UK Health Security Agency

Laboratory surveillance of streptococcal bacteraemia in England: 2025 update

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Introduction

The analyses in this report are based on data relating to diagnoses of pyogenic and non-pyogenic streptococcal bloodstream infections between 2015 and 2025 (calendar years) in England. Data for England were extracted from the UK Health Security Agency's Second Generation Surveillance System (SGSS), the national laboratory surveillance database, on 19 March 2026. All laboratories in England are requested to submit data to SGSS, with reporting based on clinically relevant isolates.

Invasive group A S*treptococcal* disease is notifiable in England and Wales under the Health Protection (Notification) Regulations 2010. Records of group A streptococcal (GAS) bacteraemia based on isolates submitted to the UKHSA Staphylococcal and Streptococcal Reference Service (SSRS) (part of the Antimicrobial Resistance and Healthcare Associated Infections (AMRHAI) Reference Unit, Colindale) are routinely uploaded and merged into SGSS. Beta-haemolytic streptococci are classified according to the type of major surface polysaccharide antigen (Lancefield group), namely: group A (*Streptococcus pyogenes*), group B (*Streptococcus agalactiae*; GBS), group C and group G (GCS/GGS; multiple zoonotic species including the human species *Streptococcus dysgalactiae* subsp. *equisimilis*, human and zoonotic species of *Streptococcus dysgalactiae* subsp. *equisimilis* and *Streptococcus canis*). These are grouped as pyogenic streptococci within this report. Group C/G results in this report should not be directly compared with group-specific estimates in earlier reports without accounting for the revised classification approach.

Non-pyogenic streptococci, including alpha- and non-haemolytic streptococci, are subdivided into groups: mitis; sanguinis; anginosus; salivarius; mutans and bovis. *Streptococcus pneumoniae* and group D streptococci (now classified as *Enterococcus* spp.) are not included in this report, bacteraemia incidence and antimicrobial resistance trends for *S. pneumoniae* and *Enterococcus* spp. are available within the annual English surveillance programme for antimicrobial utilisation and resistance (ESPAUR) reports.

The report includes analyses on the trends, distribution by age and sex, ethnicity, region and deprivation, and antimicrobial susceptibility of laboratory-confirmed pyogenic and non-pyogenic streptococcal bacteraemia. Rates of bacteraemia were calculated using mid-year resident population estimates for the respective year and geography, and age-standardisation was applied based on 5-year age bands against the 2013 European standard population. Rates of GBS bacteraemia in infants were calculated using 2025 live birth denominators.

Geographical analyses were based on cases being assigned to 1 of 9 regions formed from administrative local authority boundaries in England; deprivation analyses were based on indices of multiple deprivation (IMD) assigned to the residential postcode where cases lived at the time of diagnosis.

Ethnicity analyses were based on aggregated ethnic groups derived using the Method for assigning ethnic group in the COVID-19 Health Inequalities Monitoring for England (CHIME) tool.

A web appendix is available featuring the findings of this report. It should be noted that the data presented here for earlier years may differ from those in previous publications due to the inclusion of late reports.

Main points

Key findings from this report are that:

- between 2021 and 2025 there was a 30% overall increase in the number of laboratory reports of streptococcal bacteraemia (from 14,255 to 18,556 reports) in England, with a less than 1% increase noted between 2024 (18,554 reports) and 2025
- rates per 100,000 in GBS and GCS/GGS bacteraemia have increased between 2024 and 2025
- following a peak in 2023, incidence of GAS has declined by 35%, from 5.8 out of 100,000 in 2023 to 3.7 out of 100,000 in 2025
- in line with previous reports, rates of pyogenic streptococcal bacteraemia were highest in the elderly, except for GBS where rates were highest in infants. Compared to 2024, rates increased in 2025 for people in this age group across all streptococcal groups, including GBS
- rates of GBS disease in infants less than 90 days old (both early and late onset) decreased in 2025 compared to those reported in 2024, 0.64 per 1,000 live births versus 0.70 out of 1,000
- resistance to clindamycin, erythromycin and tetracycline, has increased between 2021 and 2025 for both GAS and GBS bacteraemia. For erythromycin, this was from 14% to 27% for GAS and from 38% to 42% for GBS
- the number of ‘non-pyogenic’ streptococcal bacteraemia increased by 5% between 2024 and 2025, from 8,569 to 9,006 reports, although variation was noted by group
- following the declines in incidence noted during the COVID-19 pandemic years (2020 and 2021), incidence in the bovis, mitis, mutans, salivarius, and sanguinis groups has increased by over 20% since 2020
- resistance to penicillin was reported for 12% of mitis group isolates (an increase since 2021, 9%), 15% of salivarius group isolates (an increase from 9% in 2021), and 23% of sanguinis isolates (and increase since 2021, 21% resistance). Resistance to penicillin has increased across all of these groups since 2024

Trends in England

The number of laboratory reports of ‘pyogenic’ (beta-haemolytic) and ‘non-pyogenic’ (alpha- and non-haemolytic) streptococcal bacteraemia remained stable between 2024 and 2025 in England (18,554 to 18,556). Over the 5-year period 2021 to 2025, a 30% increase in streptococcal bacteraemia reports (from 14,235 to 18,556 reports; Table 1) was observed; this is following reductions during the COVID-19 pandemic, which resulted in reduced contact between individuals, decreased planned healthcare and an associated decline in infections associated with healthcare interventions, particularly surgery.

In 2025, 91% (16,85 out of 18,556) of *Streptococcus* spp. isolates from blood (excluding *Streptococcus pneumoniae*) were reported to species level, similar to 2024, 88%. Of those identified to species level in 2025, 46% (7,799 out of 16,845) were pyogenic streptococci (groups A, B, C and G), similar to 2024 (47%; Table 1).

Figures 1a and 1b show the rate per 100,000 population trends of the pyogenic (Figure 1a) and non-pyogenic group streptococcal bacteraemia (Figure 1b) between 2016 and 2025. Between 2024 and 2025 rates for most streptococcal groups increased, with the exception of GAS, (Figure 1a). Among non-pyogenic streptococci, the greatest increase in rate was seen in the bovis group, an increase of 8% between 2024 and 2025 (Figure 1b).

Table 1. Reports of pyogenic and non-pyogenic streptococcal bacteraemia by species in England, 2021 to 2025 [note 1]

Species	2021: Number	2021: %	2022: Number	2022: %	2023: Number	2023: %	2024: Number	2024: %	2025: Number	2025: %
Pyogenic streptococci	**5,559**	**100**	**7,470**	**100**	**8,511**	**100**	**7,719**	**100**	**7,799**	**100**
Group A	690	12	2,509	34	3,357	39	2,503	32	2,197	28
Group B	2,089	38	2,071	28	2,237	26	2,389	31	2,560	33
Group C & G [note 1]	2,780	50	2,890	39	2,917	34	2,827	37	3,042	39
Streptococcus Group C, not further speciated	471	17	456	16	486	17	443	16	476	16
Streptococcus Group G, not further speciated	1,191	43	1,228	42	1,147	39	1,114	39	1,185	39
S. canis	3	<1	6	<1	10	<1	13	<1	30	1
S. dysgalactiae	1,032	37	1,085	38	1,137	39	1,122	40	1,211	40
S. dysgalactiae subsp *dysgalactiae*	38	1	73	3	51	2	23	1	58	2
S. dysgalactiae subsp *equisimilis*	37	1	31	1	66	2	92	3	70	2
S. equi	4	<1	6	<1	9	<1	8	<1	4	<1
S. equisimilis	4	<1	4	<1	6	<1	5	<1	2	<1
S. zooepidemicus	0	0.00	1	0	5	<1	7	<1	6	<1
Non-pyogenic streptococci	**6,811**		**7,275**		**7,987**		**8,569**		**9,006**	
anginosus group	**1,690**	**100**	**1,532**	**100**	**1,758**	**100**	**1,790**	**100**	**1,898**	**100**
S. anginosus	825	49	774	51	902	51	913	51	991	52
S. constellatus, not further speciated	457	27	394	26	438	25	473	26	484	26

Species	2021: Number	2021: %	2022: Number	2022: %	2023: Number	2023: %	2024: Number	2024: %	2025: Number	2025: %
S. constellatus subsp *constellatus*	17	1	13	<1	17	<1	10	<1	16	<1
S. constellatus subsp *pharyngis*	2	<1	0	0	0	0	2	<1	0	0
S. intermedius	244	14	228	15	277	16	266	15	268	14
S. milleri group, not further speciated	136	8	116	8	116	7	120	7	132	7
Streptococcus group F	9	<1	7	<1	8	<1	6	<1	7	<1
bovis group	**819**	**100**	**804**	**100**	**911**	**100**	**975**	**100**	**1,054**	**100**
S. alactolyticus	33	4	5	1	5	1	5	1	5	<1
S. gallolyticus subsp *gallolyticus* [note 2]	466	57	481	60	524	58	558	57	636	60
S. gallolyticus subsp *pasteurianus*	29	4	30	4	52	6	68	7	52	5
Streptococcus bovis biotype II, not further speciated	30	4	38	5	41	5	35	4	27	3
S. bovis untyped	27	3	25	3	34	4	47	5	42	4
S. equinus	16	2	24	3	12	1	14	1	16	2
S. infantarius [note 3]	62	8	84	10	140	15	146	15	186	18
S. lutetiensis [note 4]	156	19	117	15	103	11	102	10	90	9
mitis group	**1,937**	**100**	**2,365**	**100**	**2,521**	**100**	**2,766**	**100**	**2,912**	**100**
S. mitis group, not further speciated	920	47	1,150	49	1,737	69	2,124	77	2,167	74
S. mitis [note 5]	73	4	102	4	123	5	131	5	110	4
S. oralis	887	46	1,018	43	558	22	374	14	448	15
S. pseudopneumoniae	4	<1	5	<1	7	<1	11	<1	14	<1

Species	2021: Number	2021: %	2022: Number	2022: %	2023: Number	2023: %	2024: Number	2024: %	2025: Number	2025: %
S. infantis	9	<1	13	<1	23	<1	19	<1	16	<1
S. cristatus	42	2	67	3	69	3	93	3	97	3
S. peroris	2	<1	10	<1	4	<1	8	<1	16	<1
S. australis	0	0	0	0	0	0	6	<1	44	2
mutans group	**131**	**100**	**132**	**100**	**136**	**100**	**132**	**100**	**140**	**100**
S. mutans	125	95	129	98	134	99	127	96	135	96
S. sobrinus	6	5	3	2	2	1	5	4	5	4
salivarius group	**883**	**100**	**883**	**100**	**980**	**100**	**1,035**	**100**	**1,088**	**100**
S. salivarius	643	73	645	73	650	66	694	67	721	66
S. vestibularis	210	24	206	23	241	25	213	21	237	22
S. hyointestinalis	1	<1	1	<1	3	<1	0	0	2	<1
S. thermophilus	29	3	31	4	86	9	128	12	128	12
sanguinis group	**1,351**	**100**	**1,559**	**100**	**1,681**	**100**	**1,871**	**100**	**1,914**	**100**
S. gordonii	249	18	266	17	282	17	349	19	341	18
S. parasanguinis	699	52	835	54	859	51	938	50	979	51
S. massiliensis	14	1	12	<1	14	<1	9	<1	18	<1
S. sanguinis [note 6]	29	2	33	2	43	3	45	2	51	3
S. sanguinis group, not further speciated	360	27	413	26	483	29	530	28	525	27
Other streptococci	**1,865**	**100**	**1,741**	**100**	**1,975**	**100**	**2,266**	**100**	**1,751**	**100**
Anaerobic Streptococcus	17	<1	26	1	13	<1	11	<1	6	<1

Species	2021: Number	2021: %	2022: Number	2022: %	2023: Number	2023: %	2024: Number	2024: %	2025: Number	2025: %
S. merionis	0	0	0	0	5	<1	9	<1	15	<1
S. sinensis	2	<1	1	<1	2	<1	2	<1	1	<1
S. pseudoporcinus	2	<1	6	<1	1	<1	4	<1	2	<1
S. pluranimalim	1	<1	3	<1	0	0	1	<1	4	<1
S. ovis	0	0	1	<1	1	<1	0	<1	1	<1
S. suis	4	<1	4	<1	4	<1	4	<1	5	<1
Streptococcus spp. other named [note 7]	119	6	111	6	182	9	365	16	265	15
Streptococcus not fully identified	1,716	92	1,586	91	1,764	89	1,869	82	1,446	83
Total Streptococci [note 8]	**14,235**		**16,486**		**18,473**		**18,554**		**18,556**	
Genera closely related to streptococci [note 9]	**671**	**100**	**714**	**100**	**715**	**100**	**790**	**100**	**807**	**100**
Abiotrophia spp.	47	7	66	9	73	10	68	9	77	10
Aerococcus spp.	377	56	410	57	411	57	456	58	456	57
Gemella spp.	151	23	140	20	137	19	166	21	173	21
Globicatella spp.	16	2	20	3	21	3	20	3	28	3
Leuconostoc spp.	39	6	35	5	40	6	49	6	43	5
Pediococcus spp.	7	1	14	2	11	2	13	2	17	2
Peptostreptococcus spp.	34	5	29	4	22	3	18	2	13	2

Note 1: Group C and group G streptococci include isolates reported as *Streptococcus* group G, *Streptococcus* group C, *S. canis*, *S. dysgalactiae*, *S. dysgalactiae* subsp. *dysgalactiae*, *S. dysgalactiae* subsp. *equisimilis*, *S. equi*, *S. equisimilis*, and *S. zooepidemicus*.

Note 2: total includes those reported as '*Streptococcus bovis* biotype I'.

Note 3: includes those reported as '*Streptococcus infantarius* sp *infantarius*', '*S. infantarius*' and '*Streptococcus infantarius* sp *nov*'

Note 4: includes those reported as *S. infantarius* subsp. *coli*

Note 5: includes those reported as *S. mitis* I or *S. mitis* II.

Note 6: includes those reported as *S. sanguinis* I or *S. sanguinis* II.

Note 7: including: *S. acidominus* (n=1), *S. halichoeri* (n=1), *S. porcinus* (n=5), *S. thoraltensis* (n=4), *S. uberis* (n=4), *S. urinalis* (n=2) and '*Streptococcus* spp., other named' without further information (n=1,042).

Note 8. 'Total streptococci' excludes *S. pneumoniae*.

Note 9: total includes those recorded as 'nutritionally variant streptococci' without further information.

Figure 1a. Trends in pyogenic streptococcal bacteraemia reports, by group, per 100,000 population in England, 2016 to 2025

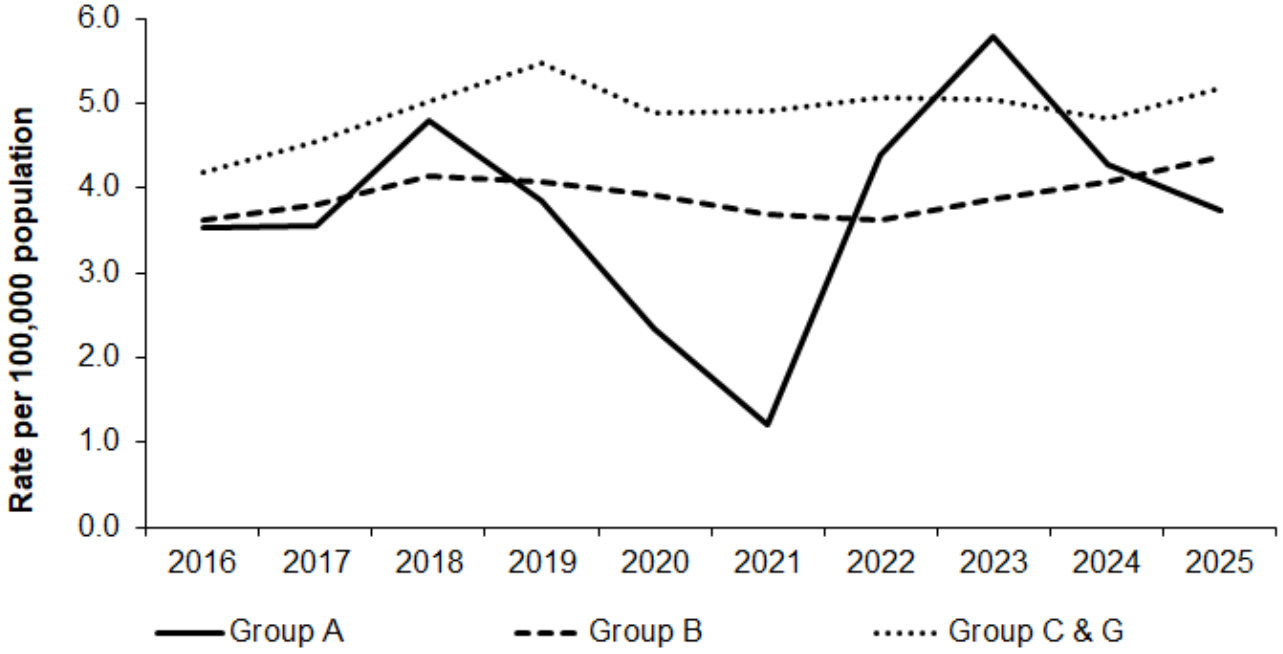
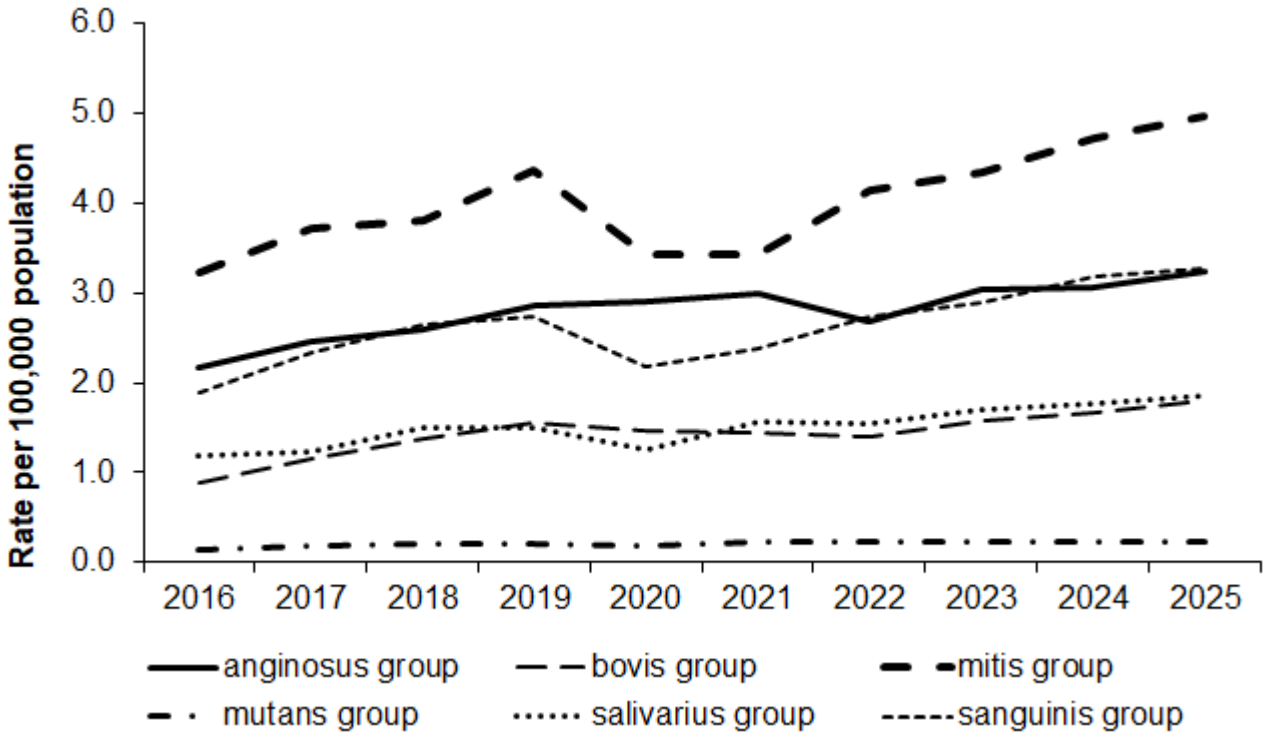


Figure 1b. Trends in non-pyogenic streptococcal bacteraemia reports, by group, per 100,000 population in England, 2016 to 2025



Pyogenic streptococci

Table 2 shows the regional rates of the pyogenic streptococcal bacteraemia by group in 2025. Regional variation in rates was seen for each of the pyogenic streptococcal groups, although no consistent pattern was evident in which regions recorded the highest or lowest rate across all of the groups.

Table 2. Rate per 100,000 population of pyogenic streptococcal bacteraemia reports by region and group in England, 2025

Region	Rate per 100,000 population		
	Group A	Group B	Group C and G
North East	5.9	4.5	6.6
North West	3.0	5.0	5.6
Yorkshire and Humber	5.3	4.8	7.4
East Midlands	3.1	5.1	4.4
East of England	3.2	3.6	5.1
West Midlands	3.5	4.2	5.6
London	4.1	3.6	2.2

Region	Rate per 100,000 population		
	Group A	Group B	Group C and G
South East	3.1	4.3	5.4
South West	4.1	4.8	6.6
England	**3.7**	**4.4**	**5.2**

Table 3 shows the rates per 100,000 of cases of pyogenic group streptococci, by Index of Multiple Deprivation (IMD, a socio-economic deprivation indicator derived from 7 key domains of deprivation assigned to the area of residence) in 2025. Across all pyogenic groups, age-standardised rates display a gradient, with the greatest rates in the most deprived deciles and decreasing as the level of deprivation declines.

Table 3. Rate per 100,000 population of pyogenic streptococcal bacteraemia reports by index of multiple deprivation and group in England, 2025. [note 10]

In this table O = observed rate per 100,000 population, and ST = age-standardised rate per 100,000 population.

IMD Quintile	Group A: O	Group A: ST	Group B: O	Group B: ST	Group C & G: O	Group C & G: ST
1 (most deprived)	5.0	6.4	5.4	6.5	5.8	8.4
2	3.8	4.2	5.0	5.5	5.2	6.1
3	3.3	3.3	4.3	4.3	5.8	5.6
4	3.1	2.8	4.4	4.1	5.4	4.7
5 (least deprived)	2.6	2.3	3.6	3.3	5.0	4.1

Note 10: Data for IMD is based on the patient residence information. Records are excluded when this information is not available. In 2025 the number of pyogenic streptococci episodes excluded was 332 out of 7,799 (4.3%).

Table 4 shows both the unadjusted, and age-adjusted rate per 100,000 of pyogenic group streptococci, by ethnic group. The age-adjusted rates for 2025 were highest in the White ethnic group for each of the pyogenic groups, with the exception of GBS bacteraemia; a similar pattern was seen in the crude unadjusted rates.

Table 4. Rate per 100,000 population of pyogenic streptococcal bacteraemia reports by ethnic group in England, 2025. [note 11]

In this table O = observed rate per 100,000 population, and ST = age-standardised rate per 100,000 population.

Ethnicity	Group A: O	Group A: ST	Group B: O	Group B: ST	Group C & G: O	Group C & G: ST
Asian	1.9	2.5	4.8	5.5	1.5	3.2
Black	2.2	3.1	4.7	5.7	1.0	1.9
Mixed	1.0	1.4	2.0	2.0	0.4	0.0
White	3.9	3.8	4.4	4.2	6.2	5.7
Other	1.3	2.8	4.0	4.2	1.1	2.8

Note 11: 230 (2.9%) pyogenic streptococcal bacteraemia episodes could not be linked to ethnic group information in 2025. Following successful linkage, 164 (2.1%) pyogenic streptococci cases had ethnicity recorded as ‘Not known’ or ‘Not Stated’.

Table 5 shows the number of reports for each pyogenic group streptococcal bacteraemia that were tested and the proportion that resistant to key antibiotics (clindamycin, erythromycin, tetracycline, vancomycin, and linezolid) in England between 2021 and 2025.

Antibiotic resistance trends for each pyogenic streptococcal group are described within relevant sections of the report.

Table 5. Antimicrobial susceptibility for pyogenic streptococci causing bacteraemia in England, 2021 to 2025

In this table NT = number tested, and R = resistant.

Antimicrobial agent		2021: NT	2021: R (%)	2022: NT	2022: R (%)	2023: NT	2023: R (%)	2024: NT	2024: R (%)	2025: NT	2025: R (%)
Group A	Clindamycin	439	10	1,492	7	2,136	6	1,549	8	1,380	11
	Erythromycin	408	14	1,448	7	1,935	7	1,401	14	1,255	27
	Tetracycline	510	40	1,733	22	2,248	22	1,588	38	1,356	53
	Vancomycin	312	0	1,071	0	1,517	<1	1,011	<1	902	<1
	Linezolid	199	0	634	<1	888	0	648	<1	574	0
Group B	Clindamycin	1,462	33	1,413	34	1,596	34	1,691	36	1,728	38
	Erythromycin	1,538	38	1,437	40	1,575	41	1,633	45	1,804	42
	Tetracycline	1,777	83	1,653	83	1,817	83	1,789	83	1,835	84
	Vancomycin	1,175	<1	1,077	<1	1,212	<1	1,205	<1	1,290	<1
	Linezolid	787	<1	672	0	753	<1	784	<1	829	<1
Group C & G	Clindamycin	2,105	32	2,077	32	2,165	30	2,143	32	2,025	29
	Erythromycin	1,981	37	1,918	35	1,932	35	1,852	37	1,930	33
	Tetracycline	2,403	37	2,323	36	2,370	38	2,251	42	2,171	41
	Vancomycin	1,557	<1	1,452	<1	1,500	<1	1,331	0	1,330	<1
	Linezolid	989	<1	941	0	959	<1	812	<1	845	<1

Group A streptococci

Of the pyogenic streptococci causing bacteraemia in England in 2025, group A streptococci (GAS) accounted for 28% (2,197 out of 7,799) of reports (Table 1).

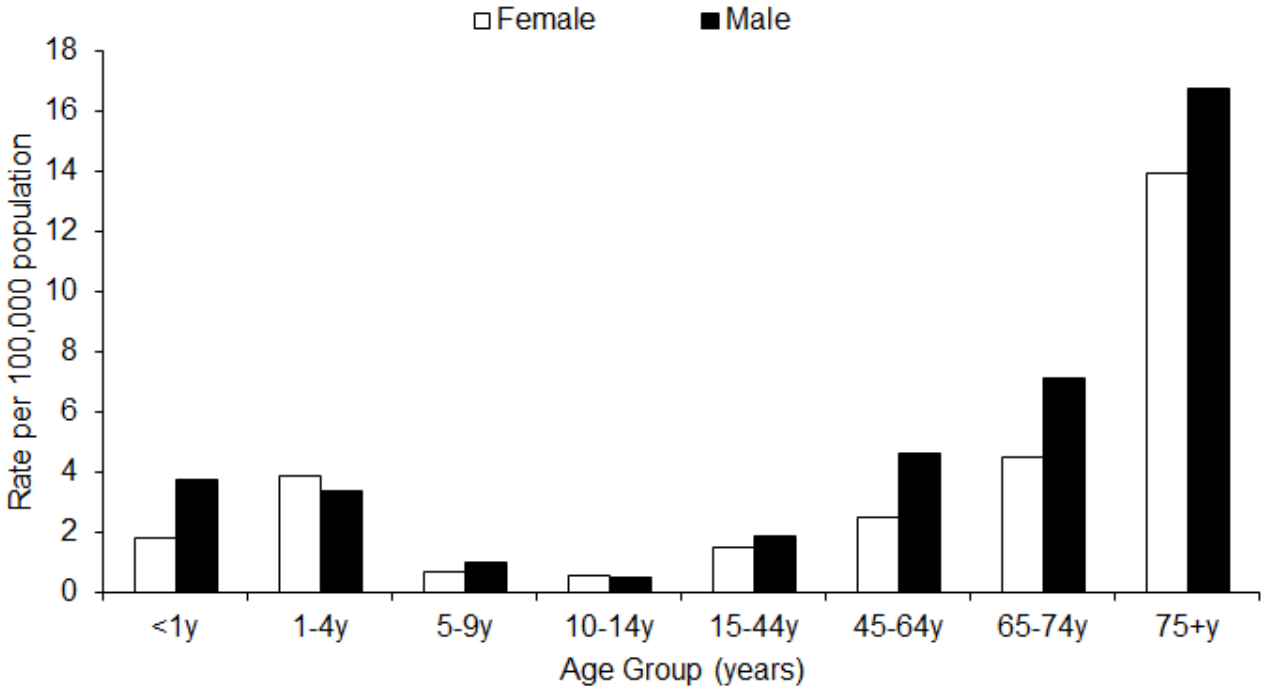
GAS was ranked 12th amongst species causing monomicrobial and 23rd amongst polymicrobial bacteraemia in 2025 (summary tables published in the ESPAUR report 2025 to 2026), both rankings are similar to those reported in 2024, 12th and 19th. An increasing trend in the rate of GAS bacteraemia was seen between 2016 (3.5 out of 100,000 population) and 2018 (4.8 out of 100,000) after which cases declined from 2019 to a minimum observed rate in 2021 (1.2 out of 100,000 population). Following a sharp increase in 2022 (4.4 = out of 100,000), GAS bacteraemia rates reached a peak in 2023 (5.8 out of 100,000). Incidence decreased 35% between 2023 and 2025 to 3.7 out of 100,000 (Figure 1a).

Recent trends in invasive GAS (sterile-site specimens) infection and scarlet fever during 2025 and 2026 are described more fully within the contemporary seasonal reports.

The rate of GAS bacteraemia reports across England in 2025 ranged from 3.0 in the North West to 5.9 out of 100,000 in the North East (Table 2).

Figure 2 shows the rates of GAS bacteraemia were higher in males than females across most age groups, the only exception was in the 1 to 4 years age group. The highest rates were observed in the elderly (aged 75 years or more) at 15.2 out of 100,000 (16.8 in males and 14.0 out of 100,000 in females), followed by those aged 64 to 74, and 1 to 4 years at 5.7 out of 100,000 and 3.6 out of 100,000 respectively. GAS bacteraemia rates have increased from 2024 to 2025 in individuals aged 75 years old and over.

Figure 2. Group A streptococcal bacteraemia age and sex rates per 100,000 population in England, 2025.



The incidence of GAS bacteraemia exhibited a pattern of increasing rates with residence in increasingly deprived areas of England (Table 3). Compared to the other pyogenic group streptococci, GAS bacteraemia incidence showed the greatest difference between the most deprived quintile and least deprived quintile (age-standardised): 6.4 to 2.3 per 100,000 (2.8 times higher).

GAS bacteraemia (age-standardised) rates varied by ethnic group in 2025, from 3.8 per 100,000 population in the White ethnic group to 1.4 in the 'Mixed' ethnic group (Table 4).

In England, the percentage of GAS bacteraemia reports accompanied by antimicrobial susceptibility results in 2025 were 72% (75% in 2024), 65% (67%), 71% (76%), 47% (49%), and 30% (31%) for clindamycin, erythromycin, tetracycline, vancomycin, and linezolid, respectively. Resistance to clindamycin, erythromycin, tetracycline was recorded for 11%, 27% and 53% of cases, respectively (Table 5). For vancomycin, resistance for 2025 was less than 1%, for linezolid percentage resistance was 0%. Resistance to clindamycin, erythromycin and tetracycline in 2025 increased compared to 2024. Antimicrobial resistance in *S. pyogenes* has been detected in multiple but not all *emm* types (1) and elevation in resistance from year-to-year can relate to circulating strain types.

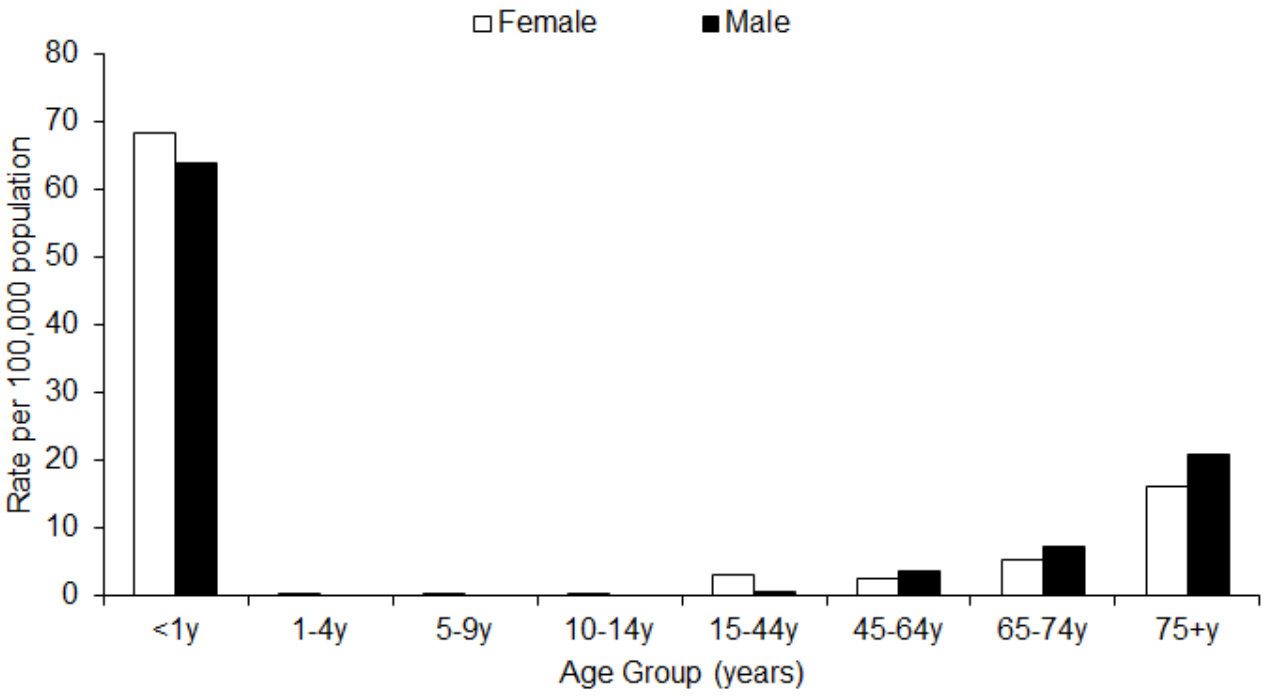
Group B streptococci

GBS is a clinically important pathogen of particular note in the extremes of age. In 2025, 2,560 cases of GBS bacteraemia were reported by laboratories in England, a 7% increase from numbers reported in 2024 (2,389). GBS bacteraemia accounted for 33% of the pyogenic streptococcal bacteraemia reported in 2025, higher than observed in the prior two years (26%

and 31%) (Table 1). The rate of GBS bacteraemia has demonstrated and overall increasing trend since 2016 (Figure 1a) and the England rate in 2025 was 4.4 per 100,000 population (Table 2). Since 2022, GBS bacteraemia rates have increased annually (Figure 1a). Within England, the East Midlands region reported the highest rate of infection (5.1 out of 100,000), and the East of England and London regions reported the lowest (both 3.6 out of 100,000) (Table 2).

The rates of GBS bacteraemia were highest in those aged less than 1 year (Figure 3), at 66.7 per 100,000 population (68.2 in females and 64.0out of 100,000 in males) in 2025. Rates were higher in males compared with females in most age groups, with the exception of rates in the under 1 year (68.2 versus 64.0 pt of 100,000) and 15 to 44 years age groups, where females had substantially higher rates of GBS bacteraemia (3.0 versus 0.5 out of 100,000). For the older age groups, the rates of GBS bacteraemia were: 65 to 74 years, males 7.1, females 5.2 out of 100,000, and 75 years and over age group, males 20.8, females 15.9 out of 100,000. Compared to 2024, rates were higher in 2025 for those aged 75 years and over and lower in the under 1 year old age group.

Figure 3. Group B streptococcal bacteraemia age and sex rates per 100,000 population in England; 2025



In infants aged under 90 days old, the rate of GBS bacteraemia in England in 2025 was 0.64 per 1,000 live births (Table 6), slightly lower than 2024 (0.70 out of 1,000) and similar to 2023 (0.64 out of 1,000). Rates have been decreasing since 2019 (0.82 out of 1,000).

In England, rates of early-onset infection (aged less than 7 days old) were higher than late-onset infection (7 to 90 days old) (0.39 compared with 0.24 per 1,000 live births). The 2025 rate for early-onset disease is slightly lower to the rate in 2024, both 0.39 compared to 0.42. For late-onset disease, the rate in 2025 is slightly higher when compared to 2024, 0.23 compared to 0.28.

Table 6. Number and rate per 1,000 live births of group B streptococcal bacteraemia in infants 0 to 90 days old in England, 2025

Infant age group	Number of episodes	Rate per 1,000 live births
All infant cases: 0 to 90 days old	360	0.64
Early-onset: 0 to 6 days old	224	0.39
Late-onset: 7 to 90 days old	136	0.24

Age-standardised rates of GBS bacteraemia in 2025 ranged from 6.5 per 100,000 in the most deprived IMD quintile (20% of the population) to 3.3/100,000 in the least deprived IMD quintile (Table 3).

By ethnic group, in 2025 age-standardised GBS rates per 100,000 were highest amongst those of Black ethnicity (5.7 out of 100,000), followed by cases of an Asian ethnicity (5.5 out of 100,000) (Table 4).

The percentage of GBS bacteraemia reports from England accompanied by antimicrobial susceptibility data in 2025 were 66% (71% in 2024), 69% (69%), 70% (75%), 49% (51%), and 32% (33%) for clindamycin, erythromycin, and tetracycline, vancomycin, and linezolid, respectively. Resistance to clindamycin and erythromycin increased in GBS bacteraemia isolates between 2021 and 2025, from 33% to 38% for clindamycin and 38% to 42% for erythromycin (Table 5). Tetracycline resistance remained similar across the time period, with 83% to 84% being resistant year to year (84% in 2025). Resistance was less than 1% for both vancomycin and linezolid.

GBS resistance to penicillin remains exceedingly rare with just one confirmed report of reduced susceptibility to penicillin in the UK, from 2016 (2). If laboratories suspect penicillin resistance (MIC >0.125 mg/L, or zone diameter <18mm) in a pyogenic group *Streptococcus*, the isolate should be sent to the UKHSA AMRHAI Reference Unit for confirmation.

Group C and G streptococci

The reference laboratory detected 30 *Streptococcus dysgalactiae* subspecies *equisimilis* (SDSE) expressing the Group A surface antigen from sterile-site isolate referrals in 2025. These isolates would be reported as SDSE by laboratories that perform MALDI-ToF alone, and as GAS by laboratories that do not use MALDI-ToF and perform only Lancefield grouping on beta-haemolytic streptococci, typically by latex agglutination. Referral to the national SSRS of all beta-haemolytic streptococci from sterile site specimens provides an opportunity to correct any misidentification of species and adjust public health actions accordingly.

The number of cases of GCS/GGS bacteraemia increased by 9% between 2021 and 2025 in England and accounted for 39% of the reported pyogenic streptococcal bacteraemia in 2025 (Table 1). The rate of GCS/GCS bacteraemia in England was 5.2 per 100,000 population in

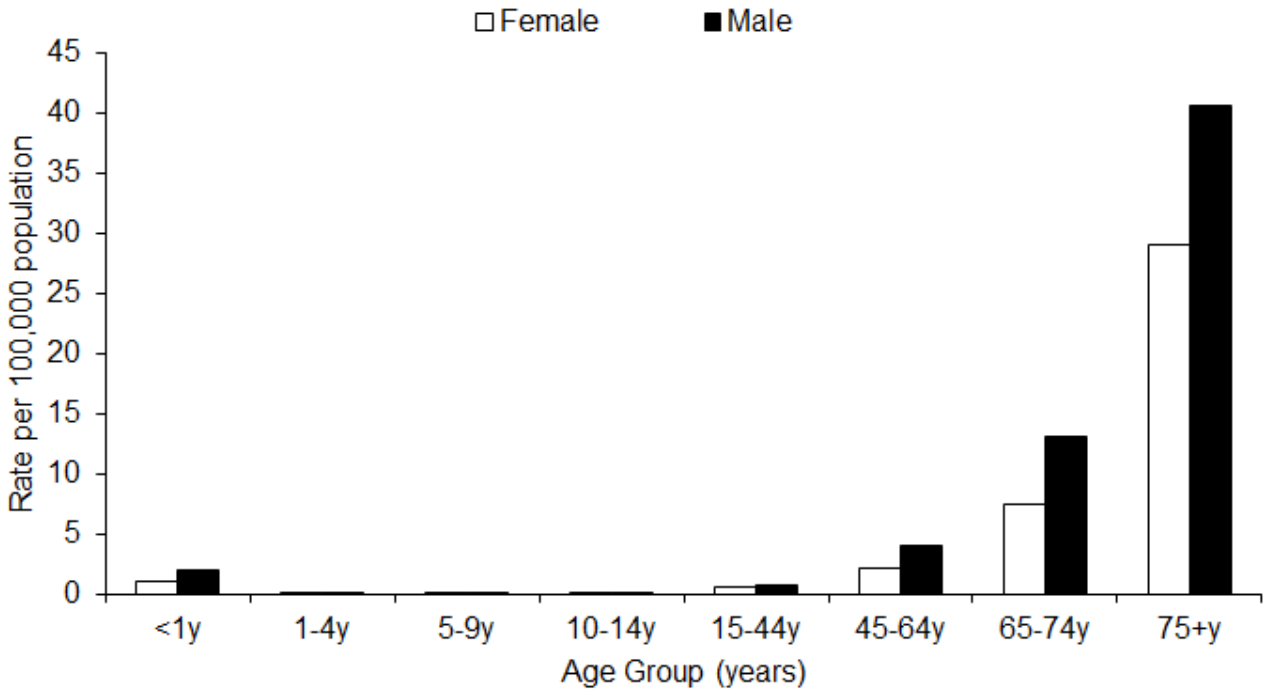
2025, an increase of 24% from the rate observed in 2016 (4.2 out of 100,000) (Figure 1a). Rates of GCS/GGS have increased from 2024 (4.8 out of 100,000) though are lower to the previous peak in annual rate in 2019 (5.5 out of 100,000).

Within England, GCS/GGS bacteraemia rates varied considerably by region in 2025, from 2.2 out of 100,000 in London to 7.4 in Yorkshire and Humber (Table 2). Rates of GCS/GGS bacteraemia were highest in the 75 years and over age group in 2025, 34.1 out of 100,000, respectively (Figure 4). Rates were higher in males than females across all age groups. When standardised for age, GCS/GGS displayed the greatest rates in the most deprived quintiles in 2025, at 8.4 out of 100,000, this compared to 4.1 out of 100,000 in the least deprived (Table 3).

In 2025, GCS/GGS had considerably higher rates for those of a white ethnic group, 6.2 per 100,000 population respectively, compared to other ethnic groups (Table 4), remaining after age-standardisation (5.7 out of 100,000).

Antimicrobial susceptibility data were available for 65%, 62%, 70%, 43%, and 27% of GCS/GGS bacteraemia isolates in 2025 for clindamycin, erythromycin, and tetracycline, vancomycin, and linezolid, respectively, compared with 73%, 63%, 77%, 45%, and 28% in 2024. In 2025, the percentage of GCS/GGS bacteraemia isolates resistant to clindamycin, erythromycin and tetracycline were 29%, 33% and 41%, respectively (Table 5). Resistance for vancomycin and linezolid for GCS/GGS was less than 1%. Resistance for clindamycin has seen a slight decrease compared to resistance seen in 2021, 32% for GCS/GGS.

Figure 4. Group C and G streptococcal bacteraemia age and sex rates per 100,000 population in England, 2025



Non-pyogenic streptococci

Cases of non-pyogenic streptococcal bacteraemia have shown a 5% increase in 2025 from the previous year (8,569 in 2024 to 9,006 in 2025), and a 32% increase from 2021 (6,811) (Table 1). Rates of bacteraemia showed an overall increase across all non-pyogenic streptococcal groups in England between 2016 and 2025 (Figure 1b), although some groups (mitis, salivarius, and sanguinis groups) saw declines during the period of COVID-19 pandemic (2020 and 2021). Of the non-pyogenic streptococci, bacteraemia rates in 2025 were highest for mitis group streptococci (5.0 per 100,000 population; Figure 1b), and lowest rates for mutans group (0.2 out of 100,000).

Among all non-pyogenic streptococcal bacteraemia reported in 2025 in England, the mitis group accounted for the largest percentage of reports, 2,912 of the 9,006 (32%; Table 1).

The previous increases in reports and subsequent distribution of less common non-pyogenic streptococcal species may in part be due to increasing use of matrix-assisted laser desorption/ionization time of flight (MALDI-ToF) analysis in hospitals, which allows for rapid species identification, facilitating reporting of species not previously recognised by clinical laboratories. The identification of *Streptococcus* to species level using MALDI-ToF alone is undergoing evaluation by the AMRHAI Reference Unit. Accurate species determination may not be achieved with this standalone test for all species and this needs to be accounted for when interpreting reports for species such as *S. alactolyticus*, *S. equinus* and *S. acidominimus*, amongst others, which are not usually associated with human infection, that currently being reported by laboratories (Table 1). Isolates from unusual, or species not normally associated with human infection, should be referred to the *Staphylococcus* and *Streptococcus* Reference Section (SSRS) for a full identification.

Table 7 shows that the incidence rates for each of the non-pyogenic groups varied within England in 2025. Rates of mitis group streptococci bacteraemia ranged from 2.3 out of 100,000 in the North East region to 7.8 out of 100,000 in the West Midlands region. Anginosus group streptococcal bacteraemia rates ranged from 2.1 in the East of England region to 4.0 out of 100,000 in the Yorkshire and Humber and East Midlands regions.

Table 7. Rate per 100,000 population of non-pyogenic streptococcal bacteraemia reports by region in England, 2025

Region	Rate per 100,000 population					
	anginosus group	bovis group	mitis group	mutans group	salivarius group	sanguinis group
North East	3.8	2.2	2.3	0.1	2.2	3.4
North West	3.6	2.4	5.4	0.2	1.8	3.4
Yorkshire and Humber	4.0	1.9	4.6	0.3	1.8	3.7
East Midlands	4.0	1.9	5.5	0.3	2.0	3.6
East of England	2.1	1.3	4.4	0.2	1.8	2.8
West Midlands	3.4	2.0	7.8	0.1	2.6	3.5
London	2.5	0.8	3.7	0.2	1.6	2.8
South East	2.9	1.9	5.4	0.3	1.7	3.3
South West	3.9	2.5	4.4	0.4	1.7	3.2
England	**3.2**	**1.8**	**5.0**	**0.2**	**1.9**	**3.3**

Table 8 shows both the age-standardised and unadjusted rates per 100,000 of cases of non-pyogenic group streptococci, by IMD.

All non-pyogenic streptococcal groups displayed a general pattern of increasing age-standardised rate with increasing levels of deprivation (measured by IMD quintile; Table 8). The anginosus, bovis, mitis, salivarius, and sanguinis groups all have lower age-standardised rates in the least deprived quintile than the most deprived. The observed and age-standardised rate for mutans group bacteraemia was similar across all five deprivation quintiles.

Table 9 shows both the observed and age-standardised rates per 100,000 of non-pyogenic group streptococci by ethnicity. In 2025, the age-standardised rates for the majority of non-pyogenic groups were highest among those of a Black ethnicity, with the exception of bovis and mutans groups where the highest rates were respectively in those of Asian (2.2 out of 100,000 population) and White ethnicity (0.2 out of 100,000).

Table 8. Rate per 100,000 population of non-pyogenic streptococcal bacteraemia reports by IMD in England, 2025 [note 12]

In this table O = observed rate per 100,000 population, and ST = age-standardised rate per 100,000 population.

IMD quintile	anginosus: O	anginosus: ST	bovis: O	bovis: ST	mitis: O	mitis: ST	mutans: O	mutans: ST	salivarius: O	salivarius: ST	sanguinis: O	sanguinis: ST
1 (most deprived)	4.3	5.4	2.2	3.2	5.9	6.7	0.2	0.3	2.2	2.6	3.7	4.6
2	3.2	3.7	1.7	2.0	5.2	5.5	0.3	0.3	1.9	2.1	3.8	4.2
3	3.4	3.4	1.8	1.8	4.9	4.9	0.3	0.3	1.9	1.9	3.4	3.4
4	2.8	2.6	2.0	1.8	4.9	4.7	0.2	0.2	1.9	1.7	3.1	2.9
5 (least deprived)	3.2	2.9	1.8	1.5	5.0	4.6	0.3	0.2	1.7	1.6	3.0	2.7

Note 12: Data for IMD is based on the patient residence information. Records are excluded when this information is not available. In 2025 the number of non-pyogenic streptococci records excluded was 176 out of 9,006 (2.0%).

Table 9. Rate per 100,000 population of non-pyogenic streptococcal bacteraemia reports by ethnic group in England, 2025 [note 13]

In this table O = observed rate per 100,000 population, and ST = age-standardised rate per 100,000 population.

Ethnicity	anginosus: O	anginosus: ST	bovis: O	bovis: ST	mitis: O	mitis: ST	mutans: O	mutans: ST	salivarius: O	salivarius: ST	sanguinis: O	sanguinis: ST
Asian	2.2	3.5	1.0	2.2	4.7	5.5	0.1	0.0	1.4	1.9	2.6	3.7
Black	3.0	4.5	0.7	1.3	4.8	5.9	0.1	0.0	1.9	2.9	2.6	4.0
Mixed	1.2	2.6	0.1	0.0	2.8	2.6	0.1	0.0	0.7	0.8	1.0	1.4
White	3.4	3.3	2.1	1.9	5.1	5.0	0.3	0.2	2.0	1.9	3.5	3.3
Other	1.9	3.1	0.2	0.0	2.2	2.3	0.2	0.0	0.6	0.0	2.3	2.7

Note 13: 131 (1.5%) non-pyogenic streptococcal bacteraemia episodes could not be linked to ethnic group information in 2025. Following successful linkage, 216 (3.4%) non-pyogenic streptococci cases had ethnicity recorded as ‘Not known’ or ‘Not Stated’.

Distributions of non-pyogenic streptococcal bacteraemia reports by age and sex showed generally higher rates among males compared to females, and in the youngest (less than 1 year) and oldest age groups (Figure 5 to Figure 9). Rates were highest in those aged 75 years and above for anginosus group (Figure 5) and bovis group (Figure 6) streptococcal group bacteraemia (11.1 and 11.8 per 100,000 population, respectively). In contrast, rates were highest in those aged under 1 year old for mitis group (39.0 out of 100,000, Figure 7), salivarius group (24.0 out of 100,000, Figure 8) and sanguinis group (19.5 out of 100,000, Figure 9) streptococci.

Figure 5. *Anginosus* group streptococcal bacteraemia age and sex rates per 100,000 population in England, 2025

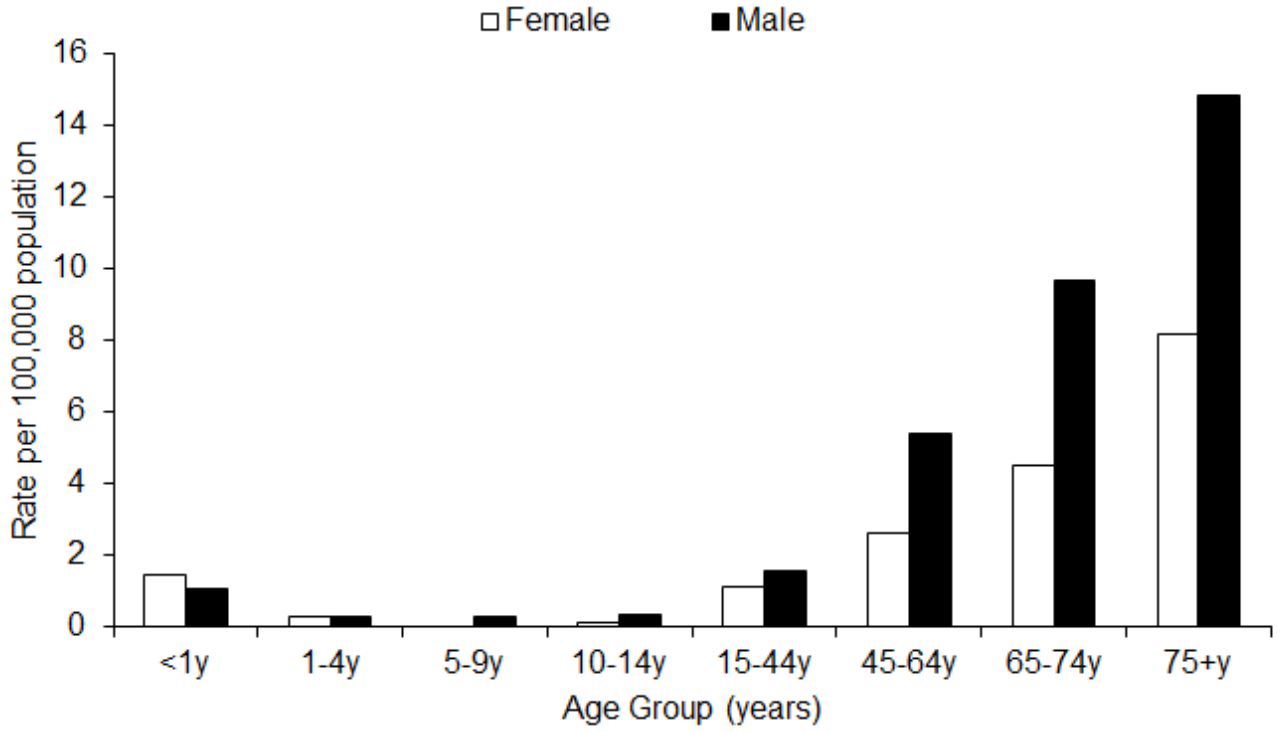


Figure 6. Bovis group streptococcal bacteraemia age and sex rates per 100,000 population in England, 2025

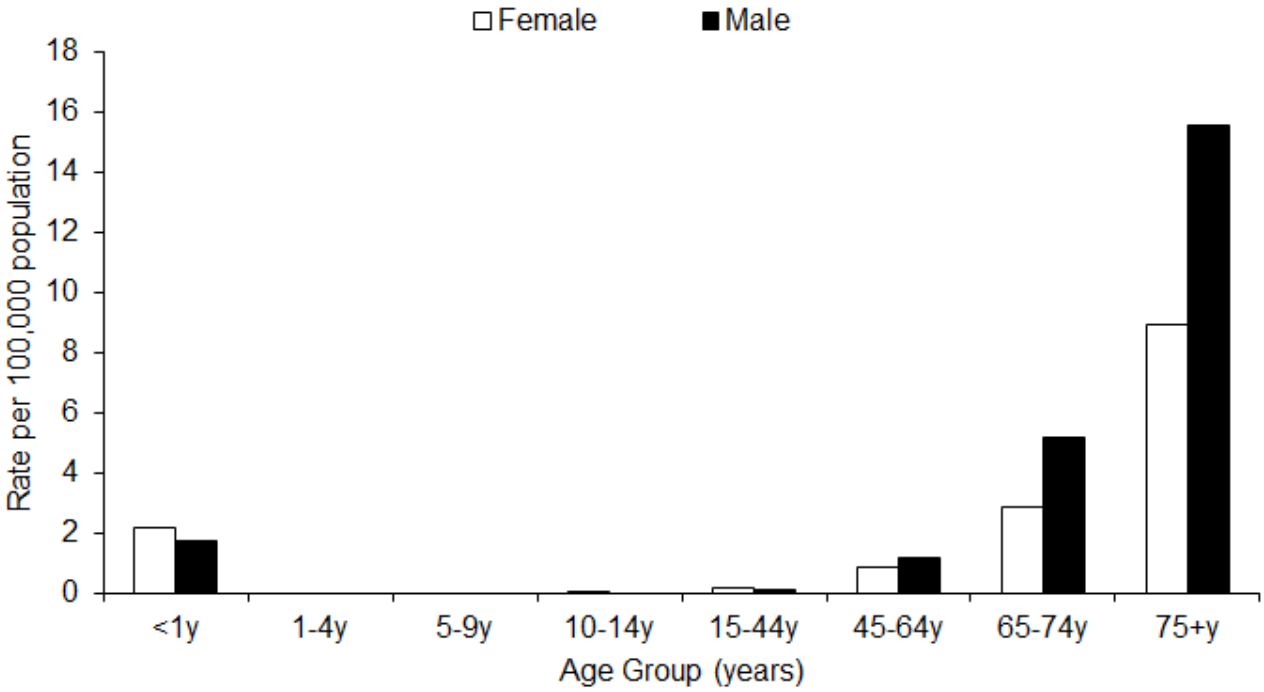


Figure 7. Mitis group streptococcal bacteraemia age and sex rates per 100,000 population in England, 2025

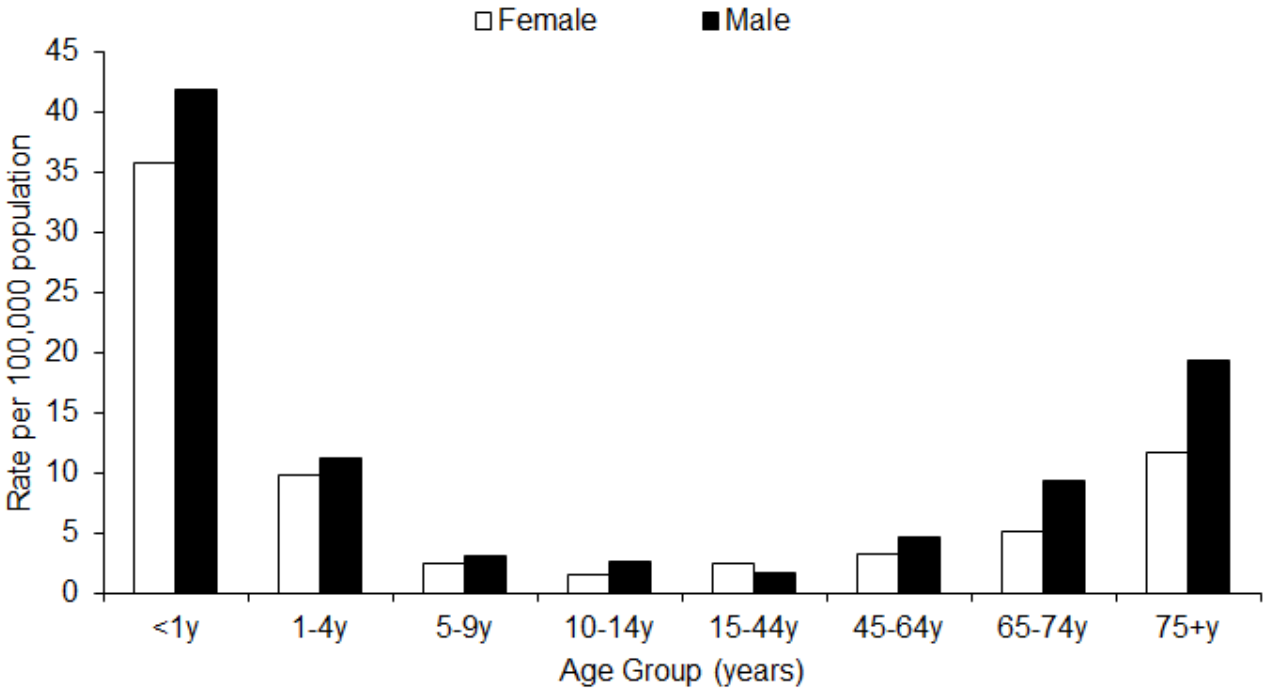


Figure 8. Salivarius group streptococcal bacteraemia age and sex rates per 100,000 population in England, 2025

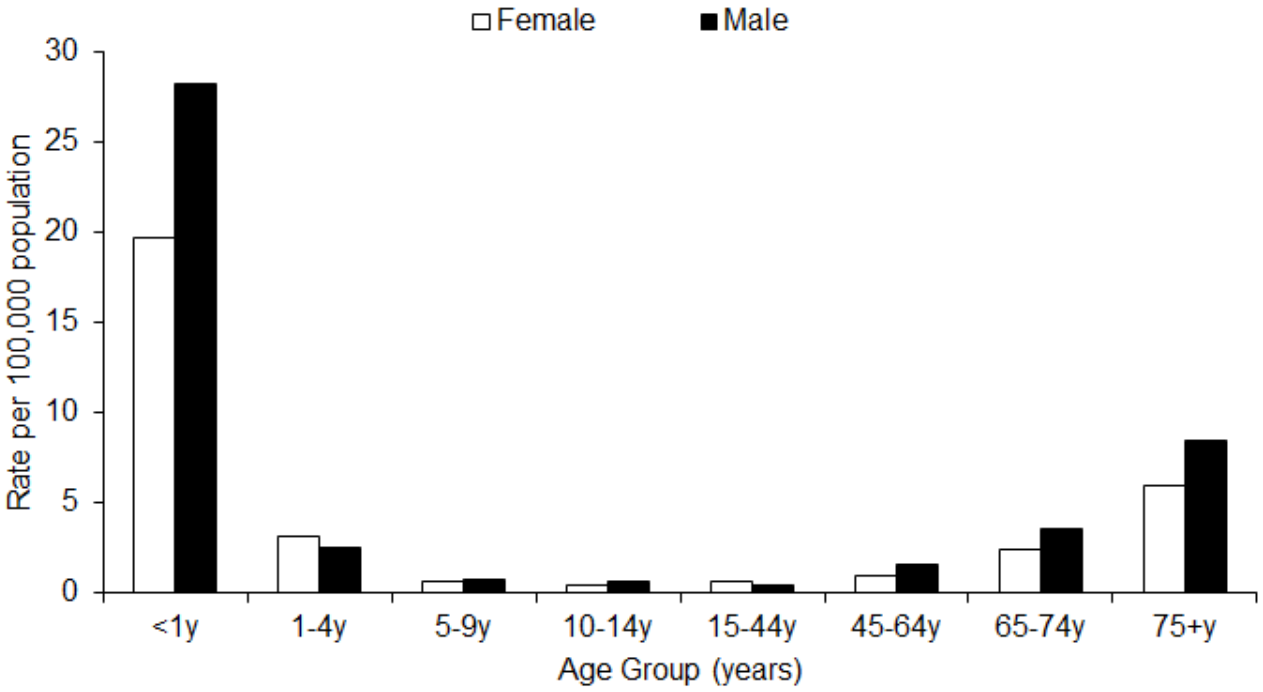


Figure 9. Sanguinis group streptococcal bacteraemia age and sex rates per 100,000 population in England, 2025

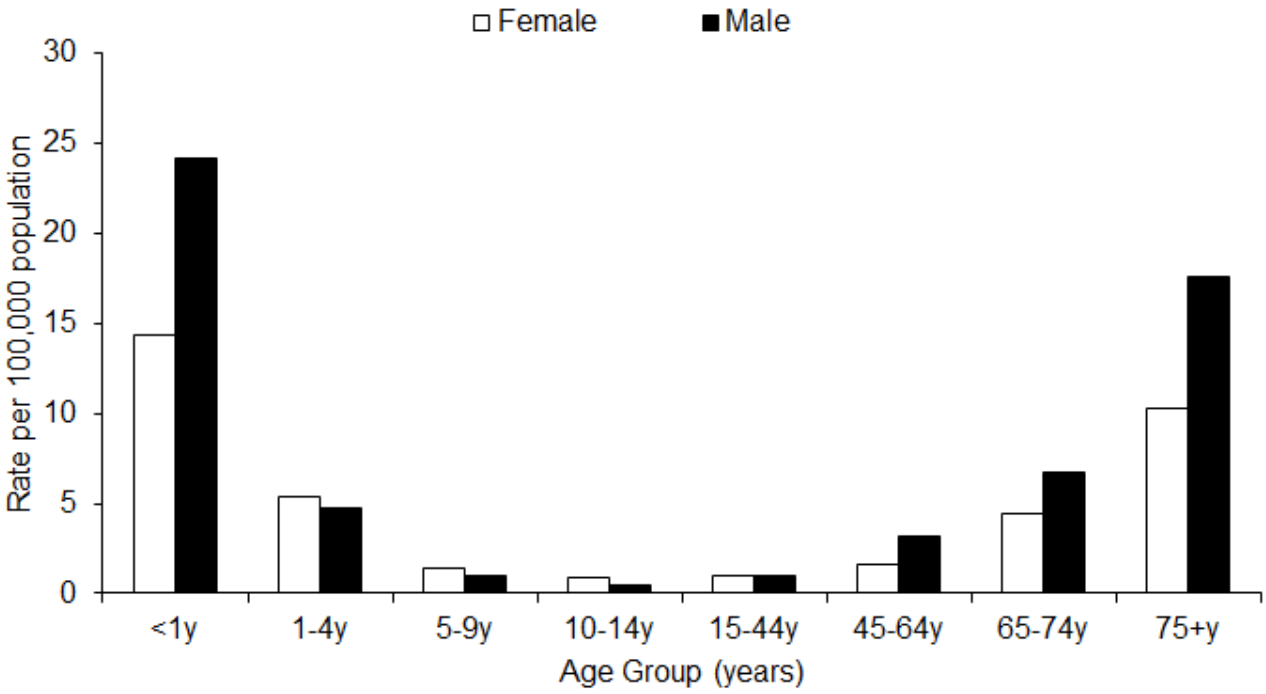


Table 10 shows the number of reports for each non-pyogenic streptococcal group bacteraemia that are tested and the percentage that are resistant to key antibiotics (penicillin, erythromycin and tetracycline) in England between 2021 and 2025.

Erythromycin susceptibility data were available for 13 to 16% of anginosus, bovis, mitis, salivarius and sanguinis group bacteraemia isolates from England in 2025; for tetracycline, data availability was 8 to 13% and for penicillin, 74 to 82%. Resistance to penicillin was reported for 12% of mitis isolates (an increase from 9% resistant in 2021), 15% of salivarius isolates (an increase from 9% in 2021), and 23% of sanguinis isolates (an increase from 19% resistant in 2024, but similar to 2021 where 21% were resistant) (Table 10). The percentage of isolates reported as resistant to erythromycin decreased or remained similar between 2021 and 2024 for all groups with the exception of salivarius where resistance has increased from 35% to 50%.

Table 10. Antimicrobial susceptibility for non-pyogenic streptococci causing bacteraemia in England, 2021 to 2025

In this table NT = number tested, and R = resistant

Species	Antimicrobial agent	2021: NT	2021: R (%)	2022: NT	2022: R (%)	2023: NT	2023: R (%)	2024: NT	2024: R (%)	2025: NT	2025: R (%)
anginosus	Erythromycin	628	12	478	15	442	12	371	13	301	14
	Tetracycline	608	17	478	20	375	21	305	19	251	20
	Vancomycin	1,146	<1	997	0	1,197	<1	1,223	1	1,169	<1
	Linezolid	285	1	208	2	153	<1	113	0	74	3
	Penicillin	1,525	<1	1,343	<1	1,583	<1	1,593	<1	1,562	<1
bovis	Erythromycin	280	33	248	31	245	32	191	28	159	27
	Tetracycline	269	66	230	60	200	70	177	64	111	68
	Vancomycin	566	1	577	1	659	0	703	0	758	<1
	Linezolid	180	0	162	0	122	0	117	0	97	0
	Penicillin	695	<1	675	0	779	0	847	<1	884	1
mitis	Erythromycin	595	42	595	43	481	40	435	44	374	43
	Tetracycline	560	21	558	23	430	26	313	33	251	25
	Vancomycin	1,320	<1	1,553	0	1,808	<1	2,085	<1	1,971	<1
	Linezolid	349	<1	364	<1	244	0	197	1	136	0
	Penicillin	1,688	9	1,913	9	2,163	9	2,395	8	2,342	12

Species	Antimicrobial agent	2021: NT	2021: R (%)	2022: NT	2022: R (%)	2023: NT	2023: R (%)	2024: NT	2024: R (%)	2025: NT	2025: R (%)
salivarius	Erythromycin	328	35	236	39	207	37	179	41	148	50
	Tetracycline	305	9	204	15	173	13	121	19	93	18
	Vancomycin	578	1	533	3	660	3	644	2	666	1
	Linezolid	151	0	104	1	92	0	53	0	53	0
	Penicillin	757	9	715	8	832	13	860	14	861	15
sanguinis	Erythromycin	422	45	408	44	363	49	328	47	260	48
	Tetracycline	453	29	404	31	321	32	248	30	180	39
	Vancomycin	948	<1	1,089	<1	1,237	<1	1,343	<1	1,255	<1
	Linezolid	271	<1	230	0	168	<1	120	<1	70	0
	Penicillin	1,190	21	1,336	18	1,508	20	1,662	19	1,576	23

Reference microbiology service

In 2025, the percentage of reports of streptococcal bacteraemia in which the organism was not fully identified was 8%. Precise species identification of isolates would improve the monitoring of trends in non-pyogenic streptococci and related genera. The UKHSA *Staphylococcus* and *Streptococcus* reference section in the AMRHAI Reference Unit offers a referred (charged for) taxonomic identification service for streptococci and other related Gram-positive, catalase-negative genera from systemic and other significant infections. A free-of-charge reference service is available for urgent public health investigations, including non-sterile site isolates (of GAS, GBS, GCS and GGS) reported during the referral process as being associated with outbreaks. All such isolates should be submitted to the AMRHAI Reference Unit along with all GAS, GBS, GCS and GGS isolates from normally sterile sites (3, 4).

Laboratories are also requested to send any pyogenic streptococcal isolates exhibiting resistance to penicillin (according to EUCAST clinical breakpoints versus 15.0 (5) groups A, C and G: MIC >0.03 mg/L, or zone diameter <23mm; group B: MIC >0.125 mg/L, or zone diameter <18mm), cephalosporins, daptomycin, quinupristin-dalfopristin or tigecycline to the AMRHAI Reference Unit for confirmation. In addition, any streptococci (pyogenic or non-pyogenic) with suspected resistance to vancomycin, teicoplanin, telavancin, dalbavancin, linezolid or tedizolid resistance should be referred for further investigation.

In August 2025 a UKHSA Briefing Note was circulated to laboratories reminding them to submit their GAS, GBS and GCS/GGS invasive isolates, as well as those exhibiting unusual resistance. Following this circulation, a 234% increase in GBS referrals and 1,298% increase in GCS/GGS from sterile site isolates was reported (6).

UK public health guidance on the management of close contacts of iGAS cases in community settings was updated in December 2022, expanding the public health action to include patients with probable invasive GAS infection, with additional close contact groups being recommended for antibiotic prophylaxis. Additional guidelines for the prevention and control of GAS transmission in acute healthcare and maternity settings in the UK (7) are also available.

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These reports would not be possible without the weekly contributions from microbiology colleagues in laboratories across England, without whom there would be no surveillance data. The support from colleagues within the UKHSA AMRHAI Reference Unit (Colindale) is greatly valued in the preparation of the report. Feedback and specific queries about this report are welcome and can be sent to: hcai.amrdepartment@ukhsa.gov.uk

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