

Antimicrobial Use and Key Resistances in Humans



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TV uncovers hospital 'lethal superbugs'

HOW OUR HOSPITALS ARE LOSING WAR ON SUPERBUGS

THE FULL SHOCKING REPORT Pages 4&5



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Hospital superbug crisis is a national disgrace

THE MRSA superbug crisis infecting Britain's hospitals is a national scandal. The government admits that as many as 100,000 patients a year fall victim to poor hygiene in the wards. Up to 5,000 of them die as a result, according to official estimates. But independent watchdogs say these figures are a decade out of date and that the true death toll could be as high as 30,000 a year.

MRSA 'is winning'

HOSPITALS are losing the fight against the MRSA superbug, according to an undercover survey for ITV's Tonight show.

Reporters took swabs at six major hospitals and found traces of antibiotic resistant bugs on at least two per hospital.

All five samples from one hospital were infected.

The programme is to be shown on ITV1 tonight at 8pm.

Where Do the Data Come From?

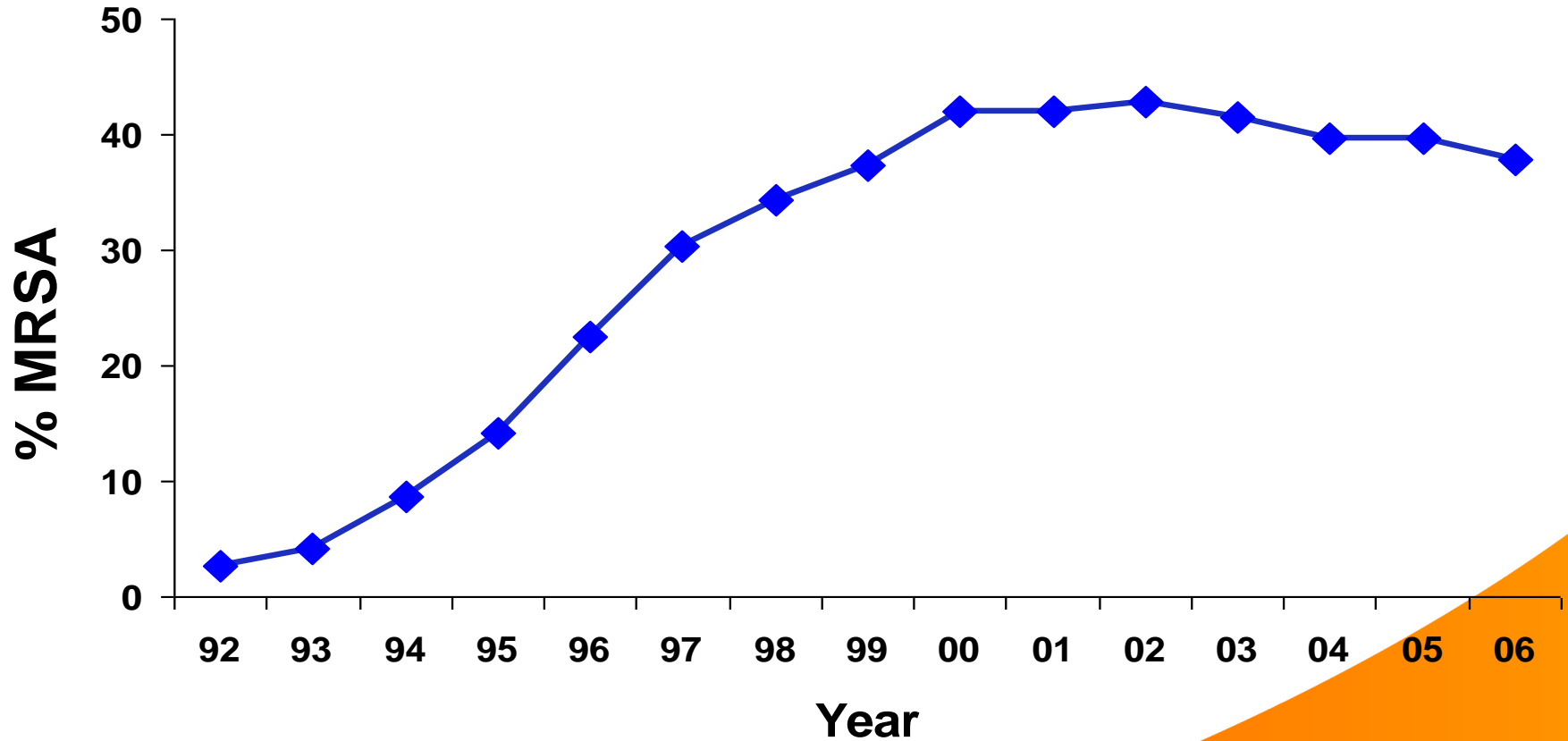
- Hospital microbiology laboratories routinely test bacterial isolates for antimicrobial susceptibility
- GPs do not routinely sample patients microbiologically (except for treatment failures)

Surveillance of AMR in England and Wales



- Since 1974, hospitals in England & Wales have voluntarily reported infections to the PHLS/HPA
- Since 1989, laboratories have also voluntarily reported results of routine susceptibility testing
- Surveillance focuses on bloodstream infections

MRSA from Bacteraemia England & Wales

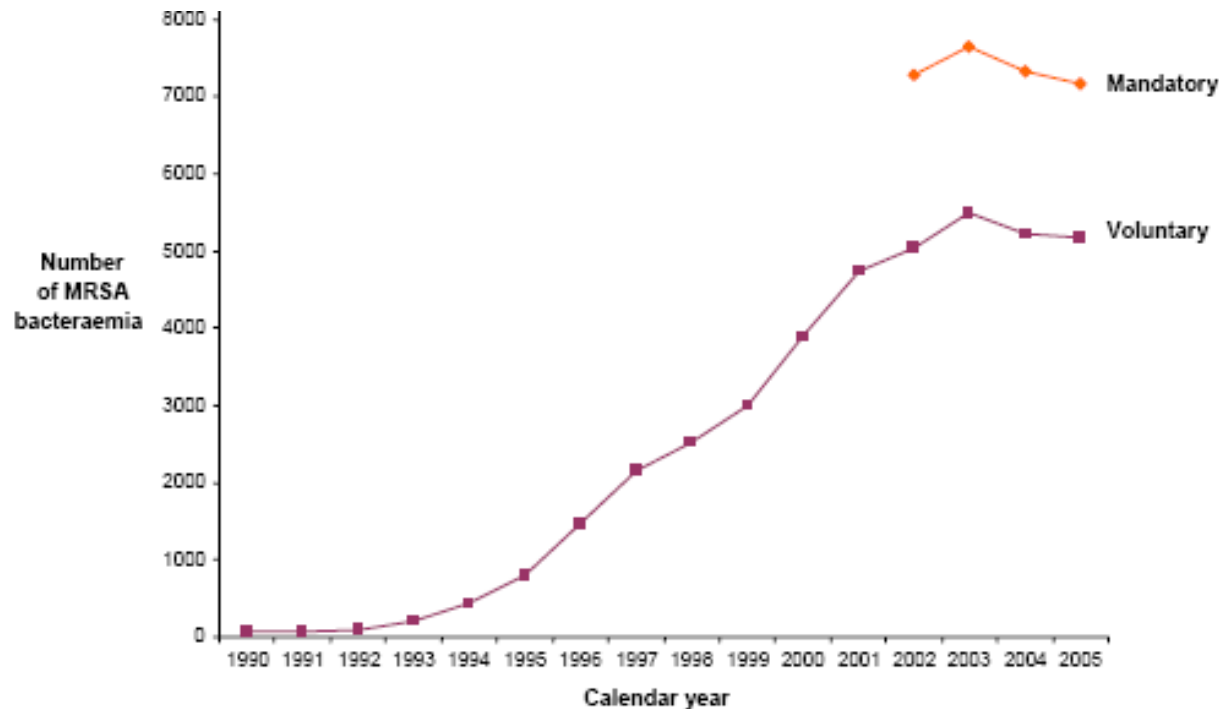


Mandatory Reporting of *Staphylococcus aureus* and MRSA

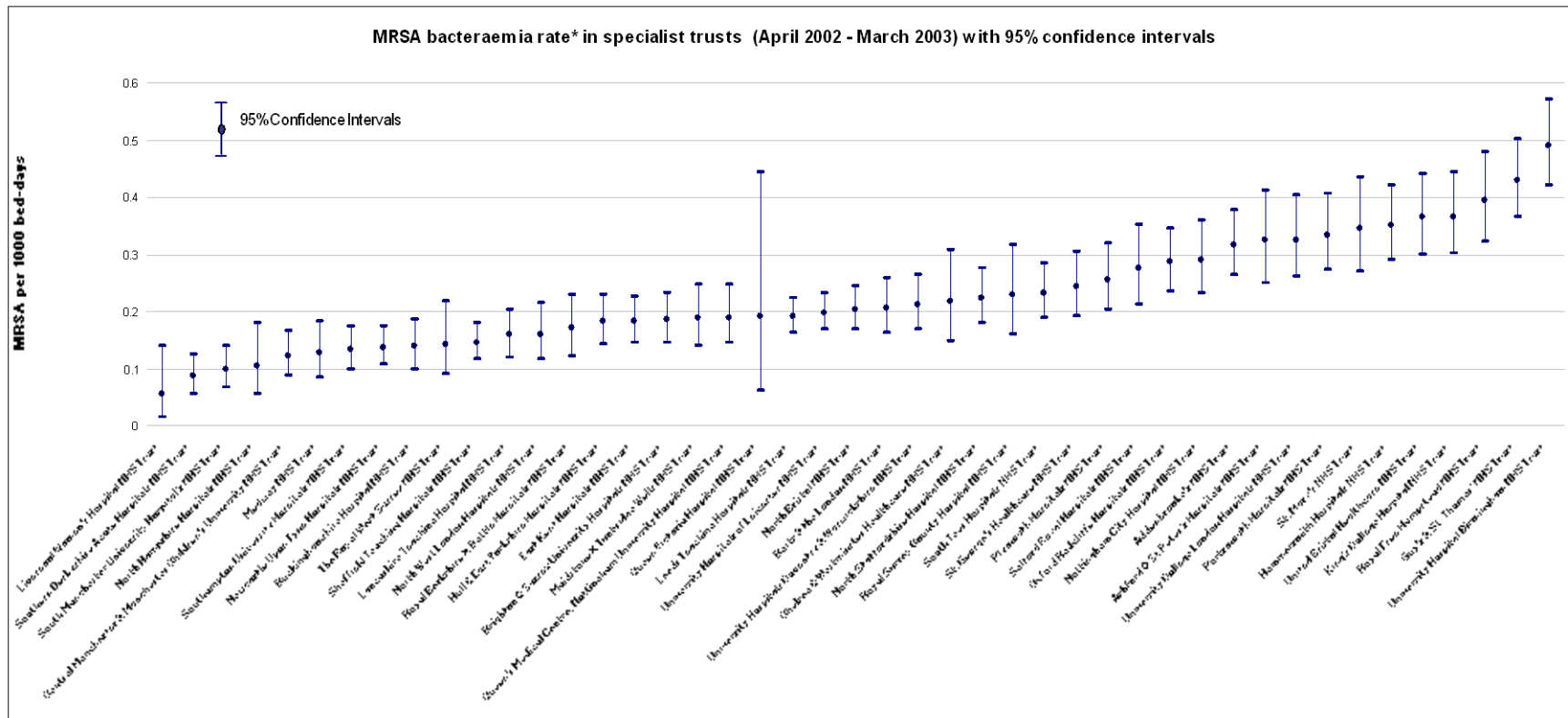


- From April 2001, the Department of Health made it mandatory for all acute NHS trusts in England to report:
 - All cases of bacteraemia caused by *S. aureus*
 - The proportion of cases due to MRSA

Comparison of Mandatory and Voluntary Reporting of MRSA



MRSA Bacteraemia Rates in Specialist Trusts (April 2002 - March 2003)





DoH Press Release: 5 November 2004

- **Hospital superbug must be halved**
- Bloodstream infections with the hospital superbug MRSA must be halved, the government has said.
- *Health Secretary tasked NHS hospitals with achieving a year on year reduction in MRSA*

9th June 2005

**MANDATORY SURVEILLANCE OF
METHICILLIN RESISTANT
STAPHYLOCOCCUS AUREUS (MRSA)
BACTERAEMIAS**

Dear Colleague

We are writing to inform you of changes to the mandatory surveillance system for *Staphylococcus aureus* since our previous communication on 9 June 2003¹. These changes will provide a better evidence base for national policy and will help you better interpret your local situation so that you can take appropriate targeted action to control these infections.



**From the Chief
Medical Officer and
the Chief Nursing
Officer**

Sir Liam Donaldson
MSc,MD,FRCS(Ed),FRCP,FFPHM

Professor Christine Beasley CBE
RN



Mandatory Enhanced MRSA Bacteraemia Surveillance Scheme – Electronic Reporting

We have asked the Health Protection Agency to develop a new enhanced reporting system for MRSA bacteraemia surveillance, which will allow the capture of more comprehensive data on MRSA. We believe this enhanced system will be helpful in giving Trusts a more accurate picture of their performance and in building up a better evidence base for prevention of infections. 21 Trusts are already using this system on a pilot basis in preparation for rolling out to all acute Trusts by October. A more detailed description of the aims and content of this enhanced reporting scheme for MRSA is given in the Annex.

Epidemiology of MRSA in the UK

- 26 hospitals submitted MRSA isolates for typing
- 95% of isolates accounted for by two strains
 - **EMRSA-15 (60%)**
 - **EMRSA-16 (35%)**



Trends in Antimicrobial Resistance in England and Wales

2004 - 2005

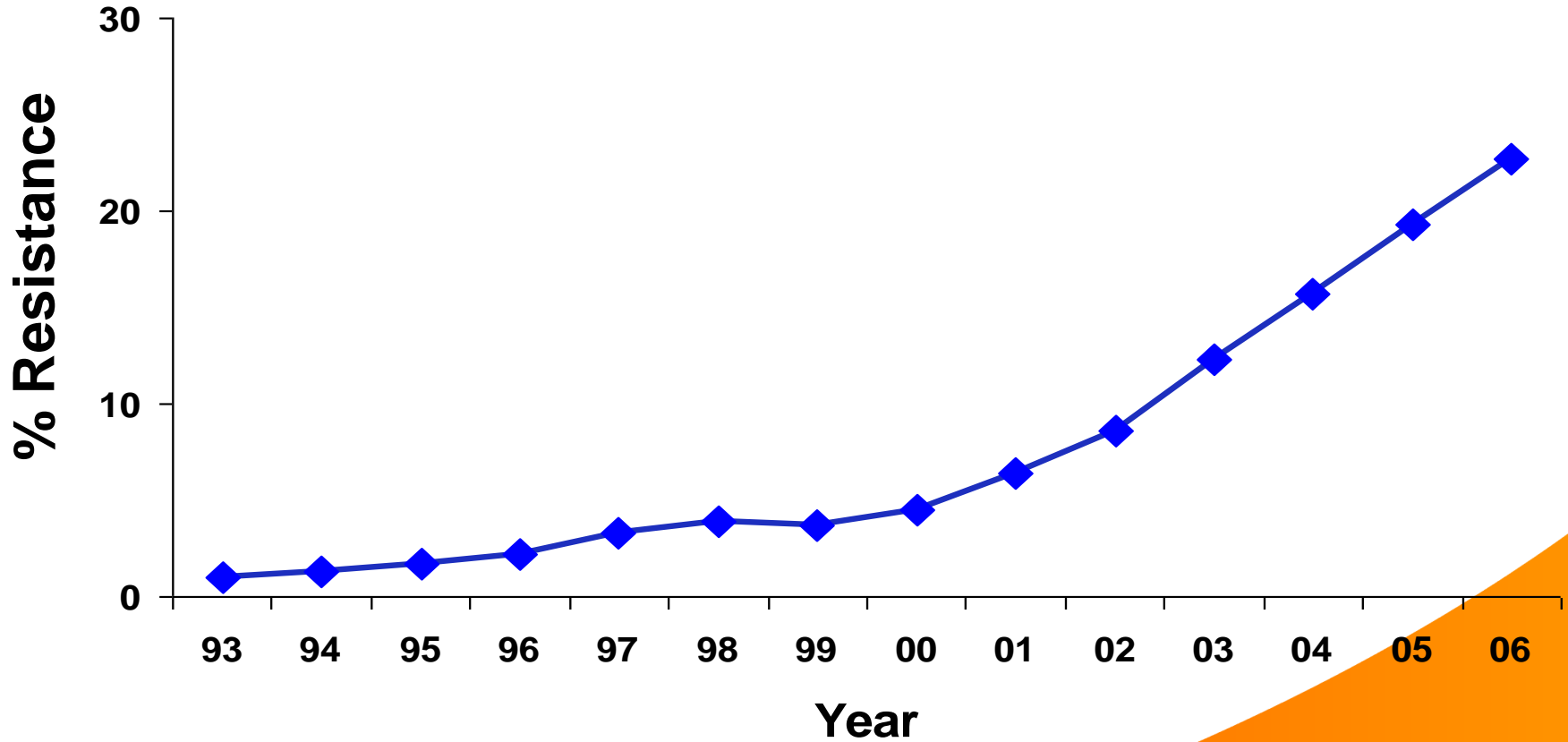


Overview of Antimicrobial Usage and Bacterial Resistance in Selected Human and Animal Pathogens in the UK:2004

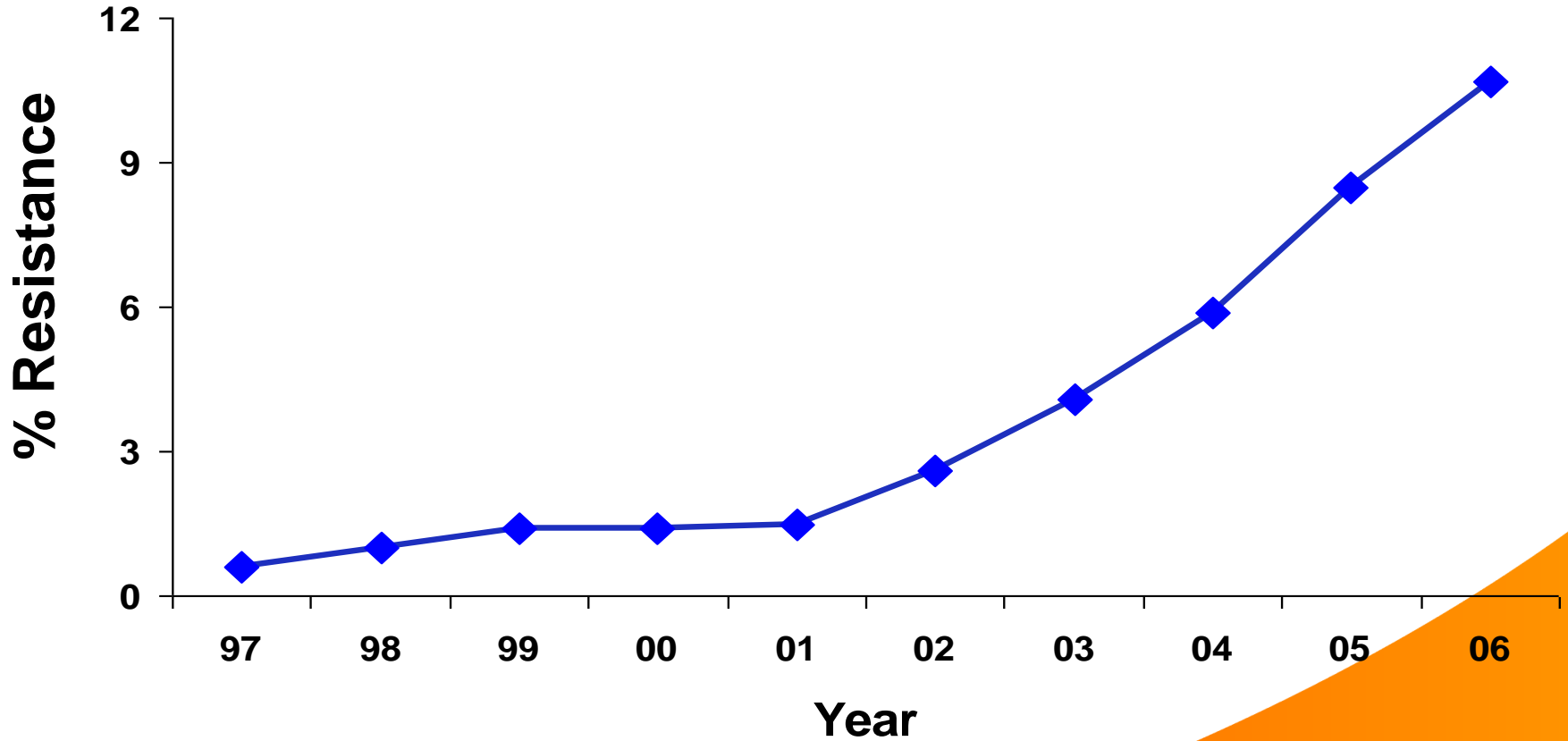
A Joint Report from:

Communicable Disease Surveillance Centre Northern Ireland
Department for Environment Food and Rural Affairs
Department of Agriculture and Rural Development, Northern Ireland
Department of Health
Food Standards Agency
Health Protection Agency
Health Protection Scotland
Scottish Agricultural College
Scottish Executive Environment and Rural Affairs Department
Veterinary Laboratories Agency
Veterinary Medicines Directorate

Ciprofloxacin Resistance in *E. coli*



Cefotaxime Resistance in *E. coli*



The Other Side of the Equation

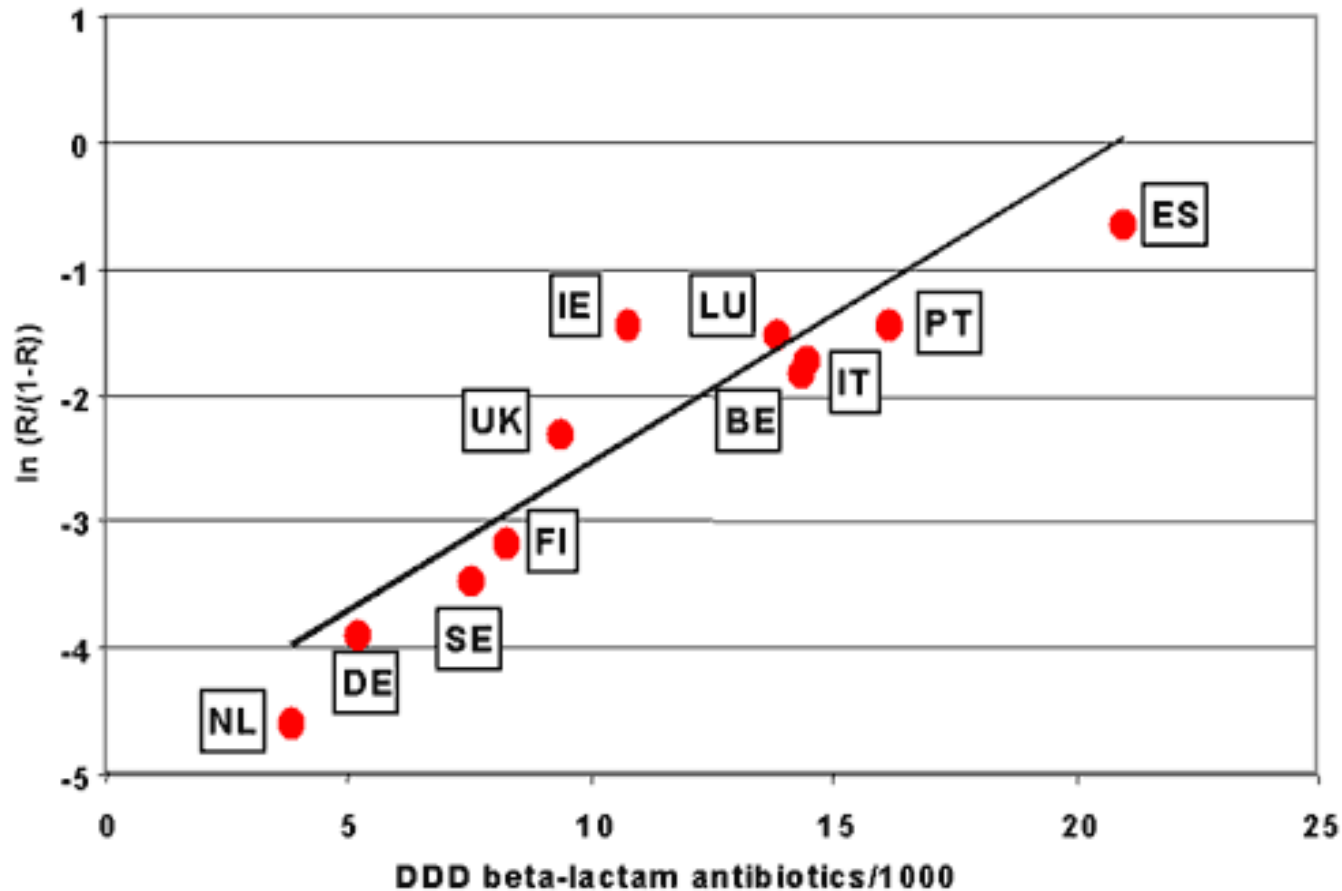




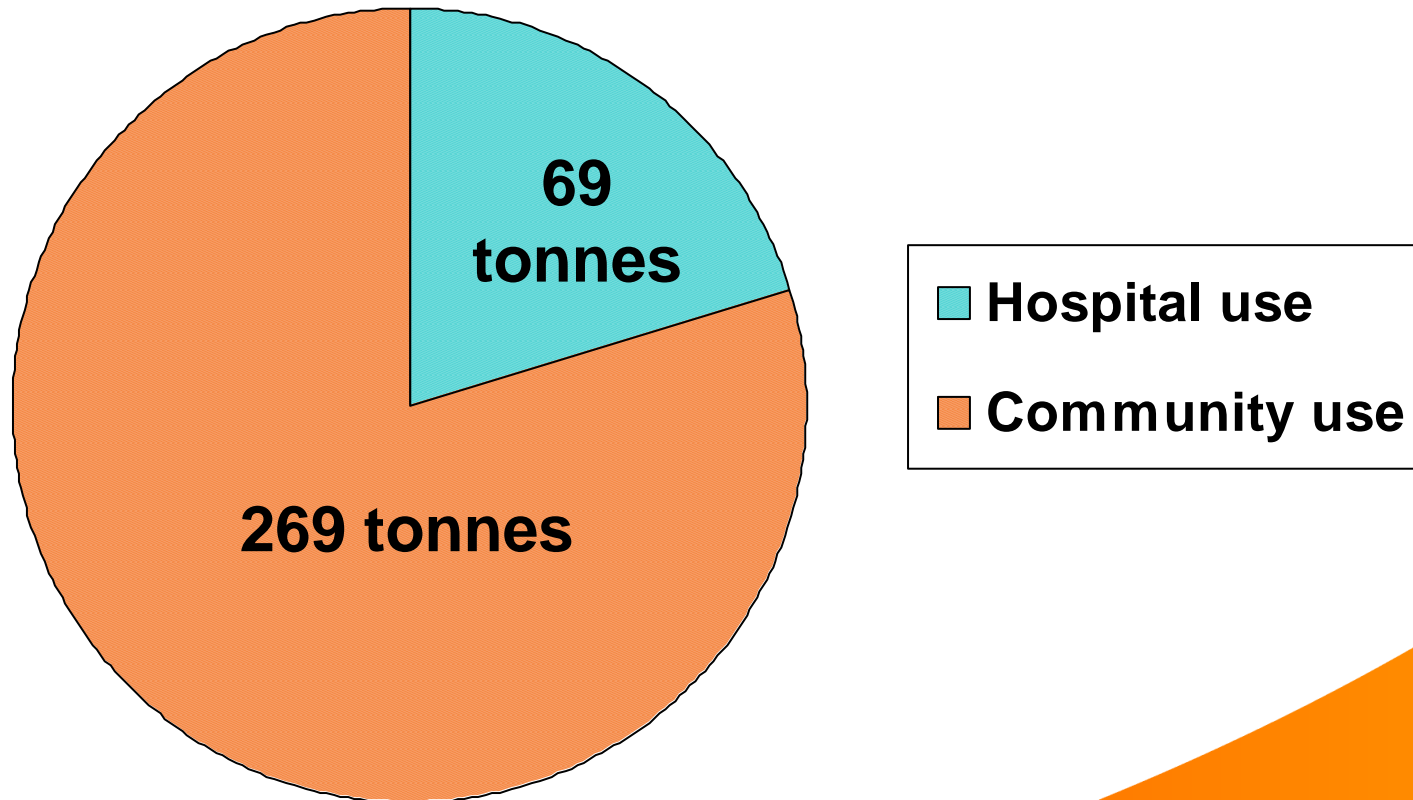
Antibiotics and Antibiotic Resistance

**Antibiotic use appears to be a
driving force for emergence and
spread of resistance**

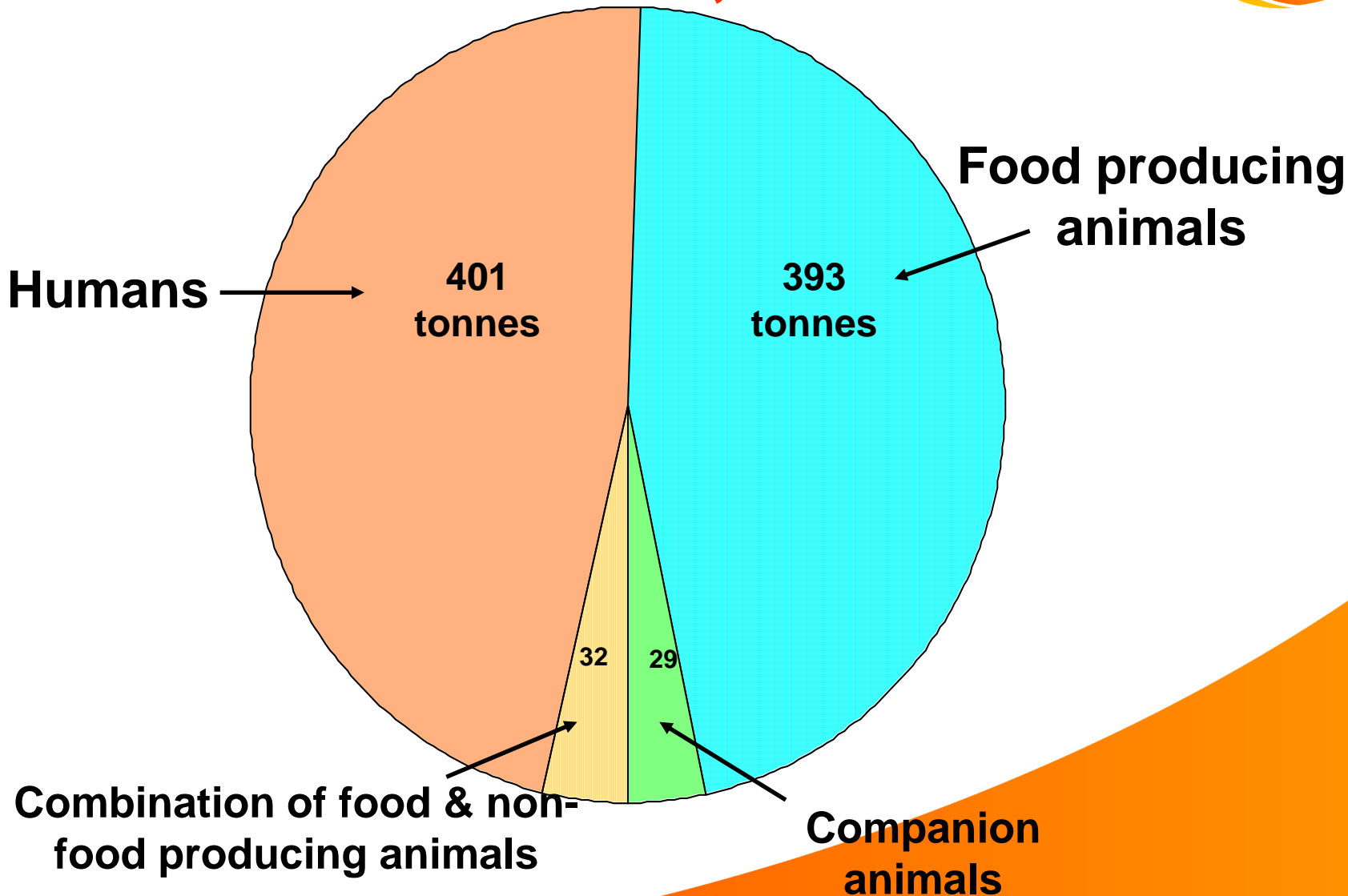
Correlation Between Out-Patient Sales of β -lactam Antibiotics and Penicillin Resistance in Pneumococci



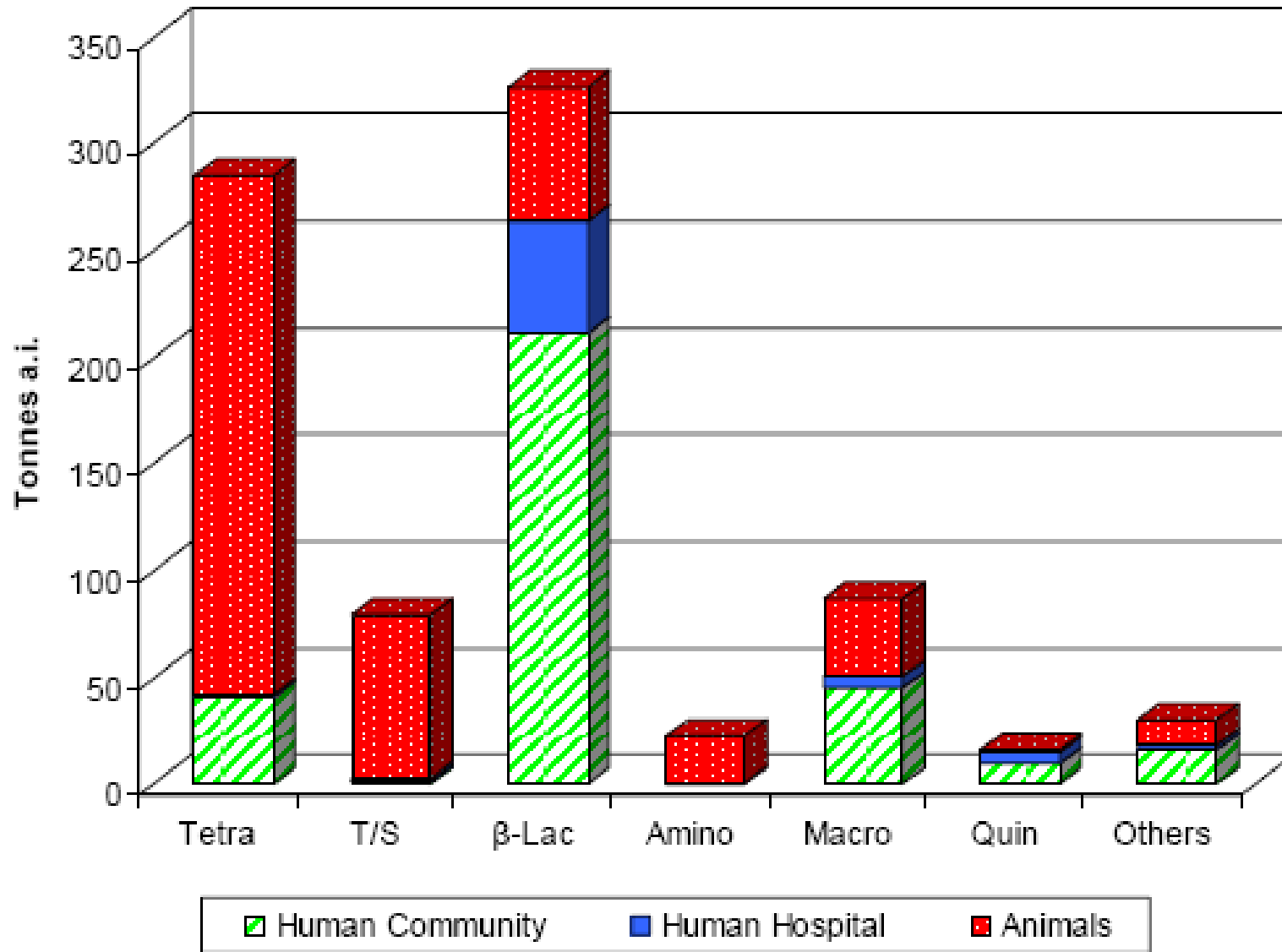
Hospital and Community Use of Antibiotics in Humans



Antimicrobial Use in Humans and Animals, 2004



Antimicrobial Use in Humans and Animals, 2004



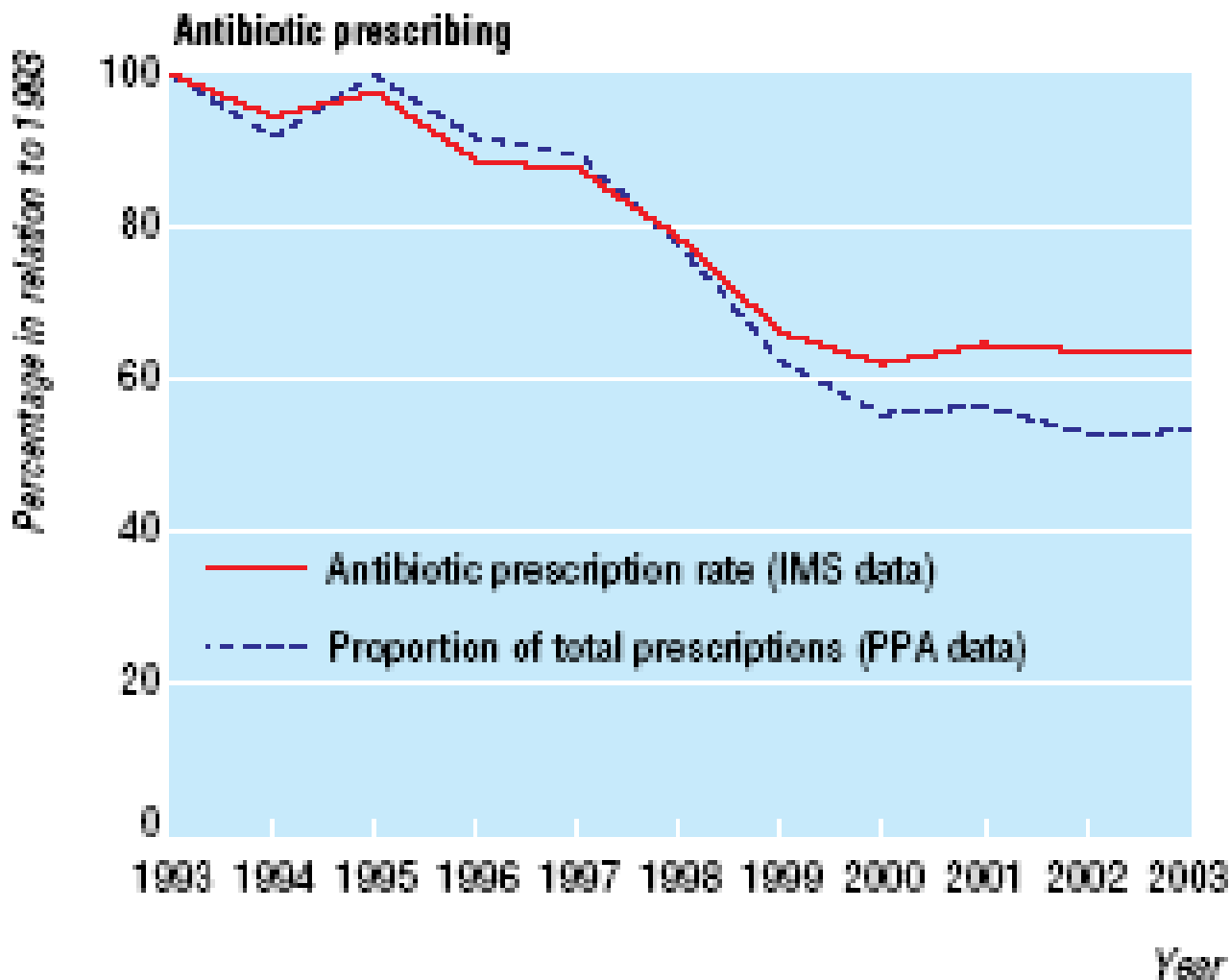
Strategies to Reduce Antibiotic Resistance

- **Antibiotic use appears to be a driving force for emergence of resistance**
 - Less antibiotic use
 - Better tailored use

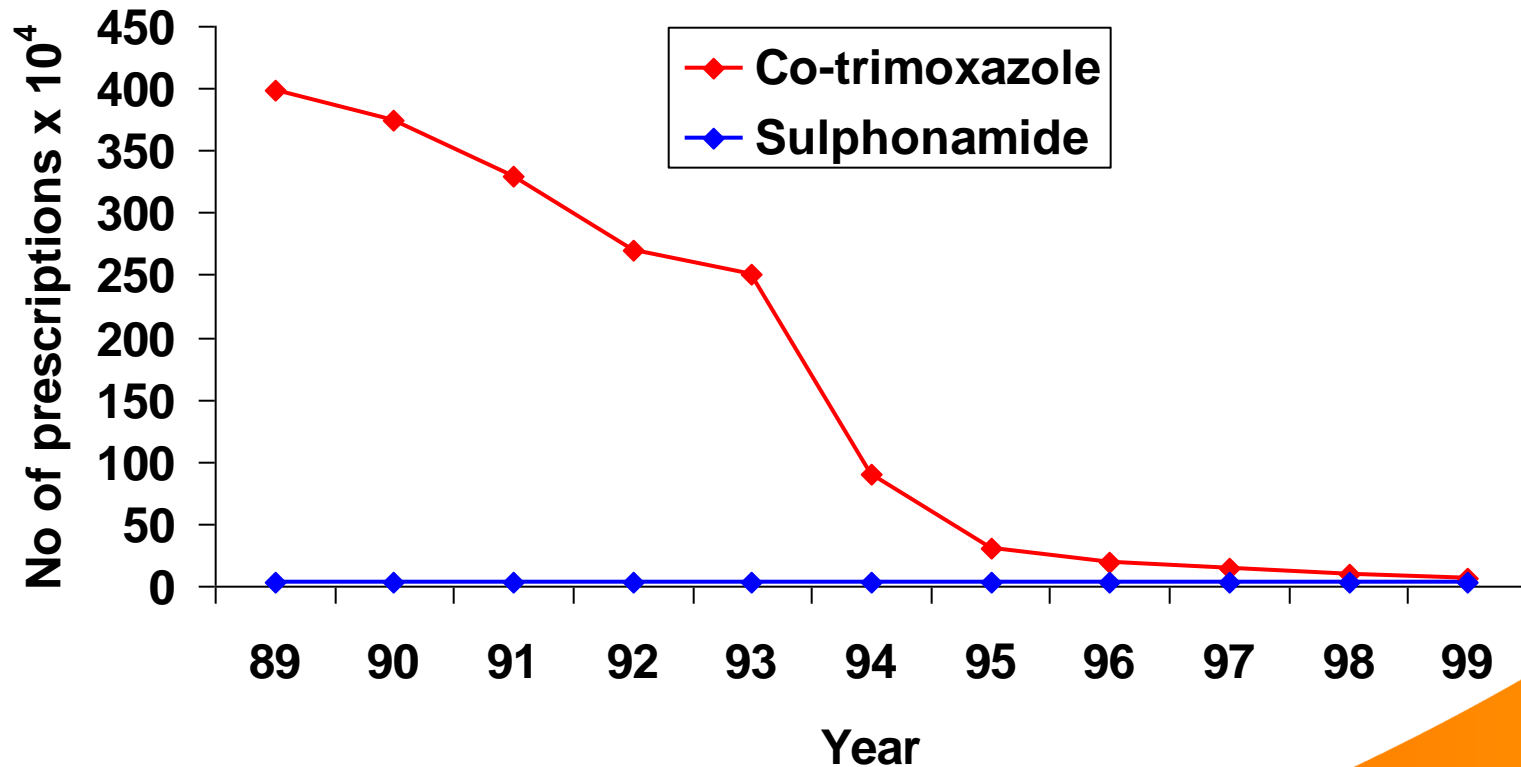
Tackling **ANTIBIOTIC RESISTANCE**

Information about the Government's public education campaign





Sulphonamide Use, UK



Sulphonamide Resistance in *E. coli* in London



Year	No	% Resistant
1991	360	39.2
1999	365	45.8



Strategies to Reduce Antibiotic Resistance

Not going to be easy!

Strategies to Reduce Antibiotic Resistance

- Prevention of cross-infection
- Vaccines (e.g. pneumococci)
- Development of new antibiotics



Strategies to Reduce Antibiotic Resistance

**Continued surveillance
will be essential**

