






CDR WEEKLY

Current Issue: Volume 14 Number 29 Published on: 15 July 2004

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News

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-  [Cluster of cases of severe respiratory illness in a bone marrow transplant unit](#)
-  [Tuberculosis treatment outcome surveillance in England, Wales, and Northern Ireland: first results](#)
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Cluster of cases of severe respiratory illness in a bone marrow transplant unit

Since 28 May 2004, six children, at variable stages of post stem cell transplant, have been admitted to the paediatric intensive care unit (PICU) of Birmingham Children's Hospital (BCH) with severe respiratory symptoms. Dates of onset range from 28 May to 6 July. The age of the children ranges from 4 months to 14 years. All children have immunosuppressive illness, and the time of post-transplant to respiratory illness onset ranges from 11 to 125 days. The illness was characterised by fever, difficulty in breathing, and a subsequent need for admission to paediatric intensive care unit (PICU) for ventilation. The initial case died on 6 July. The observed incidence is reported by clinicians to be highly unusual for the six-week period over which this cluster occurred.

Four of the children fit the working case definition for: a case of severe respiratory illness of unknown aetiology (date of onset since 1 May 2004 and requiring PICU admission) acquired after admission to hospital, in a post stem cell transplant patient who received their transplant at the BCH. All four cases were either on the bone marrow transplant ward or the high dependency unit (HDU) section of the ward prior to the onset of illness. There is no history of respiratory illness in family members/close contacts within a two week period prior to date of onset in each of the four children concerned. In one of the other patients, the mother had a nasal discharge and other family members complained of slight sore throat.

Approximately one third of staff interviewed on the bone marrow transplant ward, also reported respiratory symptoms, mainly mild and transient, at some point during the month of June.

The case who died had a positive adenovirus PCR on blood shortly before death and one of the two patients not conforming to the case definition is positive for *Pneumocystis carinii*, rhinovirus and adenovirus PCR on respiratory secretions. Nasopharyngeal aspirate PCR testing for adeno, rhino and metapneumo viruses are negative on all cases, so far, and further testing is on going for parainfluenza and coronaviruses. Tests for influenza and respiratory syncytial virus were negative. Environmental sampling for Legionella is in progress and results are awaited, as are specimen results from symptomatic staff members. One of the other two patients is positive for *Pneumocystis carinii*, which is a likely explanation for his illness while the other patient appears to have been unwell with respiratory symptoms on admission.

The HDU end of the BMT ward remains closed until cleaning is complete. The cases have been cohorted on the PICU. Enhanced infection control measures are in place and being assured. Enhanced clinical surveillance has also been put in place. It has been agreed to open PICU without restriction to enable liver and small bowel transplants to continue. Staff with respiratory symptoms are being advised that they must stay off work.

Tuberculosis treatment outcome surveillance in England, Wales, and Northern Ireland: first results




The first annual report on tuberculosis (TB) treatment outcome surveillance is now available on the Health Protection Agency website: <http://www.hpa.org.uk/infections/topics_az/tb/menu.htm>. The implementation of continuous monitoring of treatment outcome began in 2002 as part of Enhanced Tuberculosis Surveillance. Outcome surveillance provides information that is useful in assessing the national effort to control TB.

Information on outcome at one year from the start of treatment was available for 79% of TB cases reported in 2001. Of those, 79% had completed treatment at one year. The proportion of treatment completion was significantly lower in patients with pulmonary TB (76%) than in extra-pulmonary cases (82%). Among cases with treatment not completed, 39% had died, 19% were lost to follow-up, 19% were still on treatment, 7% had treatment stopped or not completed with no reason reported, 5% were transferred out, and in 12% the outcome was reported to be unknown.

Outcome is strongly associated with age. The proportion of treatment completion was lowest (<50%) in those aged 80 years and over. This is mainly explained by the increased number of deaths in this age group.

These first results have demonstrated the feasibility and acceptability of treatment outcome monitoring and provide a starting point to allow monitoring of trends in the coming years. Efforts should, however, be directed towards increasing the proportion of cases with known outcome, ensuring the quality of data provided and improving the understanding of reasons for losses to follow-up. The protocol and outcome form will be updated in the light of these results and feedback from collaborators.

Highly pathogenic avian influenza (HPAI) outbreaks, south east Asia



Since 24 June 2004, an outbreak of highly pathogenic avian influenza A (HPAI) (H5N1) has been reported among poultry in Anhui Province, China, and outbreaks caused by a virus which has so far only been identified as H5 have been reported in provinces north of Bangkok, Thailand, and in the Mekong Delta of Viet Nam. There are no confirmed human infections in these countries. Further information is available from the World Health Organization (WHO) website at: <http://www.who.int/csr/disease/avian_influenza/en/>.

To date, it is unclear whether these outbreaks represent a continuation of the major outbreaks of the highly pathogenic avian influenza A (H5N1) virus earlier this year, or whether this is a new strain of the (H5N1) virus. Control efforts are underway, including the culling of poultry in the immediate vicinity of the outbreaks, vaccination of poultry within a wider area, and limiting the movement of people living in the affected areas.

The influenza A (H5N1) virus was responsible for widespread outbreaks of influenza in poultry in south east Asia earlier in 2004, which resulted in 23 human deaths in Viet Nam and Thailand.

The threat of avian influenza A (H5N1) to the United Kingdom (UK) remains low at this time. Updated information is available on the avian influenza section of the Health Protection Agency website at: <http://www.hpa.org.uk/infections/topics_az/avianinfluenza/menu.htm>.

There are no travel restrictions for persons travelling to affected countries in south east Asia. People should follow the previously recommended advice, which is to:

- Avoid visiting live animal markets and poultry farms
- Avoid contact with surfaces contaminated with animal faeces
- Refrain from attempting to bring any live poultry products back to the UK

Bacteraemia

Last updated: 13 July 2004
Next update due: 15 July 2004

[The third year of regional and national analyses of the Department of Health's mandatory MRSA surveillance scheme in England: April 2001 – March 2004](#)

The third year of regional and national analyses of the Department of Health's mandatory MRSA surveillance scheme in England: April 2001 – March 2004

Key points:

- Between April 2001 and March 2004 all acute NHS Trusts in England have participated in a mandatory MRSA bacteraemia surveillance scheme.
- This report describes MRSA data reported by NHS Trusts for the period between April 2003 to March 2004 and an analysis of the trends in methicillin resistant *Staphylococcus aureus* (MRSA) rates in hospitals in the first three years of the mandatory MRSA bacteraemia surveillance scheme in England (from April 2001 to March 2004). All 173 acute NHS Trusts from the nine English regions participated in this surveillance scheme.
- There has been an increase in the number of MRSA reports made in England in the first three years of the surveillance scheme. These have risen from 7250 in 2001-2002 (year 1) to 7647 in 2003-2004 (year 3) . This is a 5.5% increase in the number of MRSA bacteraemia reports over three years, of which 3.6% occurred in the third year of the scheme.
- There has been a year-on-year increase in the number of methicillin susceptible *Staphylococcus aureus* (MSSA) reports to the mandatory surveillance scheme. These have risen from 10,683 in 2001-2002 to 11,664 reports in 2003-2004.
- Over the three years of the scheme, there has been an overall significant increase in the rate of MRSA per 1000 bed days in England from 0.17 per 1000 bed days to 0.18 bed days, despite a significant decrease in some regions.
- There was a significant increase in the rates of both MRSA and MSSA in General Acute Trusts in England. In five of the nine English regions, the rate of MRSA significantly increased in the three years of surveillance. These are average trends and it is clear from the data that this increase does not apply to every General Acute Trust in every region.
- There were 3514 MRSA reports in Specialist Trusts in the third year of the surveillance, equating to a mean MRSA rate for this period of 0.24 per 1000 bed days. In Acute General Trusts 4045 MRSA reports were received, resulting in a mean rate of 0.16 MRSA reports per 1000 bed days and in Single Specialty Trusts 88 MRSA reports were made. The rate of MRSA per 1000 bed days in these Trusts was 0.09.
- Further investigation is underway to determine the impact of increased hospital activity, reporting biases from different interpretations of the guidelines and changes in case mix of patients attending acute general hospitals.

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Diary

Last updated: **15 July 2004**

For information about other conferences, courses, and events visit
http://www.hpa.org.uk/hpa/about_us/events.htm

[Uncertain Threats in an Uncertain World - managing major/catastrophic incidents](#)



Uncertain Threats in an Uncertain World - managing major/catastrophic incidents



A three-day residential course designed to develop and equip health economy managers at silver/tactical level to effectively manage major/catastrophic incidents. This is a three day (two night) residential course and full attendance is mandatory. The course venue is Hinxton Hall Conference Centre, Cambridgeshire and course dates are:

15 – 17th September 2004
2nd – 4th November 2004
1st – 3rd March 2005

Content

The course has been designed to develop and equip participants to effectively manage major/catastrophic incidents. The course emphasises the practical aspects of health crisis management, underpinned by strong theoretical knowledge

Accreditation

Retrospective accreditation is currently being sought from the University of East Anglia and the Health Protection Agency.

Course Objectives

- To develop and equip participants to effectively manage major/catastrophic incidents;
- To enable participants to demonstrate effective leadership in a crisis;
- To enable participants to apply the concepts of command and control;
- To enable participants to apply the ethos of integrated emergency management;
- To enable participants to promote collaborative working;
- To enable participants to develop an effective decision making process;
- To enable participants to recognise the importance of business continuity.

Who is it for

Health professionals at silver/tactical level involved in the management of major/catastrophic incidents – including:

- Ambulance/Hospital Acute Trusts
- BASICS Doctors/MIOs
- CCDCs/HPU
- HA Emergency Planning Leads
- Health Protection Agency
- Mental Health Trusts/LHPs
- PCTs/Special Trusts

Application Procedure

Places on each course are limited and will be dealt with on a first come, first served basis. Please complete the application form at the back of this prospectus and return it to ALPHA. We will acknowledge your application on receipt and, if your application is successful, we will send you joining instructions, including confirmation letter, maps, pre-course learning and agendas for all three days, as available.

Course Fees

The full course fee for the three day (two night) residential is priced at £500 per person due to sponsorship from the Health Protection Agency.

The fee includes:

- Course Manual
- details of pre-course learning
- information and support from tutors
- facilitated workgroups
- accommodation for two nights
- meals and refreshments
- Gala Dinner on Day Two

The fee does **NOT** include:

- additional overnight accommodation
- bar and any additional room charges~

Participants will be invoiced in advance of the course.

For further information, course fees and an application form, please contact: Beverley Challis, Project Manager (Training), ALPHA tel:01223 884224 fax: 01223 884801 email: <beverley.challis@alpha.nhs.uk>.

The South Yorkshire Health Protection Unit are organising a conference covering current issues in the control of Tuberculosis (TB). The conference is aimed at all sections of the health community who have contact with TB and those who are interested in learning more about this disease. Further details, with full programme of speakers will be sent out in the next few months.

Conference details:

Date: Tuesday 12 October 2004

Venue: Tankersley Manor Hotel, Barnsley
(close to junction 36, M1)

Time: 9:30 am – 4:30 pm

Topic areas to be covered by local and national speakers:

- Overview and management
- TB in primary care
- Control measures for TB
- Occupational Health measures
- TB / HIV co-infection

The cost of the full day (including lunch and refreshments) will be £25.00 with some assisted places available. Certificates of attendance will be issued, accreditation being sought. For further information or an application form please contact: Mrs J Beech, South Yorkshire Health Protection Unit, Hillder House, 49-51 Gawber Road, Barnsley. S75 2PY, tel: 01226 777 013
email: <julie.beech@barnsleypct.nhs.uk>.

The third year of regional and national analyses of the Department of Health's mandatory MRSA surveillance scheme in England: April 2001 – March 2004

Key points:

- Between April 2001 and March 2004 all acute NHS Trusts in England have participated in a mandatory MRSA bacteraemia surveillance scheme.
- This report describes MRSA data reported by NHS Trusts for the period between April 2003 to March 2004 and an analysis of the trends in methicillin resistant *Staphylococcus aureus* (MRSA) rates in hospitals in the first three years of the mandatory MRSA bacteraemia surveillance scheme in England (from April 2001 to March 2004). All 173 acute NHS Trusts from the nine English regions participated in this surveillance scheme.
- There has been an increase in the number of MRSA reports made in England in the first three years of the surveillance scheme. These have risen from 7250 in 2001-2002 (year 1) to 7647 in 2003-2004 (year 3). This is a 5.5% increase in the number of MRSA bacteraemia reports over three years, of which 3.6% occurred in the third year of the scheme.
- There has been a year-on-year increase in the number of methicillin susceptible *Staphylococcus aureus* (MSSA) reports to the mandatory surveillance scheme. These have risen from 10,683 in 2001-2002 to 11,664 reports in 2003-2004.
- Over the three years of the scheme, there has been an overall significant increase in the rate of MRSA per 1000 bed days in England from 0.17 per 1000 bed days to 0.18 bed days, despite a significant decrease in some regions.
- There was a significant increase in the rates of both MRSA and MSSA in General Acute Trusts in England. In five of the nine English regions, the rate of MRSA significantly increased in the three years of surveillance. These are average trends and it is clear from the data that this increase does not apply to every General Acute Trust in every region.
- There were 3514 MRSA reports in Specialist Trusts in the third year of the surveillance, equating to a mean MRSA rate for this period of 0.24 per 1000 bed days. In Acute General Trusts 4045 MRSA reports were received, resulting in a mean rate of 0.16 MRSA reports per 1000 bed days and in Single Specialty Trusts 88 MRSA reports were made. The rate of MRSA per 1000 bed days in these Trusts was 0.09.
- Further investigation is underway to determine the impact of increased hospital activity; reporting biases from different interpretations of the guidelines and changes in case mix of patients attending acute general hospitals.

Introduction

This report presents the results of the third year of the Department of Health's mandatory methicillin resistant *Staphylococcus aureus* (MRSA) bacteraemia surveillance scheme for all acute NHS Trusts in England. Results pertaining to the first and second years of the scheme have already been published (1,2).

Methods, data collection, and analysis

Data were collected quarterly from each acute NHS Trust in England by Health Protection Agency's (HPA) Local and Regional Services Division (LARS) and transferred to the HPA's Communicable Disease Surveillance Centre (CDSC) for national analysis.

The Department of Health's Healthcare Associated Infection Surveillance Steering Group was responsible for developing the dataset for this mandatory surveillance scheme. Methodological and interpretative information, including a glossary of terms, is published elsewhere (1).

To allow comparisons, NHS acute Trusts are categorised by the regions according to type. The three types are:

- General Acute Trusts: Trusts providing general acute healthcare services
- Specialist Trusts: Trusts with specialist services which receive patients referred from other Trusts for these services
- Single Specialty Trusts: Trusts undertaking

healthservices for a particular specialty, eg, orthopaedics or childrens' services

All analyses were performed according to the current configuration of Trusts. Data from merged

$$\text{Trust rate} = \frac{\text{Number of MRSA bacteraemias for time period} \times 1000}{\text{Average daily bed occupancy} \times \text{Number of days}}$$

Trusts were combined for pre-merger time periods. Regional analysis was performed using the English regional boundaries introduced in April 2002.

The latest overnight bed occupancy data from April 2002 and March 2003 were derived from the KH03 dataset provided by the Department of Health <<http://www.performance.doh.gov.uk/hospitalactivity/>>. These data were used to derive the denominators for rate calculations by Trust and by region.

Comparative data and trend analyses for the first three years of the surveillance scheme were based on these data.

This report is based on reports of *S. aureus* isolated from blood cultures in English Acute Trusts. Among the data items explored were the number of blood culture sets examined, which are defined as a sample arising from a single venepuncture, irrespective of the number of bottles tested, and the total number of positive blood cultures, which represent all positive results for bacterial growth, including repeat specimens and contaminants. One hundred and seventy-three NHS acute Trusts contributed to the mandatory surveillance scheme for MRSA in the period from April 2003 to March 2004.

Statistical analysis was performed by CDSC Statistics Department using commercial software*.

These data are used to monitor trends in MRSA bacteraemias. Trusts are provided with feedback to allow them an opportunity to compare their own rates compared to the national data.

These data should not be used as the basis for decisions on the effectiveness of interventions in individual Trusts without further investigations, as higher rates may be indicative of higher activity. Investigations are under way.

Results

Number of MRSA and MSSA isolates reported

Over the first three years of the mandatory surveillance scheme, the number of MRSA reports increased by 5.5%, this includes an increase of 3.6% in the third year of surveillance.

The number of methicillin susceptible *Staphylococcus aureus* (MSSA) reports increased in the first three years of the scheme, increasing from 10,683 to 11,664, an increase of 9.2%. This includes a rise of 4.8% in the third year of the surveillance scheme (table 1, figures 1 and 2).

Analysis of *S. aureus* rates (MRSA and MSSA)

The rate of MRSA reports in England has increased from

Table 1 Number of total *S. aureus* and MRSA reports in the first 3 years of mandatory MRSA surveillance

Year	Total <i>S. aureus</i>	MRSA
Year 1 (2001-2)	17,933	7250
Year 2 (2002-3)	18,519	7384
Year 3 (2003-4*)	19,311	7647

*Data still provisional

0.17 to 0.18 per 1000 bed days over the first three years of surveillance. This increase was significant for the third year of the surveillance, and was significant when analysed in a Poisson regression model (P=0.001). During this time period, the rate of MSSA also increased significantly, from 0.25 to 0.28 reports per 1000 bed days (P=0.001 in a Poisson regression model).

The percentage of *S. aureus* that was methicillin resistant has decreased from 40.4% in the first year of the scheme to 39.9% in the second year and 39.6% in the third year of the scheme, despite an increase of 6% in year 3 compared to year 2 in the number of blood culture sets with a 7% increase in positive sets (table 2 and figure 3).

Regional distributions

The number of acute NHS Trusts varies with the region, ranging from eight in the North East region to 32 in London. The highest resident population for 2002 was 8,037,140 in the South East and the lowest 2,513,274 in the North East. There is considerable variation across the regions in reports of the rates of MRSA bacteraemias per 1000 bed days made in the third year of mandatory surveillance. Rates were highest in the London region (0.25 reports per 1000 bed days) and lowest in the North West (0.14 reports per 1000 bed days) (figure 1).

The regional rates of MRSA reports per 1000 bed days are shown in figure 4 and the MSSA regional rates are shown in figure 5.

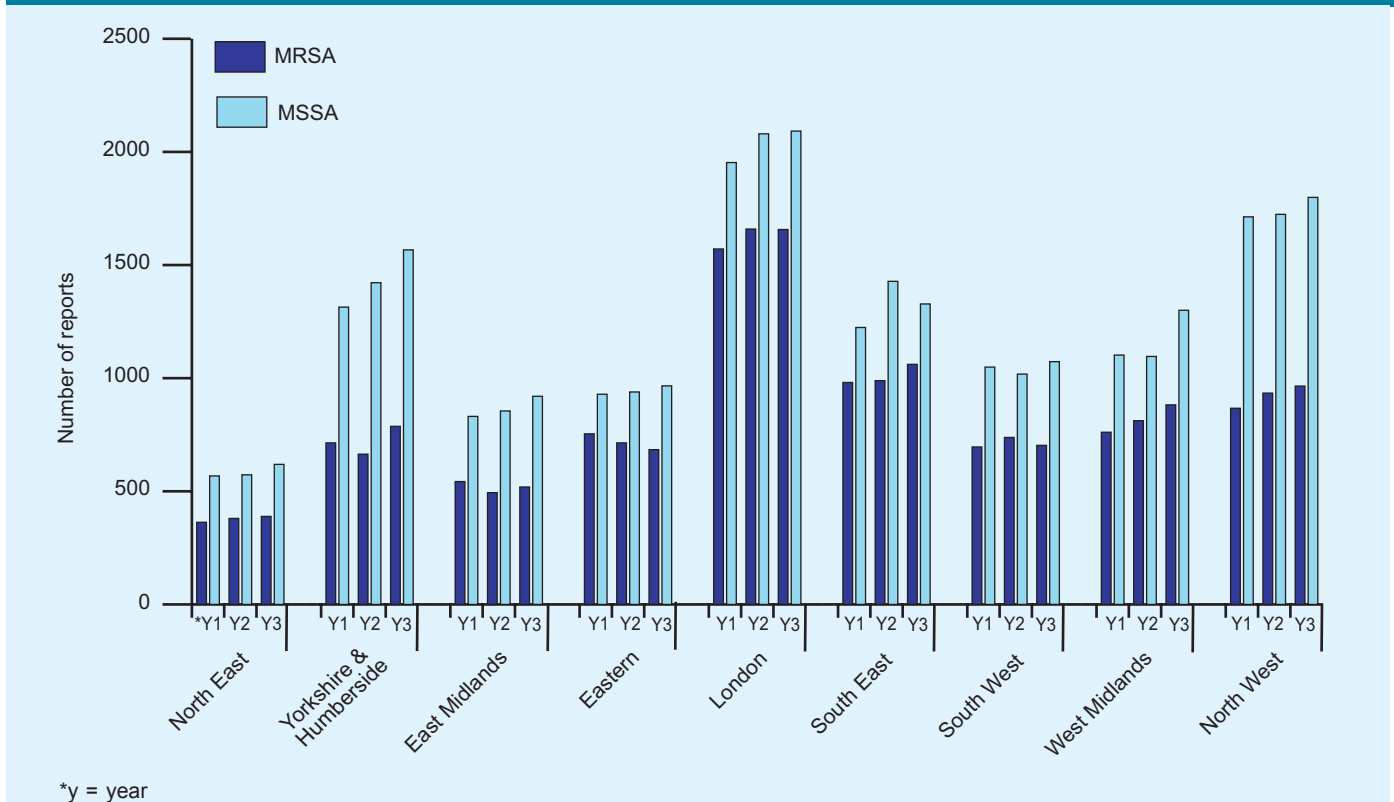
Table 2 Number of blood culture sets reported in the first three years of mandatory MRSA surveillance

	Total blood culture sets	Positive blood culture sets	% blood culture sets tested positive
Year 1 (2001-2)	1,450,615	242,902	16.74
Year 2 (2002-3)	1,488,370	246,068	16.53
Year 3 (2003-4*)	1,578,018	263,650	16.71

*Data still provisional

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

Figure 1 Number of MRSA/MSSA reports - first three years of mandatory surveillance



Results by Trust categorisation

Of 173 acute NHS Trusts in England, 110 Trusts were categorised as ‘general acute’, 45 as ‘specialist’, and 18 as ‘single specialty’ Trusts (1). MRSA bacteraemia rates varied according to the type of Trust. The lowest overall rate between April 2003 and March 2004 was in single specialty Trusts with a rate of 0.09 per 1000 bed days, ranging from zero to 0.28 reports per 1000 bed days. The highest overall rate was among the specialist trusts with a rate of 0.24 per 1000 bed days

(range of 0.07 to 0.45 reports per 1000 bed days between April 2003 and March 2004). The mean MRSA rate in general acute trusts is 0.16 per 1000 bed days with a range of 0.04 to 0.33 reports per 1000 bed days in the third year of surveillance.

General Acute Trusts

Further analysis by Trust category indicates that there was a significant increase in the MRSA rates per 1000 bed days of General Acute Trusts in five of the nine

Figure 2 Number of MRSA/MSSA reports in England - the first three years of mandatory surveillance

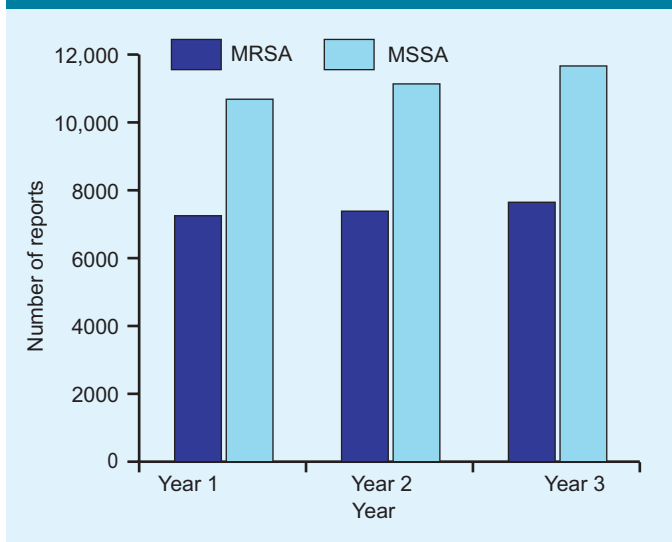


Figure 3 Total and total positive blood culture sets for the first three years of the mandatory MRSA surveillance scheme

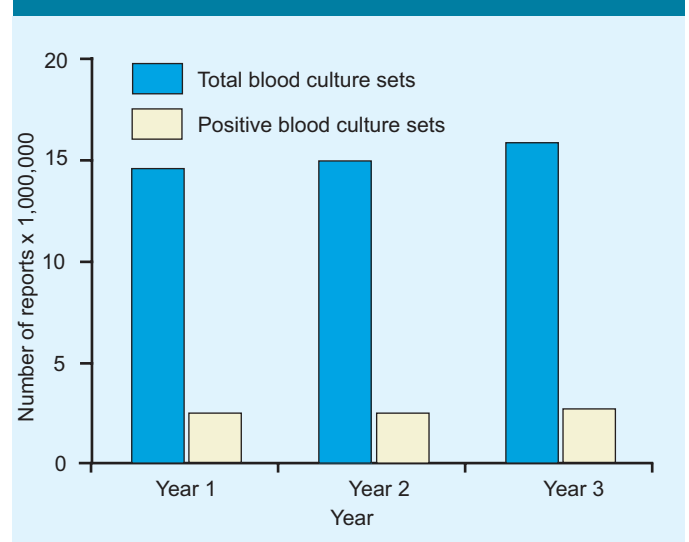


Figure 4 MRSA Rates from the first three years of mandatory surveillance by region

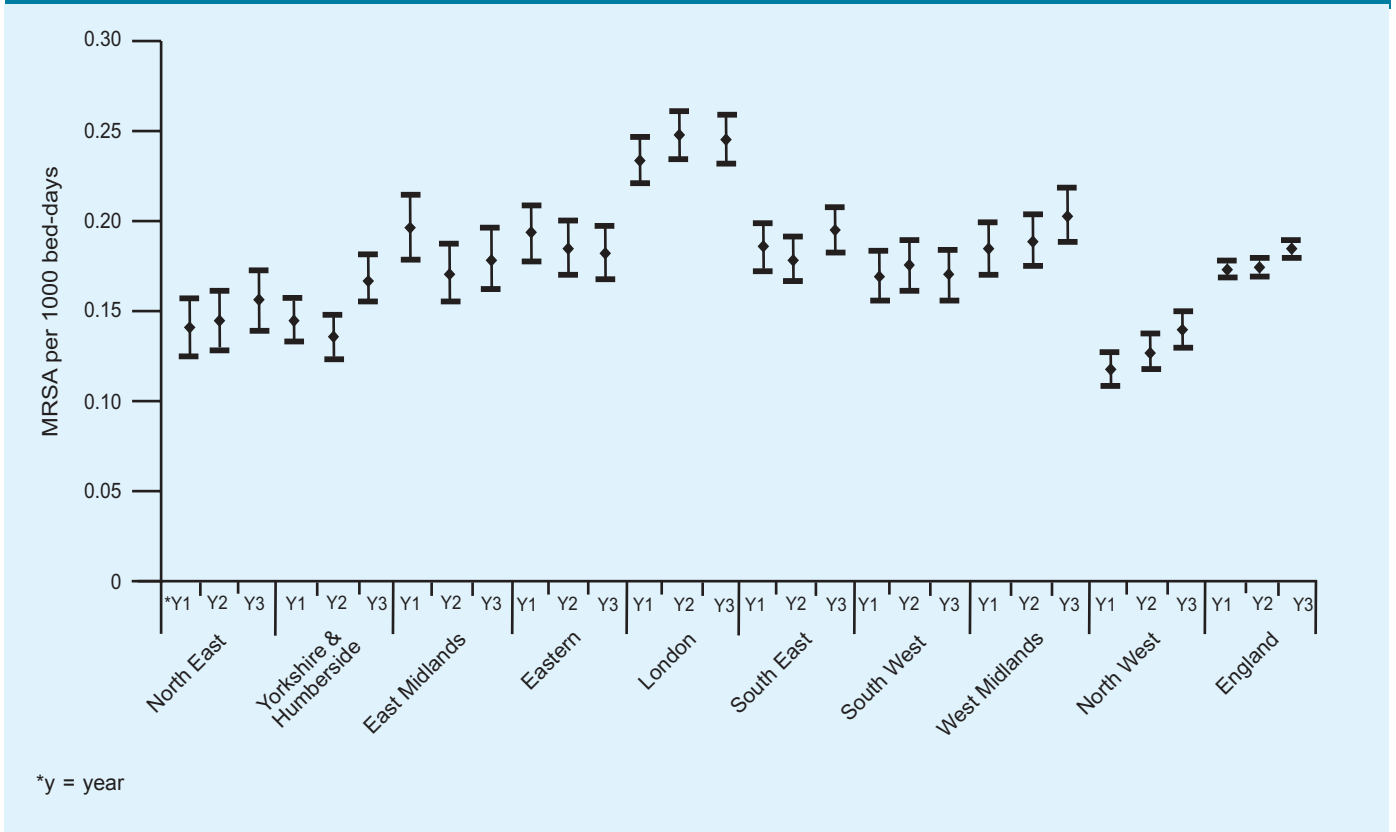


Figure 5 MSSA rates from the first three years of mandatory surveillance by region

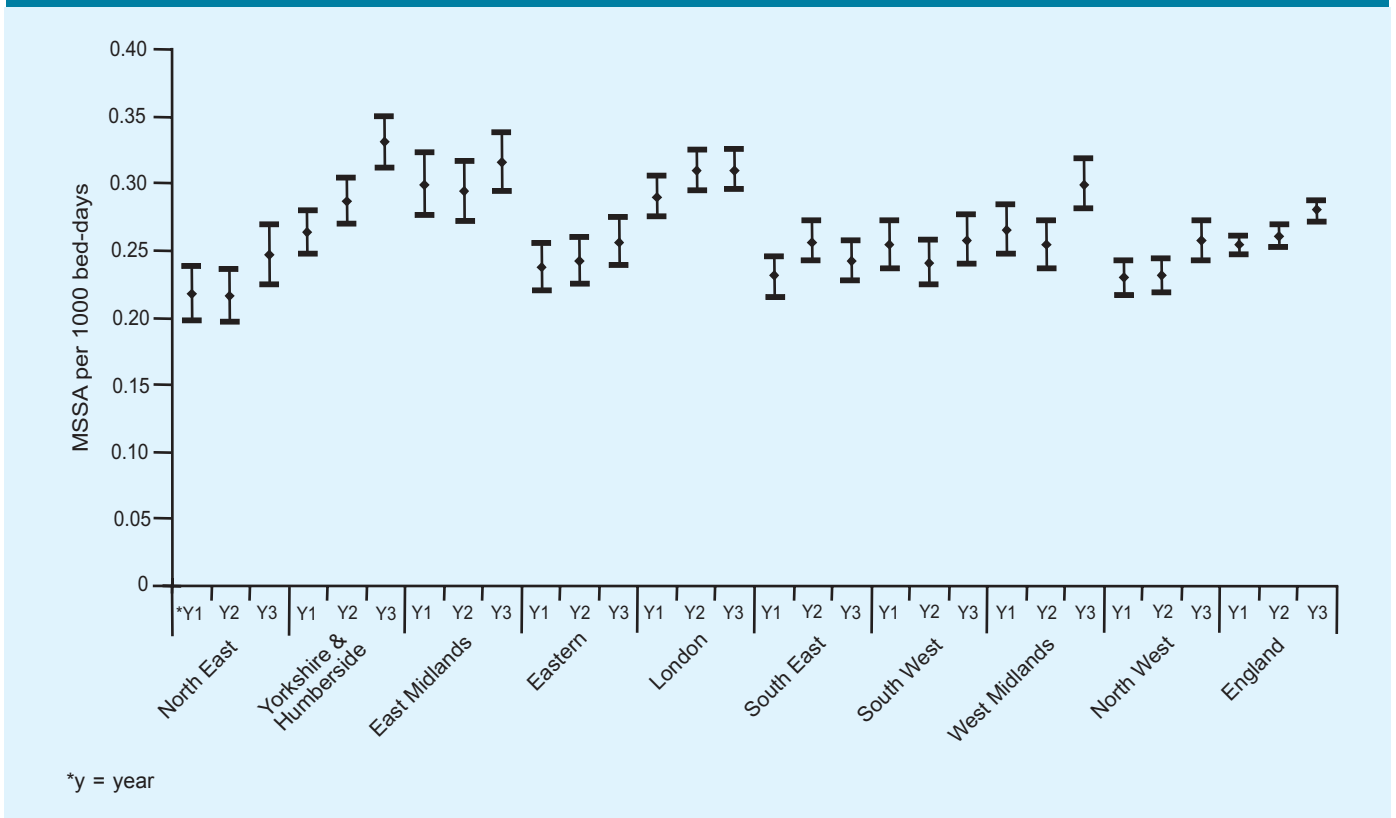
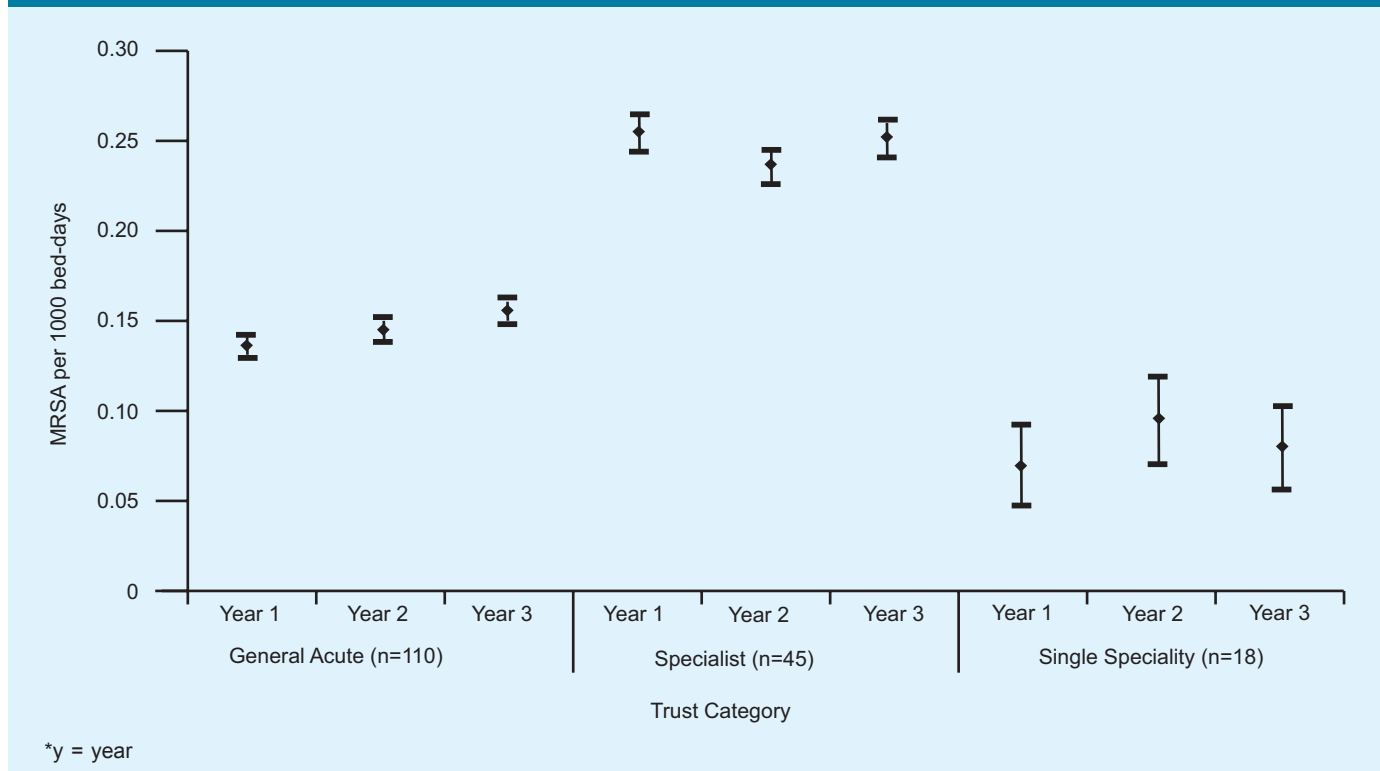


Figure 6 MRSA rates in different trust categories - the first three years of mandatory surveillance

regions in England over the three years of the surveillance scheme. There was a significant decrease in the rate of MRSA in General Acute Trusts in one region, and no significant change in General Acute Trusts in the three remaining regions.

Specialist Trusts

There was no significant change in the rate of MRSA reports per 1000 bed days in Specialist Trusts over the three years of the surveillance, although when the data was analysed on a regional basis three regions had a significant decrease in the rate of MRSA per 1000 bed days in specialist Trusts, three regions had a significant increase in the rate of MRSA, and three had no significant change in rate.

Single Specialist Trusts

There was no significant change in MRSA rates per 1000 bed days over the three years of the surveillance in single specialty Trusts and when analysed on a regional basis, and there were no significant changes in regional MRSA rates. Some single specialty Trusts have not reported any MRSA bacteraemias in the three years of the mandatory surveillance scheme. The rates of MRSA in different Trust categories are shown in figure 6.

Discussion

What interpretations are justified from these findings? Are these findings indicative of real changes in MRSA bacteraemia, or are the findings biased by other factors not taken into consideration by the nature of the surveillance scheme or the method of data collection? Possible alternative explanations for the findings (that

may apply as single or multiple factors) to explain the results reported from each individual Trust are:

- The measure of patient activity (the denominator) is not an accurate reflection of increased workload.
- Ascertainment of MRSA cases is not uniform.
- Patient case mix may have changed between specialist and general hospitals.
- Individual Trust results that are outliers in reporting may unduly influence the overall trends in that region. Hence the warning to users of this report, is that it needs to be read in conjunction with the Department of Health publication of individual Trust data <<http://www.dh.gov.uk/assetRoot/04/08/58/94/04085894.pdf>> because the overall regional aggregate reports will not accurately reflect an individual Trust's figures.
- The nature of this surveillance scheme does not enable accurate comparison of Trust infection control performance from these rates, as Trusts may have different types of patients acquiring MRSA outside the hospitals, but are counted as part of the Trust rates of MRSA because it was diagnosed and not contracted in the reporting hospital.

These reasons could explain local and regional variations in numbers and rates. Further investigation is in progress from the regional surveillance units into reviewing the local rates.

Factors that will be further investigated include:

- The extent to which infections are acquired outside the reporting hospital;
- Reviewing whether hospital activity is properly reflected in the denominator;
- Investigating whether the increase in numbers of

MSSA bacteraemias reflect increased ascertainment in hospitals and the community.

This further investigation will aim to reflect the impact of organisational and operational changes in the NHS on the findings of the MRSA mandatory surveillance scheme in an attempt to determine whether there is a real increase in MRSA bacteraemia requiring active intervention.

Unlike the publication of the results of the first year of the mandatory surveillance, this report does not include named Trust data, although the Chief Medical Officer (CMO) included the publication of such results on his website as an action point in *Winning Ways*, his report on healthcare-associated infection in England that was published in December 2003 (3). Named Trust data for April 2003 to March 2004 was published on the CMO's website on Wednesday 15 July.

Acknowledgements

The reports of mandatory surveillance of *S. aureus* are facilitated by contributions from Trust microbiologists, infection control teams, and the regional health protection teams who collect, collate and where necessary, validate these data. In addition, the support from colleagues within the Health Protection Agency, Communicable Disease Surveillance Centre (CDSC), CDSC Statistics Department and Specialist and Reference Microbiology Division, in

particular, is valued in the preparation and publication of these reports. These contributions are greatly appreciated.

We are always pleased to hear your views. Please send your comments/feedback to Andrew Pearson, email: andrew.pearson@hpa.org.uk or Allison Lee, email: allison.lee@hpa.org.uk. If you have a comment or query on the statistical methods referred to in this report, please contact André Charlett, email: andre.charlett@hpa.org.uk.

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1. PHLS. The first year of the Department of Health's mandatory MRSA bacteraemia surveillance scheme in acute NHS Trusts in England: April 2001 - March 2002. *Commun Dis Rep CDR Wkly* [serial online] 2002 [cited 10 June 2004]; **12**(25): Bacteraemia. Available at <<http://www.hpa.org.uk/cdr/PDFfiles/2002/cdr2502.pdf>>.
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