

Commentary on quarterly epidemiological data on *Clostridium difficile* infection, *Escherichia coli* bacteraemia, *Staphylococcus aureus* bacteraemia and Surgical Site Infection in Scotland

January to March (Q1) 2017

This report by Health Protection Scotland (HPS) brings together commentary on data relating to three important types of healthcare associated infections (HCAIs): *Clostridium difficile* infection, *Escherichia coli* bacteraemia, *Staphylococcus aureus* bacteraemia and surgical site infection for the period January – March 2017. It presents trends over time and allows comparison between NHS health boards in Scotland.

1. *Clostridium difficile* infection data and commentary

HPS report on two groups of patients with *Clostridium difficile* infection (CDI) – those aged 15 to 64 years and those aged 65 years and above, the latter being the age group most at risk. No NHS boards were above normal variation this quarter when analysing trends over the past three years.

Patients aged 65 and above

- During Q1 2017, 231 new CDI cases in patients were reported to HPS. In the previous quarter there were 224 cases. This corresponds to an incidence rate of 25.8 cases per 100 000 total occupied bed days (TOBDs) compared to 25.5 per 100 000 TOBDs in the previous quarter ([Table 1](#)).
- Yearly trends in patients (comparing year-ending March 2016 with year-ending March 2017) show that there were decreases in NHS Ayrshire & Arran, NHS Lanarkshire, NHS Lothian and Scotland overall ([Table 2](#)).
- No NHS boards were outliers this quarter in the funnel plot analysis for this age group ([Figure 1](#)).
- No NHS boards were above normal variation this quarter in this age group when analysing trends over the past three years ([see Appendix](#)).

Note: Any use of the term increase or decrease in the context of this report denotes a statistically significant change.

Patients aged 15 - 64

- During Q1 2017, 98 new CDI cases in patients were reported. In the previous quarter there were 103 cases. This corresponds to an incidence rate of 28.1 cases per 100 000 acute occupied bed (AOBDs) days compared to 29.5 cases per 100 000 AOBDs in the previous quarter ([Table 3](#)).
- Yearly trends in patients (comparing year-ending March 2016 with year-ending March 2017) show that there were decreases in NHS Greater Glasgow & Clyde, NHS Lothian and Scotland overall ([Table 4](#)).
- No NHS boards were outliers this quarter in the funnel plot analysis for this age group ([Figure 2](#)).
- No NHS boards were above normal variation this quarter in this age group when analysing trends over the past three years ([see Appendix](#)).

All patients

- Seasonal variations have previously been noted, with higher incidence rates occurring in Q2 and Q3 compared to Q1 and Q4 ([Figure 3](#)). Despite the observed seasonality, the overall pattern of year-ending rates showed a steady decline in Scotland in both age groups until March 2015 where rates in the 15-64 years age group started to rise while those in the 65 years and above age group have continued to decline ([Figure 4](#)).
- In the clinical surveillance typing scheme (covering severe cases and/or outbreaks), ribotype 005 (17.5%) was the most common ribotype isolated, followed by 078 (11.3%), 002 (9.7%), 014 and 015 (both 8.1%), 020 (6.5%), 023 (4.8%), and 011, 027, 050, 072, 216 and 220 (all 3.2%), out of a total of 62 isolates. The remaining ribotypes comprise a mixture with a prevalence <3%.
- In the snapshot surveillance (which reflects the general distribution of ribotypes among all CDI cases), ribotype 078 (11.8%) was the most common ribotype isolated, followed by 005 (10.8%), 014 and 002 (9.8%), 015 (7.8%), 020 (5.9%), and 023, 072, 106 and 216 (all 3.9%), out of a total of 102 isolates. The remaining ribotypes comprise a mixture with a prevalence <3%. All isolates tested (snapshot and clinical) were susceptible to metronidazole and vancomycin.

Quality improvement

HPS has been supporting NHS boards to help analyse their data and review their prevention and control measures. Appropriate local monitoring, antimicrobial prescribing and implementation of infection prevention and control precautions at both hospital and community levels are key to maintaining and reducing CDI rates.

HPS is undertaking a project to further investigate the cause of the pattern observed in CDI incidence rates. This will involve investigations of compliance with existing testing and reporting procedures, and further examinations of the seasonal fluctuations in reporting of CDI.

NHS boards are reminded to follow the national guidance on Prevention and Control of CDI in Healthcare Settings in Scotland and the recommended protocol for diagnosis of CDI. A revised version was published in January 2014: <http://www.hps.scot.nhs.uk/haiic/sshaip/guidelinedetail.aspx?id=42640>

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

***Clostridium difficile* infection (CDI) tables and figures**

Table 1: CDI cases and incidence rates (per 100 000 TOBDs) in patients aged 65 years and above: Q4 2016 (October to December 2016) compared to Q1 2017 (January to March 2017).

NHS board	Q4 2016 (October to December)			Q1 2017 (January to March)		
	Cases	Bed days	Rate	Cases	Bed days	Rate
AA	16	71 888	22.3	28	72 856	38.4
BR	4	22 169	18.0	5	22 115	22.6
DG	9	28 111	32.0	8	29 214	27.4
FF	14	50 152	27.9	9	49 709	18.1
FV	8	49 412	16.2	6	47 974	12.5
GR	29	77 479	37.4	24	79 807	30.1
GGC	57	216 896	26.3	57	224 041	25.4
HG	20	43 336	46.2	15	45 259	33.1
LN	31	91 312	33.9	19	97 423	19.5
LO	22	132 572	16.6	41	139 635	29.4
NWTC	0	7410	0.0	1	7100	14.1
OR	1	2819	35.5	0	1965	0.0
SH	0	1963	0.0	0	2259	0.0
TY	12	74 061	16.2	18	71 992	25.0
WI	1	7176	13.9	0	4661	0.0
Scotland	224	876 756	25.5	231	896 010	25.8

Table 2: CDI cases and incidence rates (per 100 000 TOBDs) by in patients aged 65 years and above: year-ending March 2016 compared to year-ending March 2017. Arrow denotes statistically significant change.

NHS board	Year-ending March 2016			Year-ending March 2017		
	Cases	Bed days	Rate	Cases	Bed days	Rate
AA	125	279 257	44.8	85	285 907	29.7↓
BR	16	90 686	17.6	17	85 404	19.9
DG	31	107 103	28.9	30	112 221	26.7
FF	48	209 919	22.9	42	197 484	21.3
FV	28	196 373	14.3	34	195 291	17.4
GR	96	325 828	29.5	99	317 917	31.1
GGC	270	970 691	27.8	245	880 067	27.8
HG	57	174 716	32.6	60	174 716	34.3
LN	136	366 845	37.1	96	368 197	26.1↓
LO	201	584 389	34.4	143	570 933	25.0↓
NWTC	0	28 032	0.0	1	28 167	3.6
OR	2	9876	20.3	3	9379	32.0
SH	3	10 933	27.4	0	9069	0.0
TY	100	290 039	34.5	76	289 103	26.3
WI	3	25 568	11.7	2	21 339	9.4
Scotland	1116	3 670 255	30.4	933	3 545 194	26.3↓

Table 3: CDI cases and incidence rates (per 100 000 AOBDS) in patients aged 15-64 years: Q4 2016 (October to December 2016) compared to Q1 2017 (January to March 2017).

NHS board	Q4 2016 (October to December)			Q1 2017 (January to March)		
	Cases	Bed days	Rate	Cases	Bed days	Rate
AA	7	23 711	29.5	10	25 380	39.4
BR	2	4280	46.7	0	4682	0.0
DG	4	8603	46.5	1	7851	12.7
FF	8	15 617	51.2	3	17 729	16.9
FV	3	12 710	23.6	0	12 945	0.0
GR	15	32 265	46.5	10	33 495	29.9
GGC	21	110 154	19.1	36	107 281	33.6
HG	4	15 794	25.3	7	15 938	43.9
LN	8	34 199	23.4	9	36 411	24.7
LO	19	55 166	34.4	16	52 072	30.7
NWTC	0	5672	0.0	0	5085	0.0
OR	0	463	0.0	0	720	0.0
SH	0	739	0.0	0	708	0.0
TY	11	27 427	40.1	6	27 412	21.9
WI	1	1827	54.7	0	1284	0.0
Scotland	103	23 711	29.5	98	348 993	28.1

Table 4: CDI cases and incidence rates (per 100 000 AOBDS) in patients aged 15-64 years: year-ending March 2016 compared to year-ending March 2017. Arrow denotes statistically significant change.

NHS board	Year ending March 2016			Year ending March 2017		
	Cases	Bed days	Rate	Cases	Bed days	Rate
AA	37	96 110	38.5	29	95 552	30.3
BR	3	17 624	17.0	5	18 038	27.7
DG	16	30 609	52.3	9	31 819	28.3
FF	19	69 109	27.5	22	65 261	33.7
FV	7	57 816	12.1	9	54 442	16.5
GR	73	138 637	52.7	53	134 004	39.6
GGC	169	440 269	38.4	133	439 395	30.3↓
HG	30	67 929	44.2	18	67 929	26.5
LN	51	134 524	37.9	46	139 586	33.0
LO	111	226 299	49.1	79	217 021	36.4↓
NWTC	0	21 746	0.0	0	21 189	0.0
OR	1	2690	37.2	1	2435	41.1
SH	3	3407	88.1	1	2870	34.8
TY	44	106 397	41.4	39	109 607	35.6
WI	2	4264	46.9	2	4931	40.6
Scotland	566	1 417 430	39.9	446	1 404 079	31.8↓

Figure 1: Funnel plot of CDI incidence rates (per 100 000 TOBDs) in patients aged 65 years and above for all NHS boards in Scotland in Q1 2017. NHS Orkney, NHS Shetland and NHS Western Isles overlap.

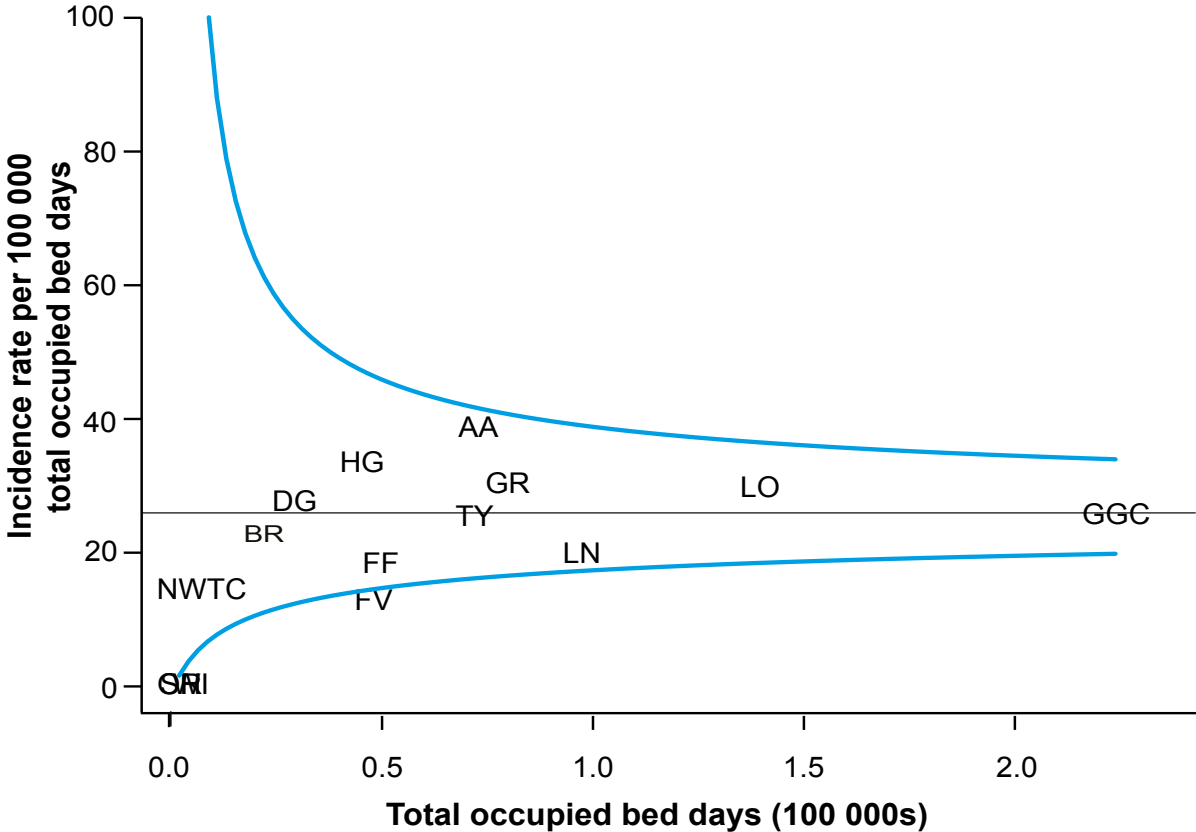


Figure 2: Funnel plot of CDI incidence rates (per 100 000 AOBDS) in patients aged 15-64 years for all NHS boards in Scotland in Q1 2017. NHS Borders, NHS NWTC, NHS Orkney, NHS Shetland and NHS Western Isles overlap.

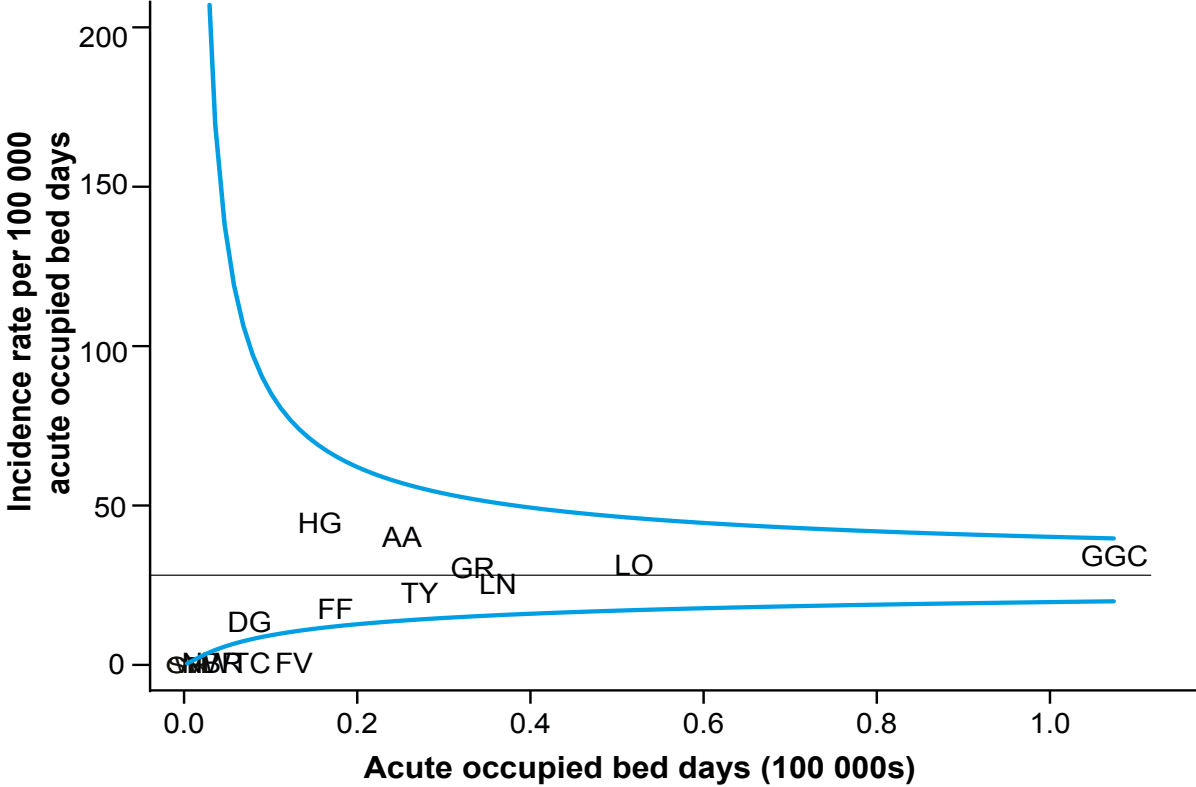


Figure 3: Overall quarterly CDI incidence rates for Scotland in patients aged 65 years and above (per 100 000 TOBDs) and 15-64 years (per 100 000 AOBDs) for the period Q2 2012 to Q1 2017.

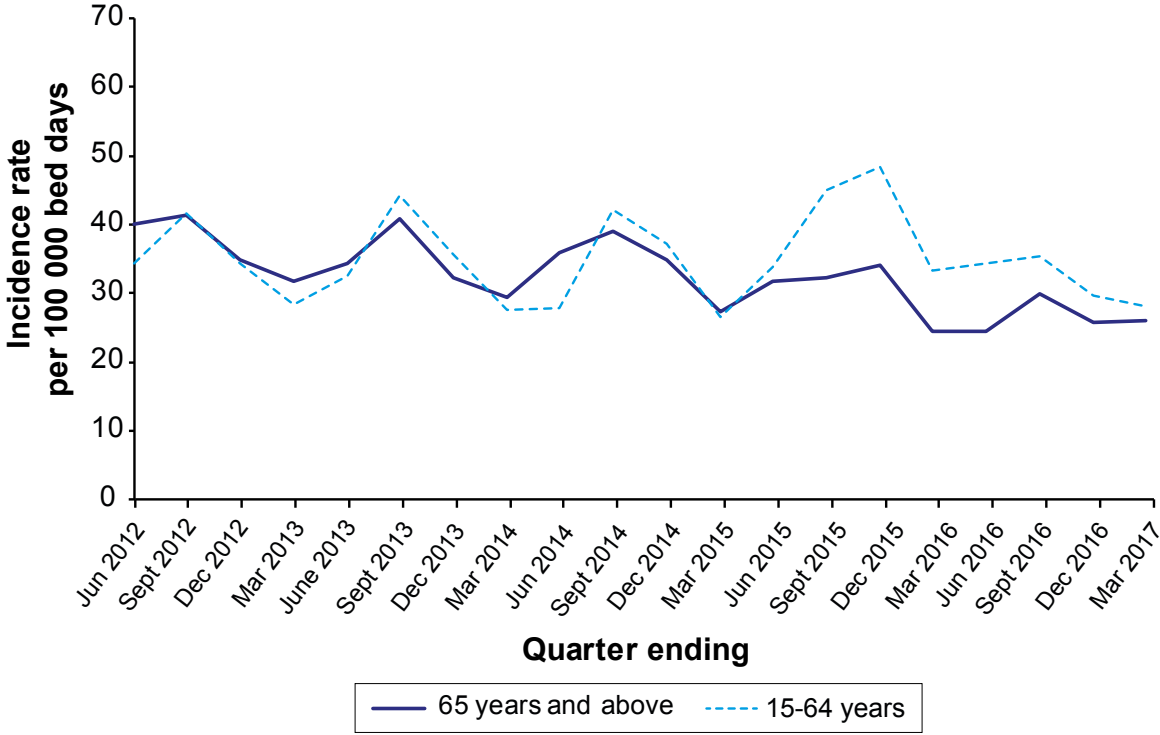
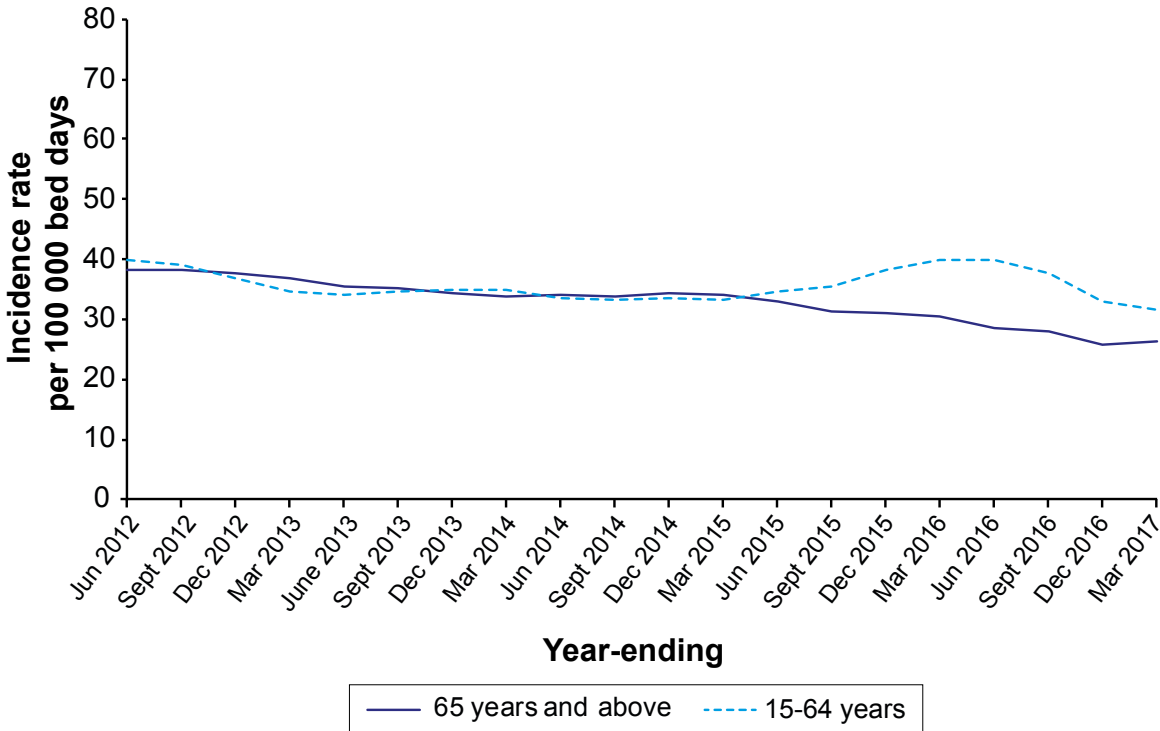


Figure 4: Year-ending CDI incidence rates for Scotland (per 100 000 bed days) in patients aged 65 years and above (per 100 000 TOBDs), and 15-64 years (per 100 000 AOBDs) for the period year-ending Q2 2012 to year-ending Q1 2017.



2. *Escherichia coli* bacteraemia data and commentary

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

This report contains data that allows HPS to report on two groups of cases with *Escherichia coli* bacteraemia (ECB) –

- Healthcare associated infection by health board of laboratory. This is where the case has had contact with healthcare either in hospital or while receiving care in the community.
- Community associated infection by health board of residence for the case. This is where the case has had no known contact with healthcare.

Total number of cases for quarter

- During Q1 2017, 1118 ECB cases in patients were reported to HPS. This corresponds to an incidence rate of 83.9 cases per 100 000 population. In England a rate of 72.1 cases per 100 000 population has been reported.([PHE, 2017](#))

Healthcare associated infection by health board of laboratory

- During Q1 2017, 547 ECB cases were reported to HPS as healthcare associated. This corresponds to an incidence rate of 34.6 cases per 100 000 total occupied bed days (TOBDs) ([Table 5](#)).
- NHS Tayside was an outlier this quarter in the funnel plot analysis for this category ([Figure 5](#)).

Community associated infection by health board of residence

- During Q1 2017, 571 ECB cases were reported as community associated. This corresponds to an incidence rate of 42.8 cases per 100 000 population ([Table 6](#)).

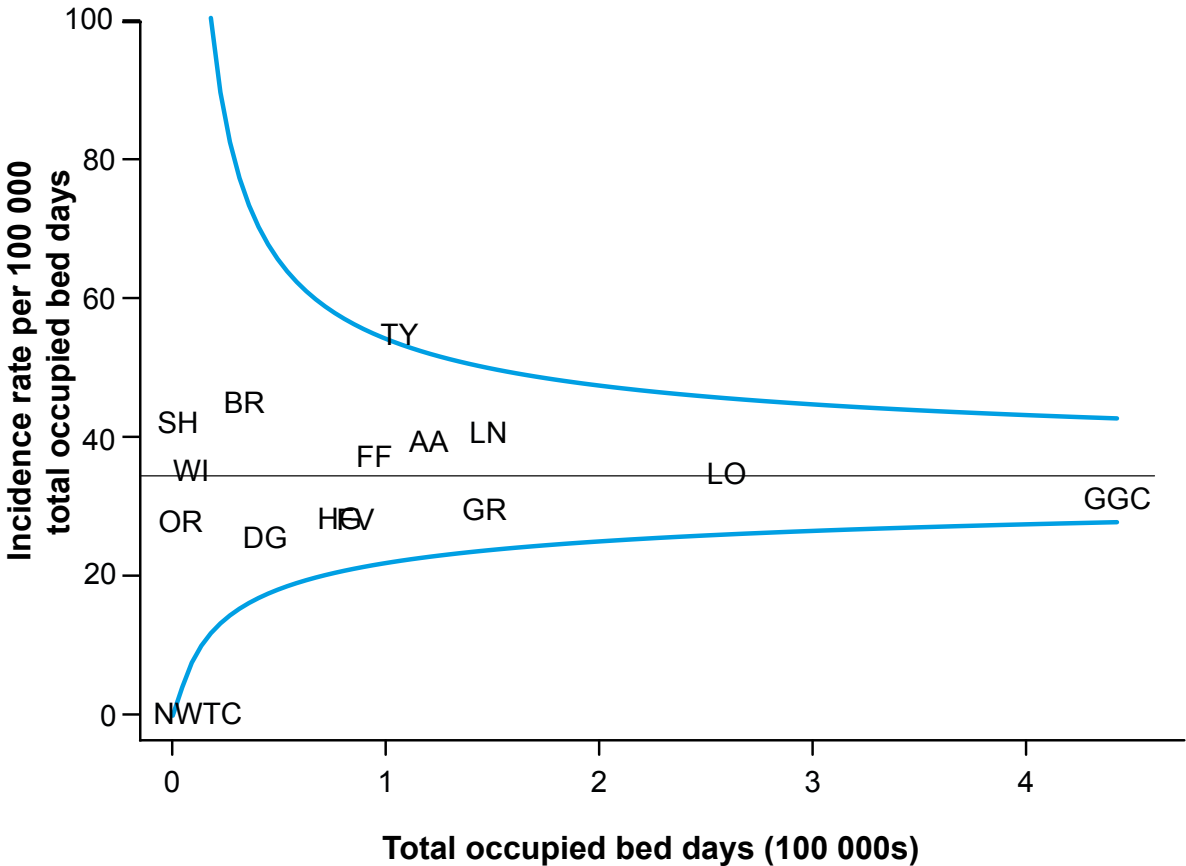
Table 5: ECB cases and incidence rates (per 100 000 TOBDs) for healthcare associated infection cases: Q4 2016 (October to December 2016) compared to Q1 2017 (January to March 2017).

NHS Board	Q4 2016 (October to December 2016)			Q1 2017 (January to March 2017)		
	Cases	TOBD	Rate	Cases	TOBD	Rate
AA	52	120 423	43.2	47	119 981	39.2
BR	10	32 616	30.7	15	33 461	44.8
DG	16	43 532	36.8	11	43 221	25.5
FF	25	95 378	26.2	35	94 451	37.1
FV	38	85 427	44.5	24	85 603	28.0
GR	47	144 254	32.6	43	145 994	29.5
GGC	149	445 133	33.5	137	442 470	31.0
HG	14	77 349	18.1	22	78 104	28.2
LN	69	147 122	46.9	60	147 866	40.6
LO	89	264 048	33.7	90	259 482	34.7
NWTC	0	12 049	0.0	0	11 569	0.0
OR	3	3715	80.8	1	3608	27.7
SH	0	2392	0.0	1	2383	42.0
TY	49	109 748	44.6	58	106 222	54.6
WI	2	8800	22.7	3	8557	35.1
Scotland	563	1 591 986	35.4	547	1 582 972	34.6

Table 6: ECB cases and incidence rates (per 100 000 population) for community associated infection cases: Q4 2016 (October to December 2016) compared to Q1 2017 (January to March 2017).

NHS Board	Q4 2016 (October to December 2016)			Q1 2017 (January to March 2017)		
	Cases	Population	Rate	Cases	Population	Rate
AA	51	370 590	54.7	48	370 560	52.2
BR	11	114 030	38.4	21	114 530	74.4
DG	23	149 670	61.1	21	149 520	57.0
FF	38	368 080	41.1	28	370 330	30.7
FV	40	302 650	52.6	35	304 480	46.6
GR	40	587 820	27.1	57	588 100	39.3
GGC	197	1 149 890	68.2	143	1 161 370	49.9
HG	36	321 000	44.6	35	321 900	44.1
LN	79	654 490	48.0	90	656 490	55.6
LO	70	867 800	32.1	52	880 000	24.0
OR	1	21 670	18.4	0	21 850	0.0
SH	3	23 200	51.4	1	23 200	17.5
TY	39	415 040	37.4	40	415 470	39.0
WI	1	27 070	14.7	0	26 900	0.0
Scotland	629	5 373 000	46.6	571	5 404 700	42.8

Figure 5: Funnel plot of ECB incidence rates (per 100 000 TOBD) in healthcare associated infection cases for all NHS boards in Scotland in Q1 2017. NHS Forth Valley and NHS Highland overlap.



3. *Staphylococcus aureus* bacteraemia data and commentary

HPS report on the mandatory surveillance of the healthcare associated infection *S. aureus* bacteraemia (SAB) including data on both meticillin resistant *S. aureus* (MRSA) and meticillin sensitive *S. aureus* (MSSA) bacteraemias. No NHS boards were above normal variation this quarter (SAB, MRSA or MSSA) when analysing long-term trends over the past three years.

- During 2017 Q1, 401 new SAB cases were reported to HPS. In the previous quarter there were 400 SAB cases. This corresponds to an overall incidence rate of 32.9 SAB cases per 100 000 acute occupied bed days (AOBDs) compared to 32.7 per 100 000 AOBDs in the previous quarter ([Table 7](#) and [Table 8](#)).
- The proportion of SAB which were MRSA during Q1 2017 was 6.2% with 25 MRSA cases identified in Scotland. There was no quarterly increase or decrease in the MRSA, MSSA or SAB rate ([Table 7](#) and [Table 8](#)).
- There was no annual increase or decrease (comparing the year-ending March 2016 with the year-ending March 2017) in the MRSA, MSSA or overall SAB Scottish rate ([Table 9](#) and [Table 10](#)).

- Yearly trends in NHS boards (comparing the year-ending March 2016 with the year-ending March 2017) of MRSA increased in NHS Grampian ([Table 9](#) and [Table 10](#)). Yearly trends in MSSA increased in NHS Lanarkshire and yearly trends in SAB decreased in NHS Fife.
- No NHS board was an outlier this quarter for the SAB, MRSA and MSSA funnel plot analysis ([Figure 6](#), [Figure 7](#) and [Figure 8](#)).
- No NHS boards were above normal variation this quarter (SAB, MRSA or MSSA) when analysing long-term trends over the past three years ([see Appendix](#)).
- The national surveillance programme reports on SABs arising three months or longer before publication of this report. It remains essential therefore that it is complemented by more contemporaneous local monitoring of SABs by NHS boards.

Quality improvement

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

Staphylococcus aureus bacteraemia (SAB) tables and figure

Table 7: SAB cases and incidence rates (per 100 000 AOBs): Q4 2016 (October to December 2016).

NHS board	MRSA Cases	MSSA Cases	SAB Cases	Bed days	MRSA Rate	MSSA Rate	SAB Rate
AA	0	21	21	97 631	0.0	21.5	21.5
BR	0	7	7	19 777	0.0	35.4	35.4
DG	1	9	10	38 378	2.6	23.5	26.1
FF	0	24	24	68 432	0.0	35.1	35.1
FV	1	25	26	58 951	1.7	42.4	44.1
GR	4	35	39	117 016	3.4	29.9	33.3
GGC	2	102	104	345 757	0.6	29.5	30.1
HG	0	22	22	63 346	0.0	34.7	34.7
LN	2	41	43	110 780	1.8	37.0	38.8
LO	3	56	59	196 233	1.5	28.5	30.1
NWTC	0	2	2	12 049	0.0	16.6	16.6
OR	0	0	0	3715	0.0	0.0	0.0
SH	1	3	4	2392	41.8	125.4	167.2
TY	2	36	38	79 805	2.5	45.1	47.6
WI	0	1	1	7390	0.0	13.5	13.5
Scotland	16	384	400	1 221 652	1.3	31.4	32.7

Table 8: SAB cases and incidence rates (per 100 000 AOBs): Q1 2017 (January to March 2017).

NHS board	MRSA Cases	MSSA Cases	SAB Cases	Bed days	MRSA Rate	MSSA Rate	SAB Rate
AA	3	20	23	97 642	3.1	20.5	23.6
BR	1	5	6	20 418	4.9	24.5	29.4
DG	1	15	16	37 816	2.6	39.7	42.3
FF	0	20	20	68 219	0.0	29.3	29.3
FV	3	25	28	58 935	5.1	42.4	47.5
GR	1	36	37	118 219	0.8	30.5	31.3
GGC	6	108	114	346 199	1.7	31.2	32.9
HG	1	16	17	63 747	1.6	25.1	26.7
LN	2	47	49	111 220	1.8	42.3	44.1
LO	6	51	57	194 093	3.1	26.3	29.4
NWTC	0	4	4	11 569	0.0	34.6	34.6
OR	0	0	0	3608	0.0	0.0	0.0
SH	0	2	2	2383	0.0	83.9	83.9
TY	0	25	25	79 237	0.0	31.6	31.6
WI	1	2	3	7285	13.7	27.5	41.2
Scotland	25	376	401	1 220 590	2.0	30.8	32.9

Table 9: SAB cases and incidence rates (per 100 000 AOBs): year- ending March 2016.

NHS board	MRSA Cases	MSSA Cases	SAB Cases	Bed days	MRSA Rate	MSSA Rate	SAB Rate
AA	6	94	100	369 379	1.6	25.4	27.1
BR	2	26	28	79 071	2.5	32.9	35.4
DG	4	37	41	153 706	2.6	24.1	26.7
FF	7	110	117	269 446	2.6	40.8	43.4
FV	4	83	87	229 910	1.7	36.1	37.8
GR	1	145	146	490 836	0.2	29.5	29.7
GGC	34	431	465	1 396 463	2.4	30.9	33.3
HG	2	64	66	258 462	0.8	24.8	25.5
LN	14	144	158	474 267	3.0	30.4	33.3
LO	26	215	241	790 561	3.3	27.2	30.5
NWTC	0	11	11	49 344	0.0	22.3	22.3
OR	0	8	8	16 149	0.0	49.5	49.5
SH	0	12	12	12 643	0.0	94.9	94.9
TY	6	139	145	414 269	1.4	33.6	35.0
WI	0	4	4	26 708	0.0	15.0	15.0
Scotland	106	1523	1629	5 031 214	2.1	30.3	32.4

Table 10: SAB cases and incidence rates (per 100 000 AOBs): year-ending March 2017. Arrows denotes statistically significant increase or decrease.

NHS board	MRSA Cases	MSSA Cases	SAB Cases	Bed days	MRSA Rate	MSSA Rate	SAB Rate
AA	7	87	94	383 501	1.8	22.7	24.5
BR	1	27	28	79 674	1.3	33.9	35.1
DG	2	35	37	153 327	1.3	22.8	24.1
FF	3	84	87	270 905	1.1	31.0	32.1↓
FV	5	85	90	231 556	2.2	36.7	38.9
GR	10	134	144	471 332	2.1↑	28.4	30.6
GGC	22	423	445	1 389 043	1.6	30.5	32.0
HG	2	74	76	254 686	0.8	29.1	29.8
LN	6	174	180	446 321	1.3	39.0↑	40.3
LO	20	221	241	777 358	2.6	28.4	31.0
NWTC	0	11	11	49 156	0.0	22.4	22.4
OR	0	2	2	15 071	0.0	13.3	13.3
SH	1	7	8	10 911	9.2	64.2	73.3
TY	3	126	129	325 446	0.9	38.7	39.6
WI	2	8	10	25 821	7.7	31.0	38.7
Scotland	84	1498	1582	4 884 108	1.7	30.7	32.4

Figure 6: Funnel plot of SAB rates (per 100 000 AOBs) for all NHS boards in Scotland in Q1 2017.

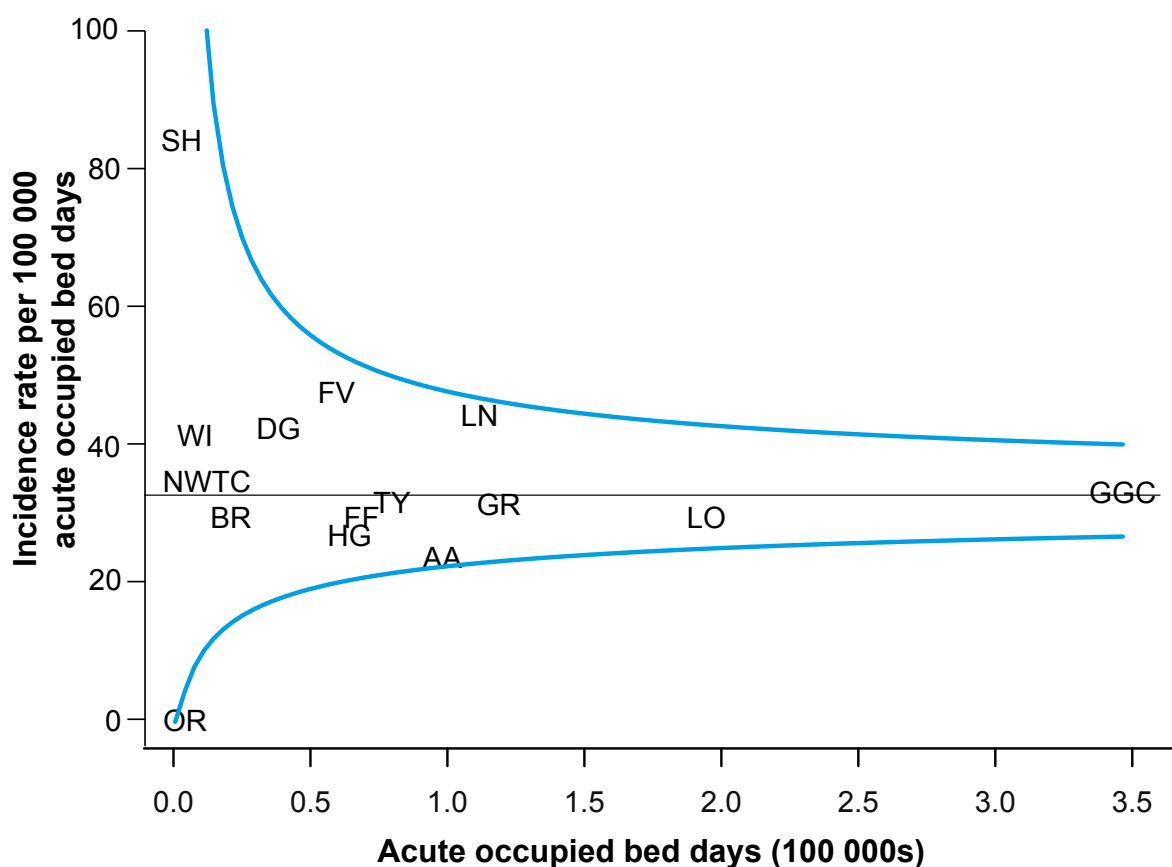


Figure 7: Funnel plot of MRSA bacteraemia rates (per 100 000 AOBs) for all NHS boards in Scotland in Q1 2017. NHS NWTC, NHS Orkney and NHS Shetland overlap as do NHS Fife and NHS Tayside.

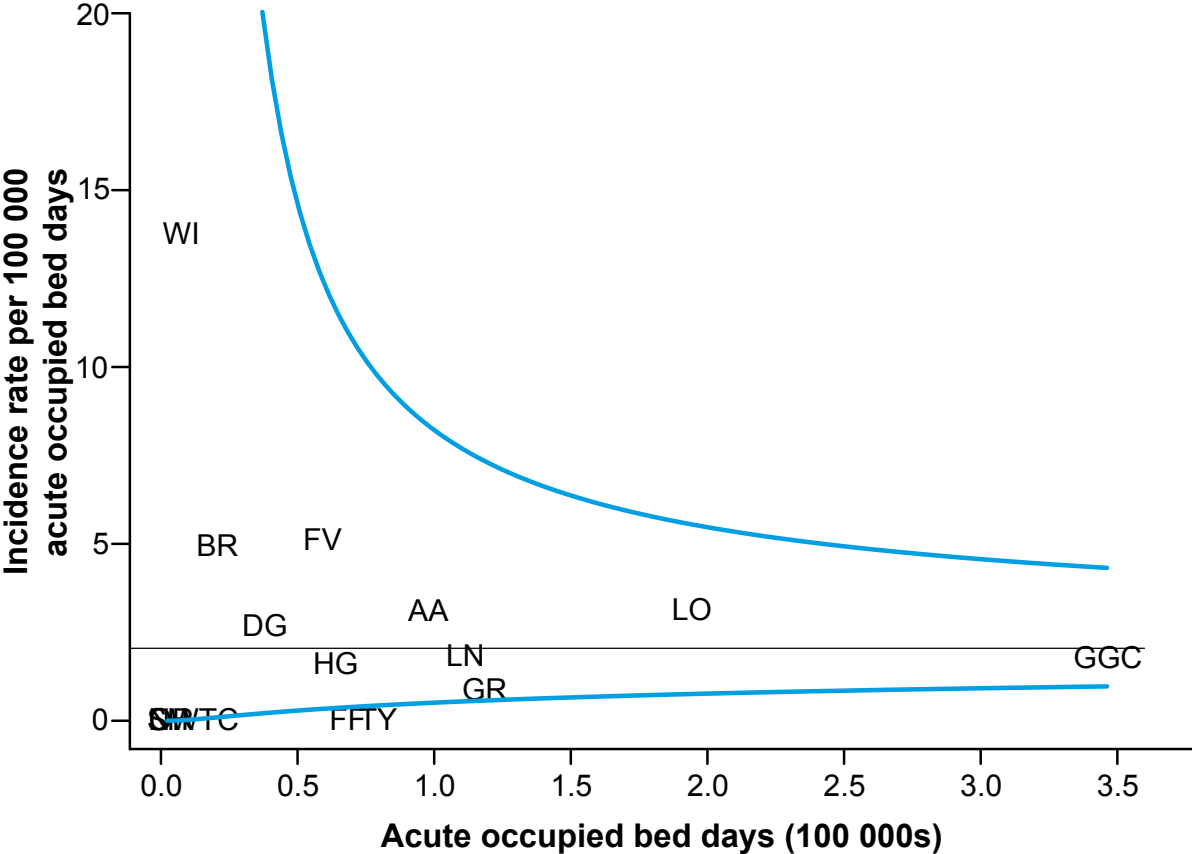
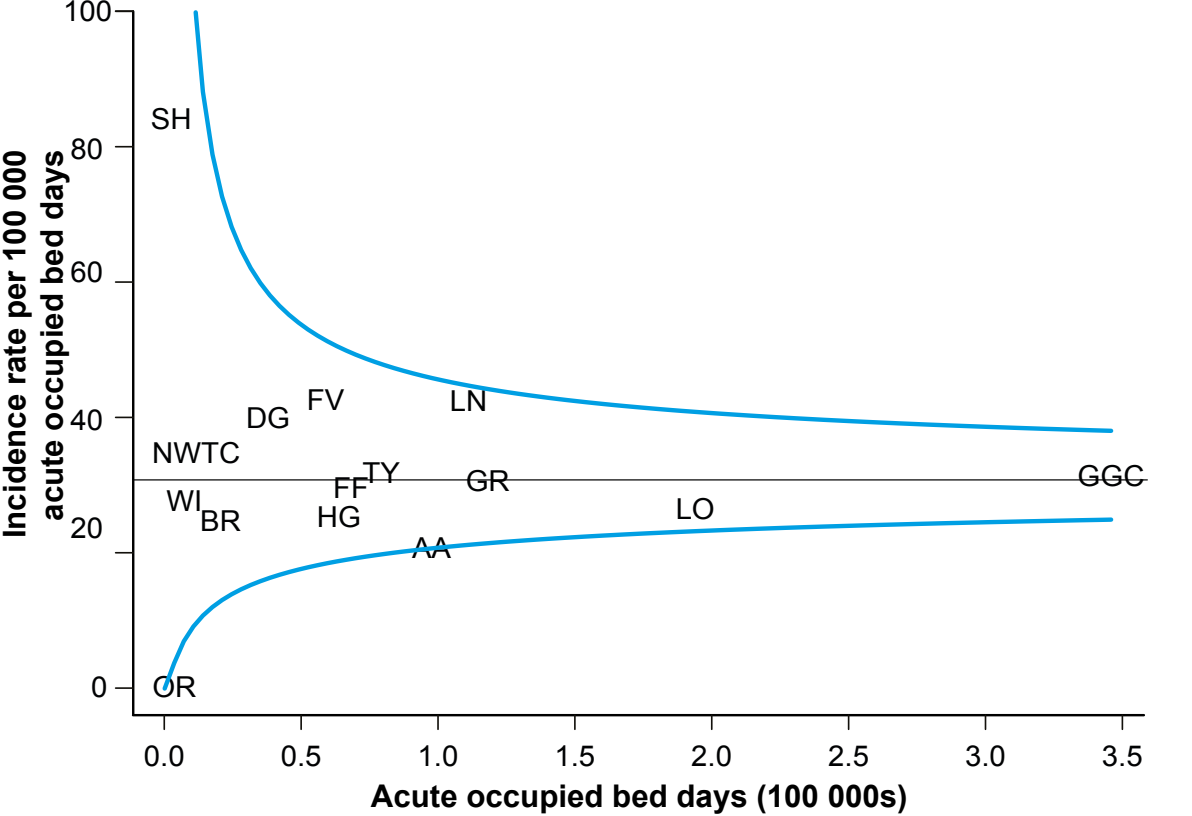


Figure 8: Funnel plot of MSSA bacteraemia rates (per 100 000 AOBs) for all NHS boards in Scotland in Q1 2017.



4. Surgical Site Infection data and commentary

Surgical Site Infection (SSI) is one of the most common HCAI in Scotland. All NHS boards participate in SSI surveillance for mandatory procedures including 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.

Caesarean Section

- During Q1 2017, 57 cases (1.4%) of SSI following caesarean section procedures were reported to HPS detected either during inpatient stay or by PDS to day 10. This compares with 52 cases (1.2%) in the previous quarter ([Table 11](#)).
- No NHS boards were outliers this quarter in the funnel plot analysis for caesarean section SSI incidence, inpatient and PDS to day 10 ([Figure 9](#)).
- There was no annual increase or decrease (comparing the year-ending March 2016 with the year-ending March 2017) in the overall Scottish SSI incidence to day 10 for caesarean section procedures ([Table 13](#)).
- Yearly trends in NHS boards (comparing the year-ending March 2016 with the year-ending March 2017) of SSI (inpatient and PDS to day 10) following caesarean section procedures increased in NHS Lanarkshire ([Table 13](#)).
- No NHS boards were above normal variation this quarter for caesarean section procedures when analysing long-term trends over the past three years ([see Appendix](#)).

Hip Arthroplasty

- During Q1 2017, 9 cases (0.4%) of SSI following hip arthroplasty procedure were reported to HPS detected either during inpatient stay or on readmission to day 30. This compares with 17 cases (0.8%) in the previous quarter ([Table 12](#)).
- No NHS boards were outliers this quarter in the funnel plot analysis for hip arthroplasty SSI incidence, inpatient and on readmission to day 30 ([Figure 10](#)).
- There was no annual increase or decrease (comparing the year-ending March 2016 with the year-ending March 2017) in the overall Scottish SSI incidence (inpatient and readmission to day 30) for hip arthroplasty procedures ([Table 14](#)).
- There was no annual increase or decrease (comparing the year-ending March 2016 with the year ending March 2017) in NHS Boards SSI incidence (inpatient and readmission to day 30) for hip arthroplasty procedures ([Table 14](#)).
- No NHS boards were above normal variation this quarter for hip arthroplasty procedures when analysing long-term trends over the past three years ([see Appendix](#)).

Quality improvement

HPS has been supporting NHS boards to help analyse their data and review their SSI prevention measures. Appropriate local monitoring and implementation of infection prevention measures are key to maintaining and reducing SSI incidence.

NHS boards are reminded to follow the national guidance on Prevention and Control of SSI in Healthcare Settings in Scotland detailed in the HPS HAI compendium: <http://www.hps.scot.nhs.uk/haic/haicompandium.aspx>

Surgical Site Infection (SSI) tables and figures

Table 11: Caesarean section procedures and SSI incidence (per 100 procedures) for inpatients and PDS to day 10: Q4 2016 (October to December 2016) compared to Q1 2017 (January to March 2017).

NHS board	Q4 2016 (October to December 2016)			Q1 2017 (January to March 2016)		
	Number of Procedures	SSIs	SSI Incidence (%)	Number of Procedures	SSIs	SSI Incidence (%)
AA	313	2	0.6	252	1	0.4
BR	61	0	0.0	54	0	0.0
DG	88	3	3.4	55	2	3.6
FF	243	7	2.9	213	4	1.9
FV	256	1	0.4	211	3	1.4
GR	444	3	0.7	406	6	1.5
GGC	1269	14	1.1	1349	20	1.5
HG	165	2	1.2	169	5	3.0
LN	364	10	2.7	380	8	2.1
LO	742	6	0.8	677	5	0.7
OR	9	0	0.0	0	0	-
SH	5	0	0.0	7	0	0.0
TY	282	4	1.4	259	3	1.2
WI	17	0	0.0	15	0	0.0
Scotland	4258	52	1.2	4047	57	1.4

Table 12: Hip arthroplasty procedures and SSI incidence (per 100 procedures) for inpatients and on readmission to day 30: Q4 2016 (October to December 2016) compared to Q1 2017 (January to March 2017).

NHS board	Q4 2016 (October to December 2016)			Q1 2017 (January to March 2017)		
	Number of Procedures	SSIs	SSI Incidence (%)	Number of Procedures	SSIs	SSI Incidence (%)
AA	148	0	0.0	145	0	0.0
BR	71	1	1.4	64	1	1.6
DG	50	3	6.0	53	0	0.0
FF	111	2	1.8	108	0	0.0
FV	54	0	0.0	52	1	1.9
GR	297	4	1.3	264	1	0.4
GGC	456	2	0.4	382	3	0.8
HG	94	1	1.1	86	0	0.0
LN	101	2	2.0	99	1	1.0
LO	232	0	0.0	258	0	0.0
NWTC	405	0	0.0	447	0	0.0
OR	0	0	-	0	0	-
TY	188	2	1.1	192	2	1.0
WI	19	0	0.0	14	0	0.0
Scotland	2226	17	0.7	2164	9	0.4

Table 13: Caesarean section procedures and SSI incidence (per 100 procedures) for inpatients and PDS to day 10: year-ending March 2016 compared to year-ending March 2017. Arrows denotes statistically significant increase or decrease.

NHS board	Year-ending March 2016			Year-ending March 2017		
	Number of Procedures	SSIs	SSI Incidence (%)	Number of Procedures	SSIs	SSI Incidence (%)
AA	1204	7	0.6	1132	12	1.1
BR	288	1	0.3	244	0	0.0
DG	255	4	1.6	281	5	1.8
FF	928	30	3.2	938	28	3.0
FV	942	16	1.7	942	10	1.1
GR	1815	16	0.9	1815	16	0.9
GGC	5380	61	1.1	5421	81	1.5
HG	677	13	1.9	683	18	2.6
LN	1417	13	0.9	1545	28	1.8↑
LO	2919	33	1.1	2885	31	1.1
OR	37	0	0.0	28	0	0.0
SH	34	1	2.9	37	1	2.7
TY	1242	35	2.8	1184	28	2.4
WI	54	0	0.0	64	0	0.0
Scotland	17 192	230	1.3	17 199	258	1.5

Table 14: Hip arthroplasty procedures and SSI incidence (per 100 procedures) for inpatients and on readmission to day 30: year-ending March 2016 compared to year-ending March 2017.

NHS board	Year-ending March 2016			Year-ending March 2017		
	Number of Procedures	SSIs	SSI Incidence (%)	Number of Procedures	SSIs	SSI Incidence (%)
AA	521	0	0.0	492	0	0.0
BR	296	6	2.0	268	5	1.9
DG	193	0	0.0	214	3	1.4
FF	526	3	0.3	443	3	0.7
FV	225	4	1.8	218	2	0.9
GR	1065	4	0.4	1160	7	0.6
GGC	1552	16	1.0	1654	14	0.8
HG	372	1	0.3	378	1	0.3
LN	410	3	0.7	423	4	0.9
LO	975	4	0.4	994	4	0.4
NWTC	1691	3	0.2	1772	2	0.1
OR	6	0	0.0	0	0	-
TY	758	5	0.7	778	12	1.5
WI	76	0	0.0	57	0	0.0
Scotland	8658*	50	0.6	8861	57	0.6

*One other case from an NHS board that does not routinely carry out hip arthroplasty procedure is included.

Figure 9: Funnel plot of caesarean section SSI incidence (per 100 procedures) in inpatients and PDS to day 10 for all NHS boards in Scotland in Q1 2017. NHS Borders, NHS Shetland and NHS Western Isles overlap.

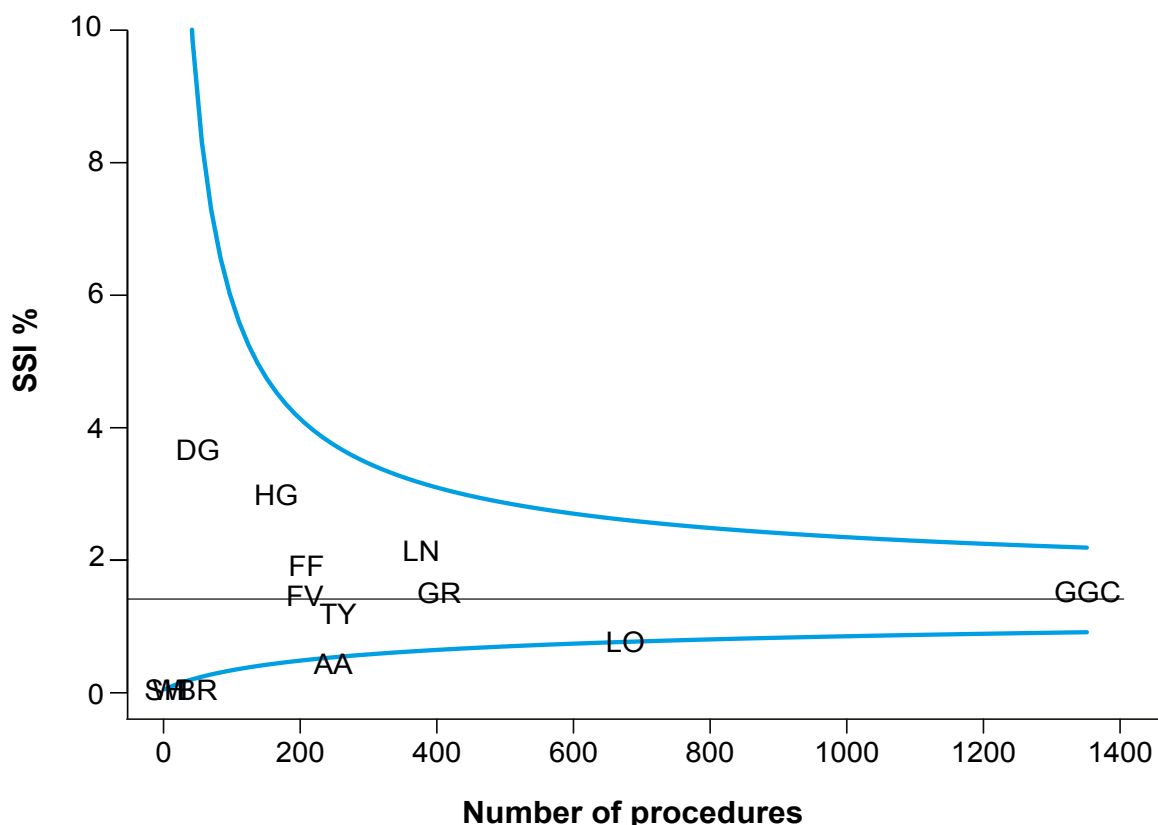
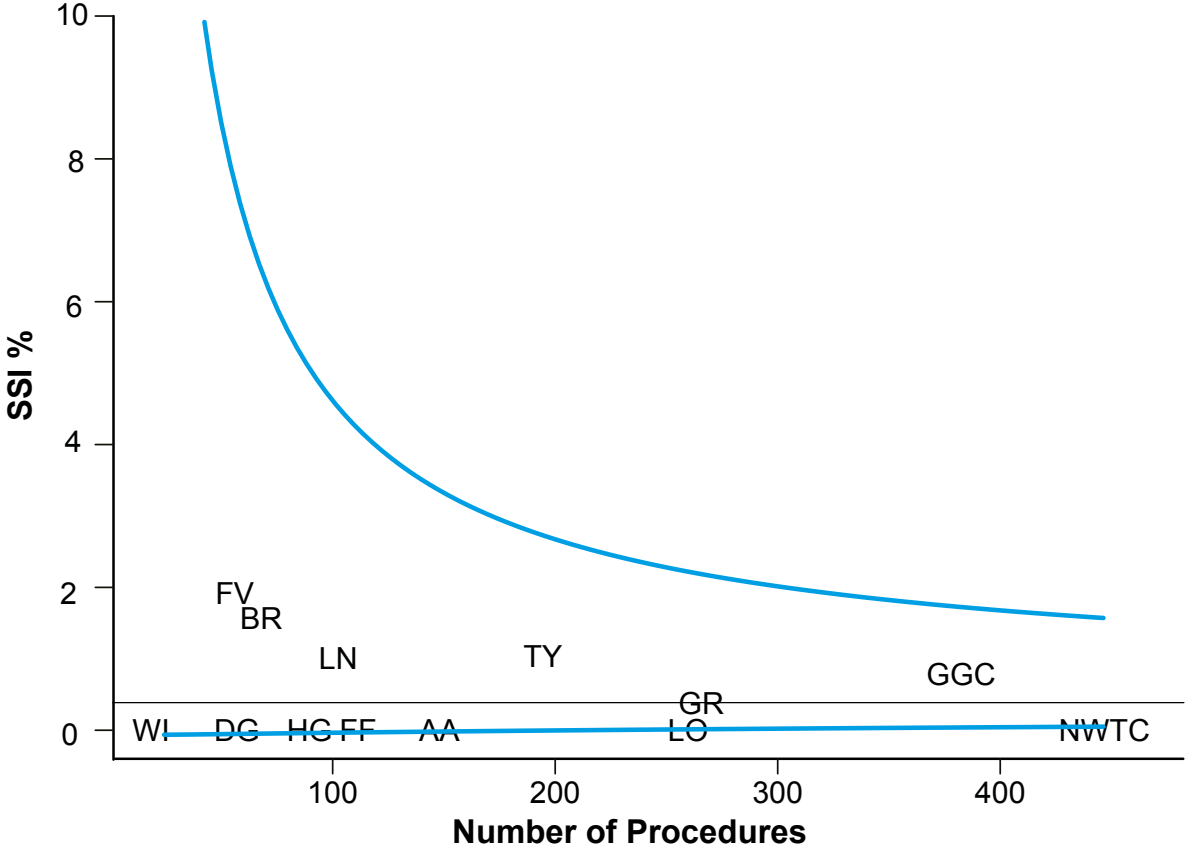


Figure 10: Funnel plot of hip arthroplasty SSI incidence (per 100 procedures) in inpatients and on readmission to day 30 for all NHS boards in Scotland in Q1 2017.



NHS board abbreviations

- AA Ayrshire & Arran
- BR Borders
- DG Dumfries & Galloway
- FF Fife
- FV Forth Valley
- GGC Greater Glasgow & Clyde
- GR Grampian
- HG Highland
- LO Lothian
- LN Lanarkshire
- NWTC National Waiting Times Centre
- OR Orkney
- SH Shetland
- TY Tayside
- WI Western Isles

Data appendices, methods and notes

The annual CDI, SAB and SSI data for 2016 was published on 05 May 2017 in the HPS HAI [Annual Report](#).

Caution should be taken when making comparisons between NHS boards that report small numbers as these might reflect random fluctuation.

The HPS website contains information on data sources (including denominators, calculation of rates and statistical analyses), the definitions used to generate this report, and all previous published data.

Individual rates and denominator data for each NHS board and overall for Scotland are available from: <http://www.hps.scot.nhs.uk/haic/sshaip/quarterly-epidemiological-commentaries.aspx>

Due to unavailability of bed days data for NHS Highland for quarters ending Mar 14–Sept 15, bed days data from 2013 have been used to populate the unavailable quarters as the denominator to calculate the rate. For CDI rates only, 2013 NHS Highland denominator data are used from Sept 15 onwards.

Bed days data and rates for NHS Forth Valley have been revised for all quarters in 2016.

Quarterly ECB population rates are based on an annualised population.

Please send comments by email to: NSS.HPSHAIC@nhs.net

CDI - ECB - SAB - SSI Quarterly Report

Published by: Health Protection Scotland

Meridian Court, 5 Cadogan Street, Glasgow G2 6QE

T: 0141 300 1100

F: 0141 300 1170

W: <http://www.hps.scot.nhs.uk>

© Health Protection Scotland 2017