ARHAI Scotland

Antimicrobial Resistance and Healthcare Associated Infection

NHS National Services Scotland

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

October to December 2021

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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) 2021 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 2021

- The total number of CDI cases in patients reported to ARHAI was 264.
- 198 CDI cases were reported to ARHAI as healthcare associated. This corresponds to an incidence rate of 13.3 cases per 100,000 total occupied bed days (TOBDs) and is lower than the previous quarter.
- 66 CDI cases were reported as community associated. This corresponds to an incidence rate of 4.8 cases per 100,000 population.
- NHS Ayrshire & Arran and NHS Lanarkshire were above the 95% confidence interval upper limit for healthcare associated CDI in the funnel plot analysis.
- NHS Lothian was above the 95% confidence interval upper limit for community associated CDI in the funnel plot analysis.
- No NHS boards were above normal variation for healthcare or community associated CDI when analysing trends over the past three years.

Escherichia coli bacteraemia (ECB) during October to December 2021

- The total number of ECB cases in patients reported to ARHAI was 1,058.
- 509 ECB cases were reported to ARHAI as healthcare associated. This corresponds to an incidence rate of 34.1 cases per 100,000 TOBDs and is lower than the previous quarter.
- 549 ECB cases were reported as community associated. This corresponds to an incidence rate of 39.8 cases per 100,000 population.
- NHS Ayrshire & Arran was above the 95% confidence interval upper limit for healthcare associated ECB in the funnel plot analysis.

- NHS Ayrshire & Arran and NHS Dumfries & Galloway were 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 or community associated ECB when analysing trends over the past three years.

Staphylococcus aureus bacteraemia (SAB) during October to December 2021

- The total number of SAB cases in patients reported to ARHAI was 395.
- 259 SAB cases were reported to ARHAI as healthcare associated. This corresponds to an incidence rate of 17.3 cases per 100,000 TOBDs.
- 136 SAB cases were reported as community associated. This corresponds to an incidence rate of 9.9 cases per 100,000 population.
- No NHS boards were above the 95% confidence interval upper limit for healthcare or community associated SAB in the funnel plot analysis.
- No NHS boards were above normal variation for community associated SAB when analysing trends over the past three years.

Surgical Site Infection (SSI) October to December 2021

Epidemiological data for SSI are not included for this quarter due to the pausing of surveillance to support the COVID-19 response.

Results and Commentary

Clostridioides difficile Infection (CDI)

Total Cases for Quarter

- During Q4 2021, 264 *Clostridioides difficile* infection (CDI) cases in patients were reported to ARHAI. In the previous quarter there were 332 cases.
- In the clinical surveillance typing scheme (covering severe cases and/or outbreaks) ribotypes 020 and 078 (both 15.0%) were the most common ribotypes isolated, followed by 014, 015, 103 (all 7.5%), and 002, 005 (both 5.0%) out of a total of 40 isolates. The remaining ribotypes comprise a mixture each with a prevalence of less than 3%. All clinical surveillance isolates tested were susceptible to metronidazole and vancomycin.
- In the snapshot surveillance (which reflects the general distribution of ribotypes among all CDI cases), ribotype 002 was the most common (18.6%), followed by 078 (15.3%), 014, 015 (both 8.5%), 005 (6.8%), 020, 277 (both 5.1%), and 001, 081, 126, 216 (all 3.4%) out of a total of 59 isolates. The remaining ribotypes comprise a mixture each with a prevalence of less than 3%. All snapshot surveillance isolates tested were susceptible to both metronidazole and vancomycin.

Healthcare associated infection cases by health board where specimen taken

- During Q4 2021, 198 CDI cases were reported to ARHAI as healthcare associated. This corresponds to an incidence rate of 13.3 cases per 100,000 total occupied bed days (TOBDs) and is a decrease compared to the Q3 2021 incidence rate of 16.8 cases per 100,000 TOBDs (**Table 1**).
- Yearly trends (comparing year-ending December 2020 with year-ending December 2021) show that there was no change in NHS boards or Scotland overall (**Table 2**).
- NHS Ayrshire & Arran and NHS Lanarkshire were above the 95% confidence interval upper limit in the funnel plot analysis (**Figure 1**).

- No NHS boards were above normal variation when analysing trends over the past three years (see **supplementary data**).

Community associated infection cases by health board of residence

- During Q4 2021, 66 CDI cases were reported as community associated. This corresponds to an incidence rate of 4.8 cases per 100,000 population (**Table 3**).
- Yearly trends (comparing year-ending December 2020 with year-ending December 2021) show that there was a decrease in NHS Grampiam. (**Table 4**).
- NHS Lothian was 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: Q3 2021 (July to September 2021) compared to Q4 2021 (October to December 2021).[1,2,3]

NHS Board	Q3 Cases	Q3 Bed Days	Q3 Rate	Q4 Cases	Q4 Bed Days	Q4 Rate
AA	29	108,269	26.8	26	112,199	23.2
BR	3	29,640	10.1	2	30,470	6.6
DG	10	42,178	23.7	3	44,880	6.7
FF	8	84,518	9.5	4	86,250	4.6
FV	8	69,862	11.5	7	75,758	9.2
GJ	0	12,063	0.0	0	12,615	0.0
GR	14	121,265	11.5	12	125,861	9.5
GGC	76	413,139	18.4	57	416,309	13.7
HG	13	70,337	18.5	14	71,270	19.6
LN	29	140,006	20.7	31	144,693	21.4
LO	43	241,844	17.8	29	245,190	11.8
OR	0	2,696	0.0	0	3,289	0.0
SH	1	2,456	40.7	0	2,344	0.0
TY	11	112,116	9.8	12	116,557	10.3
WI	0	5,975	0.0	1	6,066	16.5
Scotland	**245**	**1,456,364**	**16.8**	**198**	**1,493,751**	**↓ 13.3**

1. An arrow denotes statistically significant change.
2. Source of data is Electronic Communication of Surveillance in Scotland (ECOSS) & Total occupied bed days: Information Services Division 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 2020 (YE Q4 20) compared to year-ending December 2021 (YE Q4 21).[1,2,3]

NHS Board	YE Q4 20 Cases	YE Q4 20 Bed Days	YE Q4 20 Rate	YE Q4 21 Cases	YE Q4 21 Bed Days	YE Q4 21 Rate
AA	80	389,792	20.5	101	422,039	23.9
BR	12	101,947	11.8	7	117,864	5.9
DG	33	145,682	22.7	27	164,404	16.4
FF	25	304,057	8.2	31	329,178	9.4
FV	37	268,373	13.8	29	282,384	10.3
GJ	6	40,338	14.9	1	49,178	2.0
GR	61	444,163	13.7	54	474,167	11.4
GGC	255	1,485,957	17.2	259	1,610,601	16.1
HG	53	244,974	21.6	57	272,580	20.9
LN	93	490,868	18.9	114	546,936	20.8
LO	122	867,025	14.1	133	945,596	14.1
OR	0	11,041	0.0	0	12,098	0.0
SH	2	8,314	24.1	4	8,931	44.8
TY	35	397,284	8.8	39	437,217	8.9
WI	2	18,860	10.6	3	23,857	12.6
Scotland	**816**	**5,218,675**	**15.6**	**859**	**5,697,030**	**15.1**

1. An arrow denotes statistically significant change.
2. Source of data is Electronic Communication of Surveillance in Scotland (ECOSS) & Total occupied bed days: Information Services Division 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 2021 (July to September 2021) compared to Q4 2021 (October to December 2021).[1,2,3]

NHS Board	Q3 Cases	Q3 Population	Q3 Rate	Q4 Cases	Q4 Population	Q4 Rate
AA	9	367,990	9.7	6	367,990	6.5
BR	1	115,240	3.4	1	115,240	3.4
DG	2	148,290	5.4	5	148,290	13.4
FF	4	374,130	4.2	1	374,130	1.1
FV	0	305,930	0.0	0	305,930	0.0
GR	8	585,550	5.4	5	585,550	3.4
GGC	19	1,185,240	6.4	11	1,185,240	3.7
HG	6	320,860	7.4	4	320,860	4.9
LN	9	661,960	5.4	9	661,960	5.4
LO	22	912,490	9.6	23	912,490	10.0
OR	1	22,400	17.7	0	22,400	0.0
SH	0	22,870	0.0	0	22,870	0.0
TY	5	416,550	4.8	1	416,550	1.0
WI	1	26,500	15.0	0	26,500	0.0
Scotland	**87**	**5,466,000**	**6.3**	**66**	**5,466,000**	**4.8**

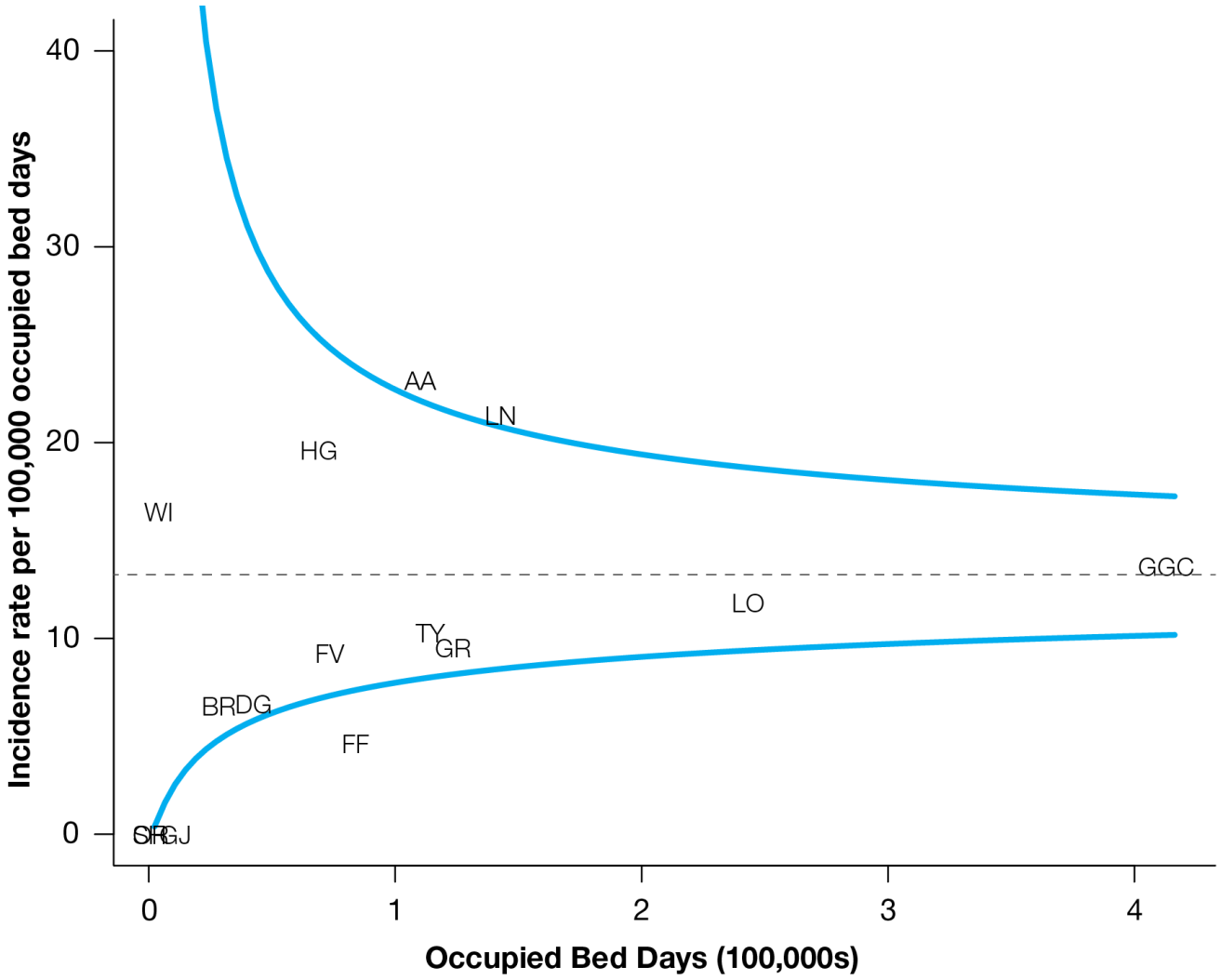
1. Quarterly population rates are based on an annualised population.
2. Source of data is Electronic Communication of Surveillance in Scotland (ECOSS) & National Records of Scotland (NRS) mid-year population estimates.
3. Figures include any updates received following the last publication (see Appendix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

Table 4: CDI cases and incidence rates (per 100,000 population) for community associated infection cases: year-ending December 2020 (YE Q4 20) compared to year-ending December 2021 (YE Q4 21).[1,2,3]

NHS Board	YE Q4 20 Cases	YE Q4 20 Population	YE Q4 20 Rate	YE Q4 21 Cases	YE Q4 21 Population	YE Q4 21 Rate
AA	32	367,990	8.7	28	367,990	7.6
BR	7	115,240	6.1	3	115,240	2.6
DG	13	148,290	8.8	16	148,290	10.8
FF	10	374,130	2.7	14	374,130	3.7
FV	5	305,930	1.6	2	305,930	0.7
GR	41	585,550	7.0	22	585,550	↓ 3.8
GGC	39	1,185,240	3.3	55	1,185,240	4.6
HG	23	320,860	7.2	19	320,860	5.9
LN	28	661,960	4.2	35	661,960	5.3
LO	54	912,490	5.9	66	912,490	7.2
OR	3	22,400	13.4	2	22,400	8.9
SH	2	22,870	8.7	0	22,870	0.0
TY	13	416,550	3.1	12	416,550	2.9
WI	2	26,500	7.5	2	26,500	7.5
Scotland	**272**	**5,466,000**	**5.0**	**276**	**5,466,000**	**5.0**

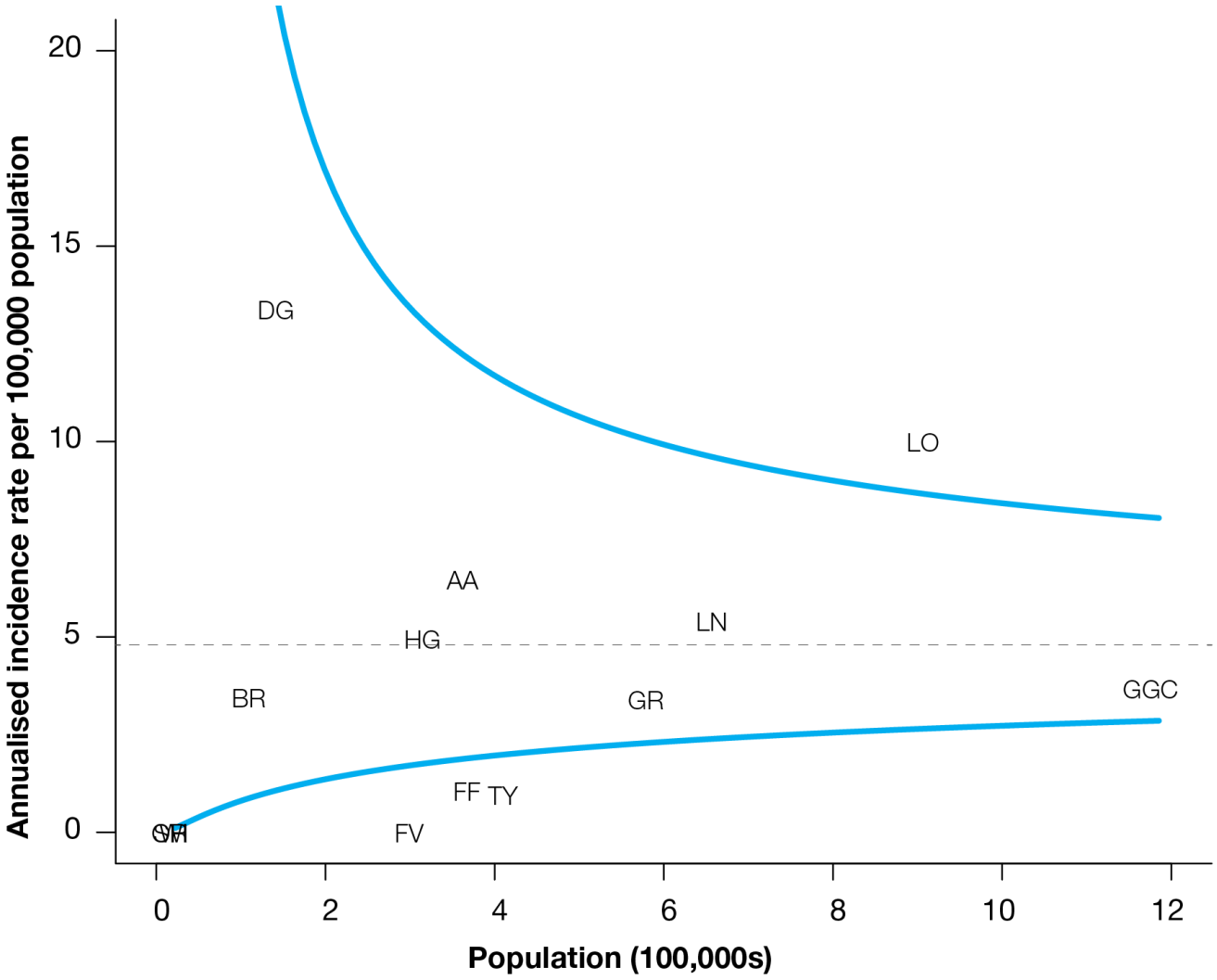
1. An arrow denotes statistically significant change.
2. Source of data is Electronic Communication of Surveillance in Scotland (ECOSS) & NRS mid-year population estimates.
3. Figures include any updates received following the last publication (see Appendix 2).

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 2021.[1,2]



1. Source of data is Electronic Communication of Surveillance in Scotland (ECOSS) & Total occupied bed days: Information Services Division ISD(S)1.
2. NHS Golden Jubilee, NHS Orkney and NHS Shetland overlap.

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 2021.[1,2]



1. Source of data is Electronic Communication of Surveillance in Scotland (ECOSS) & NRS mid-year population estimates.
2. NHS Orkney, NHS Shetland, and NHS Western Isles overlap.

Escherichia coli bacteraemia (ECB)

Total Cases for Quarter

- During Q4 2021, 1,058 *Escherichia coli* bacteraemia (ECB) cases in patients were reported to ARHAI. In the previous quarter there were 1,170 cases.

Healthcare associated infection cases by health board where specimen taken

- During Q4 2021, 509 ECB cases were reported to ARHAI as healthcare associated. This corresponds to an incidence rate of 34.1 cases per 100,000 TOBDs and is a decrease compared to the Q3 2021 incidence rate of 41.5 cases per 100,000 TOBDs (**Table 5**).
- Yearly trends (comparing year-ending December 2020 with year-ending December 2021) show that there was a decrease in NHS Lanarkshire and Scotland overall (**Table 6**).
- NHS Ayrshire & Arran was 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 health board of residence

- During Q4 2021, 549 ECB cases were reported as community associated. This corresponds to an incidence rate of 39.8 cases per 100,000 population (**Table 7**).
- Yearly trends (comparing year-ending December 2020 with year-ending December 2021) show that there was a decrease in NHS Forth Valley, and an increase in NHS Greater Glasgow & Clyde (**Table 8**).
- NHS Ayrshire & Arran and NHS Dumfries & Galloway 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 2021 (July to September 2021) compared to Q4 2021 (October to December 2021).[1,2,3]

NHS Board	Q3 Cases	Q3 Bed Days	Q3 Rate	Q4 Cases	Q4 Bed Days	Q4 Rate
AA	54	108,269	49.9	55	112,199	49.0
BR	14	29,640	47.2	12	30,470	39.4
DG	22	42,178	52.2	11	44,880	24.5
FF	51	84,518	60.3	29	86,250	33.6
FV	47	69,862	67.3	37	75,758	48.8
GJ	2	12,063	16.6	0	12,615	0.0
GR	43	121,265	35.5	45	125,861	35.8
GGC	140	413,139	33.9	136	416,309	32.7
HG	17	70,337	24.2	23	71,270	32.3
LN	63	140,006	45.0	53	144,693	36.6
LO	82	241,844	33.9	58	245,190	23.7
OR	2	2,696	74.2	0	3,289	0.0
SH	1	2,456	40.7	4	2,344	170.6
TY	61	112,116	54.4	44	116,557	37.7
WI	5	5,975	83.7	2	6,066	33.0
Scotland	**604**	**1,456,364**	**41.5**	**509**	**1,493,751**	**↓ 34.1**

1. An arrow denotes statistically significant change.
2. Source of data is Electronic Communication of Surveillance in Scotland (ECOSS) & Total occupied bed days: Information Services Division 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 2020 (YE Q4 20) compared to year-ending December 2021 (YE Q4 21).[1,2,3]

NHS Board	YE Q4 20 Cases	YE Q4 20 Bed days	YE Q4 20 Rate	YE Q4 21 Cases	YE Q4 21 Bed days	YE Q4 21 Rate
AA	202	389,792	51.8	200	422,039	47.4
BR	49	101,947	48.1	54	117,864	45.8
DG	51	145,682	35.0	58	164,404	35.3
FF	138	304,057	45.4	127	329,178	38.6
FV	152	268,373	56.6	144	282,384	51.0
GJ	3	40,338	7.4	3	49,178	6.1
GR	178	444,163	40.1	175	474,167	36.9
GGC	549	1,485,957	36.9	548	1,610,601	34.0
HG	67	244,974	27.3	78	272,580	28.6
LN	230	490,868	46.9	211	546,936	↓ 38.6
LO	276	867,025	31.8	295	945,596	31.2
OR	2	11,041	18.1	7	12,098	57.9
SH	6	8,314	72.2	9	8,931	100.8
TY	158	397,284	39.8	192	437,217	43.9
WI	8	18,860	42.4	12	23,857	50.3
Scotland	**2,069**	**5,218,675**	**39.6**	**2,113**	**5,697,030**	**↓ 37.1**

1. An arrow denotes statistically significant change.
2. Source of data is Electronic Communication of Surveillance in Scotland (ECOSS) & Total occupied bed days: Information Services Division 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 2021 (July to September 2021) compared to Q4 2021 (October to December 2021).[1,2,3,4]

NHS Board	Q3 Cases	Q3 Population	Q3 Rate	Q4 Cases	Q4 Population	Q4 Rate
AA	59	367,990	63.6	59	367,990	63.6
BR	18	115,240	62.0	12	115,240	41.3
DG	22	148,290	58.9	28	148,290	74.9
FF	40	374,130	42.4	37	374,130	39.2
FV	24	305,930	31.1	21	305,930	27.2
GR	42	585,550	28.5	44	585,550	29.8
GGC	126	1,185,240	42.2	111	1,185,240	37.2
HG	24	320,860	29.7	29	320,860	35.9
LN	83	661,960	49.7	76	661,960	45.5
LO	83	912,490	36.1	79	912,490	34.3
OR	2	22,400	35.4	1	22,400	17.7
SH	1	22,870	17.3	4	22,870	69.4
TY	39	416,550	37.1	44	416,550	41.9
WI	3	26,500	44.9	4	26,500	59.9
Scotland	**566**	**5,466,000**	**41.1**	**549**	**5,466,000**	**39.8**

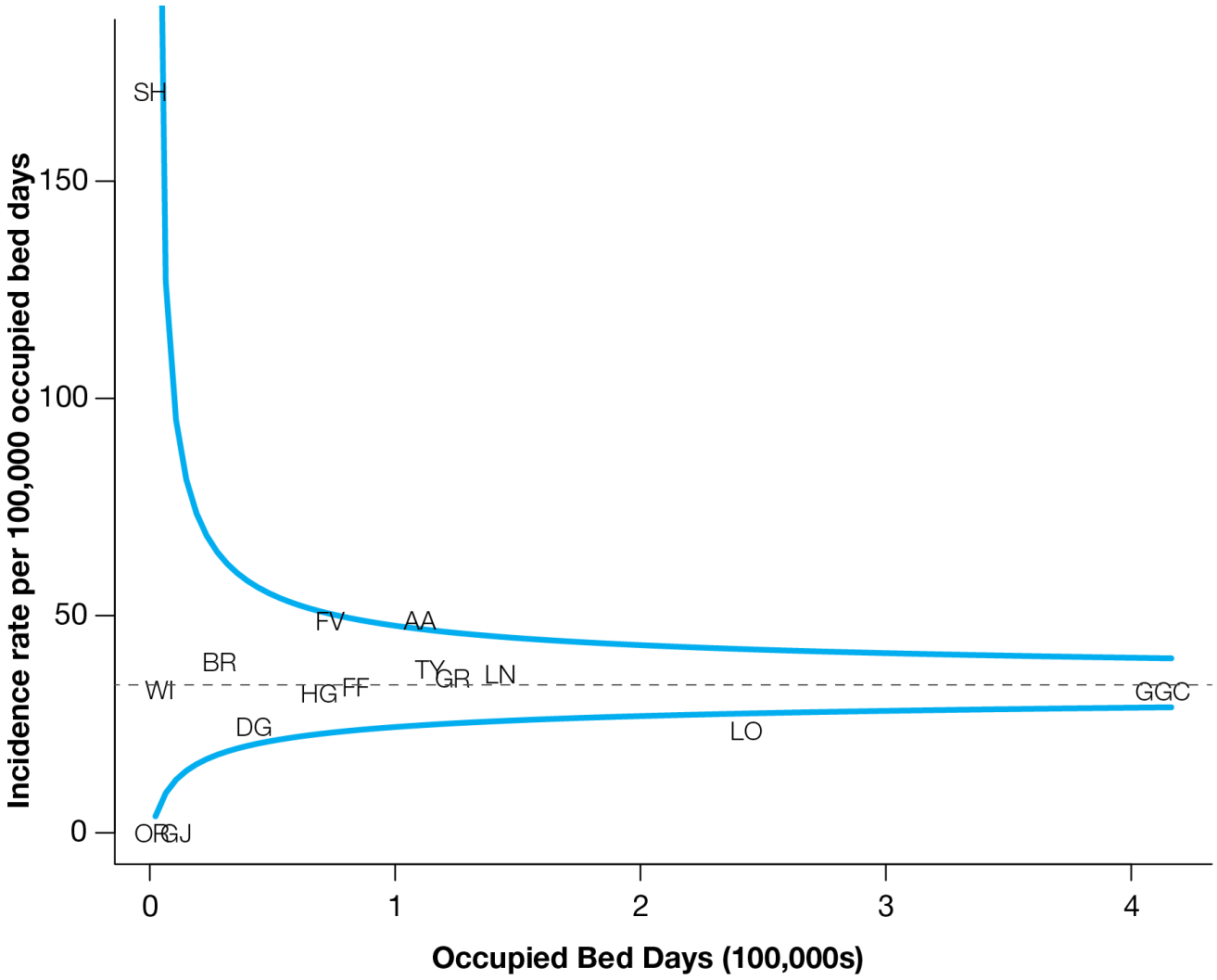
1. An arrow denotes statistically significant change.
2. Quarterly population rates are based on an annualised population.
3. Source of data is Electronic Communication of Surveillance in Scotland (ECOSS) & NRS mid-year population estimates.
4. Figures include any updates received following the last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

Table 8: ECB cases and incidence rates (per 100,000 population) for community associated infection cases: year-ending December 2020 (YE Q4 20) compared to year-ending December 2021 (YE Q4 21).[1,2,3]

NHS Board	YE Q4 20 Cases	YE Q4 20 Population	YE Q4 20 Rate	YE Q4 21 Cases	YE Q4 21 Population	YE Q4 21 Rate
AA	212	367,990	57.6	216	367,990	58.7
BR	36	115,240	31.2	50	115,240	43.4
DG	88	148,290	59.3	96	148,290	64.7
FF	137	374,130	36.6	139	374,130	37.2
FV	170	305,930	55.6	107	305,930	↓ 35.0
GR	168	585,550	28.7	194	585,550	33.1
GGC	395	1,185,240	33.3	453	1,185,240	↑ 38.2
HG	99	320,860	30.9	115	320,860	35.8
LN	339	661,960	51.2	294	661,960	44.4
LO	291	912,490	31.9	317	912,490	34.7
OR	7	22,400	31.3	10	22,400	44.6
SH	6	22,870	26.2	8	22,870	35.0
TY	168	416,550	40.3	165	416,550	39.6
WI	21	26,500	79.2	15	26,500	56.6
Scotland	**2,137**	**5,466,000**	**39.1**	**2,179**	**5,466,000**	**39.9**

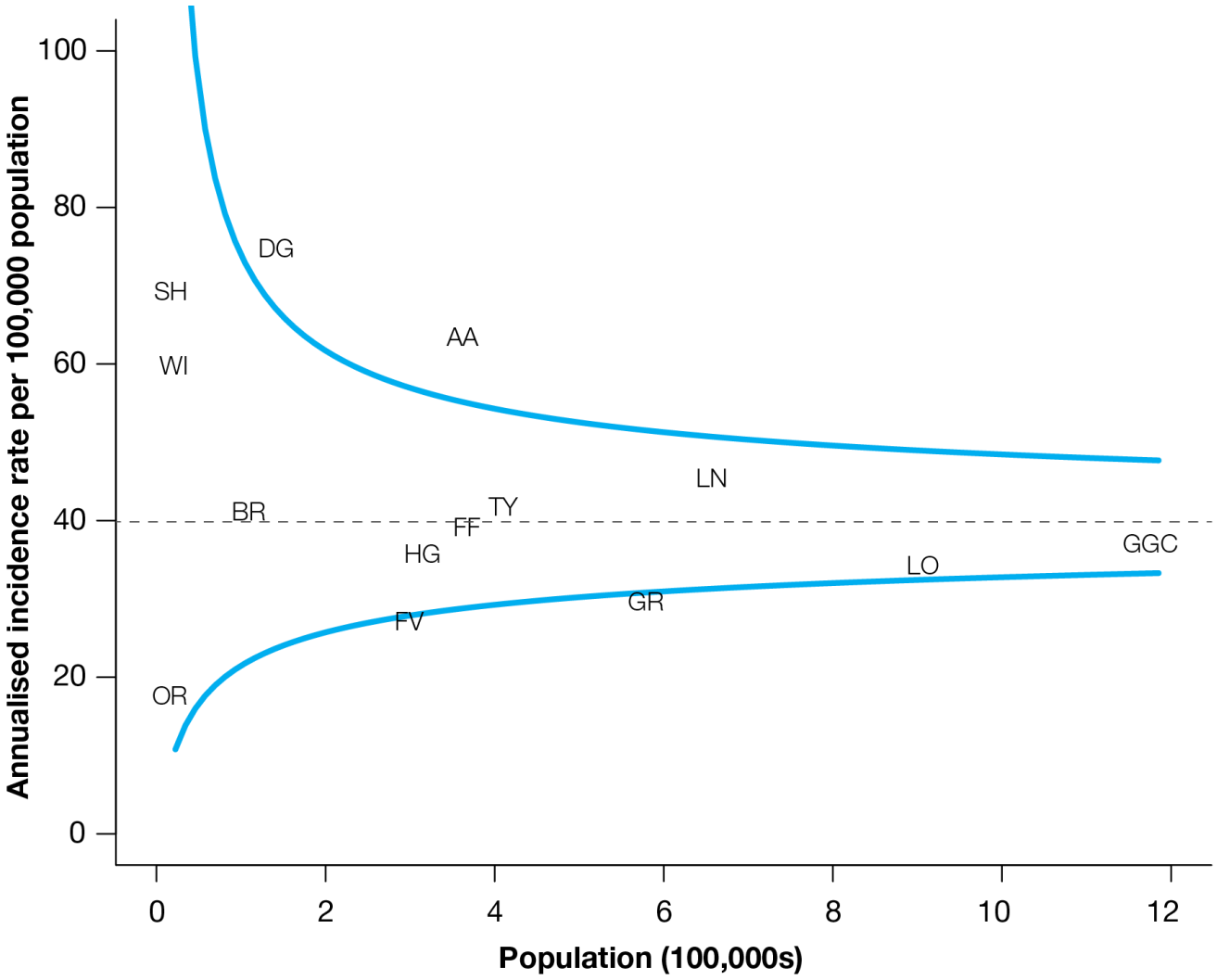
1. An arrow denotes statistically significant change.
2. Source of data is Electronic Communication of Surveillance in Scotland (ECOSS) & NRS mid-year population estimates.
3. Figures include any updates received following the last publication (see Appendix 2).

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 2021.[1,2]



1. Source of data is Electronic Communication of Surveillance in Scotland (ECOSS) & Total occupied bed days: Information Services Division ISD(S)1.
2. NHS Golden Jubilee and NHS Orkney overlap as do NHS Grampian and Tayside.

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 2021.[1]



1. Source of data is Electronic Communication of Surveillance in Scotland (ECOSS) & NRS mid-year population estimates.

Staphylococcus aureus bacteraemia (SAB)

Total cases for quarter

- During Q4 2021, 395 *Staphylococcus aureus* bacteraemia (SAB) cases were reported to ARHAI. In the previous quarter there were 399 SAB cases.

Healthcare associated infection cases by health board where specimen taken

- During Q4 2021, 259 SAB cases were reported to ARHAI as healthcare associated. This corresponds to an incidence rate of 17.3 cases per 100,000 TOBDs (**Table 9**).
- Yearly trends (comparing year-ending December 2020 with year-ending December 2021) show that there was an increase in NHS Highland and a decrease 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 health board of residence

- During Q4 2021, 136 SAB cases were reported as community associated. This corresponds to an incidence rate of 9.9 cases per 100,000 population (**Table 11**).
- Yearly trends (comparing year-ending December 2020 with year-ending December 2021) show that there was no increase or decrease in NHS boards or Scotland overall (**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 2021 (July to September 2021) compared to Q4 2021 (October to December 2021).[1,2,3]

NHS Board	Q3 Cases	Q3 Bed Days	Q3 Rate	Q4 Cases	Q4 Bed Days	Q4 Rate
AA	17	108,269	15.7	15	112,199	13.4
BR	7	29,640	23.6	4	30,470	13.1
DG	6	42,178	14.2	7	44,880	15.6
FF	14	84,518	16.6	11	86,250	12.8
FV	16	69,862	22.9	16	75,758	21.1
GJ	3	12,063	24.9	2	12,615	15.9
GR	22	121,265	18.1	27	125,861	21.5
GGC	81	413,139	19.6	80	416,861	19.2
HG	8	70,337	11.4	14	71,270	19.6
LN	21	140,006	15.0	24	144,693	16.6
LO	44	241,844	18.2	26	245,190	10.6
OR	0	2,696	0.0	0	3,289	0.0
SH	2	2,456	81.4	1	2,344	42.7
TY	26	112,116	23.2	27	116,557	23.2
WI	0	5,975	0.0	5	6,066	82.4
Scotland	**267**	**1,456,364**	**18.3**	**259**	**1,493,751**	**17.3**

1. An arrow denotes statistically significant change.
2. Note: Source of data is Electronic Communication of Surveillance in Scotland (ECOSS) & Total occupied bed days: Information Services Division 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 2020 (YE Q4 20) compared to year-ending December 2021 (YE Q4 21).[1,2,3]

NHS Board	YE Q4 20 Cases	YE Q4 20 Bed days	YE Q4 20 Rate	YE Q4 21 Cases	YE Q4 21 Bed days	YE Q4 21 Rate
AA	83	389,792	21.3	62	422,039	↓ 14.7
BR	15	101,947	14.7	24	117,864	20.4
DG	23	145,682	15.8	27	164,404	16.4
FF	45	304,057	14.8	44	329,178	13.4
FV	55	268,373	20.5	53	282,384	18.8
GJ	7	40,338	17.4	14	49,178	28.5
GR	77	444,163	17.3	97	474,167	20.5
GGC	293	1,485,957	19.7	306	1,610,601	19.0
HG	24	244,974	9.8	47	272,580	↑ 17.2
LN	93	490,868	18.9	105	546,936	19.2
LO	125	867,025	14.4	143	945,596	15.1
OR	3	11,041	27.2	0	12,098	0.0
SH	4	8,314	48.1	3	8,931	33.6
TY	87	397,284	21.9	101	437,217	23.1
WI	6	18,860	31.8	8	23,857	33.5
Scotland	**940**	**5,218,675**	**18.0**	**1,034**	**5,697,030**	**18.1**

1. An arrow denotes statistically significant change.
2. Note: Source of data is Electronic Communication of Surveillance in Scotland (ECOSS) & Total occupied bed days: Information Services Division 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 2021 (July to September 2021) compared to Q4 2021 (October to December 2021).[1,2,3,4]

NHS Board	Q3 Cases	Q3 Population	Q3 Rate	Q4 Cases	Q4 Population	Q4 Rate
AA	17	367,990	18.3	12	367,990	12.9
BR	6	115,240	20.7	3	115,240	10.3
DG	5	148,290	13.4	8	148,290	21.4
FF	9	374,130	9.5	8	374,130	8.5
FV	7	305,930	9.1	9	305,930	11.7
GR	11	585,550	7.5	15	585,550	10.2
GGC	18	1,185,240	6.0	20	1,185,240	6.7
HG	10	320,860	12.4	10	320,860	12.4
LN	18	661,960	10.8	17	661,960	10.2
LO	19	912,490	8.3	21	912,490	9.1
OR	0	22,400	0.0	0	22,400	0.0
SH	1	22,870	17.3	1	22,870	17.3
TY	10	416,550	9.5	12	416,550	11.4
WI	1	26,500	15.0	0	26,500	0.0
Scotland	**132**	**5,466,000**	**9.6**	**136**	**5,466,000**	**9.9**

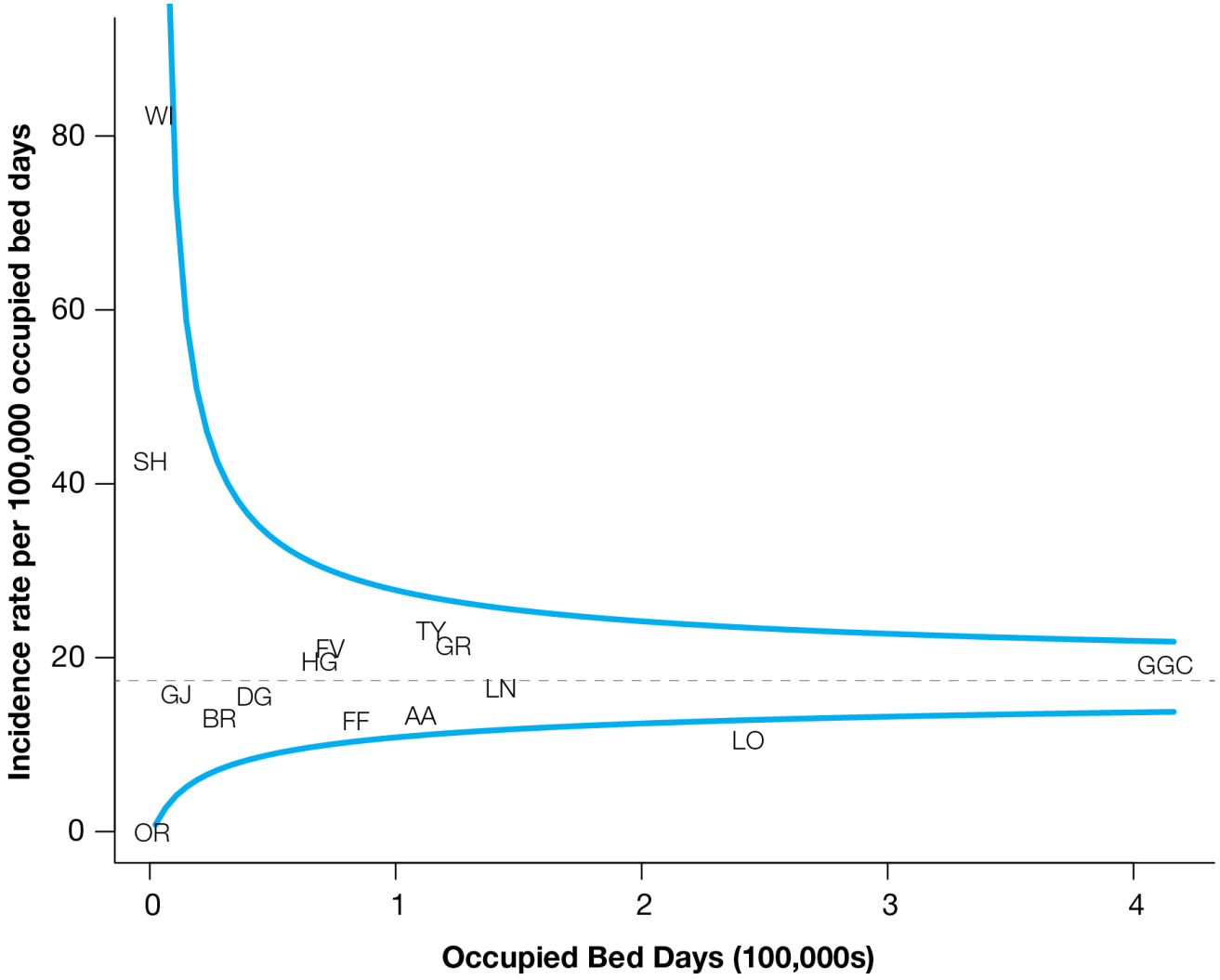
1. An arrow denotes statistically significant change.
2. Quarterly population rates are based on an annualised population.
3. Source of data is Electronic Communication of Surveillance in Scotland (ECOSS) & NRS mid-year population estimates.
4. Figures include any updates received following the last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

Table 12: SAB cases and incidence rates (per 100,000 population) for community associated infection cases: year-ending December 2020 (YE Q4 20) compared to year-ending December 2021 (YE Q4 21).[1,2,3]

NHS Board	YE Q4 20 Cases	YE Q4 20 Population	YE Q4 20 Rate	YE Q4 21 Cases	YE Q4 21 Population	YE Q4 21 Rate
AA	55	367,990	14.9	46	367,990	12.5
BR	13	115,240	11.3	16	115,240	13.9
DG	16	148,290	10.8	27	148,290	18.2
FF	37	374,130	9.9	38	374,130	10.2
FV	38	305,930	12.4	29	305,930	9.5
GR	63	585,550	10.8	59	585,550	10.1
GGC	79	1,185,240	6.7	81	1,185,240	6.8
HG	37	320,860	11.5	35	320,860	10.9
LN	66	661,960	10.0	80	661,960	12.1
LO	100	912,490	11.0	88	912,490	9.6
OR	5	22,400	22.3	0	22,400	0.0
SH	2	22,870	8.7	3	22,870	13.1
TY	46	416,550	11.0	52	416,550	12.5
WI	4	26,500	15.1	2	26,500	7.5
Scotland	**561**	**5,466,000**	**10.3**	**556**	**5,466,000**	**10.2**

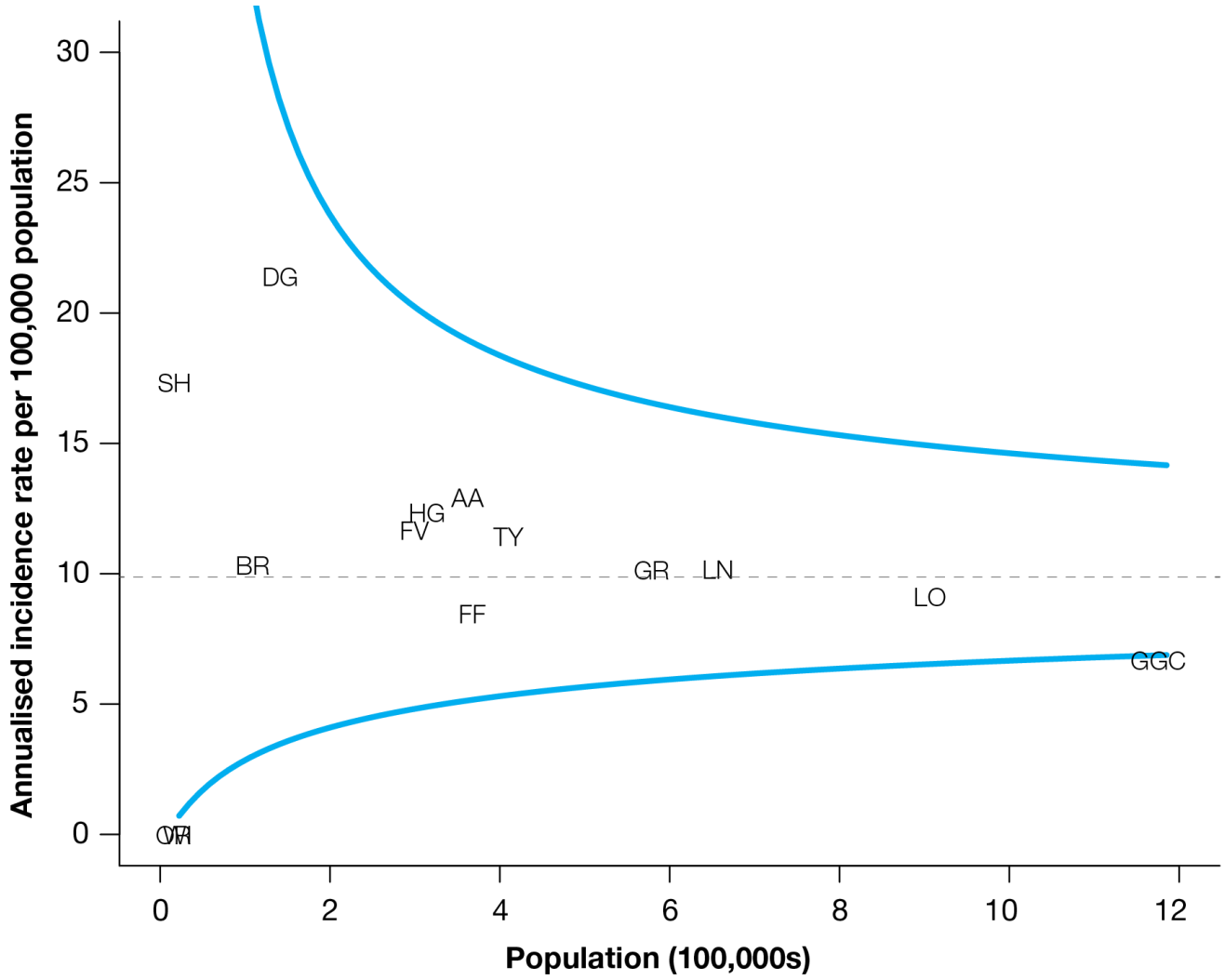
1. An arrow denotes statistically significant change.
2. Source of data is Electronic Communication of Surveillance in Scotland (ECOSS) & NRS mid-year population estimates.
3. Figures include any updates received following the last publication (see Appendix 2).

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 2021.[1]



1. Source of data is Electronic Communication of Surveillance in Scotland (ECOSS) & Total occupied bed days: Information Services Division ISD(S)1.

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 2021.[1,2]



1. Source of data is Electronic Communication of Surveillance in Scotland (ECOSS) & NRS mid-year population estimates.
2. NHS Orkney and NHS Western Isles overlap.

Surgical Site Infection (SSI)

Epidemiological data for SSI are not included for this quarter due to the pausing of surveillance to support the COVID-19 response.

List of Tables

File name	File and size
Table 1: CDI cases and incidence rates (per 100,000 TOBDs) for healthcare associated infection cases: Q3 2021 (July to September 2021) compared to Q4 2021 (October to December 2021).	supplementary data (463 Kb)
Table 2: CDI cases and incidence rates (per 100,000 TOBDs) for healthcare associated infection cases: year-ending December 2020 (YE Q4 20) compared to year-ending December 2021 (YE Q4 21).	supplementary data (463 Kb)
Table 3: CDI cases and incidence rates (per 100,000 population) for community associated infection cases: Q3 2021 (July to September 2021) compared to Q4 2021 (October to December 2021).	supplementary data (463 Kb)
Table 4: CDI cases and incidence rates (per 100,000 population) for community associated infection cases: year-ending December 2020 (YE Q4 20) compared to year-ending December 2021 (YE Q4 21).	supplementary data (463 Kb)
Table 5: ECB cases and incidence rates (per 100,000 TOBD) for healthcare associated infection cases: Q3 2021 (July to September 2021) compared to Q4 2021 (October to December 2021).	supplementary data (463 Kb)
Table 6: ECB cases and incidence rates (per 100,000 TOBDs) for healthcare associated infection cases: year-ending December 2020 (YE Q4 20) compared to year-ending December 2021 (YE Q4 21).	supplementary data (463 Kb)
Table 7: ECB cases and incidence rates (per 100,000 population) for community associated infection cases: Q3 2021 (July to September 2021) compared to Q4 2021 (October to December 2021).	supplementary data (463 Kb)
Table 8: ECB cases and incidence rates (per 100,000 population) for community associated infection cases: year-ending December 2020 (YE Q4 20) compared to year-ending December 2021 (YE Q4 21).	supplementary data (463 Kb)
Table 9: SAB cases and incidence rates (per 100,000 TOBDs) for healthcare associated infection cases: Q3 2021 (July to September 2021) compared to Q4 2021 (October to December 2021).	supplementary data (463 Kb)
Table 10: SAB cases and incidence rates (per 100,000 TOBDs) for healthcare associated infection cases: year-ending December 2020 (YE Q4 20) compared to year-ending December 2021 (YE Q4 21).	supplementary data (463 Kb)

File name	File and size
Table 11: SAB cases and incidence rates (per 100,000 population) for community associated infection cases: Q3 2021 (July to September 2021) compared to Q4 2021 (October to December 2021).	supplementary data (463 Kb)
Table 12: SAB cases and incidence rates (per 100,000 population) for community associated infection cases: year-ending December 2020 (YE Q4 20) compared to year-ending December 2021 (YE Q4 21).	supplementary data (463 Kb)

Contact

Shona Cairns, Consultant Healthcare Scientist, ARHAI Scotland

Laura Imrie, Clinical Lead, ARHAI Scotland

Phone: 0141 300 1922

Email: **NSS.ARHAIdatateam@nhs.scot**

Further Information

Further Information can be found on the **HPS website.**

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 2022.

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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
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. **https://www.sciencedirect.com/science/article/pii/S1075996416300762?via%3Dihub**
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

Description of Revision	First report revision applied	Report section(s) revision applies to	Rational for revision
			preventing infection and driving quality improvement in care, consistency of the denominators over time tend 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.
Reporting of CDI cases aged 15 years and above only	October 2017	CDI	Current Scottish Government Local Delivery Plan 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	MRSA numbers are becoming too small to carry out statistical analysis. ARHAI will continue to monitor internally.
Addition of year end trends 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 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 would not be

Description of Revision	First report revision applied	Report section(s) revision applies to	Rational for revision
response to COVID-19			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.

Report methods and caveats

Full details of the report methods and caveats can be found here – **https://www.hps.scot.nhs.uk/data/healthcare-associated-infection-quarterly-epidemiological-commentary/**

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 2021.

Theme

Infections in Scotland

Topic

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

Format

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: Information Services Division ISD(S)1

Community associated denominator: National Records of Scotland (NRS) mid-year population estimates

***Escherichia coli* bacteraemia:**

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

Healthcare associated denominator: Total occupied bed days: Information Services Division ISD(S)1

Community associated denominator: NRS mid-year population estimates

***Staphylococcus aureus* bacteraemia:**

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

Healthcare associated denominator: Total occupied bed days: Information Services Division ISD(S)1
Community associated denominator: NRS mid-year population estimates

Surgical Site Infection:

Case data source: Surgical Site Infection Reporting System (SSIRS)

Number of procedures denominator: SSIRS

Date that data are acquired

The date the data were extracted for analysis.

Clostridioides difficile: 20/01/2022

Escherichia coli Bacteraemia: 24/02/2022

Staphylococcus aureus Bacteraemia: 24/02/2022

Surgical Site Infection: Epidemiological data for SSI are not included for this quarter due to the pausing of surveillance to support the COVID-19 response.

Release date

5 April 2022

Frequency

Quarterly

Timeframe of data and timeliness

The latest iteration of data is 31 December 2021, therefore the data are three months in arrears.

Continuity of data

Quarterly as at March, June, September, 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

Total Occupied Bed Days (TOBDs)
Amendments to total occupied bed days dataset provided by Information Services Division (ISD) have been included in historic dataset for analysis and reporting. Updated figures are available to view in the most recent **supplementary data**.

Quarter	NHS Board	Previous TOBDs	Updated TOBDs
2020 Q1	AA	107,446	107,445

Clostridioides difficile Infection (CDI)

Data linkage between CDI surveillance data and the Scottish Morbidity Records (SMR01) is used to identify community and healthcare associated CDI cases. Delays in SMR01 data availability at the time of report production means that some cases may be reassigned as either healthcare associated or community associated CDI at a later date (see Methods and Caveats).

NHS Board	Quarter	Previous Healthcare associated CDI cases	Updated Healthcare associated CDI cases	Previous Community associated CDI cases	Updated Community associated CDI cases	Reason
GGC	2021 Q3	74	76	21	19	Retrospective data amendment

Escherichia coli Bacteraemia (ECB)

Quarter	NHS Board	Previous Healthcare associated ECB cases	Updated Healthcare associated ECB cases	Reason
2021 Q3	AA	53	54	Retrospective data amendment

Surgical Site Infection (SSI)

Epidemiological data for SSI are not included for this quarter due to the pausing of surveillance to support the COVID-19 response.

Concepts and definitions

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.

Approximately 3% of healthy adults and 20% of hospital patients carry *C. difficile* in their gut. The elderly living in care homes or staying in long-term care facilities are more likely to carry *C. difficile* than other adults. In studies from the US, 20% of care home residents and 50% of patients in long-term care facilities, respectively, were colonised with *C. difficile*.

The Scottish CDI guidance 'Guidance on Prevention and Control of CDI in Healthcare Settings in Scotland' and *C. difficile* testing protocol 'protocol for diagnosis of CDI' are key documents for the control and reduction of CDI in Scotland.

There remains scope for a reduction of incidence rates through continued local monitoring, appropriate prescribing, and compliance with infection prevention and control measures.

***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 *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. The number of patients with *E. coli* bacteraemia (ECB) reported to ARHAI has increased continuously since 2009.

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.

Staphylococcus aureus Bacteraemia (SAB)

Staphylococcus aureus (*S. aureus*) is a Gram positive bacterium which 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) bacteraemias 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. Surgical Site Infection Surveillance (SSIS) is mandatory across NHSScotland and all NHS boards participate in SSI surveillance for all inpatient and post discharge surveillance (PDS) for 10 post-operative days for caesarean section procedures and prospective readmission surveillance for hip arthroplasty for 30 post-operative days. Additional new mandatory large bowel and vascular procedures commenced since April 2017. Reporting these procedures will not take place until it is assessed that robust data have been provided by boards.

Further information on the methods and caveats for can be found here: **https://www.hps.scot.nhs.uk/web-resources-container/quarterly-epidemiological-commentary-for-the-surveillance-of-healthcare-associated-infections-in-scotland-methods-caveats/**

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: **https://www.hps.scot.nhs.uk/web-resources-container/quarterly-epidemiological-commentary-for-the-surveillance-of-healthcare-associated-infections-in-scotland-production-of-quarterly-exception-reports-sop/**

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 types 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.

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, we are collaborating with the Scottish Urinary Tract Infection Network (SUTIN). This will promote collaborative working with our partners within Health and Social Care around change ideas which may reduce the risk of *E. coli* bacteraemia. 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.

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 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 have to be met before the data is 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 and asking for confirmation that the cases represent true CDI cases, i.e., meet

the case definition which is defined in the surveillance protocol sent to all the NHS boards and available on the **website**. The final list of CDI cases is then agreed before publishing.

SSI data comes from the Surgical Site Infection Reporting System (SSIRS). Complying with a national minimum dataset and definitions for Surgical Site Infections, enables the data submitted to Health Protection 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 ambiguous core data fields, for example, if presentation to the surgery is ’emergency’ the OPCS code should correspond. 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 reviewed in the enhanced surveillance are included in the 'analysis' in the commentary publication.

CDI:
Diagnosis of CDI is confirmed in a patient who is both symptomatic with diarrhoea and whose stool has tested positive using a two-step diagnostic algorithm. Laboratory reports of positive samples are then sent to ECOSS for data extraction. In the community, patients with CDI may have a mild illness that does not require a GP visit, or the symptoms may not be recognised by a GP for a *C. difficile* test request. In hospitals, the chance of a diarrhoea sample not being tested for *C. difficile* is much lower, and patients who have ileus (i.e., CDI but with no diarrhoea) might be missed; however, as a result of ARHAI published guidance on managing CDI patients, this is not likely. ARHAI carries out validation with the NHS boards to check that no CDI cases have been missed from ECOSS each quarter. As with most surveillance programmes, completeness will not be 100% but mandatory surveillance, supported by ARHAI through issued guidance on diagnosis of CDI and validation of cases, ensures this is as near

to 100% as practically possible. When categorising by healthcare or community, not all cases may be successfully data linked in any one quarter. Therefore, the sum total of the healthcare and community CDI cases may not equal the total number of CDI cases reported to ARHAI.

SSI:
Surveillance coordinators are responsible for completeness and accuracy of data. At hospital level, processes are in placed to ensure all patients included in the standard surveillance have had forms completed (e.g. cross checking with admission or theatre list). ARHAI also compare SSIRS data with data from ISD to a make sure all procedures under surveillance have been included; however, this comparison is only done annually.

Comparability

CDI / ECB / SAB:

Public Health England report rates per quarter for CDI, ECB and SAB (methods and definitions may differ) – **https://www.gov.uk/government/statistics/mrsa-mssa-and-e-coli-bacteraemia-and-c-difficile-infection-quarterly-epidemiological-commentary**

SSI:

SSI rates by health board are not published by the rest of UK. Annual numbers are reported by Public Health England - **https://www.gov.uk/government/publications/surgical-site-infections-ssi-surveillance-nhs-hospitals-in-england**

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 HPS website at:
https://www.hps.scot.nhs.uk/data/healthcare-associated-infection-quarterly-epidemiological-commentary/

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.

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

Disclosure

The PHS protocol on Statistical Disclosure Protocol is followed
https://publichealthscotland.scot/publications/statistical-disclosure-protocol/

Official Statistics designation

Official Statistics

UK Statistics Authority Assessment

Not Assessed

Last published

18 January 2022

Next published

July 2022

Date of first publication

7 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

5 April 2022

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'**.