

# *C. difficile* surveillance

## Quarterly report

### January 2018 - March 2018

#### Key points

- CDI reports for hospital inpatients aged 65 years and over increased by 17.5% (from 57 to 67 episodes) during January - March 2018 compared to October - December 2017.
- CDI rate per 1,000 bed days increased by 13% January - March 2018 compared to October - December 2017.
- CDI reports for community patients aged 65 years and over decreased by 24% (from 38 to 29 episodes) during January - March 2018 compared to October - December 2017.
- Total CDI reports, for hospital inpatients and community patients combined, aged two years and over, decreased by 8% during January - March 2018 compared to October - December 2017 (from 120 to 112 episodes).
- CDI reports for hospital inpatients aged 65 years and over increased by 11% between the 2016/17 and 2017/18 financial years.
- During January - March 2018 the most prevalent ribotypes for CDI inpatients are 002 (31%), 014 (8%), 020 (8%) and 078 (8%) (Table 1) and in the community are 078 (15%) 002 (12%), 014 (12%) and 023 (12%) (Table 2).

# Surveillance of *C. difficile* infection (CDI)

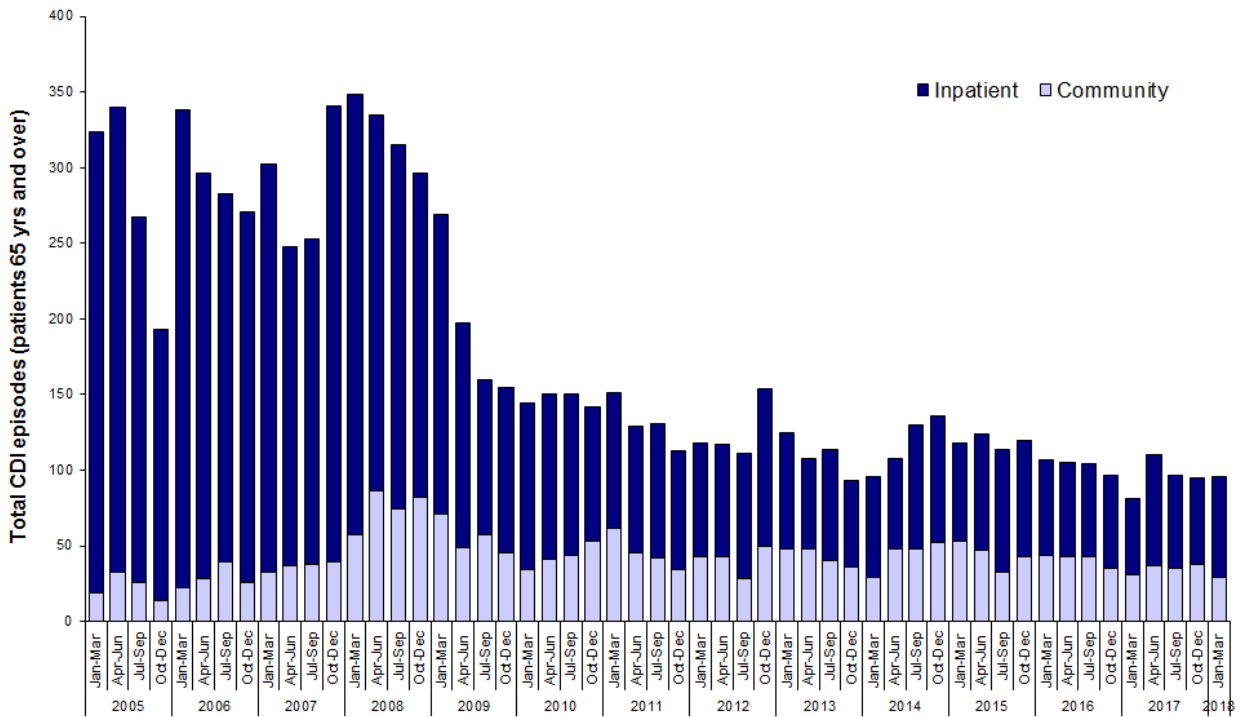


Figure 1: Total CDI episodes, inpatient and community, in Northern Ireland, by quarter (patients ≥ 65 years), between 2005 and 2018

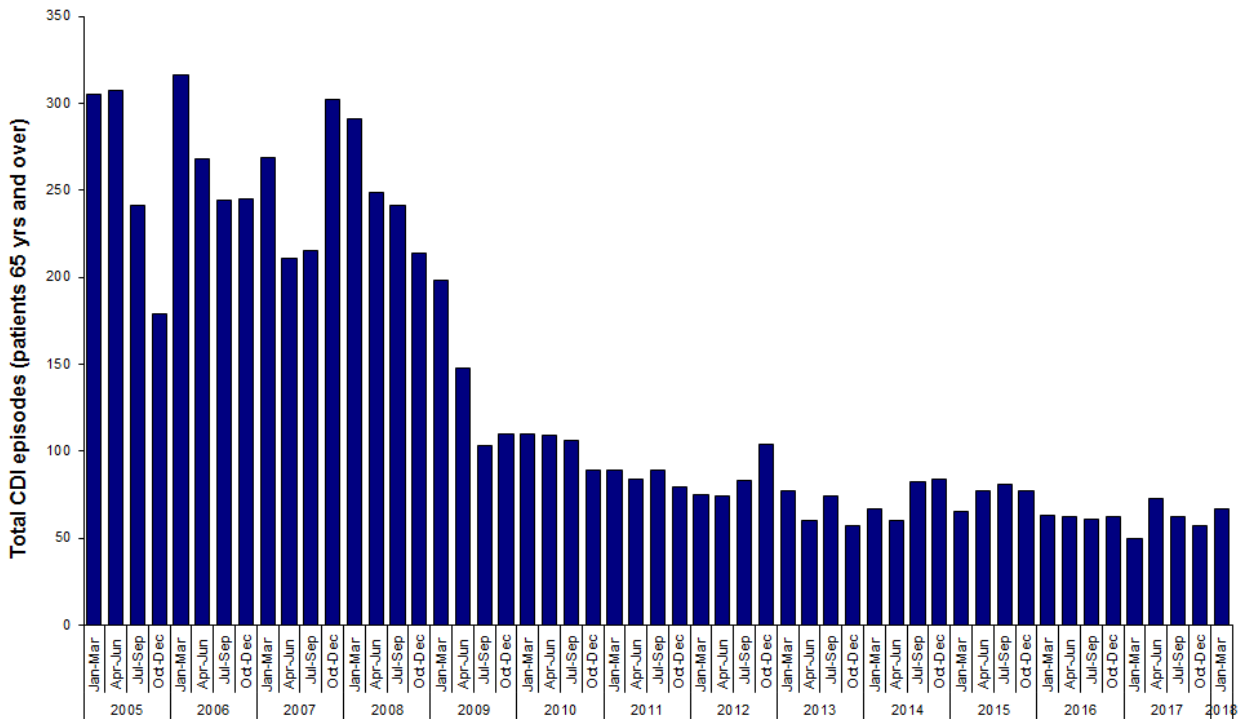


Figure 2a: Total CDI inpatient episodes in Northern Ireland, by quarter (patients ≥ 65 years), between 2005 and 2018

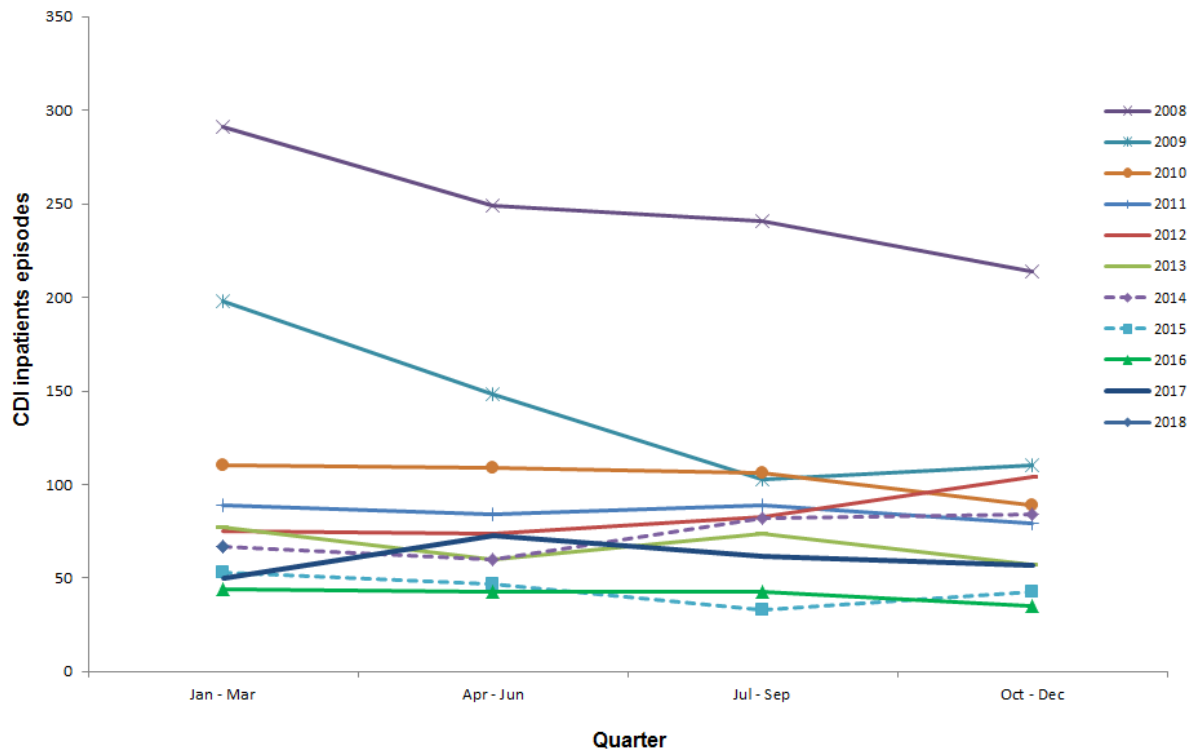
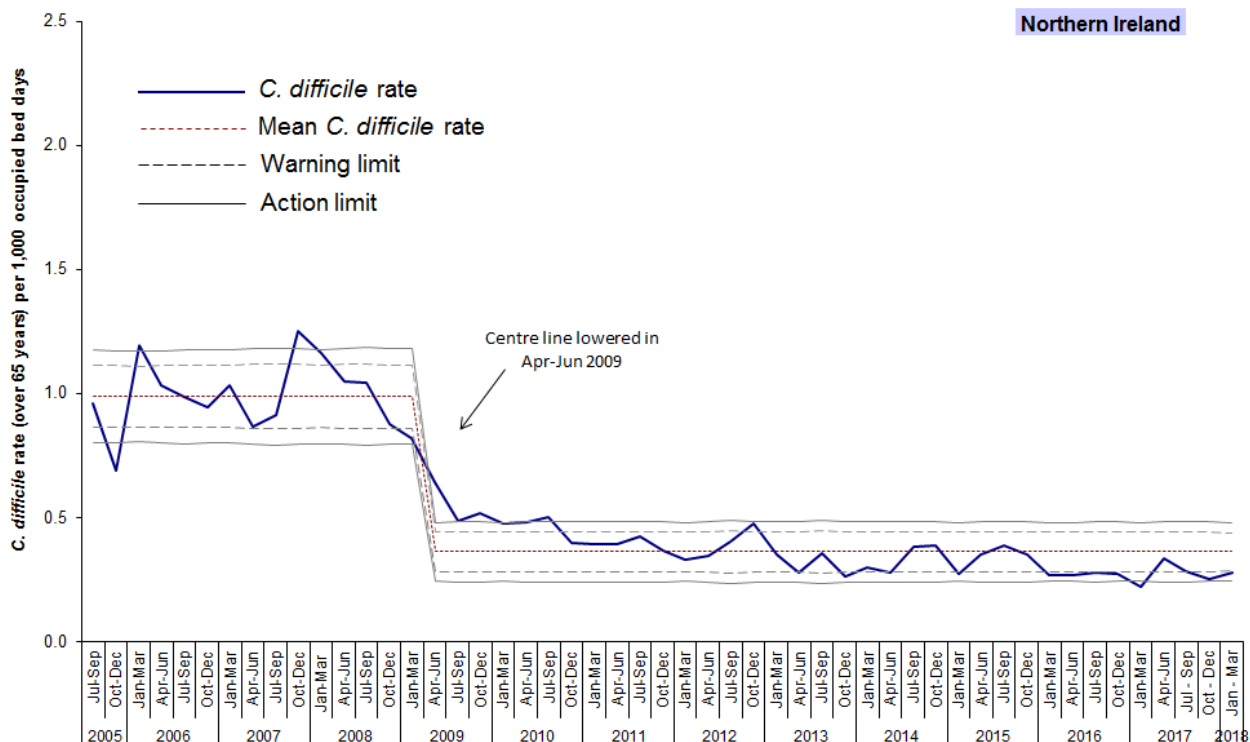


Figure 2b: Total CDI inpatient episodes in Northern Ireland, by quarter (patients  $\geq 65$  years), between 2008 and 2018

**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, April 2017 – March 2018.**

Ribotype	Apr - Jun 2017		Jul - Sep 2017		Oct - Dec 2017		Jan - Mar 2018	
	Number	%	Number	%	Number	%	Number	%
001	3	3.3	4	4.8	2	2.6	1	1.2
002	8	8.7	12	14.5	14	18.4	27	31.4
005	4	4.3	5	6.0	2	2.6	6	7.0
011	3	3.3	4	4.8	2	2.6	3	3.5
014	9	9.8	7	8.4	9	11.8	7	8.1
015	7	7.6	10	12.0	5	6.6	4	4.7
018	0	0.0	3	3.6	5	6.6	0	0.0
020	4	4.3	3	3.6	7	9.2	7	8.1
023	8	8.7	3	3.6	5	6.6	2	2.3
078	15	16.3	9	10.8	3	3.9	7	8.1
193	2	2.2	7	8.4	1	1.3	0	0.0
Other	23	25.0	11	13.3	14	18.4	15	17.4
Not groupable**	3	3.3	2	2.4	2	2.6	3	3.5
Not on ribotype list	1	1.1	1	1.2	4	5.3	4	4.7
Not isolated***	2	2.2	2	2.4	1	1.3	0	0.0
<b>Total</b>	<b>92</b>		<b>83</b>		<b>76</b>		<b>86</b>	

**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, April 2017 – March 2018.**

Ribotype	Apr - Jun 2017		Apr - Jun 2017		Jul - Sep 2017		Jan - Mar 2018	
	Number	%	Number	%	Number	%	Number	%
001	0	0.0	2	5.1	2	4.5	0	0.0
002	5	12.2	5	12.8	5	11.4	4	12.1
005	6	14.6	0	0.0	0	0.0	0	0.0
011	0	0.0	0	0.0	1	2.3	2	6.1
014	3	7.3	4	10.3	5	11.4	4	12.1
015	7	17.1	3	7.7	6	13.6	3	9.1
018	1	2.4	1	2.6	1	2.3	0	0.0
020	2	4.9	1	2.6	3	6.8	2	6.1
023	1	2.4	0	0.0	2	4.5	4	12.1
078	4	9.8	6	15.4	4	9.1	5	15.2
193	1	2.4	4	10.3	0	0.0	1	3.0
Other	8	19.5	10	25.6	7	15.9	3	9.1
Not groupable**	2	4.9	1	2.6	4	9.1	2	6.1
Not on ribotype list	0	0.0	1	2.6	3	6.8	2	6.1
Not isolated***	1	2.4	1	2.6	1	2.3	1	3.0
<b>Total</b>	<b>41</b>		<b>39</b>		<b>44</b>		<b>33</b>	

\* 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. *Note: 1 CDI record in Oct-Dec 2017 was not tested and classified as Not isolated.*

**Table 3: Descriptive data for *C. difficile* ribotypes 002, 078 and 014 in Northern Ireland Hospital Inpatients and Community Patients, January - March 2018.**

	002 (n =31)		078 (n = 12)		014 (n = 11)	
<b>Age</b>						
range	5 - 94		56 - 94		49-95	
median	80		86		81	
<b>Sex</b>						
	n	%	n	%	n	%
Female	16	51.6	8	66.7	8	72.7
Male	15	48.4	4	33.3	3	27.3
<b>Trust</b>						
Belfast	14	45.2	4	33.3	6	54.5
Northern	3	9.7	4	33.3	2	18.2
South Eastern	7	22.6	1	8.3	0	0.0
Southern	4	12.9	2	16.7	1	9.1
Western	3	9.7	1	8.3	2	18.2
<b>Source</b>						
Inpatient	27	87.1	7	58.3	7	63.6
Community*	4	12.9	5	41.7	4	36.4
	31		12		11	

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

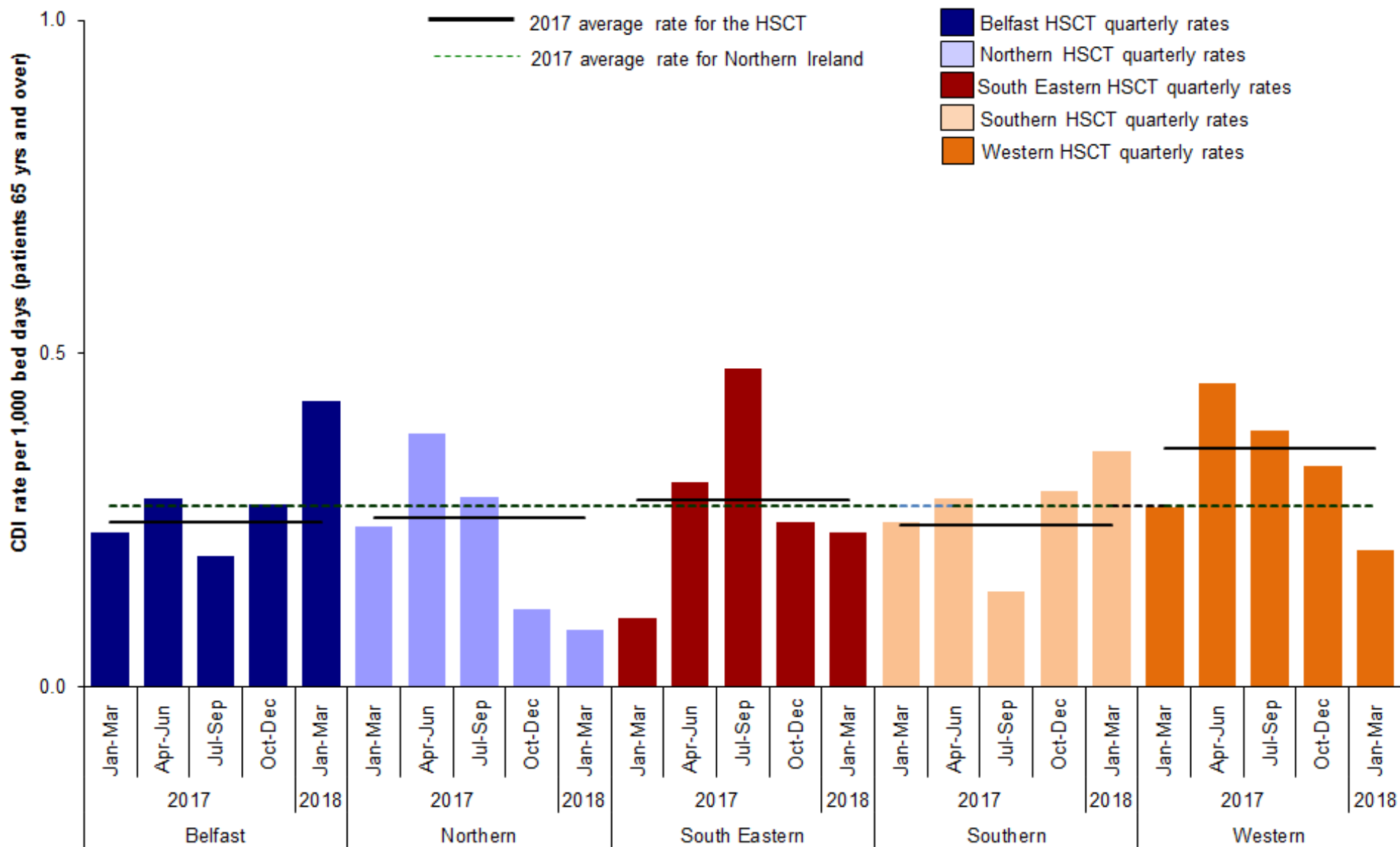


Figure 4: Quarterly rates of *C. difficile* among inpatients aged 65 years and over, by HSCT, January 2017 - March 2018, compared with annual Northern Ireland and HSCT rates for 2017

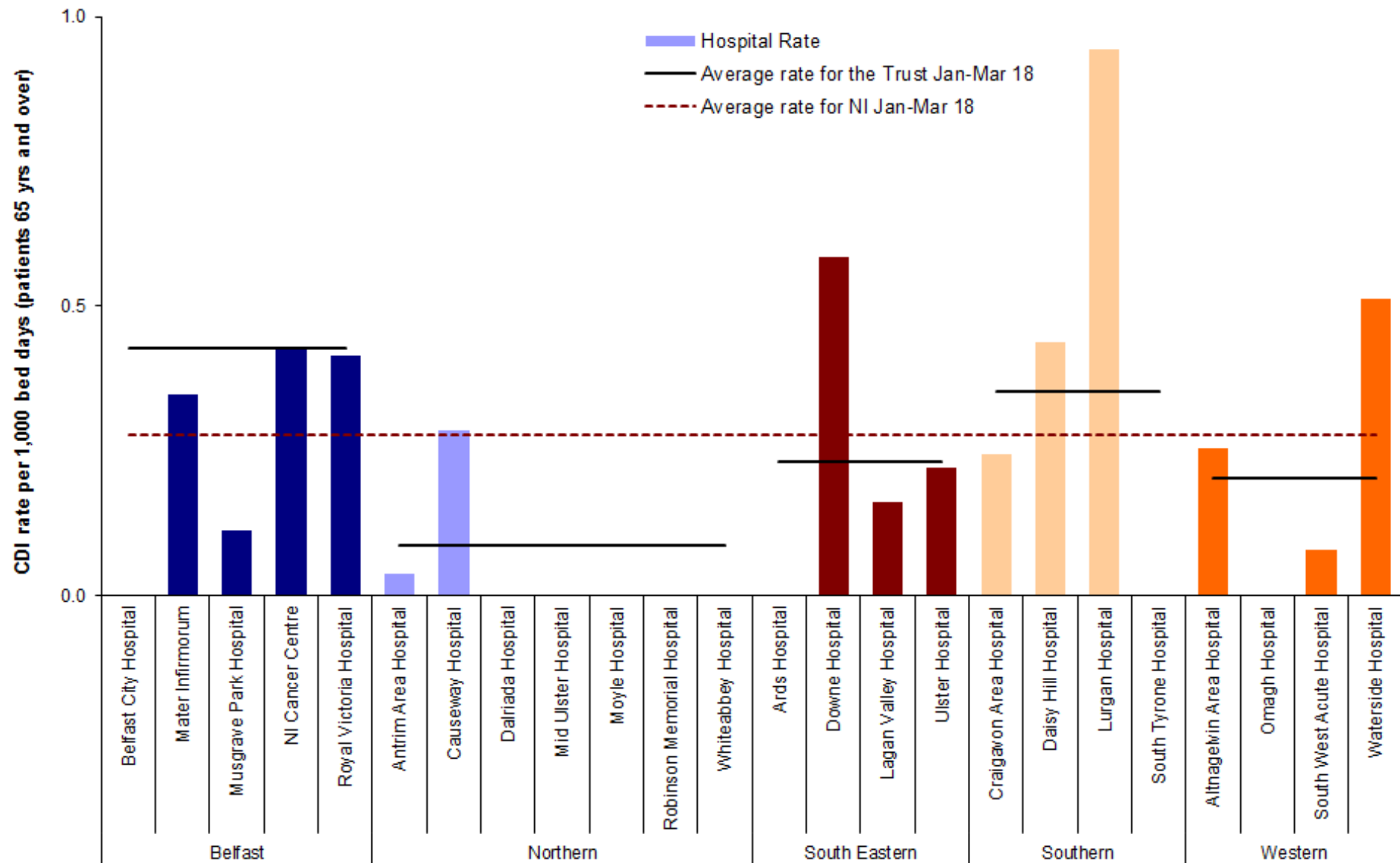


Figure 5: *C. difficile* rates during January - March 2018 - Inpatients aged 65 years and over, by hospital, including HSCT rates and average rate for Northern Ireland (see appendix A, Table 4)



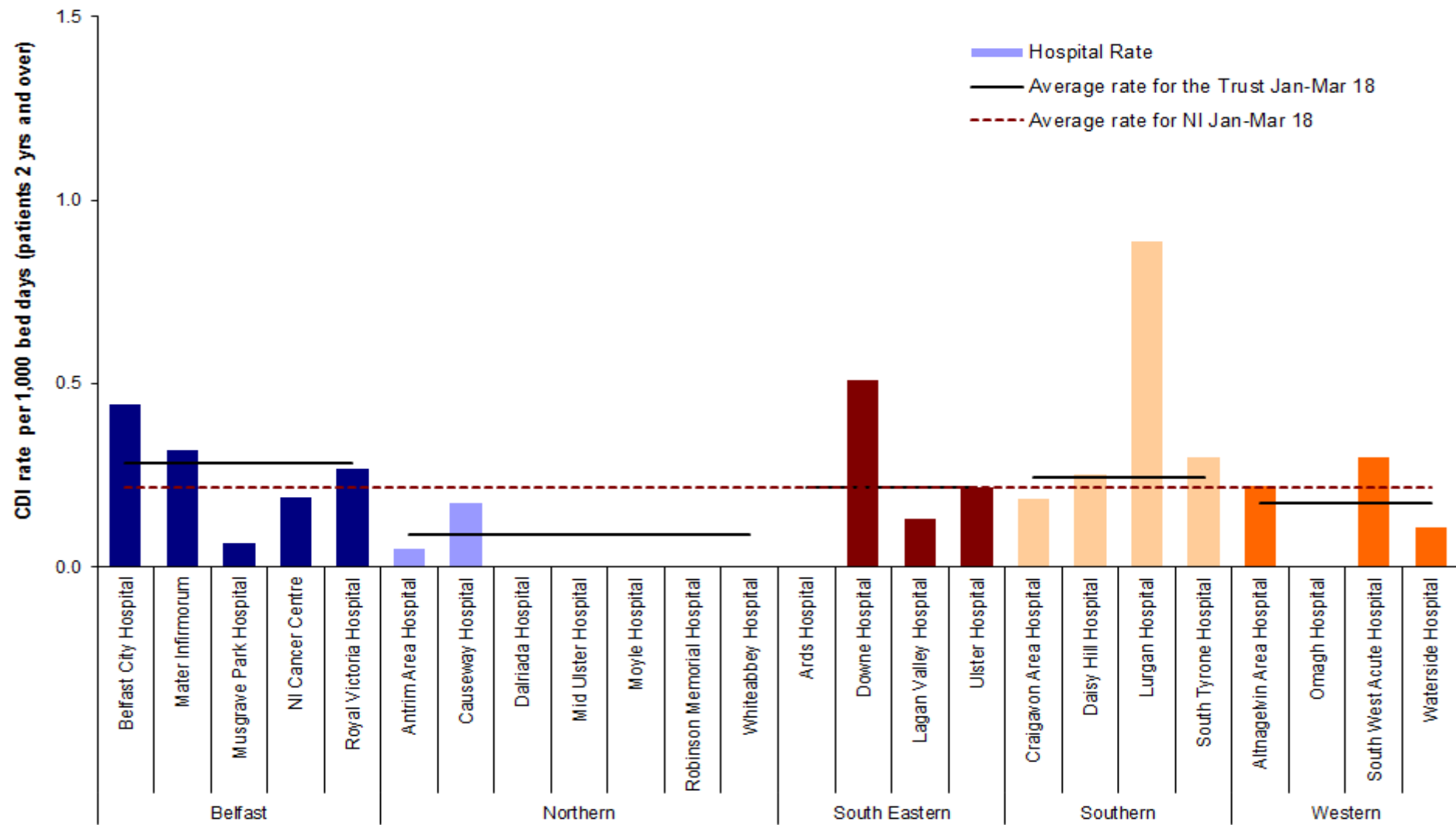


Figure 6: *C. difficile* rates during January - March 2018 - Inpatients aged two years and over, by hospital, including HSCT rates and average rate for Northern Ireland (see appendix A, Table 5)

## Appendix A

**Table 4: Quarterly rate of *C. difficile* reports in patients aged 65 years and over, by hospital, April 2017 – March 2018**

Hospital	Apr - Jun 2017	Jul - Sep 2017	Oct - Dec 2017	Jan-Mar 2018
	Rate	Rate	Rate	Rate
Belfast City Hospital	0.173	0.234	0.523	0.658
Mater Infirmorum	0.201	0.394	0.374	0.347
Musgrave Park Hospital	0.555	0.000	0.000	0.114
NICCO (formerly at Belvoir Park)	0.392	0.000	0.000	0.424
Royal Group of Hospitals	0.280	0.181	0.197	0.415
<b>Belfast Health &amp; Social Care Trust</b>	<b>0.282</b>	<b>0.196</b>	<b>0.273</b>	<b>0.442</b>
Antrim Area Hospital	0.441	0.380	0.127	0.039
Causeway Hospital	0.511	0.338	0.098	0.286
Dalriada Hospital	0.000	0.000	0.000	0.000
Mid Ulster Hospital	0.000	0.000	0.000	0.000
Moyle Hospital	0.747	0.000	0.000	0.000
Robinson Memorial Hospital	0.000	0.000	0.000	0.000
Whiteabbey Hospital	0.000	0.000	0.287	0.000
<b>Northern Health &amp; Social Care Trust</b>	<b>0.379</b>	<b>0.284</b>	<b>0.115</b>	<b>0.086</b>
Ards Hospital	0.000	0.000	0.000	0.000
Downe Hospital	0.647	0.000	0.000	0.584
Lagan Valley Hospital	0.000	0.166	0.322	0.162
Ulster Hospital	0.355	0.630	0.270	0.220
<b>South Eastern Health &amp; Social Care Trust</b>	<b>0.307</b>	<b>0.478</b>	<b>0.246</b>	<b>0.232</b>
Craigavon Area Hospital	0.259	0.212	0.286	0.243
Daisy Hill Hospital	0.331	0.110	0.318	0.437
Lurgan Hospital	0.000	0.000	0.466	0.944
South Tyrone Hospital	0.724	0.000	0.000	0.000
<b>Southern Health &amp; Social Care Trust</b>	<b>0.283</b>	<b>0.143</b>	<b>0.292</b>	<b>0.352</b>
Altnagelvin Area Hospital	0.601	0.324	0.378	0.254
Tyrone County / Omagh Hospital	0.778	0.401	0.000	0.000
South West Acute Hospital	0.288	0.433	0.453	0.080
Waterside Hospital	0.000	0.498	0.000	0.512
<b>Western Health &amp; Social Care Trust</b>	<b>0.456</b>	<b>0.383</b>	<b>0.331</b>	<b>0.230</b>
<b>NI TOTAL</b>	<b>0.333</b>	<b>0.285</b>	<b>0.251</b>	<b>0.279</b>

**Table 5: Quarterly episodes of *C. difficile* episodes in patients aged 65 years and over, by Trust, April 2017 – March 2018**

Trust	Apr - Jun 2017	Jul - Sep 2017	Oct - Dec 2017	Jan - Mar 2018
	Episodes	Episodes	Episodes	Episodes
Belfast Health & Social Care Trust	19	13	19	32
Northern Health & Social Care Trust	16	12	5	4
South Eastern Health & Social Care Trust	12	18	10	10
Southern Health & Social Care Trust	10	5	11	13
Western Health & Social Care Trust	16	14	12	8
<b>NI TOTAL</b>	<b>73</b>	<b>62</b>	<b>57</b>	<b>67</b>
<b>NI community TOTAL</b>	<b>37</b>	<b>35</b>	<b>38</b>	<b>29</b>

## Appendix A

**Table 6: Quarterly rate of *C. difficile* reports in patients aged two years and over, by hospital, April 2017 – March 2018**

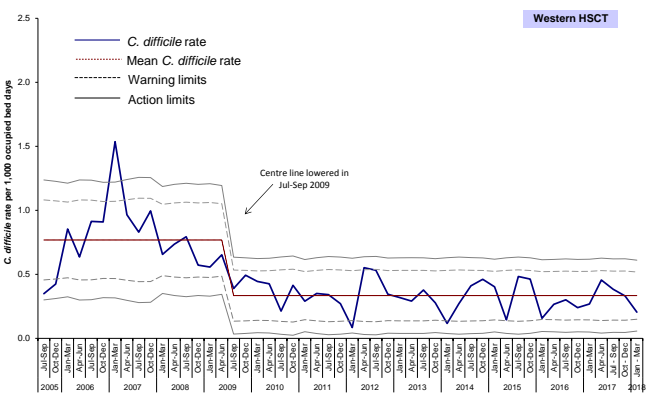
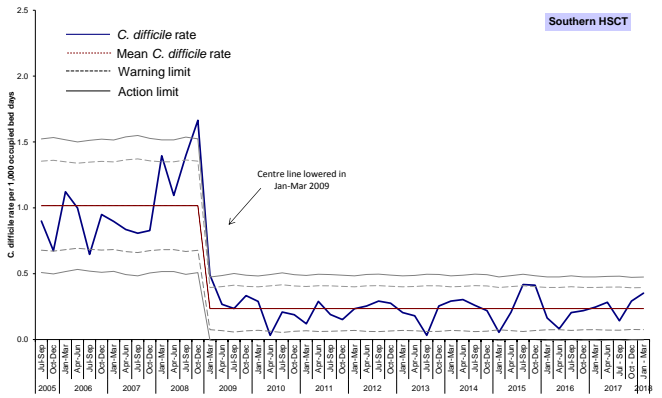
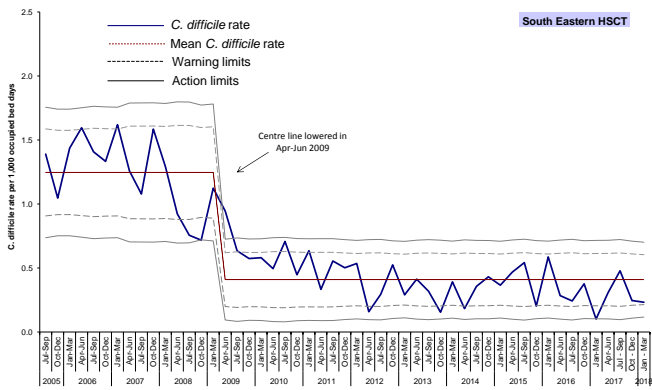
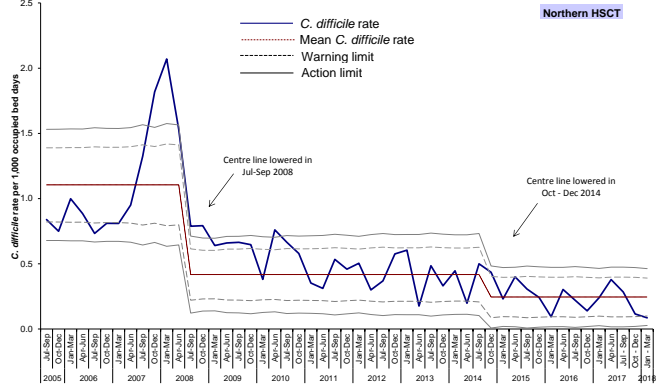
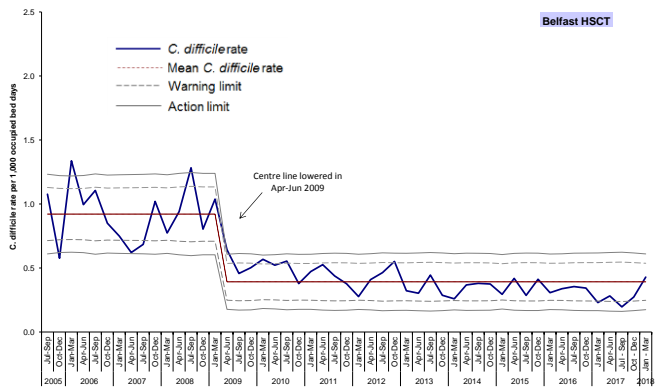
Hospital	Apr - Jun 2017	Jul - Sep 2017	Oct - Dec 2017	Jan - Mar 2018
	Rate	Rate	Rate	Rate
Belfast City Hospital	0.217	0.187	0.343	0.441
Mater Infirmorum	0.161	0.324	0.261	0.317
Musgrave Park Hospital	0.316	0.000	0.000	0.065
NICCO (formerly at Belvoir Park)	0.375	0.000	0.197	0.191
Royal Group of Hospitals	0.147	0.137	0.176	0.269
<b>Belfast Health &amp; Social Care Trust</b>	<b>0.192</b>	<b>0.152</b>	<b>0.202</b>	<b>0.284</b>
Antrim Area Hospital	0.283	0.283	0.125	0.049
Causeway Hospital	0.496	0.183	0.174	0.228
Dalriada Hospital	0.000	0.000	0.000	0.000
Mid Ulster Hospital	0.000	0.000	0.000	0.000
Moyle Hospital	0.718	0.000	0.000	0.000
Robinson Memorial Hospital	0.000	0.000	0.000	0.000
Whiteabbey Hospital	0.000	0.000	0.256	0.000
<b>Northern Health &amp; Social Care Trust</b>	<b>0.303</b>	<b>0.212</b>	<b>0.132</b>	<b>0.086</b>
Ards Hospital	0.000	0.000	0.000	0.000
Downe Hospital	0.521	0.000	0.000	0.507
Lagan Valley Hospital	0.132	0.277	0.268	0.131
Ulster Hospital	0.227	0.377	0.220	0.217
<b>South Eastern Health &amp; Social Care Trust</b>	<b>0.227</b>	<b>0.332</b>	<b>0.207</b>	<b>0.219</b>
Craigavon Area Hospital	0.216	0.217	0.186	0.186
Daisy Hill Hospital	0.188	0.126	0.182	0.251
Lurgan Hospital	0.000	0.000	0.444	0.888
South Tyrone Hospital	0.670	0.000	0.000	0.000
<b>Southern Health &amp; Social Care Trust</b>	<b>0.215</b>	<b>0.166</b>	<b>0.195</b>	<b>0.245</b>
Altnagelvin Area Hospital	0.372	0.318	0.233	0.222
Tyrone County / Omagh Hospital	0.711	0.376	0.000	0.000
South West Acute Hospital	0.236	0.280	0.394	0.300
Waterside Hospital	0.000	0.338	0.000	0.107
<b>Western Health &amp; Social Care Trust</b>	<b>0.314</b>	<b>0.311</b>	<b>0.246</b>	<b>0.172</b>
<b>NI TOTAL</b>	<b>0.240</b>	<b>0.219</b>	<b>0.196</b>	<b>0.215</b>

**Table 7: Quarterly episodes of *C. difficile* episodes in patients aged 2 years and over, by Trust, April 2017 – March 2018**

Trust	Apr - Jun 2017	Jul - Sep 2017	Oct - Dec 2017	Jan - Mar 2018
	Episodes	Episodes	Episodes	Episodes
Belfast Health & Social Care Trust	26	20	27	39
Northern Health & Social Care Trust	20	14	9	6
South Eastern Health & Social Care Trust	14	20	13	14
Southern Health & Social Care Trust	13	10	12	15
Western Health & Social Care Trust	19	19	15	11
<b>NI TOTAL</b>	<b>92</b>	<b>83</b>	<b>76</b>	<b>85</b>
<b>NI community TOTAL</b>	<b>41</b>	<b>39</b>	<b>44</b>	<b>26</b>

# Appendix B

## Trends in *C. difficile* rates in inpatients aged 65 years and over, by HSCT and quarter, 2005 – 2018



## 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												
	2005/06	2006/07	2007/08	2008/09	2009/10	2010/11	2011/12	2012/13	2013/14	2014/15	2015/16	2016/17	2017/18
Belfast	352	336	280	327	163	147	117	124	90	103	102	90	84
Northern	184	172	297	172	102	103	75	73	56	54	43	39	37
South Eastern	243	256	199	135	98	80	72	50	50	53	70	39	50
Southern	168	130	134	164	37	17	28	33	25	27	40	27	39
Western	96	132	109	104	71	46	35	58	37	53	43	40	50
<b>Northern Ireland</b>	<b>1043</b>	<b>1026</b>	<b>1019</b>	<b>902</b>	<b>471</b>	<b>393</b>	<b>327</b>	<b>338</b>	<b>258</b>	<b>290</b>	<b>298</b>	<b>235</b>	<b>260</b>