

C. difficile surveillance

Quarterly report

January - March 2019

Key points

- CDI reports for hospital inpatients aged 65 years and over increased by 45% (from 64 to 93 episodes) during January – March 2019 compared to October - December 2018.
- CDI rate per 1,000 bed days increased by 41% January – March 2019 compared to October - December 2018.
- CDI reports for community patients aged 65 years and over decreased by 5% (from 38 to 36 episodes) during January – March 2019 compared to October - December 2018.
- Total CDI reports, for hospital inpatients and community patients combined, aged two years and over, increased by 39% during January – March 2019 compared to October - December 2018 (from 124 to 172 episodes).
- CDI reports for hospital inpatients aged 65 years and over increased by 12% between the 2017/18 and 2018/19 financial years.
- During January - March 2019 the most prevalent ribotypes for CDI inpatients are 002 (42.6%), 078 (12.3%), 014 and 020 (both 5.7%) (Table 1). The most predominate community ribotypes are 002 (28%), 078 (20%) and 015 (10%) (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)

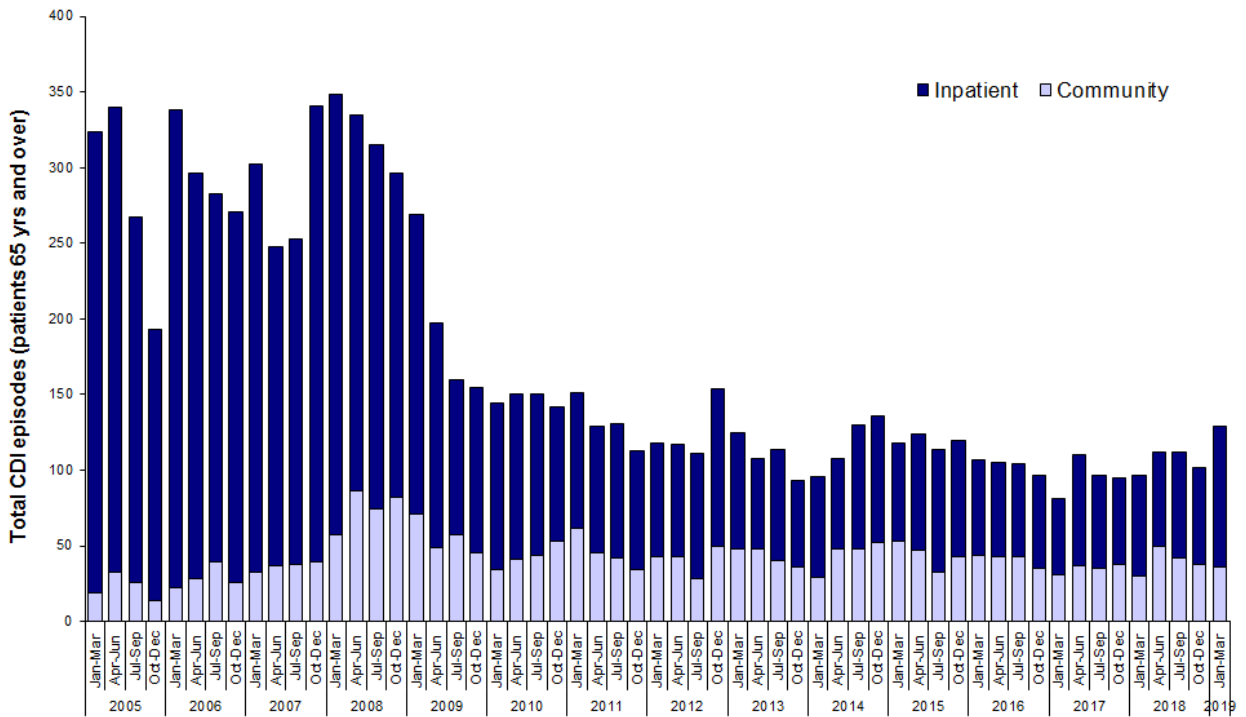


Figure 1: Total CDI episodes, inpatient and community, in Northern Ireland, by quarter (patients ≥ 65 years), between 2005 and 2019

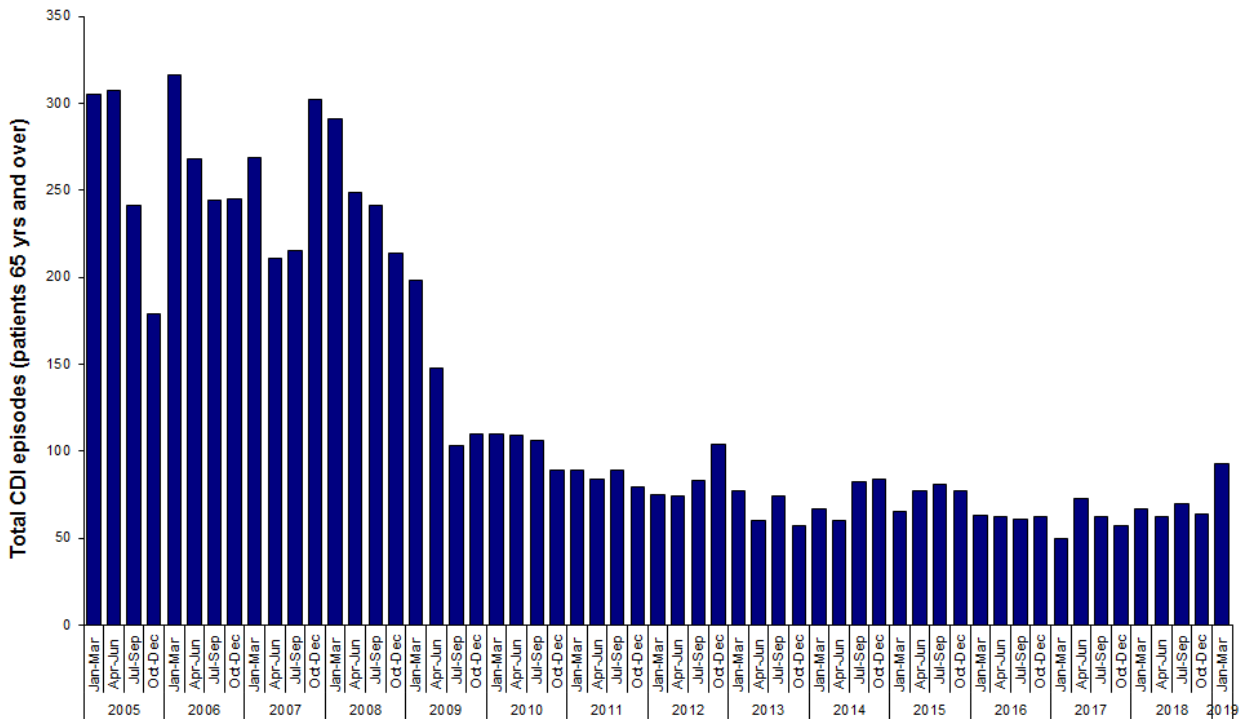


Figure 2a: Total CDI inpatient episodes in Northern Ireland, by quarter (patients ≥ 65 years), between 2005 and 2019

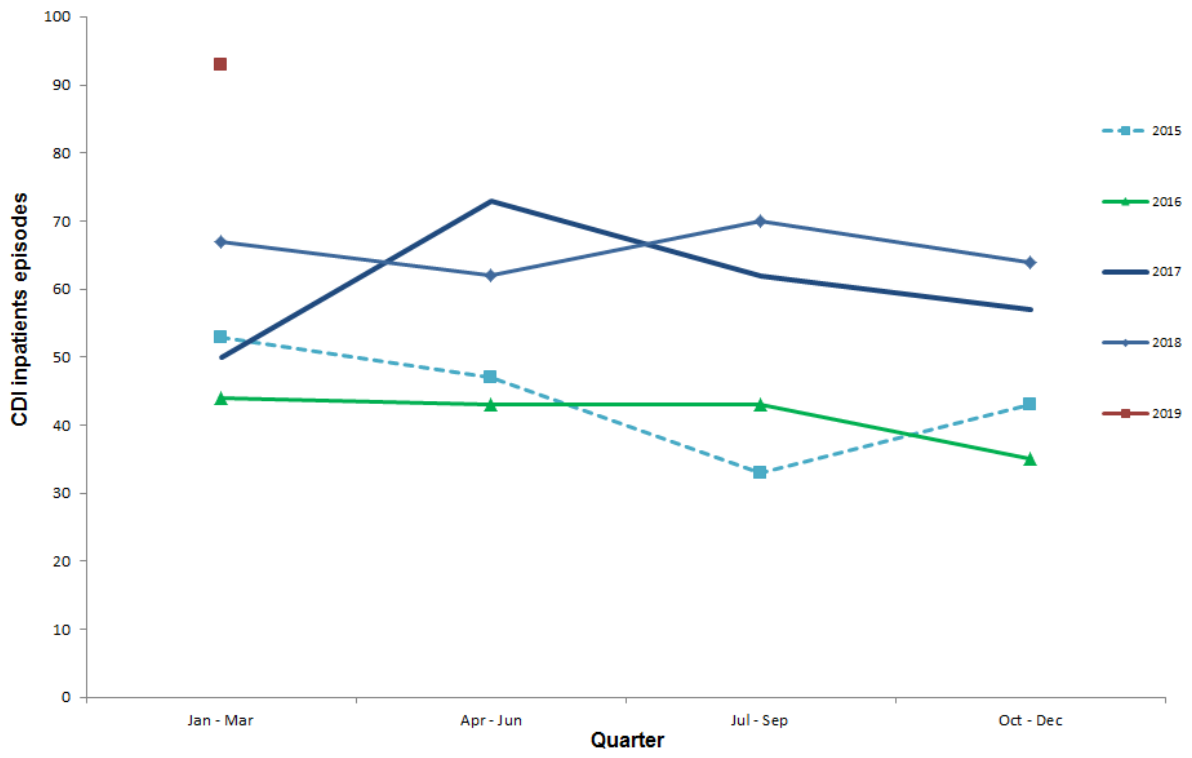


Figure 2b: Total CDI inpatient episodes in Northern Ireland, by quarter (patients \geq 65 years), between 2008 and 2019

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 2018 – March 2019.

| Ribotype | Apr - Jun 2018 | | Jul - Sep 2018 | | Oct - Dec 2018 | | Jan - Mar 2019 | |
|----------------------|----------------|------|----------------|------|----------------|------|----------------|------|
| | Number | % | Number | % | Number | % | Number | % |
| 001 | 2 | 2.3 | 3 | 3.3 | 1 | 1.2 | 1 | 0.8 |
| 002 | 20 | 23.3 | 12 | 13.0 | 8 | 9.9 | 52 | 42.6 |
| 005 | 4 | 4.7 | 7 | 7.6 | 6 | 7.4 | 4 | 3.3 |
| 011 | 1 | 1.2 | 1 | 1.1 | 3 | 3.7 | 2 | 1.6 |
| 014 | 6 | 7.0 | 6 | 6.5 | 9 | 11.1 | 7 | 5.7 |
| 015 | 3 | 3.5 | 9 | 9.8 | 5 | 6.2 | 3 | 2.5 |
| 018 | 2 | 2.3 | 0 | 0.0 | 1 | 1.2 | 1 | 0.8 |
| 020 | 4 | 4.7 | 8 | 8.7 | 4 | 4.9 | 7 | 5.7 |
| 023 | 3 | 3.5 | 4 | 4.3 | 0 | 0.0 | 2 | 1.6 |
| 078 | 8 | 9.3 | 8 | 8.7 | 9 | 11.1 | 15 | 12.3 |
| 193 | 0 | 0.0 | 3 | 3.3 | 1 | 1.2 | 2 | 1.6 |
| Other | 19 | 22.1 | 19 | 20.7 | 22 | 27.2 | 13 | 10.7 |
| Not groupable** | 6 | 7.0 | 7 | 7.6 | 6 | 7.4 | 5 | 4.1 |
| Not on ribotype list | 6 | 7.0 | 5 | 5.4 | 6 | 7.4 | 3 | 2.5 |
| Not isolated*** | 2 | 2.3 | 0 | 0.0 | 0 | 0.0 | 5 | 4.1 |
| Total | 86 | | 92 | | 81 | | 122 | |

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 2018 – March 2019.

| Ribotype | Apr - Jun 2018 | | Jul - Sep 2018 | | Oct - Dec 2018 | | Jan - Mar 2019 | |
|----------------------|----------------|------|----------------|------|----------------|------|----------------|------|
| | Number | % | Number | % | Number | % | Number | % |
| 001 | 1 | 1.8 | 3 | 6.0 | 0 | 0.0 | 0 | 0.0 |
| 002 | 8 | 14.3 | 10 | 20.0 | 11 | 25.6 | 14 | 28.0 |
| 005 | 2 | 3.6 | 1 | 2.0 | 3 | 7.0 | 4 | 8.0 |
| 011 | 4 | 7.1 | 2 | 4.0 | 2 | 4.7 | 0 | 0.0 |
| 014 | 4 | 7.1 | 3 | 6.0 | 0 | 0.0 | 1 | 2.0 |
| 015 | 4 | 7.1 | 3 | 6.0 | 3 | 7.0 | 5 | 10.0 |
| 018 | 2 | 3.6 | 1 | 2.0 | 0 | 0.0 | 1 | 2.0 |
| 020 | 1 | 1.8 | 0 | 0.0 | 0 | 0.0 | 0 | 0.0 |
| 023 | 4 | 7.1 | 1 | 2.0 | 1 | 2.3 | 1 | 2.0 |
| 078 | 8 | 14.3 | 9 | 18.0 | 9 | 20.9 | 10 | 20.0 |
| 193 | 0 | 0.0 | 0 | 0.0 | 0 | 0.0 | 1 | 2.0 |
| Other | 10 | 17.9 | 12 | 24.0 | 8 | 18.6 | 4 | 8.0 |
| Not groupable** | 2 | 3.6 | 2 | 4.0 | 3 | 7.0 | 3 | 6.0 |
| Not on ribotype list | 6 | 10.7 | 3 | 6.0 | 3 | 7.0 | 5 | 10.0 |
| Not isolated*** | 0 | 0.0 | 0 | 0.0 | 0 | 0.0 | 1 | 2.0 |
| Total | 56 | | 50 | | 43 | | 50 | |

* 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, 014 and 078 in Northern Ireland Hospital Inpatients and Community Patients, January – March 2019.

| | 002 (n =66) | | 014 (n = 8) | | 078 (n = 25) | |
|---------------|-------------|------|-------------|------|--------------|------|
| Age | | | | | | |
| range | 19-94 | | 34-94 | | 23-90 | |
| median | 77 | | 83 | | 80 | |
| Sex | | | | | | |
| | n | % | n | % | n | % |
| Female | 43 | 65.2 | 7 | 87.5 | 11 | 44.0 |
| Male | 23 | 34.8 | 1 | 12.5 | 14 | 56.0 |
| Trust | | | | | | |
| Belfast | 25 | 37.9 | 3 | 37.5 | 4 | 16.0 |
| Northern | 12 | 18.2 | 1 | 12.5 | 5 | 20.0 |
| South Eastern | 17 | 25.8 | 2 | 25.0 | 7 | 28.0 |
| Southern | 7 | 10.6 | 0 | 0.0 | 3 | 12.0 |
| Western | 5 | 7.6 | 2 | 25.0 | 6 | 24.0 |
| Source | | | | | | |
| Inpatient | 52 | 78.8 | 7 | 87.5 | 15 | 60.0 |
| Community* | 14 | 21.2 | 1 | 12.5 | 10 | 40.0 |

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

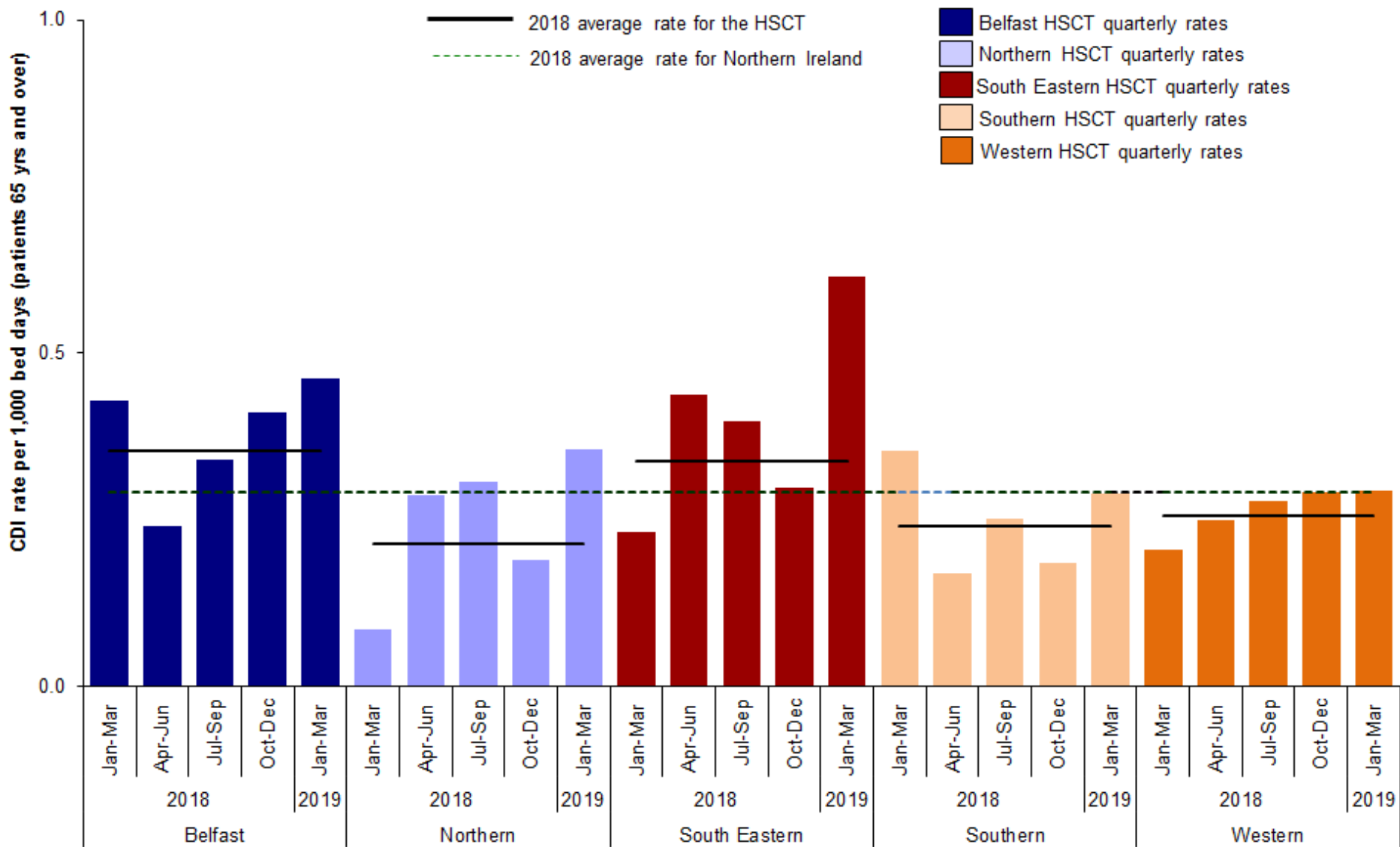


Figure 4: Quarterly rates of *C. difficile* among inpatients aged 65 years and over, by HSCT, January 2018 – March 2019, compared with annual Northern Ireland and HSCT rates for 2018

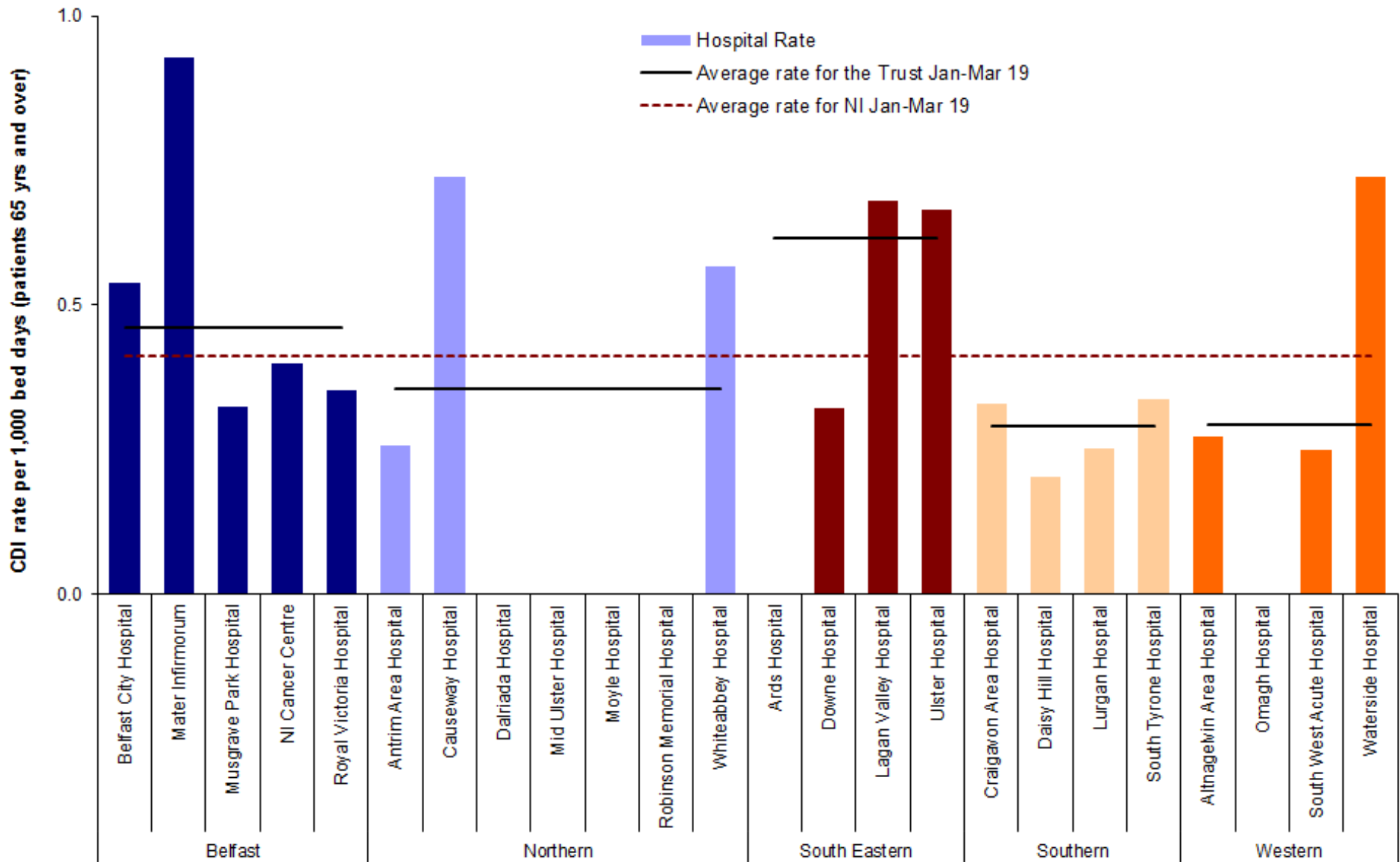


Figure 5: *C. difficile* rates during January - March 2019 - Inpatients aged 65 years and over, by hospital, including HSCT rates and average rate for Northern Ireland (see appendix A, Table 4)

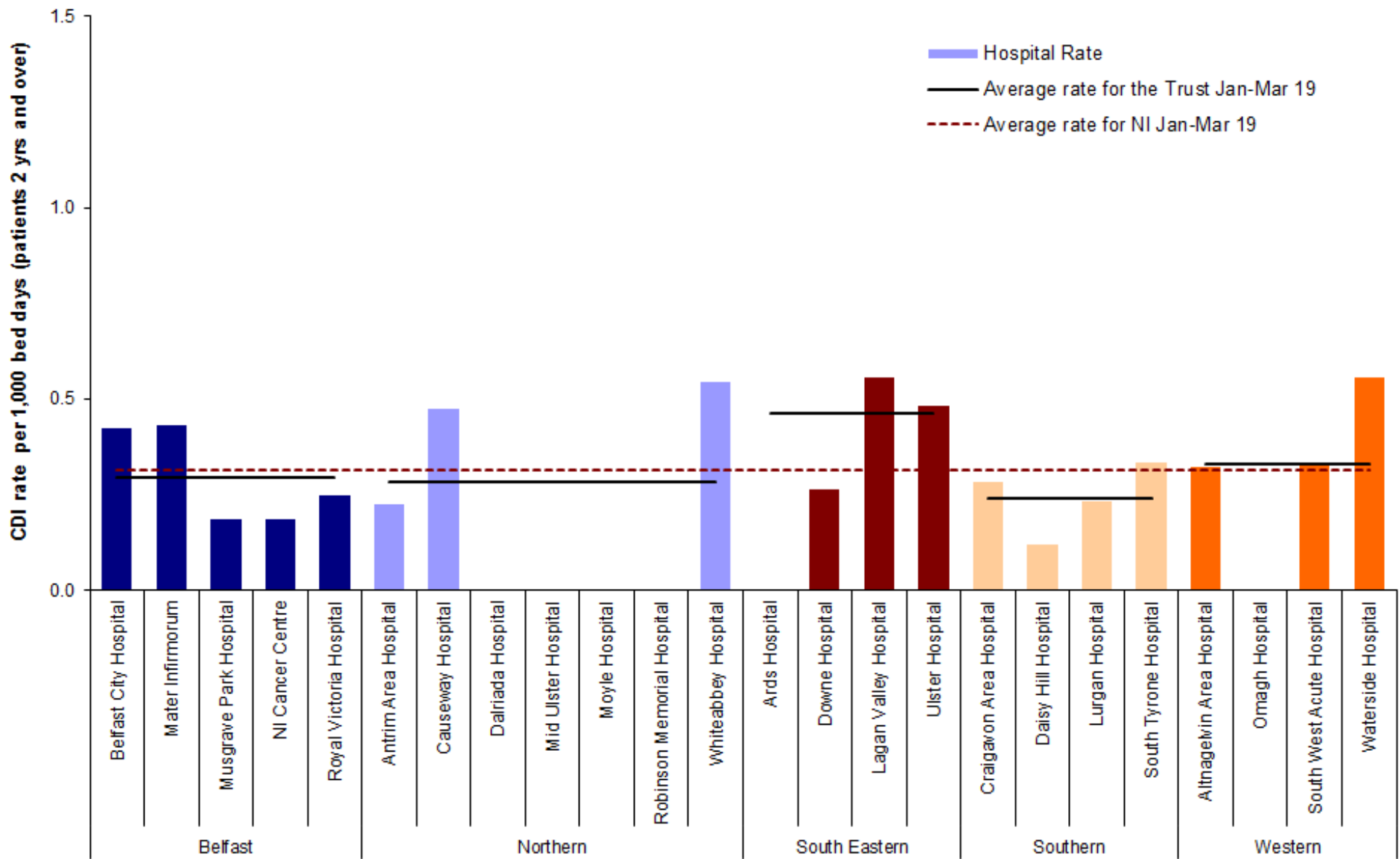


Figure 6: *C. difficile* rates January – March 2019 - Inpatients aged two years and over, by hospital, including HSC Trust rates and average rate for Northern Ireland (see appendix A, Table 5)

Appendix A

Table 4: Quarterly rate of *C. difficile* reports in patients aged 65 years and over, by hospital, April 2018 – March 2019.

| Hospital | Apr - Jun 2018 | Jul - Sep 2018 | Oct - Dec 2018 | Jan-Mar 2019 |
|---|----------------|----------------|----------------|--------------|
| | Rate | Rate | Rate | Rate |
| Belfast City Hospital | 0.163 | 0.357 | 0.454 | 0.539 |
| Mater Infirmorum | 0.347 | 0.383 | 0.178 | 0.928 |
| Musgrave Park Hospital | 0.456 | 0.000 | 0.116 | 0.325 |
| NICCO (formerly at Belvoir Park) | 0.424 | 0.000 | 0.749 | 0.398 |
| Royal Group of Hospitals | 0.177 | 0.453 | 0.540 | 0.353 |
| Belfast Health & Social Care Trust | 0.240 | 0.340 | 0.411 | 0.462 |
| Antrim Area Hospital | 0.347 | 0.387 | 0.172 | 0.258 |
| Causeway Hospital | 0.402 | 0.416 | 0.204 | 0.722 |
| Dalriada Hospital | 0.000 | 0.000 | 0.000 | 0.000 |
| Mid Ulster Hospital | 0.000 | 0.000 | 0.613 | 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 | 0.000 | 0.315 | 0.567 |
| Northern Health & Social Care Trust | 0.286 | 0.306 | 0.190 | 0.355 |
| Ards Hospital | 0.592 | 0.000 | 0.000 | 0.000 |
| Downe Hospital | 0.313 | 1.007 | 0.330 | 0.320 |
| Lagan Valley Hospital | 0.532 | 0.206 | 0.169 | 0.680 |
| Ulster Hospital | 0.387 | 0.389 | 0.339 | 0.664 |
| South Eastern Health & Social Care Trust | 0.411 | 0.396 | 0.298 | 0.615 |
| Craigavon Area Hospital | 0.207 | 0.359 | 0.227 | 0.331 |
| Daisy Hill Hospital | 0.110 | 0.106 | 0.133 | 0.202 |
| Lurgan Hospital | 0.000 | 0.000 | 0.000 | 0.252 |
| South Tyrone Hospital | 0.346 | 0.341 | 0.284 | 0.338 |
| Southern Health & Social Care Trust | 0.169 | 0.250 | 0.184 | 0.289 |
| Altnagelvin Area Hospital | 0.282 | 0.445 | 0.316 | 0.272 |
| Tyrone County / Omagh Hospital | 0.371 | 0.000 | 0.000 | 0.000 |
| South West Acute Hospital | 0.250 | 0.175 | 0.330 | 0.248 |
| Waterside Hospital | 0.000 | 0.000 | 0.251 | 0.723 |
| Western Health & Social Care Trust | 0.249 | 0.278 | 0.291 | 0.294 |
| NI TOTAL | 0.268 | 0.318 | 0.293 | 0.413 |

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

| Trust | Apr - Jun 2017 | Jul - Sep 2017 | Oct - Dec 2017 | Jan - Mar 2018 |
|--|----------------|----------------|----------------|----------------|
| | Episodes | Episodes | Episodes | Episodes |
| Belfast Health & Social Care Trust | 18 | 23 | 27 | 31 |
| Northern Health & Social Care Trust | 12 | 13 | 8 | 15 |
| South Eastern Health & Social Care Trust | 16 | 15 | 12 | 25 |
| Southern Health & Social Care Trust | 6 | 9 | 6 | 11 |
| Western Health & Social Care Trust | 9 | 10 | 11 | 11 |
| NI TOTAL | 61 | 70 | 64 | 93 |
| NI community TOTAL | 50 | 42 | 38 | 36 |

Appendix A

Table 6: Quarterly rate of *C. difficile* reports in patients aged two years and over, by hospital, April 2018 – March 2019.

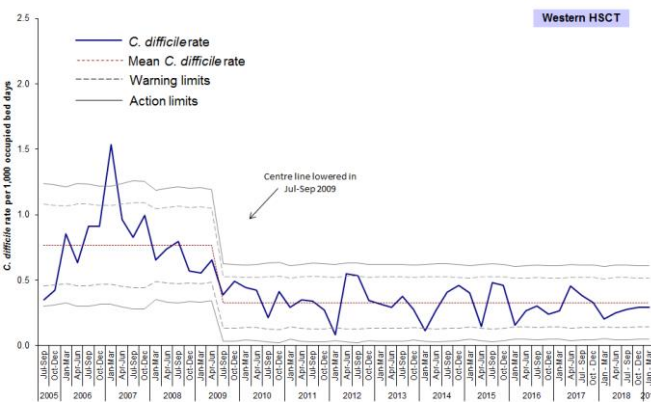
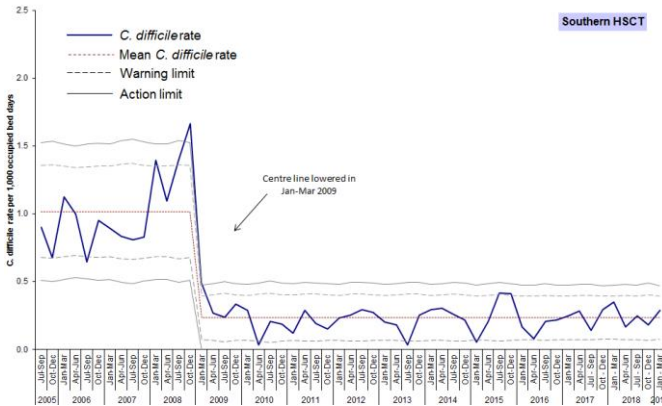
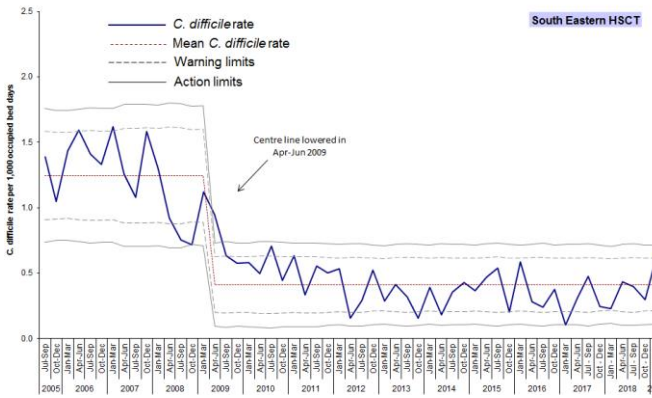
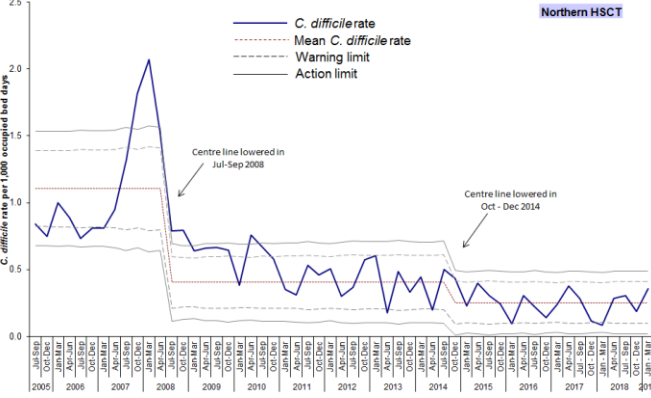
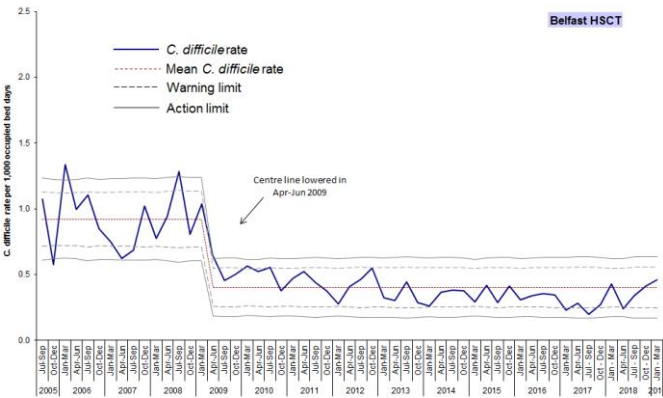
| Hospital | Apr - Jun 2018 | Jul - Sep 2018 | Oct - Dec 2018 | Jan - Mar 2019 |
|---|----------------|----------------|----------------|----------------|
| | Rate | Rate | Rate | Rate |
| Belfast City Hospital | 0.185 | 0.221 | 0.311 | 0.423 |
| Mater Infirmorum | 0.326 | 0.224 | 0.162 | 0.430 |
| Musgrave Park Hospital | 0.250 | 0.000 | 0.131 | 0.186 |
| NICCO (formerly at Belvoir Park) | 0.189 | 0.000 | 0.372 | 0.184 |
| Royal Group of Hospitals | 0.245 | 0.296 | 0.263 | 0.247 |
| Belfast Health & Social Care Trust | 0.242 | 0.225 | 0.247 | 0.296 |
| Antrim Area Hospital | 0.206 | 0.286 | 0.129 | 0.225 |
| Causeway Hospital | 0.294 | 0.292 | 0.118 | 0.474 |
| Dalriada Hospital | 0.000 | 0.000 | 0.000 | 0.000 |
| Mid Ulster Hospital | 0.000 | 0.000 | 0.545 | 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 | 0.000 | 0.264 | 0.546 |
| Northern Health & Social Care Trust | 0.195 | 0.241 | 0.135 | 0.282 |
| Ards Hospital | 0.587 | 0.000 | 0.000 | 0.000 |
| Downe Hospital | 0.267 | 0.837 | 0.279 | 0.262 |
| Lagan Valley Hospital | 0.574 | 0.316 | 0.141 | 0.555 |
| Ulster Hospital | 0.359 | 0.263 | 0.224 | 0.480 |
| South Eastern Health & Social Care Trust | 0.384 | 0.294 | 0.212 | 0.463 |
| Craigavon Area Hospital | 0.215 | 0.214 | 0.104 | 0.284 |
| Daisy Hill Hospital | 0.065 | 0.063 | 0.247 | 0.121 |
| Lurgan Hospital | 0.000 | 0.000 | 0.000 | 0.232 |
| South Tyrone Hospital | 0.324 | 0.322 | 0.313 | 0.334 |
| Southern Health & Social Care Trust | 0.167 | 0.164 | 0.145 | 0.240 |
| Altnagelvin Area Hospital | 0.183 | 0.479 | 0.260 | 0.321 |
| Omagh Hospital | 0.334 | 0.000 | 0.000 | 0.000 |
| South West Acute Hospital | 0.168 | 0.115 | 0.326 | 0.333 |
| Waterside Hospital | 0.000 | 0.000 | 0.359 | 0.554 |
| Western Health & Social Care Trust | 0.168 | 0.301 | 0.276 | 0.328 |
| NI TOTAL | 0.233 | 0.241 | 0.210 | 0.316 |

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

| Trust | Apr - Jun 2018 | Jul - Sep 2018 | Oct - Dec 2018 | Jan - Mar 2019 |
|--|----------------|----------------|----------------|----------------|
| | Episodes | Episodes | Episodes | Episodes |
| Belfast Health & Social Care Trust | 29 | 30 | 33 | 40 |
| Northern Health & Social Care Trust | 13 | 16 | 9 | 19 |
| South Eastern Health & Social Care Trust | 24 | 18 | 13 | 28 |
| Southern Health & Social Care Trust | 10 | 10 | 9 | 15 |
| Western Health & Social Care Trust | 10 | 18 | 17 | 20 |
| NI TOTAL | 86 | 92 | 81 | 122 |
| NI community TOTAL | 57 | 50 | 43 | 50 |

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 |