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Enhanced Tuberculosis Surveillance case numbers and rates by Primary Care Trust

The Enhanced Tuberculosis Surveillance (ETS) system started collecting information on the Primary Care Trust (PCT) of residence of reported cases during 2003. This information has also been derived retrospectively for cases from 1999 to 2003. Tuberculosis case report rates have been calculated for PCTs.

Tuberculosis rates for PCTs in England

Analysis of the ETS data for 2001 to 2003 showed that 9% (26 PCTs) had a tuberculosis rate of ≥ 40 per 100,000, either for any single year or for the three year average rate. Of those 26 PCTs, 17 were in London, and the remaining nine were in or around other urban areas. All other PCTs had a tuberculosis rate below 40 per 100,000.

Further information on tuberculosis rates by PCT is available on the Health Protection Agency website at: http://www.hpa.org.uk/infections/topics_az/tb/epidemiology/table24.htm.

Deriving tuberculosis cases by PCT

PCT data is now available for 98.0% of cases reported in England, Wales, and Northern Ireland from 1999 to 2003, and for 99.4% of 2003 cases. This is expected to rise further from 2004, the first full year of PCT data collection.

PCT is used here as a general term, which in England includes parallel bodies such as Care Trusts. In Wales, the corresponding organisations are Local Health Boards (which have the same boundaries as local authorities), and in Northern Ireland they are Health and Social Services Boards.

Where information on PCT of residence was provided (9% of cases), this information was used after being "cleaned" to a standard list of NHS organisation names. If information on PCT was not provided, it was derived from the corresponding local authority of residence of that patient, where the latter was within, or shared the boundaries of, a PCT (68%). Otherwise, the PCT was mapped from the postcode of residence (21%), using the NHS Postcode Directory database, and software developed in the Health Protection Agency's Centre for Infections.

From 2004 onwards, postcode of residence will be the main source of information used for retrospective or supplementary derivation of geographical areas. It is, therefore, important that complete and accurate postcodes are recorded for all cases reported through the ETS system.

Department of Health publishes further guidance on the changes to the BCG vaccination programme in England

From 1 September 2005, targeted neonatal BCG immunisation combined with vaccination of others with specific risk factors for tuberculosis will replace the current schools' programme for older children (1). The Department of Health has published an operational note to professions involved in BCG vaccination outlining further details on the changes to programme in England. The note was sent to all relevant professionals on 18 August 2005. Copies are available from:

<http://www.dh.gov.uk/PolicyAndGuidance/HealthAndSocialCareTopics/Tuberculosis/fs/en>

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Risk of avian influenza A (H5N1) entering Europe through migrating birds remains low

The Department for Environment Food and Rural Affairs (DEFRA) have stated that the risk of avian influenza being introduced into the United Kingdom, or the rest of the European Union from migratory birds remains low, despite the recent outbreaks of suspected avian influenza A (H5N1) in Russian poultry stocks (1).

Unofficial reports of highly pathogenic avian influenza in poultry farms east of the Ural mountains have given rise to anxiety regarding the spread of avian influenza A (H5N1) into Europe (2). The Netherlands, whose poultry industry was badly affected by an A (H7N7) outbreak in 2003, have advised their commercial poultry farmers to keep their stocks indoors until the New Year (3), in order to prevent contact with potentially infected migratory birds.

In their assessment of the situation, DEFRA noted that no epidemiological analysis had yet been carried out to confirm that the sources of these outbreaks in Central Asia are directly linked with migratory waterfowl. Although it is possible that waterfowl migration in April/May could have brought H5N1 into the region, this does not explain why similar outbreaks were not detected in 2004 during the last northern summer migration. It is equally possible that wild waterfowl could have acquired H5N1 virus from undetected infection in local poultry and suggest that unregulated trade could also be a potential mechanism for the virus spread into Central Asia (1).

Until there is more information regarding the outbreaks and any significant geographic or temporal overlap between European and Asian migratory birds in Russian breeding grounds, DEFRA have maintained that the recent outbreaks will not change their original estimate that although there is a possibility of H5N1 entering Europe through migratory birds, this risk remains low (1).

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Bacteraemia

Results of the first year of mandatory Glycopeptide-Resistant Enterococci (GRE)reporting: October 2003 to September 2004

Published 26 August 2005, Volume 15 Number 34

Results of the first year of mandatory Glycopeptide-Resistant Enterococci (GRE)reporting: October 2003 to September 2004

Introduction:

Reporting of bacteraemia caused by Glycopeptide-Resistant Enterococci (GRE) has been mandatory for NHS acute Trusts in England since September 2003 (1). This scheme is operated by the Health Protection Agency on behalf of the Department of Health. Data are requested quarterly from each of the 173 acute NHS Trusts in England by Health Protection Agency (HPA) Local and Regional Services Division (LARS) and collated and analysed by the Centre for Infections (CfI - HPA). This report describes the data collected during the first year of the mandatory surveillance scheme, October 2003 to September 2004.

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Healthcare Associated Infections

Results of the first year of mandatory *C. difficile* reporting, January to December 2004

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Results of the first year of mandatory *C. difficile* reporting, January to December 2004

Surveillance of *Clostridium difficile* associated disease (CDAD) has been included in the mandatory healthcare-associated infection surveillance system for NHS acute Trusts in England since January 2004 (1). This scheme is coordinated by the Health Protection Agency (HPA) on behalf of the Department of Health. Data are collected quarterly by HPA Local and Regional Services Division (LARS) from each of the 169 acute Trusts in England that treat patients aged 65 years and over, and sent to the Centre for Infections (CfI, HPA) for national analysis. This is the age group among whom the available evidence shows CDAD to be most prevalent (children's Trusts are excluded). This report describes data collected during the first year of the mandatory surveillance scheme, from January to December 2004.

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Laboratory confirmed cases of pertussis infection, England and Wales: January to March 2005

Immunisation

Last updated: 25 August 2005
Next update due: 22 September 2005

Laboratory reports of invasive meningococcal infections, England and Wales: weeks 16 to 20

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Laboratory confirmed cases of pertussis infection, England and Wales: January to March 2005

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Diphtheria in England and Wales: 2001 to 2004

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Tetanus in England and Wales: 2001 to 2004

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Update on polio eradication in the United Kingdom

Published 25 July 2005, Volume 15 Number 34

Laboratory reports of hepatitis A in England and Wales: 2004

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Laboratory reports of hepatitis C in England and Wales: 2004

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Enhanced surveillance of meningococcal disease: April to June 2005

Laboratory reports of invasive meningococcal infections, England and Wales: weeks 16 to 20

	Method of diagnosis			Total reports	Cumulative*
	CSF and blood Culture	Non-culture	Other sites	16-20/05	Total to week 20/2005
Group A	–	–	–	–	1
B	44	53	10	107	692
C	1	3	–	4	17
W135	1	–	–	1	13
X	–	–	–	–	–
Y	10	2	–	12	25
Z	–	–	–	–	–
29E	–	–	–	–	–
Ungroupable	1	–	–	1	1
Ungrouped	–	1	–	1	36
Total	57	59	10	126	785

*Combined CDSC data and Meningococcal Reference Unit data latex antigen, microscopy, polymerase chain reaction.

Table 1 Laboratory confirmed cases of pertussis infection, England and Wales, by Age Group*: January to March 2005

Age Group	PCR and/or serology only	Culture	Total
<3 months	10	28	38
3-5 months	4	7	11
6-11 months	1	4	5
1-4 years	1	2	3
5-9 years	2	1	3
10-14 years	6	2	8
≥15 years	15	1	16
Not known	–	–	–
Total	39	45	84

* All data are provisional

Since January 2002, infants ≤6 months of age with suspected pertussis have been offered PCR testing through the Health Protection Agency's Respiratory and Systemic Infections Reference Laboratory (RSIL). Adults with a cough persisting for more than 21 days and children with a cough persisting for more than 14 days, have been offered serology testing through RSIL. These cases are likely to have been culture negative, and testing with PCR and/or serology have increased case ascertainment.

Table 2 Laboratory confirmed cases of pertussis infection, England and Wales: January to March 2005*

Quarter	PCR and/or serology only	Culture	PCR/serology reports as a % of total	Total
Jan to Mar	39	45	46	84

*All data are provisional.

The apparent increase particularly in adult cases is explained by the availability of enhanced diagnostic methods, which have been increasingly used during the year, as illustrated by the increasing proportion of reports diagnosed by PCR and or serology.

Diphtheria in England and Wales: 2001 to 2004

Diphtheria is an acute, communicable respiratory disease caused by toxigenic strains of *Corynebacterium diphtheriae* which can affect people of all ages. *C. diphtheriae* infects the throat and sometimes the skin. The incubation period is between five and nine days following exposure. Symptoms of diphtheria infection are brought

about by the diphtheria toxin, which can spread to the heart, central nervous system, and other organs (1). Pharyngeal or cutaneous diphtheria is caused by toxigenic strains of *C. diphtheriae* and occasionally by *C. ulcerans* (2).

Diphtheria became rare in England and Wales following the introduction of mass immunisation in 1942, when the average annual number of cases was about 60,000 with 4000 deaths from diphtheria. Primary vaccine coverage (three doses) for children aged two has been 94% since 2001, just below the World Health Organization (WHO) target of 95%. As a disease becomes rare, the completeness and accuracy of surveillance information become more important and each clinical diagnosis (*ie*, notification) needs to be confirmed by laboratory diagnosis. Enhanced surveillance for diphtheria incorporates data from reference and NHS laboratories, death registration, and individual case details including vaccination history, source of infection, and severity of disease obtained from hospital records and general practitioners as well as notifications.

In 1996, the Public Health Laboratory Service (PHLS) *Standard Operating Procedure for Investigation of Throat Swabs*, also known as the *Bacteriology Standard Operational Procedures* (BSOP 9) recommended all throat swabs be cultured routinely on a selective medium, Hoyle's agar, designed to enhance detection of pathogenic *Corynebacterium* species. This was partially due to the public health importance of the organism and an epidemic ongoing in eastern and central Europe. This recommendation has now been reviewed by a team from the Health Protection Agency (HPA) Centre for Infections (Respiratory and Systemic Infection Laboratory (RSIL) and Immunisation Department), the Standard's Unit, Evaluations and Standards Laboratory, and also distributed for review to external colleagues. It is no longer recommended that all throat swabs should be examined for *Corynebacterium* species. There are specific exposures which if reported on laboratory request forms should trigger examination of specimens for *C. diphtheriae* or *C. ulcerans*. These are based on recognised risk factors and information from the diphtheria enhanced surveillance programme (Box).

Box Specific exposures for triggering examination of specimens for *C. diphtheriae* or *C. ulcerans*

1. Throat or nose swabs from a patient with one or more of the following risk factors reported:

- membrane or membranous pharyngitis/tonsillitis;
- travel overseas (especially former states of the USSR, Africa, and southern and south east Asia) within the last ten days;
- recent contact with someone who has travelled overseas recently (anywhere)*;
- recent consumption of raw milk products (*C. ulcerans*);
- recent contact with farms/farm animals or domestic animals (*C. ulcerans*);
- the patient works in a clinical microbiology laboratory or similar, where *Corynebacterium* species may be handled.

2. Swabs from chronic non-healing ulcers or skin lesions with one of the following risk factors reported:

- recent travel overseas (especially tropical regions);
- recent contact with someone who has travelled overseas recently (anywhere);
- the patient works in a clinical microbiology laboratory or similar, where *Corynebacterium* species may be handled.

*Travel or contact with travellers in the past ten days is most likely to be relevant to the risk of diphtheria.

The National Standard Method issued by the Evaluations and Standards Laboratory for BSOP 9 – Investigation of Throat swabs (8) and corresponding Guidance Note QSOP 53 – recommendations for the screening of specimens for *Corynebacterium* species (9) have incorporated the new recommendations and is available on the HPA Standards Unit website at <http://www.hpa-standardmethods.org.uk/pdf_sops.asp>.

Most of the few laboratory confirmed cases of toxigenic *C. diphtheriae* infection from 2001 to 2004 were acquired overseas in countries where the disease is still endemic. The table shows the number of diphtheria notifications and the total number of toxigenic isolates identified in England and Wales from 2001 to 2004. Notifications of diphtheria have to be interpreted with extreme caution, as most are cases of pharyngitis associated with isolation of non-toxigenic strains of *C. diphtheriae*. Of the 57 notified cases of diphtheria reported between 2001 and 2004, 54 were confirmed by the HPA's Streptococcus and Diphtheria Reference Unit, RSIL, as non-toxigenic *C. diphtheriae* strains. A further six toxigenic *C. diphtheriae* strains were confirmed by RSIL from samples submitted for confirmation and toxigenicity testing during the same period, none of which were formally notified.

Table Diphtheria notifications and isolates of toxigenic corynebacteria, England and Wales: 2001 to 2004

Year	Notifications				All isolates of toxigenic <i>C. diphtheriae</i>	All isolates of toxigenic <i>C. ulcerans</i>
	Total	Number due to toxigenic <i>C. diphtheriae</i>	Number due to non-toxigenic <i>C. diphtheriae</i>	Number due to toxigenic <i>C. ulcerans</i>		
2001	13	–	12	1	–	4
2002	21	3	17	1	6	3
2003	13	–	13	–	3	3
2004	10	–	8	2	–	–*
Total	57	3	50	4	9	10

*Two cases were notified in 2004, but onset of illness was in 2003 and are counted in 2003 figures .

There were nine isolates of toxigenic *C. diphtheriae* identified between 2001 and 2004. In 2002, five toxigenic *C. diphtheriae* var *mitis* strains were isolated, four from cutaneous lesions (3) and one from a throat swab. Four cases were children aged twelve years and under, and one was a male aged 81 years. Two cases acquired their infections in Bangladesh, one in Pakistan, and one in Israel. The remaining case probably acquired the infection in Somalia. Toxigenic *C. diphtheriae* var *gravis* was also identified from a throat swab taken from a male aged 2 years with no history of travel. In 2003, three toxigenic *C. diphtheriae* var *mitis* isolates in adults were identified; two were cutaneous infections acquired in Cambodia and Bangladesh, and one identified from a throat swab from a laboratory acquired infection in the United Kingdom (UK). The latter case was fully immunised.

Ten isolates of *C. ulcerans* producing diphtheria toxin (toxigenic *C. ulcerans*) were identified between 2001 and 2004, just exceeding the number of isolates of toxigenic *C. diphtheriae*. Toxigenic *C. ulcerans* is a documented cause of diphtheria, which although rare, can be fatal (4). The normal reservoir of *C. ulcerans* is cattle and human cases have been associated with the consumption of raw dairy products. Travel and close contact with cattle, other farm animals, and horses are other potential risk factors for infection. All ten isolates were from throat swabs taken from patients with a history of sore throat, eight were females (two fully immunised children aged 7 and 11 years; six adults aged from 51 to 75 years) and two were adult males (aged 63 and 74 years). Two of the cases lived in rural areas, but no other risk factors were identified. One case had regular contact with animals through her profession as a vet, and the two children both lived in households with cats. Molecular typing on unlinked isolates from both humans and cats found the strains to be indistinguishable (5). Even though *C. ulcerans* had not been associated with cats prior to 2002, molecular typing data now suggest that this organism in cats could be a potential reservoir for human infection (6). Advice was provided by the Centre for Infections in 2002 about the extremely low potential risk to human contacts from infected cats (4). A woman aged 58 years had a history of recent travel to Majorca, Spain, but subsequent follow-up suggested that the infection was acquired in the UK (7). This patient also owned a cat which was not screened for *C. ulcerans*.

Although there is no direct evidence of person-to-person transmission of *C. ulcerans* infection there have been incidents that suggest this mode of transmission is possible. The guidelines for consultants in communicable disease control (CCDC) on the control of diphtheria recommend that anyone who has been in close contact in the previous seven days with a case of infection caused by toxigenic *C. diphtheriae* or *C. ulcerans* should be considered at risk (2).

The Centre for Infections public health and microbiology diphtheria experts may be contacted by e-mail via <diphtheria@hpa.org.uk>. Further information on diphtheria can be obtained from the HPA website at: <http://www.hpa.org.uk/infections/topics_az/diphtheria/menu.htm>.

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Tetanus in England and Wales: 2001 to 2004

Tetanus is caused by a neurotoxin produced by *Clostridium tetani*, an anaerobic spore forming bacillus. Tetanus spores are widespread in the environment, including in soil, and can survive hostile conditions for long periods of time. Transmission occurs when spores are introduced into the body, often through a puncture wound but also through trivial, unnoticed wounds, through injecting drug use, and occasionally through abdominal surgery. The incubation period of the disease is usually between three and 21 days, although it may range from one day to several months, depending on the character, extent, and localisation of the wound.

Tetanus immunisation was introduced in the 1950s and became part of the national routine childhood programme in 1961. Since then, vaccine coverage at two years of age has always exceeded 70% in England and Wales and since 2001 has been 94%, just below the World Health Organization (WHO) target of 95%. Five doses of vaccine are now considered to give adequate immunity and routine boosters every ten years are no longer necessary (1).

Tetanus is usually confirmed by a clinical diagnosis alone, although three diagnostic laboratory tests are available:

1. **Tetanus toxin in a serum sample:** provides laboratory confirmation of a clinical diagnosis of tetanus, however, failure to detect toxin in serum does not negate a clinical diagnosis.
2. **Isolation of tetanus bacillus from infection site:** *C. tetani* is only very rarely recovered from the infection site.
3. **Tetanus toxin antibodies in serum:** demonstrating low levels or absent antibody to tetanus toxoid may provide laboratory evidence in support of a clinical diagnosis.

The first two tests may provide laboratory confirmation, whereas the third can only support the diagnosis.

Enhanced surveillance for tetanus incorporates data from notifications, reference and NHS laboratories, death registration data, and individual case details such as vaccination history, source of infection, and severity of disease obtained from hospital records and from general practitioners.

Tetanus is now a rare disease and the small number of cases that occurred prior to 2003, about ten per year, were generally confined to unimmunised people aged over 64 years (2). Forty-six tetanus cases were reported in England and Wales between 2001 and 2004 (table). During 2001 and 2002, there were ten reported cases of tetanus in adults aged between 45 and 84 years, all born before routine immunisation was introduced, and one case in a male aged 8 years who had not previously been vaccinated. Two of the elderly cases subsequently died. In 2003, twelve cases of tetanus were reported of which all but three occurred in injecting drug users (IDUs) aged between 20 and 47 years. One IDU had been fully vaccinated (*ie*, had received five doses of vaccine), and three other cases had been partially vaccinated. The remaining eight cases had either no history of vaccination or the vaccination status was unknown. One case died. The outbreak in IDUs continued throughout 2004 with fifteen reported cases of tetanus occurring in all regions except for the East of England, and Yorkshire and Humber regions. There were also three cases in IDUs, one of whom died, notified in Scotland during 2003 and 2004. In addition, there were a further eight cases of tetanus in non-IDUs. None of the cases in 2004, with known vaccination status, had received the recommended five doses of a tetanus containing vaccine. Ten cases (seven IDUs and three non-IDUs) had been partially vaccinated.

Table Tetanus cases in England and Wales: 2001 to 2004

Year	Total number of cases	Notifications	Other sources*	Number in Injecting Drug Users
2001	5	6†	–	–
2002	6	4	2	–
2003	12	8	4	9
2004	23	12‡	13	14
Total	46	30	19	23

* Includes reports by clinicians and samples sent direct to RSIL.

†One case was subsequently denotified.

‡One case had also been notified in 2003 and one case was incorrectly notified.

The HPA Centre for Infections public health and microbiology tetanus experts may be contacted by email via <tetanus@hpa.org.uk>. Further information on tetanus can be obtained from the HPA website at: <http://www.hpa.org.uk/infections/topics_az/tetanus/menu.htm>

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Update on polio eradication in the United Kingdom

Poliomyelitis (polio) is a highly infectious disease caused by poliovirus, which is a member of the enterovirus subgroup. The virus enters the body through the mouth and multiplies in the intestine. The infection may be

asymptomatic or produce mild symptoms of fever, fatigue, headache, and vomiting. It can invade the nervous system causing a viral meningitis, and in less than 1 in 100 infections leads to an acute, usually asymmetrical, flaccid paralysis. Paralysis may also affect the respiratory muscles. The degree of recovery varies but residual paralysis is common. Large epidemics of paralytic poliomyelitis occurred in most developed countries in the 1940s and 1950s. Before the global eradication campaign was launched in 1988, around 250,000 cases were reported each year, mainly from the developing world.

Notifications of and deaths from acute paralytic poliomyelitis decreased dramatically in the United Kingdom (UK) following the introduction of inactivated poliovirus vaccine in 1956, which was later replaced by attenuated live oral polio vaccine (OPV) in 1962. Current control of the disease in the UK is excellent and there have been no confirmed cases of indigenous wild polio for more than a decade (table 1). Cases of paralytic polio that are still occasionally identified are either vaccine-associated (classified as recipient or contact) or imported from the rapidly declining number of regions of the world where the disease still exists. The last imported case was in 1993 in a child returning from India . There were no notifications of paralytic polio in the period 1999 to 2004. The European Region, including the UK, was certified as polio-free by the World Health Organization (WHO) in 2002.

Table 1 Summary of cases of paralytic poliomyelitis in the UK: 1985 to 2004

Year	Vaccine/ Recipient	Vaccine/ Contact	Acquired overseas	Unknown (compatible)	Total
1985	1	–	2	–	3
1986	4	1	2	1	8
1987	–	–	–	–	–
1988	1	1	1	–	3
1989	1	1	–	–	2
1990	4	–	–	–	4
1991	–	1	–	1	2
1992	2	1	–	2	5
1993	2	–	1*	1	4
1994	1	1	–	–	2
1995	1	1	–	–	2
1996	1	–	–	–	1
1997	1	1	–	–	2
1998	1	–	–	–	1
1999	1	–	–	–	1
2000	1	–	–	–	1
2001	–	–	–	–	–
2002	–	–	–	–	–
2003	–	–	–	–	–
2004	–	–	–	–	–
Total	22	8	6	5	41

*This is a case of polio in a UK resident, but it was acquired and diagnosed in India and no poliovirus was isolated for this case.

During 2004, two cases of paralysis with compatible illness were investigated by the Enteric Virus Unit, Virus Reference Department (EVU, VRD). Enterovirus 71 was detected by PCR in the faecal sample of both cases (and also in a throat swab of one). Both had a history of polio vaccination and results of polio antibody titres were consistent with prior vaccination. Further review of three cases reported in 2003 has been conducted and all three cases have been excluded on clinical or virological grounds.

Vaccination coverage

Vaccination coverage for three doses of oral polio vaccine (OPV) at two years of age remains high, although is slightly below the 95% target in England (table 2). Coverage is above 95% in six English regions and Wales, Scotland, and Northern Ireland and above 90% in two of the remaining three English regions. Coverage in London is below 90%; reflecting a combination of factors, including high population mobility and inaccuracy of data systems. Audits of coverage suggest that this data under-estimates true coverage and therefore it is likely that 90% has been achieved in each English region.

Table 2 UK vaccine coverage at two years of age for 3rd dose of oral polio vaccine

	Population	1999/20000	2000/2001	2001/2002	2002/2003	2003/2004
North East	25,981	96%	96%	95%	95%	95%
North West	77,043	95%	95%	95%	95%	95%
Yorkshire & Humber	53,453	95%	95%	94%	94%	94%
East Midlands	44,524	97%	97%	96%	96%	96%
West Midlands	59,857	96%	96%	95%	94%	95%
East of England	60,287	96%	96%	94%	95%	95%
London	93,794	91%	90%	89%	88%	88%
South East	85,667	95%	94%	94%	93%	94%
South West	48,166	96%	96%	96%	96%	96%
England	548,772	95%	95%	94%	94%	94%
Wales	33,317	96%	97%	95%	96%	96%
Scotland	55,642	98%	98%	98%	98%	97%
Northern	23,313	97%	97%	97%	96%	96%

* This is a case of polio in a UK resident, but it was acquired and diagnosed in India and no poliovirus was isolated for this case.

Vaccine policy

In September 2004, the UK vaccination programme replaced the use of OPV with inactivated vaccine (IPV). The schedule remains the same with three doses given in infancy (at 2, 3, and 4 months of age) with a reinforcing dose pre-school (aged between 3.5 and 5 years) and at school leaving (aged 15 years).

Information on polio containment

A final total of 2569 organisations, comprising National Health Service Hospital Trusts (including HPA Laboratories), private hospitals, private laboratories, biotechnology companies, government laboratories, environmental companies, universities, research institutes, and water companies were identified as laboratories that potentially hold poliovirus samples. All 2569 organisations replied to the first questionnaire, and replies have now been received from 100% of those who were sent the second questionnaire. The UK survey is now complete, and a final report has been sent to the World Health Organization (WHO), including a list of those laboratories that potentially hold poliovirus samples.

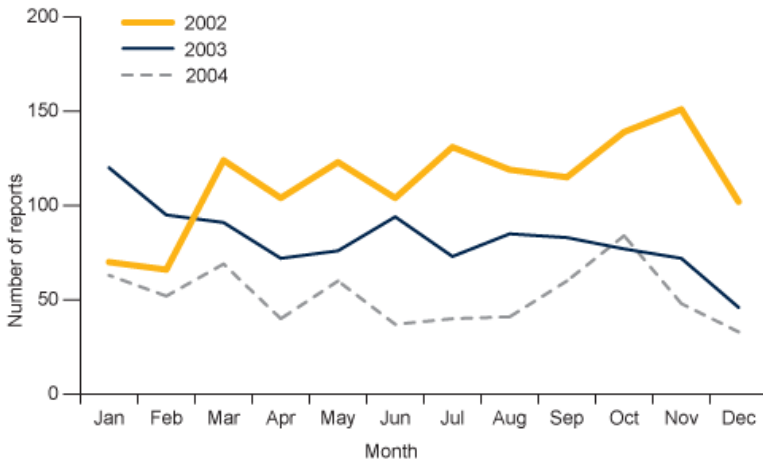
Further information on polio can be obtained from the HPA website at:
<http://www.hpa.org.uk/infections/topics_az/polio/menu.htm>.

Laboratory reports of hepatitis A in England and Wales: 2004

In 2004, 627 laboratory reports of confirmed hepatitis A virus (HAV) infections in England and Wales were made to the Health Protection Agency Centre for Infections (CfI), a decrease of 36% from the previous annual total of 984 (1). Monthly reports fluctuated with slightly more cases occurring in January (63), March (69), May (60), September (60), and a larger number of cases occurring in October (84) (figure 1). The majority of reports (51%) were of cases in adults aged between 15 and 44 years and 66% of these were men (table 1). There

appears to be an increase in the number of cases in all age groups over 45 years since 2003, except in the 45 to 54 years female age group. The highest number of reports (20% of the total) was from the Yorkshire and the Humber region.

Figure 1 Laboratory reports of hepatitis A in England and Wales: 2002-2004*



*provisional data.

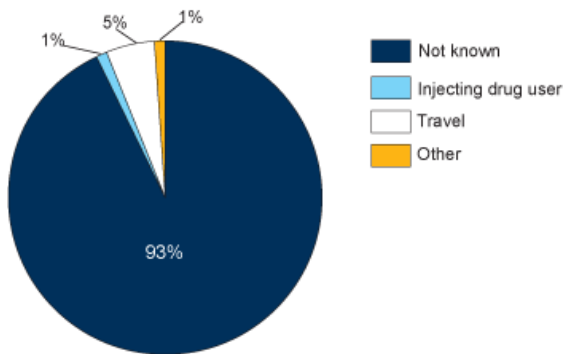
Table 1 Laboratory reports of hepatitis A to CDSC in England and Wales by sex and age group, 2004*

Age group	Male	%	Female	%	Not known	%	Total	%
<1	–	–	–	–	–	–	–	–
1-4	12	3.2	8	3.4	2	13.3	22	3.5
5-9	24	6.3	21	9.0	2	13.3	47	7.5
10-14	16	4.2	16	6.8	3	20.0	35	5.6
15-24	57	15.1	44	18.8	3	20.0	104	16.6
25-34	95	25.1	31	13.2	2	13.3	128	20.4
35-44	59	15.6	27	11.5	2	13.3	88	14.0
45-54	45	11.9	19	8.1	1	6.7	65	10.4
55-64	30	7.9	25	10.7	–	–	55	8.8
≥65	40	10.6	43	18.4	–	–	83	13.2
Total	378		234		15		627	

*provisional data

Only a small minority of reports (44/627, 7%) included information on risk factors in 2004 (figure 2). Travel (infection acquired abroad) was the most frequent, mentioned for 32 infections of those for which information was provided in the laboratory report. There were 19 named countries within the Indian subcontinent (Pakistan 13, India 6). Other reports named countries in Africa (six), south east Asia (four), and Europe (three). Only six reports mentioned intravenous drug use, a decrease on the 35 reports mentioning this information in 2003. Six reports of HAV infection mentioned other risk factors such as contact with HAV infection, food, and occupation.

Figure 2 Hepatitis A risk factor information for 2004



A decline in the number of laboratory reports of hepatitis A has been seen since 1991 (2), although this trend changed in 2002. The number of laboratory reports decreased in 2003 and again in 2004. Laboratory reports decreased by 36%, while notifications decreased by 34% in 2004 compared to 2003 (table 2), suggesting a real decline in cases.

Table 2 Laboratory reports and notifications to CDSC/CFI in England and Wales by region: 2003 and 2004*

Region	Laboratory reports			Notifications		
	2003	2004	% change	2003	2004	% change
North East	17	26	52.9	24	18	-25.0
Yorkshire & the Humber	270	124	-54.1	261	109	-58.2
East Midlands	202	64	-68.3	312	109	-65.1
East of England	23	43	87.0	22	35	59.1
London	47	60	27.7	121	170	40.5
South East	107	65	-39.3	130	118	-9.2
South West	82	61	-25.6	112	60	-46.4
West Midlands	125	70	-44.0	120	79	-34.2
North West	99	93	-6.1	77	59	-23.4
Wales	12	21	75.0	15	27	80.0
Total	984	627	-36.3	1194	784	-34.3

*provisional data

Comparing laboratory reports and notifications

Although the number of laboratory reports and notifications is generally of the same order of magnitude, the number of laboratory reports has tended to be lower than notifications. The ratio of notifications to laboratory reports increased from 1.2 in 2003 to 1.3 in 2004. The percentage difference between notifications and total laboratory reports was 31% in 2001 and fell to 2% in 2002, increasing to 17% in 2003 and then to 20% in 2004.

Regional trends

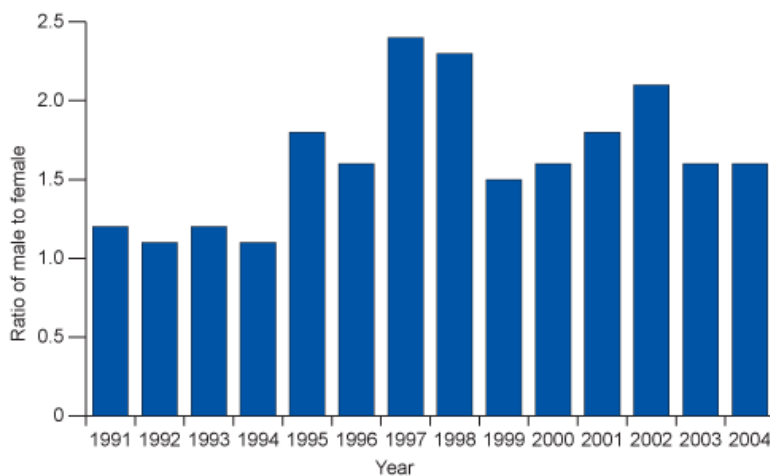
Between 2003 and 2004, the number of laboratory reports of hepatitis A was seen in six of the nine regions of England and Wales and ranged between 6% and 68% (table 2). The greatest decreases were seen in the East Midlands, Yorkshire and the Humber and West Midlands regions; 68%, 54%, and 44%, respectively. The East of England region saw the largest increase (87%) in laboratory reports.

Notifications generally followed the same trend as laboratory reports except for the North East, where laboratory reports increased but notifications fell. The discrepancy between numbers of laboratory reports and notifications in 2004 was greatest in London (ratio of notifications to laboratory reports of 2.8:1).

Outbreaks

The ratio of male to female cases of HAV infection has been consistently above 1 since 1995 (3). In 1997 and 1998 the ratio exceeded 2, probably reflecting outbreaks that occurred in men that have sex with men (MSM). In 2002, the male to female ratio of HAV infection was above 2 (figure 3), probably reflecting the numerous outbreaks that occurred in injecting drug users (IDUs) (4). This ratio decreased in 2003 to 1.6 and remained at 1.6 in 2004 suggesting that outbreaks in IDUs are being controlled (5). Further evidence that HAV reports are returning to pre-outbreak (2001) levels is that the percentage of cases in those aged between 15 and 44 years decreased from 66% to 51% from 2003 to 2004, and the number of reports with IDU as a risk factor decreased from 45% to 14%.

Figure 3 Ratio of male to female cases of hepatitis A, England and Wales: 1991 to 2004



Other outbreaks that occurred during 2004 included an outbreak of HAV in MSM in south east London with onset dates between mid-August and mid-September 2004 (6). There was also an outbreak during 2004 associated with travel to Egypt. Six cases were reported in England and Wales between the end of August and the end of September (7). These outbreaks could have contributed to the increase in laboratory reports during September and October (figure 1).

Priorities are to improve the completeness and quality of Hepatitis A virus surveillance. This involves detecting outbreaks as they occur to allow for possible intervention, and improving the reporting of risk factor information, as it is difficult to draw any concrete conclusions when the majority of reports lack any information.

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Laboratory reports of hepatitis C in England and Wales: 2004

Annual totals of confirmed laboratory cases of hepatitis C infection continue to rise as they have done each year since the 1990s. There were of 8090 cases of hepatitis C reported in 2004 (table), greater than the 6499 reported in 2003. The majority of cases (65%) in 2004 were in individuals aged between 25 and 44 years. The number of cases in males exceeded those in females in each quarter of 2004, the annual male to female ratio being 2.2:1. Laboratory reports confirm that most infections were in young adult males. Laboratory reports are not reliable in differentiating acute from long-standing infections. Laboratory reports of confirmed hepatitis C, therefore, reflect current laboratory testing patterns.

Table Quarterly laboratory reports of hepatitis C infection, England and Wales, by age group and sex: 2004*

Age Group (Years)	Jan-Mar (Q1)			Apr-Jun (Q2)			Jul-Sept (Q3)			Oct-Dec (Q4)			Total
	Male	Female	Not Known	Male	Female	Not Known	Male	Female	NK	Male	Female	Not Known	
01-04	8	7	–	1	2	–	2	4	–	6	4	–	34
05-09	1	2	–	2	1	2	2	1	–	1	1	–	13
10-14	1	–	1	3	1	1	2	2	1		2	–	14
15-24	145	92	7	83	84	5	130	76	4	85	82	3	798
25-34	577	246	15	380	194	13	427	245	10	404	162	11	2685
35-44	542	198	11	432	157	4	444	155	10	425	153	8	2539
45-54	246	77	6	224	75	4	210	80	2	231	95	2	1252
55-64	71	42	2	60	21	2	50	41	3	59	28	–	379
≥65	42	32	1	46	41	1	36	36	4	35	32	2	308
Not known	10	1	4	12	2	1	20	3	1	12	1	1	68
Total	1643	697	47	1243	578	33	1323	643	35	1258	560	27	8087

*Note, data based on date of specimen * provisional data.

Enhanced surveillance of meningococcal disease: April to June 2005

In the second quarter of 2005, enhanced surveillance of meningococcal disease ESMD* identified 573 cases of invasive meningococcal disease in the nine English regions, Wales, and Northern Ireland. This is a decrease of 33% on the total of 854 in the previous quarter and an increase of 8% on the total of 527 in the equivalent

quarter of 2004. Yorkshire and the Humber region reported the highest number of cases this quarter (86), although the highest rate was seen in Northern Ireland (table 1).

Table 1 Meningococcal disease by region: April to June 2005

Region	B	C	Other	Infection not confirmed	Total	Rate per 100,000*
North East	14	3	–	21	38	1.50
Yorkshire & the Humber	41	1	2	42	86	1.72
East Midlands	17	1	–	22	40	0.94
East of England	12	–	2	19	33	0.60
London	27	–	1	43	71	0.96
South East	15	–	1	35	51	0.63
South West	27	–	4	14	45	0.90
West Midlands	9	–	8	45	62	1.17
North West	42	1	1	35	79	1.16
Wales	22	–	1	13	36	1.23
Northern Ireland	16	–	–	16	32	1.88
Total	242	6	20	305	573	

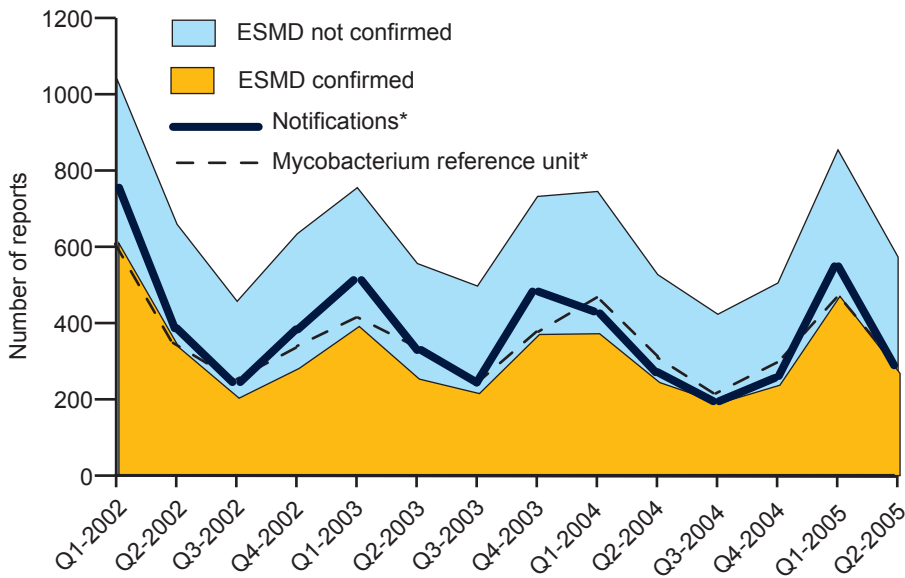
In England and Wales, a clinical diagnosis of invasive meningococcal disease was reported for 521 cases compared to 289 cases of meningitis and septicaemia officially notified to the Health Protection Agency Centre for Infections during the same period. This implies that approximately 55% of clinically diagnosed meningococcal disease is formally notified, although cross-checking to compare the identity of those notified to those reported in ESMD has not been carried out, therefore, under-notification may be even higher. The overall case fatality ratio in cases identified in ESMD (in England, Wales, and Northern Ireland) with a clinical diagnosis of meningitis alone was three per 100 cases, whereas the case fatality ratio for cases with septicaemia alone was four per 100 cases (table 2). The case fatality ratio of confirmed meningococcal disease (all diagnoses) was four per 100 cases.

Table 2 Clinically diagnosed cases (deaths) of meningococcal disease: England, Wales, and Northern Ireland: April to June 2005

Region	Meningitis	Septicaemia	Meningitis & Septicaemia	Not meningitis or septicaemia	Total
North East	16	13(1)	9(1)	–	38(2)
Yorkshire & the Humber	31(1)	25	25	–	81(1)
East Midlands	15	8	17(3)	–	40(3)
East of England	17(2)	12(2)	3(1)	–	32(5)
London	33(1)	23(1)	8	1	65(2)
South East	28(2)	9	13(1)	–	50(3)
South West	13	22(4)	7	–	42(4)
West Midlands	19	35	4	3	61
North West	32	34(1)	12(1)	–	78(2)
Wales	6	28	0	–	34
Northern Ireland	7 (1)	18(1)	4	3	32(2)
Total	217(7)	227(10)	102(7)	7	553(24)

Two hundred and sixty-eight of the 573 cases (47%) identified in ESMD were confirmed as *Neisseria meningitidis* infection, compared to 288 reports of laboratory confirmed meningococcal disease made to Meningococcal Reference Unit (MRU) in the same period (figure 1).

Figure 1 Number of confirmed and unconfirmed reports made to ESMD compared to notifications and MRU: January 2002 to June 2005

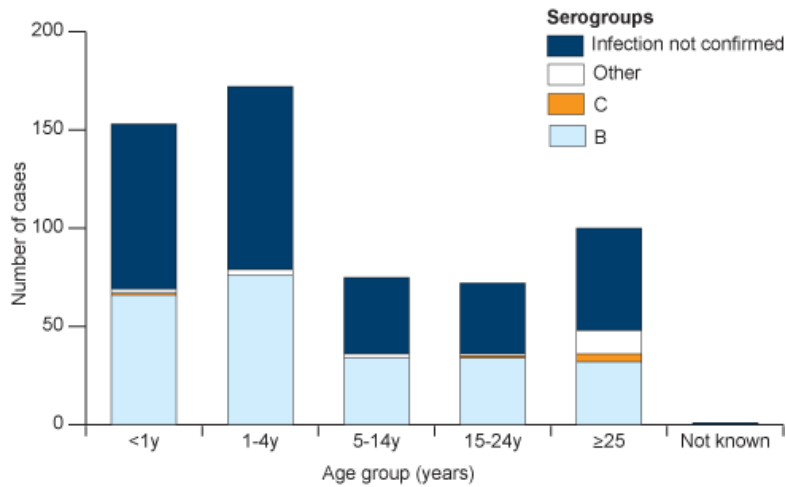


*Notifications and the MRU do not contain data from Northern Ireland.

Serogroup B *N. meningitidis* was detected in 90.3% (242/268) of confirmed cases identified in ESMD, serogroup C in 2.2% (6/268) and the remaining 7.5% included other serogroups (20/268). The latter consisted predominantly of serogroup Y (13/20), followed by ungrouped (4/20), non-groupable (2/20,) and serogroup W135 (1/20). Nine of the serogroup Y cases were reported from the West Midlands and they are currently investigating the increase in this group. Several types of group Y disease appear to be involved, so an outbreak of serogroup Y appears unlikely at this stage.

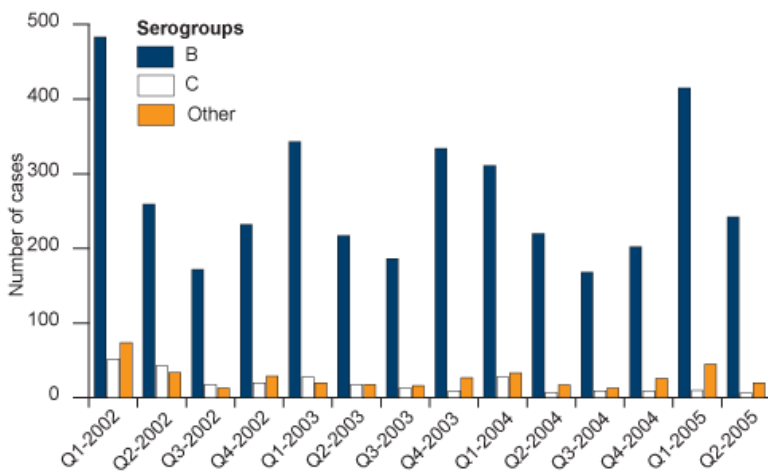
Over half (55%) of all confirmed cases were in children aged under five years. Serogroup B accounted for 96% of these infections, serogroup C accounted for less than 1%, and other serogroups for 3%. One serogroup C infection occurred in this age group of children (figure 2). The vaccination status for this case is unknown.

Figure 2 Serogroups of *N. meningitidis* identified in cases in England, Wales, and Northern Ireland by age: April to June 2005



As in the previous quarter, meningococcal disease attributed to serogroup B has increased by 9% (242 cases compared to 220 in 2004) this quarter compared to the equivalent period in the previous year (figure 3). Similarly, other serogroups and unconfirmed cases of meningococcal disease have also increased by 15% (20 cases compared to 17 in 2004) and 7% (305 cases compared to 283 in 2004), respectively. The number of cases of serogroup C meningococcal disease continued to decrease (six cases compared to seven cases in 2004) this quarter compared to the equivalent period in 2004.

Figure 3 Number of cases of meningococcal disease due to serogroups B, C and other serogroups: January 2002 to June 2005



Routine surveillance data have shown a decrease of 6% in clinical notifications (289 compared to 308 in 2004) this quarter compared to the equivalent quarter last year, while laboratory reports have increased by 5% (288 compared to 275 in 2004).

*Regional enhanced surveillance of meningococcal disease (ESMD) began on 1 January 1998 in five regions of England and was extended to include all English regions, Wales, and Northern Ireland from 1 January 1999. The national enhanced surveillance system relies upon consultants in communicable disease control (CCDC) reporting confirmed and probable cases of meningococcal disease occurring in their district each week. Data are collated at regional level and sent on to the Health Protection Agency Immunisation Department at the Center for Infections each month. These data are subsequently published quarterly in *CDR Weekly*. Additionally, CCDCs are asked to report details of any clusters of meningococcal disease occurring in educational establishments.

Results of the first year of mandatory-Glycopeptide-Resistant Enterococci (GRE) reporting: October 2003 to September 2004

Introduction

Reporting of bacteraemia caused by Glycopeptide-Resistant Enterococci (GRE) has been mandatory for NHS acute Trusts in England since September 2003(1). This scheme is operated by the Health Protection Agency on behalf of the Department of Health. Data are requested quarterly from each of the 173 acute NHS Trusts in England by Health Protection Agency (HPA) Local and Regional Services Division (LARS) and collated and analysed by the Centre for Infections (CfI - HPA).

This report describes the data collected during the first year of the mandatory surveillance scheme, October 2003 to September 2004.

The National Glycopeptide-Resistant Enterococcal Bacteraemia Surveillance Working Group recommended that the significance of blood cultures containing GRE should be assessed clinically². If a bacteraemia is found to be clinically significant and due to either a GRE or a GRE and other non-GRE organism(s), it should still be reported as a GRE bacteraemia.

Positive blood cultures from the same patient within 14 days of the initial culture are considered to be part of the original episode and should not be reported. All subsequent positive blood cultures more than 14 days apart should be reported as these are considered to be new episodes.

Enterococci from blood cultures should be tested for susceptibility to the antibiotic vancomycin. Teicoplanin is not an acceptable alternative to vancomycin for these purposes.

Methods

GRE reports are displayed here as total reports by quarter, by region, and also by Trust category. NHS acute Trusts are categorised according to type. This is based on the Trust types used for the *Staphylococcus aureus* mandatory surveillance scheme and agreed with HPA regional offices.

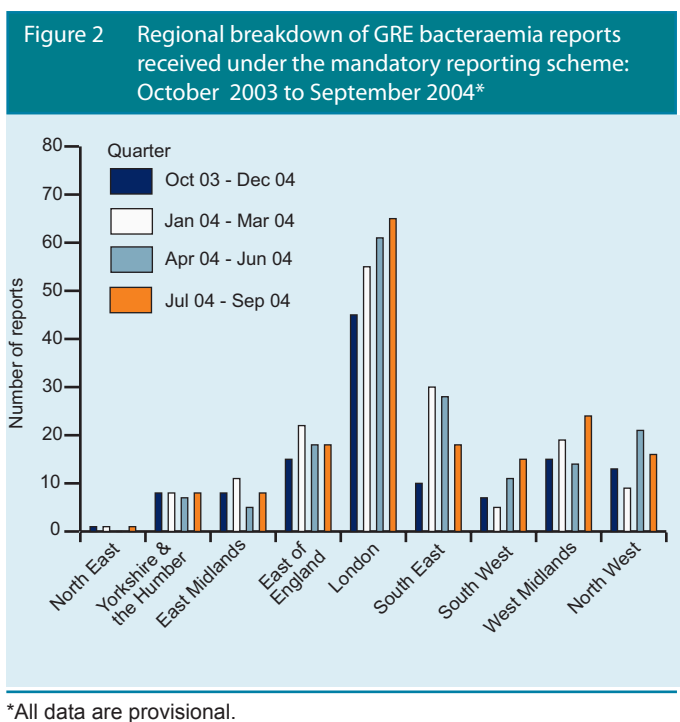
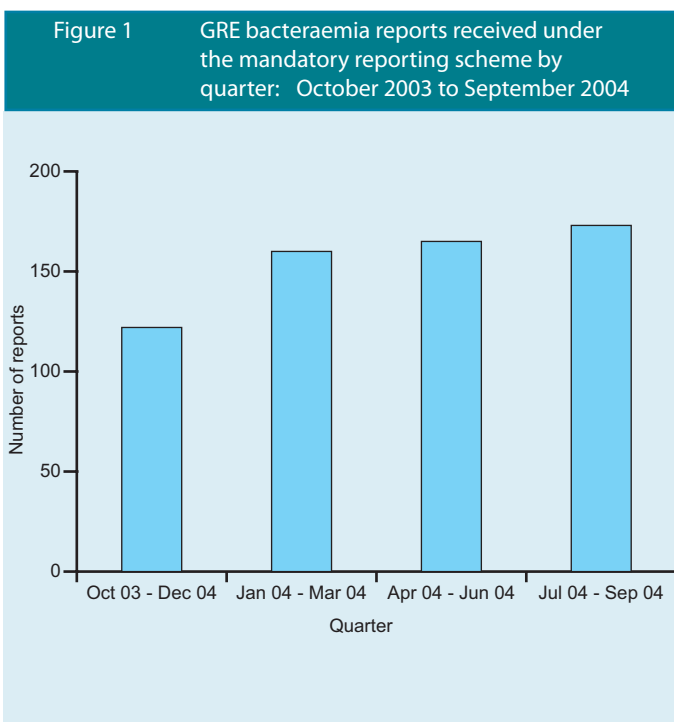
The three types of Trusts (and number of Trusts that reported in each category) are:

- **General Acute Trusts (109):** Trusts providing general acute healthcare services;
- **Specialist Trusts (45):** Trusts with specialist services which receive patients referred from other Trusts for these services;
- **Single Specialty Trusts (17):** Trusts undertaking health services for a particular specialty (eg, orthopaedics).

Results

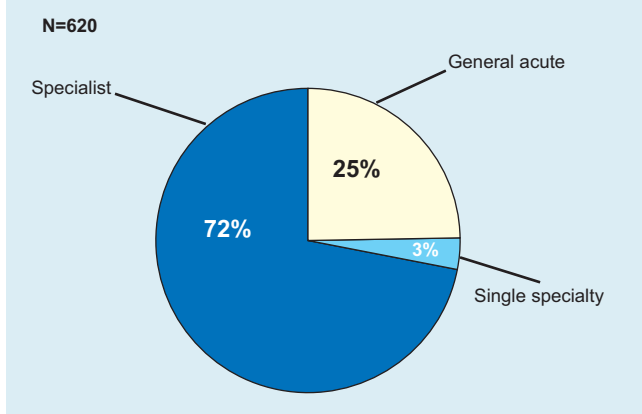
Between October 2003 and September 2004 the Health Protection Agency received 620 reports concerning GRE bacteraemia under the mandatory scheme, from 171 out of 173 acute NHS Trusts (two Trusts did not provide any data):

- Ninety-six Trusts reported at least one case of GRE bacteraemia during the year, but only fourteen Trusts reported more than ten cases of GRE bacteraemia.
- Seventy-five Trusts reported no cases of GRE bacteraemia.



*All data are provisional.

Figure 3 GRE bacteraemia reports received under the mandatory reporting scheme by Trust category: October 2003 to September 2004



A distribution of reports by quarter is shown in figure 1. The total number of reports appears to have increased each quarter, however, this pattern is not observed in each region, as shown by the regional breakdown in figure 2.

A direct comparison of the number of reports across regions is not possible as there is considerable variability in regional population sizes. Within regions, Trust mix is varied with differing numbers of General Acute, Specialist and Single Specialty hospitals. Figure 3 shows the percentages of reports by Trust category. The greatest number of reports was received from specialist Trusts, although specialist Trusts make up only 26% of the reporting Trusts.

Discussion

The quarterly increase in number of GRE bacteraemia reports observed in figure 1 is not observed across all regions. It should be noted that regions are not equal in population size and differ in their Trust mix with differing numbers of General Acute, Specialist, and Single Specialty Trusts. Most Trusts reported less than ten or, in many cases, no cases of GRE bacteraemia during the year.

At the Trust level, the number of GRE bacteraemia reports is affected by the case mix i.e. the types of patients treated which may be dependent on the specialist units that exist within a particular Trust.

GRE bacteraemia occurs mainly on specialist units, particularly transplantation, renal, haematological malignancy, and intensive care units (2). Since most GRE bacteraemia are likely to be associated with specialist units, the National Glycopeptide-Resistant Enterococcal Bacteraemia Surveillance Working Group recommended that reports of GRE bacteraemia should indicate the specialty in which the patient acquired the infection (2). Specialty data allowing analysis by case mix was not collected consistently during the first year of surveillance. Methodology for the collection of specialty data will be further developed for the third year of this surveillance scheme (starting October 2005).

It should also be noted that the patient may also have acquired the GRE infection in the community or while in another healthcare facility, however, the proportion of community versus hospital-acquired GRE bacteraemia are

not assessed in this scheme. Mandatory data concerning numbers and rates of GRE bacteraemia reported by individual NHS Trusts are published at: <http://www.dh.gov.uk/PublicationsAndStatistics/Publications/PublicationsPolicyAndGuidance/PublicationsPolicyAndGuidanceArticle/fs/en?CONTENT_ID=4118347&chk=Ifi3Za>.

Further information about GRE can be found on the HPA website at <http://www.hpa.org.uk/infections/topics_az/enterococci/default.htm>.

The most recent *CDR Weekly* report concerning *Enterococcus* spp bacteraemia data collected via the voluntary surveillance scheme can be found at <http://www.hpa.org.uk/cdr/archives/2005/Bact_Ent_1105.pdf>.

Acknowledgements

We are grateful to microbiology colleagues in NHS acute Trusts for their contributions to this mandatory reporting scheme, as well as efforts from colleagues in the regional offices of the Health Protection Agency.

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Results of the first year of mandatory *Clostridium difficile* reporting: January to December 2004

Surveillance of *Clostridium difficile* associated disease (CDAD) has been included in the mandatory healthcare-associated infection surveillance system for NHS acute Trusts in England since January 2004 (1). This scheme is coordinated by the Health Protection Agency (HPA) on behalf of the Department of Health. Data are collected quarterly by HPA Local and Regional Services Division (LARS) from each of the 169 acute Trusts in England that treat patients aged 65 years and over, and sent to the Centre for Infections (CfI, HPA) for national analysis. This is the age group among whom the available evidence shows CDAD to be most prevalent (children's Trusts are excluded).

This report describes data collected during the first year of the mandatory surveillance scheme, from January to December 2004.

Criteria for reporting

The National *Clostridium difficile* Standards Group recommended that clinicians and general practitioners send faecal specimens for microbiological analysis whenever a patient presents with diarrhoea of potentially infectious aetiology (2).

For the purposes of the mandatory surveillance scheme, microbiology laboratories should test diarrhoeal specimens for evidence of CDAD from all patients over 65 years old who have not been diagnosed with CDAD in the preceding four weeks. This is regardless of the presence or absence of any specific risk factors. Diarrhoeal stools are defined as those that take the shape of their container. Non-diarrhoeal stools should not be tested for CDAD.

Laboratories should test specimens for *C. difficile* toxin using either an immunoassay detecting both toxin A and toxin B, or a neutralised cell cytotoxicity assay. The method used should be subject to appropriate quality assurance.

The mandatory surveillance scheme does not distinguish between hospital and community-acquired cases. Even cases considered to be community-acquired should be reported by the Trust in which they are detected.

Methods

Rates of CDAD were calculated using the denominator of total bed-days for patients aged 65 years and over, ie the total number of nights spent in hospital by patients aged 65 years and over between April 2003 and March 2004 for each Trust. Bed-days were calculated using Hospital Episode Statistics (HES) data, supplied by the Health and Social Care Centre.

These data were used to derive the denominators for rate calculations by region and by Trust category. Data are provisional and will be updated when the bed occupancy figures for the appropriate period are available.

$$\text{Trust rate} = \frac{\text{Number of } C. \textit{difficile} \text{ reports for the time period} \times 1000}{\text{Total number of bed-days for patients aged 65 years and over for the time period}}$$

NHS acute Trusts are categorised according to type. This is based on the Trust types used for the *S. aureus* mandatory surveillance scheme and agreed with HPA regional offices. The three types of Trust (and number that reported in each category for all quarters) are:

- General Acute Trusts (109): Trusts providing general acute healthcare services
- Specialist Trusts (44): Trusts with specialist services which receive patients referred from other Trusts for these services.
- Single Speciality Trusts (13): Trusts undertaking health services for a particular speciality, eg orthopaedics.

Within regions, Trust mix is varied with differing numbers of General Acute, Specialist and Single Speciality Trusts.

Results*

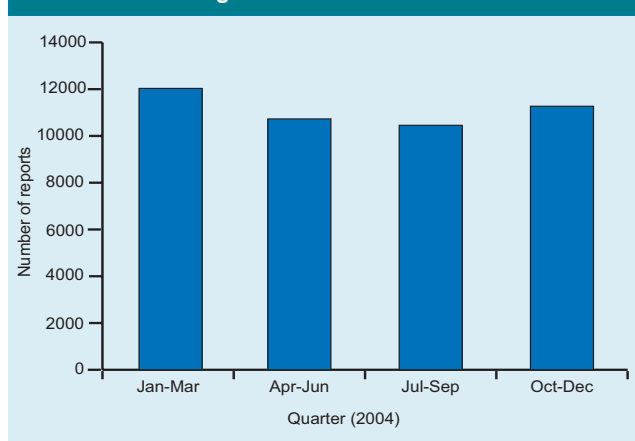
During the period January to December 2004, the HPA received 44,488 reports of CDAD from 166 out of 169 acute NHS Trusts (two Trusts did not submit any data, and one Trust did not submit data for three quarters). Four Trusts had no cases to report. A breakdown of the number of reports by quarter is shown in figure 1.

Most reports of CDAD were received during the winter months (January to March and October to December). The seasonality observed in figure 1 is not, however, observed across all regions. While most regions appear to have the highest number of reports during the January to March quarter, the South West reported their lowest quarterly total during this period, see figure 2. A direct comparison of the number of reports across regions is not possible as there is considerable variability in regional age structures and populations.

Figure 3 shows the regional rates of CDAD reports and their 95% confidence intervals. The highest regional rate

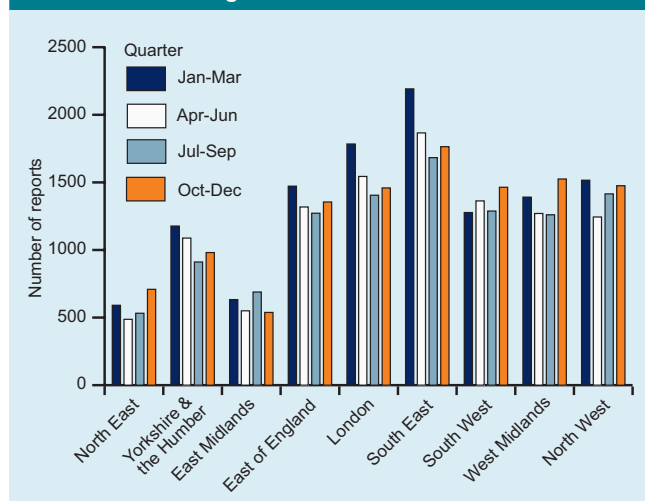
*N.B. All data are provisional.

Figure 1 *C. difficile* reports from patients aged 65 years and over, received under the mandatory reporting scheme in England during 2004*



*Provisional data.

Figure 2 Regional breakdown of *C. difficile* reports from patients aged 65 years and over, received under the mandatory reporting scheme in 2004



*Provisional data.

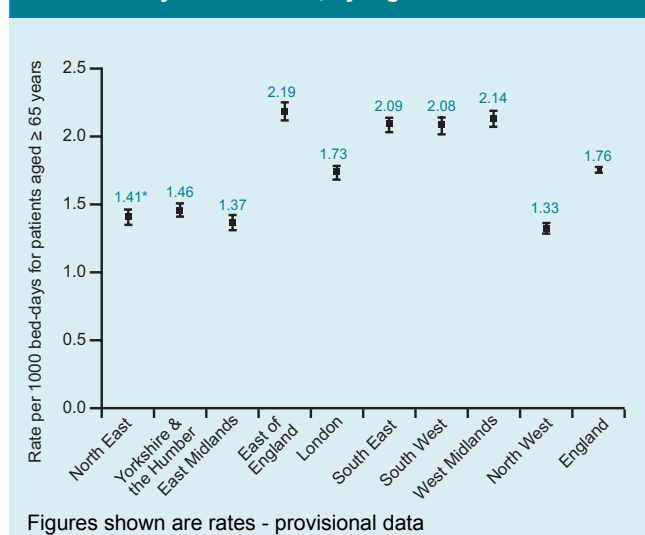
was in the East of England while the lowest regional rate was in the North West.

The comparison of regional rates is based on rates determined using the denominator of hospital-based patients over 65 years of age. This rate calculation does not consider the effect of a varying proportion of community patients diagnosed in Trusts. Rates for different Trust categories are shown in table 1. The highest rates of *C. difficile* reports were observed in Specialist and General Acute Trusts.

Discussion

Risk factors for CDAD include antibiotic exposure, a long length of stay in healthcare settings, and immunosuppression. Elderly patients are therefore more likely to be at higher risk from CDAD during the winter months. This may partly explain the pattern of reporting seen in figure 1, however it is important to note that this

Figure 3 Rate and 95% confidence interval of *C. difficile* reports from patients aged 65 years and over, by region in 2004



Figures shown are rates - provisional data

Table 1 Rate of *C. difficile* mandatory reports from patients aged 65 years and over by Trust category in 2004

Trust category	Rate of <i>C. difficile</i> reports per 1000 bed-days for patients aged 65 years and over
General Acute	1.69
Specialist	1.96
Single specialty	1.19

Provisional data

pattern was not observed in all regions (figure 2).

Differences in regional rates will be affected by the Trust mix within a region. For example, regions with higher rates of *C. difficile* reports may have more General Acute and Specialist Trusts than regions with lower rates.

At the Trust level, the rate of *C. difficile* is affected by the case mix, ie the types of patients treated, which will be dependent on the specialist units that exist within a particular Trust.

Patients may also acquire the *C. difficile* infection in the community or while in another healthcare facility; the proportion of community versus hospital acquired *C. difficile* cases is not assessed in this scheme.

Finally, it is important to note that these data are from the first year of the mandatory CDAD surveillance scheme and the recommendations from the National *Clostridium difficile* Standards Group may not have been followed consistently. The HPA is working closely with Trusts to improve both compliance with the reporting guidelines and ascertainment, where reports are incomplete or not returned.

Sampling scheme

Typing and susceptibility testing of *C. difficile* isolates is currently underway as part of the sampling phase of the mandatory reporting scheme which began in January 2005. Isolates collected by regional HPA laboratories from Trust hospitals within their region are submitted to the Anaerobe Reference Unit (ARU) in Cardiff for typing and susceptibility testing in accordance with a sampling schedule. The results from the *C. difficile* sampling scheme will be published when the first year of sampling is complete.

Further information about CDAD can be found on the HPA website at <http://www.hpa.org.uk/infections/topics_az/clostridium_difficile/menu.htm>

Mandatory data concerning numbers and rates of CDAD reported by individual NHS acute Trusts are published on the Department of Health website at <http://www.dh.gov.uk/PublicationsAndStatistics/Publications/PublicationsPolicyAndGuidance/PublicationsPolicyAndGuidanceArticle/fs/en?CONTENT_ID=4118344&chk=8JBr5/>.

The most recent *CDR Weekly* report concerning *C. difficile* data collected via the voluntary surveillance scheme can be found at <<http://www.hpa.org.uk/cdr/archives/2005/cdr2005.pdf>>.

Acknowledgements

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