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

January to March 2025

Publication date: 1st July 2025

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Contents

Introduction

Antimicrobial Resistance and Healthcare Associated Infection (ARHAI) Scotland provides a commentary on quarterly epidemiological data in Scotland for January to March (Q1) 2025 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 January to March 2025

- The total number of CDI cases in patients reported to ARHAI was 272.
- 208 CDI cases were reported to ARHAI as healthcare associated. This corresponds to an incidence rate of 13.4 cases per 100,000 total occupied bed days (TOBDs).
- 64 CDI cases were reported as community associated. This corresponds to an incidence rate of 4.7 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 Borders was above normal variation for healthcare associated CDI when analysing trends over the past three years.
- No NHS board was above normal variation for community associated CDI when analysing trends over the past three years.

Escherichia coli bacteraemia (ECB) during January to March 2025

- The total number of ECB cases in patients reported to ARHAI was 1,050.
- 604 ECB cases were reported to ARHAI as healthcare associated. This corresponds to an incidence rate of 38.9 cases per 100,000 TOBDs.
- 446 ECB cases were reported as community associated. This corresponds to an incidence rate of 32.9 cases per 100,000 population.
- NHS Lanarkshire 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 January to March 2025

- The total number of SAB cases in patients reported to ARHAI was 406.
- 283 SAB cases were reported to ARHAI as healthcare associated. This corresponds to an incidence rate of 18.2 cases per 100,000 TOBDs.
- 123 SAB cases were reported as community associated. This corresponds to an incidence rate of 9.1 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 January to March 2025

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 Q1 2025, 272 *Clostridioides difficile* infection (CDI) cases in patients were reported to ARHAI. In the previous quarter there were 367 cases.
- In the clinical surveillance typing scheme (covering severe cases and/or outbreaks), out of a total of 53 isolates, ribotype 005 (17.0%) was the most common ribotype identified, followed by ribotypes 002 and 014 (both 15.1%), 078 (5.7%), and 001, 011, 050, 081, 106 and 126 (all 3.8%). The remaining 24.5% 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 51 isolates, ribotype 014 (17.6%) was the most common ribotype identified, followed by ribotypes 002, 015 and 020 (all 9.8%), 005, 023 and 078 (all 5.9%), and 026 and 050 (both 3.9%). The remaining 27.5% 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 Q1 2025, 208 CDI cases were reported to ARHAI as healthcare associated. This corresponds to an incidence rate of 13.4 cases per 100,000 total occupied bed days (TOBDs) (**Table 1**).
- Yearly comparisons (comparing year-ending March 2024 with year-ending March 2025) show that there were increases in NHS Greater Glasgow & Clyde, NHS Fife and NHSScotland overall (**Table 2**).
- No NHS boards were above the 95% confidence interval upper limit in the funnel plot analysis (**Figure 1**).

- NHS Borders was above normal variation when analysing trends over the past three years (see **supplementary data**).

Community associated infection cases by NHS board of residence

- During Q1 2025, 64 CDI cases were reported as community associated. This corresponds to an incidence rate of 4.7 cases per 100,000 population (**Table 3**).
- Yearly comparisons (comparing year-ending March 2024 with year-ending March 2025) show that there was an increase in NHS Forth Valley and a decrease in NHS Dumfries and Galloway (**Table 4**).
- No NHS boards were above the 95% confidence interval upper limit in the funnel plot analysis (**Figure 2**).
- No NHS boards 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: Q4 2024 (October to December 2024) compared to Q1 2025 (January to March 2025).[1, 2, 3]

NHS board	Q4 Cases	Q4 Bed days	Q4 Rate	Q1 Cases	Q1 Bed days	Q1 Rate
AA	22	113,807	19.3	19	116,613	16.3
BR	2	32,816	6.1	9	30,581	29.4
DG	13	45,999	28.3	7	46,414	15.1
FF	12	87,802	13.7	13	88,403	14.7
FV	13	74,129	17.5	11	75,436	14.6
GJ	0	14,271	0	0	14,158	0
GR	28	138,657	20.2	15	138,812	10.8
GGC	85	447,530	19.0	51	447,595	11.4
HG	21	81,004	25.9	13	80,185	16.2
LN	28	152,943	18.3	26	150,120	17.3
LO	45	240,748	18.7	29	234,752	12.4
OR	0	3,121	0	1	3,307	30.2
SH	2	2,570	77.8	0	2,977	0
TY	9	118,339	7.6	13	116,400	11.2
WI	2	6,550	30.5	1	6,446	15.5
Scotland	**282**	**1,560,286**	**18.1**	**208**	**1,552,199**	**↓ 13.4**

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 2: CDI cases and incidence rates (per 100,000 TOBDs) for healthcare associated infection cases: year-ending March 2024 (YE Q1 24) compared to year-ending March 2025 (YE Q1 25).[1, 2, 3]

NHS board	YE Q1 24 Cases	YE Q1 24 Bed days	YE Q1 24 Rate	YE Q1 25 Cases	YE Q1 25 Bed days	YE Q1 25 Rate
AA	70	462,834	15.1	89	458,882	19.4
BR	14	128,625	10.9	18	127,233	14.1
DG	34	185,043	18.4	44	184,730	23.8
FF	26	357,227	7.3	46	351,000	↑ 13.1
FV	40	309,071	12.9	58	305,345	19.0
GJ	3	52,896	5.7	2	57,455	3.5
GR	61	538,594	11.3	85	552,582	15.4
GGC	252	1,794,211	14.0	303	1,786,575	↑ 17.0
HG	75	312,167	24.0	79	320,735	24.6
LN	124	612,825	20.2	116	608,657	19.1
LO	136	962,567	14.1	148	954,636	15.5
OR	1	13,221	7.6	1	12,577	8.0
SH	8	9,226	86.7	5	10,618	47.1
TY	62	475,034	13.1	43	465,409	9.2
WI	2	25,621	7.8	4	26,785	14.9
Scotland	**908**	**6,239,162**	**14.6**	**1,041**	**6,223,219**	↑ **16.7**

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: Q4 2024 (October to December 2024) compared to Q1 2025 (January to March 2025).[1, 2, 3, 4]

NHS board	Q4 Cases	Q4 Population	Q4 Rate	Q1 Cases	Q1 Population	Q1 Rate
AA	10	366,150	10.9	5	366,150	5.5
BR	1	116,630	3.4	2	116,630	7.0
DG	2	145,670	5.5	1	145,670	2.8
FF	3	373,210	3.2	4	373,210	4.3
FV	5	304,110	6.5	1	304,110	1.3
GR	16	586,740	10.8	10	586,740	6.9
GGC	9	1,193,420	3.0	10	1,193,420	3.4
HG	10	324,140	12.3	2	324,140	2.5
LN	7	672,170	4.1	6	672,170	3.6
LO	15	919,060	6.5	12	919,060	5.3
OR	0	22,000	0.0	1	22,000	18.4
SH	3	23,000	51.9	1	23,000	17.6
TY	4	417,770	3.8	9	417,770	8.7
WI	0	26,030	0	0	26,030	0.0
Scotland	**85**	**5,490,100**	**6.2**	**64**	**5,490,100**	**4.7**

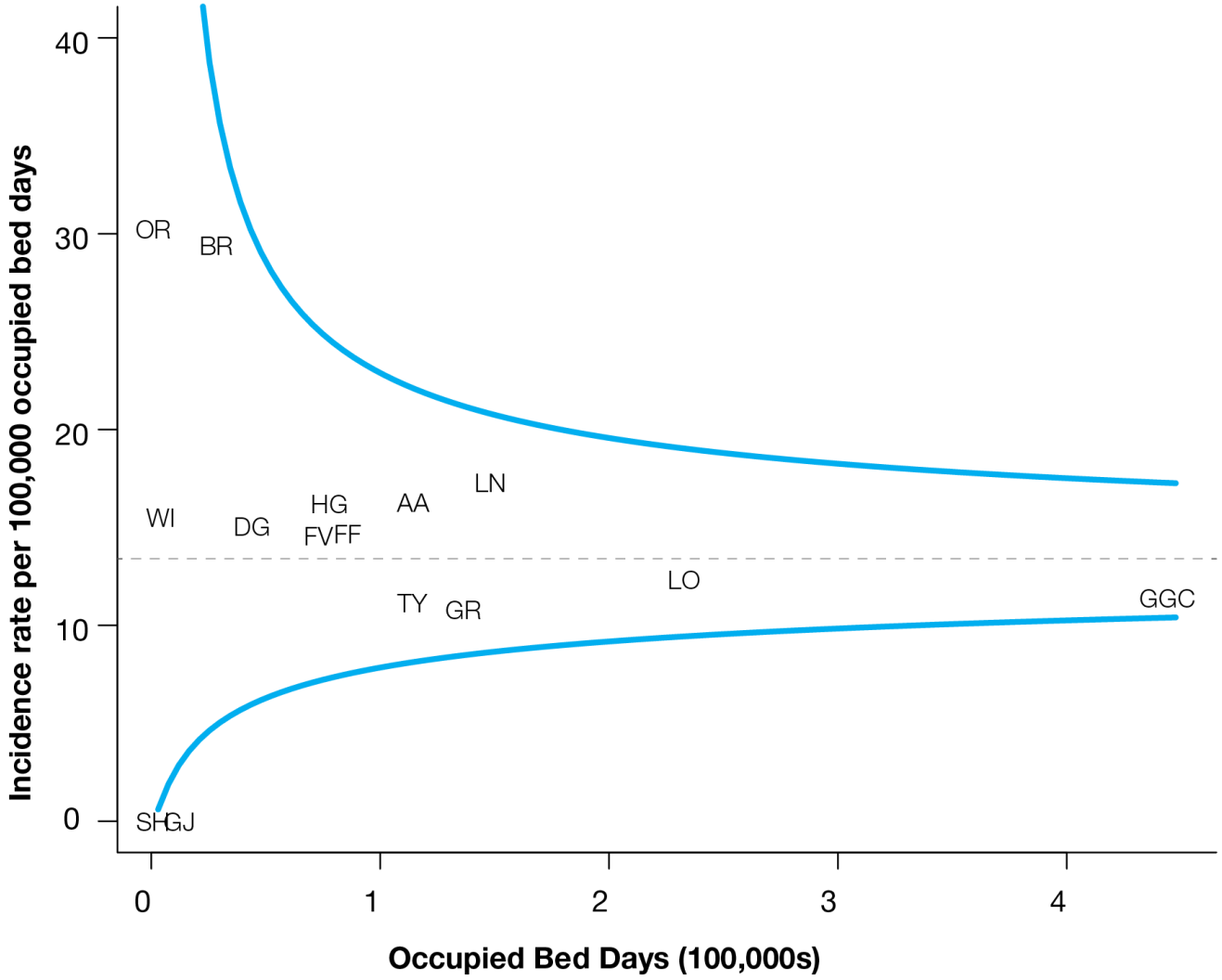
1. An arrow denotes statistically significant change.
2. Quarterly population rates are based on an annualised population.
3. Source of data is Electronic Communication of Surveillance in Scotland (ECOSS) & National Records of Scotland (NRS) mid-year population estimates.
4. Figures include any updates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

Table 4: CDI cases and incidence rates (per 100,000 population) for community associated infection cases: year-ending March 2024 (YE Q1 24) compared to year-ending March 2025 (YE Q1 25).[1, 2, 3]

NHS board	YE Q1 24 Cases	YE Q1 24 Population	YE Q1 24 Rate	YE Q1 25 Cases	YE Q1 25 Population	YE Q1 25 Rate
AA	26	366,150	7.1	34	366,150	9.3
BR	4	116,630	3.4	8	116,630	6.9
DG	16	145,670	11.0	6	145,670	↓ 4.1
FF	15	373,210	4.0	25	373,210	6.7
FV	4	304,110	1.3	14	304,110	↑ 4.6
GR	34	586,740	5.8	46	586,740	7.8
GGC	63	1,193,420	5.3	43	1,193,420	3.6
HG	31	324,140	9.6	23	324,140	7.1
LN	39	672,170	5.8	30	672,170	4.5
LO	71	919,060	7.7	82	919,060	8.9
OR	1	22,000	4.5	3	22,000	13.6
SH	0	23,000	0.0	5	23,000	21.7
TY	19	417,770	4.5	26	417,770	6.2
WI	5	26,030	19.2	3	26,030	11.5
Scotland	**328**	**5,490,100**	**6.0**	**348**	**5,490,100**	**6.3**

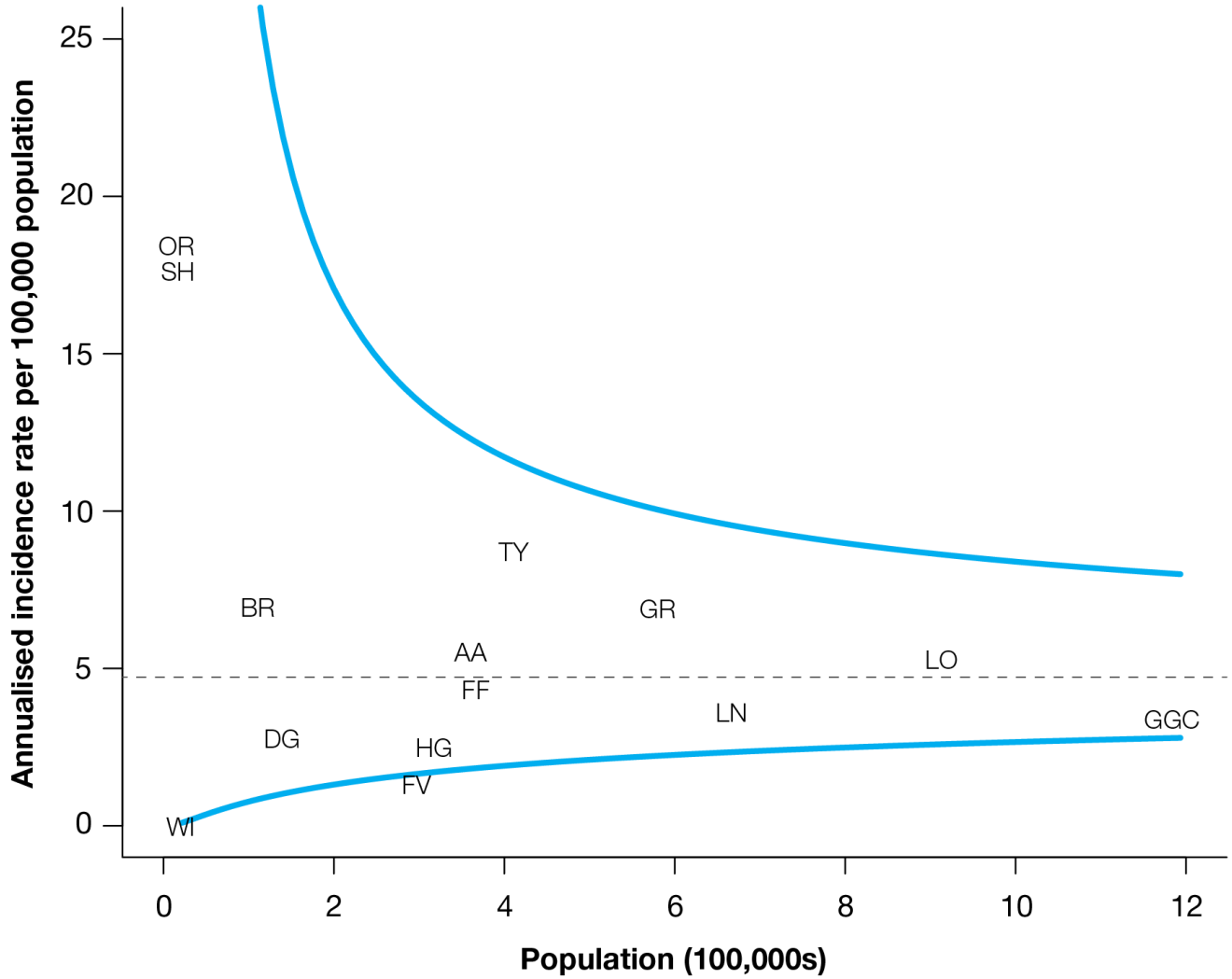
1. An arrow denotes statistically significant change.
2. Source of data is Electronic Communication of Surveillance in Scotland (ECOSS) & National Records of Scotland (NRS) mid-year population estimates.
3. Figures include any updates received following the last publication (see Appendix 2).

Figure 1: Funnel plot of CDI incidence rates (per 100,000 TOBD) in healthcare associated infection cases for all NHS boards in Scotland in Q1 2025.[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 Shetland 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 Q1 2025.[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.

Escherichia coli bacteraemia (ECB)

Total Cases for Quarter

- During Q1 2025, 1,050 *Escherichia coli* bacteraemia (ECB) cases in patients were reported to ARHAI. In the previous quarter there were 1,070 cases.

Healthcare associated infection cases by NHS board where specimen taken

- During Q1 2025, 604 ECB cases were reported to ARHAI as healthcare associated. This corresponds to an incidence rate of 38.9 cases per 100,000 TOBDs (**Table 5**).
- Yearly comparisons (comparing year-ending March 2024 with year-ending March 2025) show that there was an increase in NHSScotland (**Table 6**).
- NHS Lanarkshire 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 Q1 2025, 446 ECB cases were reported as community associated. This corresponds to an incidence rate of 32.9 cases per 100,000 population (**Table 7**).
- Yearly comparisons (comparing year-ending March 2024 with year-ending March 2025) show there was an increase in NHS Forth Valley and decreases in NHS Grampian and NHS Lothian (**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: Q4 2024 (October to December 2024) compared to Q1 2025 (January to March 2025).[1, 2, 3]

NHS board	Q4 Cases	Q4 Bed days	Q4 Rate	Q1 Cases	Q1 Bed days	Q1 Rate
AA	49	113,807	43.1	49	116,613	42.0
BR	12	32,816	36.6	6	30,581	19.6
DG	17	45,999	37.0	15	46,414	32.3
FF	30	87,802	34.2	37	88,403	41.9
FV	34	74,129	45.9	29	75,436	38.4
GJ	0	14,271	0.0	1	14,158	7.1
GR	42	138,657	30.3	45	138,812	32.4
GGC	173	447,530	38.7	170	447,595	38.0
HG	23	81,004	28.4	21	80,185	26.2
LN	53	152,943	34.7	76	150,120	50.6
LO	86	240,748	35.7	93	234,752	39.6
OR	1	3,121	32.0	1	3,307	30.2
SH	1	2,570	38.9	3	2,977	100.8
TY	52	118,339	43.9	51	116,400	43.8
WI	3	6,550	45.8	7	6,446	108.6
Scotland	**576**	**1,560,286**	**36.9**	**604**	**1,552,199**	**38.9**

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 March 2024 (YE Q1 24) compared to year-ending March 2025 (YE Q1 25).[1, 2, 3]

NHS board	YE Q1 24 Cases	YE Q1 24 Bed days	YE Q1 24 Rate	YE Q1 25 Cases	YE Q1 25 Bed days	YE Q1 25 Rate
AA	209	462,834	45.2	198	458,882	43.1
BR	56	128,625	43.5	47	127,233	36.9
DG	73	185,043	39.5	86	184,730	46.6
FF	126	357,227	35.3	144	351,000	41.0
FV	142	309,071	45.9	141	305,345	46.2
GJ	6	52,896	11.3	8	57,455	13.9
GR	169	538,594	31.4	192	552,582	34.7
GGC	617	1,794,211	34.4	670	1,786,575	37.5
HG	75	312,167	24.0	89	320,735	27.7
LN	233	612,825	38.0	249	608,657	40.9
LO	306	962,567	31.8	329	954,636	34.5
OR	5	13,221	37.8	7	12,577	55.7
SH	6	9,226	65.0	12	10,618	113.0
TY	230	475,034	48.4	221	465,409	47.5
WI	17	25,621	66.4	19	26,785	70.9
Scotland	**2,270**	**6,239,162**	**36.4**	**2,412**	**6,223,219**	**↑ 38.8**

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: Q4 2024 (October to December 2024) compared to Q1 2025 (January to March 2025).[1, 2, 3, 4]

NHS board	Q4 Cases	Q4 Population	Q4 Rate	Q1 Cases	Q1 Population	Q1 Rate
AA	54	366,150	58.7	54	366,150	59.8
BR	14	116,630	47.8	11	116,630	38.3
DG	21	145,670	57.4	15	145,670	41.8
FF	34	373,210	36.2	30	373,210	32.6
FV	31	304,110	40.6	31	304,110	41.3
GR	33	586,740	22.4	25	586,740	17.3
GGC	99	1,193,420	33.0	78	1,193,420	26.5
HG	31	324,140	38.0	24	324,140	30.0
LN	77	672,170	45.6	67	672,170	40.4
LO	55	919,060	23.8	57	919,060	25.2
OR	0	22,000	0.0	2	22,000	36.9
SH	3	23,000	51.9	4	23,000	70.5
TY	40	417,770	38.1	45	417,770	43.7
WI	2	26,030	30.6	3	26,030	46.7
Scotland	**494**	**5,490,100**	**35.8**	**446**	**5,490,100**	**32.9**

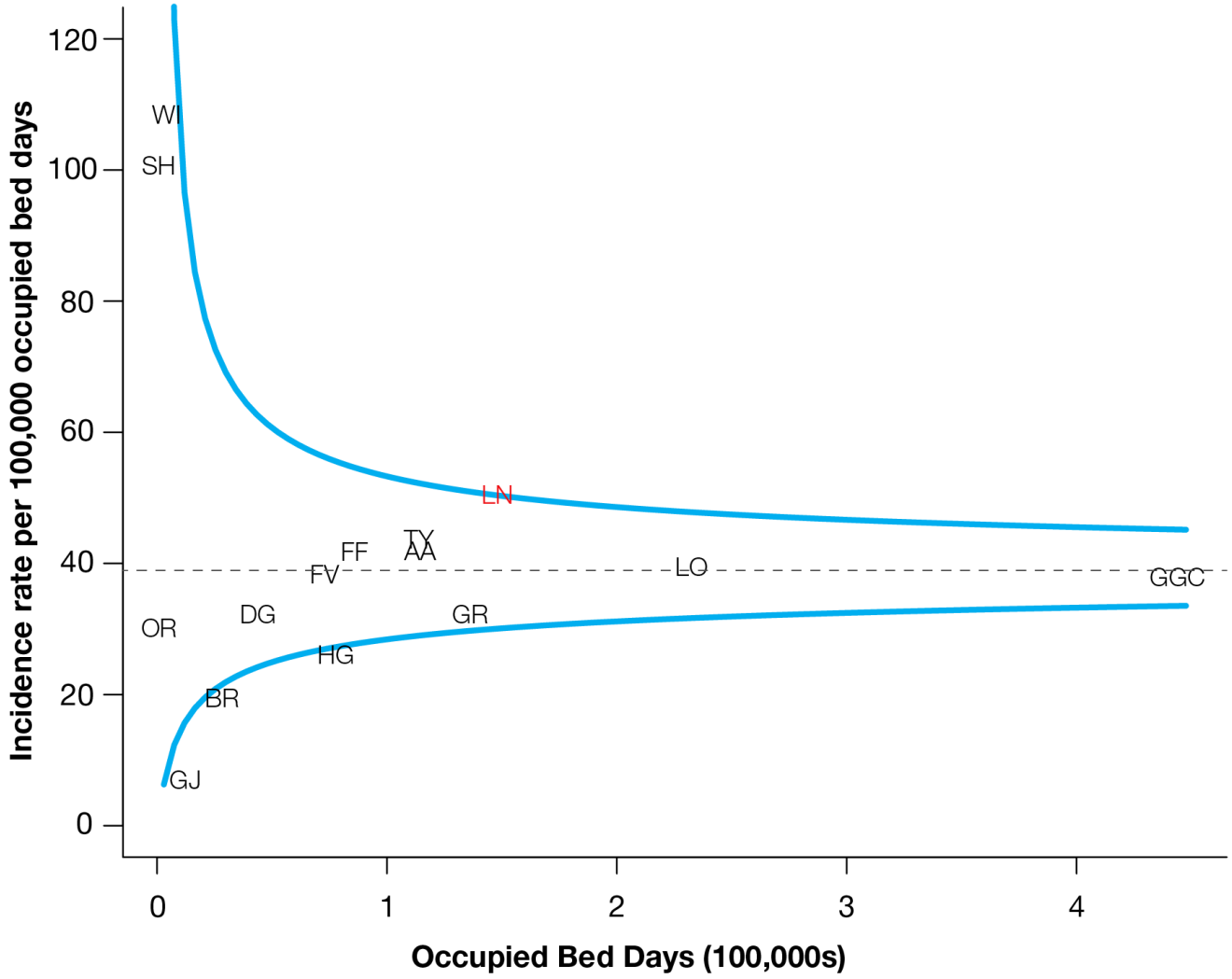
1. An arrow denotes statistically significant change.
2. Quarterly population rates are based on an annualised population.
3. Source of data is Electronic Communication of Surveillance in Scotland (ECOSS) & National Records of Scotland (NRS) mid-year population estimates.
4. Figures include any updates 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 March 2024 (YE Q1 24) compared to year-ending March 2025 (YE Q1 25).[1, 2, 3]

NHS board	YE Q1 24 Cases	YE Q1 24 Population	YE Q1 24 Rate	YE Q1 25 Cases	YE Q1 25 Population	YE Q1 25 Rate
AA	187	366,150	51.1	222	366,150	60.6
BR	47	116,630	40.3	63	116,630	54.0
DG	79	145,670	54.2	79	145,670	54.2
FF	133	373,210	35.6	134	373,210	35.9
FV	99	304,110	32.6	129	304,110	↑ 42.4
GR	174	586,740	29.7	128	586,740	↓ 21.8
GGC	399	1,193,420	33.4	365	1,193,420	30.6
HG	140	324,140	43.2	111	324,140	34.2
LN	279	672,170	41.5	283	672,170	42.1
LO	291	919,060	31.7	237	919,060	↓ 25.8
OR	10	22,000	45.5	7	22,000	31.8
SH	4	23,000	17.4	8	23,000	34.8
TY	174	417,770	41.6	173	417,770	41.4
WI	7	26,030	26.9	5	26,030	19.2
Scotland	**2,023**	**5,490,100**	**36.8**	**1,944**	**5,490,100**	**35.4**

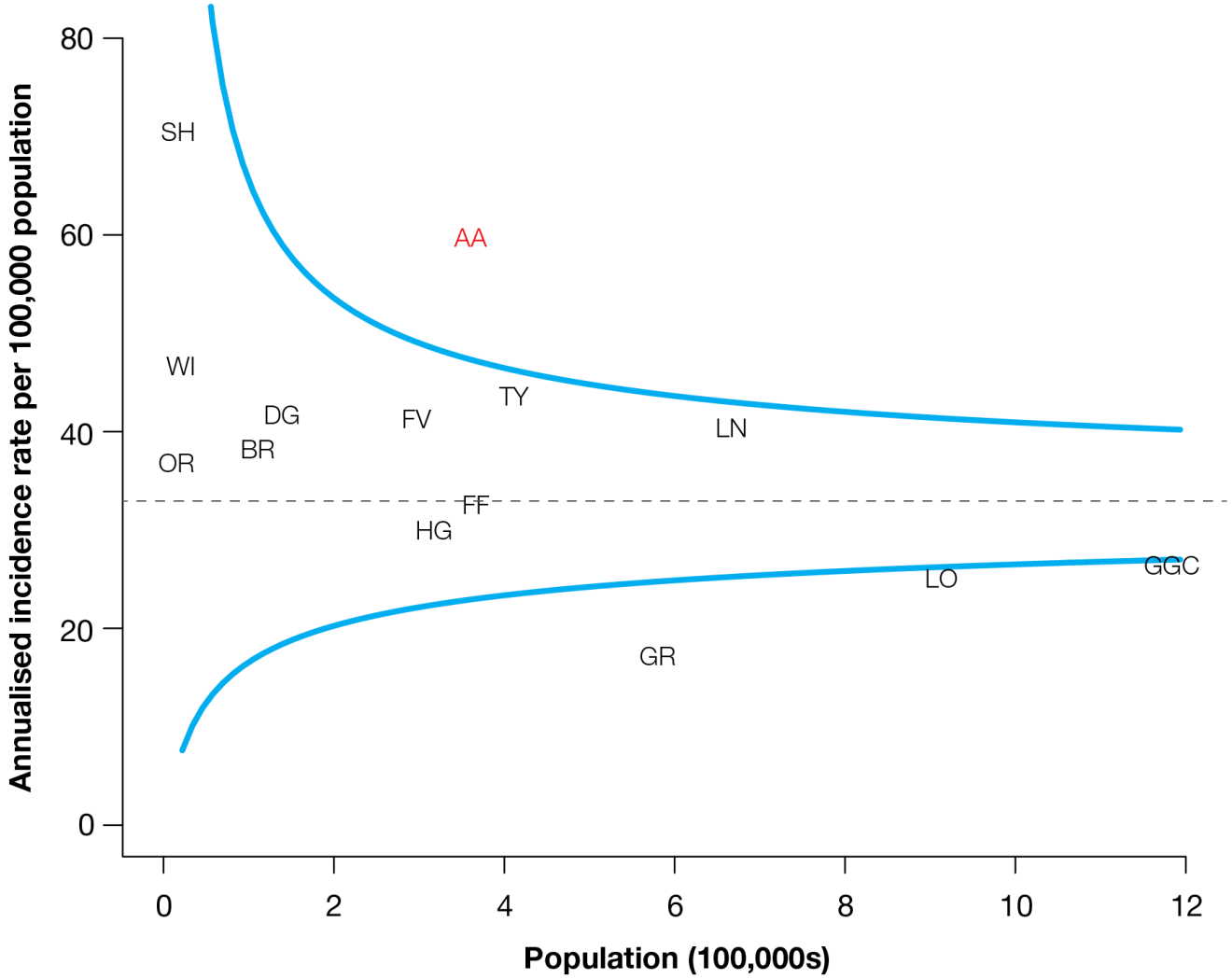
1. An arrow denotes statistically significant change.
2. Source of data is Electronic Communication of Surveillance in Scotland (ECOSS) & National Records of Scotland (NRS) mid-year population estimates.
3. Figures include any updates received following the last publication (see Appendix 2).

Figure 3: Funnel plot of ECB incidence rates (per 100,000 TOBD) in healthcare associated infection cases for all NHS boards in Scotland in Q1 2025.[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 Ayrshire and Arran and NHS Tayside 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 Q1 2025.[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 Q1 2025, 406 *Staphylococcus aureus* bacteraemia (SAB) cases in patients were reported to ARHAI. In the previous quarter there were 434 SAB cases.

Healthcare associated infection cases by NHS board where specimen taken

- During Q1 2025, 283 SAB cases were reported to ARHAI as healthcare associated. This corresponds to an incidence rate of 18.2 cases per 100,000 TOBDs (**Table 9**).
- Yearly comparisons (comparing year-ending March 2024 with year-ending March 2025) show there was an increase in NHS Ayrshire & Arran (**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 Q1 2025, 123 SAB cases were reported as community associated. This corresponds to an incidence rate of 9.1 cases per 100,000 population (**Table 11**).
- Yearly comparisons (comparing year-ending March 2024 with year-ending March 2025) show there was a decrease for NHS Ayrshire & Arran (**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: Q4 2024 (October to December 2024) compared to Q1 2025 (January to March 2025).[1, 2, 3]

NHS board	Q4 Cases	Q4 Bed days	Q4 Rate	Q1 Cases	Q1 Bed days	Q1 Rate
AA	31	113,807	27.2	32	116,613	27.4
BR	9	32,816	27.4	6	30,581	19.6
DG	9	45,999	19.6	5	46,414	10.8
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GR	30	138,657	21.6	31	138,812	22.3
GGC	76	447,530	17.0	85	447,595	19.0
HG	7	81,004	8.6	17	80,185	21.2
LN	26	152,943	17.0	27	150,120	18.0
LO	40	240,748	16.6	31	234,752	13.2
OR	0	3,121	0	0	3,307	0
SH	0	2,570	0	4	2,977	134.4
TY	25	118,339	21.1	16	116,400	13.7
WI	2	6,550	30.5	1	6,446	15.5
Scotland	**287**	**1,560,286**	**18.4**	**283**	**1,552,199**	**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 10: SAB cases and incidence rates (per 100,000 TOBDs) for healthcare associated infection cases: year-ending March 2024 (YE Q1 24) compared to year-ending March 2025 (YE Q1 25).[1, 2, 3]

NHS board	YE Q1 24 Cases	YE Q1 24 Bed days	YE Q1 24 Rate	YE Q1 25 Cases	YE Q1 25 Bed days	YE Q1 25 Rate
AA	87	462,834	18.8	121	458,882	↑ 26.4
BR	15	128,625	11.7	25	127,233	19.6
DG	37	185,043	20.0	29	184,730	15.7
FF	43	357,227	12.0	50	351,000	14.2
FV	57	309,071	18.4	54	305,345	17.7
GJ	8	52,896	15.1	11	57,455	19.1
GR	102	538,594	18.9	107	552,582	19.4
GGC	314	1,794,211	17.5	331	1,786,575	18.5
HG	53	312,167	17.0	38	320,735	11.8
LN	135	612,825	22.0	113	608,657	18.6
LO	153	962,567	15.9	156	954,636	16.3
OR	0	13,221	0	0	12,577	0
SH	8	9,226	86.7	6	10,618	56.5
TY	114	475,034	24.0	103	465,409	22.1
WI	7	25,621	27.3	9	26,785	33.6
Scotland	**1,133**	**6,239,162**	**18.2**	**1,153**	**6,223,219**	**18.5**

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 11: SAB cases and incidence rates (per 100,000 population) for community associated infection cases: Q4 2024 (October to December 2024) compared to Q1 2025 (January to March 2025).[1, 2, 3, 4]

NHS board	Q4 Cases	Q4 Population	Q4 Rate	Q1 Cases	Q1 Population	Q1 Rate
AA	9	366,150	9.8	10	366,150	11.1
BR	7	116,630	23.9	5	116,630	17.4
DG	6	145,670	16.4	4	145,670	11.1
FF	6	373,210	6.4	13	373,210	14.1
FV	14	304,110	18.3	7	304,110	9.3
GR	18	586,740	12.2	19	586,740	13.1
GGC	17	1,193,420	5.7	15	1,193,420	5.1
HG	5	324,140	6.1	7	324,140	8.8
LN	17	672,170	10.1	17	672,170	10.3
LO	30	919,060	13.0	14	919,060	6.2
OR	0	22,000	0	0	22,000	0
SH	2	23,000	34.6	2	23,000	35.3
TY	16	417,770	15.2	10	417,770	9.7
WI	0	26,030	0	0	26,030	0
Scotland	**147**	**5,490,100**	**10.7**	**123**	**5,490,100**	**9.1**

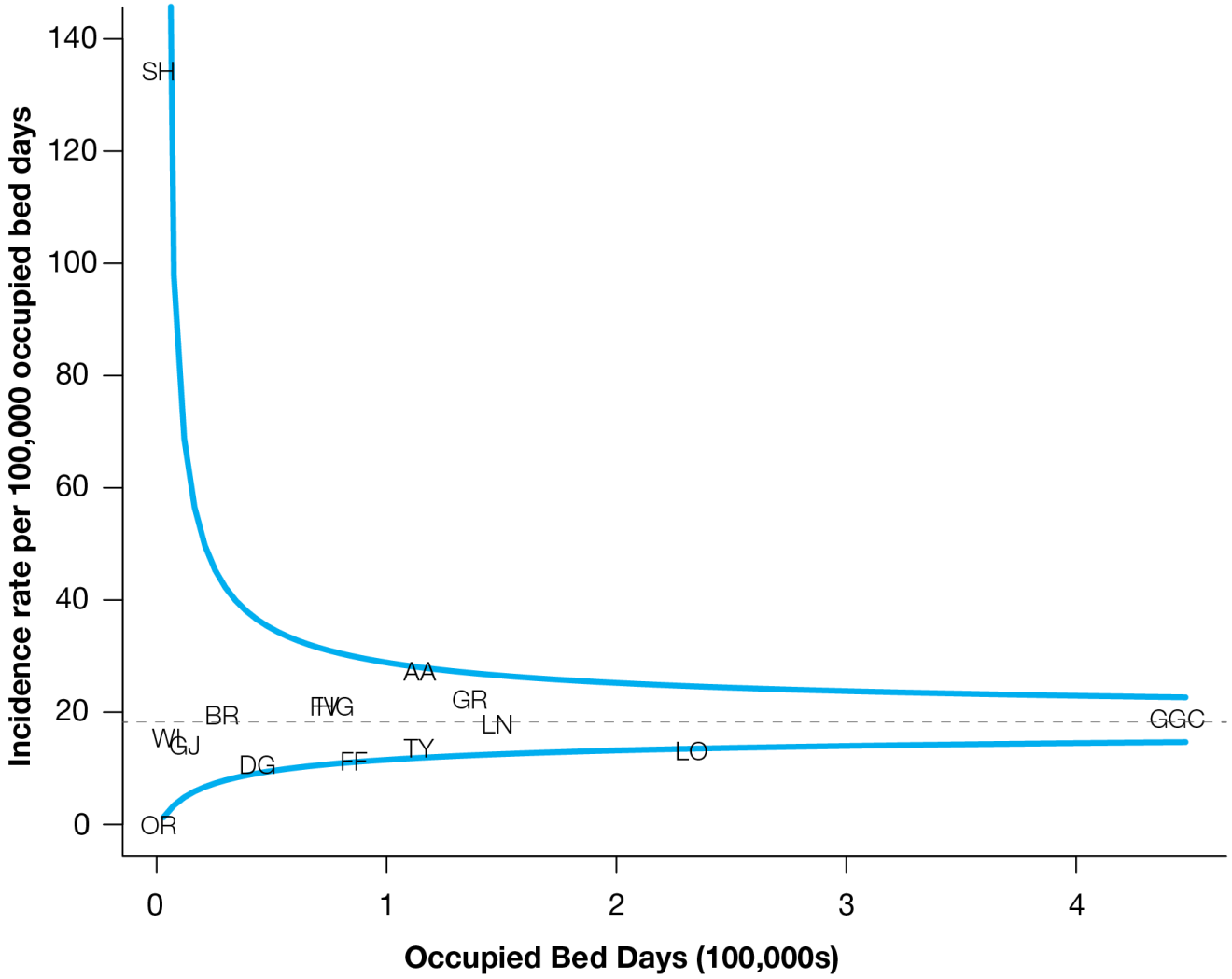
1. An arrow denotes statistically significant change.
2. Quarterly population rates are based on an annualised population.
3. Source of data is Electronic Communication of Surveillance in Scotland (ECOSS) & National Records of Scotland (NRS) mid-year population estimates.
4. Figures include any updates 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 March 2024 (YE Q1 24) compared to year-ending March 2025 (YE Q1 25).[1, 2, 3]

NHS board	YE Q1 24 Cases	YE Q1 24 Population	YE Q1 24 Rate	YE Q1 25 Cases	YE Q1 25 Population	YE Q1 25 Rate
AA	62	366,150	16.9	41	366,150	↓ 11.2
BR	18	116,630	15.4	20	116,630	17.1
DG	17	145,670	11.7	18	145,670	12.4
FF	48	373,210	12.9	43	373,210	11.5
FV	37	304,110	12.2	35	304,110	11.5
GR	70	586,740	11.9	72	586,740	12.3
GGC	83	1,193,420	7.0	69	1,193,420	5.8
HG	24	324,140	7.4	25	324,140	7.7
LN	65	672,170	9.7	75	672,170	11.2
LO	81	919,060	8.8	93	919,060	10.1
OR	1	22,000	4.5	1	22,000	4.5
SH	11	23,000	47.8	5	23,000	21.7
TY	47	417,770	11.3	51	417,770	12.2
WI	1	26,030	3.8	1	26,030	3.8
Scotland	**565**	**5,490,100**	**10.3**	**549**	**5,490,100**	**10.0**

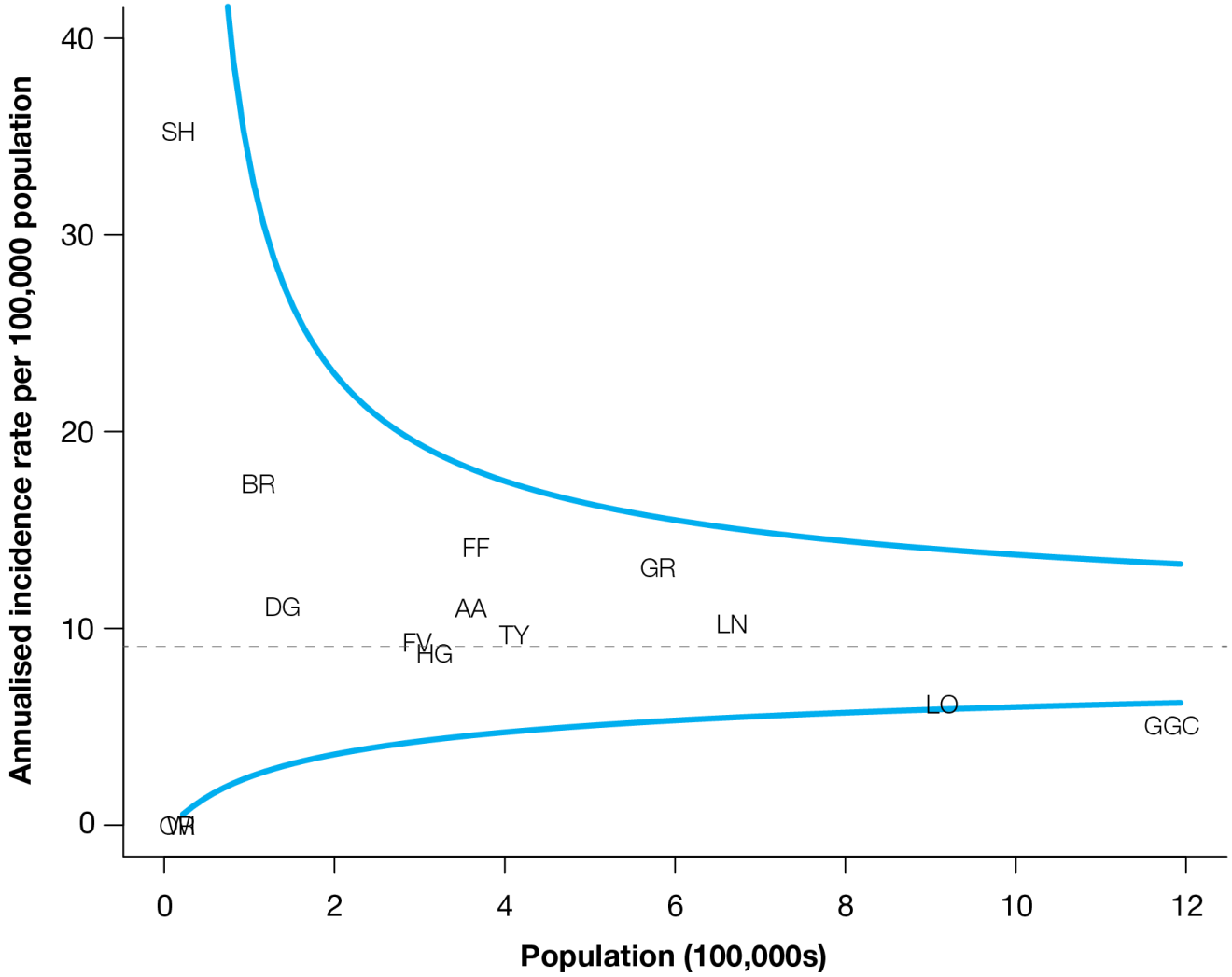
1. An arrow denotes statistically significant change.
2. Source of data is Electronic Communication of Surveillance in Scotland (ECOSS) & National Records of Scotland (NRS) mid-year population estimates.
3. Figures include any updates received following the last publication (see Appendix 2).

Figure 5: Funnel plot of SAB incidence rates (per 100,000 TOBD) in healthcare associated infection cases for all NHS boards in Scotland in Q1 2025.[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 Forth Valley and NHS Highland overlap, NHS Golden Jubilee and NHS Western Isles also 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 Q1 2025.[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, NHS Forth Valley and NHS Highland slightly 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 1: CDI cases and incidence rates (per 100,000 TOBDs) for healthcare associated infection cases: Q4 2024 (October to December 2024) compared to Q1 2025 (January to March 2025).	supplementary data (534 Kb)
Table 2: CDI cases and incidence rates (per 100,000 TOBDs) for healthcare associated infection cases: year-ending March 2024 (YE Q1 24) compared to year-ending March 2025 (YE Q1 25).	supplementary data (534 Kb)
Table 3: CDI cases and incidence rates (per 100,000 population) for community associated infection cases: Q4 2024 (October to December 2024) compared to Q1 2025 (January to March 2025).	supplementary data (534 Kb)
Table 4: CDI cases and incidence rates (per 100,000 population) for community associated infection cases: year-ending March 2024 (YE Q1 24) compared to year-ending March 2025 (YE Q1 25).	supplementary data (534 Kb)
Table 5: ECB cases and incidence rates (per 100,000 TOBD) for healthcare associated infection cases: Q4 2024 (October to December 2024) compared to Q1 2025 (January to March 2025).	supplementary data (534 Kb)
Table 6: ECB cases and incidence rates (per 100,000 TOBDs) for healthcare associated infection cases: year-ending March 2024 (YE Q1 24) compared to year-ending March 2025 (YE Q1 25).	supplementary data (534 Kb)
Table 7: ECB cases and incidence rates (per 100,000 population) for community associated infection cases: Q4 2024 (October to December 2024) compared to Q1 2025 (January to March 2025).	supplementary data (534 Kb)
Table 8: ECB cases and incidence rates (per 100,000 population) for community associated infection cases: year-ending March 2024 (YE Q1 24) compared to year-ending March 2025 (YE Q1 25).	supplementary data (534 Kb)
Table 9: SAB cases and incidence rates (per 100,000 TOBDs) for healthcare associated infection cases: Q4 2024 (October to December 2024) compared to Q1 2025 (January to March 2025).	supplementary data (534 Kb)
Table 10: SAB cases and incidence rates (per 100,000 TOBDs) for healthcare associated infection cases: year-ending March 2024 (YE Q1 24) compared to year-ending March 2025 (YE Q1 25).	supplementary data (534 Kb)

Name	File and size
Table 11: SAB cases and incidence rates (per 100,000 population) for community associated infection cases: Q4 2024 (October to December 2024) compared to Q1 2025 (January to March 2025).	supplementary data (534 Kb)
Table 12: SAB cases and incidence rates (per 100,000 population) for community associated infection cases: year-ending March 2024 (YE Q1 24) compared to year-ending March 2025 (YE Q1 25).	supplementary data (534 Kb)

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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 October 2025.

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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 January to March 2025.

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 and 2025.

***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 and 2025.

***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 and 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.

Date that data are acquired

The date the data were extracted for analysis.

Clostridioides difficile: 17 April 2025.
Escherichia coli bacteraemia: 07 May 2025.
Staphylococcus aureus bacteraemia: 06 May 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

01 July 2025.

Frequency

Quarterly.

Timeframe of data and timeliness

The latest iteration of data is 31 March 2025, 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

There were no retrospective amendments to the data.

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 Q4	LN	27	28	8	7	Retrospective data amendment.

***Escherichia coli* bacteraemia (ECB)**

Quarter	NHS board	Previous Healthcare associated ECB cases	Updated Healthcare associated ECB cases	Previous Community associated ECB cases	Updated Community associated ECB cases	Reason
2024 Q3	DG	33	31	21	23	Retrospective data amendments.

***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

01 April 2025.

Next published

October 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

NSS.ARHAIdatateam@nhs.scot

Date form completed

01 July 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 NHSScotland.

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'**.