



Public Health  
England

# Health Protection Report

weekly report

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## Current News

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**Group A streptococcal infections: third update on seasonal activity, 2013/14**

## Infection Reports

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### Bacteraemia

**Voluntary surveillance of *Enterococcus* spp. causing bacteraemia in EWNI: 2013**



## Infection report

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### Group A streptococcal infections: third update on seasonal activity, 2013/14

Surveillance of scarlet fever notifications continues to indicate high levels of notified cases in England, with recent weekly totals remaining higher than any among existing weekly records dating back to 1982 [1,2,3]. GP sentinel (syndromic) surveillance continues to report high levels of GP consultations for pharyngitis/scarlet fever in all age groups compared to the same period last year [4]. Routine laboratory reports and isolate referrals do not show any widespread elevation of invasive group A streptococcal (iGAS) disease incidence.

Monitoring systems to assess the impact of the current scarlet fever upsurge and the frequency of complications are being established. Microbiological investigation of scarlet fever isolates is underway. Interim guidelines to assist local health protection staff in managing outbreaks of scarlet fever in schools and nurseries have been issued [5].

Due to rare but potentially severe complications associated with group A streptococcal (GAS) infections, continued vigilance is recommended.

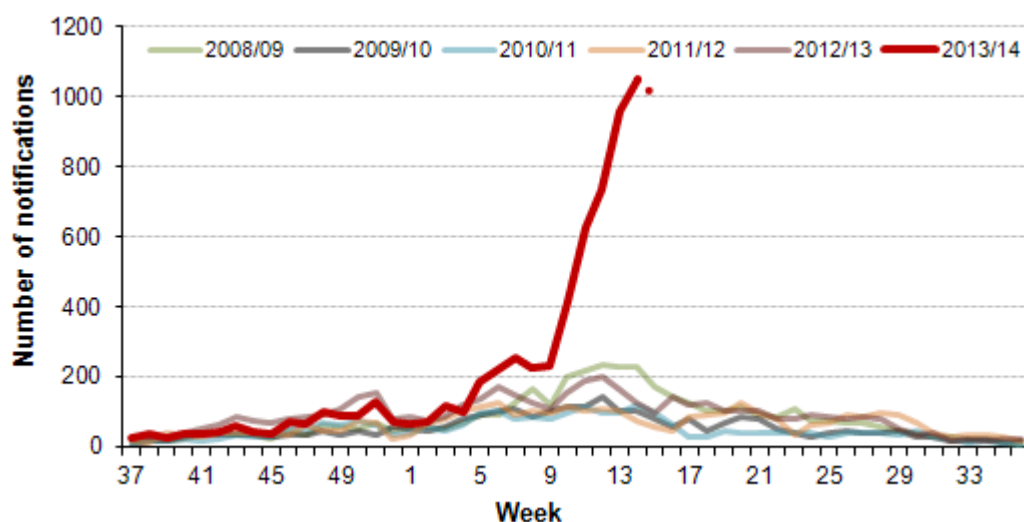
#### Scarlet fever

A total of 7198 scarlet fever cases have been notified so far this season (week 37 2013 to week 15 2014; figure1), with week 14 of 2014 seeing the highest number of scarlet fever notifications received in one week (1049) in England.

Scarlet fever notifications remain high across England, with rates of infection being higher than the same point last season in all parts of the country (see table). The highest cumulative rates of notification this season were seen in the East Midlands (30.5), Avon, Gloucestershire and Wiltshire (23.5), Thames Valley (19.8), North East (17.8), and Cumbria and Lancashire (15.6).

Eighty eight per cent of notifications received this season have been in children aged less than 10 years, the median age remaining at 4 years (range <1y to 90y). The proportion of notifications seen in males and females remains similar with 49% being in males overall.

**Figure 1. Weekly scarlet fever notifications in England, 2008/09 onwards\***



\* Dashed line indicates that numbers may increase as further notifications expected.

**Geographical summary of scarlet fever seasonal activity between September 2013 (week 37) and April 2014 (week 15), counts and rates per 100,000 population, in England**

PHE Centre Name	2012/13 season		2013/14 season		Rate Ratio
	No. cases	Rate	No. cases	Rate	
Anglia and Essex	170	4.1	319	7.7	1.9
Avon, Gloucestershire and Wiltshire	147	6.2	557	23.5	3.8
Cheshire and Merseyside	218	9.0	340	14.1	1.6
Cumbria and Lancashire	108	5.5	307	15.6	2.8
Devon, Cornwall and Somerset	96	4.3	239	10.8	2.5
East Midlands	215	5.6	1181	30.5	5.5
Greater Manchester	261	9.7	318	11.8	1.2
Kent, Surrey and Sussex	225	5.0	478	10.6	2.1
London	306	3.7	685	8.2	2.2
North East	309	11.9	464	17.8	1.5
South Midlands and Hertfordshire	157	5.8	380	14.0	2.4
Thames Valley	165	8.1	404	19.8	2.4
Wessex	178	6.7	341	12.8	1.9
West Midlands	214	3.8	530	9.4	2.5
Yorkshire and the Humber	445	8.4	655	12.3	1.5
<b>England</b>	<b>3214</b>	<b>6.0</b>	<b>7198</b>	<b>13.5</b>	<b>2.2</b>

## Invasive Group A Streptococcus

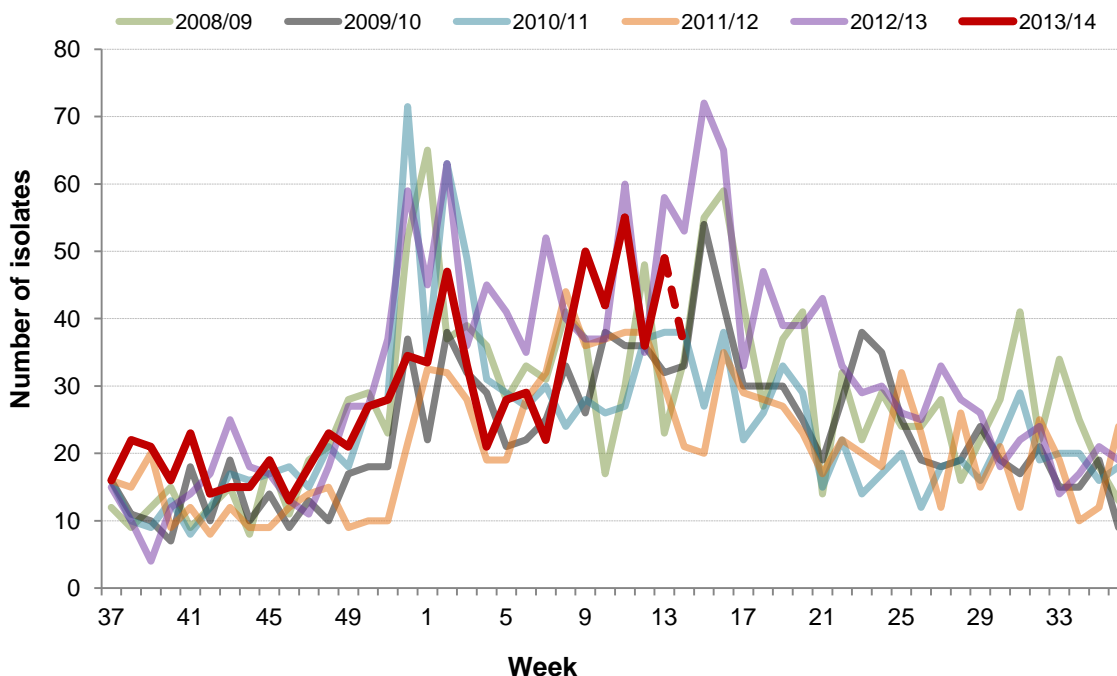
The number of iGAS isolate referrals, defined as isolation of GAS from a normally sterile site, to the Respiratory and Vaccine Preventable Bacteria Reference Unit at Colindale PHE from laboratories in England, Wales and Northern Ireland so far this season (week 37 2013 to week 14 2014) continues to remain within normal levels, with a total of 843 isolates referred so far (range 636 to 961 for the same period between 2008/09 and 2012/13; figure 2).

Laboratories in four of the English regions have referred numbers of isolates above average (previous five years) for January to March this season, the East Midlands (37), Yorkshire and the Humber (54), London (61) and the South East (80). Isolates may still be received for specimens taken in March and as such, these numbers could increase.

Currently the iGAS strain type diversity remains similar to what is normally seen; *emm1* remains the most common type identified so far in 2014 (27%). The proportion of referred isolates which have been identified as *emm3* type is slightly high this season compared to last season (22% compared with 14%), and given the increased severity of disease associated with *emm3* strains this warrants increased monitoring.

No changes have been identified in iGAS infection antimicrobial susceptibility patterns from routine laboratory reporting made this season (weeks 37 2013 to 15 2014), with 6% of those tested being non-susceptible to erythromycin, 10% tetracycline and 3% clindamycin, all similar to previous years [6]. There have been no reports of penicillin resistance in iGAS isolates in England to date.

**Figure 2. Weekly count of sterile site GAS isolates referred to the national reference laboratory, England, 2008/09 onwards\***



\* Dashed line indicates that numbers may increase as further isolates expected.

Investigations are underway to assess the possible reasons behind the exceptional increase in scarlet fever. Microbiological investigation will be conducted through a sentinel sampling scheme being undertaken in collaboration with PHE Regional Microbiology laboratories and selected NHS laboratories. As a means to assist HPTs in managing outbreaks of scarlet fever in schools and nurseries, interim guidelines have been drafted and disseminated which provide advice on recommended public health actions [5].

Clinicians, microbiologists and HPTs should continue to be mindful of potential increases in invasive disease and maintain a high index of suspicion in relevant patients as early recognition and prompt initiation of specific and supportive therapy for patients with iGAS infection can be life-saving. Invasive disease isolates and those from suspected clusters or outbreaks should be submitted to the Respiratory and Vaccine Preventable Bacteria Reference Unit at Public Health England, 61 Colindale Avenue, London NW9 5HT.

Relevant guidelines are available on the PHE health protection website, as follows:

- infection control in schools and other childcare settings, including recommended exclusion periods for scarlet fever, at:  
<http://www.hpa.org.uk/Topics/InfectiousDiseases/InfectionsAZ/SchoolsGuidanceOnInfectionControl/>
- FAQs on scarlet fever at:  
<http://www.hpa.org.uk/Topics/InfectiousDiseases/InfectionsAZ/ScarletFever/>
- management of close community contacts of iGAS cases [8] and prevention and control of GAS transmission in acute healthcare/maternity settings [9] at:  
<http://www.hpa.org.uk/Topics/InfectiousDiseases/InfectionsAZ/StreptococcalInfections/Guidelines>.

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## Infection report

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### Bacteraemia

## Voluntary surveillance of *Enterococcus* spp. causing 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 31 March 2014 for the period 2009-2013. The data presented here differ in some instances from data in earlier publications due to the inclusion of late reports.

Rates were calculated using 2012 mid-year resident population estimates based on the 2011 census for England, Wales, and Northern Ireland [1,2]. Regional analyses were made based on the geographic location of the reporting laboratory with reference to the Government Office Regions introduced in April 2002 rather than the Public Health Centre areas created in April 2013 when Public Health England was established; this is due to the availability of data in this breakdown at the time of producing the report. Future reports will include data presented by PHE Centre.

The report includes analyses of the trends, age and sex distribution, and geographical distribution of cases of enterococcal bacteraemia and the antimicrobial susceptibility of isolates.

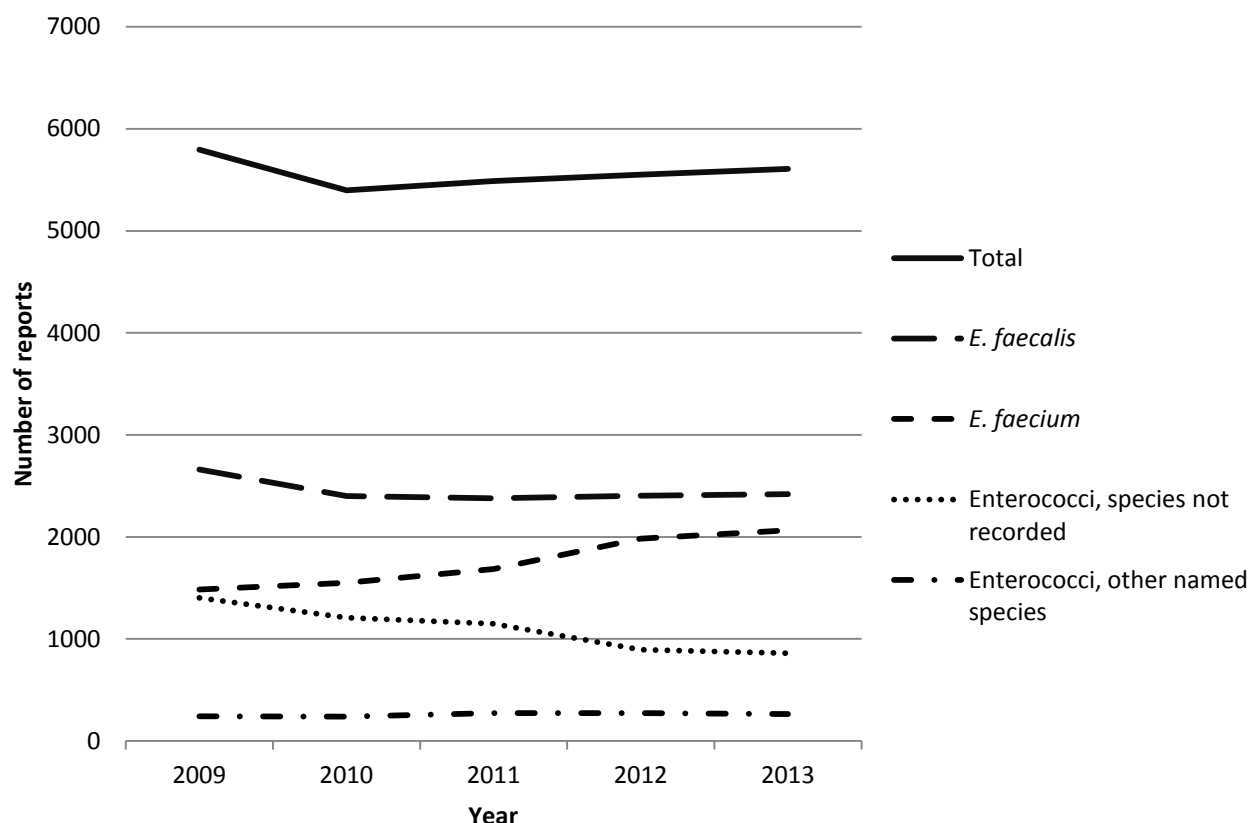
### Key points

- The total number of enterococcal bacteraemia reports fluctuated without particular trend, from 5794 in 2009 to 5608 in 2013.
- The overall rate of enterococcal bacteraemia in England, Wales and Northern Ireland in 2013 was 9.54 cases per 100,000.
- Northern Ireland had the highest rate of *Enterococcus* spp. bacteraemia in 2013, with a rate of 12.63 per 100,000.
- Between 2009 and 2013 there was a 39% increase in the number of reports of bacteraemia due to *Enterococcus faecium* (from 1486 in 2009 to 2066 in 2013). There was a 9.8% decrease in the number of reports of *Enterococcus faecalis* (from 2662 in 2009 to 2402 in 2010).
- Most cases of *E. faecalis* bacteraemia occurred in patients less than one year old and in those over 64 years old.
- Most cases of *E. faecium* bacteraemia occurred in patients over 64 years old.
- Increasing levels of resistance to high-level gentamicin, vancomycin and teicoplanin were observed for *E. faecium* isolates.

## Trends in episode numbers

The total number of enterococcal bacteraemia reports fluctuated between 5794 in 2009 and 5608 in 2013 (figure 1). Between 2008 and 2012 the proportion of isolates identified to species level increased from 74% to 85%. Over the five-year period, there was a 39% increase in the number of reports of *Enterococcus faecium* bacteraemia, from 1486 in 2009 to 2066 in 2013 mirroring the increase in the proportion of isolates identified to species level. In contrast, there was a 9.8% decrease in the number of reports of *Enterococcus faecalis* bacteraemia, from 2662 in 2009 to 2402 in 2010, with the yearly numbers of reports remaining relatively stable from 2010 to 2013.

**Figure 1. Laboratory reports of enterococcal bacteraemia in England, Wales and Northern Ireland: 2009–2013**



**Table 1. Reports of enterococcal bacteraemia by species, England, Wales and Northern Ireland: 2009–2013**

	2009		2010		2011		2012		2013	
	count	%	count	%	count	%	count	%	count	%
Total	5794	100	5397	100	5489	100	5552	100	5608	100
Enterococci, species not recorded	1403	24	1207	22	1148	21	894	16	860	15
Enterococci, other named species	243	4	238	4	275	5	272	5	263	5
<i>E. faecalis</i>	2662	46	2402	45	2380	43	2403	43	2419	43
<i>E. faecium</i>	1486	26	1550	29	1686	31	1983	36	2066	37

## Age and sex distribution

For both *E. faecalis* and *E. faecium*, high rates of bacteraemia were observed in the over 64 age group. High rates were also observed in the under one year old age group for *E. faecalis* but not *E. faecium*. For both organisms, higher rates of bacteraemia were observed in men than in women.

Figure 2. Age and sex distribution of *E. faecalis* bacteraemia rates, England, Wales and Northern Ireland 2013

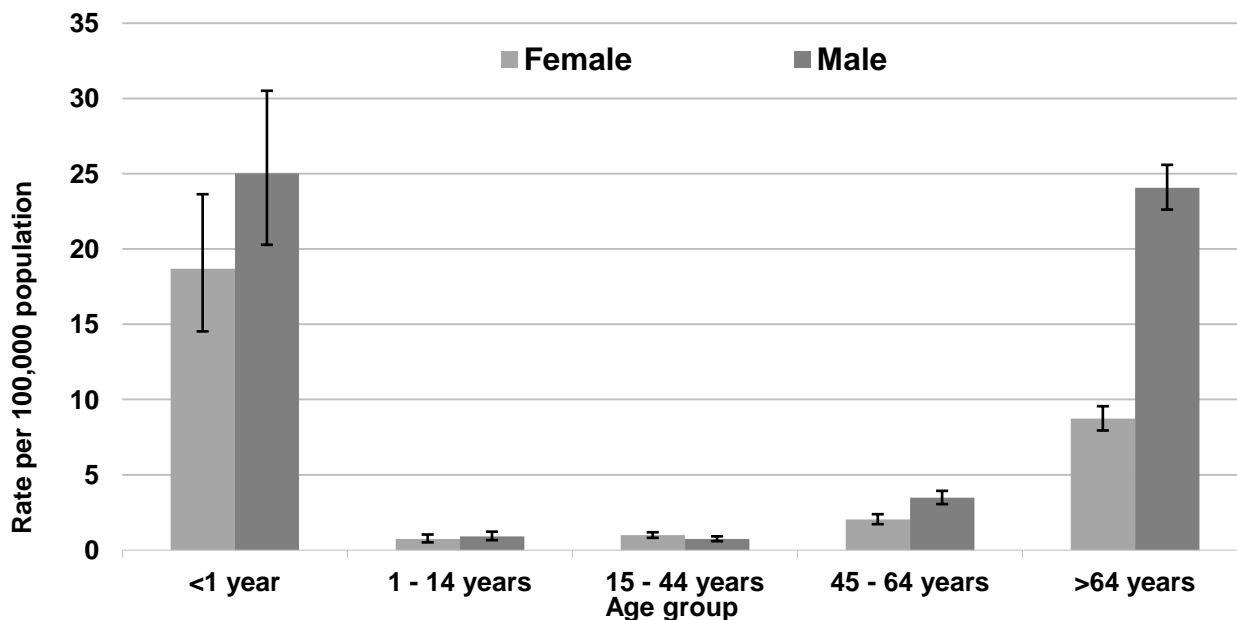
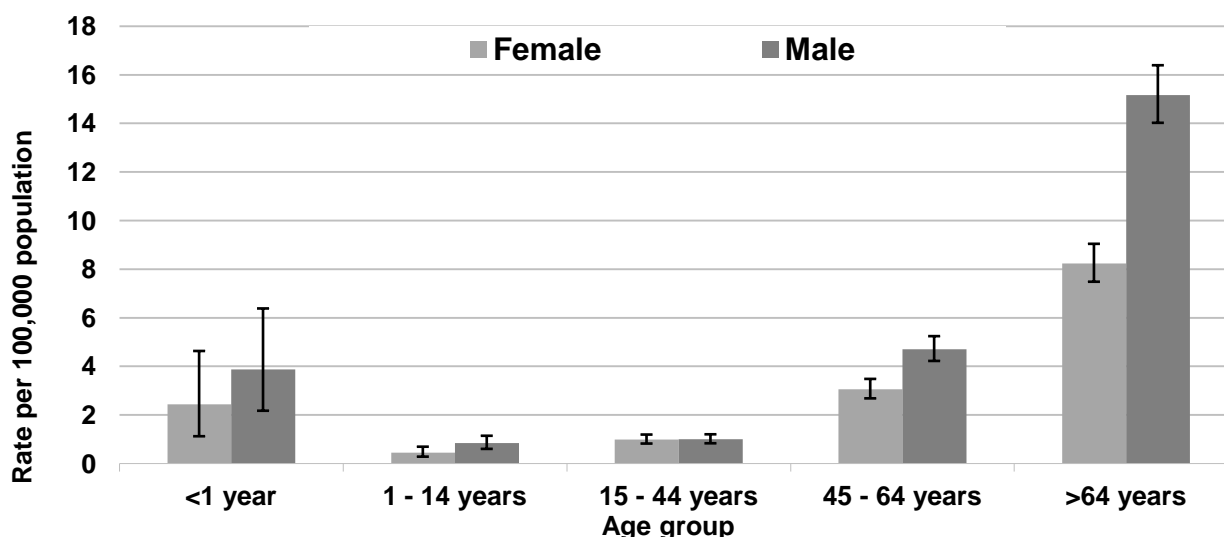


Figure 3. Age and sex distribution of *E. faecium* bacteraemia rates, England, Wales and Northern Ireland 2013

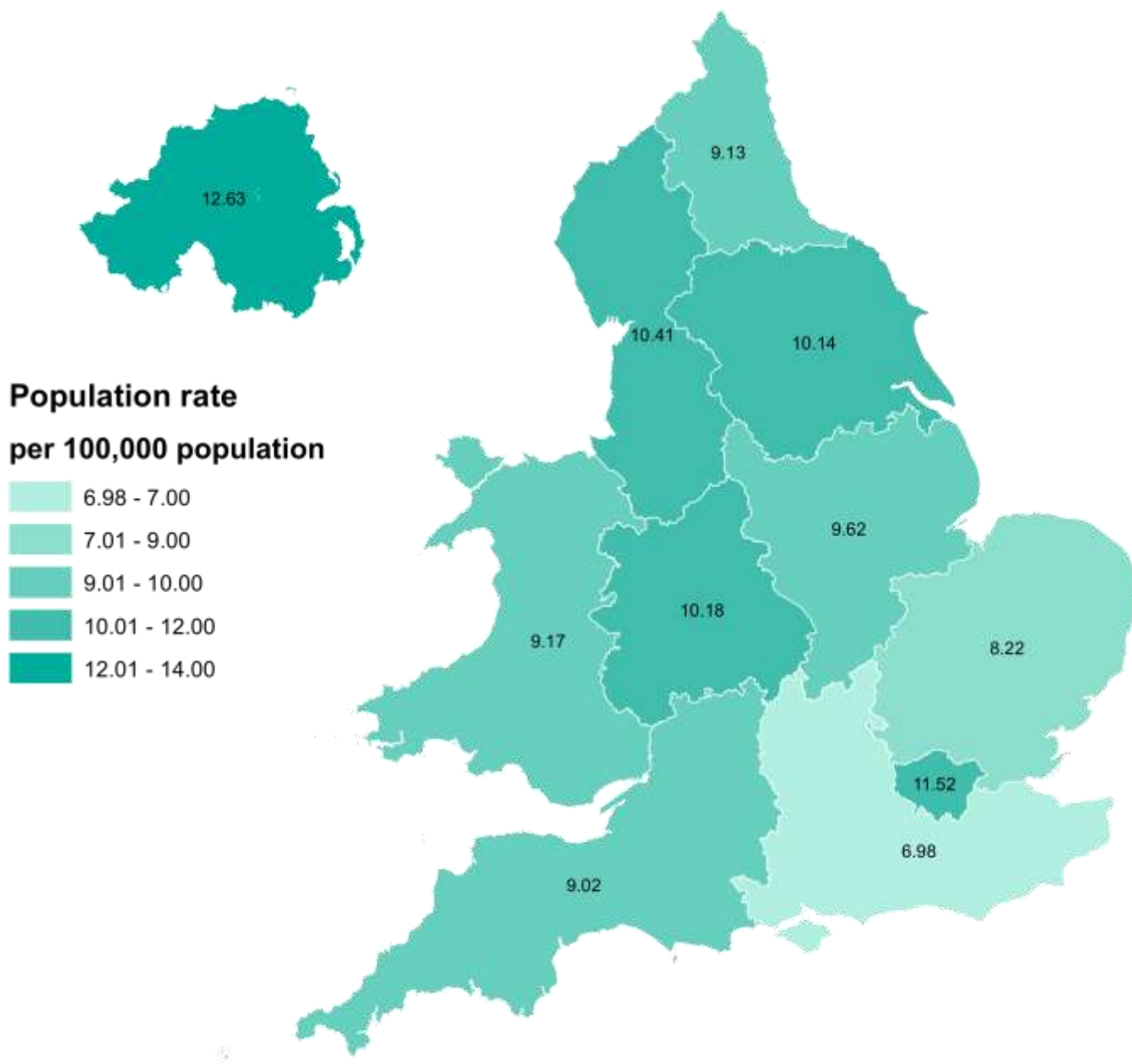




## Geographic distribution

The overall rate of enterococcal bacteraemia for England, Wales and Northern Ireland was 9.54 per 100,000, which is consistent with previous years. The highest rates were observed in Northern Ireland (12.63 cases per 100,000), London (11.52 per 100,000) and the North West (10.41 per 100,000, figure 4).

Figure 4. Region-specific rates of *Enterococcus* spp. bacteraemia, England, Wales and Northern Ireland, 2013



## Antimicrobial susceptibility data

Five-year trends for the antibiotic susceptibility of *E. faecalis* and *E. faecium* for England, Wales and Northern Ireland are shown in tables 2 and 3. There was a steady decline in the proportion of *E. faecalis* isolates that were reported as resistant to amoxicillin (6% in 2009 to 3% in 2013). However, non-susceptibility to amoxicillin in *E. faecalis* has never been confirmed in the UK, suggesting that isolates reported as non-susceptible to amoxicillin have either been misidentified or that the test results were erroneously classified as resistant.

Analysis of available antimicrobial susceptibility test results showed that the proportion of *E. faecium* isolates reported as resistant rose for high-level gentamicin (50% in 2009 to 60% in 2013), vancomycin (19% in 2009 to 25% in 2013) and teicoplanin (17% in 2009 to 25% in 2013). However, the proportion of isolates where the data reported indicated that testing for high-level gentamicin resistance had been undertaken was relatively low (11%), although this may be a reporting artefact..

Isolates with the dominant mechanisms of acquired vancomycin resistance in enterococci are either cross-resistant to teicoplanin (due to acquisition of VanA) or remain susceptible to teicoplanin (due to VanB). The percentage of *E. faecalis* isolates resistant to vancomycin is lower than expected in comparison to the percentage of isolates non-susceptible to teicoplanin, which is almost certainly an artefact due to some laboratories reporting susceptibility data for teicoplanin and not vancomycin. Resistance to teicoplanin has never been confirmed in enterococci that are susceptible to vancomycin.

The proportions of both *E. faecalis* and *E. faecium* tested against linezolid rose between 2009 and 2013. Over this period, the proportion of tested isolates that were resistant to linezolid fell for *E. faecalis* (from 2% in 2009 to 0% in 2013) and remained level at 1% for *E. faecium*.

**Table 2. Antibiotic susceptibility data for reports of *E. faecalis* bacteraemia, England, Wales and Northern Ireland: 2009 to 2013**

	2009		2010		2011		2012		2013	
	No. tested	% resistant	No. tested	% resistant	No. tested	% resistant	No. tested	% resistant	No. tested	% resistant
Amoxicillin	2109	6%	1967	5%	1994	5%	2047	4%	2065	3%
High level Gentamicin	325	33%	329	32%	357	25%	372	29%	435	30%
Vancomycin	2119	2%	1963	1%	1954	3%	2025	1%	2037	1%
Teicoplanin	1550	3%	1501	3%	1502	3%	1584	2%	1608	1%
Linezolid	768	2%	940	1%	1084	1%	1219	0%	1386	0%
Total reports:	2662		2402		2380		2403		2419	

**Table 3. Antibiotic susceptibility data for reports of *E. faecium* bacteraemia, England, Wales and Northern Ireland: 2009 to 2013**

	2009		2010		2011		2012		2013	
	No. tested	% resistant	No. tested	% resistant	No. tested	% resistant	No. tested	% resistant	No. tested	% resistant
Amoxicillin	1177	89%	1276	90%	1458	90%	1694	93%	1753	92%
High level Gentamicin	168	50%	191	54%	186	56%	245	59%	334	60%
Vancomycin	1254	19%	1323	17%	1475	18%	1746	21%	1815	25%
Teicoplanin	935	17%	1068	15%	1206	17%	1467	21%	1495	25%
Linezolid	550	1%	751	1%	964	1%	1243	1%	1353	1%
Total reports:	1486		1550		1686		1983		2066	

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