Public Health England

Health Protection Report
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Current News

Travel health

Infection Reports

Bacteraemia/HCAI

News

Volume 8 Number 32 Published on: **15 August 2014**

S. aureus bacteraemia (voluntary reporting) annual report

Recent trends in *Staphylococcus aureus* (*S. aureus*) bacteraemia incidence in England, Wales and Northern Ireland, and trends in antibiotic resistance, are described in the latest annual report on voluntarily reported laboratory data for 2013, published in the infection reports section of this issue of *HPR* [1].

In 2013, there were 9,533 voluntary reports of *S. aureus* bacteraemia, comprising 8,521 from England, 649 from Wales and 358 from Northern Ireland. This represents a 4.6% increase from the 9,117 episodes reported in 2012.

This increase is predominantly due to the 5.6% increase observed in meticillin susceptible *S. aureus* (MSSA), from 6,977 in 2012 to 7,368 in 2013, which is the first annual increase observed in MSSA since 2007.

In comparison, 1,001 meticillin resistant *S. aureus* (MRSA) bacteraemia episodes were reported in 2013, which represents a small decrease (2.1%) from the 1,022 reports in 2012. The number of MRSA bacteraemias has declined year-on-year since 2004, however the rate of decline has slowed considerably since 2011.

These trends are supported by data from the mandatory reporting system.

In both males and females, the highest rates of MRSA bacteraemia (9.7 and 3.8 per 100,000 population, respectively) were seen in those aged 65 years and over. Rates of MRSA bacteraemia were significantly higher in males than females only in the 45-64 years and the over 64 years age groups ($p<0.001$).

MSSA bacteraemia rates were significantly higher among males than females in all age groups, with the highest rate being in males over 65 (48.4 per 100,000 population), as is the case with MRSA. However, there was also a high rate of MSSA bacteraemia in the under-one-year of age group (41.3 per 100,000 population); the highest MSSA rate among females was in this age group (31.6 per 100,000 population).

The majority of MRSA tested in 2013 were resistant to ciprofloxacin (81.7%) and erythromycin (63.6%), continuing the pattern of the past five years, and indeed since the mid-1990s. While the prevalence of resistance, among MSSA-causing bacteraemias, to commonly used

antimicrobials for *S. aureus* infections has remained low over the last five years, there have been significant increases in fusidic acid and rifampicin resistance. However, the majority of MSSA remained susceptible to a broad range of antibiotics in 2013, including ciprofloxacin and erythromycin.

Reference

1. "Voluntary reporting of *Staphylococcus aureus* bacteraemia in England, Wales and Northern Ireland, 2013", *HPR* **8**(32): bacteraemia, 15 August 2014.

International outbreak of *Salmonella* Enteritidis affecting England, France and Austria

Public Health England (PHE) is investigating an outbreak of *Salmonella* Enteritidis PT14b in England that is possibly linked to outbreaks in France and Austria. Numbers of cases increased in June and July and this increase has been characterised by a series of local/regional outbreaks, primarily linked to restaurants and take aways serving Chinese food or similar cuisine [1]. Cases are currently defined as a resident of England infected with *S.* Enteritidis PT14b with the multi locus variable number tandem repeat analysis (MLVA) profile 2-12-9 -7-4-3-2-8-9 or 2-11-9-7-4-3-2-8-9 (the outbreak strain).

Since 1 June, localised outbreaks have occurred in Hampshire, London and Cheshire/Merseyside in addition to a largely hospital based outbreak in Birmingham. All cases linked to these outbreaks conform to the national case definition. Further cases fit the case definition but are not linked to known outbreaks. MLVA on further isolates is pending and investigations to establish links between cases are underway. Over 200 people have been affected to date.

Whole genome sequencing shows some heterogeneity within the outbreak strain but indicates that all isolates are closely related irrespective of geographical location in England. All isolates examined so far are fully sensitive to antimicrobials.

S. Enteritidis PT14b has been isolated from food and environmental samples taken in Birmingham, Hampshire and Cheshire and Merseyside. The MLVA profile of the food and environmental isolates originating from Cheshire and Merseyside is the outbreak strain.

Although no similar increase in cases or outbreaks of *S.* Enteritidis PT14b has been seen in Scotland or Wales, concurrent breaks of *S.* Enteritidis of the same or similar strains are under investigation in France and Austria.

French authorities are investigating six outbreaks of *S.* Enteritidis affecting 49 people to date. Isolates from cases and food samples largely conform to the outbreak strain. However, the use of phage typing is not uniform across Europe and is not used in France. Further work is being conducted by GBRU to confirm whether the French cases are PT14b. The outbreak under investigation in Austria conforms to the outbreak strain.

The current assessment suggests that a common source is responsible for these outbreaks taking account of the evidence that:

- there are concurrent outbreaks of the same or very similar strains of *S.* Enteritidis with a wide geographical distribution within the UK and in two EU member states
- background isolates of *S.* Enteritidis PT14b, acquired both abroad and within England, are very different to the outbreak strain indicating a different source of infection.

A PHE outbreak control team has been formed and further investigations of the England cases are underway. programme.

Updated guidance on gonorrhoea testing

PHE has published revised guidance – for commissioners of health services and service providers, and for laboratories – on good practice in gonorrhoea testing [1]. The new guidance takes account of the increasing availability of molecular “dual tests” for chlamydia and gonorrhoea (nucleic acid amplification tests, NAATs). This availability has led to the deployment of dual tests for samples collected for chlamydia screening by the National Chlamydia Screening Programme (NCSP), such that these samples are also being tested for gonorrhoea.

The NCSP – a programme of community-based opportunistic screening available to all sexually-active 15 to 24 year olds in England – is aimed at detection of the most commonly diagnosed bacterial sexually transmitted infection (chlamydia is 10 times more prevalent than gonorrhoea). Not only is gonorrhoea infection much rarer but incidence is more concentrated, both geographically and in particular risk groups, including men who have sex with men and black Caribbeans.

In low prevalence settings, the majority of initial positive gonorrhoea test results are likely to be false positives, suggesting that unselected screening would be of limited public health benefit. PHE has issued the new guidance to mitigate the potential harm associated with use of these tests in low prevalence settings.

A 2013 survey of local authority commissioners of sexual health services in England [2] found widespread use of dual tests for chlamydia and gonorrhoea on samples collected for chlamydia screening by the NCSP, suggesting that opportunistic screening for gonorrhoea has been occurring alongside chlamydia screening in many parts of the country where the prevalence of gonorrhoea is likely to be low. The new guidance highlights that there is no evidence to support widespread unselected screening for gonorrhoea in the UK.

Associated with the testing guidance are two supplementary documents: a gonorrhoea testing service specification template for commissioners, and a tool which supports decisions on gonorrhoea testing by estimating positive predictive values (PPVs) by clinical setting in each local authority in England [3].

References

1. PHE (August 2014). Guidance for the detection of gonorrhoea in England: including guidance on the use of dual nucleic acid amplification tests (NAATs) for chlamydia and gonorrhoea, PHE website.

2. Field N, Kennedy I, Folkard K, Ison C, Duffell S and Hughes G: results from a national survey of local authority commissioners (in press).

3. All documents are available from the PHE "Guidance for the detection of gonorrhoea in England " website page: https://www.gov.uk/government/publications/guidance-for-the-detection-of-gonorrhoea-in-england.

Travel health

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EVD in west Africa: PHE guidance documents for health professionals

The following guidance documents for UK health professionals relating to the Ebola virus disease (EVD) outbreak in west Africa were added to the PHE website during the past week. All can be accessed via the Health Protection Collection "Ebola virus disease: clinical management and guidance" landing page [1]:

- updated guidance, produced by the Advisory Committee on Dangerous Pathogens, on the management of viral haemorrhagic fevers (VHF) [2]. This includes information on the risk assessment of patients, infection control and prevention, laboratory testing, and public health actions. Associated with this guidance is an updated risk assessment algorithm [2] that should be used in conjunction with the guidance document;
- guidance for doctors (from PHE Microbiology Services) seeking advice on testing samples from patients with possible VHFs [3];
- guidance for clinical staff undertaking direct patient care in acute trusts to assist them in identifying and managing patients who require assessment for EVD [4];
- environmental cleaning guidance for potential Ebola contamination (excluding healthcare settings) [5];
- guidance for educational, childcare and young persons' settings where there may be children or students returning or visiting from Ebola-affected countries [6].

PHE's National Travel Health Network and Centre updated its advice for health professionals on 12 August [7].

References

1. "Ebola virus disease: clinical management and guidance", as at 18 August 2014.
2. Viral haemorrhagic fever: ACDP algorithm and guidance on management of patients (updated 13 August).
3. Viral Haemorrhagic Fever Sample Testing Advice (15 August).
4. Ebola virus disease: identifying and managing patients for assessment in acute trusts (15 August).
5. Ebola: environmental cleaning guidance for potential contamination (excluding healthcare settings) (13 August).
6. Ebola: advice and risk assessment for educational, childcare and young persons' settings (13 August).
7. National Travel Health Network and Centre Clinical Update (8 August 2014), http://nathnac.org/pro/clinical_updates/ebola_westafrica_120814.htm.

Public Health England

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Infection report

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Bacteraemia

Voluntary reporting of *Staphylococcus aureus* bacteraemia in England, Wales and Northern Ireland, 2013

These analyses are based on data extracted from the Public Health England (PHE) voluntary surveillance database (LabBase2) on 14 July 2014 for the period 2004-2013 in England, Wales and Northern Ireland. This report covers voluntary reports of bacteraemia due to *Staphylococcus aureus* (*S. aureus*). The analysis is limited to *S. aureus* isolated from blood cultures reported on LabBase2. The data presented here differ in some instances from data in earlier publications due to the inclusion of late reports. Hence, the number of reports for 2013 are provisional and maybe subject to change.

Rates were calculated using 2013 mid-year resident population estimates based on the 2011 census for England, Wales, and Northern Ireland [1].

Geographical analyses of reports from England used Public Health England Centre areas, created in April 2013, along with Wales and Northern Ireland.

The report includes analyses on the trends, age and sex distribution, geographical distribution and the antimicrobial susceptibility data in cases of bacteraemia.

Key points

- There were 9,533 reports in 2013, comprising 8,521 from England, 649 from Wales and 358 from Northern Ireland. This represents a 4.6% increase in the number of *S. aureus* laboratory reports compared with 2012 (9,117 reports). This increase is for the most part due to an increase in meticillin susceptible *S. aureus* (MSSA), from 6,977 in 2012 to 7,368 in 2013. Similarly, the total number of all bacteraemia episodes reported on LabBase2 have also increased by 3.6% between 2012 and 2013, from 109,166 to 113,056. In comparison, the total number of meticillin resistant *S. aureus* (MRSA) episodes have continued to decline over the same time period (1,022 in 2012 to 1,001 in 2013), albeit with a reduction of only 2.1% between 2012 and 2013.
- When the data are grouped by age and sex, the rate per 100,000 population of MRSA was significantly higher in males than females in both the 45-64 years and >64 years age groups. The rate for MSSA bacteraemia was significantly higher in males than females across all age groups. These patterns have been described in previous years.
- The majority of MRSA tested were resistant to ciprofloxacin (81.7%) and erythromycin (63.6%), continuing the pattern of the past five years and indeed, since the mid-1990s. While the prevalence of resistance to commonly used antimicrobials for *S. aureus* infections, among MSSA causing bacteraemias, has remained low over the last five years, there have been significant increases in fusidic acid and rifampicin resistance; however, the majority of MSSA remained susceptible to a broad range of antibiotics, including ciprofloxacin and erythromycin.
- The downward trend in MRSA reports since 2005 is supported by data from the mandatory reporting system, as is the recent rise in MSSA and overall counts of *S. aureus*.

Trends

The number of laboratories voluntarily reporting data for *S. aureus* bacteraemia has decreased from 185 in 2009 to 167 in 2013 (Table 1), probably due to consolidation of laboratories at NHS Trust level. The percentage of laboratories reporting drug susceptibility data remained fairly constant at 99% in 2009 and 98% in 2013.

Table 1. Laboratories reporting *S. aureus* bacteraemia, England, Wales and Northern Ireland: 2009-2013

	2009	2010	2011	2012	2013
No of *S. aureus* bacteraemia reports	**10,670**	**10,056**	**9,492**	**9,117**	**9,533**
Number of reporting laboratories	**185**	**185**	**180**	**171**	**167**
Laboratories reporting any susceptibility data	**99%**	**98%**	**98%**	**98%**	**98%**

Table 2. *S. aureus* bacteraemia laboratory reports recording meticillin* susceptibility (voluntary reporting scheme): England, Wales and Northern Ireland 2004 – 2013

Year	Total *S. aureus*	Total MRSA	% MRSA	Susceptibility data not given
2004	15,600	5,740	36.8	1,191
2005	15,239	5,683	37.3	968
2006	14,882	5,382	36.2	717
2007	14,103	4,230	30.0	615
2008	12,452	2,892	23.2	650
2009	10,670	1,847	17.3	1,242
2010	10,056	1,387	13.8	1,327
2011	9,492	1,071	11.3	1,182
2012	9,117	1,022	11.2	1,118
2013	9,533	1,001	10.5	1,164

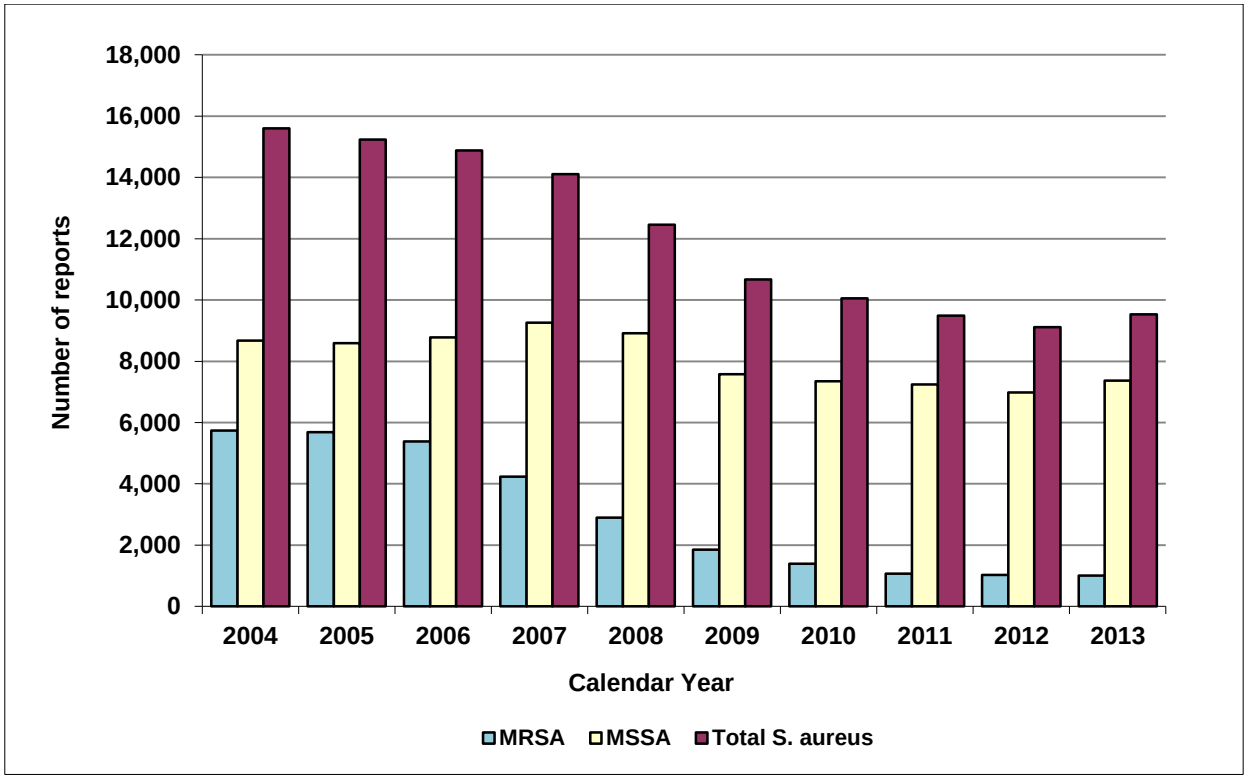
* Meticillin resistance defined as resistance to any one of the following: meticillin, oxacillin, flucloxacillin, cloxacillin and cefoxitin.

From January to December 2013, 1,001 (10.5%) of the *S. aureus* from blood cultures were reported as meticillin resistant (Table 2). This represents a small decrease from the 1,022 reports of MRSA in 2012. Although the number of MRSA bacteraemias has continued to decline year-on-year since 2004, this decline has slowed since 2011 (36.1%% reduction between 2008 and 2009, 24.9% between 2009 and 2010, 22.8% between 2010 and 2011, 4.6% between 2011 and 2012 and 2.1% between 2012 and 2013). In contrast, there was a 5.6% increase in MSSA reports between 2012 and 2013 (6,977 and 7,368, respectively) (Figure 1) resulting in an overall 4.6% increase in all *S. aureus* reports from 9,117 in 2012 to 9,533 2013. This was the first annual increase in the total number of *S. aureus* bacteraemias since 2003 and in MSSA since 2007.

One concern in terms of data quality is that 12.2% (n=1,164) of all *S. aureus* reports in 2013 did not have accompanying meticillin susceptibility data. This was considerably higher than the 615 reports (4.4%) with the same data missing in 2007; the year with the lowest number and percentage of non-reported meticillin susceptibility data in the last decade. The reason for this increase in 'non-reporting' of susceptibility data is not clear. The largest increases in both numbers and percentage of non-reporting of meticillin susceptibility were seen in Thames Valley, Kent, Surrey and Sussex and Northern Ireland. To investigate further, voluntary *S. aureus* reports with missing meticillin susceptibility testing data from England were matched against data in the mandatory surveillance scheme using either NHS number or a combination of Soundex code, date of birth and gender. Of the 1,164 *S. aureus* bacteraemia reports missing meticillin susceptibility data, 725 were mapped as English cases. Of these, 630 (87.0%) were successfully matched as either MRSA (n=57) or MSSA (n=573) cases reported to the mandatory

surveillance schemes, leaving only 95 (1.1%) of 8,521 English *S. aureus* bacteraemia reports without evidence of susceptibility testing against meticillin.

Figure 1. Trend in *S. aureus* bacteraemia laboratory reports and meticillin susceptibility (voluntary reporting scheme): England, Wales and Northern Ireland 2004-2013



Age and sex distribution

Figures 2 and 3 show the age and sex distributions as rates per 100,000 population for MRSA and MSSA bacteraemias reported voluntarily on LabBase2 for England, Wales and Northern Ireland: January to December 2013.

In both males and females alike, the highest rates (9.7 and 3.8 per 100,000 population, respectively) of MRSA bacteraemia were in the over 64 years age group (Figure 2). Rates of MRSA bacteraemia were significantly higher in males than females only in the 45-64 years and the over 64 years age groups ($p<0.001$).

The highest rate of MSSA bacteraemia in males was in the over 64 years age group (48.4 per 100,000 population), with a high rate also evident among those <1 year of age (41.3 per 100,000 population). The highest rate of MSSA bacteraemia in females was seen in the <1 year age group (31.6 per 100,000 population) (Figure 3). The rates for MSSA bacteraemia were significantly higher in males than females in all age groups ($p<0.001$ for age groups 1-14, 15-44, 45-64 and >64 years; $P<0.05$ for age groups <1 year; see Figure 3).

These overarching patterns in *S. aureus* rates are well established for both MRSA and MSSA bacteraemia, and have been described in previous years and are comparable to those seen in the mandatory surveillance data.

Figure 2. Age- and sex- specific meticillin resistant *S. aureus* (MRSA) bacteraemia voluntary reporting rates per 100,000 population in 2013, England, Wales and Northern Ireland

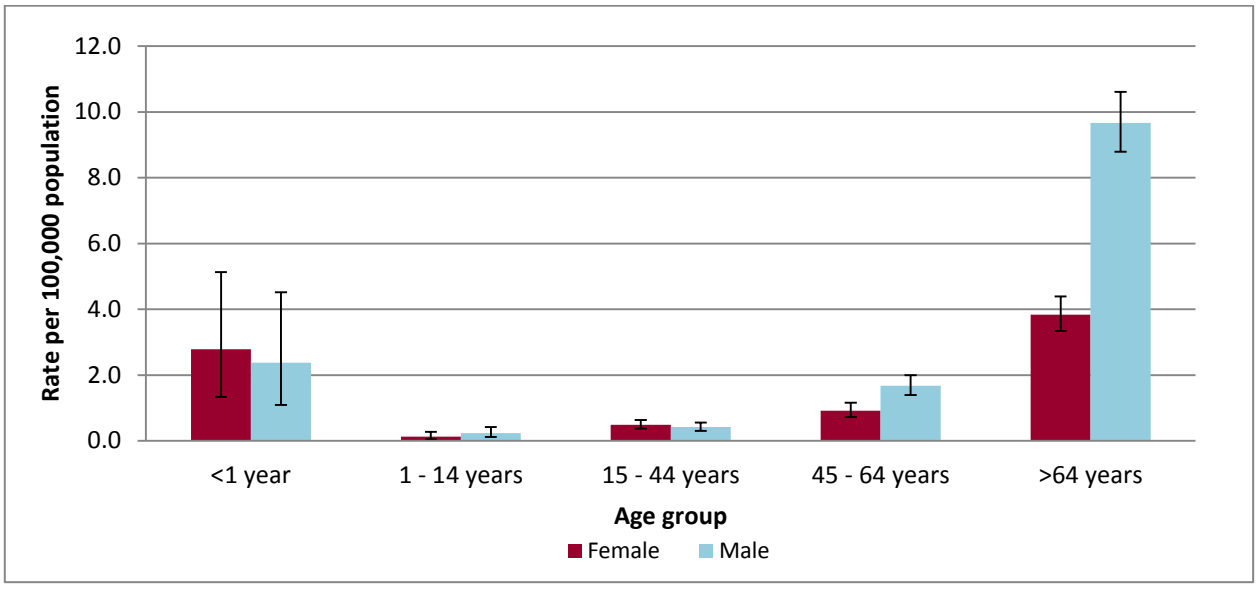
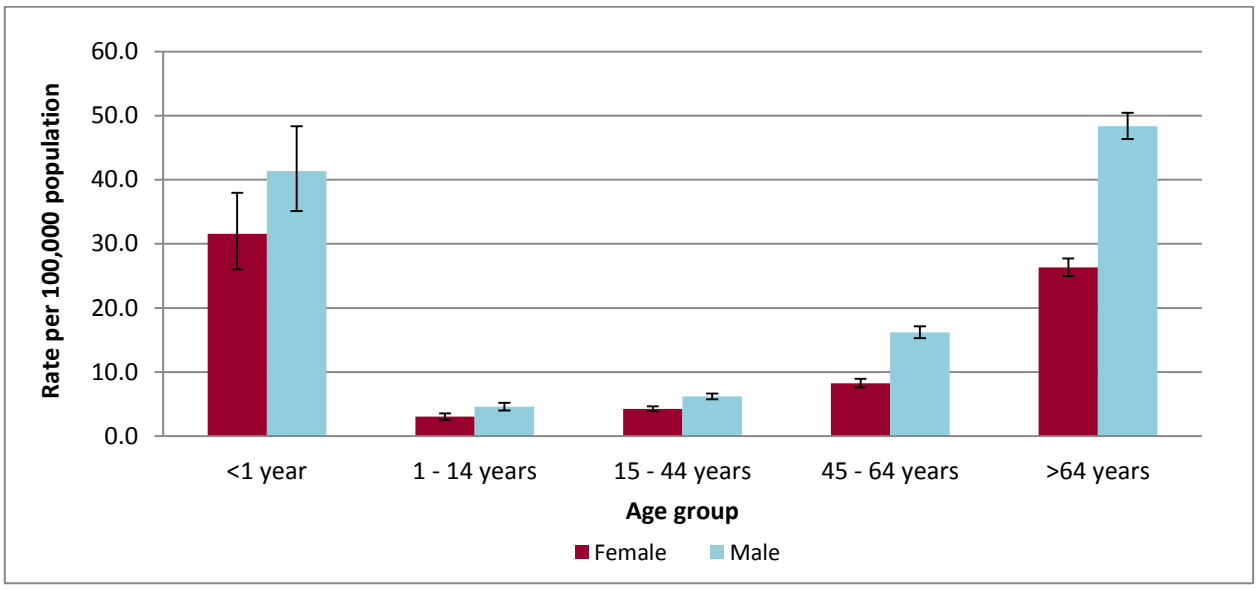


Figure 3. Age- and sex- specific meticillin susceptible *S. aureus* (MSSA) bacteraemia voluntary reporting rates per 100,000 population in 2013, England, Wales and Northern Ireland



Geographic distribution

Figure 4 shows region-specific rates of *S. aureus* bacteraemia in 2013. The overall rate of *S. aureus* bacteraemia in England, Wales and Northern Ireland was 16.2 per 100,000 population. Regions with the highest rates of infection include Cheshire and Merseyside (21.1 per 100,000) and Greater Manchester (19.2 per 100,000). Regions with lower incidence include Thames Valley (11.7 per 100,000) and South Midlands and Hertfordshire (12.5 per 100,000). Wales (21.1 per 100,000) and Northern Ireland (19.6 per 100,000) were the countries with the highest rate of infection, while England had the lowest rate (15.8 per 100,000).

Figure 4. Region-specific rates of *S. aureus* bacteraemia: England, Wales and Northern Ireland, 2013

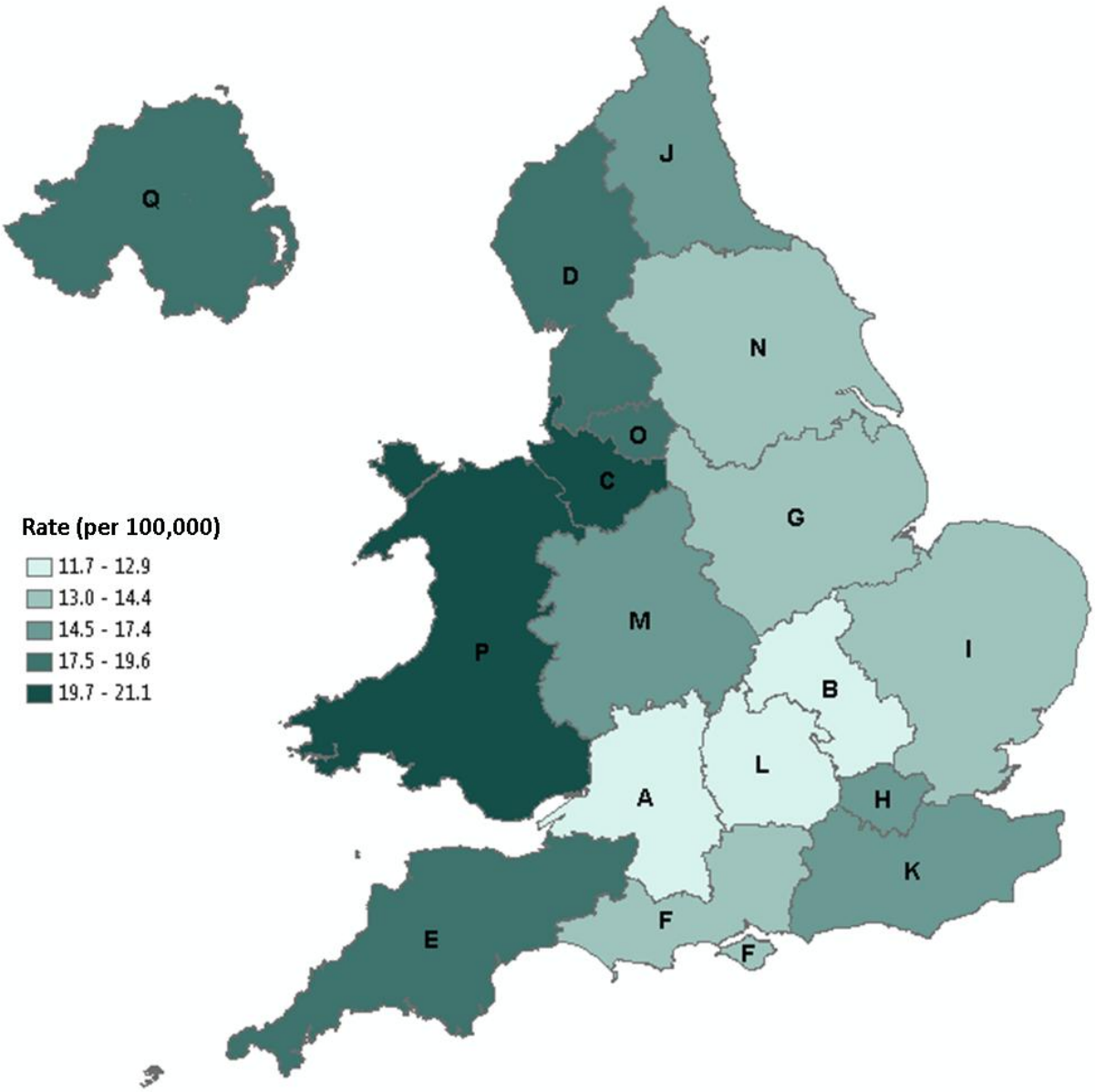


Table 3. Rate (per 100,000 population) of *S. aureus* bacteraemia, England, Wales and Northern Ireland: 2013

Key	PHE Centre	Rate (per 100,000 population)
A	Avon, Gloucestershire and Wiltshire	12.9
B	South Midlands and Hertfordshire	12.5
C	Cheshire and Merseyside	21.1
D	Cumbria and Lancashire	18.4
E	Devon, Cornwall and Somerset	18.6
F	Wessex	13.8
G	East Midlands	13.5
H	London	17.1
I	Anglia and Essex	14.3
J	North East	17.4
K	Kent, Surrey and Sussex	16.2
L	Thames Valley	11.7
M	West Midlands	16.7
N	Yorkshire and Humber	14.4
O	Greater Manchester	19.2
P	Wales	21.1
Q	Northern Ireland	19.6
-	England	15.8
-	**England, Wales & Northern Ireland**	**16.2**

Antimicrobial susceptibility

The two most common Healthcare-Associated MRSA clones in the UK are the epidemic strains, EMRSA-15 and -16 which are usually resistant to ciprofloxacin and erythromycin [2]. Most voluntarily reported MRSA were resistant to these antimicrobials, suggesting that EMRSA-15 and -16 continued to account for most of the MRSA bacteraemia reported under this scheme. Analysis of data from the British Society for Antimicrobial Chemotherapy Survey (www.bsacsurv.org) shows that, between 2001 and 2007, the proportion of EMRSA-16 decreased among all MRSA, while the proportion of EMRSA-15 increased [2].

Trends in resistance to key antimicrobials for MRSA and MSSA are presented in Figures 5 and 6.

A significant decrease in resistance to ciprofloxacin among MRSA isolates was observed from 2009 onwards (2009: 91.3%, 2010: 90.8%, 2011: 86.8%, 2012: 86.6% and 2013: 81.7%, $p<0.001$). Similarly, a significant decrease in resistance to ciprofloxacin in MSSA isolates was observed (2009: 8.3%, 2010: 7.6%, 2011: 7.5%, 2012: 7.0%, 2013: 6.9%, $p<0.01$). Fluoroquinolone resistance is relatively stable in EMRSA-15 and -16 thus the observational changes in prevalence may be due to some penetration by different clones [3]. In addition, a significant decrease in resistance to erythromycin in MRSA isolates was also observed from 2009 (69.8% in 2009 to 63.6% in 2013, $p<0.001$); this may reflect gene loss by EMRSA-15 and -16 or penetration by other lineages.

Resistance to mupirocin in MRSA isolates fluctuated between 6.9% and 9.8% between 2009 and 2013; however, resistance in MSSA isolates has remained less than 1% during the same time period.

Since 2009 there has been a general increase in the percentage of MRSA isolates that are resistant to fusidic acid (11.7% in 2009 to 18.3% in 2013, $p<0.001$). An increase in the percentage of MSSA isolates that are resistant to fusidic acid has also been observed; however, this increase has not been as steep, rising from 11.9% in 2009 to 13.5% in 2013 ($p<0.05$).

For rifampicin, there has been no clear resistance trend amongst MRSA isolates between 2009 and 2013; however, there has been a small but signficiant increase in rifampicin resistance between 2009 and 2013 amongst MSSA isolates (1.4% and 2.0%, respectively, p<0.01).

Laboratories are asked to send any isolates suspected to have full or intermediate glycopeptide resistance, or resistance to newer anti-staphylococcal agents (daptomycin, linezolid or tigecycline), to PHE's Antimicrobial Resistance and Healthcare Associated Infections (AMRHAI) Reference Unit, Colindale for characterisation, including to explore the emergence and spread of new clones.

Confirmed rates of resistance to vancomycin, tigecycline, linezolid and daptomycin all remain minimal, though it is notable that AMRHAI sees small numbers of isolates where mutational resistance to linezolid or daptomycin has been selected during therapy, and occasional isolates with the *cfr* gene, a transferable linezolid resistance mechanism.

Figure 5. Reported resistance of MRSA bacteraemia isolates to antimicrobial agents (voluntary reporting scheme): England, Wales and Northern Ireland 2009-2013

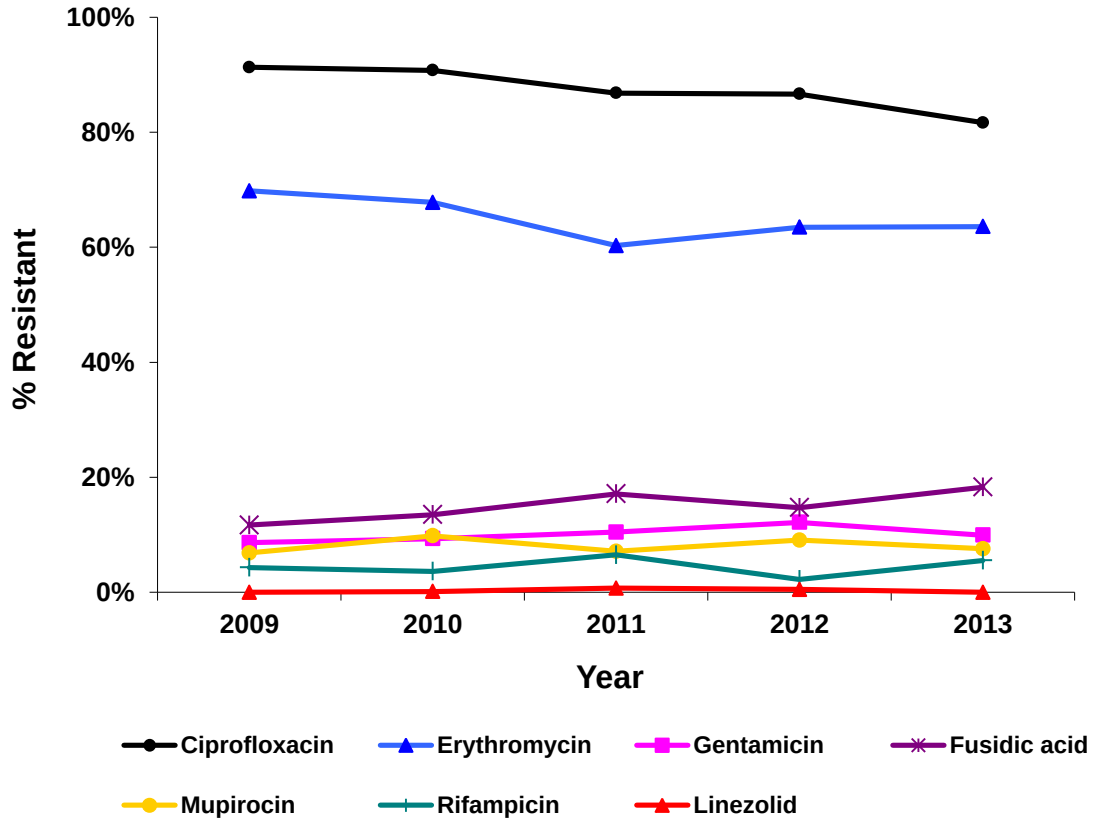
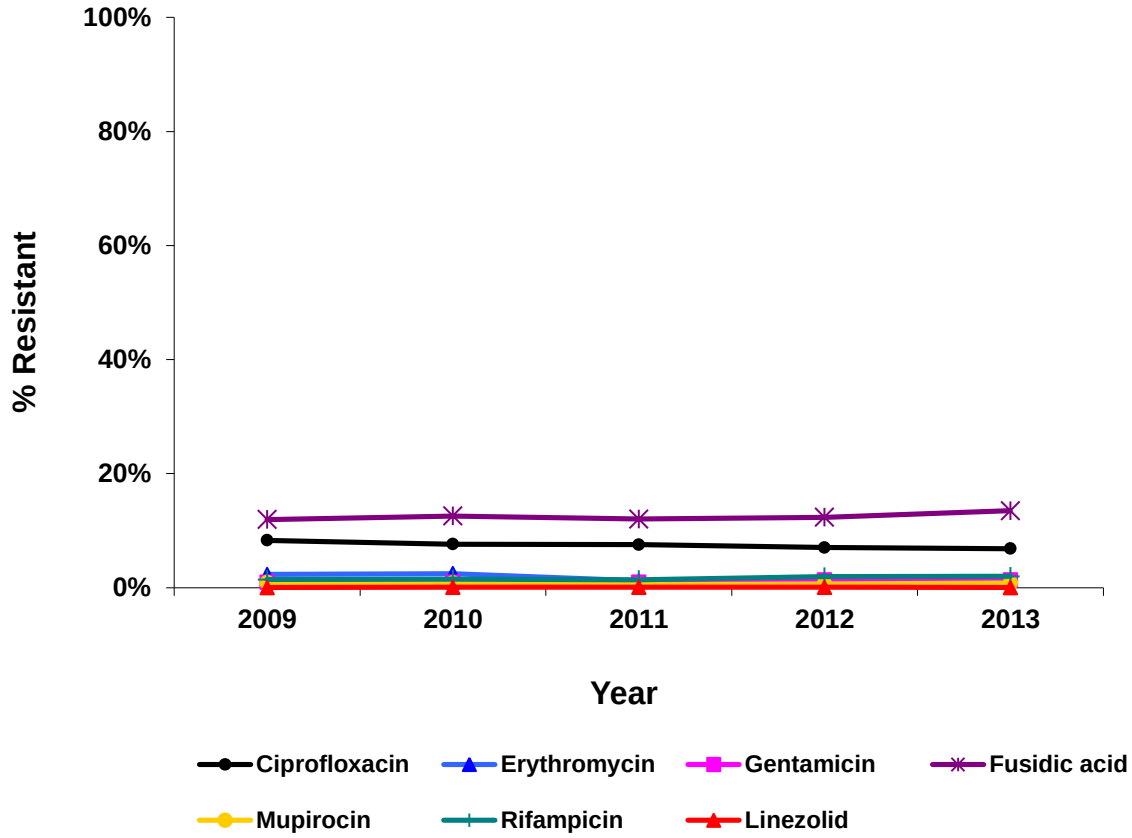


Figure 6. Reported resistance of MSSA bacteraemia isolates to antimicrobial agents (voluntary reporting scheme): England, Wales and Northern Ireland 2009-2013



Completeness of reporting through the voluntary reporting scheme

NHS acute Trusts in England are required to report all MRSA bacteraemias via a web-enabled mandatory enhanced surveillance system, which is run in parallel to the voluntary system. The total number of *S. aureus* bacteraemia is returned by each Trust as an aggregate through the Quarterly Mandatory Laboratory Returns process. From these two datasets it is possible to derive an estimate of the number of MSSA bacteraemia. Data shown here were for England only (Note: Wales and Northern Ireland do not take part in the English mandatory surveillance scheme). The number of reports in the mandatory reporting system remains consistently higher than in the voluntary system. The number of *S. aureus* reports received under the voluntary system is typically 85% of the total received through mandatory surveillance, however importantly, data from both systems demonstrate the same trends over the past 10 years.

Figure 7. Annual number of *S. aureus* bacteraemia reports received via the voluntary and mandatory surveillance schemes in England, 2004-2013

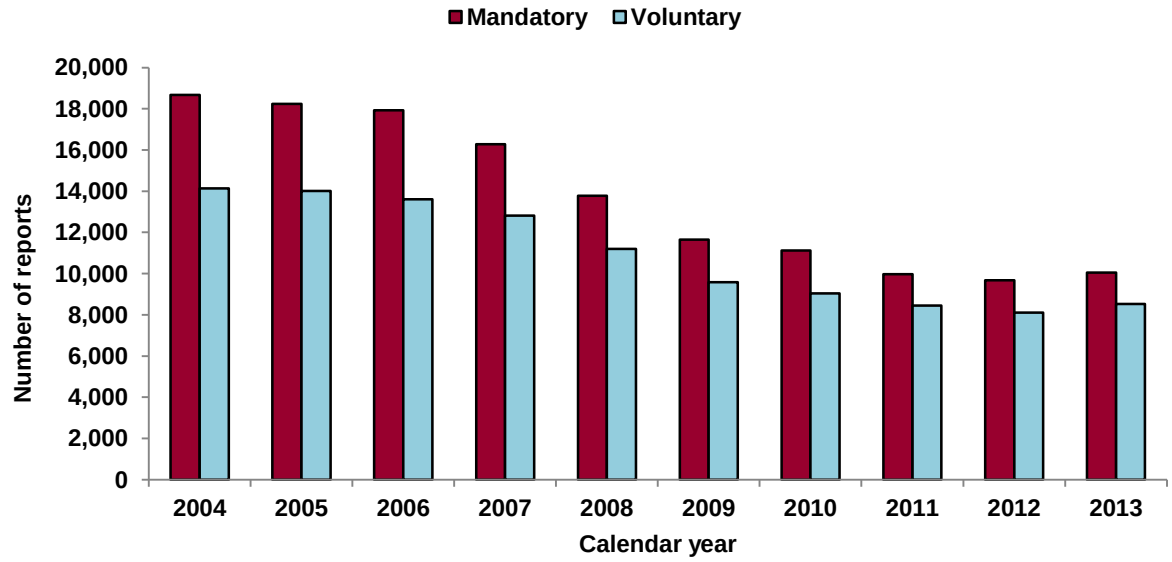


Figure 8. Annual number of MRSA bacteraemia reports received via the voluntary and mandatory surveillance schemes in England, 2004-2013

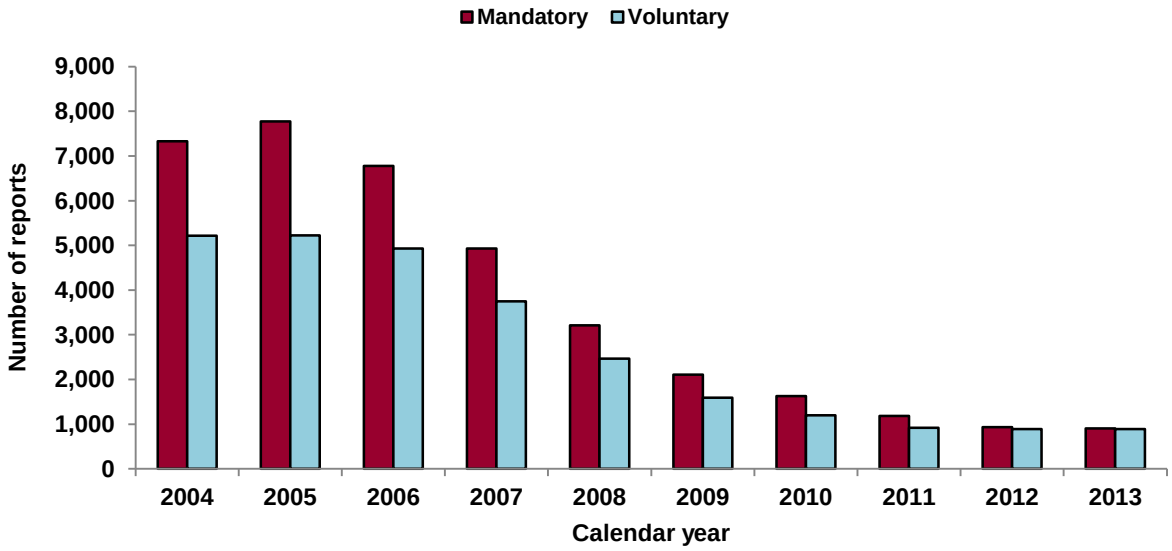
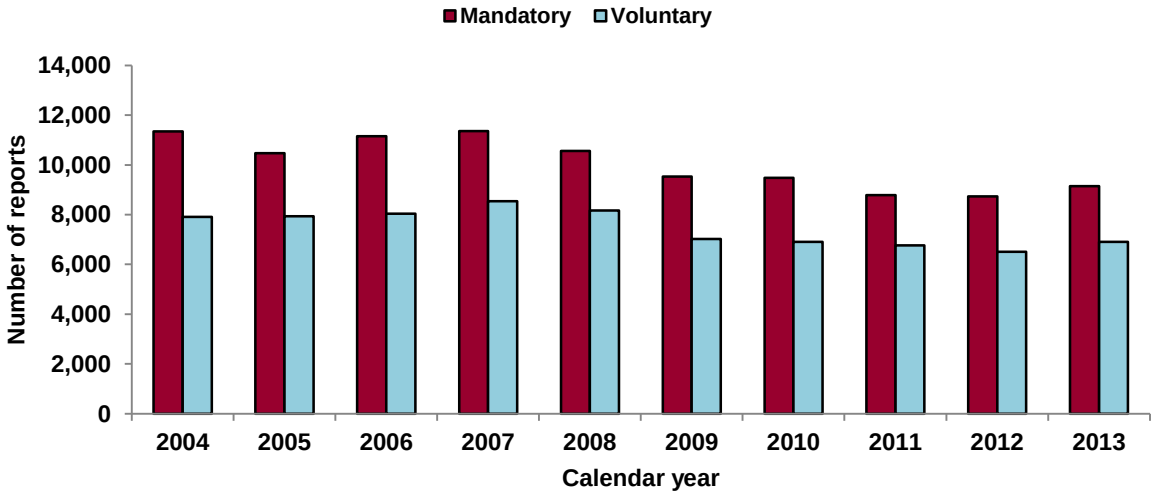


Figure 9. Annual number of MSSA bacteraemia reports received via the voluntary and mandatory surveillance schemes in England, 2004-2013



Acknowledgements

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1. Office for National Statistics (ONS) mid-year population estimates for England, Wales and Northern Ireland. Available: http://www.ons.gov.uk/ons/rel/pop-estimate/population-estimates-for-uk--england-and-wales--scotland-and-northern-ireland/2013/stb---mid-2013-uk-population-estimates.html.

2. Ellington MJ, Hope R, Livermore DM, Kearns AM, Henderson K, Cookson BD, *et al* (2010). Decline of EMRSA-16 amongst methicillin-resistant *Staphylococcus aureus* causing bacteraemias in the UK between 2001 and 2007. *J Antimicrob Chemother*; **65**: 446–448

3. Knight GM, Budd EL, Whitney L, Thornley A, Al-Ghusein H, Planche T, *et al* (2012). Shift in dominant hospital-associated methicillin-resistant *Staphylococcus aureus* (HA-MRSA) clones over time. *J Antimicrob Chemother*; doi:10.1093/jac/dks245: 1-9.

Appendix

Table 4. Voluntary laboratory reports of *S. aureus* bacteraemia: England, Wales and Northern Ireland 2004-2013

Year	England	Wales	Northern Ireland	England, Wales & Northern Ireland
2004	14,128	900	571	15,600
2005	14,005	712	520	15,239
2006	13,601	732	547	14,882
2007	12,823	723	557	14,103
2008	11,191	665	589	12,452
2009	9,579	599	489	10,670
2010	9,032	619	401	10,056
2011	8,442	666	379	9,492
2012	8,106	632	376	9,117
2013	8,521	649	358	9,533

Table 5. Voluntary laboratory reports of MRSA bacteraemia: England, Wales and Northern Ireland 2004-2013

Year	England	Wales	Northern Ireland	England, Wales & Northern Ireland
2004	5,217	286	237	5,740
2005	5,221	234	228	5,683
2006	4,928	237	217	5,382
2007	3,747	254	229	4,230
2008	2,467	218	207	2,892
2009	1,596	95	156	1,847
2010	1,198	74	115	1,387
2011	921	56	94	1,071
2012	891	56	75	1,022
2013	892	35	74	1,001

Table 6. Voluntary laboratory reports of MSSA bacteraemia: England, Wales and Northern Ireland 2004-2013

Year	England	Wales	Northern Ireland	England, Wales & Northern Ireland
2004	7,915	480	274	8,669
2005	7,930	375	283	8,588
2006	8,043	414	326	8,783
2007	8,542	389	327	9,258
2008	8,162	368	380	8,910
2009	7,026	236	319	7,581
2010	6,903	155	284	7,342
2011	6,762	192	285	7,239
2012	6,504	173	300	6,977
2013	6,909	178	281	7,368