

C. difficile surveillance

Quarterly report

April - June 2019

Key points

- CDI reports for hospital inpatients aged 65 years and over decreased by 18% (from 93 to 76 episodes) during April - June 2019 compared to January – March 2019.
- CDI rate per 1,000 bed days decreased by 18% during April - June 2019 compared to January – March 2019.
- CDI reports for community patients aged 65 years and over increased by 25% (from 36 to 45 episodes) during April - June 2019 compared to January – March 2019.
- Total CDI reports, for hospital inpatients and community patients combined, aged two years and over, decreased by 11% during April - June 2019 compared to January – March 2019 (from 172 to 153 episodes).
- CDI reports for hospital inpatients aged 65 years and over increased by 12% between the 2017/18 and 2018/19 financial years.
- During April - June 2019 the most prevalent ribotypes for CDI inpatients are 002 (30%), 015 (7%) and 078 (6%) (Table 1). The most predominate community ribotypes are 002 (31%), 078 (13%) and 193 (9%) (Table 2).

For further information or clarification on HCAI definitions, please refer to previous reports or contact hcaini@hscni.net

Surveillance of *C. difficile* infection (CDI)

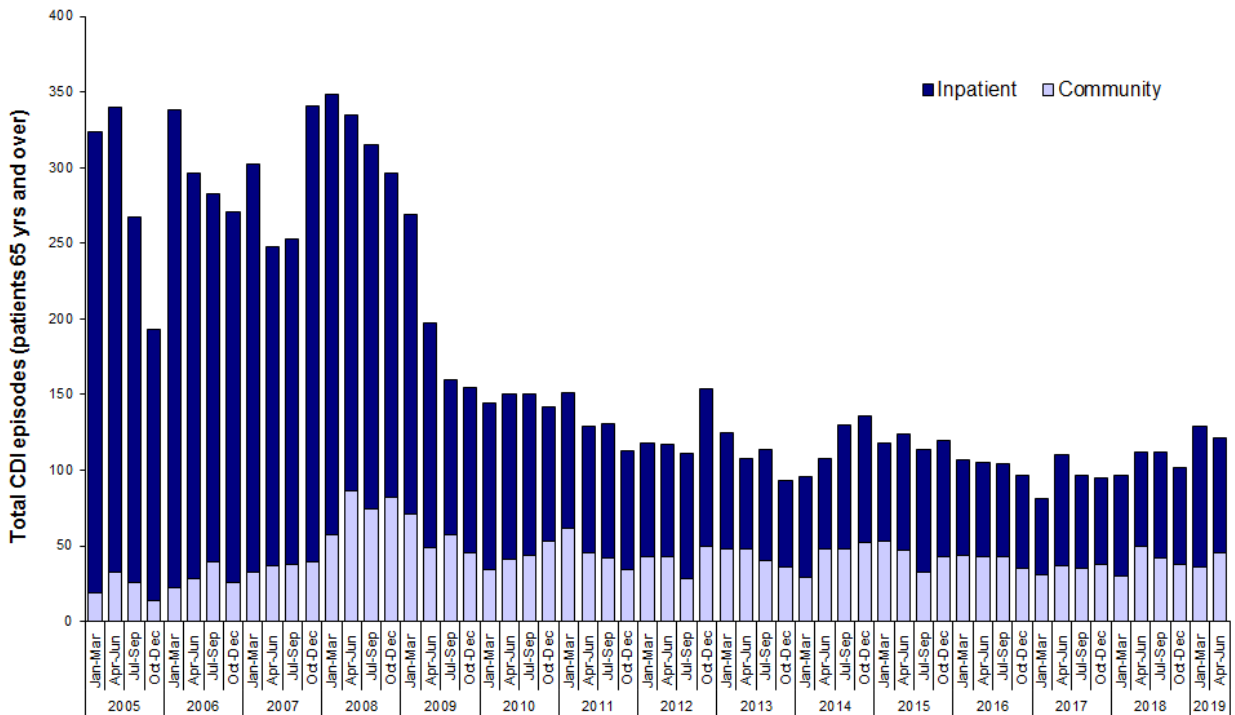


Figure 1: Total CDI episodes, inpatient and community, in Northern Ireland, by quarter (patients ≥ 65 years), between 2005 and 2019

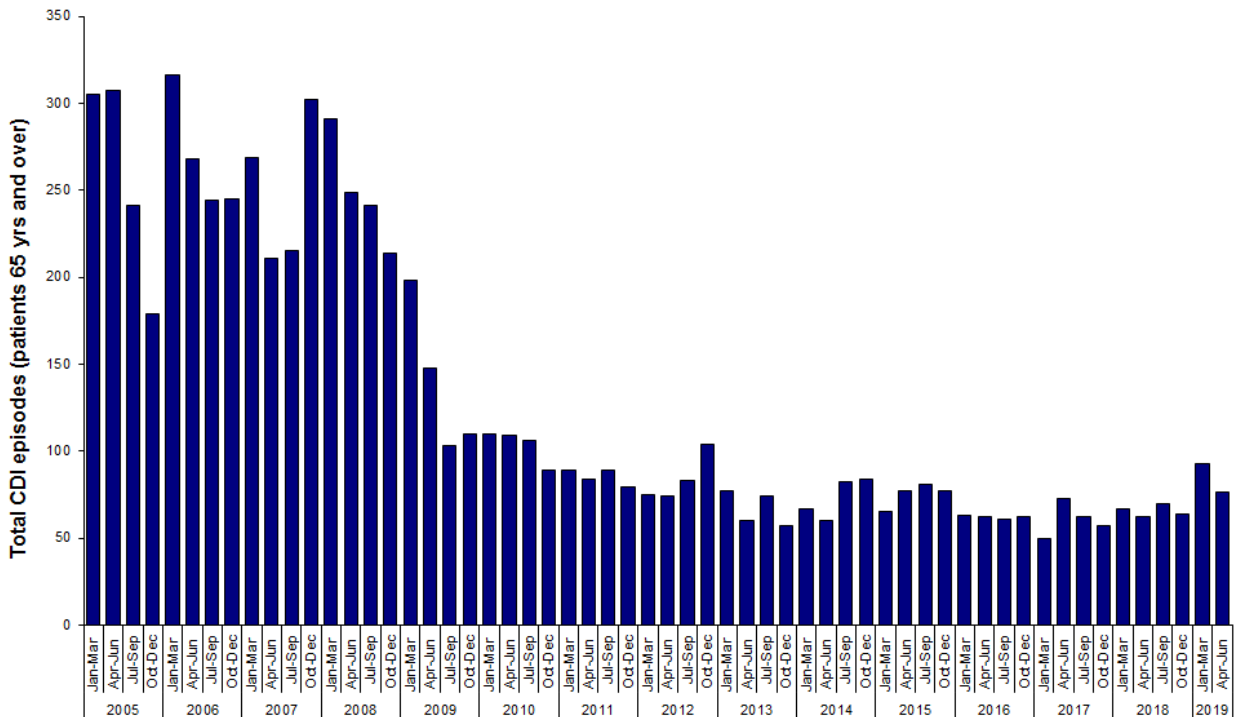


Figure 2a: Total CDI inpatient episodes in Northern Ireland, by quarter (patients ≥ 65 years), between 2005 and 2019

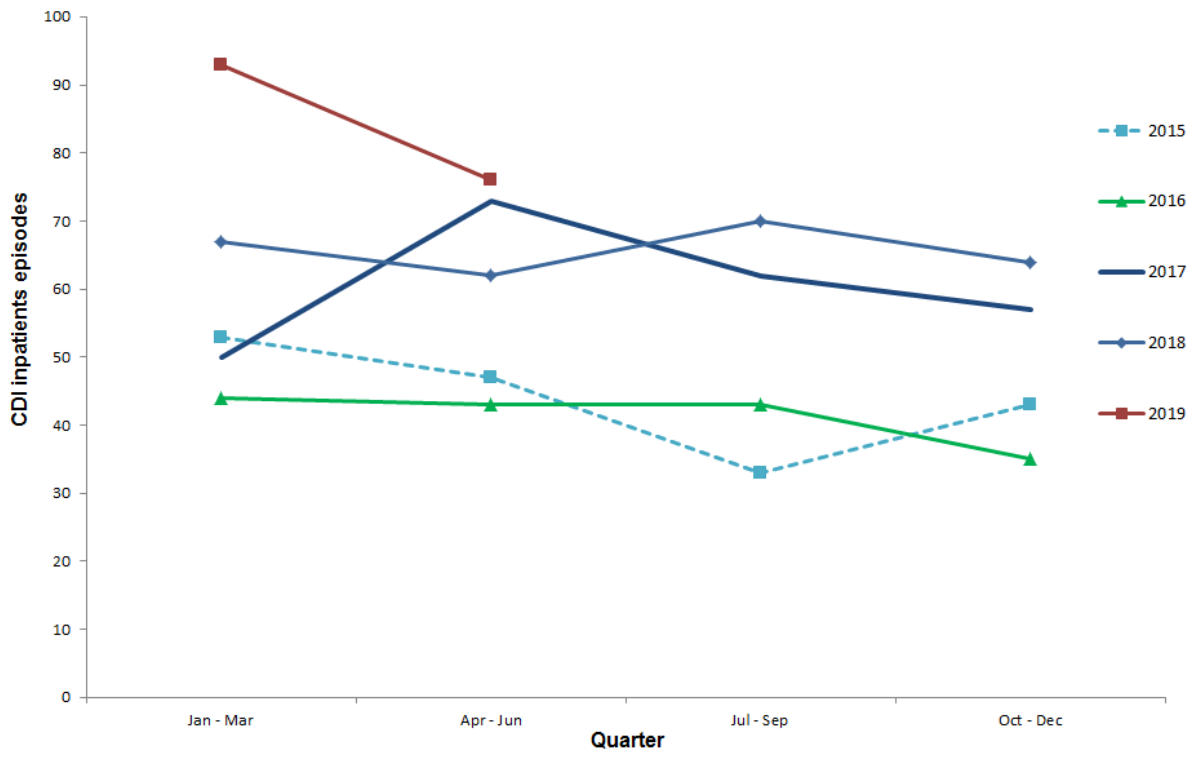


Figure 2b: Total CDI inpatient episodes in Northern Ireland, by quarter (patients \geq 65 years), between 2015 and 2019

Statistical process control (SPC) charts

- SPC charts allow a distinction to be made between natural variation and ‘special cause variation’, where something unusual may be occurring. Trends in CDI rates since July 2005 are shown for each HSCT in appendix B.

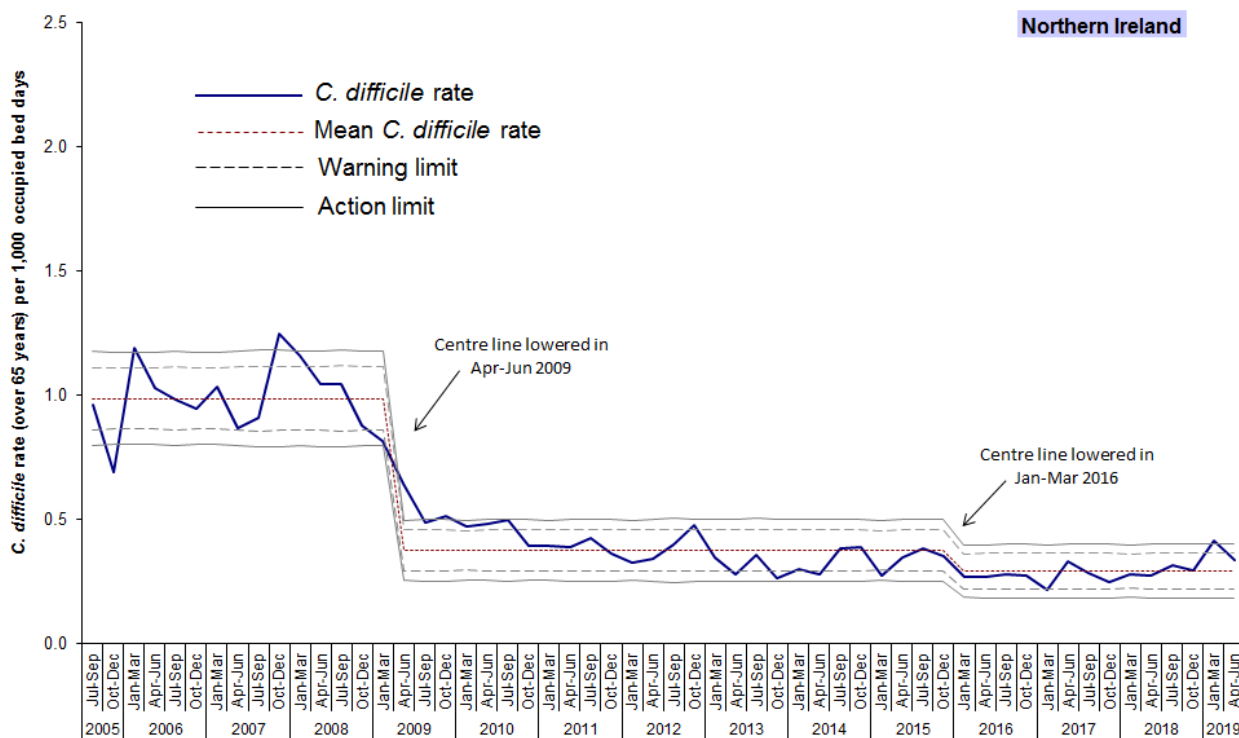


Figure 3: Statistical process control chart for quarterly *C. difficile* rates among inpatients in Northern Ireland aged 65 years and over (for HSCT level, see appendix B)

Results from the NI Ribotype Surveillance Programme

Table 1: A summary of *C. difficile* ribotypes in Hospital Inpatients aged 2 years and over, and the percentage of each against the overall total, in Northern Ireland during routine surveillance, July 2018 – June 2019.

Ribotype	Jul - Sep 2018		Oct - Dec 2018		Jan - Mar 2019		Apr - Jun 2019	
	Number	%	Number	%	Number	%	Number	%
001	3	3.3	1	1.2	1	0.8	1	1.0
002	12	13.0	8	9.9	52	42.6	29	29.6
005	7	7.6	6	7.4	4	3.3	1	1.0
011	1	1.1	3	3.7	2	1.6	1	1.0
014	6	6.5	9	11.1	7	5.7	5	5.1
015	9	9.8	5	6.2	3	2.5	7	7.1
018	0	0.0	1	1.2	1	0.8	0	0.0
020	8	8.7	4	4.9	7	5.7	5	5.1
023	4	4.3	0	0.0	2	1.6	2	2.0
078	8	8.7	9	11.1	15	12.3	6	6.1
193	3	3.3	1	1.2	2	1.6	5	5.1
Other	19	20.7	22	27.2	13	10.7	15	15.3
Not groupable**	7	7.6	6	7.4	5	4.1	4	4.1
Not on ribotype list	5	5.4	6	7.4	3	2.5	13	13.3
Not isolated***	0	0.0	0	0.0	5	4.1	4	4.1
Total	92		81		122		98	

Table 2: A summary of *C. difficile* ribotypes in Community Patients aged 2 years and over, and the percentage of each against the overall total, in Northern Ireland during routine surveillance, July 2018 – June 2019.

Ribotype	Jul - Sep 2018		Oct - Dec 2018		Jan - Mar 2019		Apr - Jun 2019	
	Number	%	Number	%	Number	%	Number	%
001	3	6.0	0	0.0	0	0.0	1	1.8
002	10	20.0	11	25.6	14	28.0	17	30.9
005	1	2.0	3	7.0	4	8.0	4	7.3
011	2	4.0	2	4.7	0	0.0	0	0.0
014	3	6.0	0	0.0	1	2.0	3	5.5
015	3	6.0	3	7.0	5	10.0	1	1.8
018	1	2.0	0	0.0	1	2.0	0	0.0
020	0	0.0	0	0.0	0	0.0	1	1.8
023	1	2.0	1	2.3	1	2.0	2	3.6
078	9	18.0	9	20.9	10	20.0	7	12.7
193	0	0.0	0	0.0	1	2.0	5	9.1
Other	12	24.0	8	18.6	4	8.0	8	14.5
Not groupable**	2	4.0	3	7.0	3	6.0	0	0.0
Not on ribotype list	3	6.0	3	7.0	5	10.0	4	7.3
Not isolated***	0	0.0	0	0.0	1	2.0	2	3.6
Total	50		43		50		55	

* Figures are provisional

** 'Not groupable' ribotypes do not match existing profiles

*** 'Not isolated' indicates isolates that have no ribotype information supplied, with at least six weeks since the date of the specimen.

Table 3: Descriptive data for *C. difficile* ribotypes 002, 078 and 193 in Northern Ireland Hospital Inpatients and Community Patients, April – June 2019.

	002 (n =46)		078 (n = 13)		193 (n = 10)	
Age						
range	48-95		47-92		61-91	
median	79		77		83	
Sex						
	n	%	n	%	n	%
Female	23	50.0	8	61.5	4	40.0
Male	23	50.0	5	38.5	6	60.0
Trust						
Belfast	23	50.0	0	0.0	2	20.0
Northern	5	10.9	4	30.8	3	30.0
South Eastern	4	8.7	2	15.4	2	20.0
Southern	7	15.2	4	30.8	2	20.0
Western	7	15.2	3	23.1	1	10.0
Source						
Inpatient	29	63.0	6	46.2	5	50.0
Community*	17	37.0	7	53.8	5	50.0

* Community specimens include those taken from Accident and Emergency, Outpatients, GPs, Hospice, Care Homes, Hospital Care at Home and Psychiatric facilities.

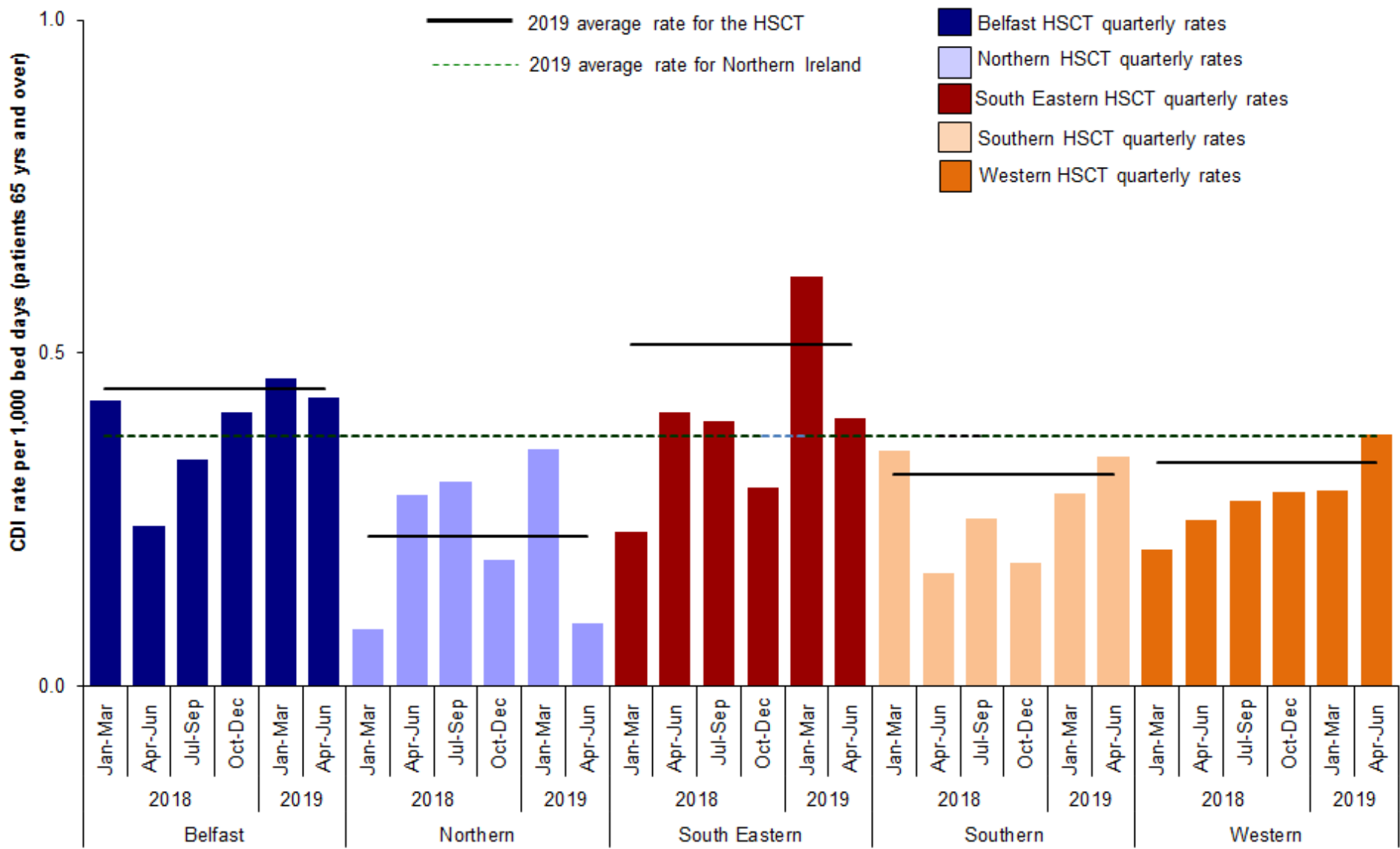


Figure 4: Quarterly rates of *C. difficile* among inpatients aged 65 years and over, by HSCT, January 2018 – June 2019, compared with annual Northern Ireland and HSCT rates for 2019

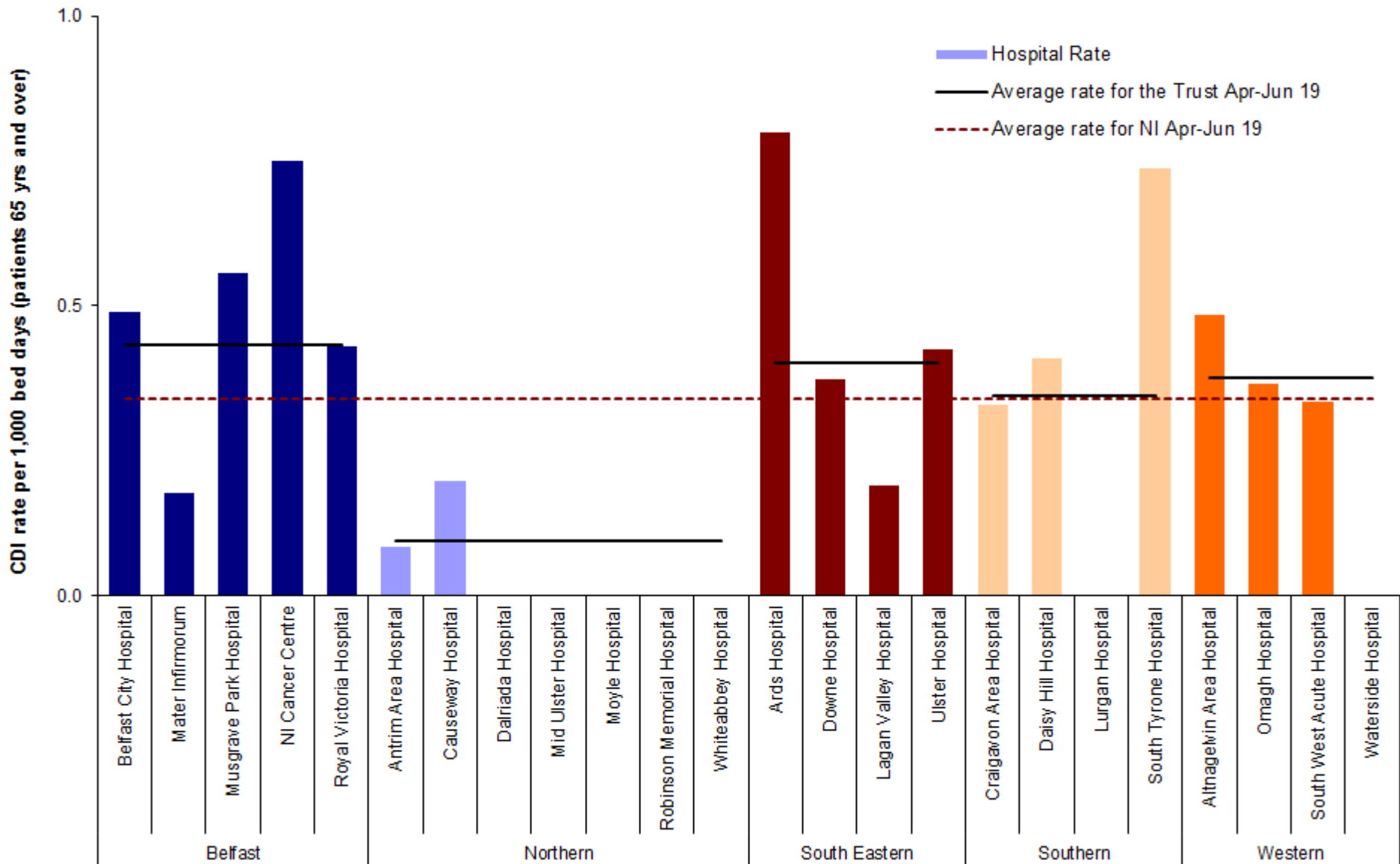


Figure 5: *C. difficile* rates during April - June 2019 - Inpatients aged 65 years and over, by hospital, including HSCT rates and average rate for Northern Ireland (see appendix A, Table 4)

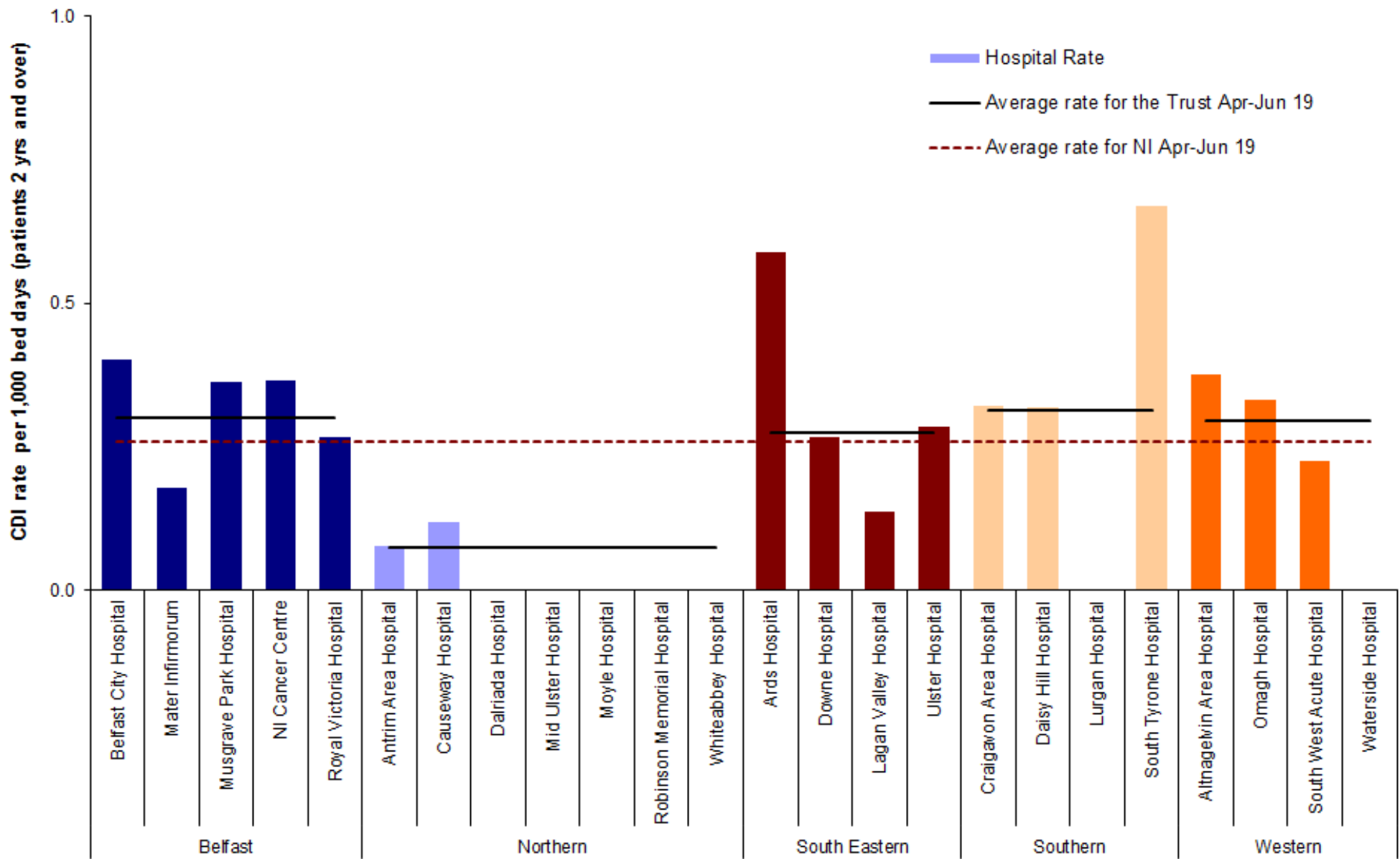


Figure 6: *C. difficile* rates April - June 2019 - Inpatients aged two years and over, by hospital, including HSCCT rates and average rate for Northern Ireland (see appendix A, Table 5)

Appendix A

Table 4: Quarterly rates of *C. difficile* reports in patients aged 65 years and over, by hospital, July 2018 – June 2019.

Hospital	Jul - Sep 2018	Oct - Dec 2018	Jan-Mar 2019	Apr-Jun 2019
	Rate	Rate	Rate	Rate
Belfast City Hospital	0.357	0.454	0.539	0.489
Mater Infirmorum	0.383	0.178	0.928	0.178
Musgrave Park Hospital	0.000	0.116	0.325	0.557
NICCO (formerly at Belvoir Park)	0.000	0.749	0.398	0.750
Royal Group of Hospitals	0.453	0.540	0.353	0.431
Belfast Health & Social Care Trust	0.340	0.411	0.462	0.432
Antrim Area Hospital	0.387	0.172	0.258	0.084
Causeway Hospital	0.416	0.204	0.722	0.199
Dalriada Hospital	0.000	0.000	0.000	0.000
Mid Ulster Hospital	0.000	0.613	0.000	0.000
Moyle Hospital	0.000	0.000	0.000	0.000
Robinson Memorial Hospital	0.000	0.000	0.000	0.000
Whiteabbey Hospital	0.000	0.315	0.567	0.000
Northern Health & Social Care Trust	0.306	0.190	0.355	0.094
Ards Hospital	0.000	0.000	0.000	0.798
Downe Hospital	1.007	0.330	0.320	0.372
Lagan Valley Hospital	0.206	0.169	0.680	0.190
Ulster Hospital	0.389	0.339	0.664	0.426
South Eastern Health & Social Care Trust	0.396	0.298	0.615	0.401
Craigavon Area Hospital	0.359	0.227	0.331	0.329
Daisy Hill Hospital	0.106	0.133	0.202	0.410
Lurgan Hospital	0.000	0.000	0.252	0.000
South Tyrone Hospital	0.341	0.284	0.338	0.736
Southern Health & Social Care Trust	0.250	0.184	0.289	0.344
Altnagelvin Area Hospital	0.445	0.316	0.272	0.485
Omagh Hospital	0.000	0.000	0.000	0.366
South West Acute Hospital	0.175	0.330	0.248	0.335
Waterside Hospital	0.000	0.251	0.723	0.000
Western Health & Social Care Trust	0.278	0.291	0.294	0.377
NI TOTAL	0.318	0.293	0.413	0.339

Table 5: Quarterly episodes of *C. difficile* episodes in patients aged 65 years and over, by Trust

Trust	Jul - Sep 2018	Oct - Dec 2018	Jan - Mar 2019	Apr - Jun 2019
	Episodes	Episodes	Episodes	Episodes
Belfast Health & Social Care Trust	23	27	31	30
Northern Health & Social Care Trust	13	8	15	4
South Eastern Health & Social Care Trust	15	12	25	15
Southern Health & Social Care Trust	9	6	11	13
Western Health & Social Care Trust	10	11	11	14
NI TOTAL	70	64	93	76
NI community TOTAL	42	38	36	45

Appendix A

Table 6: Quarterly rates of *C. difficile* reports in patients aged two years and over, by hospital, July 2018 – June 2019.

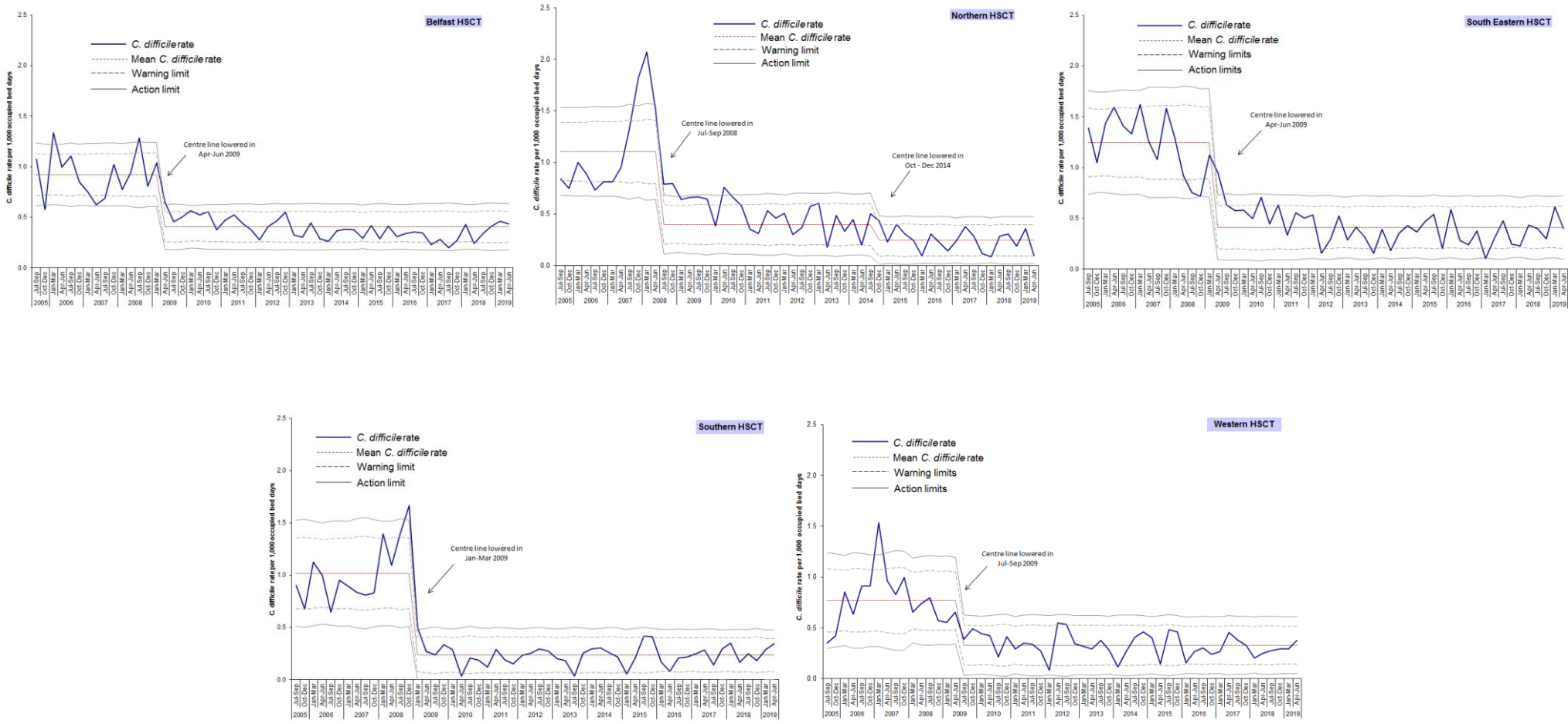
Hospital	Jul - Sep 2018	Oct - Dec 2018	Jan - Mar 2019	Apr - Jun 2019
	Rate	Rate	Rate	Rate
Belfast City Hospital	0.221	0.311	0.423	0.401
Mater Infirmorum	0.224	0.162	0.430	0.179
Musgrave Park Hospital	0.000	0.131	0.186	0.364
NICCO (formerly at Belvoir Park)	0.000	0.372	0.184	0.365
Royal Group of Hospitals	0.296	0.263	0.247	0.266
Belfast Health & Social Care Trust	0.225	0.247	0.296	0.300
Antrim Area Hospital	0.286	0.129	0.225	0.077
Causeway Hospital	0.292	0.118	0.474	0.119
Dalriada Hospital	0.000	0.000	0.000	0.000
Mid Ulster Hospital	0.000	0.545	0.000	0.000
Moyle Hospital	0.000	0.000	0.000	0.000
Robinson Memorial Hospital	0.000	0.000	0.000	0.000
Whiteabbey Hospital	0.000	0.264	0.546	0.000
Northern Health & Social Care Trust	0.241	0.135	0.282	0.075
Ards Hospital	0.000	0.000	0.000	0.588
Downe Hospital	0.837	0.279	0.262	0.268
Lagan Valley Hospital	0.316	0.141	0.555	0.136
Ulster Hospital	0.263	0.224	0.480	0.286
South Eastern Health & Social Care Trust	0.294	0.212	0.463	0.275
Craigavon Area Hospital	0.214	0.104	0.284	0.321
Daisy Hill Hospital	0.063	0.247	0.121	0.318
Lurgan Hospital	0.000	0.000	0.232	0.000
South Tyrone Hospital	0.322	0.313	0.334	0.669
Southern Health & Social Care Trust	0.164	0.145	0.240	0.314
Altnagelvin Area Hospital	0.479	0.260	0.321	0.377
Omagh Hospital	0.000	0.000	0.000	0.332
South West Acute Hospital	0.115	0.326	0.333	0.226
Waterside Hospital	0.000	0.359	0.554	0.000
Western Health & Social Care Trust	0.301	0.276	0.328	0.295
NI TOTAL	0.241	0.210	0.316	0.258

Table 7: Quarterly episodes of *C. difficile* episodes in patients aged 2 years and over, by Trust

Trust	Jul - Sep 2018	Oct - Dec 2018	Jan - Mar 2019	Apr - Jun 2019
	Episodes	Episodes	Episodes	Episodes
Belfast Health & Social Care Trust	30	33	40	39
Northern Health & Social Care Trust	16	9	19	5
South Eastern Health & Social Care Trust	18	13	28	17
Southern Health & Social Care Trust	10	9	15	19
Western Health & Social Care Trust	18	17	20	18
NI TOTAL	92	81	122	98
NI community TOTAL	50	43	50	55

Appendix B

Trends in *C. difficile* rates in inpatients aged 65 years and over, by HSCT and quarter, 2005 – 2019



Appendix C

Table 8: C. difficile reports among inpatients in Northern Ireland aged 65 years and over, by financial year and HSCT

HSCT	Financial Year												
	2006/07	2007/08	2008/09	2009/10	2010/11	2011/12	2012/13	2013/14	2014/15	2015/16	2016/17	2017/18	2018/19
Belfast	336	280	327	163	147	117	124	90	103	102	90	83	99
Northern	172	297	172	102	103	75	73	56	54	43	39	37	48
South Eastern	256	199	135	98	80	72	50	50	53	70	39	50	69
Southern	130	134	164	37	17	28	33	25	27	40	27	39	32
Western	132	109	104	71	46	35	58	37	53	43	40	50	41
Northern Ireland	1026	1019	902	471	393	327	338	258	290	298	235	259	289