of interventions**
- 5. Set priorities for resource allocation**
- 6. Provide aetiological clues**



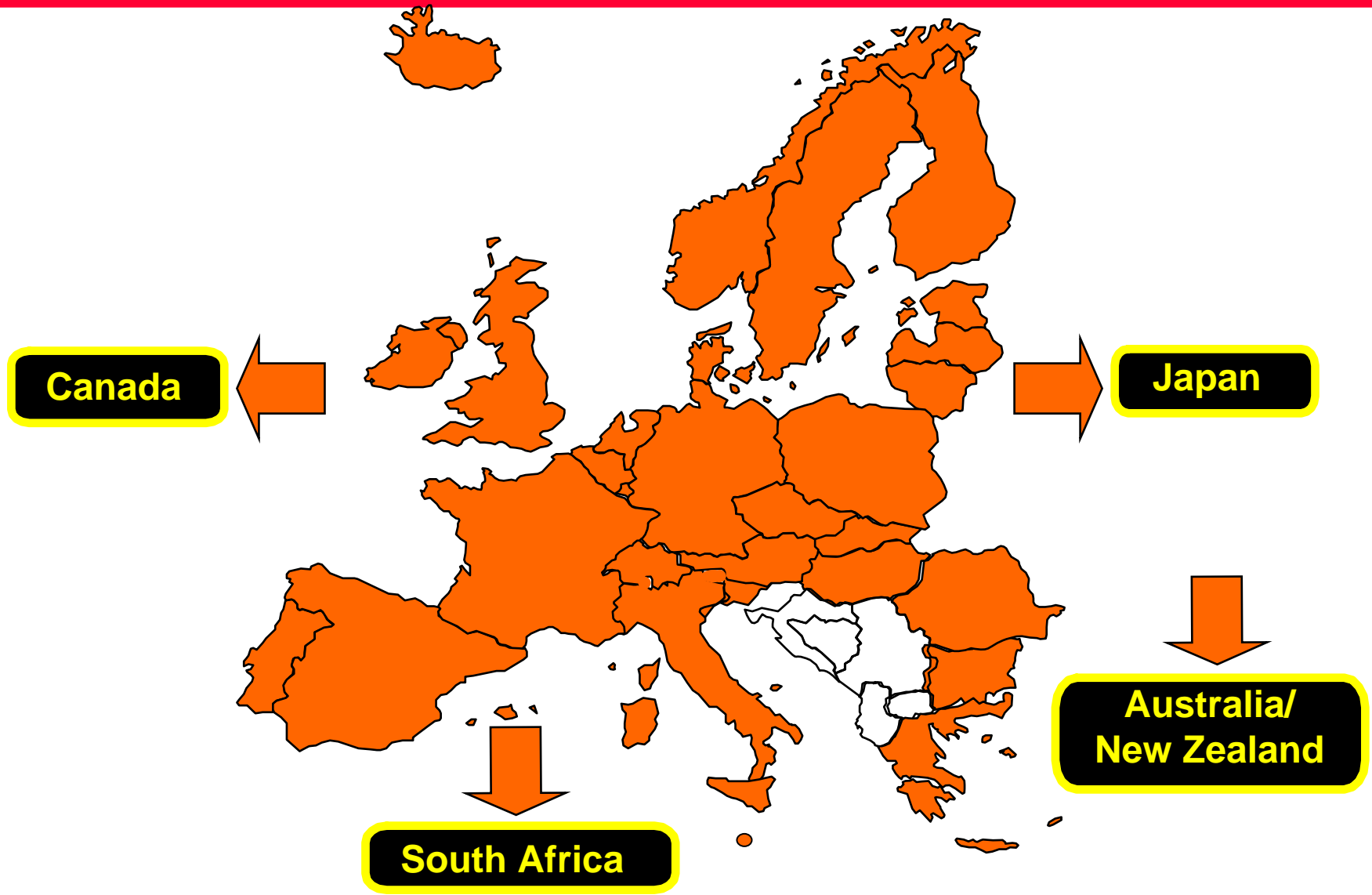
# Objectives of Surveillance

**By monitoring disease trends to:**

- 1. Predict epidemics**
- 2. Detect outbreaks**
- 3. Identify risk groups**
- 4. Evaluate effectiveness of interventions**
- 5. Set priorities for resource allocation**
- 6. Provide aetiological clues**
- 7. Recognise and assess emerging issues**



# Participants

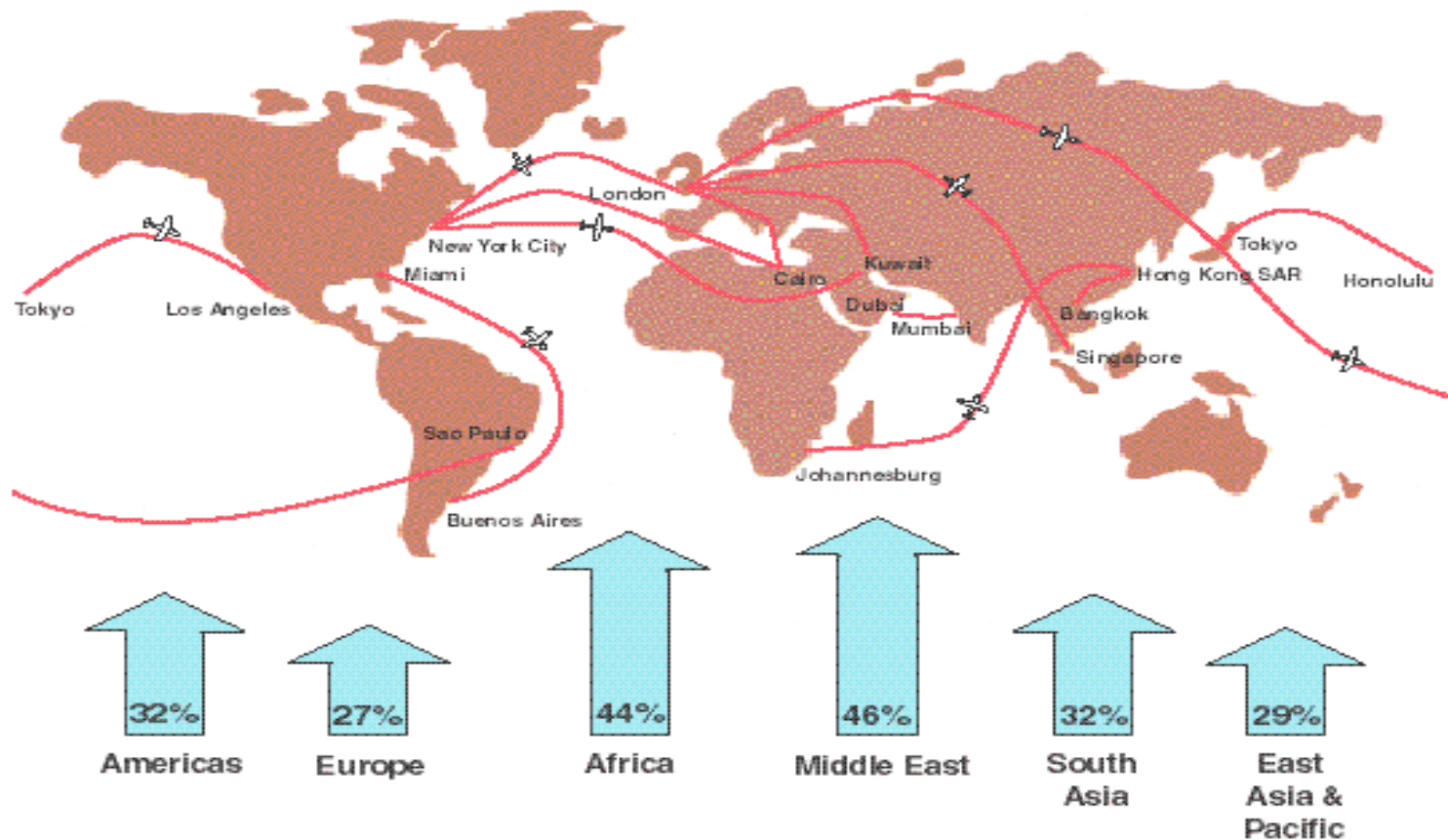




# The impact of international travel.

## Frequent flyers

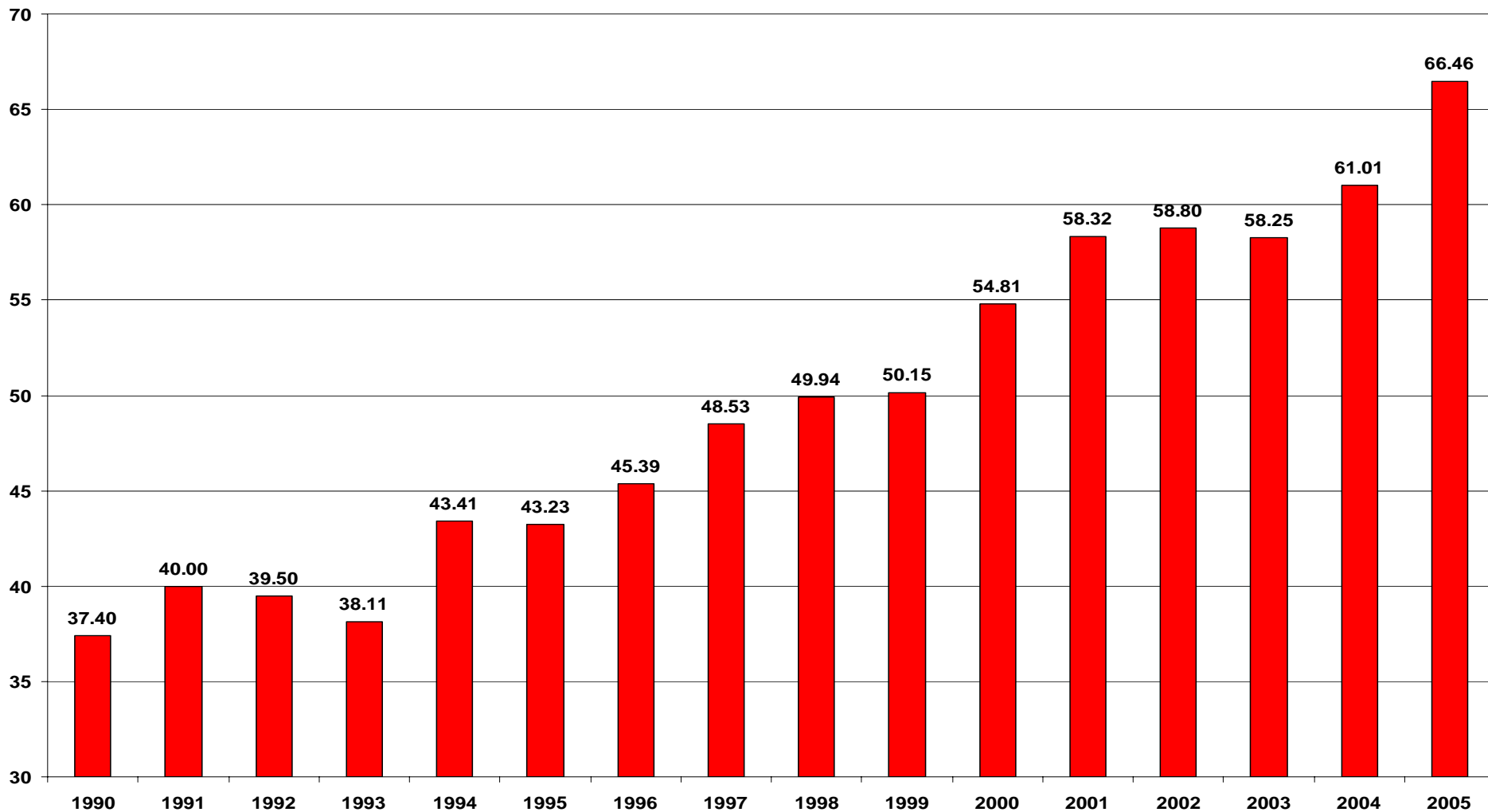
Most popular air routes between continents, 1997



Percentage increase in international arrivals, 1993 to 1997



# Imports of agrifoods into the EU-15 (1,000M Euro)



Source: Eurostat yearbook 2005



# ***E. coli* O157 Multi-state Outbreak**

## **0609mIEXH-2c – September 2006**





# Salinas Valley, CA





# Objectives

**For human isolates:**

- **Maintain timely international *Salmonella* and VTEC O157 databases**
- **Extend VTEC O157 typing**
- **Conduct international VTEC O157 Quality Assurance**
- **Monitor salmonella anti-microbial resistance**
- **Rapidly recognise and report international outbreaks**
- **Create international foodstuffs database**





## **Methods**

- **Harmonisation of reference laboratory procedures**
- **Standardisation of accompanying data**
- **Development of collaboration principles**
- **Rapid data collection and information exchange**
- **Regular workshops for all participants**



# Microbiological achievements

- **Harmonisation of salmonella phage-typing,**
- **Countries routinely reporting phage-type data increased from five to 12,**
- **14 countries reported phage typing results in 2005**
- **Study to harmonise results of antibiotic susceptibility testing,**
- **Encourage the use of VTEC O157 phage-typing.**



# Epidemiological achievements

- **Development and maintenance of the international salmonella database,**
- **Creation of the international *E. coli* database.**
- **Application of new software to improve outbreak recognition,**
- **Expansion of the database to incorporate antibiotic resistance testing results,**





# VTEC file specification - I

## Reference data.

**Country**  
**Institute**  
**Reference number**  
**Source**  
**Region**



# **VTEC file specification - II**

## **Microbiological data.**

**Serogroup**

**O157 phage type**

**VT type**

**Presence of intimin gene**

**Specimen type**

**Date of receipt in reference laboratory**

**Date of receipt in source laboratory**

**Antibiotic resistance testing results**



# **VTEC file specification - III**

## **Epidemiological data.**

**Clinical manifestation**

**Age**

**Ageband**

**Sex**

**Vehicle implicated**

**Travel associated**

**Country of travel**

**Data are encoded where appropriate according to the full specification.**



# **VTEC file specification - IV**

## **Data transfer**

**Data format is a flat ASCII (text) file, each record being 194 characters long.**

**Data are transferred to the co-ordinating centre using standard Internet methods, with encryption, if required.**

**Data are incorporated into the database and analysed regularly on a monthly, quarterly and ad hoc basis.**



# Antimicrobials surveilled

- **Aminoglycosides**
  - ◆ **Streptomycin, gentamicin, kanamycin**
- **$\beta$ -lactams**
  - ◆ **Ampicillin, cefotaxime**
- **tetrahydrofolate inhibitors**
  - ◆ **Sulphonamides, trimethoprim**
- **Quinolones**
  - ◆ **Nalidixic acid, ciprofloxacin**
- **Other antimicrobials**
  - ◆ **Chloramphenicol, tetracyclines**

# Data Collection and Dissemination

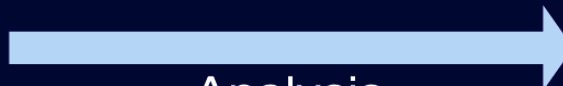
Collaborating country



Monthly update  
Internet/floppy disk

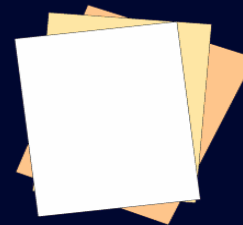


Central database



Analysis

Monthly/adhoc  
exception  
reports



Published  
quarterly  
report

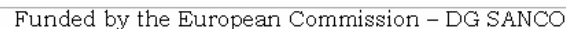




## **VTEC Reports – II**

**Contains information on**

- 1. Quarterly data – major trends**
  - **Serogroups totals**
  - **Phage types**
- 2. AST results**
- 3. Age and gender breakdown**
- 4. Clinical manifestation**
- 5. Country breakdown**
  - **Not in public domain report**



Project Team	Prof Noël Gill	Prof Bill Reilly	Prof John Threlfall
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**Enter-net Quarterly VTEC Report 2006/2**  
**Confidential**

### Summary.

This report gives details of the number of isolates identified by the national reference laboratories in the 2<sup>nd</sup> quarter of 2006 and incorporated in the Enter-net VTEC database. Sixteen countries have supplied the relevant data electronically (or reported a nil return). Three hundred and fifty-three cases have been reported. The most common serogroups identified are detailed in table 1; the remaining 48 cases (13.6%) consisted of 33 other serogroups.

Serogroup	Freq	%	Freq	%
	2006		2005	
O157	147	41.6	148	35.6
O26	33	9.3	44	10.6
O91	22	6.2	18	4.3
O103	16	4.5	33	7.9
O146	8	2.3	7	1.7
O145	7	2.0	12	2.9
O55	4	1.1	8	1.9
O87	3	0.8	1	0.2
O111	3	0.8	12	2.9
O113	3	0.8	2	0.5
Untyped/untypable	59	16.7	65	15.6
Other	48	13.6	66	15.9
Total	353		416	

Table 1

Table 1

O157 Phage type	Freq	%	Freq	%
	2006		2005	

### Quarterly data – major trends.

Details in tables 1 & 2 refer to the thirteen countries that have supplied data electronically for 2006 and 2005. Tables 3-7 show the results from all cases that are in the database for this year.

The total number of reports in the database shows a decrease of 15.1% over the same period last year with 353 cases as compared to 416 in 2005.

*E. coli* O157 was the most commonly identified serogroup (table 1). Where phage typing is performed phage type 21/28 was the predominant strain the same as in 2005 (table 2). The breakdown of serogroups by country is given in table 7.





# Web access – I

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Address [http://www.hpa.org.uk/hpa/inter/enter-net\\_menu.htm](http://www.hpa.org.uk/hpa/inter/enter-net_menu.htm) Go Links »

27 February 2004

Health Protection Agency

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- Infectious Diseases
- Chemicals & Poisons
- Radiation
- Emergency Response
- Business Division

**Infections Topics A-Z**

**Site Updates**

- Freedom of Information
- HPA Board Meeting 12 February 2004
- HPA Corporate Plan 2003 - 2008 (1.26Mb)
- Job Vacancies

**Accessibility**

To enlarge text select view then text size on your browser.

This site uses Adobe Acrobat

Download here

**ENTER - NET**

International surveillance network for the enteric infections Salmonella and VTEC O157

**Project Leaders:** Dr Noël Gill, Prof Bill Reilly, Dr Henry Smith

**Funded by the European Commission - DG SANCO**

Enter-net is the international surveillance network for human gastrointestinal infections. The participants in the network are the microbiologist in charge of the national reference laboratory for salmonella and E.coli infections, and the epidemiologist responsible the national surveillance of these diseases. The network involves all 15 countries of the European Union (EU), plus Australia, Canada, Japan, South Africa, Switzerland and Norway. The newly associated states of Eastern Europe will formally be able to join the network in 2003, although an informal working relationship already exists with the Czech Republic, Hungary, Latvia and Poland. The network is funded<sup>1</sup> by the European Commission (EC) DG Health and Consumer Protection, and conducts international surveillance of salmonellosis and verocytotoxin producing Escherichia coli (VTEC) O157, including antimicrobial resistance.

Enter-net is a continuation of the Salm-Net surveillance network (1994-97) which was also funded by the EC and concentrated upon harmonisation of salmonella phage-typing and the establishment of a timely international salmonella database (link). Through outbreak recognition (link) and investigation Salm-Net demonstrated that the timely exchange of information between experts in different EU countries can lead to effective public health action in Europe and beyond. Enter-net is continuing to extend these benefits to the prevention of E.coli O157 infections.

<sup>1</sup> Agreement No SI2.326441 (2001CVG4-021); Enter-net - human enteric pathogen surveillance network.

For further information, contact [Ian Fisher](#).

- [Background](#)


Done Internet



# Web access – II

HPA | International | Enter-net Reports - Microsoft Internet Explorer provided by Health Protection Agency

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**Key Functions**

- Infectious Diseases
- Chemicals & Poisons
- Radiation
- Emergency Response
- Business Activities
- Local & Regional Services






**Health Protection Agency**  
**International surveillance network for the enteric infections**  
**Salmonella and VTEC O157**  
  
**Project Leaders:** Dr Noël Gill, Prof Bill Reilly  
Funded by the European Commission - DG SANCO


**Enter-net annual Report 2004** 




**Quarterly Salmonella Reports in  and  format**

	Jan - March	Apr - Jun	Jul - Sep	Oct - Dec
1998	-			
1999				
2000				
2001				
2002				
2003				
2004				
2005				

**Quarterly VTEC reports in  format**

	Jan - March	Apr - Jun	Jul - Sep	Oct - Dec
2005				
2006				

**Quarterly Campylobacter reports in  format**

	Jan - March	Apr - Jun	Jul - Sep	Oct - Dec
2005				

Local intranet



# Enter-net outputs





# Peer-reviewed publications – I

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## Résistance aux antibiotiques d'isolats de *Salmonella enterica* issus de cas de salmonellose humaine en Europe en 2000 : résultats d'une surveillance multicentrique internationale

EJ Threlfall<sup>1</sup>, IST. Fisher<sup>2</sup>, C. Berghold<sup>3</sup>, P. Gerner-Smidt<sup>4</sup>, H.Tschäpe<sup>5</sup>, M. Cormican<sup>6</sup>, I. Luzzi<sup>7</sup>, F. Schmieder<sup>8</sup>, W. Wannet<sup>9</sup>, J. Machado<sup>10</sup>, G. Edwards<sup>11</sup>

<sup>1</sup> Public Health Laboratory Service, Laboratory of Enteric Pathogens, London, Royaume-Uni  
<sup>2</sup> Enter-net Hub, Gastrointestinal Diseases Division, PHLS-CDSC, London, Royaume-Uni  
<sup>3</sup> National Salmonella reference laboratory, Graz, Autriche  
<sup>4</sup> Dept of Gastrointestinal Infections, Statens Serum Institut, Copenhagen, Danemark  
<sup>5</sup> Robert Koch-Institut, Wernigerode, Allemagne  
<sup>6</sup> University College Hospital, Galway, Irlande  
<sup>7</sup> Istituto Superiore di Sanita, Laboratory of Medical Bacteriology & Mycology, Roma, Italie  
<sup>8</sup> Laboratoire National de Santé, Luxembourg  
<sup>9</sup> National Institute of Public Health and the Environment, Diagnostic Laboratory for Infectious Diseases and Perinatal Screening, Bilthoven, Pays-Bas  
<sup>10</sup> Instituto Nacional de Saude, Lisbon, Portugal  
<sup>11</sup> Scottish Salmonella Reference Laboratory, Stobhill Hospital, Glasgow, Royaume-Uni

En 2000, le réseau Enter-net a collecté les résultats d'antibiogrammes pour des isolats issus de plus de 27 000 cas de salmonellose humaine, répartis dans dix pays européens. Près de 40% étaient résistants à un antibiotique au moins, 18% étaient multirésistants. La résistance à l'ampicilline, à la streptomycine, aux sulphonamides et aux tétracyclines était fréquente, avec plus de 20% de résistance à au moins un de ces antibiotiques. La résistance clinique à la ciprofloxacine était rare, avec seulement 0,5% de résistance (CMI >1,0 mg/l). La résistance à l'acide nalidixique couplée à une sensibilité réduite de la ciprofloxacine (CMI 0,25–1,0 mg/l) était plus fréquente, présente chez 14% des isolats. La résistance aux céphalosporines de troisième génération était rare, avec un taux de résistance de 0,6% seulement à la céfotaxime. Dans tous les pays, le taux de multirésistance était le plus élevé chez *Salmonella enterica* Typhimurium, avec 51% d'isolats multirésistants au total. En Angleterre et au Pays de Galles, la multirésistance était

## Antimicrobial drug resistance in isolates of *Salmonella enterica* from cases of salmonellosis in humans in Europe in 2000: results of international multi-centre surveillance

EJ Threlfall<sup>1</sup>, IST. Fisher<sup>2</sup>, C. Berghold<sup>3</sup>, P. Gerner-Smidt<sup>4</sup>, H.Tschäpe<sup>5</sup>, M. Cormican<sup>6</sup>, I. Luzzi<sup>7</sup>, F. Schmieder<sup>8</sup>, W. Wannet<sup>9</sup>, J. Machado<sup>10</sup>, G. Edwards<sup>11</sup>

<sup>1</sup> Public Health Laboratory Service, Laboratory of Enteric Pathogens, London, United Kingdom  
<sup>2</sup> Enter-net Hub, Gastrointestinal Diseases Division, PHLS-CDSC, London, United Kingdom  
<sup>3</sup> National Salmonella Reference Laboratory, Graz, Austria  
<sup>4</sup> Dept of Gastrointestinal Infections, Statens Serum Institut, Copenhagen, Denmark  
<sup>5</sup> Robert Koch-Institut, Wernigerode, Germany  
<sup>6</sup> National University of Ireland, Galway, Ireland  
<sup>7</sup> Istituto Superiore di Sanita, Laboratory of Medical Bacteriology & Mycology, Roma, Italy  
<sup>8</sup> Laboratoire National de Santé, Luxembourg  
<sup>9</sup> National Institute of Public Health and the Environment, Diagnostic Laboratory for Infectious Diseases and Perinatal Screening, Bilthoven, the Netherlands  
<sup>10</sup> Instituto Nacional de Saude, Lisbon, Portugal  
<sup>11</sup> Scottish Salmonella Reference Laboratory, Stobhill Hospital, Glasgow, United Kingdom

The Enter-net surveillance system received results of antimicrobial sensitivity tests for isolates from over 27 000 cases of human salmonellosis in 2000 in 10 European countries. Almost 40% of isolates were resistant to at least one antimicrobial, with 18% multiresistant. Resistance to ampicillin, streptomycin, sulphonamides and tetracyclines was common, with over 20% of isolates resistant to at least one of these antimicrobials. Clinical resistance to ciprofloxacin was rare, with only 0.5% of isolates exhibiting such resistance (MIC >1.0 mg/l). Resistance to nalidixic acid coupled with a decreased susceptibility to ciprofloxacin (MIC 0.25–1.0 mg/l) was more common, with 14% of isolates showing these properties. Resistance to third-generation cephalosporins was rare with only 0.6% of isolates resistant to cefotaxime. In all countries multiple resistance was most common in *Salmonella enterica* serotype Typhimurium, with 51% of isolates multiresistant in total. In England

13 of 28 8.26 x 11.68 in





# Peer-reviewed publications – II

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CLM 655

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## ORIGINAL ARTICLE

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### A European outbreak of *Salmonella enterica* serotype Typhimurium definitive phage type 204b in 2000

P. D. Crook<sup>1</sup>, J. F. Aguilera<sup>1,2</sup>, E. J. Threlfall<sup>3</sup>, S. J. O'Brien<sup>1</sup>, G. Sigmundsdóttir<sup>4</sup>, D. Wilsor<sup>5</sup>, I. S. T. Fisher<sup>6</sup>, A. Ammon<sup>7</sup>, H. Briem<sup>4</sup>, J. M. Cowden<sup>8</sup>, M. E. Locking<sup>8</sup>, H. Tschäpe<sup>7</sup>, W. van Pelt<sup>9</sup>, L. R. Ward<sup>3</sup> and M. A. Widdowson<sup>9</sup>

<sup>1</sup>Gastrointestinal Diseases Division, PHLS Communicable Disease Surveillance Centre, London, UK, <sup>2</sup>European Programme for Intervention Epidemiology Training (EPIET), <sup>3</sup>PHLS Laboratory of Enteric Pathogens, Central Public Health Laboratory, London, UK, <sup>4</sup>Division of Infectious Disease Control, Directorate of Health, Reykjavik, Iceland, <sup>5</sup>County Durham and Darlington Health Authority, UK, <sup>6</sup>Enter-net Surveillance Hub, PHLS Communicable Disease Surveillance Centre, London, UK, <sup>7</sup>Robert Koch Institut, Berlin/Wernigerode, Germany, <sup>8</sup>The Scottish Centre for Infection and Environmental Health, Glasgow, UK and <sup>9</sup>RIVM, Department of Infectious Disease Epidemiology, Bilthoven, The Netherlands

**Objective** To describe the clinical, epidemiologic and microbiological features of a large outbreak of infection with a multiresistant *Salmonella enterica* serotype Typhimurium definitive type DT204b infection involving at least 392 people in five European countries.

**Methods** Icelandic public-health doctors responded to a report on an Internet news site of an outbreak of infection with a multiresistant strain of Typhimurium DT104 in England by contacting the Public Health Laboratory Service (PHLS) Communicable Disease Surveillance Centre (CDSC). An international alert was sent out through Enter-net. All strains from England & Wales, The Netherlands, Scotland and Germany, and 17 of the outbreak isolates from Iceland, were phage-typed, screened for antimicrobial resistance, and subjected to molecular typing. Hypothesis-generating interviews were

1 of 9 8.26 x 10.86 in



# Objectives of Surveillance

By **monitoring disease trends** to:

1. Predict epidemics
2. Detect outbreaks
3. Identify risk groups
4. Evaluate effectiveness of interventions
5. Set priorities for resource allocation
6. Provide aetiological clues



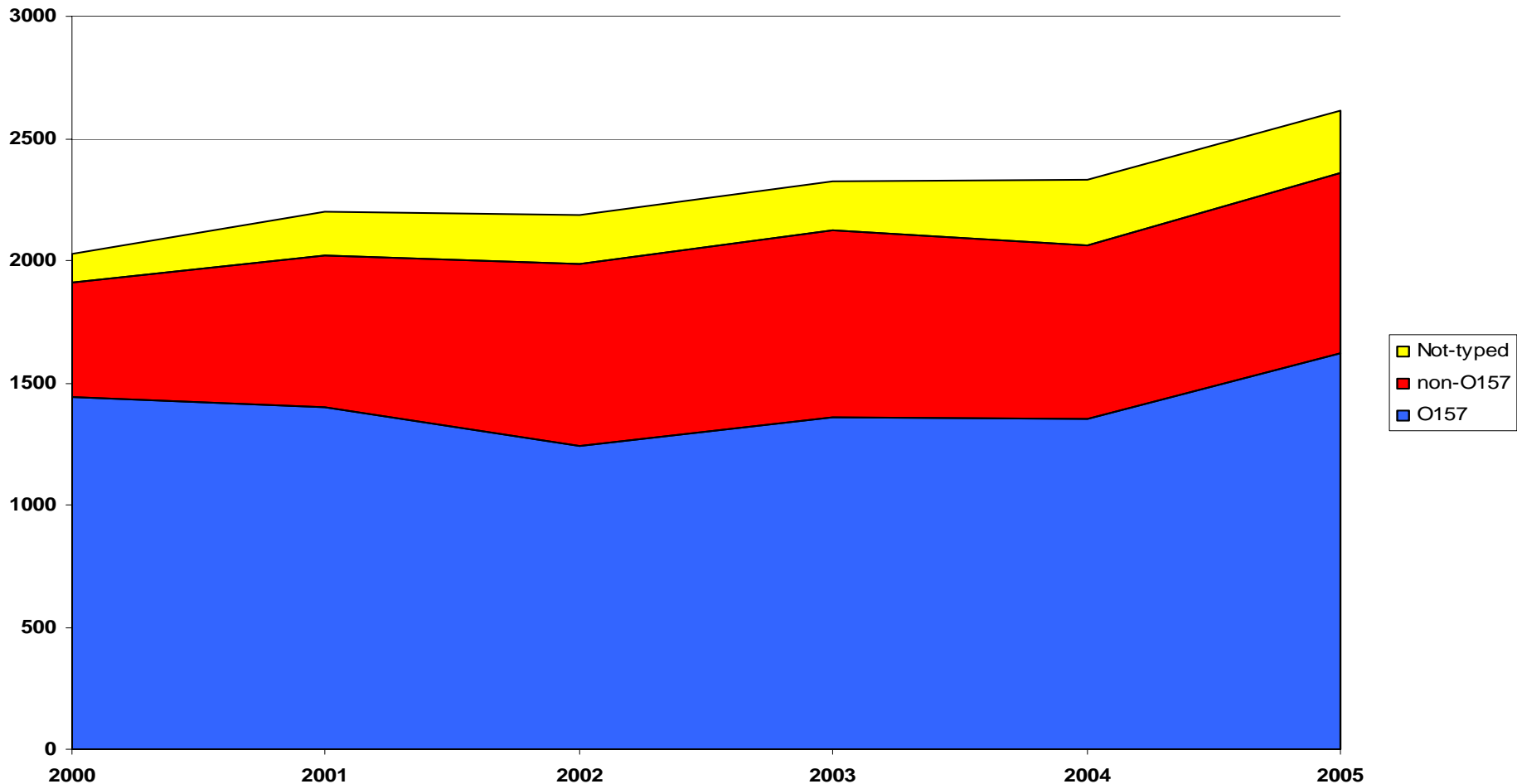
## VTEC surveillance results 2000-05

Serotype	Freq	%	Serotype	Freq	%
O157	8,750	61.6	O146	154	1.1
O26	832	5.9	O128	108	0.8
O103	669	4.7	O113	83	0.6
O91	448	3.2	O2	78	0.5
O145	296	2.1	Other	2,610	18.2
O111	182	1.3	<u>Total</u>	<u>14,210</u>	



# Trends in VTEC infections

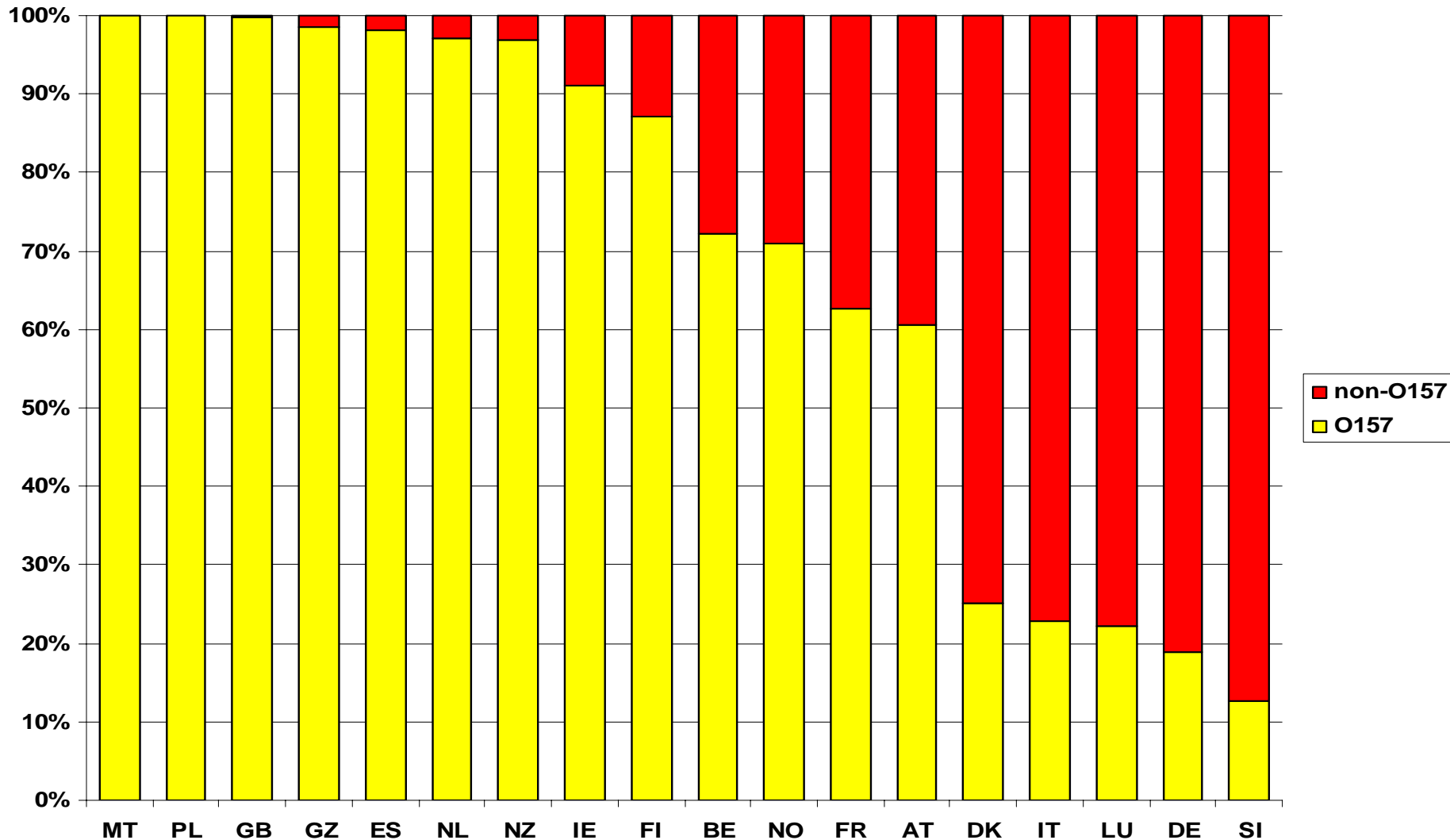
VTEC 2000-2005 (18 countries)







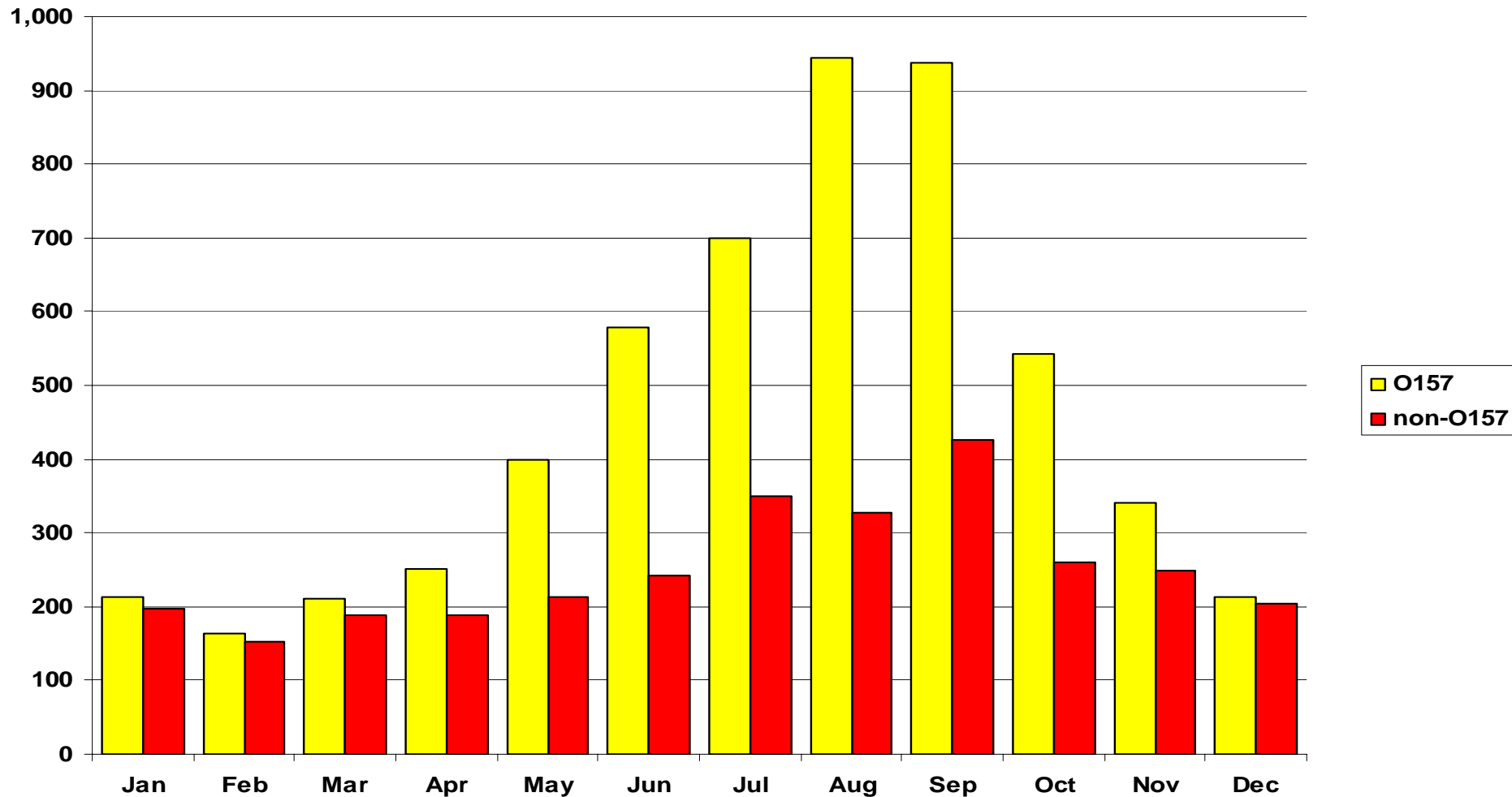
# Percent of O157 and non-O157 by country - Enter-net database 2000-05





# O157 and non-O157 seasonality

Human VTEC O157/non-O157 by month 2000-04 (n=5,491/2,999)





## VTEC vt1 and vt2 production

O157	VT2 +ve	VT2 -ve	Total
VT1 +ve	1,490	37	1,527
VT1 -ve	1,456	48	1,504
Total	2,946	85	3,031

Non-O157	VT2 +ve	VT2 -ve	Total
VT1 +ve	591	2,087	2,678
VT1 -ve	1640	154	794
Total	1,231	2,241	3,472



## VTEC vt1 and vt2 production

O157	VT2 +ve	VT2 -ve	Total
VT1 +ve	49.2%	1.2%	50.4%
VT1 -ve	48.0%	1.6%	49.6%
Total	97.2%	2.8%	100%

Non-O157	VT2 +ve	VT2 -ve	Total
VT1 +ve	17.0%	60.1%	87.1%
VT1 -ve	18.4%	4.5%	22.9%
Total	35.4%	64.6%	100%



## VTEC other virulence factors

<b>Eae gene (n=6,250)</b>	<b>O157</b>	<b>Non-O157</b>	<b>Total</b>
<b>+ve</b>	<b>35.8%</b>	<b>36.7%</b>	<b>72.5%</b>
<b>-ve</b>	<b>0.8%</b>	<b>22.7%</b>	<b>27.5%</b>
<b>Total</b>	<b>37.6%</b>	<b>63.4%</b>	<b>100%</b>

<b>ehly (n=4,959)</b>	<b>O157</b>	<b>Non-O157</b>	<b>Total</b>
<b>+ve</b>	<b>33.3%</b>	<b>48.0%</b>	<b>81.3%</b>
<b>-ve</b>	<b>1.9%</b>	<b>16.8%</b>	<b>18.7%</b>
<b>Total</b>	<b>35.2%</b>	<b>64.8%</b>	<b>100%</b>



## **Benefits**

- **Improved outbreak recognition**
- **More effective outbreak investigation**
- **Strengthening of national surveillance**
- **Acceleration of applied research**
- **Reduction in risks from international food trade**
- **Interactive network of public health professionals**



## **Benefits – II**

- **Enter-net is not a “formal” alert system**
  - ♦ **It is not the EWRS, GOARN or RASFF**
- **Its remit is to identify if an international outbreak is occurring**
- **And if so, it has direct access to the epidemiological and microbiological expertise to respond to and investigate those outbreaks**



# International outbreaks recognised - I

Organism	Cases	Countries involved (index)	Year	Association
<i>S. Newport</i>	100+	<b>E&amp;W</b> , Finland	1998	None confirmed
<i>S. Livingstone</i>	100+	Austria, Czech Republic, Denmark, <b>E&amp;W</b> , Finland, Germany, Netherlands, Norway, Sweden ( <b>identified by data pooling</b> )	1997	Travel to Tunisia
<i>E. coli</i> O157/ HUS	15	Denmark, <b>E&amp;W</b> , <b>Finland</b> , Sweden	1997	Water
<i>S. Anatum</i>	19	Eire, <b>E&amp;W</b> , France, Scotland	1996	Baby milk (France)
<i>S. Agona</i>	4,000+	Canada, <b>E&amp;W</b> , Israel, USA	1996	Kosher snack
<i>S. Dublin</i>	30+	France, <b>Switzerland</b>	1995	Cheese (France)
<i>S. Stanley</i>	200+	Finland, <b>USA</b>	1995	Alfalfa Sprouts
<i>S. Tosamanga</i>	28	Eire, <b>E&amp;W</b> , France, Germany, Sweden, <b>Switzerland</b>	1995	None confirmed
<i>S. sonnei</i>	100+	<b>E&amp;W</b> , Germany, Norway, Scotland, <b>Sweden</b>	1994	Lettuce (Spain)





# International outbreaks recognised - II

Organism	Cases	Countries involved (index)	Year	Association
<i>E. coli</i> O157	21	<b>E&amp;W</b> , France	2002	Cucumber (Belgium)
<i>S. Cerro</i>	44	<b>Belgium</b> , France	2002	Cream pastries/ powder (Belgium)
<i>S. Oranienburg</i>	500+	Austria, Belgium, Denmark, Finland, <b>Germany</b> , Netherlands, Sweden. (+ve product in Canada, Croatia, Czech Republic)	2001	Chocolate (Germany)
<i>S. Stanley</i>	100+	<b>Australia, Canada</b> , E&W, Scotland	2001	Peanuts (China)
<i>S. Typhimurium</i> DT104	100+	Australia, Canada, E&W, Germany, Norway, <b>Sweden</b>	2001	Halva (Turkey)
<i>S. Livingstone</i>	60	<b>Norway, Sweden</b>	2001	Fish Pie (Sweden)
<i>S. Typhimurium</i> DT204b	392	E&W, Germany, <b>Iceland</b> , the Netherlands, Scotland	2000	Lettuce
<i>S. Paratyphi</i> B	309	Denmark, E&W, Finland, Germany, Ireland, <b>Norway</b> , Sweden, Switzerland	1999	Turkish holiday resort



## International outbreaks recognised - III

Organism	Cases	Countries involved (index)	Year	Association
S. Stourbridge	60	Austria, E&W, France, Germany, Luxembourg, Norway, Netherlands, <b>Sweden</b> , Switzerland	2005	Unpasteurised goat's cheese (France)
<i>S. sonnei</i>	100	<b>Ireland</b> , Japan,	2005	Travel to Egypt
S. Typhimurium DT104B	60+	<b>Finland</b> , Spain, Sweden	2005	Lettuce
S. Saintpaul		<b>E&amp;W</b> , Scotland	2005	
S. Newport	350	<b>E&amp;W</b> , Scotland	2004	Lettuce
S. Thompson	100	<b>Norway</b> , Sweden (+ve product) [concomitant O/B in E&W]	2004	Lettuce (Italy)
S. Typhimurium DT12	27	<b>Denmark</b> , Norway	2004	None found
S. Typhimurium DT NT (R-AST)	30	<b>Denmark</b> , Norway	2004	None found
S. Typhimurium DT291	100+	<b>Austria</b> , Germany	2003	Eggs (Austria)



# International outbreaks recognised - IV

Organism	Cases	Countries involved (index)	Year	Association
S. Hadar PT2	1,500	E&W, France, <b>Spain</b>	2005	Cooked chicken (Netherlands)
S. Typhimurium DT 104 MDR	30	<b>Denmark</b> , Netherlands, Norway	2005	Carpaccio (Italy)
S. Goldcoast	150	Denmark, E&W, Finland, Germany, Ireland, Norway, <b>Scotland</b> , Spain, Sweden, US	2005	Travel to Majorca
<i>E. coli</i> O157	100	Norway, <b>Sweden</b>	2005	Lettuce (Sweden)
S. Typhimurium NST		Norway, <b>Sweden</b>	2005	Salami (Italy)
S. Virchow PT8	50+	<b>E&amp;W</b> , Northern Ireland	2005	Cooked chicken (Thailand)
S. Montevideo	60+	<b>E&amp;W</b> , Scotland	2006	Chocolate (UK)
S. Ajiobo	100+	<b>E&amp;W</b> , Scotland	2006	Spinach (UK)
S. 4, 5, 12:i:-	150+	<b>Luxembourg</b> , Germany	2006	Pork



## Summary

- **Electronic communications have made international networks possible.**
- **Rapid transfer of data and information allows early recognition of international outbreaks.**
- **Trend information can quickly be analysed to provide an assessment of intervention measures.**
- **Meta-surveillance is invaluable in recognising supra-national clusters of infection.**



## The future - I

- Improved data quality - timeliness and completeness
- International extension - Candidate/other countries
- Elaboration of liaison procedures for outbreak
- Universal implementation of harmonised typing
- Standard setting for primary laboratories
- Full implementation of foodstuffs database



## The future – II



- Funding is being transferred to the ECDC



# What is missing – I

- **Full link with non-human reference laboratories**
  - ◆ **VTEC phage typing is essential**
  - ◆ **Should we go with PFGE immediately?**
- **Zoonoses come from animals**
  - ◆ **There must be a link between systems**
  - ◆ **Exactly why I am here!!!!**



## **What is missing – II**

- **Full implementation of the foodstuffs database!!!!**
  - ◆ **With the help of your institutes**
  - ◆ **and the Enter-net laboratories**
  - ◆ **Dual access to resultant database**
    - **Under agreed principles**





# **Principles of Collaboration**

## **Enter-net Principles of Collaboration between Participants**

**Prepared by HPA Colindale & Enter-net  
Co-Ordinator (I Fisher) Version 1.7, June 2004**

### **Introduction**

**A major aim of Enter-net is the creation of real time international surveillance through a closed network which is fully transparent to all participants. The objective of sharing data and information rapidly is incorporated in the work programme of the surveillance system.**

**Eurosurveillance 2001; 6: 17-21**



**An International network for the surveillance of Enteric  
Infections - Salmonella and VTEC O157**

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