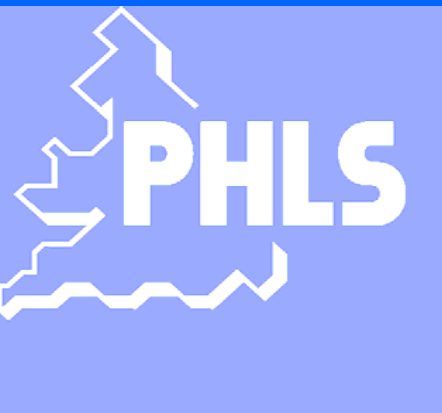


Communicable Disease: Electronic Surveillance in the UK and EU

Dr Mike Catchpole



CDSC
London, UK

Communicable Disease Surveillance in the UK and EU

UK (England & Wales)

- Laboratory Reporting
- Clinician Reporting
- Direct reporting by the public

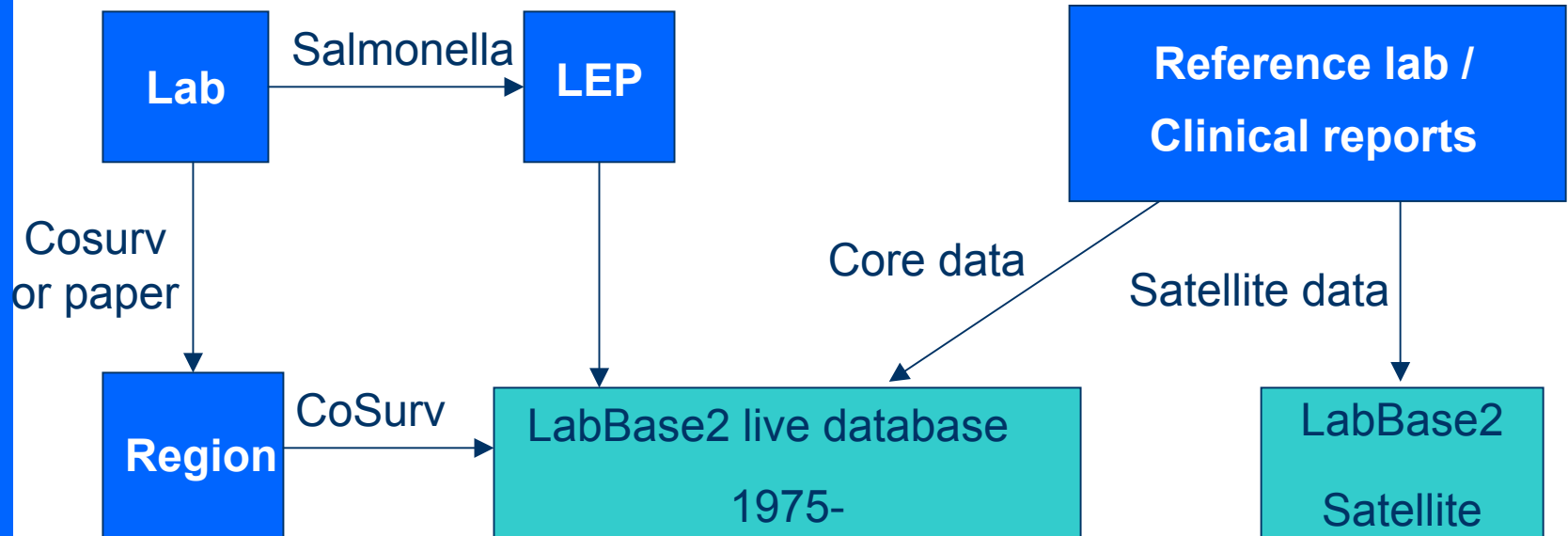
European Union

- Disease-specific surveillance networks

Laboratory Reporting in England & Wales

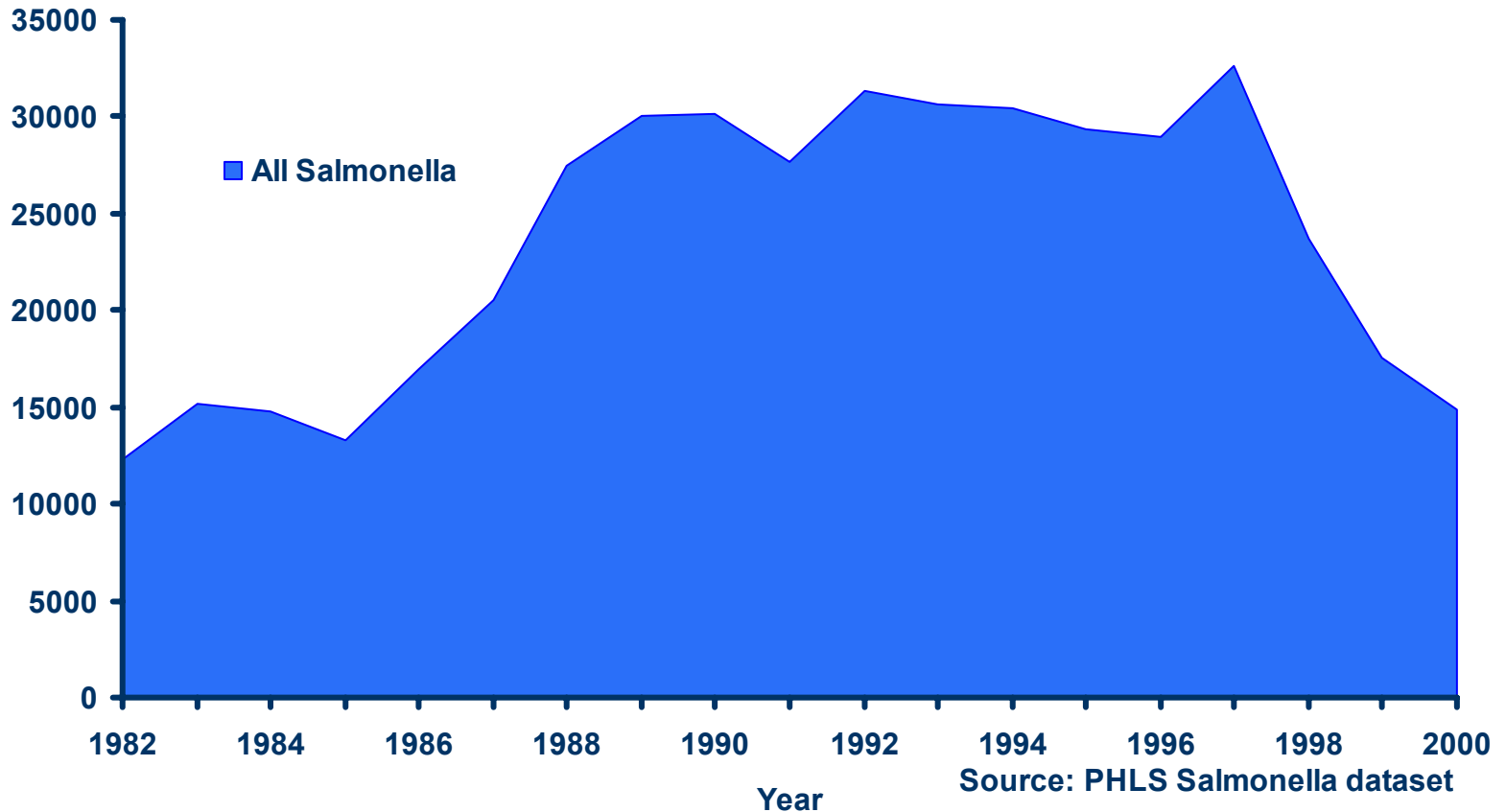
- 93% (204/220) diagnostic microbiology laboratories report to national Centre (weekly)
- 144 report electronically via data capture system (lablink/CoSurv)
- More than 300,000 reports per annum
- Automated matching of duplicate reports and merging of reference laboratory data
- Automated outbreak/exception reporting system
- Web enabled online database querying

Laboratory Reporting in England & Wales – Data Flows



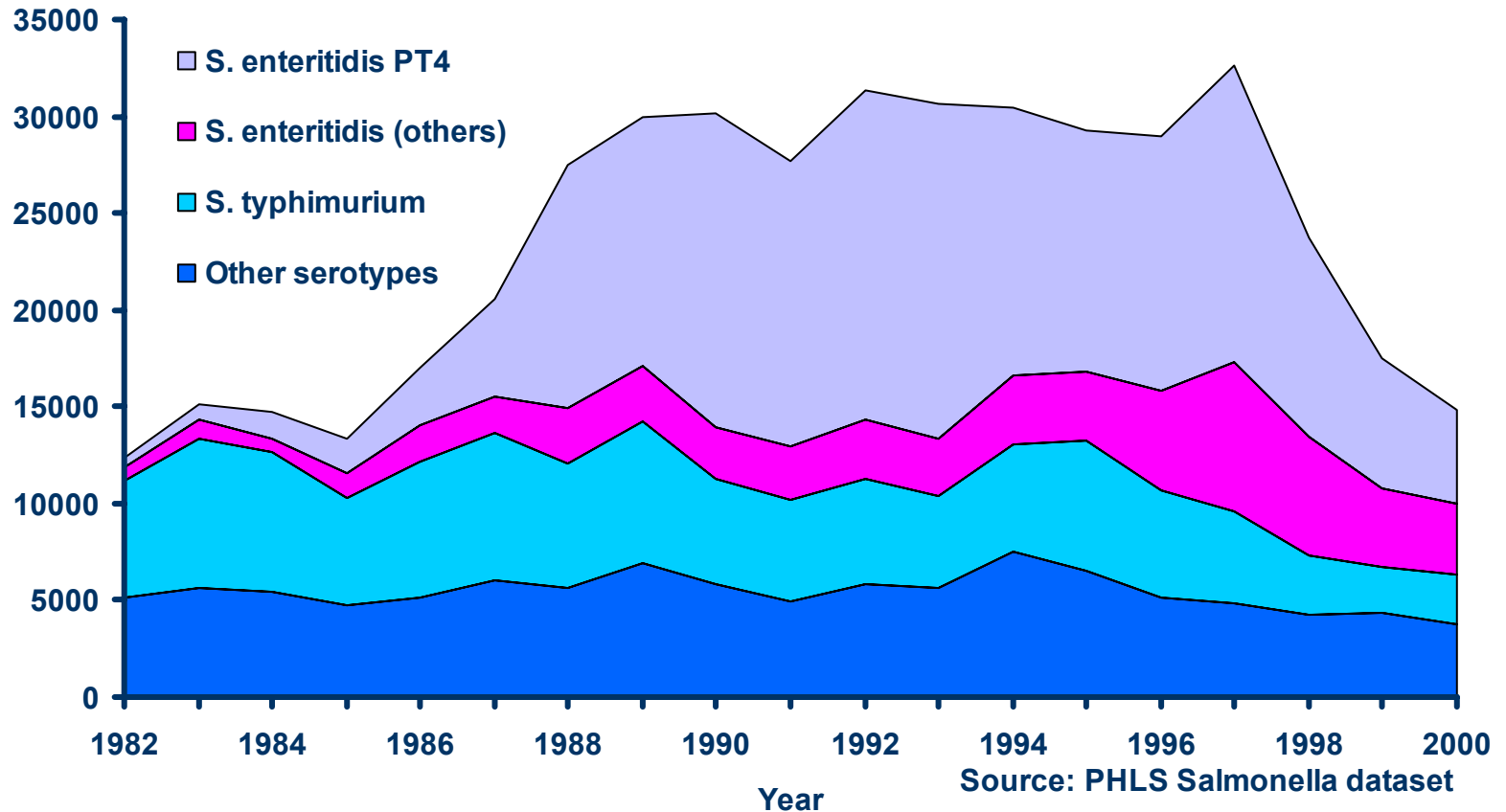
Salmonellosis in England & Wales.

Laboratory Reports

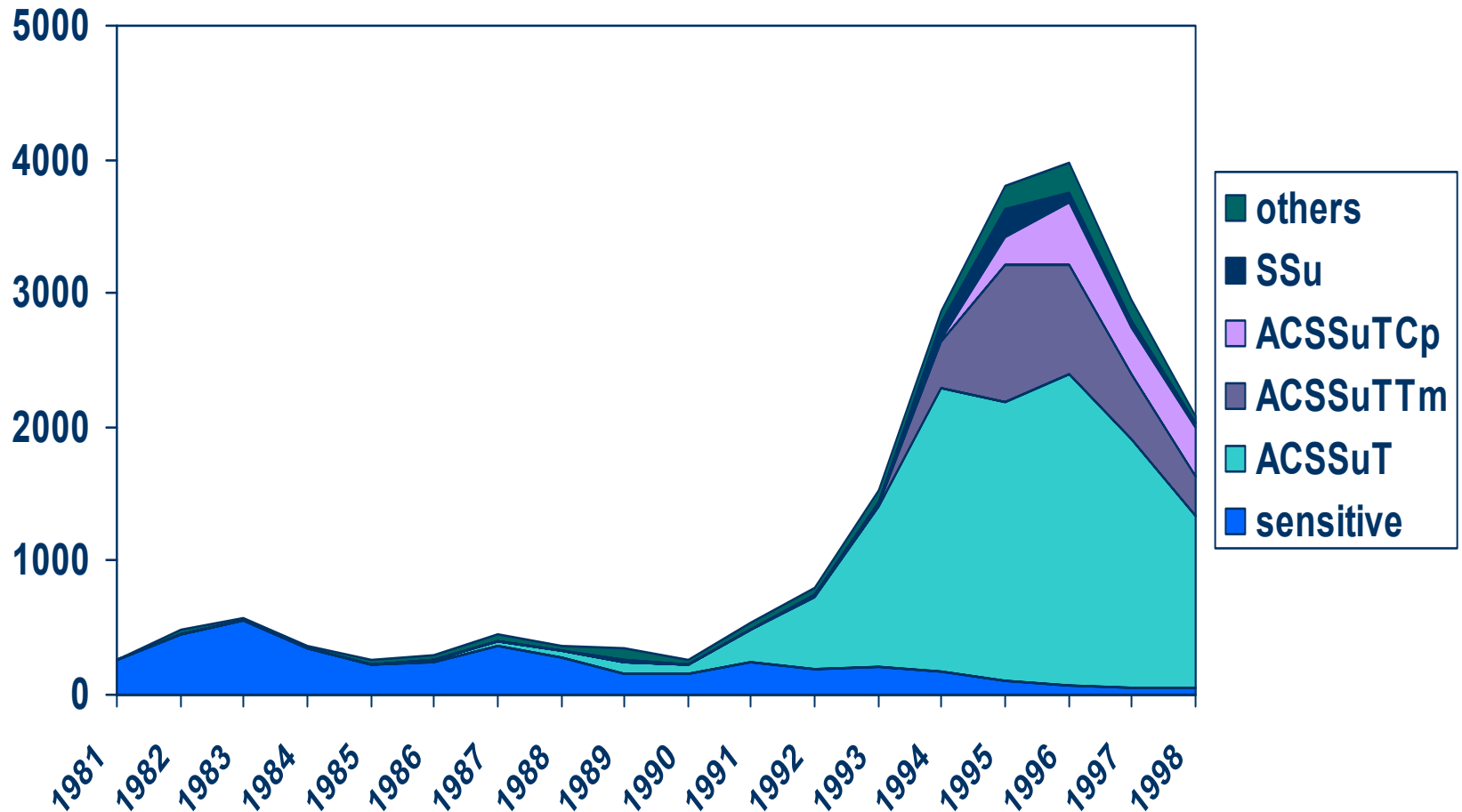


Salmonellosis in England & Wales.

Laboratory Reports

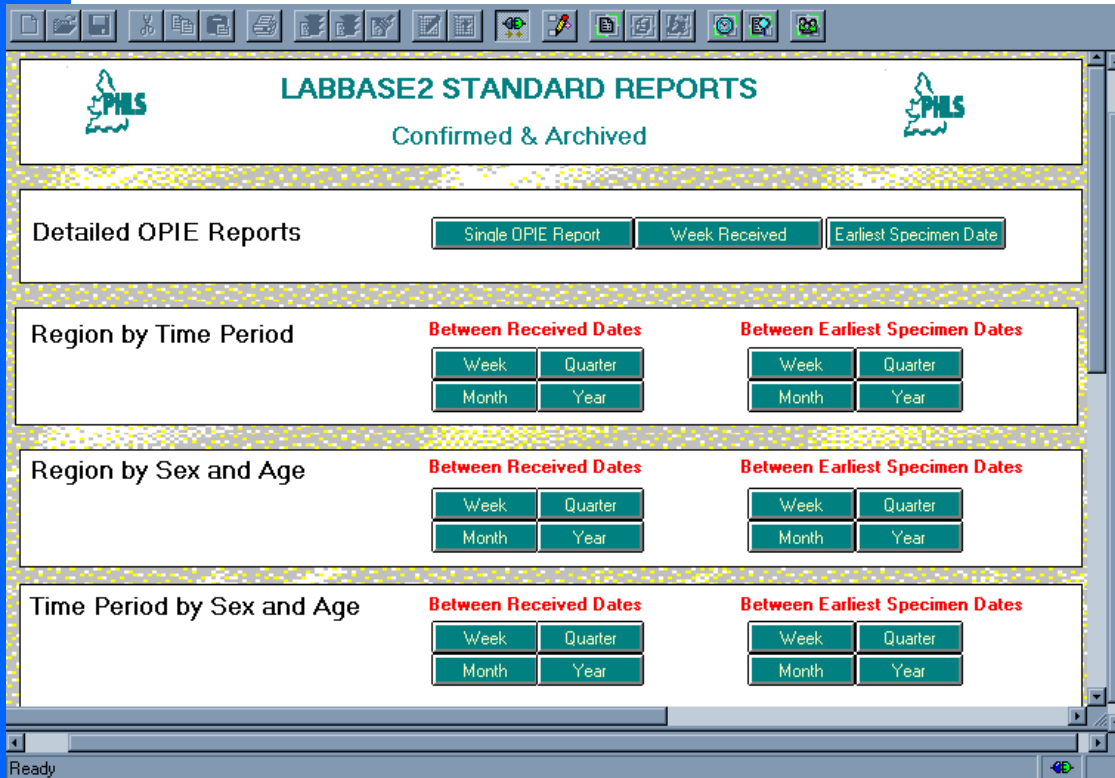


Multiple drug resistance in *Salmonella typhimurium* DT104 from humans in England and Wales 1981 – 1998: Resistance-types



(Source: Dr E John Threlfall, PHLS LEP)

labBase2 - Accessing the Live Database - Standard Reports



Run predefined reports

Export data

Enter an organism

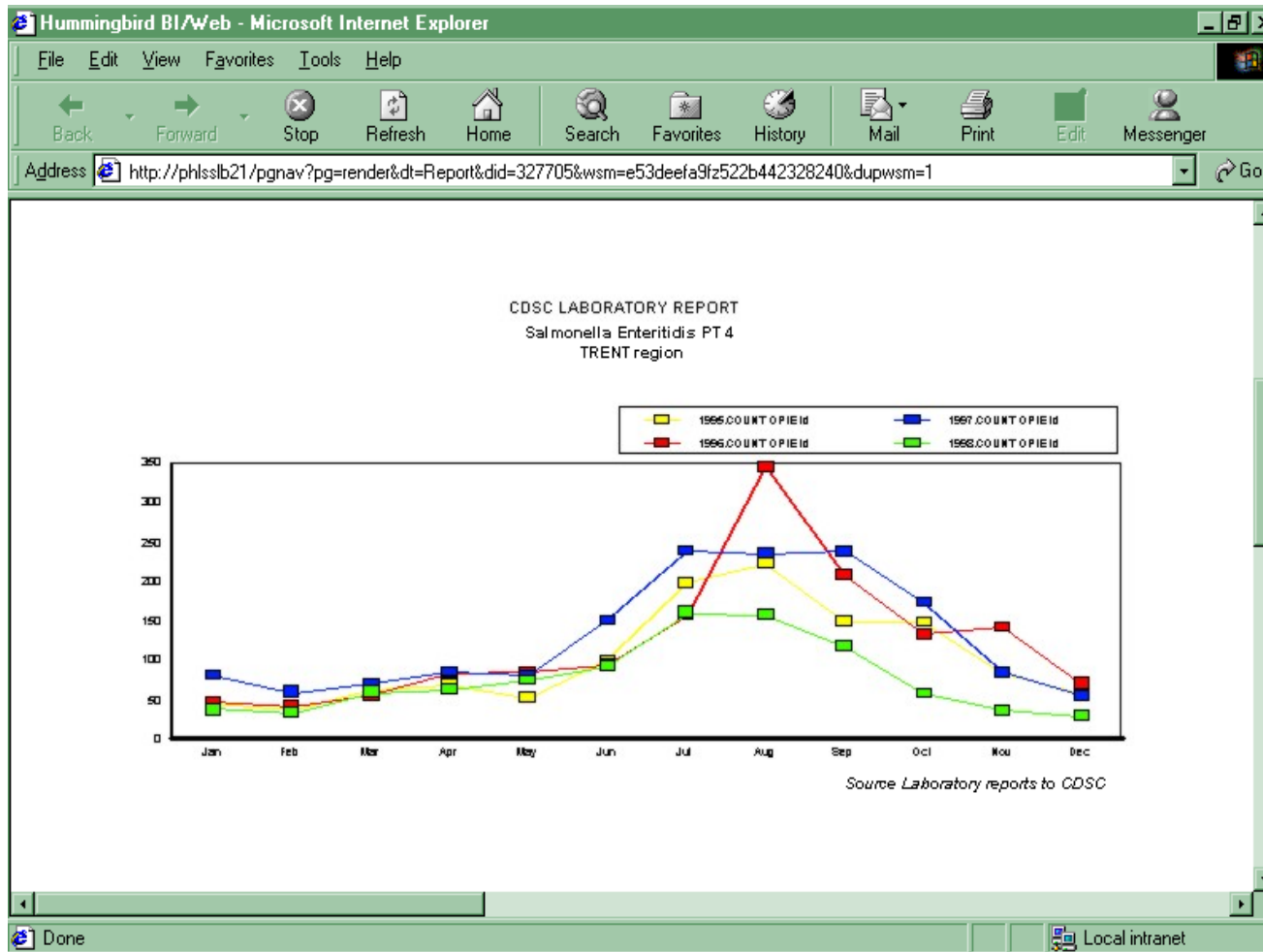
Start week number

Finishing week number

Enter parent specimen type

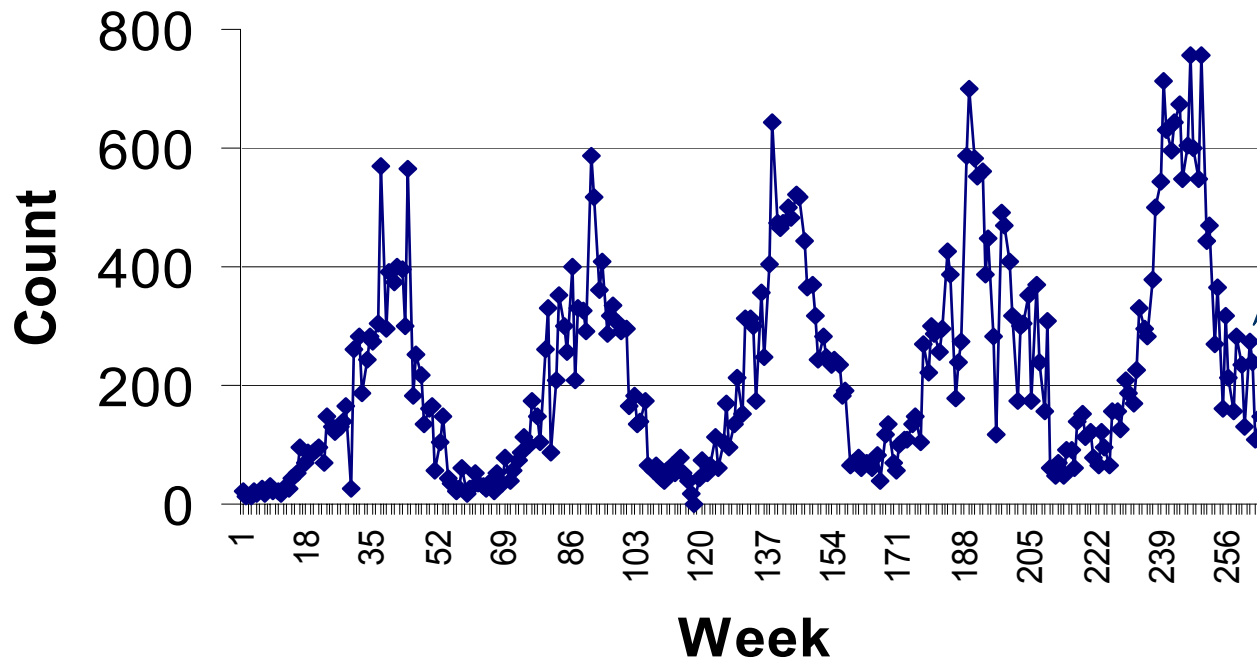
OK Cancel

labBase2 – Graphical Outputs



Outbreak detection – automated statistical support system

Salmonella reports England and Wales 94-99



Where should the threshold be?

Outbreak detection: the model

- A **regression** model applied to weekly data by week of **report** and adjusted for trend if significant
- **Poisson model** adjusted for excess variation (over dispersion).
- Model adjusted for seasonality by using data from comparable weeks (+/-2 weeks) in previous 5 years.
- Past outbreaks are downweighted by giving less weight to data points well above the expected values.
- False positive rate (false alarms) stabilised using a power transformation when calculating the threshold so they are the same for rare and common infections.
- All automated

Automated Cluster Alert - Outputs

Statistical analysis of Organisms

for England and Wales

Sat October 9th 1999

Organisms with Exceedance score >1

O-E / U-E

Organism	O	E	L	U	X
Salmonella typhimurium DT120	22	0.6	0.0	3.5	7.39
Mycobacterium sp	6	0.1	0.0	1.4	4.45
Salmonella enteritidis PT20	5	0.3	0.0	2.5	2.12
Salmonella agama	5	0.3	0.0	2.7	1.99
Plesiomonas shigelloides	4	0.2	0.0	2.4	1.77
Clostridium difficile	113	57.1	24.8	97.3	1.39
Salmonella hadar PT2	11	2.6	0.0	9.5	1.21
Escherichia coli O157	10	1.3	0.0	9.5	1.06

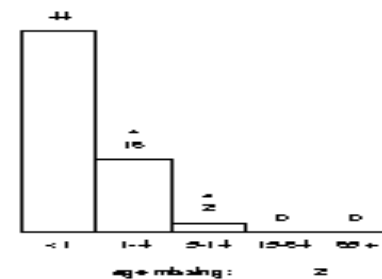
Outbreak detection: outputs

RESPIRATORY SYNCYTIAL VIRUS ...

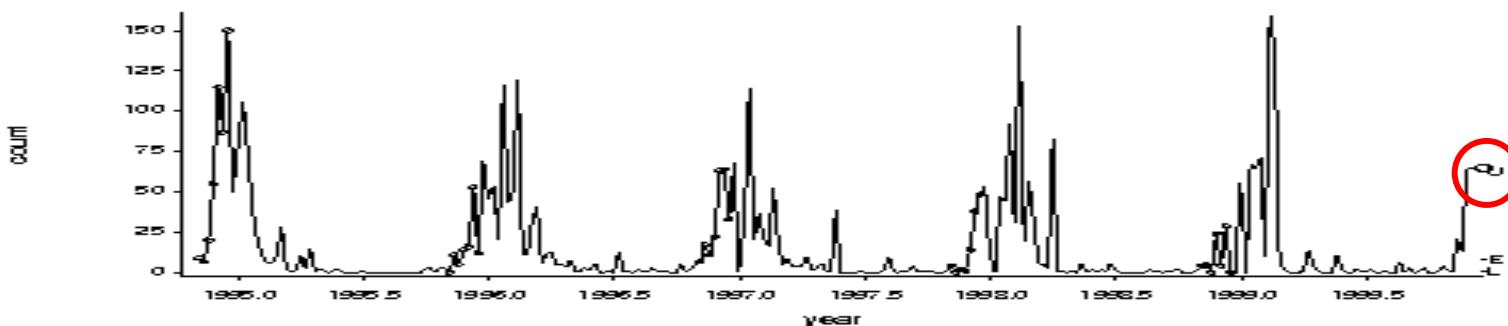
Distribution in Greater London



Age distribution



Weekly count



Observed:	64	Expected:	6.9	Exceedance:	1.03
Lower:	0.0	Upper:	62.1	Trend:	sig

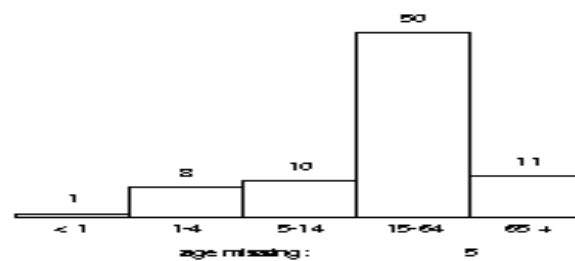
Outbreak detection: outputs

SALMONELLA ENTERITIDIS PT 4

Regional distribution



Age distribution



Weekly count

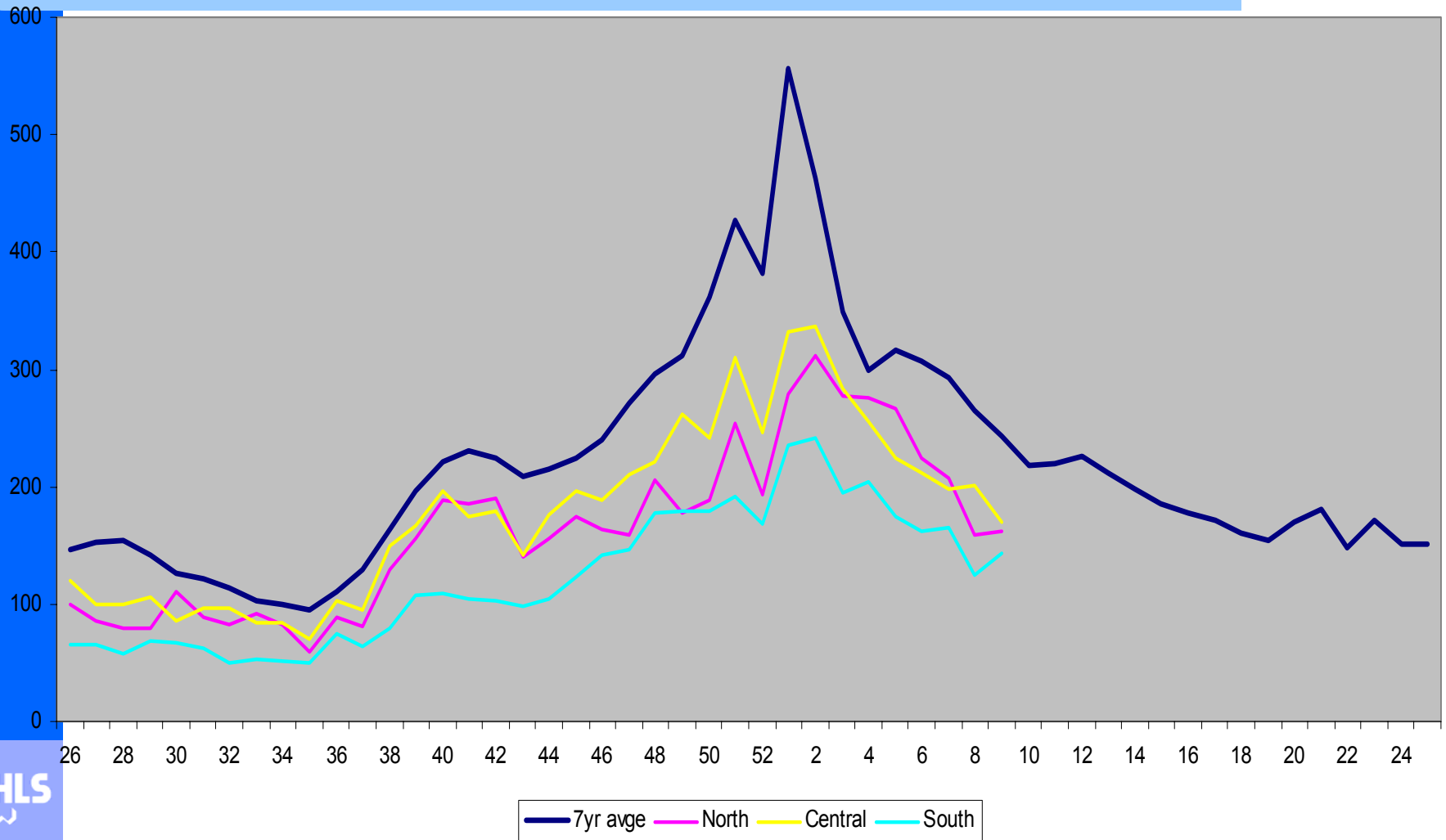


Observed: 85 Expected: 254.3 Exceedance: -0.74
 Lower: 81.3 Upper: 482.4 Trend: not sig

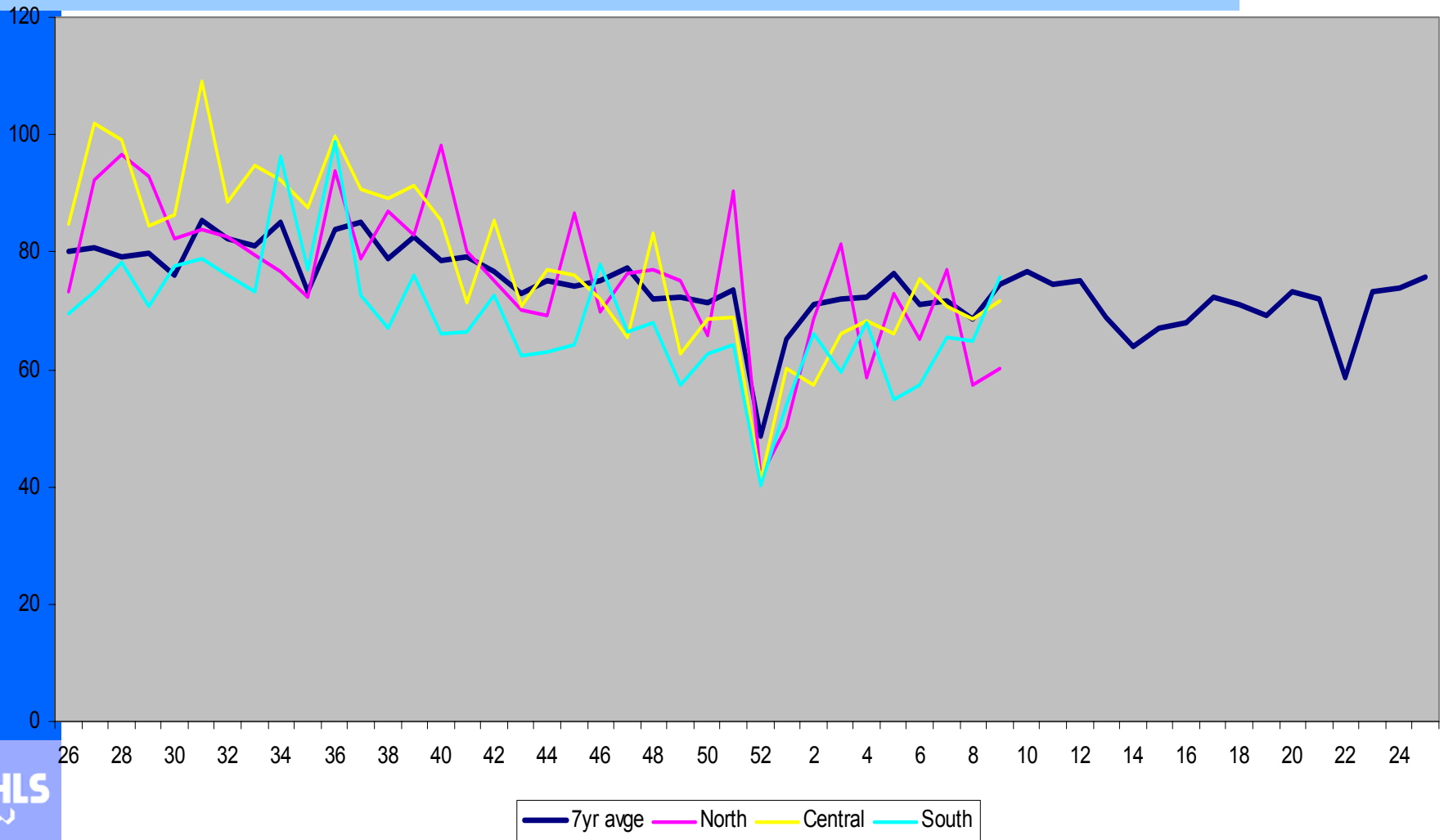
Clinician Reporting – Sentinel Primary Care Network

- 70 General Practices
- 500,000 population base
- Weekly electronic reporting to coordinating centre (RCGP)
- All consultations
- Weekly summary reports on ‘alert’ conditions

LOWER RESPIRATORY TRACT INFECTIONS (LRTI): Weekly incidence (per 100,000 all ages) in regions North, Central & South from 2001 to 2002 compared with 7 year average (1994-2000)



INFECTIONS OF SKIN & SUBCUTANEOUS TISSUE: Weekly incidence (per 100,000 all ages) in regions North, Central & South from 2001 to 2002 compared with 7 year average (1994-2000)

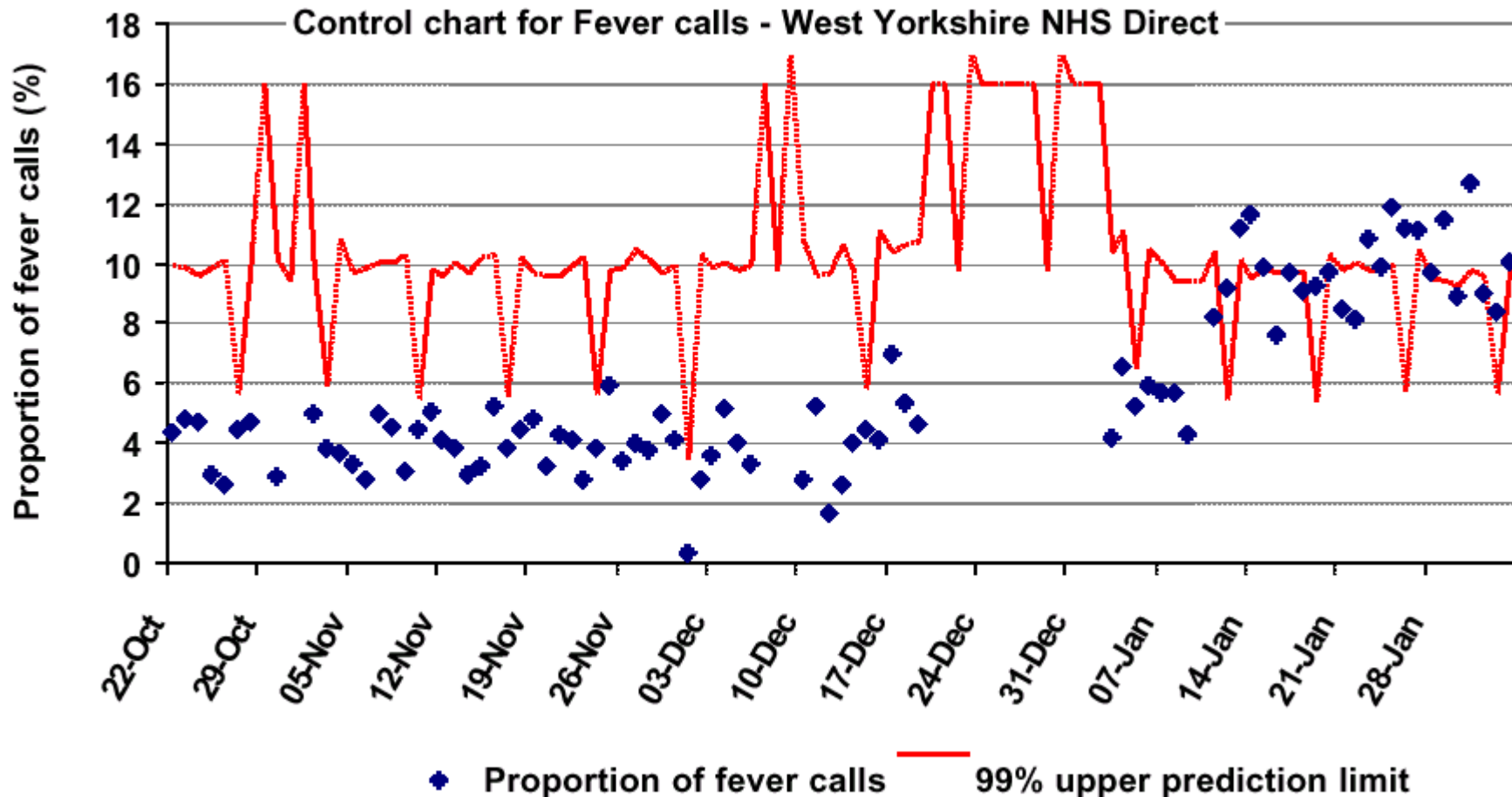


Direct Reporting by the Public

NHS Direct – Health Protection Alerts

- NHS Direct is a national nurse led telephone help line which aims to provide the public with rapid access to professional health advice and information about health, illness and the NHS.
 - Coverage of England and Wales (Pop: 52 million)
 - Available at a local level (23 NHS Direct sites)
 - Daily age-specific data available every morning
 - 115,000 calls per week for the first 10 weeks of 2002
- Analysis of calls for ten indicator ‘complaints’ that may be indicative of illness resulting from a biological/chemical release
 - Fever, food poisoning, vomiting, cold/flu, double vision, cough, diarrhoea, difficulty breathing, rash, lumps

Direct Reporting by the Public – NHS Direct



Enter-Net

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

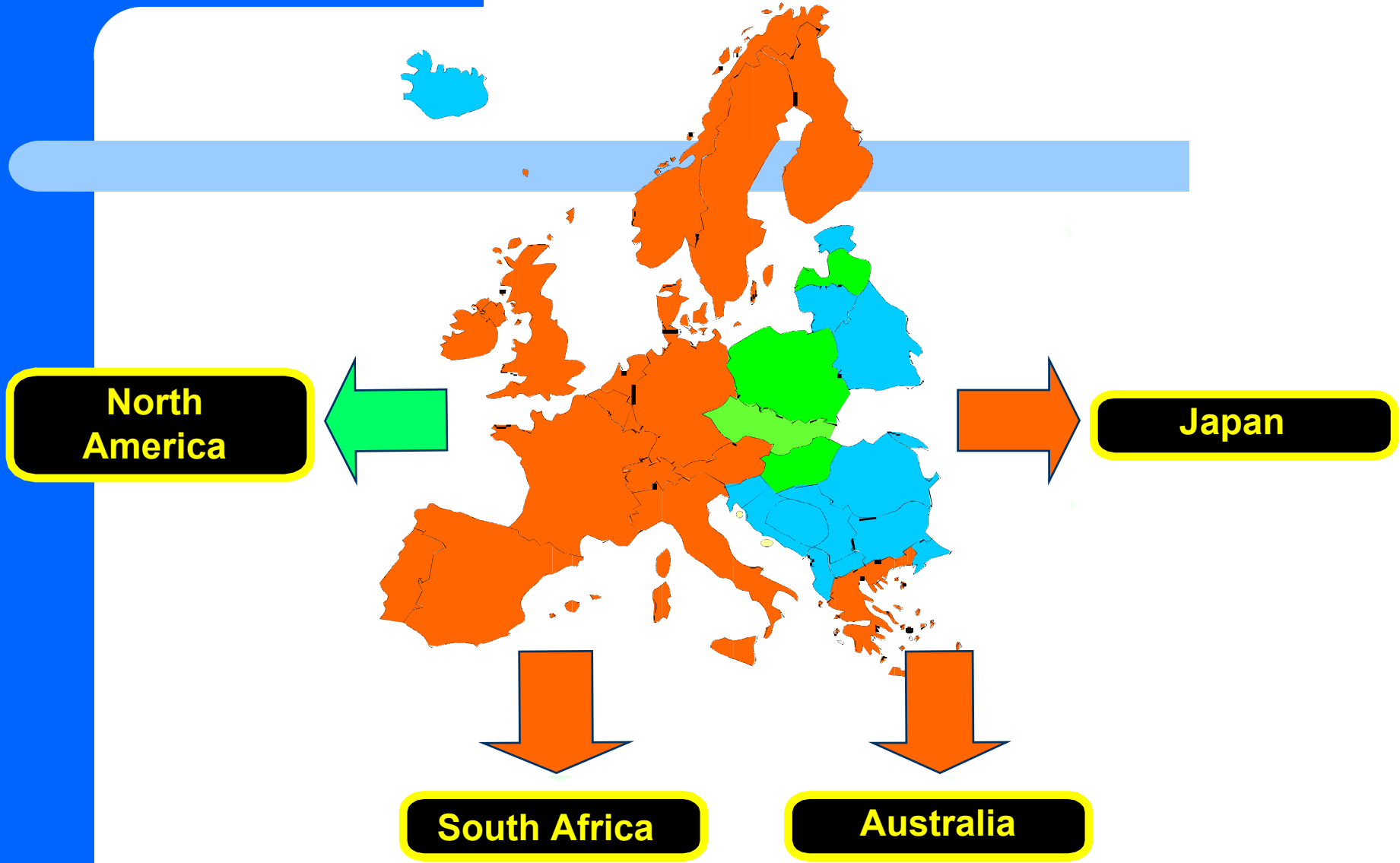
**Funded by the European Commission, DG Health
and Consumer Protection
(previously by DG 12 under Framework 4)**

ENTER-NET Objectives

For human isolates:

- **Monitor salmonella anti-microbial resistance**
- **Extend VTEC O157 typing**
- **Pilot international VTEC O157 Quality Assurance**
- **Maintain a timely international salmonella and VTEC O157 database**
- **Rapidly recognise and report international outbreaks**

Enter-net participants



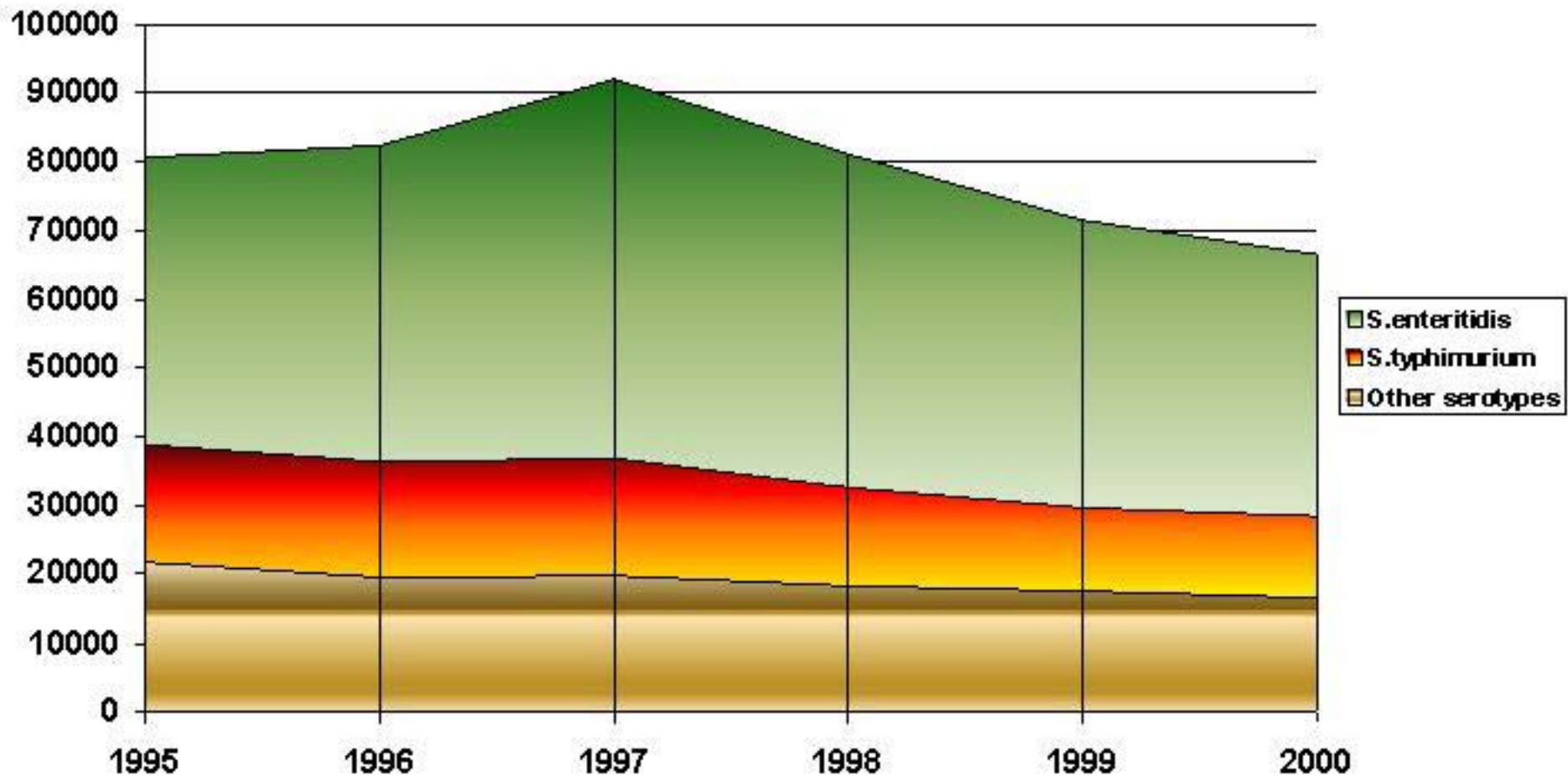
■ Existing

■ Under discussion



Monitoring trends

Total human salmonellas by year: 1995 - 2000*




ENTER-NET International outbreaks recognised

Organism	Cases	Countries involved
<i>S.Typhimurium</i> DT204b	350+	E&W, Germany, Iceland, the Netherlands, Scotland
<i>S.paratyphi</i> B	300+	Denmark, E&W, Finland, Germany, Ireland, Norway, Sweden and Switzerland
<i>S.newport</i>	100+	E&W, Finland
<i>S.livingstone</i>	100+	Austria, Czech Republic, Denmark, E&W, Finland, Germany, Netherlands, Norway and Sweden
<i>E.coli</i> O157/ HUS	15	Denmark, E&W, Finland and Sweden
<i>S.anatum</i>	19	Eire, E&W, France and Scotland
<i>S.agona</i>	4000+	Canada, E&W, Israel and USA
<i>S.dublin</i>	30+	France and Switzerland
<i>S.stanley</i>	200+	Finland and USA
<i>S.tosamanga</i>	28	Eire, E&W, France, Germany, Sweden and Switzerland
<i>S.sonnei</i>	100+	E&W, Germany, Norway, Scotland and Sweden

Outputs: CDR Weekly


The screenshot shows a Microsoft Internet Explorer browser window displaying the CDR Weekly website. The browser's address bar shows the URL: <http://www.pphs.co.uk/publications/CDR%20Weekly/index.html>. The website content is as follows:

Volume 12
Number 16
18 April 2002

CDR WEEKLY 

NEWS
ENTERIC
RESPIRATORY
IMMUNISATION
HIV/STIs
BACTERAEMIA
ZOONOSES
TRAVEL HEALTH
DIARY
BACK ISSUES
SEARCH


Main stories this week:

- Enhanced surveillance reports on surgical site infection and hospital acquired bacteraemia published 
- Incidence of group B streptococcal disease in infants aged less than 90 days
- US tourist dies from yellow fever

Updated this week:

- Pyogenic and non-pyogenic streptococcal bacteraemias, England and Wales: 2001

Notification of infectious diseases, weekly data

Click here for a printable pdf version of this week's CDR 

For Acrobat Reader visit <http://www.adobe.com/products/acrobat/readstep.html>

About CDR Weekly | Home | FAQs | Links | PHLS Home | CDPH | Eurosurveillance

If you have any comments or encounter any problems with this website, please contact nough@phls.org.uk

Best viewed at a screen resolution of 800 x 600 pixels

Published by: PHLS Communicable Disease Surveillance Centre

The taskbar at the bottom shows the Start button, several open applications (Inbox, Web pages, Frameset, Microsoft FrontPage, CDR Weekly, Microsoft PowerPoint, Adobe Photoshop), and the system clock showing 14:56 on 14/04/2002.

Outputs: PHLS Website

The screenshot shows the PHLS website interface. At the top, there is a header with the PHLS logo and the text "Protecting the population from infection" and "Public Health Laboratory Service". Below the header is a navigation menu with categories: Laboratory services, Surveillance, Centres & Laboratories, R & D, and Quality. A left sidebar contains a list of links: Infections A - Z, ABCDEFGHIJKL, MNOPQRSTU VW, XYZ, Advice, Publications, Regions, International projects, Press / Media, and Events & Conferences. The main content area features a "Welcome to the Public Health Laboratory Service" section, followed by a paragraph describing the service as a network of laboratories. Below this are several news items, including "2000 ST..." and "National Flu Conference". A right sidebar contains sections for "Home" and "Cultures collection". A large red "Draft" watermark is overlaid across the entire page. At the bottom, there is a footer with contact information and a "to the top" link.

PHLS Protecting the population from infection
Public Health Laboratory Service

Laboratory services | Surveillance | Centres & Laboratories | R & D | Quality

Infections A - Z
ABCDEFGHIJKL
MNOPQRSTU VW
XYZ
Advice
Publications
Regions
International projects
Press / Media
Events & Conferences

Welcome to the Public Health Laboratory Service

The Public Health Laboratory Service is a network of laboratories strategically located throughout England, working in partnership with specialist microbiological reference units and experts. We work in partnership on local, national and international levels.

2000 ST...

how... that 34%... they have...

National Flu Conference

PHLS is pleased to announce the first National Flu conference.

Home
NCTC database online, secure commerce transactions, manage your account.

Cultures collection
NCTC database online, secure commerce transactions, manage your account.

to the top

About PHLS | PHLS Directory | Home Page | Recruitment | Site Map | FeedBack | Help | About us | SheilaSection
| TEST simon section | TEST_hillary_section
© PHLS 2001, Tel: +44 (0)20 8200 1295 Fax: +44 (0)20 8358 3130 / 3131, 61 Colindale Avenue, London NW9 5DF

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