Clostridioides difficile infection, *Escherichia coli* bacteraemia, *Staphylococcus aureus* bacteraemia and Surgical Site Infection in Scotland

October to December 2024

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Contents

Introduction

Antimicrobial Resistance and Healthcare Associated Infection (ARHAI) Scotland provides a commentary on quarterly epidemiological data in Scotland for October to December (Q4) 2024 on the following:

- *Clostridioides difficile* infection
- *Escherichia coli* bacteraemia
- *Staphylococcus aureus* bacteraemia
- Surgical Site Infection

Data are provided for the 14 NHS boards and one NHS Special Health Board.

Main Points

Clostridioides difficile infection (CDI) during October to December 2024

- The total number of CDI cases in patients reported to ARHAI was 367.
- 281 CDI cases were reported to ARHAI as healthcare associated. This corresponds to an incidence rate of 18.0 cases per 100,000 total occupied bed days (TOBDs).
- 86 CDI cases were reported as community associated. This corresponds to an incidence rate of 6.2 cases per 100,000 population.
- No NHS boards were above the 95% confidence interval upper limit for healthcare associated or community associated CDI in the funnel plot analysis.
- NHS Grampian and NHSScotland were above normal variation for healthcare associated CDI when analysing trends over the past three years.
- NHS Grampian was above normal variation for community associated CDI when analysing trends over the past three years.

Escherichia coli bacteraemia (ECB) during October to December 2024

- The total number of ECB cases in patients reported to ARHAI was 1,070.
- 576 ECB cases were reported to ARHAI as healthcare associated. This corresponds to an incidence rate of 36.9 cases per 100,000 TOBDs.
- 494 ECB cases were reported as community associated. This corresponds to an incidence rate of 35.8 cases per 100,000 population.
- No NHS boards were above the 95% confidence interval upper limit for healthcare associated ECB in the funnel plot analysis.
- NHS Ayrshire & Arran was above the 95% confidence interval upper limit for community associated ECB in the funnel plot analysis.

- No NHS boards were above normal variation for healthcare associated or community associated ECB when analysing trends over the past three years.

Staphylococcus aureus bacteraemia (SAB) during October to December 2024

- The total number of SAB cases in patients reported to ARHAI was 434.
- 287 SAB cases were reported to ARHAI as healthcare associated. This corresponds to an incidence rate of 18.4 cases per 100,000 TOBDs.
- 147 SAB cases were reported as community associated. This corresponds to an incidence rate of 10.7 cases per 100,000 population.
- No NHS boards were above the 95% confidence interval upper limit for healthcare associated or community associated SAB in the funnel plot analysis.
- No NHS boards were above normal variation for healthcare associated or community associated SAB when analysing trends over the past three years.

Surgical Site Infection (SSI) during October to December 2024

Epidemiological data for SSI are not included for this quarter. National mandatory SSI surveillance was paused in 2020 to support the COVID-19 response and has not yet resumed.

Results and Commentary

Clostridioides difficile infection (CDI)

Total cases for quarter

- During Q4 2024, 367 *Clostridioides difficile* infection (CDI) cases in patients were reported to ARHAI. In the previous quarter there were 390 cases.
- In the clinical surveillance typing scheme (covering severe cases and/or outbreaks), out of a total of 81 isolates, ribotype 005 (17.3%) was the most common ribotype identified, followed by ribotypes 015 (16.0%), 002 (9.9%), 020 (8.6%), 014 (7.4%), 011 and 023 (both 6.2%), 013 (4.9%), and 046 and 078 (both 3.7%). The remaining 16.0% of isolates comprised a mixture of ribotypes, each with a prevalence of less than 3%.
- In the snapshot surveillance (which reflects the general distribution of ribotypes among CDI cases across Scotland), out of a total of 54 isolates, ribotype 005 (16.7%) was the most common ribotype identified, followed by ribotypes 014, 015 and 020 (all 11.1%), 078 (7.4%), 002, 023 and 050 (all 5.6%), and 011, 012 and 026 (all 3.7%). The remaining 14.8% of isolates comprised a mixture of ribotypes, each with a prevalence of less than 3%.
- All isolates tested (clinical and snapshot) were susceptible to metronidazole and vancomycin.

Healthcare associated infection cases by NHS board where specimen taken

- During Q4 2024, 281 CDI cases were reported to ARHAI as healthcare associated. This corresponds to an incidence rate of 18.0 cases per 100,000 total occupied bed days (TOBDs) (**Table 1**).
- Yearly comparisons (comparing year-ending December 2023 with year-ending December 2024) show that there were increases in NHS Greater Glasgow & Clyde and NHSScotland overall, and a decrease in NHS Tayside. (**Table 2**).

- No NHS boards were above the 95% confidence interval upper limit in the funnel plot analysis (**Figure 1**).
- NHS Grampian and NHSScotland were above normal variation when analysing trends over the past three years (see **supplementary data**).

Community associated infection cases by NHS board of residence

- During Q4 2024, 86 CDI cases were reported as community associated. This corresponds to an incidence rate of 6.2 cases per 100,000 population (**Table 3**).
- Yearly comparisons (comparing year-ending December 2023 with year-ending December 2024) show that there were increases in NHS Forth Valley, NHS Grampian, NHS Lothian and NHSScotland overall (**Table 4**).
- No NHS boards were above the 95% confidence interval upper limit in the funnel plot analysis (**Figure 2**).
- NHS Grampian were above normal variation when analysing trends over the past three years (see **supplementary data**).

Table 1: CDI cases and incidence rates (per 100,000 TOBDs) for healthcare associated infection cases: Q3 2024 (July to September 2024) compared to Q4 2024 (October to December 2024).[1, 2, 3]

NHS board	Q3 Cases	Q3 Bed Days	Q3 Rate	Q4 Cases	Q4 Bed Days	Q4 Rate
AA	23	115,071	20.0	22	113,807	19.3
BR	4	31,520	12.7	2	32,816	6.1
DG	16	45,576	35.1	13	45,999	28.3
FF	13	87,254	14.9	12	87,802	13.7
FV	17	76,661	22.2	13	74,129	17.5
GJ	0	13,932	0.0	0	14,271	0.0
GR	27	136,151	19.8	28	138,657	20.2
GGC	84	445,305	18.9	85	447,530	19.0
HG	24	79,723	30.1	21	81,004	25.9
LN	26	151,820	17.1	27	152,943	17.7
LO	35	240,671	14.5	45	240,748	18.7
OR	0	3,015	0.0	0	3,121	0.0
SH	2	2,632	76.0	2	2,570	77.8
TY	13	115,907	11.2	9	118,339	7.6
WI	1	7,220	13.9	2	6,550	30.5
Scotland	**285**	**1,552,458**	**18.4**	**281**	**1,560,286**	**18.0**

1. An arrow denotes statistically significant change.
2. Source of data is Electronic Communication of Surveillance in Scotland (ECOSS) & Total occupied bed days: Public Health Scotland ISD(S)1.
3. Figures include any updates received following the last publication (see Appendix 2).

Table 2: CDI cases and incidence rates (per 100,000 TOBDs) for healthcare associated infection cases: year-ending December 2023 (YE Q4 23) compared to year-ending December 2024 (YE Q4 24).[1, 2, 3]

NHS board	YE Q4 23 Cases	YE Q4 23 Bed Days	YE Q4 23 Rate	YE Q4 24 Cases	YE Q4 24 Bed Days	YE Q4 24 Rate
AA	67	465,411	14.4	88	458,023	19.2
BR	12	128,171	9.4	13	129,227	10.1
DG	33	183,864	17.9	45	185,142	24.3
FF	33	355,544	9.3	37	353,754	10.5
FV	45	306,799	14.7	57	310,482	18.4
GJ	3	52,407	5.7	2	56,746	3.5
GR	61	534,737	11.4	84	552,273	15.2
GGC	246	1,784,107	13.8	310	1,796,564	↑ 17.3
HG	73	306,819	23.8	86	322,228	26.7
LN	121	610,441	19.8	117	613,938	19.1
LO	136	965,755	14.1	148	963,685	15.4
OR	2	13,531	14.8	0	12,264	0.0
SH	6	9,316	64.4	8	10,003	80.0
TY	77	476,087	16.2	36	469,876	↓ 7.7
WI	2	24,370	8.2	3	27,526	10.9
Scotland	**917**	**6,217,359**	**14.7**	**1,034**	**6,261,731**	**↑ 16.5**

1. An arrow denotes statistically significant change.
2. Source of data is Electronic Communication of Surveillance in Scotland (ECOSS) & Total occupied bed days: Public Health Scotland ISD(S)1.
3. Figures include any updates received following the last publication (see Appendix 2).

Table 3: CDI cases and incidence rates (per 100,000 population) for community associated infection cases: Q3 2024 (July to September 2024) compared to Q4 2024 (October to December 2024). [1, 2, 3, 4]

NHS board	Q3 Cases	Q3 Population	Q3 Rate	Q4 Cases	Q4 Population	Q4 Rate
AA	10	366,150	10.9	10	366,150	10.9
BR	4	116,630	13.6	1	116,630	3.4
DG	1	145,670	2.7	2	145,670	5.5
FF	6	373,210	6.4	3	373,210	3.2
FV	5	304,110	6.5	5	304,110	6.5
GR	12	586,740	8.1	16	586,740	10.8
GGC	10	1,193,420	3.3	9	1,193,420	3.0
HG	8	324,140	9.8	10	324,140	12.3
LN	8	672,170	4.7	8	672,170	4.7
LO	32	919,060	13.9	15	919,060	6.5
OR	2	22,000	36.2	0	22,000	0.0
SH	0	23,000	0.0	3	23,000	51.9
TY	6	417,770	5.7	4	417,770	3.8
WI	1	26,030	15.3	0	26,030	0.0
Scotland	**105**	**5,490,100**	**7.6**	**86**	**5,490,100**	**6.2**

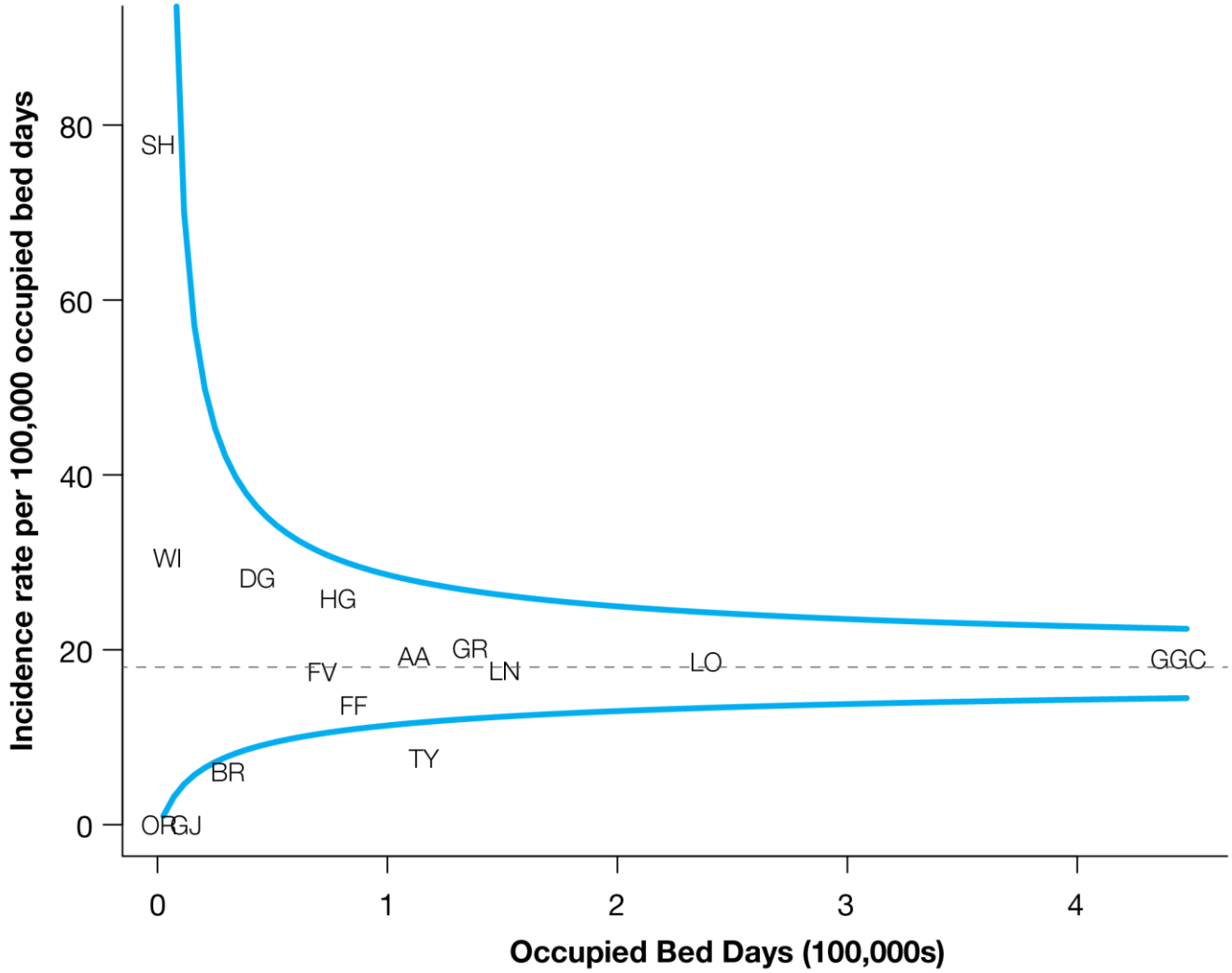
1. An arrow denotes statistically significant change.
2. Quarterly population rates are based on an annualised population.
3. Source of data is Electronic Communication of Surveillance in Scotland (ECOSS) & National Records of Scotland (NRS) mid-year population estimates.
4. Figures include any updates received following the last publication (see Appendix 2).

Table 4: CDI cases and incidence rates (per 100,000 population) for community associated infection cases: year-ending December 2023 (YE Q4 23) compared to year-ending December 2024 (YE Q4 24).[1, 2, 3]

NHS board	YE Q4 23 Cases	YE Q4 23 Population	YE Q4 23 Rate	YE Q4 24 Cases	YE Q4 24 Population	YE Q4 24 Rate
AA	28	366,150	7.6	36	366,150	9.8
BR	5	116,630	4.3	6	116,630	5.1
DG	14	145,670	9.6	11	145,670	7.6
FF	14	373,210	3.8	25	373,210	6.7
FV	4	304,110	1.3	13	304,110	↑ 4.3
GR	27	586,740	4.6	46	586,740	↑ 7.8
GGC	53	1,193,420	4.4	51	1,193,420	4.3
HG	23	324,140	7.1	35	324,140	10.8
LN	37	672,170	5.5	32	672,170	4.8
LO	58	919,060	6.3	93	919,060	↑ 10.1
OR	0	22,000	0.0	3	22,000	13.6
SH	0	23,000	0.0	4	23,000	17.4
TY	24	417,770	5.7	20	417,770	4.8
WI	5	26,030	19.2	3	26,030	11.5
Scotland	**292**	**5,490,100**	**5.3**	**378**	**5,490,100**	↑ **6.9**

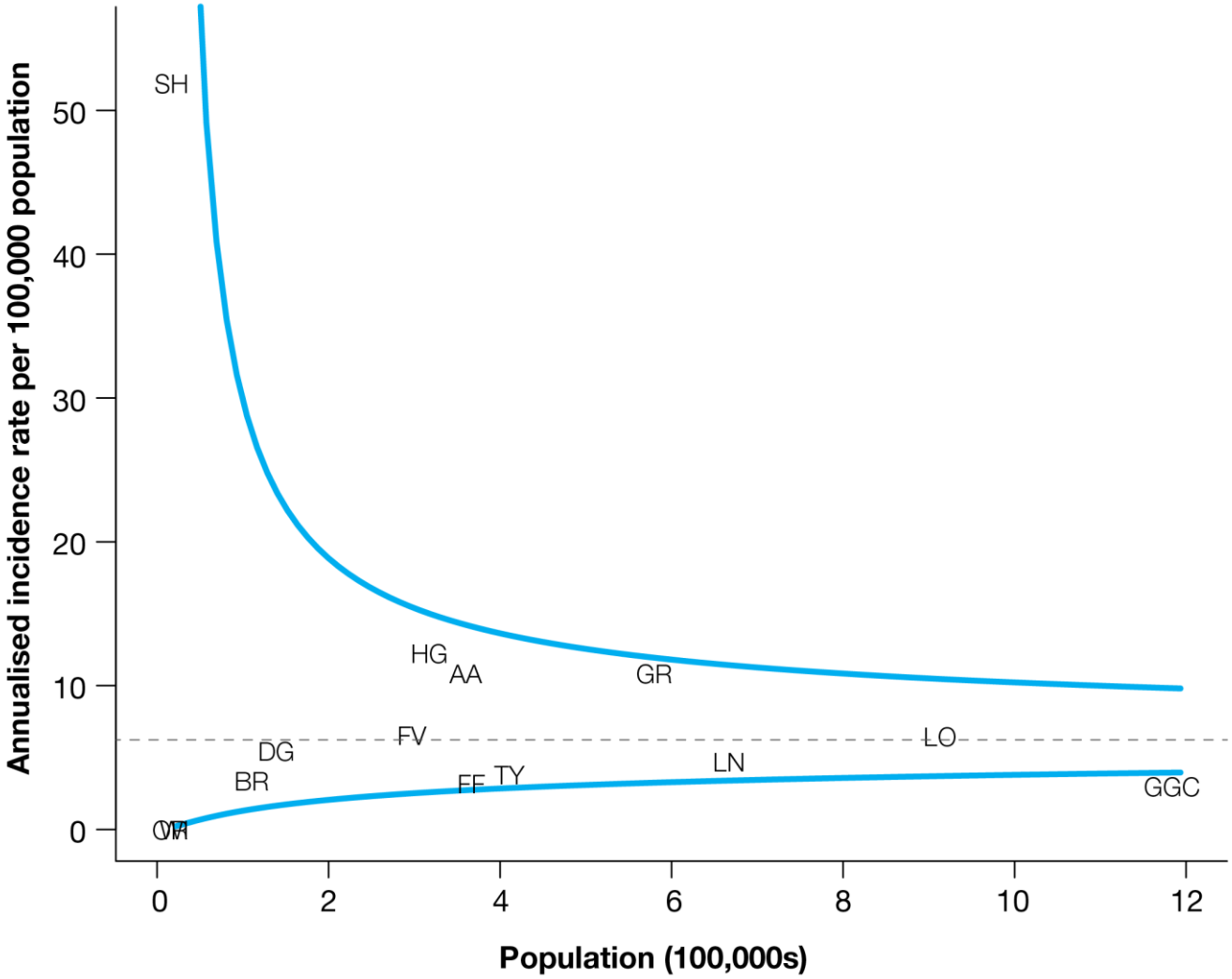
1. An arrow denotes statistically significant change.
2. Source of data is Electronic Communication of Surveillance in Scotland (ECOSS) & National Records of Scotland (NRS) mid-year population estimates.
3. Figures include any updates received following the last publication (see Appendix 2).

Figure 1: Funnel plot of CDI incidence rates (per 100,000 TOBD) in healthcare associated infection cases for all NHS boards in Scotland in Q4 2024.[1, 2, 3]



1. Source of data is Electronic Communication of Surveillance in Scotland (ECOSS) & Total occupied bed days: Public Health Scotland ISD(S)1.
2. NHS Orkney and NHS Golden Jubilee overlap.
3. NHS boards above the 95% confidence interval upper limit are highlighted in red.

Figure 2: Funnel plot of CDI incidence rates (per 100,000 population) in community associated infection cases for all NHS boards in Scotland in Q4 2024.[1, 2, 3]



1. Source of data is Electronic Communication of Surveillance in Scotland (ECOSS) & National Records of Scotland (NRS) mid-year population estimates.
2. NHS Orkney and NHS Western Isles overlap.
3. NHS boards above the 95% confidence interval upper limit are highlighted in red.

Escherichia coli bacteraemia (ECB)

Total Cases for Quarter

- During Q4 2024, 1,070 *Escherichia coli* bacteraemia (ECB) cases in patients were reported to ARHAI. In the previous quarter there were 1,132 cases.

Healthcare associated infection cases by NHS board where specimen taken

- During Q4 2024, 576 ECB cases were reported to ARHAI as healthcare associated. This corresponds to an incidence rate of 36.9 cases per 100,000 TOBDs (**Table 5**).
- Yearly comparisons (comparing year-ending December 2023 with year-ending December 2024) show that there was an increase in NHS Fife (**Table 6**).
- No NHS boards were above the 95% confidence interval upper limit in the funnel plot analysis (**Figure 3**).
- No NHS boards were above normal variation when analysing trends over the past three years (see **supplementary data**).

Community associated infection cases by NHS board of residence

- During Q4 2024, 494 ECB cases were reported as community associated. This corresponds to an incidence rate of 35.8 cases per 100,000 population (**Table 7**).
- Yearly comparisons (comparing year-ending December 2023 with year-ending December 2024) show there was an increase in NHS Forth Valley and a decrease in NHS Orkney (**Table 8**).
- NHS Ayrshire & Arran were above the 95% confidence interval upper limit in the funnel plot analysis (**Figure 4**).
- No NHS boards were above normal variation when analysing trends over the past three years (see **supplementary data**).

Table 5: ECB cases and incidence rates (per 100,000 TOBD) for healthcare associated infection cases: Q3 2024 (July to September 2024) compared to Q4 2024 (October to December 2024).[1, 2, 3]

NHS board	Q3 Cases	Q3 Bed Days	Q3 Rate	Q4 Cases	Q4 Bed Days	Q4 Rate
AA	45	115,071	39.1	49	113,807	43.1
BR	11	31,520	34.9	12	32,816	36.6
DG	33	45,576	72.4	17	45,999	37.0
FF	32	87,254	36.7	30	87,802	34.2
FV	46	76,661	60.0	34	74,129	45.9
GJ	1	13,932	7.2	0	14,271	0.0
GR	46	136,151	33.8	42	138,657	30.3
GGC	170	445,305	38.2	173	447,530	38.7
HG	22	79,723	27.6	23	81,004	28.4
LN	63	151,820	41.5	53	152,943	34.7
LO	85	240,671	35.3	86	240,748	35.7
OR	2	3,015	66.3	1	3,121	32.0
SH	4	2,632	152.0	1	2,570	38.9
TY	56	115,907	48.3	52	118,339	43.9
WI	4	7,220	55.4	3	6,550	45.8
Scotland	**620**	**1,552,458**	**39.9**	**576**	**1,560,286**	**36.9**

1. An arrow denotes statistically significant change.
2. Source of data is Electronic Communication of Surveillance in Scotland (ECOSS) & Total occupied bed days: Public Health Scotland ISD(S)1.
3. Figures include any updates received following the last publication (see Appendix 2).

Table 6: ECB cases and incidence rates (per 100,000 TOBDs) for healthcare associated infection cases: year-ending December 2023 (YE Q4 23) compared to year-ending December 2024 (YE Q4 24).[1, 2, 3]

NHS board	YE Q4 23 Cases	YE Q4 23 Bed days	YE Q4 23 Rate	YE Q4 24 Cases	YE Q4 24 Bed days	YE Q4 24 Rate
AA	194	465,411	41.7	198	458,023	43.2
BR	59	128,171	46.0	52	129,227	40.2
DG	72	183,864	39.2	86	185,142	46.5
FF	113	355,544	31.8	145	353,754	↑ 41.0
FV	148	306,799	48.2	153	310,482	49.3
GJ	9	52,407	17.2	9	56,746	15.9
GR	188	534,737	35.2	191	552,273	34.6
GGC	635	1,784,107	35.6	644	1,796,564	35.8
HG	80	306,819	26.1	81	322,228	25.1
LN	231	610,441	37.8	235	613,938	38.3
LO	314	965,755	32.5	315	963,685	32.7
OR	5	13,531	37.0	8	12,264	65.2
SH	4	9,316	42.9	12	10,003	120.0
TY	224	476,087	47.1	229	469,876	48.7
WI	17	24,370	69.8	17	27,526	61.8
Scotland	**2,293**	**6,217,359**	**36.9**	**2,375**	**6,261,731**	**37.9**

1. An arrow denotes statistically significant change.
2. Source of data is Electronic Communication of Surveillance in Scotland (ECOSS) & Total occupied bed days: Public Health Scotland ISD(S)1.
3. Figures include any updates received following the last publication (see Appendix 2).

Table 7: ECB cases and incidence rates (per 100,000 population) for community associated infection cases: Q3 2024 (July to September 2024) compared to Q4 2024 (October to December 2024).[1, 2, 3, 4]

NHS board	Q3 Cases	Q3 Population	Q3 Rate	Q4 Cases	Q4 Population	Q4 Rate
AA	53	366,150	57.6	54	366,150	58.7
BR	25	116,630	85.3	14	116,630	47.8
DG	21	145,670	57.4	21	145,670	57.4
FF	38	373,210	40.5	34	373,210	36.2
FV	32	304,110	41.9	31	304,110	40.6
GR	31	586,740	21.0	33	586,740	22.4
GGC	95	1,193,420	31.7	99	1,193,420	33.0
HG	26	324,140	31.9	31	324,140	38.0
LN	70	672,170	41.4	77	672,170	45.6
LO	70	919,060	30.3	55	919,060	23.8
OR	4	22,000	72.3	0	22,000	0.0
SH	1	23,000	17.3	3	23,000	51.9
TY	46	417,770	43.8	40	417,770	38.1
WI	0	26,030	0.0	2	26,030	30.6
Scotland	**512**	**5,490,100**	**37.1**	**494**	**5,490,100**	**35.8**

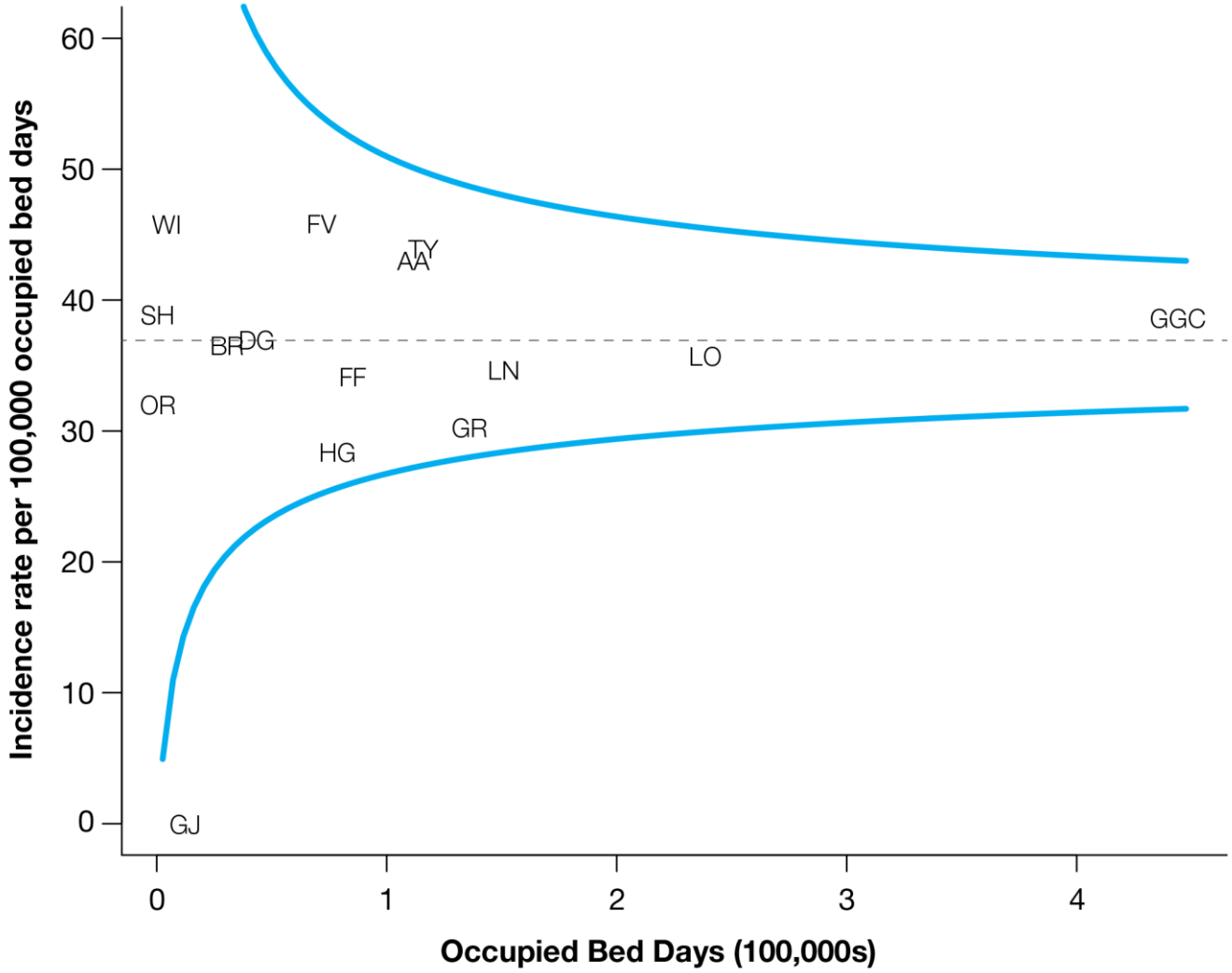
1. An arrow denotes statistically significant change.
2. Quarterly population rates are based on an annualised population.
3. Source of data is Electronic Communication of Surveillance in Scotland (ECOSS) & National Records of Scotland (NRS) mid-year population estimates.
4. Figures include any updates received following the last publication (see Appendix 2).

Table 8: ECB cases and incidence rates (per 100,000 population) for community associated infection cases: year-ending December 2023 (YE Q4 23) compared to year-ending December 2024 (YE Q4 24).[1, 2, 3]

NHS board	YE Q4 23 Cases	YE Q4 23 Population	YE Q4 23 Rate	YE Q4 24 Cases	YE Q4 24 Population	YE Q4 24 Rate
AA	186	366,150	50.8	212	366,150	57.9
BR	51	116,630	43.7	64	116,630	54.9
DG	83	145,670	57.0	82	145,670	56.3
FF	133	373,210	35.6	133	373,210	35.6
FV	93	304,110	30.6	123	304,110	↑ 40.4
GR	166	586,740	28.3	151	586,740	25.7
GGC	416	1,193,420	34.9	379	1,193,420	31.8
HG	133	324,140	41.0	118	324,140	36.4
LN	281	672,170	41.8	296	672,170	44.0
LO	290	919,060	31.6	252	919,060	27.4
OR	15	22,000	68.2	5	22,000	↓ 22.7
SH	4	23,000	17.4	5	23,000	21.7
TY	160	417,770	38.3	176	417,770	42.1
WI	5	26,030	19.2	4	26,030	15.4
Scotland	**2,016**	**5,490,100**	**36.7**	**2,000**	**5,490,100**	**36.4**

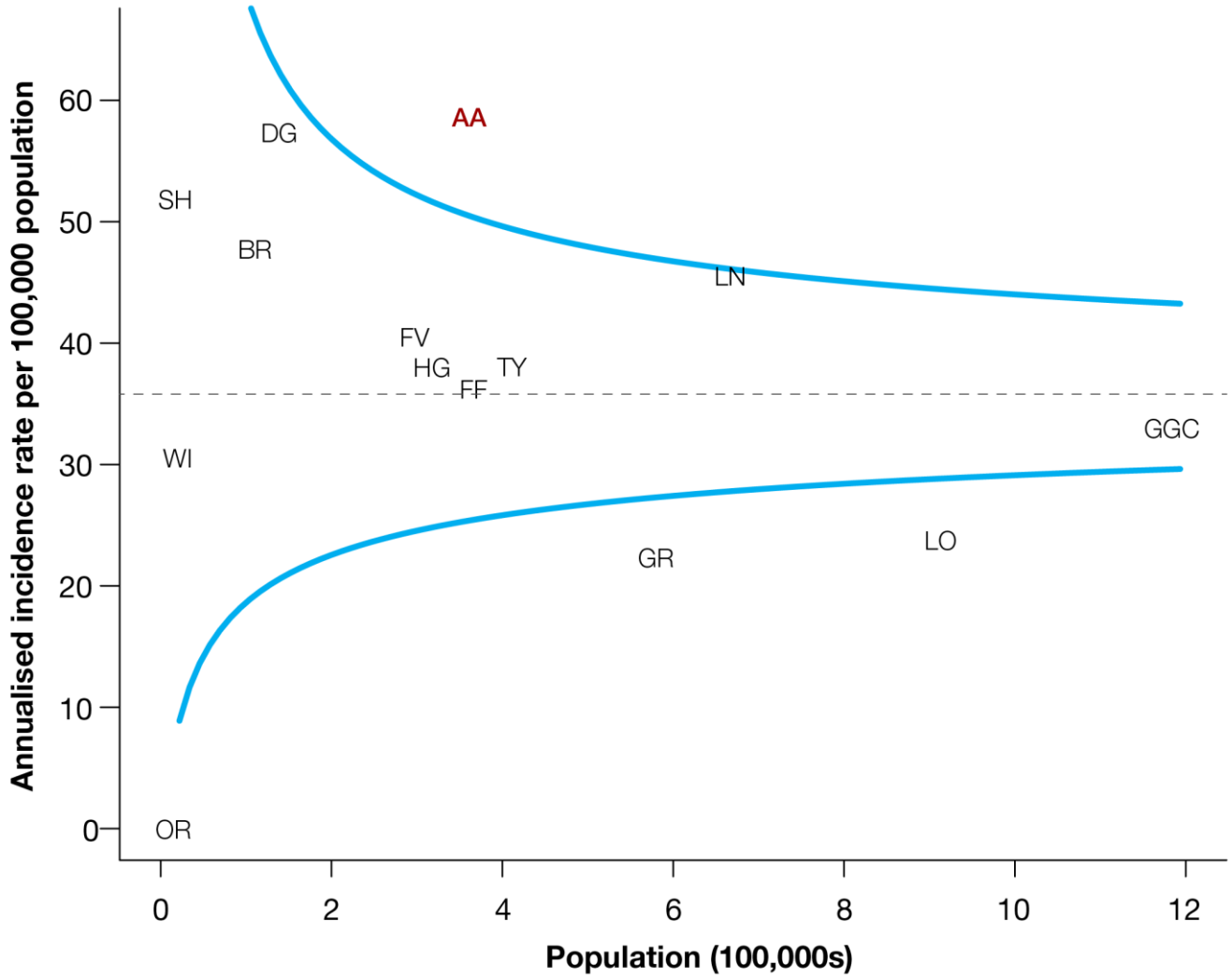
1. An arrow denotes statistically significant change.
2. Source of data is Electronic Communication of Surveillance in Scotland (ECOSS) & National Records of Scotland (NRS) mid-year population estimates.
3. Figures include any updates received following the last publication (see Appendix 2).

Figure 3: Funnel plot of ECB incidence rates (per 100,000 TOBD) in healthcare associated infection cases for all NHS boards in Scotland in Q4 2024.[1, 2]



1. Source of data is Electronic Communication of Surveillance in Scotland (ECOSS) & Total occupied bed days: Public Health Scotland ISD(S)1.
2. NHS Borders and NHS Dumfries & Galloway overlap.
3. NHS boards above the 95% confidence interval upper limit are highlighted in red.

Figure 4: Funnel plot of ECB incidence rates (per 100,000 population) in community associated infection cases for all NHS boards in Scotland in Q4 2024.[1, 2]



1. Source of data is Electronic Communication of Surveillance in Scotland (ECOSS) & National Records of Scotland (NRS) mid-year population estimates.
2. NHS boards above the 95% confidence interval upper limit are highlighted in red.

Staphylococcus aureus bacteraemia (SAB)

Total cases for quarter

- During Q4 2024, 434 *Staphylococcus aureus* bacteraemia (SAB) cases in patients were reported to ARHAI. In the previous quarter there were 456 SAB cases.

Healthcare associated infection cases by NHS board where specimen taken

- During Q4 2024, 287 SAB cases were reported to ARHAI as healthcare associated. This corresponds to an incidence rate of 18.4 cases per 100,000 TOBDs (**Table 9**).
- Yearly comparisons (comparing year-ending December 2023 with year-ending December 2024) show there was a decrease in NHS Highland (**Table 10**).
- No NHS boards were above the 95% confidence interval upper limit in the funnel plot analysis (**Figure 5**).
- No NHS boards were above normal variation when analysing trends over the past three years (see **supplementary data**).

Community associated infection cases by NHS board of residence

- During Q4 2024, 147 SAB cases were reported as community associated. This corresponds to an incidence rate of 10.7 cases per 100,000 population (**Table 11**).
- Yearly comparisons (comparing year-ending December 2023 with year-ending December 2024) show there were no increases or decreases for NHS boards (**Table 12**).
- No NHS boards were above the 95% confidence interval upper limit in the funnel plot analysis (**Figure 6**).
- No NHS boards were above normal variation when analysing trends over the past three years (see **supplementary data**).

Table 9: SAB cases and incidence rates (per 100,000 TOBDs) for healthcare associated infection cases: Q3 2024 (July to September 2024) compared to Q4 2024 (October to December 2024).[1, 2, 3]

NHS board	Q3 Cases	Q3 Bed Days	Q3 Rate	Q4 Cases	Q4 Bed Days	Q4 Rate
AA	38	115,071	33.0	31	113,807	27.2
BR	4	31,520	12.7	9	32,816	27.4
DG	10	45,576	21.9	9	45,999	19.6
FF	5	87,254	5.7	17	87,802	19.4
FV	16	76,661	20.9	14	74,129	18.9
GJ	3	13,932	21.5	1	14,271	7.0
GR	25	136,151	18.4	30	138,657	21.6
GGC	87	445,305	19.5	76	447,530	17.0
HG	7	79,723	8.8	7	81,004	8.6
LN	28	151,820	18.4	26	152,943	17.0
LO	51	240,671	21.2	40	240,748	16.6
OR	0	3,015	0.0	0	3,121	0.0
SH	2	2,632	76.0	0	2,570	0.0
TY	33	115,907	28.5	25	118,339	21.1
WI	4	7,220	55.4	2	6,550	30.5
Scotland	**313**	**1,552,458**	**20.2**	**287**	**1,560,286**	**18.4**

1. An arrow denotes statistically significant change.
2. Source of data is Electronic Communication of Surveillance in Scotland (ECOSS) & Total occupied bed days: Public Health Scotland ISD(S)1.
3. Figures include any updates received following the last publication (see Appendix 2).

Table 10: SAB cases and incidence rates (per 100,000 TOBDs) for healthcare associated infection cases: year-ending December 2023 (YE Q4 23) compared to year-ending December 2024 (YE Q4 24).[1, 2, 3]

NHS board	YE Q4 23 Cases	YE Q4 23 Bed days	YE Q4 23 Rate	YE Q4 24 Cases	YE Q4 24 Bed days	YE Q4 24 Rate
AA	90	465,411	19.3	109	458,023	23.8
BR	17	128,171	13.3	21	129,227	16.3
DG	33	183,864	17.9	34	185,142	18.4
FF	47	355,544	13.2	52	353,754	14.7
FV	54	306,799	17.6	54	310,482	17.4
GJ	10	52,407	19.1	10	56,746	17.6
GR	97	534,737	18.1	108	552,273	19.6
GGC	324	1,784,107	18.2	313	1,796,564	17.4
HG	52	306,819	16.9	34	322,228	↓ 10.6
LN	130	610,441	21.3	118	613,938	19.2
LO	167	965,755	17.3	159	963,685	16.5
OR	0	13,531	0.0	0	12,264	0.0
SH	7	9,316	75.1	5	10,003	50.0
TY	125	476,087	26.3	115	469,876	24.5
WI	9	24,370	36.9	9	27,526	32.7
Scotland	**1,162**	**6,217,359**	**18.7**	**1,141**	**6,261,731**	**18.2**

1. An arrow denotes statistically significant change.
2. Source of data is Electronic Communication of Surveillance in Scotland (ECOSS) & Total occupied bed days: Public Health Scotland ISD(S)1.
3. Figures include any updates received following the last publication (see Appendix 2).

Table 11: SAB cases and incidence rates (per 100,000 population) for community associated infection cases: Q3 2024 (July to September 2024) compared to Q4 2024 (October to December 2024).[1, 2, 3, 4]

NHS board	Q3 Cases	Q3 Population	Q3 Rate	Q4 Cases	Q4 Population	Q4 Rate
AA	9	366,150	9.8	9	366,150	9.8
BR	4	116,630	13.6	7	116,630	23.9
DG	6	145,670	16.4	6	145,670	16.4
FF	16	373,210	17.1	6	373,210	6.4
FV	12	304,110	15.7	14	304,110	18.3
GR	20	586,740	13.6	18	586,740	12.2
GGC	17	1,193,420	5.7	17	1,193,420	5.7
HG	6	324,140	7.4	5	324,140	6.1
LN	17	672,170	10.1	17	672,170	10.1
LO	24	919,060	10.4	30	919,060	13.0
OR	0	22,000	0.0	0	22,000	0.0
SH	0	23,000	0.0	2	23,000	34.6
TY	11	417,770	10.5	16	417,770	15.2
WI	1	26,030	15.3	0	26,030	0.0
Scotland	**143**	**5,490,100**	**10.4**	**147**	**5,490,100**	**10.7**

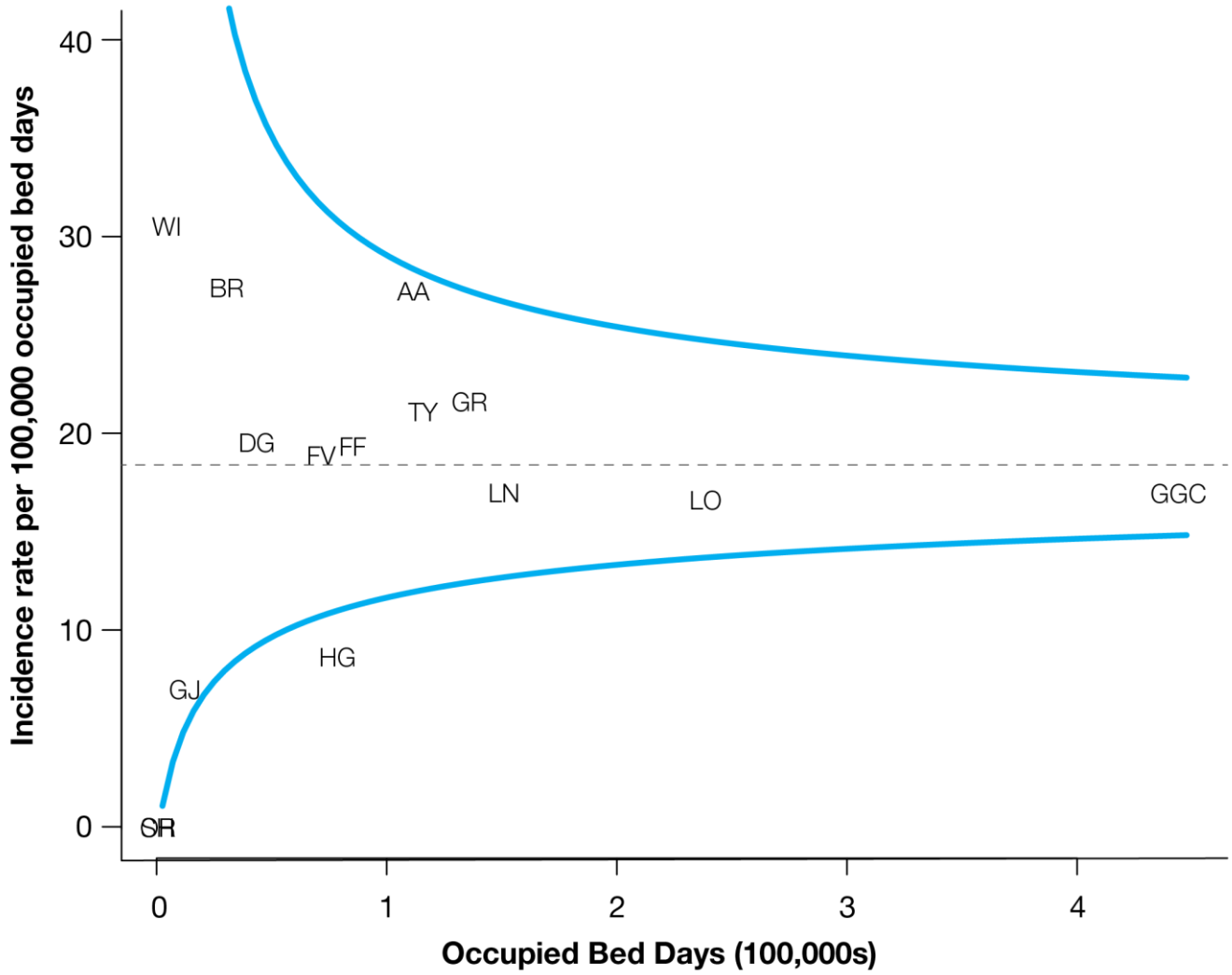
1. An arrow denotes statistically significant change.
2. Quarterly population rates are based on an annualised population.
3. Source of data is Electronic Communication of Surveillance in Scotland (ECOSS) & National Records of Scotland (NRS) mid-year population estimates.
4. Figures include any updates received following the last publication (see Appendix 2).

Table 12: SAB cases and incidence rates (per 100,000 population) for community associated infection cases: year-ending December 2023 (YE Q4 23) compared to year-ending December 2024 (YE Q4 24).[1, 2, 3]

NHS board	YE Q4 23 Cases	YE Q4 23 Population	YE Q4 23 Rate	YE Q4 24 Cases	YE Q4 24 Population	YE Q4 24 Rate
AA	64	366,150	17.5	46	366,150	12.6
BR	16	116,630	13.7	22	116,630	18.9
DG	18	145,670	12.4	18	145,670	12.4
FF	45	373,210	12.1	43	373,210	11.5
FV	36	304,110	11.8	37	304,110	12.2
GR	65	586,740	11.1	74	586,740	12.6
GGC	80	1,193,420	6.7	78	1,193,420	6.5
HG	27	324,140	8.3	23	324,140	7.1
LN	63	672,170	9.4	73	672,170	10.9
LO	78	919,060	8.5	100	919,060	10.9
OR	1	22,000	4.5	1	22,000	4.5
SH	9	23,000	39.1	5	23,000	21.7
TY	47	417,770	11.3	53	417,770	12.7
WI	1	26,030	3.8	1	26,030	3.8
Scotland	**550**	**5,490,100**	**10.0**	**574**	**5,490,100**	**10.5**

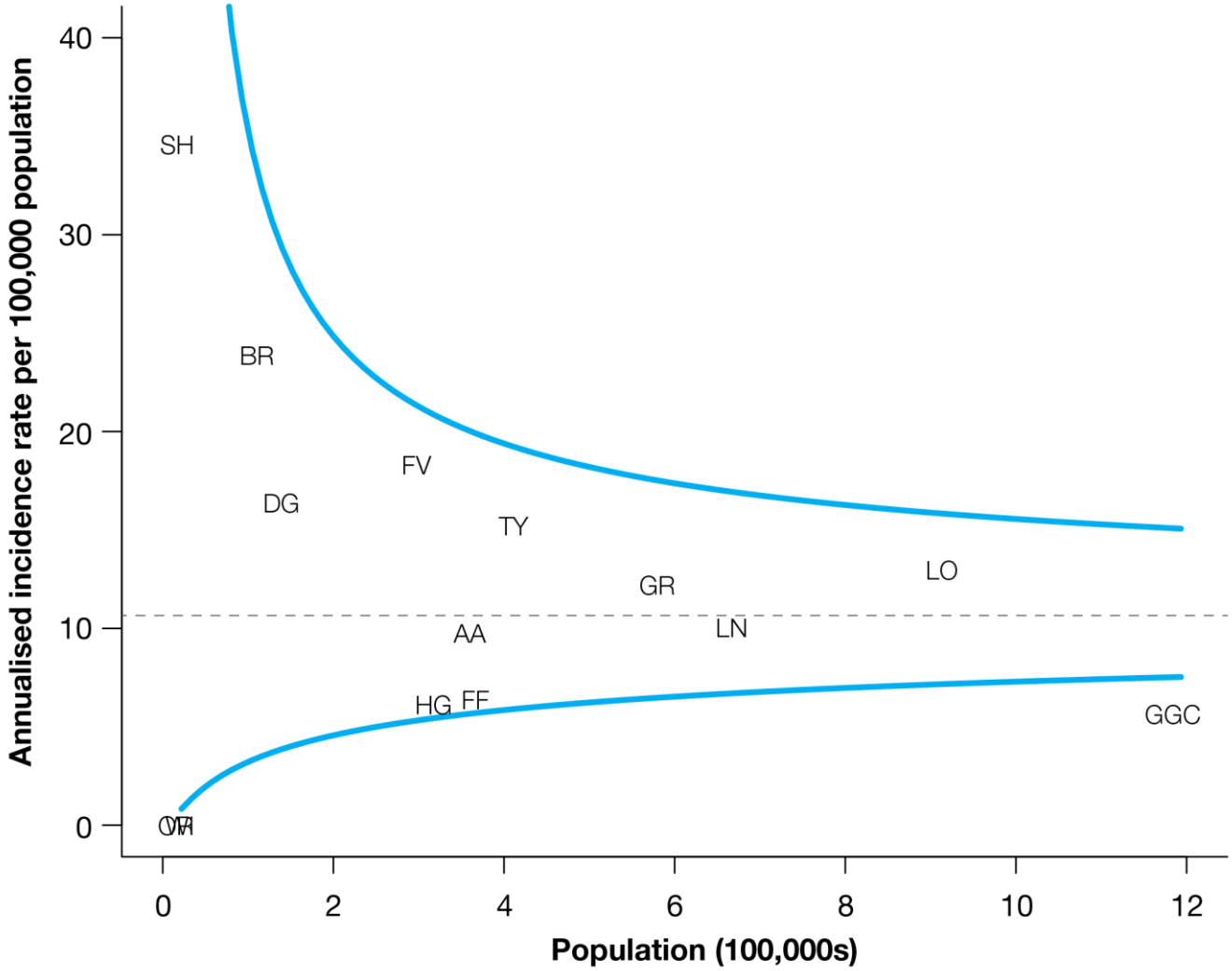
1. An arrow denotes statistically significant change.
2. Source of data is Electronic Communication of Surveillance in Scotland (ECOSS) & National Records of Scotland (NRS) mid-year population estimates.
3. Figures include any updates received following the last publication (see Appendix 2).

Figure 5: Funnel plot of SAB incidence rates (per 100,000 TOBD) in healthcare associated infection cases for all NHS boards in Scotland in Q4 2024.[1, 2]



1. Source of data is Electronic Communication of Surveillance in Scotland (ECOSS) & Total occupied bed days: Public Health Scotland ISD(S)1.
2. NHS Orkney and NHS Shetland overlap.
3. NHS boards above the 95% confidence interval upper limit are highlighted in red.

Figure 6: Funnel plot of SAB incidence rates (per 100,000 population) in community associated infection cases for all NHS boards in Scotland in Q4 2024.[1, 2, 3]



1. Source of data is Electronic Communication of Surveillance in Scotland (ECOSS) & National Records of Scotland (NRS) mid-year population estimates.
2. NHS Orkney and NHS Western Isles overlap.
3. NHS boards above the 95% confidence interval upper limit are highlighted in red.

Surgical Site Infection (SSI)

Epidemiological data for SSI are not included for this quarter. National mandatory SSI surveillance was paused in 2020 to support the COVID-19 response and has not yet resumed.

List of Tables

Name	File and size
Table 11: SAB cases and incidence rates (per 100,000 population) for community associated infection cases: Q3 2024 (July to September 2024) compared to Q4 2024 (October to December 2024).	**supplementary data (534 Kb)**
Table 12: SAB cases and incidence rates (per 100,000 population) for community associated infection cases: year-ending December 2023 (YE Q4 23) compared to year-ending December 2024 (YE Q4 24).	**supplementary data (534 Kb)**

Contact

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Further Information

Further information can be found on the **ARHAI Scotland website.**

The data from this publication is available to download **from our web page** along with background information and metadata.

For more information on types of infections included in this report, please see the **CDI, ECB, SAB** and **SSI** pages.

The next release of this publication will be July 2025.

Rate this publication

Please **provide feedback** on this publication to help us improve our services.

Appendices

Appendix 1 – Background information

Revisions to the surveillance

Description of Revision	First report revision applied	Report section(s) revision applies to	Rational for revision
Addition of healthcare/ community case assignment.	October 2017	CDI/SAB	An increasing awareness of those infections occurring in community settings has warranted measurement of incidence rates by healthcare setting (healthcare settings vs. community settings) to enable interventions to be targeted to the relevant settings.
Use of standardised denominator data for CDI/ECB/SAB.	October 2017	CDI/SAB	The 'total occupied bed days' data will be extracted from the ISD(S)1 data collection which contains aggregated information on acute and non-acute bed days including geriatric medicine and long-term stays in real-time. The standardisation of denominator data across the three surveillance programmes could result in slightly less accurate denominators due to inclusion of persons in the denominator who are at slightly lower risk of infection. However, in surveillance programmes developed for the purpose of preventing infection and driving quality improvement in care, consistency of the denominators over time tends to be more important than getting a very precise estimate of the population at risk, as the primary aim is to reduce infection to a lower incidence relative to what it was at the initial time of benchmarking.

Description of Revision	First report revision applied	Report section(s) revision applies to	Rational for revision
Reporting of CDI cases aged 15 years and above only.	October 2017	CDI	Current Scottish Government Local Delivery Plan (LDP) Standards are based on the incidence rate in cases aged 15 years and above, therefore the report has been aligned to reflect this. ARHAI will continue to monitor CDI incidence rates in the separate age groups (15-64 years and 65 years and above) internally.
Reporting of total SAB cases only (i.e. Removal of MRSA sub-analysis).	October 2017	SAB	The count of MRSA bacteraemia cases are now too small to carry out statistical analysis. ARHAI Scotland will continue to monitor internally.
Name change for *Clostridium difficile* to *Clostridioides difficile*.	October 2018	CDI	A novel genus ***Clostridioides*** has been proposed for *Clostridium difficile* which will now be known as *Clostridioides difficile*. There are no implications with regards to the natural history of infection, infection prevention and control, or clinical treatment.
Addition of year end comparisons to ECB.	October 2018	ECB	This analysis (already included for other reported organisms) is now possible for ECB due the amount of data that has now been collected.
Change in production of quarterly SPC charts.	April 2020	All sections	Updated method used for calculating exceptions within the statistical process control (SPC) charts. The mean, Trigger/warning lines (+2 standard deviations) and upper control limits (+3 standard deviations) presented, are now calculated using the 12 quarters prior to the most recent quarter, as to compare the new rate against an existing baseline.
Changes to data collection in	July 2020	All sections	A CNO letter sent 25th March 2020 asked NHS boards to continue to report case numbers and origin of infection data but they

Description of Revision	First report revision applied	Report section(s) revision applies to	Rational for revision
response to COVID-19.			would not be required to report risk factor data as would normally be expected under enhanced/extended surveillance for *Staphylococcus aureus* bacteraemia (SAB), *Escherichia coli* bacteraemia (ECB) and *Clostridioides difficile* infection (CDI). All mandatory and voluntary Surgical Site Infection (SSI) surveillance was paused until further notice.
Change from Health Protection Scotland to ARHAI Scotland.	October 2020	All sections	In April 2020, as part of launch of Public Health Scotland, the ARHAI Group within Health Protection Scotland (HPS) became ARHAI Scotland. ARHAI Scotland will continue to support NHS boards in the prevention and control of healthcare associated infections. The report was updated to reflect this branding change.
Change from National Waiting Times Centre (NWTC) to NHS Golden Jubilee (GJ).	January 2021	All sections	Labelling updated.
Change to reporting of ribotypes.	October 2022	CDI	A description of *C. difficile* PCR ribotypes (RTs) had not been included in the reports published between October 2022 and July 2023, while the CDI typing service provided by the Scottish Microbiology Reference Laboratory (SMiRL) was being reviewed.
Recommencement of mandatory surveillance	April 2023	All sections	As part of a return to pre-pandemic surveillance, for data collected from October 2022 onwards enhanced/extended

Description of Revision	First report revision applied	Report section(s) revision applies to	Rational for revision
following COVID-19 response.			surveillance for *Escherichia coli* bacteraemia (ECB) and *Staphylococcus aureus* bacteraemia (SAB) has been reinstated. Mandatory surveillance of enhanced fields including source of infection/entry point and risk factors as appropriate has resumed in line with the bacteraemia surveillance protocol. Previously, for data collected from 25 March 2020 onwards, only origin of infection was mandatory for ECB and SAB surveillance. Meanwhile all mandatory and voluntary Surgical Site Infection (SSI) surveillance will remain paused until further notice.
Update to CDI surveillance protocol	September 2024	CDI	This protocol update should not have any impact on current CDI surveillance activities but has been updated to better reflect the current data handling methodologies as well as updating links to relevant documents.
Update to CDI snapshot surveillance protocol	September 2024	CDI	This protocol update reflected changes in laboratory reporting criteria and links to relevant documents were updated throughout.

Report methods and caveats

Full details of the report methods and caveats can be found **here**.

UK comparisons

Improved collaboration with the other UK nations has made comparisons and standardisation across the UK a high priority for all four nations' governments/health departments. The changes introduced in the Scottish HAI surveillance described here facilitate benchmarking of the Scottish data against those of the rest of the UK.

Key to NHS boards

AA = NHS Ayrshire & Arran

BR = NHS Borders

DG = NHS Dumfries & Galloway

FV = NHS Forth Valley

FF = NHS Fife

GJ = NHS Golden Jubilee

GR = NHS Grampian

GGC = NHS Greater Glasgow & Clyde

HG = NHS Highland

LN = NHS Lanarkshire

LO = NHS Lothian

OR = NHS Orkney

SH = NHS Shetland

TY = NHS Tayside

WI = NHS Western Isles

Appendix 2 – Publication Metadata

Publication title

Quarterly epidemiological data on *Clostridioides difficile* infection, *Escherichia coli* bacteraemia, *Staphylococcus aureus* bacteraemia and Surgical Site Infection in Scotland.

Description

This release provides information on *Clostridioides difficile* infection, *Escherichia coli* bacteraemia, *Staphylococcus aureus* bacteraemia and Surgical Site Infection in Scotland for the period October to December 2024.

Theme

Infections in Scotland.

Topic

Clostridioides difficile infection, *Escherichia coli* bacteraemia, *Staphylococcus aureus* bacteraemia and Surgical Site Infection.

Format

MS Word reports and MS Excel workbooks.

Data source(s)

***Clostridioides difficile* infection:**

Case data source: Electronic Communication of Surveillance in Scotland (ECOSS).

Data linkage source: General / Acute Inpatient and Day Case Scottish Morbidity Records (SMR01).

Healthcare associated denominator: Total occupied bed days: Public Health Scotland ISD(S)1.

Community associated denominator: National Records of Scotland (NRS) mid-year population estimates. Note: mid-year population estimates are not yet available for 2024, therefore mid-year population data for 2023 are used for rates of community associated infections for 2024.

***Escherichia coli* bacteraemia:**

Case data source: Electronic Communication of Surveillance in Scotland (ECOSS) Enhanced Surveillance Web Tool.

Healthcare associated denominator: Total occupied bed days: Public Health Scotland ISD(S)1.

Community associated denominator: NRS mid-year population estimates. Note: mid-year population estimates are not yet available for 2024, therefore mid-year population data for 2023 are used for rates of community associated infections for 2024.

***Staphylococcus aureus* bacteraemia:**

Case data source: Electronic Communication of Surveillance in Scotland (ECOSS) Enhanced Surveillance Web Tool.

Healthcare associated denominator: Total occupied bed days: Public Health Scotland ISD(S)1.

Community associated denominator: NRS mid-year population estimates. Note: mid-year population estimates are not yet available for 2024, therefore mid-year population data for 2023 are used for rates of community associated infections for 2024.

Surgical Site Infection:

Epidemiological data for SSI are not included for this quarter. National mandatory SSI surveillance was paused in 2020 to support the COVID-19 response and has not yet resumed.

Date that data are acquired

The date the data were extracted for analysis.

Clostridioides difficile: 16 January 2025.
Escherichia coli bacteraemia: 03 March 2025.
Staphylococcus aureus bacteraemia: 03 March 2025.
Surgical Site Infection: Epidemiological data for SSI are not included for this quarter. National Mandatory SSI surveillance was paused in 2020 to support the COVID-19 response and has not yet resumed.

Release date

08 April 2025.

Frequency

Quarterly.

Timeframe of data and timeliness

The latest iteration of data is 31 December 2024, therefore the data are three months in arrears.

Continuity of data

Quarterly as at March, June, September, and December.

Revisions statement

These data are not subject to planned major revisions. However, ARHAI aims to continually improve the interpretation of the data and therefore analysis methods are regularly reviewed and may be updated in the future.

Revisions relevant to this publication

Updates to previously published figures.

National Records for Scotland (NRS) mid-year population estimates
Updates to population estimates for 2014 (Q4) and 2015-2022 (Q1 – Q4), in line with publication of **population estimates time series data** by National Records for Scotland (NRS).

Total Occupied Bed Days (TOBDs)
There were no retrospective amendments to the data.

***Clostridioides difficile* infection (CDI)**

Quarter	NHS board	Previous Healthcare associated CDI cases	Updated Healthcare associated CDI cases	Previous Community associated CDI cases	Updated Community associated CDI cases	Reason
2024 Q3	GGC	82	84	12	10	Retrospective data amendment.
2024 Q3	GR	26	27	13	12	Retrospective data amendment.
2024 Q3	LN	25	26	9	8	Retrospective data amendment.
2024 Q3	TY	-	-	7	6	Retrospective data amendment.
2024 Q3	FF	12	13	-	-	Retrospective data amendment.

***Escherichia coli* bacteraemia (ECB)**
There were no retrospective amendments to the data.

***Staphylococcus aureus* bacteraemia (SAB)**
There were no retrospective amendments to the data.

Surgical Site Infection (SSI)
Epidemiological data for SSI are not included for this quarter. National mandatory SSI surveillance was paused in 2020 to support the COVID-19 response and has not yet resumed.

Concepts and definitions

Further information on the methods and caveats can be found **here.**

When a board is highlighted as an exception this will be looked at further as per the exception reporting process.

Further information on the production of quarterly exception reports (SOP) can be found **here**.

Clostridioides difficile infection (CDI)

Clostridioides difficile infection (CDI) is the most common cause of intestinal infections (and diarrhoea) associated with antimicrobial therapy. Clinical disease comprises a range of toxin mediated symptoms from mild diarrhoea, which can resolve without treatment, to severe cases such as pseudomembranous colitis (PMC), toxic megacolon and peritonitis that can lead to death.

For mild disease, diarrhoea is usually the only symptom. Other clinical features consistent with more severe forms of CDI include fever, leukocytosis, pseudomembranous colitis and ileus.

Symptoms of CDI, and associated immune reactions in children, differ from those in adults, but the pathology is not well described. Routine testing in children aged less than 3 years old is not recommended, see ***C. difficile* testing algorithm** published by the Scottish Microbiology and Virology Network in 2024.

There remains scope for a reduction of incidence rates through continued local monitoring, appropriate prescribing, and compliance with infection prevention and control measures. The Scottish Health Protection Network published community based guidance in November 2024 **here**. The **National Infection Prevention and Control Manual** provides IPC guidance to all those involved in care provision and is considered best practice across all health and care settings in Scotland. Full details of the surveillance methods may be found in the **Protocol for the Scottish Surveillance Programme for *Clostridioides difficile* infection: user manual | National Services Scotland.**

Escherichia coli bacteraemia (ECB)

Escherichia coli (*E. coli*) is a bacterium commonly found in the gut of animals and people where it forms part of the normal gut flora that helps human digestion. Although most types of *E. coli* live harmlessly in your gut, some types can make you unwell. Some types of *E. coli* can cause urinary tract infections (UTI) and illnesses such as pneumonia.

E. coli continues to be the most frequent cause of Gram-negative bacteraemia in Scotland and is a frequent cause of infection worldwide.

New cases of ECB are identified by laboratory testing (via positive blood cultures) and submitted to the national system ECOSS. Only cases of ECB that have been reviewed and confirmed by the NHS boards in the enhanced surveillance system are included in the quarterly commentaries. Full details of the surveillance methods may be found in the **protocol**.

Staphylococcus aureus bacteraemia (SAB)

Staphylococcus aureus (*S. aureus*) is a Gram-positive bacterium that colonises the nasal cavity of about a quarter of the healthy population. This colonisation is usually harmless. However, infection can occur if *S. aureus* breaches the body's defence systems and can cause a range of illnesses from minor skin infections to serious systemic infections such as bacteraemia. Some strains of *S. aureus* produce toxins or show resistance to first line treatments, therefore, can be more complicated to treat.

Scotland has had a mandatory meticillin resistant *S. aureus* (MRSA) bacteraemia surveillance programme since 2001. The programme was extended to include meticillin sensitive *S. aureus* (MSSA) bacteraemia in 2006 and in 2014 to include enhanced *S. aureus* bacteraemia (SAB) surveillance. Full details of the surveillance methods may be found in the **protocol**.

Surgical Site Infection (SSI)

A surgical site infection (SSI) is an infection that occurs after surgery in the part of the body where the surgery took place. SSI may be superficial infections involving the skin only, while other SSI is more serious and can involve tissues under the skin, organs, or implanted material.

SSI is one of the most common types of healthcare associated infection in Scotland, estimated to account for 16.5% of inpatient healthcare associated infection within NHSScotland, according to Scottish Point Prevalence Survey 2016. Prior to the COVID-19 pandemic, NHS boards participated in SSI surveillance for procedures including caesarean section, hip arthroplasty, large bowel, and vascular procedures. National mandatory SSI surveillance was paused in 2020 to support the COVID-19 response and has not yet resumed.

Relevance and key uses of the statistics

Clostridioides difficile infection (CDI)

Surveillance data is essential for monitoring trends and assisting in outbreak investigations. Certain strains of *C. difficile* have been associated with more severe disease (e.g. PCR ribotypes 027 and 078) and antibiotic resistance has been suggested to be a factor in the emergence and spread of *C. difficile* epidemic types. In addition, the identification of ribotypes and whole genome sequencing can assist in the investigation of outbreaks.

The surveillance data should inform and support NHS boards in implementing antimicrobial prescribing policies, infection control and prevention interventions. Further information on typing schemes may be found in the **Protocol for the *Clostridioides difficile* snapshot programme | National Services Scotland**.

Escherichia coli bacteraemia (ECB)

The outputs of the surveillance programme are intended to support the NHS boards in controlling and reducing the burden of ECB. Benchmarking against other NHS boards (and other countries) is an important function of the surveillance. In conjunction with other sources of intelligence (including enhanced surveillance data) the outputs of the quarterly surveillance can also help the NHS boards with planning and targeting activities to reduce risk to patient of becoming infected and improve the care of patients (i.e. strategic planning, targeted intervention, care quality improvement).

As urinary tract infections are commonly associated with *E. coli* bacteraemia cases, ARHAI Scotland coordinates the sharing of urinary tract infection (UTI) reduction resources. These include the National Hydration Campaign which aims to convey the public health benefits of good hydration in terms of UTI prevention, and the National Catheter Passport which gives information on how to care for urinary catheters at home as well as a clinical section for a nurse, doctor, or carer. Work is also being done on improving antimicrobial treatment of people with infections – co-ordinated by the Scottish Antimicrobial Prescribing Group (SAPG) through a network of antimicrobial management teams.

Staphylococcus aureus bacteraemia (SAB)

ARHAI continues to offer support to NHS boards across Scotland to aid their local SAB reduction strategies. A programme of enhanced SAB surveillance commenced in all NHS boards in Scotland on 1 October 2014. This is providing further intelligence to focus future reduction interventions.

Surgical Site Infection (SSI)

SSIs are estimated to double the length of post-operative stay in hospital and significantly increase the cost of care. The national SSIS programme is intended to enhance the quality of patient care with use of data obtained from surveillance to compare incidence of SSI over time and against a benchmark rate and to use this information locally to review and guide clinical practice. National mandatory SSI surveillance was paused in 2020 to support the COVID-19 response and has not yet resumed.

Accuracy

CDI, ECB and SAB data are the product of the Electronic Communication of Surveillance in Scotland (ECOSS). Participating laboratories routinely report all identifications of organisms, infection, or microbiological intoxication unless they are known to be of no clinical or public health importance. The collected data is used for: the identification of single cases of severe disease, outbreaks, and longer term trends in the incidence of laboratory reported infections, enhanced surveillance, health protection, analytical and statistical use.

Delays in SMR01 data availability at the time of report production means that the origin of infection for some CDI cases may be reassigned at a later date. Therefore, healthcare-associated and community-associated CDI cases in this report are provisional and may change as more data becomes available.

The enhanced ECB and SAB ECOSS web tool has built-in validation rules that must be met before the data are submitted. Further checks of the data are made by ARHAI before the data are analysed. CDI validation of collected data entails sending a list of CDI cases extracted from ECOSS to all NHS boards and asking for confirmation that the cases represent true CDI cases, i.e., meet the case definition which is defined in the **Protocol for the Scottish**

Surveillance Programme for *Clostridioides difficile* infection: user manual | National Services Scotland, prior to sending for linkage with national hospital activity registers. The final list of CDI cases is then agreed before publishing.

SSI data is reported via the Surgical Site Infection Reporting System (SSIRS). Complying with a national minimum dataset and definitions for Surgical Site Infections, enables the data submitted to ARHAI Scotland to be mapped into the national dataset following a rigorous quality assurance process.

SSIRS has built-in validation rules and data cannot be submitted until rules are met. SSIRS primary validation checks for incomplete or conflicting information entered in core data fields. Secondary validation includes data checks that can be accepted without completion and/or values that are outside the stated requirements.

Completeness

ECB/SAB:
Surveillance data are collected using an ECOSS Surveillance Web Tool that allows data collectors in NHS boards to validate ECOSS records as well as additional cases that may not be included in the ECOSS system. This therefore means that completeness is near to 100%. Only cases validated in the enhanced surveillance are included in this publication.

CDI:
Diagnosis of CDI is confirmed in a patient who is both symptomatic with diarrhoea and whose stool has tested positive for *C. difficile* toxin using the diagnostic algorithm outlined in the ***C. difficile* testing algorithm** published by the Scottish Microbiology and Virology Network in 2024. Origin of infections are assigned using a combination of NHS board validation and data linkage with national hospital activity registers (**Protocol for the Scottish Surveillance Programme for *Clostridioides difficile* infection: user manual | National Services Scotland)**. As with most surveillance programmes, completeness will not be 100% but mandatory surveillance methodology ensures this is as near to 100% as practically possible.

CDI Ribotyping: The snapshot programme (**Protocol for the *Clostridioides difficile* snapshot programme | National Services Scotland**) aims to obtain a representative sample

of isolates from CDI cases across all NHS boards in Scotland, but this cannot always be achieved, therefore the data should be interpreted with caution.

The clinical typing scheme aims to provide data from severe CDI cases and/or suspected outbreaks. These data are based on the specimens and information received by the reference laboratory and are not validated by individual NHS boards for completeness, therefore, the data should be interpreted with caution.

SSI:
National mandatory SSI surveillance was paused in 2020 to support the COVID-19 response and has not yet resumed.

Comparability

UK Health Security Agency (UKHSA) report rates per quarter for CDI, ECB and SAB, and annually for SSI (methods and definitions may differ).

> ***Clostridioides difficile*: guidance, data and analysis**
> ***Escherichia coli* (*E. coli*): guidance, data and analysis**
> ***Staphylococcus aureus*: guidance, data and analysis**
> **Surgical site infection (SSI): guidance, data and analysis**

Accessibility

It is the policy of ARHAI to make its web sites and products accessible according to **published guidelines**.

Coherence and clarity

Tables and charts are accessible via the **supplementary data** file on the ARHAI Scotland website.

Value type and unit of measurement

Healthcare associated cases and incidence rates (per 100,000 Total occupied bed days (TOBDs)) for *Clostridioides difficile* infection, *Escherichia coli* bacteraemia & *Staphylococcus aureus* bacteraemia.

Community associated cases and incidence rates (per 100,000 population) for *Clostridioides difficile* infection, *Escherichia coli* bacteraemia & *Staphylococcus aureus* bacteraemia. Quarterly rates of community associated infections are calculated pro-rata for the number of days in the quarter, so that quarterly and yearly incidence rates are comparable.

Number of procedures and Surgical Site Infections and incidence per categories (per 100 procedures) for inpatients and post discharge surveillance.

Further information on the methods and caveats for can be found **here**.

Disclosure

The PHS protocol on **Statistical Disclosure Protocol** is followed.

Official Statistics accreditation

Official Statistics.

UK Statistics Authority Assessment

Not Assessed.

Last published

14 January 2025.

Next published

July 2025.

Date of first publication

07 April 2015. Prior to this *Clostridioides difficile* infection (first publication - 2 Apr 2008) and *Staphylococcus aureus* bacteraemia (first publication - 3 Apr 2002) were separate reports.

Help email

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Date form completed

08 April 2025.

Appendix 3 – Early access details

Pre-Release Access

Under terms of the "Pre-Release Access to Official Statistics (Scotland) Order 2008", ARHAI is obliged to publish information on those receiving Pre-Release Access ("Pre-Release Access" refers to statistics in their final form prior to publication). The standard maximum Pre-Release Access is five working days. Shown below are details of those receiving standard Pre-Release Access.

Standard Pre-Release Access:

- Scottish Government Health Department
- NHS board Chief Executives
- NHS board Communication leads

Appendix 4 – ARHAI Scotland and Official Statistics

About ARHAI Scotland

ARHAI Scotland works at the very heart of the health service across Scotland, delivering services critical to frontline patient care and supporting the efficient and effective operation of NHS Scotland.

Official Statistics

Our statistics comply with the **Code of Practice for Statistics** in terms of trustworthiness, high quality and public value. This also means that we keep data secure at all stages, through collection, processing, analysis and output production, and adhere to the **'five safes'**.