



# CDR WEEKLY

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## News

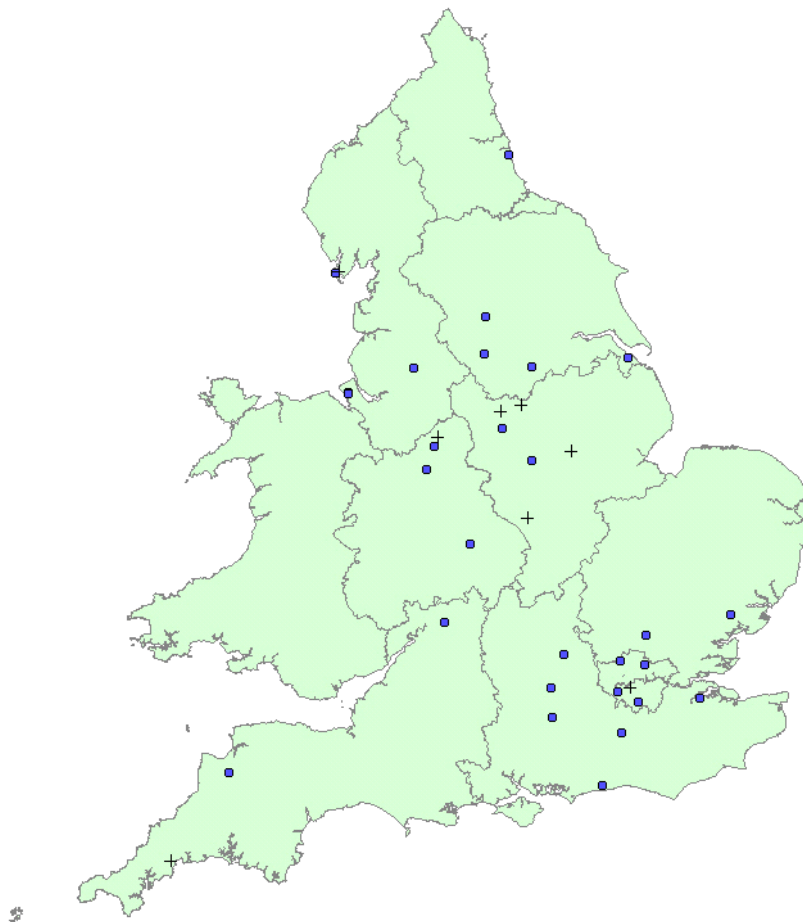
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### ▣ National increase of Vero-cytotoxin producing *E. coli* O157 (VTEC O157) PT8 – Update

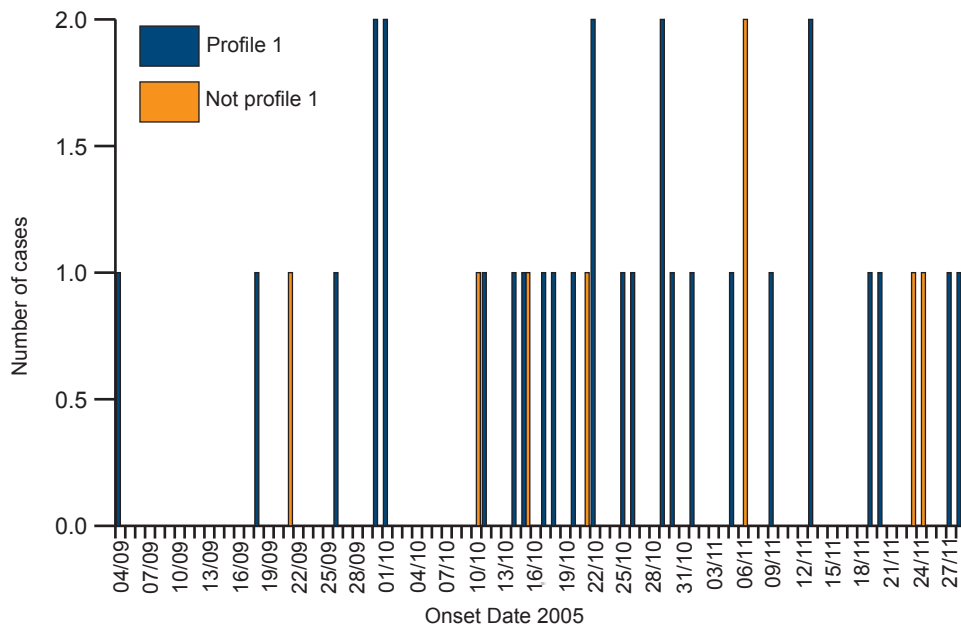
Seventy-two cases of Vero-cytotoxin producing *E. coli* (VTEC) O157 PT8 have been confirmed by the the Health Protection Agency Laboratory of Enteric Pathogens (LEP) since 1 October 2005 (1). Ten of the 72 cases reported recent foreign travel, 16 were secondary cases and four were asymptomatic cases. Five cases are known to have been hospitalised. No deaths have been reported.

Of the 42 primary cases, 29 shared the same pulsed field gel electrophoresis (PFGE) profile with enzyme XbaI (profile 1). Ten strains had PFGE profiles distinguishable from profile 1; some of these were closely related to profile 1 and further work is in progress to clarify this. Results on three are awaited. The geographical distribution of cases by PFGE profile is shown in Figure 1. The last known onset date is the 28 November 2005 (Figure 2).

**Figure 1 Geographical distribution of cases in England and Wales by PFGE profile (N=36)**



Key: blue dots = profile 1; crosses = not profile type 1

**Figure 2 Epidemic curve by PFGE profile (N=37)**

Eight cases were interviewed as part of a hypothesis generating exercise, leaving 23 cases eligible for inclusion in a case control study which began on the 7 December 2005. Cases were defined as residents of England and Wales with *E. coli* O157 PT8 infection (PFGE profile 1) confirmed by LEP and reported on or after 1 October 2005. Fourteen cases fitting the case definition and 27 controls, matched by age, sex and geographical location, have been included in the study, and data analysis is in progress.

## References

1. Health Protection Agency. Increase in Vero cytotoxin-producing *Escherichia coli* O157 PT8 infections in England. *Commun Dis Rep CDR Wkly* [serial online] 2004 [cited 15 December 2005]; 14(47): News. Available at <<http://www.hpa.org.uk/cdr/archives/2004/cdr4704.pdf>>.

## Hajj 2006: Advice for travellers

The Hajj is a pilgrimage to the Saudi Arabian capital city of Makkah (Mecca); a religious obligation to be performed at least once by all adult Muslims whose health and financial means permit it. It takes place annually between the eighth and thirteenth day of the last month of the Islamic lunar calendar, which is ten days shorter than the Gregorian year. Hajj therefore falls at a different time every year; the next Hajj is expected to take place between 8th and 12th of January 2006 (1).

Over two million Muslims perform the Hajj every year, around 20,000 from the United Kingdom (UK). It is the largest annual international gathering of its kind in the world. There are specific rites and duties that have to be performed as part of the pilgrimage, and these can be strenuous and physically demanding, especially as they are performed in large crowds. The health needs of individuals performing the Hajj are varied and are mainly physical, such as protecting themselves from the sun, heat, and dehydration. There are, however, infection risks associated with the Hajj, especially due to the overcrowded conditions that pilgrims experience. These are mainly respiratory and gastrointestinal infections.

All intending pilgrims should seek pre-travel health advice at least ten days before travelling and obtain the appropriate vaccinations. Travellers from the UK are required to produce valid and up to date proof of receiving meningococcal disease vaccination (ACYW135) in order to obtain a visa to enter Saudi Arabia. This vaccination is valid for three years and should be received not less than ten days before travel.

UK travellers, who may travel elsewhere before arriving in Saudi Arabia, may also require proof of additional vaccinations to enter the country. These are:

- Yellow fever vaccination if appropriate (according to the International Health Regulations (2)).
- Polio vaccination for those aged under 15 years coming from countries where wild type poliovirus is circulating (currently Afghanistan, Angola, Burkina Faso, Cameroon, Central African Republic, Chad, Côte d'Ivoire, Egypt, Eritrea, Ethiopia, Guinea, India, Indonesia, Mali, Niger, Nigeria, Pakistan, Somalia, Sudan, and Yemen) (3).

Travellers arriving from other countries will also be required to have immunisation or treatment at the Saudi Arabian border point:

- Irrespective of previous immunisation status, polio vaccinations for people under the age of 15 years arriving from the above-mentioned countries for any purpose including the Hajj or Umrah.
- Anyone arriving in Saudi Arabia from a country within the 'African meningitis belt' will be administered meningitis chemoprophylaxis to lower meningococcal carriage rate. Ciprofloxacin tablets (500 mg) will be given to adults, rifampicin to children, and ceftriaxone to pregnant women (3).

Other vaccinations are recommended for travel to Saudi Arabia, such as tetanus, diphtheria, and polio (if no booster of these received within the last ten years), typhoid, hepatitis A, and hepatitis B. Influenza vaccine may also be considered by Hajj pilgrims, but should be received by those pilgrims who fall into the UK criteria for influenza immunisation (4).

Further advice and information about vaccination and other health needs associated with the Hajj can be obtained from the National Travel Health Network and Centre ([www.nathnac.org](http://www.nathnac.org)). For more complex itineraries, or for travellers with special health needs, health professionals can call the NaTHNaC advice line, tel: 0845 602 6712 (Monday to Friday, 9am - 12 noon; 2pm - 4.30pm).

#### References

1. Shafi S, Memish ZA, Gatrads AR, Sheikh A. Hajj 2006: communicable disease and other health risks and current official guidance for pilgrims. *Eurosurveillance Wkly* [serial online] 5 December 2005 [cited 15 December 2005]; **10**(12), Available at <http://www.eurosurveillance.org/ew/2005/051215.asp>.
2. World Health Organization. Revised International Health Regulations (2005). Geneva: World Health Organization; 2005. Available at <http://www.who.int/csr/ihr/en>.
3. World Health Organization. Saudi Arabia requires people aged under 15 years traveling from polio-affected countries to be immunized against the disease. *Wkly Epid Rec* 2005; **80**(33): 288. Available at <http://www.who.int/wer/2005/wer8033.pdf>.
4. World Health Organization. Health conditions for travellers to Saudi Arabia Pilgrimage to Mecca (Hajj). *Wkly Epid Rec* 2005; **80**(49/50): 431-2. Available at <http://www.who.int/wer/2005/wer8049.pdf>.
5. Department of Health (DH). Flu. Policy and Guidance, DH website [online] 2005 [cited 14 December 2005]. Available at <http://www.dh.gov.uk/PolicyAndGuidance/HealthAndSocialCareTopics/Flu/fs/en>.

### **First annual report on hepatitis C published**

The Health Protection Agency has published its first annual report on hepatitis C in England (1). The report includes chapters on the prevalence of hepatitis C in England, surveillance and research, increasing awareness, the burden of disease, prevention – focusing on injecting drug users (IDUs), and HPA initiatives.

Of the estimated 200,000 individuals in England who have a chronic hepatitis C infection, a proportion will go on to develop severe liver damage. There are currently estimated to be around 4,500 people living with severe liver disease in England and Wales, including cirrhosis, liver failure or liver cancer, as a result of having a chronic hepatitis C infection, a figure that could rise to around 7,000 by 2010. Most individuals with chronic hepatitis C infection can be successfully treated, but the success of treatment relies on people coming forward for testing. To enable this, local health services need to provide clear pathways of referral to enable these patients to access the necessary services and be diagnosed.

Injecting drug use is the dominant driver in the growth of hepatitis C in England, accounting for more than 80% of diagnosed infections. Prevalence of hepatitis C among injecting drug users is high, at around 40% and since 2000 prevalence in recent injectors\* has doubled to 20%, suggesting a recent increase in transmission.

Laboratory confirmed diagnoses for hepatitis C rose from 6341 in 2003 to 7902 in 2004. This indicates that the rate of diagnoses has risen and therefore that more diagnostic testing is taking place. This could be as a result of the Department of Health's hepatitis C professional awareness raising which began in 2002/2003.

#### **References**

1. Health Protection Agency. Hepatitis C in England. The first Health Protection Agency Annual Report 2005. London: HPA, 2005. Available at [http://www.hpa.org.uk/hpa/publications/hepC\\_2005/default.htm](http://www.hpa.org.uk/hpa/publications/hepC_2005/default.htm).

#### **Footnotes**

\*Recent injectors defined as those individuals who first injected in the last three years.

[Infection Reports](#) Bacteraemia

Last updated: **15 December 2005**

Next update due: **19 January 2006**

## Bacteraemia

 Polymicrobial bacteraemias and fungaemias, England, Wales, and Northern Ireland: 2004

 Polymicrobial bacteraemias and fungaemias, England, Wales, and Northern Ireland: 2004

### Key points:

- In 2004, 87,698 bacteraemias were reported in England, Wales, and Northern Ireland.
- 1637 fungaemias were reported in England, Wales, and Northern Ireland.
- These were grouped into 81,753 patient episodes, which consisted of 6672 polymicrobial (8%) and 75,081 monomicrobial bacteraemias and fungaemias.
- Candidaemia were the most common fungaemia in both polymicrobial and monomicrobials.
- *Enterococcus*, members of the *Enterobacteriaceae* (eg, *Enterobacter*, *Klebsiella*, *Proteus*), *Staphylococcus*, *Pseudomonas*, and streptococci were disproportionately common in polymicrobial bacteraemias.

### Introduction

This report covers all data on routine laboratory reporting of bacteraemia and fungaemia isolated from blood culture specimens in England, Wales, and Northern Ireland in 2004. Polymicrobial bacteraemia is defined as the isolation of multiple organisms from the same blood culture.

### Methods

Data from the voluntary surveillance scheme which were reported in England, Wales, and Northern Ireland during 2004 were extracted from LabBase\*. Multiple isolates (bacteraemia and fungaemia) from one blood culture are not linked on the LabBase system and these were identified by matching records on the fields: specimen date, laboratory, patients date of birth, gender, and soundex†. Duplicates were identified by matching on specimen date, laboratory, patient's date of birth, patient's hospital number, gender, soundex, and organism name.

In 2004 a total of 87,988 bacteraemia and 1643 fungaemia reports extracted from LabBase. Two-hundred and ninety-six duplicates which had the same bacterial species were removed from the database, although inclusion of organisms was allowed where one indicated lack of speciation, for example, *Brucella abortus* and another *Brucella* spp. A total of 10% (bacteraemia and fungaemia) were not speciated past the genus level. A final dataset of 89,335 records was used for this report.

Bacteraemia rates were calculated using mid-year 2004 residential population denominators for England, Wales, and Northern Ireland. Regional analysis was performed with reference to the English boundaries introduced in April 2002. Confidence limits were calculated using commercial software‡. Polymicrobial bacteraemia and fungaemia rates in this report should be interpreted with caution, as there may be incomplete reporting by regions.

### Results

There were 87,698 bacteraemia and 1637 fungaemia reports in 2004. Of these, 14,254 matched at least one other report. These were grouped further to obtain the number of patient episodes of bacteraemia and fungaemia. There were 81,753 patient episodes, and of these 6672 were polymicrobial (PM) and the remaining 75,081 were monomicrobial (MM).

There were 320 different organisms at species level and 111 organisms at genus level identified. Unspecified organism, eg, coliforms and diphtheroids comprised 0.2% (193) of all bloodstream micro-organisms reported in 2004. The micro-organisms isolated in the patient episodes are shown in table 1.

**Table 1 Organisms reported in monomicrobial and polymicrobial bacteraemias and fungaemias, England, Wales, and Northern Ireland: 2004**

Organism	Monomicrobial bacteraemias			Polymicrobial bacteraemias		
	Number of reports	(%)	Rank*	Number of reports	(%)	Rank*
<i>Abiotrophia</i>	17	(0.02)	54	3	(0.02)	43
<i>Achromobacter</i>	15	(0.02)	56	4	(0.03)	42
<i>Acinetobacter</i>	828	(1.10)	12	282	(1.98)	10
<i>Acremonium</i>	1	(0.00)	65	2	(0.01)	44
<i>Actinobacillus</i>	3	(0.00)	63	–	–	–
<i>Actinomyces</i>	8	(0.01)	59	–	–	–
<i>Aerococcus</i>	64	(0.09)	37	33	(0.23)	25
<i>Aeromonas</i>	63	(0.08)	38	21	(0.15)	28
<i>Agrobacterium</i>	48	(0.06)	40	9	(0.06)	37
<i>Alcaligenes</i>	81	(0.11)	31	25	(0.18)	27
<i>Anaerobiospirillum</i>	4	(0.01)	62	2	(0.01)	44
<i>Arcanobacterium</i>	8	(0.01)	59	–	–	–
<i>Arthrobacter</i>	1	(0.00)	65	–	–	–
<i>Aspergillus</i>	20	(0.03)	52	–	–	–
<i>Bacillus</i>	259	(0.34)	21	67	(0.47)	21
<i>Bacteroides</i>	1057	(1.41)	10	167	(1.17)	15
<i>Bifidobacterium</i>	1	(0.00)	65	2	(0.01)	44
<i>Bordetella</i>	7	(0.01)	60	–	–	–
<i>Borrelia</i>	69	(0.09)	33	1	(0.01)	45
<i>Branhamella</i>	7	(0.01)	60	2	–	–
<i>Brevibacterium</i>	9	(0.01)	58	2	(0.01)	44
<i>Brevundimonas</i>	30	(0.04)	45	1	(0.01)	45
<i>Brucella</i>	23	(0.03)	50	1	(0.01)	45
<i>Burkholderia</i>	38	(0.05)	43	9	(0.06)	37
<i>Buttiauxella</i>	–	–	–	1	(0.01)	45
<i>Campylobacter</i>	69	(0.09)	34	7	(0.05)	39
<i>Candida</i>	1305	(1.74)	9	226	(1.59)	11
<i>Capnocytophaga</i>	4	(0.01)	62	1	(0.01)	45
<i>Cardiobacterium</i>	3	(0.00)	63	–	–	–
<i>Cedecea</i>	–	–	–	1	(0.01)	45
<i>Chromobacterium</i>	1	(0.00)	65	1	(0.01)	45
<i>Chryseobacterium</i>	18	(0.02)	53	8	(0.06)	38
<i>Chryseomonas</i>	23	(0.03)	50	7	(0.05)	39
<i>Citrobacter</i>	471	(0.63)	15	180	(1.26)	14
<i>Clostridium</i>	426	(0.57)	17	188	(1.32)	12
<i>Coliform</i>	242	(0.32)	24	298	(2.09)	9
<i>Comamonas</i>	18	(0.02)	53	12	(0.08)	35
<i>Corynebacterium</i>	416	(0.55)	18	122	(0.86)	18

<i>Cryptococcus</i>	57	(0.08)	39	3	(0.02)	43
<i>Dermabacter</i>	2	(0.00)	64	–	–	–
<i>Diphtheroids</i>	255	(0.34)	22	118	(0.83)	19
<i>Eikenella</i>	5	(0.01)	61	2	(0.01)	44
<i>Enterobacter</i>	1888	(2.51)	7	570	(4.00)	7
<i>Enterococcus</i>	4282	(5.70)	4	2057	(14.43)	2
<i>Escherichia</i>	15,735	(20.96)	2	1609	(11.29)	4
<i>Eubacterium</i>	21	(0.03)	51	5	(0.04)	41
<i>Ewingella</i>	1	(0.00)	65	–	–	–
<i>Exophiala</i>	1	(0.00)	65	–	–	–
<i>Flavimonas</i>	26	(0.03)	48	8	(0.06)	38
<i>Flavobacterium</i>	9	(0.01)	58	6	(0.04)	40
<i>Fusarium</i>	1	(0.00)	65	1	(0.01)	45
<i>Fusobacterium</i>	89	(0.12)	29	17	(0.12)	31
<i>Gardnerella</i>	2	(0.00)	64	–	–	–
<i>Gemella</i>	73	(0.10)	32	19	(0.13)	29
<i>Geotrichum</i>	1	(0.00)	65	–	–	–
<i>Haemophilus</i>	462	(0.62)	16	45	(0.32)	22
<i>Hafnia</i>	24	(0.03)	49	10	(0.07)	36
<i>Helicobacter</i>	–	–	–	1	(0.01)	45
<i>Histoplasma</i>	1	(0.00)	65	–	–	–
<i>Kingella</i>	2	(0.00)	64	–	–	–
<i>Klebsiella</i>	3927	(5.23)	5	1093	(7.67)	5
<i>Kluyvera</i>	23	(0.03)	50	3	(0.02)	43
<i>Lactobacillus</i>	30	(0.04)	45	18	(0.13)	30
<i>Lactococcus</i>	29	(0.04)	46	16	(0.11)	32
<i>Leclercia</i>	4	(0.01)	62	3	(0.02)	43
<i>Legionella</i>	2	(0.00)	64	–	–	–
<i>Leptospira</i>	9	(0.01)	58	–	–	–
<i>Leuconostoc</i>	27	(0.04)	47	8	(0.06)	38
<i>Listeria</i>	140	(0.19)	26	14	(0.10)	34
<i>Malassezia</i>	3	(0.00)	63	–	–	–
<i>Micrococcus</i>	283	(0.38)	20	38	(0.27)	23
<i>Microsporium</i>	1	(0.00)	65	–	–	–
<i>Moraxella</i>	92	(0.12)	28	19	(0.13)	29
<i>Morganella</i>	255	(0.34)	23	144	(1.01)	17
<i>Mycobacterium</i>	86	(0.11)	30	12	(0.08)	35
<i>Neisseria</i>	39	(0.05)	42	19	(0.13)	29
<i>Nocardia</i>	1	(0.00)	65	–	–	–
<i>Ochrobactrum</i>	45	(0.06)	41	15	(0.11)	33
<i>Oerskovia</i>	1	(0.00)	65	–	–	–
<i>Oligella</i>	1	(0.00)	65	1	(0.01)	45
<i>Pantoea</i>	98	(0.13)	27	34	(0.24)	24
<i>Pasteurella</i>	67	(0.09)	35	7	(0.05)	39
<i>Pediococcus</i>	2	(0.00)	64	1	(0.01)	45
<i>Peptococcus</i>	21	(0.03)	51	2	(0.01)	44

<i>Peptostreptococcus</i>	170	(0.23)	25	33	(0.23)	25
<i>Pneumocystis</i>	1	(0.00)	65	–	–	–
<i>Porphyromonas</i>	4	(0.01)	62	–	–	–
<i>Prevotella</i>	66	(0.09)	36	16	(0.11)	32
<i>Propionibacterium</i>	330	(0.44)	19	75	(0.53)	20
<i>Proteus</i>	1536	(2.05)	8	460	(3.23)	8
<i>Providencia</i>	67	(0.09)	35	30	(0.21)	26
<i>Pseudomonas</i>	2494	(3.32)	6	636	(4.46)	6
<i>Rahnella</i>	3	(0.00)	63	–	–	–
<i>Ralstonia</i>	9	(0.01)	58	–	–	–
<i>Rhodococcus</i>	12	(0.02)	57	2	(0.01)	44
<i>Rhodotorula</i>	2	(0.00)	64	2	(0.01)	44
<i>Rothia</i>	3	(0.00)	63	–	–	–
<i>Saccharomyces</i>	5	(0.01)	61	3	(0.02)	43
<i>Salmonella</i>	473	(0.63)	14	5	(0.04)	41
<i>Scedosporium</i>	1	(0.00)	65	–	–	–
<i>Serratia</i>	924	(1.23)	11	186	(1.30)	13
<i>Shewanella</i>	3	(0.00)	63	1	(0.01)	45
<i>Shigella</i>	3	(0.00)	63	–	–	–
<i>Sphingobacterium</i>	1	(0.00)	65	–	–	–
<i>Sphingomonas</i>	34	(0.05)	44	9	(0.06)	37
<i>Staphylococcus</i>	23,029	(30.67)	1	3273	(22.96)	1
<i>Stenotrophomonas</i>	523	(0.70)	13	146	(1.02)	16
<i>Stomatococcus</i>	7	(0.01)	60	2	(0.01)	44
<i>Streptobacillus</i>	4	(0.01)	62	–	–	–
<i>Streptococcus</i>	11,567	(15.41)	3	1768	(12.40)	3
<i>Veillonella</i>	16	(0.02)	55	5	(0.04)	41
<i>Weeksella</i>	2	(0.00)	64	–	–	–
<i>Yersinia</i>	12	(0.02)	57	1	(0.01)	45
<b>Total</b>	<b>75,081</b>	<b>(100.00)</b>		<b>14,254</b>	<b>(100.00)</b>	

\*Does not correspond to patient episodes, as each organism isolated constitutes a separate report.

The *Staphylococcus* group was the most common pathogen reported that was isolated from blood cultures and comprised 31% MM and 23% PM in 2004. Other genera that featured more strongly in PM were the *Enterococcus* (14%), *Streptococcus* (12%), *Escherichia* (11%), *Klebsiella* (8%), *Pseudomonas* (5%), *Enterobacter* (4%), and *Proteus* (3%). Of these, the percentage of *Enterococcus* was found to be more than double in PM than MM bacteraemias. At the species level, *Escherichia coli* was the leading pathogen, responsible for 11% PM and 21% MM. This was followed by *S. aureus* (10% PM and 19% MM) and coagulase-negative *Staphylococcus* (CNS) (10% PM and 9% MM) as the second and third most common pathogen to cause both PM and MM respectively. Among PM this was followed by *Enterococcus faecalis* (6%) and *Klebsiella pneumoniae* (4%). Among MM this was followed by *Streptococcus pneumoniae* (6%) and *Klebsiella pneumoniae* (3%). Fourteen different genera were reported as fungaemia in 2004. Fungi were reported in 1637 (1.8%) of the bloodstream infections, with candidemia being the most common in both PM (95% of fungaemia, 1.6% of microbes) and MM (93% of fungaemia, 1.7% of microbes).

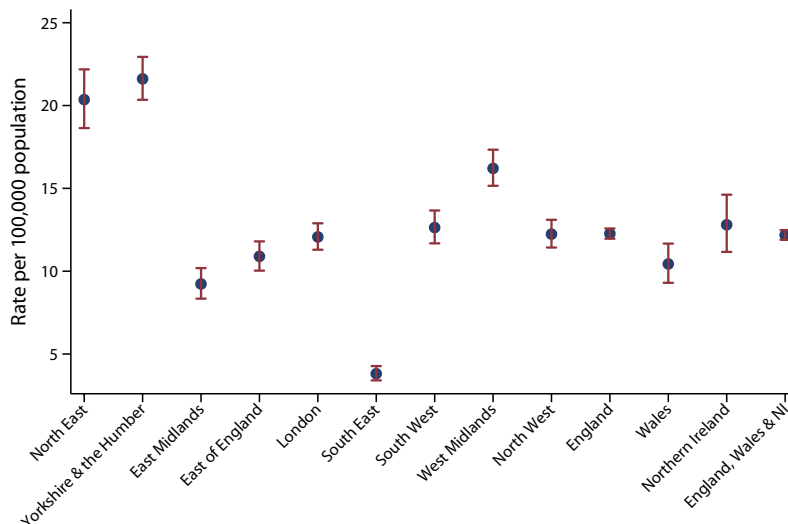
Table 2 shows the number of different organisms by patient episode. A maximum of seven organisms were isolated in one patient episode, comprising of *Acinetobacter*, *Bacillus*, *Corynebacterium*, *Enterobacter*, *Kebsiella*, *Pseudomonas*, and *Staphylococcus* spp. The patient episode with six organisms cultured comprised of *Alcaligenes*, *Klebsiella*, *Leclercia*, *Staphylococcus* spp, and two different *Enterobacter* species. The staphylococci species for these two patient episodes were both CNS. Of the patient episodes where five organisms were cultured, the organisms that featured in at least four of the patient episodes were the *Klebsiellas* and the streptococci.

**Table 2 Number of organisms involved in polymicrobial bacteraemia and fungaemia episodes**

Number of micro-organisms	Episodes	(%)
Two	5875	(88.05%)
Three	694	(10.40%)
Four	96	(1.44%)
Five	5	(0.07%)
Six	1	(0.01%)
Seven	1	(0.01%)

The overall reporting rate for PM episodes is 12.2 per 100,000 population in England, Wales, and Northern Ireland in 2004 (figure 1). The reporting rate of the three countries for PM episodes were 12.3, 10.4, and 12.8/100,000 respectively in England, Wales, and Northern Ireland. There was variation in the regional rates in England, which ranged from 3.8/100,000 in the South East to 21.6/100,000 in the Yorkshire and the Humber region followed closely by the North East region (20.4/100,000).

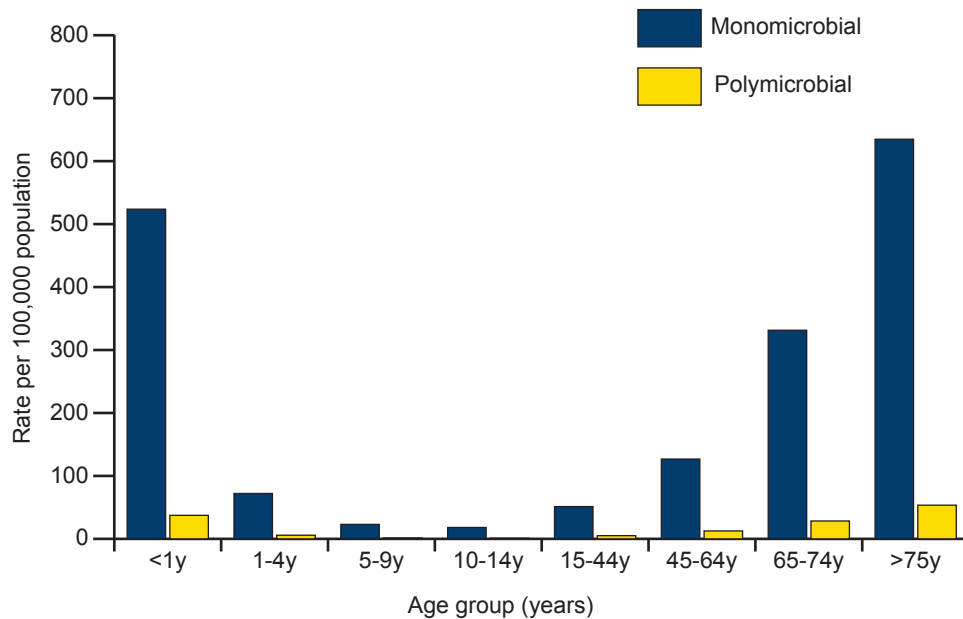
**Figure 1 Regional distribution of episodes of polymicrobial bacteraemia and fungaemia rates, England, Wales, and Northern Ireland: 2004\***



\*Rates are calculated using 2004 mid-year resident population estimates.  
Error bars show 95% Confidence interval.

The highest age specific microbials (both mono- and polymicrobial) were reported in the older age groups, specifically those patients aged 75 years and over (53.5/100,000 with PM and 634.8/100,000 with MM) (figure 2). Proportions of patients with PM or MM in each age-group were similar.

**Figure 2 Age-specific rates of mono- and polymicrobial bacteraemia and fungaemia episodes, England, Wales, and Northern Ireland: 2004\***



\*Rates are calculated using 2004 mid-year resident population estimates.

## Discussion

Previous publications have emphasised the association of polymicrobial bloodstream infections with higher mortality rates than monomicrobial infections (1-3). It has been demonstrated that this association was independent of the patient's underlying disease or class of micro-organism causing the infection (1). This report highlights the increasing number of blood-stream infections with multiple organisms in England, Wales, and Northern Ireland. The proportion of polymicrobial infections reported increased from 14% in 2001 (4) and 12.6% in 2002 in England and Wales (5), to 15% in 2003 (6) and 16% in 2004 in England, Wales, and Northern Ireland. This increase could also be as a result of increased ascertainment of reports by laboratories over the four years.

Members of the *Enterobacteriaceae* (eg, *Enterobacter*, *Escherichia*, *Klebsiella*, and *Proteus*) were common in polymicrobial bacteraemia, and previous studies have linked this to infections in the gut (3). Other organisms common in polymicrobial infections were the *Staphylococcus*, *Enterococcus*, *Pseudomonas*, and streptococci bacteraemias. *Escherichia coli*, CNS, and *S. aureus* featured predominately as the three most common polymicrobial and monomicrobial micro-organisms reported in 2004 and 2003 (6) in England, Wales, and Northern Ireland.

The regional distribution of reported polymicrobial episodes in England was similar to those of 2003 (6) with the South East region reporting the lowest rate and the North East and Yorkshire and the Humber regions reporting the highest rate of reported polymicrobial infection episodes per 100,000 population. There was a significant decrease ( $p < 0.05$ ) in the rate of reported polymicrobial infection episodes in Wales from 16.9/100,000 in 2003 (6) to 10.4/100,000 in 2004. Regional rate data is not really comparable as the number of organisms per polymicrobial infection varies, and is additionally also difficult to assess ascertainment of the reports.

Age group distributions of both poly and monomicrobial bloodstream infections followed similar trends as previous reports from England, Wales, and Northern Ireland (4-6). This is also supported in other studies where higher rates of polymicrobial bacteraemias were reported in geriatric populations as well as infants in neonatal intensive care units (1).

### Acknowledgements

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### Footnotes

\*LabBase is the database that collects laboratory reports of all micro-organisms isolated at nearly 400 NHS and other laboratories throughout England, Wales, and Northern Ireland . The database is managed and accessed at the HPA Centre for Infections .

† Soundex is a non-unique alphanumeric coding of the patients surname. When this is combined with date of birth and gender, this allows for duplicate reports of the same individual to be identified without the use of patient names

‡ Stata Statistical software: release 8.2. College Station, Texas, Stata Corporation, 2001.

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### [HPA South West short courses in health protection](#)

HPA South West and the Department of Social Medicine, University of Bristol, are inviting applications for short courses in health protection being held in 2006. Both courses will be held at Canynge Hall, Whiteladies Road, Bristol.

#### **Part One: Principles of Health Protection**

This three-day course will be held on Monday 27 to Wednesday 29 March 2006 and will be of interest to new Health Protection Agency staff, public health trainees, general practitioners, public health nurses, environmental health officers, infection control specialists, and others working in public health.

Topics include:

- Surveillance and epidemiology of infectious diseases and environmental exposures;
- Investigation of single cases, incidents and outbreaks (including radiation);
- Introduction to healthcare associated infection;
- Introduction to emergency planning.

#### **Part Two: Practice of Health Protection**

This two-day course will be held on 19 –20 June 2006 and is aimed at CsCDC, health protection nurses and specialists, directors of public health, public health consultants and specialists, environmental health officers and others on the public health on-call rotas as CPD to maintain their competence in health protection and explore current issues. Content will vary each year to reflect topical issues and debates.

Themes include:

- Review of the surveillance and epidemiology of current and emerging health protection threats;
- Investigation and management of single cases, incidents and outbreaks;
- Implications for health protection of the changing environment (political, legislative, organisational, social, etc);
- Reflection on case studies and lessons learned from incidents and scenarios.

For further information and an application form please contact the short course administrator on 0117 928 7221 or email: [short-course@bristol.ac.uk](mailto:short-course@bristol.ac.uk). Download a flyer at: <http://www.epi.bris.ac.uk/shortc/hpp.htm>.